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# INDUSTRIAL DEVELOPMENT

# GLOBAL REPORT 1996

UNIDO

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

266 p.
tables
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diagrams

# INDUSTRIAL DEVELOPMENT

## *GLOBAL REPORT 1996*

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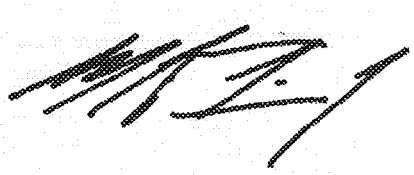
# Preface

World industrial activity continued its upward trend in 1995, recording growth rates of 3.8 per cent in manufacturing value added (MVA) and of 3.0 per cent in gross domestic product (GDP). Human-capital-intensive industries, which achieved impressive growth rates in 1995 compared with those of labour-intensive industries, are gaining dominance in world shares of MVA. Although developing countries as a group increased their share of world MVA to 20 per cent in 1995, the results achieved at the regional and country level have been uneven. South-East Asia including China continued to perform impressively, while sub-Saharan Africa remained marginalized. The performance of the economies in transition was also mixed: early reformers with sound macroeconomic policies recorded impressive growth in MVA, whereas MVA continued to decline in countries that were slow to implement economic reform.

The global economy of the 1990s differs enormously from that of earlier decades. Globalization, the centrepiece of the process of change in the 1990s, has led to much greater interdependence in the world economy. On the one hand, it has provided tremendous opportunities for trade and much larger inflows of foreign direct investment with associated new technologies, skills and market access for developing countries and economies in transition. On the other hand, there is a threat that least developed countries (LDCs) and African countries in particular will be marginalized even further, and will be unable to integrate fully into the global economy and enjoy its benefits. The major challenge of the 1990s is, therefore, how to sustain the global economy and at the same time integrate new actors—such as the economies in transition, African countries and LDCs.

The central theme of *Industrial Development Global Report 1996* is sustainable industrial development and competitiveness. The *Report* highlights the opportunities and challenges which globalization presents to both developing countries and the industrialized world. It seeks to identify the key issues confronting policy makers as they strive to ensure that their countries will be able to compete successfully and to achieve full integration into the global economy. Against this background, the *Report* analyses the impact of globalization on the different regions, and focuses attention on the major constraints that beset developing countries, especially in terms of technological capabilities and innovation, human resource development and the impact of industry on the environment. A special feature of the *Report* is the identification of appropriate policies and other responses that policy makers may wish to consider as a means of enhancing industrial competitiveness and overcoming the constraints encountered in striving to achieve the above-mentioned goals. The *Report* emphasizes that progress is within reach even for the most disadvantaged countries, in particular those in Africa and LDCs.

UNIDO has responded to the challenges facing developing countries by initiatives taken in its recent reform process, and by refocusing its activities and services on the basis of clear objectives and priorities. In particular, it has taken on a new and stronger role as a global forum for industry. In the context of the recent United Nations system-wide initiative on Africa, UNIDO has also developed the Alliance for Africa's Industrialization, a special programme designed to provide urgently needed support for Africa's industrialization efforts. By such means, UNIDO has reaffirmed its commitment to respond directly to the needs of Member States, and to extend its support to those countries most in need of assistance.



MAURICIO DE MARIA Y CAMPOS
*Director-General*

*Industrial Development Global Report 1996* was prepared by the Studies and Research Branch of UNIDO as an annual review of world industrial developments. Under the supervision of Jang-Won Suh, the team which prepared the *Report* was led by George Assaf and comprised Chin-Pen Chua and Ritu Kumar. A number of experts were consulted and provided valuable inputs for the preparation of this *Global Report*. Contributions were received from Robert Ayres, Peng-Lim Chee, Edward Chen, John Henley, Jin-Ho Jeong, Colin Kirkpatrick, Michael Mortimore, Herman Muegge, Peter Nunnenkamp, Se-Hark Park, Sueo Sekiguchi, Francisco Sercovich, Elfatih Shaaeldin and Byung-Nak Song.

Bruno Dissmann and Gerhard Margreiter prepared the statistical annex and were responsible for the short- and medium-term forecasts. Kee-Yung Nam assisted in the preparation of tables and figures contained in the *Report*. Maria Fermie provided assistance in preparing box articles and finalizing the text for publication.

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# Explanatory notes

The following terms and symbols have been used throughout the report:

References to dollars ($) are to United States dollars, unless otherwise stated.

References to tonnes are to metric tons, unless otherwise specified.

A slash (1980/81) indicates a crop year or a financial year.

The term "billion" signifies a thousand million.

Countries are referred to by the names that were in official use at the time the relevant data were collected. Where the designation "country or area" appears in the heading of tables or figures, it covers countries, territories, cities or areas.

In some tables and figures, the designation "developed" or "developing" economies is intended for statistical convenience and does not necessarily express a judgement about the stage reached by a particular country or area in the development process.

The term "NIEs" is used extensively to describe developing economies, be they countries, provinces or areas, where there has been particularly rapid industrial growth. It does not imply any political division within the ranks of developing countries and is not officially endorsed by UNIDO.

Industry categories referred to in this publication are based on Revision 2 of the International Standard Industrial Classification (ISIC). References to ISIC codes are accompanied by a descriptive title (for example, ISIC 323--"Manufacturing of leather and products of leather, leather substitutes and fur, except footwear and wearing apparel"). Considerations of space, however, require a shortening of this description (for example, ISIC 323 may be referred to simply as "Leather and fur products"). In some cases, ISIC categories have been aggregated and the descriptive titles adjusted accordingly.

The following symbols and terms have been used in tables:

Two dots (..) indicate that data are not available or are not separately reported.

A dash (--) indicates that the amount is nil or negligible.

Totals may not add precisely because of rounding.

**Technical notes for tables**

Data on gross domestic product (GDP), manufacturing value added (MVA) and labour productivity have been compiled by the Studies and Research Branch of UNIDO on the basis of existing international data sources. Data are disaggregated by main regions according to United Nations geographical groupings and by product group according to the ISIC system of classification.

GDP and MVA are valued in national currencies at 1990 prices, and then converted to 1990 United States dollar exchange rates. Regional totals are computed by aggregating the corresponding figures for each individual country.

Growth rates are based on data in constant prices. Growth rates for time periods exceeding one year are average annual growth rates. See also technical notes to the statistical annex to the present *Global Report* for details concerning the definition and methodology used.

Shares referring to time periods exceeding one year are average annual shares.

Historical data in the present *Global Report* may differ from those contained in previous *Global Reports* because of constant updating as more reliable data become available or because of changes in country reporting.

* * *

The following abbreviations and acronyms appear in this publication:

| | |
|---|---|
| ASEAN | Association of South-East Asian Nations |
| CAD | computer-aided design |
| CAM | computer-aided manufacturing |

| | |
|---|---|
| CFC | chlorofluorocarbons |
| CMEA | Council for Mutual Economic Assistance |
| CNC | computerized numerical control |
| EOI | export-oriented industrialization |
| FDI | foreign direct investment |
| GATT | General Agreement on Tariffs and Trade |
| GDP | gross domestic product |
| GNP | gross national product |
| HRD | human resource development |
| IMF | International Monetary Fund |
| IPCC | Intergovernmental Panel on Climate Change |
| ISIC | International Standard Industrial Classification of all Economic Activities |
| ISO | International Organization for Standardization |
| KIST | Korea Institute of Science and Technology |
| LDCs | least developed countries |
| MVA | manufacturing value added |
| NAFTA | North American Free Trade Agreement |
| NIEs | newly industralizing economies |
| ODA | official development assistance |
| OECD | Organisation for Economic Co-operation and Development |
| OPEC | Organization of Petroleum Exporting Countries |
| R&D | research and development |
| SDF | Skill Development Fund |
| SITC | Standard International Trade Classification |
| SMI | small- and medium-scale industries |
| SPC | stored programme control |
| TNCs | transnational corporations |
| UNDP | United Nations Development Programme |
| UNEP | United Nations Environment Programme |
| VITB | Vocational and Industrial Training Board |
| WTO | World Trade Organization |

This report is based on information available as of May 1996.

# Glossary

| | |
|---|---|
| border tax adjustment: | imposition of a tax on imports or a tax rebate on exports to offset the incidence (on the producer or the consumer) of a domestic tax on pollution or environmental damage. |
| capabilities: | organized sets of skills. While skills are mostly vested in individuals, capabilities rest mostly on organizations. Capabilities entail interpersonal and organizational ingredients in addition to individual skills. |
| compliance costs: | cost to industry of complying with environmental regulations. |
| dose response functions: | functions establishing a quantitative relationship between the extent of physical damage to environmental assets (air and water pollution) and health impacts. |
| eco-labelling: | voluntary use of labels to inform consumers that a product has been determined to be environmentally more friendly than other products of the same category. |
| eco-tax: | tax on pollution or other environmentally degrading activity. |
| environmental externalities: | social or environmental costs (and benefits) of economic activity which are manifested in the form of pollution or other environmental degradation (or in improvements), and which are not accounted for in production costs. |
| environmentally friendly technologies: | label used for cleaner production processes and waste minimization techniques. |
| flying-geese pattern: | largely Asian phenomena whereby many Asian countries followed the trade and investment pattern of the more dynamic leaders in the region, i.e. Hong Kong, Republic of Korea, Singapore and Taiwan Province of China. |
| Gini coefficient: | measure of the relative degree of inequality. The coefficient ranges from 0 to 1; zero is total equality and 1 is total inequality. |
| greenhouse effect: | build-up in the atmosphere of pollutant gases which block heat coming from the earth, sending the heat back to the earth's surface rather than allowing it to escape into space. |
| market-based instruments: | policy measures that establish the link between the environment and the scarcity and price of natural resources. In doing so they provide industry with economic incentives to improve environmental performance. |
| quality circle: | concept of quality control which involves a group of employees, usually from one area of plant or company activity, who meet periodically to identify and solve problems pertaining to quality, productivity, safety, plant housekeeping etc. |
| skills: | abilities to carry out certain tasks. Skill formation proceeds from two sources, namely, experience, which is acquired through practice or learning by doing, and education and training. |
| tradable permits: | permits to emit a pollutant which may be traded amongst polluters, creating a market for the pollutant. |

firm. The national economy requires close coordination between the private sector and Government to ensure an enabling environment for industrial development, in particular for human resource and technological development.

While the defining features of globalization have become visible, the implications of the globalization process for the future industrialization and economic development of developing countries and economies in transition are less easily identified and understood. *Industrial Development Global Report 1996* contends, however, that the globalization process has the potential to accelerate industrialization in developing countries and economies in transition, as well as to bring considerable benefit to developed countries. To fulfil its potential, the globalization process must be effectively managed at both the national and international levels, and the social and economic costs of adjustment policies designed to promote closer integration into the world economy must be identified and alleviated. *Global Report 1996* therefore highlights the challenges and opportunities presented by globalization, and seeks to identify the key issues confronting policy makers as they strive to achieve the full benefits of globalization through successful integration into the global economy.

## Features of globalization[1, 2]

The internationalization of economic activities is not a new phenomenon, earlier decades having seen a steady growth in international trade, aided by successful rounds of multilateral tariff liberalization. The recent trend towards international integration is qualitatively different, however, in that it has been characterized by the intensification of economic linkages that transcend national boundaries, often reflecting strategic behaviour at the firm level. Business operations are conducted in an increasingly borderless environment, in which production, technology and marketing are linked in globally integrated value-added chains.

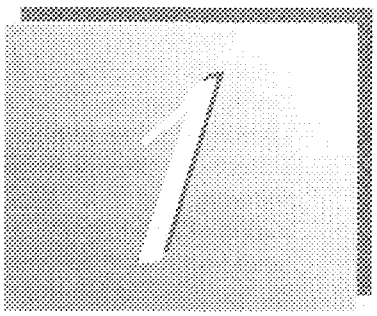
The globalization of manufacturing has been spurred by a number of interrelated factors, including: the changing character of international investment and changes in the forms of corporate activity, organization and relationships; improvements in transport and communications which have reduced the economic distance between countries; technological advances in production and processing methods; and the adoption of market liberalization and deregulation policies. The combination of these factors has made the global integration of production, technology and marketing an increasingly dominant feature of the world economy over the last decade and a half.

## *Enhancing competition and the role of the private sector through trade liberalization*

International trade policy has had a major impact on the process of industrialization in developing countries. The general views regarding the choice of trade policies that would be the most suitable for the promotion of industrialization at different stages of development have, however, varied considerably. Industrialization strategies based on import substitution with a limited degree of openness to international trade were dominant for several decades. Since the 1980s, however, many developing countries have adopted development strategies geared to market reforms, including the reduction of trade barriers and the opening-up of the domestic economy to foreign competition. A similar process of trade liberalization has been the cornerstone of almost all the reform programmes adopted in the economies in transition.

At the same time, foreign investment regulations have been relaxed in many countries, and policies aimed at attracting foreign investment inflows have been implemented. The deregulation of domestic markets and the privatization of State-owned assets have also contributed to the tremendous increase in economic liberalization which has taken place in most economies. As a result, the private sector, buoyed by more open and deregulated economies, is becoming the major force in industrial development. Privatization is also firmly on the policy agenda of developing countries and economies in transition.

The removal or reduction of institutional barriers to trade and investment flows across a wide range of countries has received further impetus from multilateral and regional agreements to enhance market access. The agreements concluded in the Uruguay Round of multilateral trade negotiations comprise a series of far-reaching decisions on global competition and trade liberalization which will have a major impact on all trading nations. Over the long term, the agreements, which involve a significant reduction in tariffs and the promotion of market access arrangements for various products, can be expected to result in a substantial increase in trade and integration at the global level. The proliferation and enlargement of regional arrangements, including the expansion of the European Union and the establishment of new cooperative frameworks such as the North American Free Trade Agreement (NAFTA) and the Asia-Pacific Economic Cooperation (APEC) forum, has meant that almost two thirds of total world exports are covered by such arrangements.



# Globalization: challenges and opportunities for industrial development

The major changes taking place in the pattern of industrial development throughout the world have intensified the globalization of production and especially of services. The liberalization of trade, capital, services and technology flows has facilitated the process of change, and led to increasing integration of production systems across national boundaries. The past decade and a half have thus seen a progressive strengthening of international economic relationships.

Globalization, sustained by price and trade liberalization, has become the driving force of economic growth in many regions of the world. In Europe and North America, it has rejuvenated industrial development and brought heightened competitive pressures to bear across a wide range of industries. In Asia, it has heralded an unprecedented period of high economic growth and export competitiveness. In Latin America, it has signalled an abrupt change in economic approach from inward to outward orientation. In Africa, where liberalization has not progressed as far as in other regions, it has at least established a benchmark from which further progress can be made. In the economies in transition, it has provided dramatic confirmation of a major doctrinal shift from the past command economic system to a competitive market economy.

Globalization is thus affecting the industrial development process of national economies in fundamental ways. Full participation in the global economy enables countries, enterprises and other economic actors to seize the new opportunities and reap the benefits of globalization. Without basic developmental capabilities and the appropriate policy framework, however, economic actors will find themselves unable to compete successfully in the globalization process, and the process itself will inevitably lead to growing disparities. Globalization, therefore, presents policy makers in developed and developing countries and in the economies in transition with new opportunities and challenges. It also poses special challenges linked to structural and policy weaknesses in African countries and least developed countries (LDCs).*

In the globalized world of today, the test of industrial performance lies in measuring the capacity of firms to meet benchmark levels of competitiveness set by world markets. Benchmarking is a dynamic process which should reflect the capacity of an economic system to build up resilience in the face of adverse economic trends. International competitiveness depends less on resource costs and price, and more on the quality of human resources and the capacity for absorbing and using new technologies. Equally, competitiveness is determined by the global linkages of an enterprise with other economic agents, including its suppliers of goods and services and its customers, and with financial, communications, scientific, research and technological networks.

Building systems of competitiveness therefore demands continuous development of the network of contacts that define the domain of activity of a

*The designation "African countries and LDCs" refers to sub-Saharan African countries, not all of which are LDCs, and LDCs elsewhere.

firm. The national economy requires close coordination between the private sector and Government to ensure an enabling environment for industrial development, in particular for human resource and technological development.

While the defining features of globalization have become visible, the implications of the globalization process for the future industrialization and economic development of developing countries and economies in transition are less easily identified and understood. *Industrial Development Global Report 1996* contends, however, that the globalization process has the potential to accelerate industrialization in developing countries and economies in transition, as well as to bring considerable benefit to developed countries. To fulfil its potential, the globalization process must be effectively managed at both the national and international levels, and the social and economic costs of adjustment policies designed to promote closer integration into the world economy must be identified and alleviated. *Global Report 1996* therefore highlights the challenges and opportunities presented by globalization, and seeks to identify the key issues confronting policy makers as they strive to achieve the full benefits of globalization through successful integration into the global economy.

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At the same time, foreign investment regulations have been relaxed in many countries, and policies aimed at attracting foreign investment inflows have been implemented. The deregulation of domestic markets and the privatization of State-owned assets have also contributed to the tremendous increase in economic liberalization which has taken place in most economies. As a result, the private sector, buoyed by more open and deregulated economies, is becoming the major force in industrial development. Privatization is also firmly on the policy agenda of developing countries and economies in transition.

The removal or reduction of institutional barriers to trade and investment flows across a wide range of countries has received further impetus from multilateral and regional agreements to enhance market access. The agreements concluded in the Uruguay Round of multilateral trade negotiations comprise a series of far-reaching decisions on global competition and trade liberalization which will have a major impact on all trading nations. Over the long term, the agreements, which involve a significant reduction in tariffs and the promotion of market access arrangements for various products, can be expected to result in a substantial increase in trade and integration at the global level. The proliferation and enlargement of regional arrangements, including the expansion of the European Union and the establishment of new cooperative frameworks such as the North American Free Trade Agreement (NAFTA) and the Asia-Pacific Economic Cooperation (APEC) forum, has meant that almost two thirds of total world exports are covered by such arrangements.

Sweeping reforms in the external trade regime and a renewed recognition of the importance of integration with the world economy have therefore contributed to better export performance and higher economic growth in the developing countries as a whole.

## *Major role of increased international capital flows*

The significant increase in international capital flows in recent years has been a distinctive feature of globalization. Since the mid-1980s, there has been a surge in international capital flows and a growing integration of international financial markets. For example, global inflows of foreign direct investment (FDI), which totalled 52 billion United States dollars (US$) in 1980, had risen dramatically to $242 billion by 1994, as a result of improvements in economic policies and performance and competitive pressures on enterprises in many countries. The virtual abolition of exchange controls in industrialized countries and the liberalization of exchange regulations and capital controls in many developing countries and economies in transition have encouraged both the expansion and the integration of international financial flows. The growth of FDI and portfolio investment has in turn allowed firms greater national and worldwide access to capital to finance further development and globalization.

The 1990s have also been characterized by radical changes in the composition of capital flows to many developing countries. In contrast to earlier periods that were dominated by official aid flows and commercial bank lending to public sector borrowers, recent capital flows have increasingly consisted of private direct investment and portfolio flows to private sector borrowers. By 1994, private flows represented 57 per cent of net resource flows to developing countries, a reversal of the situation in the 1980s, when private financing accounted for only one third of external financing.[3]

Globalization of capital markets has been facilitated by dramatic reductions in the cost of processing and disseminating information. Internationalization of production is greatly enhanced by commercial services related to financial flows, including brokerage, insurance, consultancy and professional services, which have been rising significantly. The share of commercial services in total trade (for countries not members of the Organisation for Economic Co-operation and Development (OECD) for which data are available), increased from 1.7 per cent in 1980 to 19.1 per cent in 1993; FDI in services industries in developing countries has shown a 14 per cent annual increase in recent years.[4]

Globalization and liberalization have accelerated the development of financial markets in developing countries and economies in transition, expanded the economic and financial space available to firms and investors, and fostered growth in the private sector. The process of change has not been painless, however, as vividly demonstrated by the recent financial crisis in Mexico. New data-processing technologies have integrated global markets, while at the same time facilitating the rapid transmission of exogenous shocks and currency disturbances to vulnerable developing countries.

Developing countries and economies in transition have experienced a significant increase in inflows of FDI in recent years. More than a third of total world FDI currently goes to developing countries, compared to 20 per cent in the first half of the 1980s. FDI flows to economies in transition reached $11 billion in 1993, much of the inflow being invested in privatized manufacturing enterprises. The inflow of FDI has contributed to the growth of manufacturing exports, which have increased much more rapidly than total manufacturing output.

Accelerated FDI as a prominent feature of globalization reflects the increasing importance of integrated cross-border value-added activities of transnational corporations (TNCs). The emergence of more flexible approaches to production, combined with the escalating costs of research and development (R&D) and shorter product life cycles, has forced firms to search for wider markets and to combine their competitive advantage with those of other firms in strategic alliances and inter-firm networks. Concentration by firms on exploiting their core competencies—that is, their main line of business expertise—has required the forging of new relationships with partners in the private and the public sector. The corporate system of affiliates contributes to the competitiveness of a firm in two ways. First, it provides each affiliate with access to competitiveness-enhancing resources—capital, R&D capacity and technological, organizational and managerial skills. Secondly, it provides access to new and larger markets. The conclusion of alliances with other firms enables companies to acquire new product or process technologies, to share the costs, to spread the risks of high capital outlays, particularly for R&D, and to gain access to new distribution channels and markets.

Thus, FDI is essential to the establishment or rebuilding of competitive market structures by developing countries and economies in transition. It provides much-needed managerial skills, know-how, new technologies and, most importantly, market access. It can therefore be an important catalyst for sustained economic growth.

### *Reinforcement of globalization by means of technological innovation*

Underlying and reinforcing the globalization process have been technological advances in biotechnology, micro-electronics and new materials, as well as the new organizational structure of enterprises. New technologies have led to the introduction of flexible production systems in the context of mass customization, a new form of industrial organization which provides for large-scale production while at the same time meeting consumer demand for quality and diversity. Mass customization is further characterized by the use of flexible machinery, often applying micro-electronics-based technologies, and by production in small customized batches in response to specific consumer requirements. The imperatives of competitiveness have led many firms to reduce the emphasis on their own value added to final products, and to concentrate on their core competencies. They have thus contracted out, or "outsourced", non-core value-added activities—such as the production of components and the provision of services. This has led to new and innovative subcontracting possibilities with small- and medium-scale industries (SMIs) in developing countries and economies in transition, a process which should result in a further extension of global manufacturing networks. The requirements of production in small customized batches—particularly the flexible input and delivery schedules—and the new emphasis on quality, reliability and zero defects have made it necessary for firms to develop close relationships with their suppliers, both domestic and foreign.

### *Trade and integration supported by reductions in transport and communication costs*

The export prospects of developing countries and of the economies in transition are significantly determined by the economic distance between them and by the related costs. After decades of gradually declining related costs, the economic distance between key markets has been considerably reduced in the 1990s by sharply falling costs of and major improvements in the reliability and coverage of international transport and telecommunications, resulting in closer interaction between buyers and sellers in the pursuit of international competitiveness.

Recent technological trends have highlighted the importance of telecommunications for enterprises seeking to establish and maintain their international competitiveness. New technologies permit a wider range of products, the sale of which requires more detailed market information. Greater efficiency and lower telecommunications costs have been the basis on which the interaction between markets, consumers, producers and suppliers has grown and contributed to the global interlinking of manufacturing activity and financial markets.

## Central theme and scope of *Global Report 1996*

Globalization has emerged in the 1990s as the major driving force of the world economy, triggering a fundamental shift in the roles of Governments, supporting institutions and private enterprise. Cooperation between those entities, stimulated by cross-border corporate alliances, technological advances and domestic policies designed to promote development of the private sector, is essential to ensuring successful integration into the global economy. Greater coordination is also required between the private sector and Governments in order to enable firms to reap the benefits of their core competencies and to support government efforts to create a competitive environment and to promote sustainable industrial development.*

*Global Report 1996* focuses on the challenges and opportunities presented by globalization to developing countries and economies in transition, particularly in terms of human resource development (HRD), technological capabilities, sustainable industrial development and international cooperation.

The central message of the *Report* is that globalization of markets for goods, services, labour, capital, technology and other resources, if managed appropriately, can lead to increased global welfare. But such a process also entails globalization of related problems, a possible accumulation of inhibiting factors and a heightening of disparities, unless a common understanding of the concept of global development is reached. Such a concept and a commitment to a more sustainable and equitable pattern of development are essential to the stability and viability of the new world order established in the 1990s, without which a revival of trade wars, the breakdown of alliances, social and political conflict and growing demographic pressures could ensue.

Developed and developing countries alike are confronted with a major challenge which will

*It is important to point out what is meant by cooperation in this context. Government and the private sector clearly have two completely different responsibilities. Cooperation is the result of an awareness by both parties of the need for rational, mutually beneficial behaviour.

persist into the next century. The twofold challenge consists in: narrowing the income gap between the industrialized North and the developing South so as to ensure sustainable economic and social development on a global scale; and tackling the fast-growing differential between social and economic standards in the newly industrializing economies (NIEs) of Asia and Latin America, on the one hand, and those in LDCs, particularly in sub-Saharan Africa, on the other. Given the dynamics of the globalization process, a failure to integrate into the global economy the small, technologically less advanced economies, with a limited industrial base, would perpetuate the widening gap between developed and developing countries, and could lead to a worsening of the political and social climate and to greatly increased calls for external assistance.

Achieving the full benefits of the globalization process in many countries will depend crucially on the adoption of appropriate domestic policies and the granting of a lead role to the private sector. That is particularly true in the case of African countries and LDCs faced with the threat of marginalization in the globalization process. External assistance should therefore strongly support the development and implementation of such policies.

The obstacles to progress are not insurmountable, but developing countries are not always in a position to build up, by themselves, a capability to participate in the global economy. To allay their fears of globalization and donor fatigue, they will need a renewed commitment by the international community to the provision of significant levels of technical and investment cooperation. The introduction of improved economic policies and a better business environment would facilitate both the integration of developing countries into the global economy and their enjoyment of its benefits (see box 1).

## Net benefits of globalization are still controversial

**Box 1. Globalization and income disparities**

Globalization is far from being uncontroversial. It is likely to produce national winners as well as losers. Traditionally, critics have argued that integration would increase international inequality, thus enabling the "centre" to gain at the expense of the "periphery"—the centre being the developed countries and the periphery the developing countries and, to some extent, the economies in transition. Beginning with the debate over the new international economic order during the 1970s, it has been argued that the economic progress of developing countries would be retarded by their increased participation in international trade. More recently, the same argument has been advanced from the countries of the centre, where it is claimed that the growth of the manufactured exports of developing countries has caused job losses in western Europe and North America, contributing to the immiserization of the North. Indeed, unemployment is highest among unskilled workers and in particular regions. The nature and extent of unemployment in western Europe is creating major political and social problems, as recent developments in France and Germany vividly illustrate. There have also been significant regional differences in growth within both developed and developing countries during the period of increasing globalization. The richest regions of Greece, Ireland, Portugal and Spain (apart from Madrid) have lower incomes than the poorest regions (except for Wales and the Mezzogiorno in Italy) of all other member States of the European Union. Regional inequality in the European Union is becoming a major problem. Unemployment rates in Ireland, Spain and the Mezzogiorno reached 20 per cent in the mid-1980s, and have remained high or increased.

It is possible to predict growing world inequality resulting from the globalization process. For example, the per capita incomes of the 10 least developed regions of the European Union are less than half of those of the regions of the core countries of the European Union, including Denmark, Germany, the Netherlands and Northern Italy. In addition, there appears to have been a steady worsening in the distribution of global income in recent decades. Table 1 below shows that the Gini coefficient of world real gross domestic product (GDP) per capita (measured in terms of purchasing power parity) rose between 1960 and the end of the 1980s. Table 1 also provides estimates of the range of per capita world incomes, measured as the share of world income received by the richest 20 per cent of the population divided by the share received by the poorest 20 per cent. The figures show that the disparity between the richest and poorest 20 per cent of the world population increased from a ratio of 11.1 to 1 in 1960 to 17.1 to 1 in 1989. The figures confirm, therefore, that growth has been unbalanced at the level of the global economy, and that the benefits of global growth have not spread evenly to the poorest countries.

The increasing trend of recent years towards regional trading blocs—in East Asia, the European Union and North America, in particular—has raised fears of economic losses for countries excluded from access to the regional markets. Although the evidence is not conclusive, it appears that between 1990 and 1994, intraregional trade in Asia, Latin America and North America increased faster than extra-regional trade, while the opposite was the case in central and eastern Europe, western Europe (the European Union) and the countries of the former Soviet Union.* Moreover, while the agreements reached in the Uruguay Round are a major step forward in the integration of world trade, much remains to be done to strengthen the world trading system and make it more transparent and fair. The potential gains to be derived from increased market access are likely to be great, but unevenly distributed. In the short term, the winners will generally be those countries which have undertaken large-scale trade liberalization, which have more competitive products or industries, and which belong to the major trading blocs. The losers—mainly African, Caribbean and Pacific countries and LDCs—will be those countries which have lost their preferential access to markets, or which have less competitive products or industries.

At the global level, the distribution of FDI is heavily concentrated in a small number of developing countries, the 10 largest recipients accounting for 88 per cent of all FDI flows to developing countries in 1994. On a regional basis, Asia accounts for more than a half of FDI, and sub-Saharan Africa for about 3 per cent.

To add some perspective on the above, even if FDI flows gain further momentum and are more evenly spread among developing countries, the bulk of total capital formation will still have to come from domestic investors and savings. For regions such as Africa, where savings rates are low, meeting this requirement for domestic investment and capital formation is problematic, and higher overall growth rates will therefore be difficult to attain.

Global FDI flows have indeed been rising since the mid-1980s, but in recent years they have accounted for only a small percentage of total investment. For example, in 1992 they provided about 10 per cent of total investment.**

*See "World trade expanded strongly in 1995 for the second consecutive year", World Trade Organization press release, 22 March 1996, and Colin Kirkpatrick, "Regionalization, regionalism and East Asian economic cooperation", *The World Economy*, vol. 17, No. 2 (1994), pp. 191-203.

**See Guy P. Pfeffermann and Andrea Madarassy, *Trends in Private Investment in Developing Countries*, Discussion Paper No. 14 (Washington D.C., World Bank, 1992), p. 2.

On the other hand, since 1986 the share of domestic private investment in total investment has remained stable at about 60 per cent. This suggests that domestic private investment is the most important source of investment in developing countries. The situation is similar in the economies in transition, where there is increasing evidence that private investment is the fastest-growing component of total investment. In Poland, for example, the rate of growth of private investment is twice the rate of public investment (5.8 per cent compared with 2.2 per cent in 1993).*

Thus, while the importance of FDI for the industrial development of developing countries and economies in transition is emphasized in the *Report*, it is also stressed from the outset that industrial as well as other investments will have to be financed predominantly from domestic sources, and that the role of foreign capital, when available, is only to supplement national efforts.

The positive consequences of globalization and liberalization appear obvious, especially in the long run. It remains uncertain, however, whether the benefits of globalization will, in the short run, necessarily outweigh its negative effects on employment and living standards, both in developed countries and in developing countries and economies in transition.

Table 1. Distribution of world income, 1960-1989

| *Year* | *Gini coefficient*[a] | *Income ratio of top 20 per cent to bottom 20 per cent of the world population* |
|---|---|---|
| 1960 | 0.44 | 11.1 |
| 1970 | 0.50 | 13.9 |
| 1980 | 0.53 | 16.0 |
| 1989 | 0.55 | 17.1 |

*Source:* K. Griffin and A. R. Kahn, *Globalization and the Developing World: An Essay on the Structural Dimensions of Development in the Post Cold War Era* (Geneva, United Nations Research Institute for Social Development, 1992).

[a]The Gini coefficient is a measure of the relative degree of inequality. The coefficient ranges from 0 to 1. Zero is total equality, 1 is total inequality.

*Note:* The distribution reflected was calculated by assuming that within each country every person received the per capita income of that country. In other words, intra-country inequalities in the distribution of income were ignored. The effect of this assumption is to understate the degree of global inequality.

*European Bank for Reconstruction and Development, *Transition Report 1995* (London, 1995), p. 73.

The challenge of globalization in the 1990s consists in finding a way to maintain and expand the global economy and to integrate new actors, such as the economies in transition, African countries and LDCs, while at the same time increasing or at least maintaining living standards and employment levels in the industrially advanced countries in order to prevent a protectionist backlash. It needs to be reiterated that globalization can yield major benefits to all countries—developed, developing and those with economies in transition. It is not a zero-sum game; developed countries also derive major benefits from trade and an enhanced international division of labour with developing regions.

The international community must not lose sight, however, of the daunting challenges presented by globalization to policy makers and the private sector, particularly in economically weaker developing countries. The challenges include the formulation of economic strategies and policies to enable those countries to reap the benefits of participating in the globalization of the world economy. As a contribution to the search for the best way to meet those challenges, *Global Report 1996* deals extensively with the topics outlined below.

## *Globalization and regional trends*

The process of globalization has not been smooth, nor have its benefits been spread widely among developing countries and economies in transition. TNCs have increasingly developed intra-firm networks and alliances on a regional basis, using a regional headquarters for the coordination of operations. As a result, the clustering of FDI around major regional locations has become more pronounced in recent years. Relatively few manufacturing activities or firms are truly globalized (that is, operating in all or most regions of the world), and a large part of the developing world has not been able to derive significant benefits from the resource flows.

The fact that developing countries are not a homogeneous group sharing equally in the benefits of integration and interdependence could be overlooked as a result of the recent focus on gains from the liberalization of trade and capital markets. Several East Asian countries have expanded at over 8 per cent a year, not only increasing their share of global economic activity, but also creating new market opportunities for other regions, including industrialized countries and economies in transition. At the same time, the share of the poorest countries, particularly those in sub-Saharan Africa and LDCs, has remained insignificant in world terms. The regional impact of globalization in terms of international trade in manufactures, industrial growth and FDI flows is discussed in chapter 2 of the *Report*.

## *Technological capabilities and innovation*

The rapid pace of technological development and innovation and the establishment of new organizational structures in developed countries pose a formidable challenge to developing countries and economies in transition in their efforts to develop new technological capabilities, to innovate and to ensure sustained industrial growth. The emergence of generic technologies, such as micro-electronics, informatics, biotechnology and new materials technology, has significantly changed the nature and scope of industrial competitiveness and the organizational structures at the firm level. The quest for a competitive edge in technological innovation has intensified in all industrial sectors. At the same time, rapid technological development has further concentrated innovative capabilities in the industrialized countries, leading to a growing gap in such capabilities between industrialized and developing countries. The LDCs, in particular, are clearly at a disadvantage in attempting to find a place for themselves in the new global environment of industrial competitiveness.

Chapter 3 of the *Report* outlines various options for achieving and sustaining industrial development in developing countries and economies in transition, particularly African countries and LDCs. Among the options considered is the move away from exports of primary commodities to a strategy based on higher-value-added exports. Such a strategy implies a growth path which integrates labour-intensive industrialization with dynamic growth of the SMI sector.

## *Human resource development*

Skills development forms the most critical determinant of innovative capabilities. Without a critical mass of skilled workers, management and service and research personnel, new technologies can be neither developed nor effectively transferred or diffused. Globalization, liberalization and the introduction of new generic technologies have altered the nature and extent of the demand for industrial skills. New organizational structures and flexible production systems require the development of multi-skilled workers, teamwork and skills characterized by reliability and flexibility. Continuous or life-long education and training is necessary in

order to keep pace with the rapidly shifting technological frontiers of the global economy.

Many developing countries, in particular LDCs, lack the requisite technically trained, multi-skilled labour force. For the economies in transition, the issue is not the level of education and technical and scientific training, which remains high, but rather the fact that many of the technically trained workers were trained on obsolete capital stock, and lack managerial, accounting and modern business skills, especially in marketing, sales and distribution. Chapter 4 of the *Report* highlights the need for and approaches to the enhancement of skills for industrial development in developing countries and economies in transition. The following goals are defined: increasing investment in education and training; enhancing the responsiveness of the education and training system to market requirements; and fostering partnerships between Government and the private sector in order to focus on and provide funding for HRD.

## *Environmental sustainability of industrial development*

Until recently, there has been considerable concern that environmental constraints might limit industrial development, and that industrial development itself might cause significant damage to the environment and to human health. It has now been recognized, however, that industrial development can be compatible with environmental sustainability, provided appropriate technologies, institutions, policy frameworks and incentive structures are developed. Nevertheless, there is still considerable debate about the implications of environmental sustainability for developing countries and economies in transition. Chapter 5 of the *Report* deals with those issues and, in particular, with two important questions:

*(a)* What are the environmental implications of market liberalization and economic policy reform?

*(b)* What are the implications for competitiveness of increased environmental regulation at the national and international levels?

The concern that so-called dirty industries will move to NIEs to avoid more strict environmental regulations and laws in developed countries is discussed. The issue of the cost of introducing environmentally friendly technologies and the implications of eco-labelling schemes for developing countries and economies in transition is also considered.

## *Changing role of government and international cooperation*

The role of government, which once consisted in regulating economic activity, has changed to that of facilitating access to, or providing, the means of ensuring the development and competitiveness of domestic industries, and creating an environment conducive to those ends. The implications of that change are discussed in chapter 6. The new role calls for much greater cooperation and partnership with the private sector and other Governments. It also calls for a more competent and knowledgeable Government which sees the market system as an agent of social good, but recognizes that its prime responsibility is to ensure that the market system performs efficiently.

In the context of globalization, Governments have an important role to play in stimulating investment by spurring domestic savings, in reducing the uncertainty inherent in investment initiatives, in providing a framework for market-based cooperative agreements, in complementing private investment with the necessary infrastructure (physical and financial), in supporting HRD, and particularly in recognizing the complementarities between foreign and domestic investment, and hence the importance of domestic investment for long-term economic development.

The significant impact of globalization on international investment flows and technical cooperation and on the role of UNIDO is emphasized in chapter 6. Despite the undoubted progress made by developing countries and economies in transition, specialized support services on a major scale are still urgently needed in all developing regions. In particular, African countries and LDCs continue to require special attention and support from the international community.

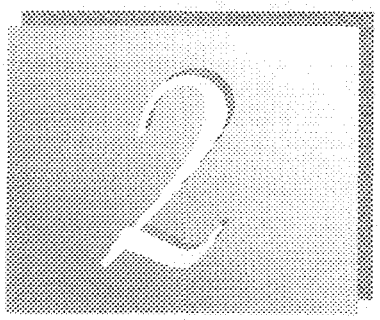
**Notes**

[1]J. Dunning, *Globalization of Business: The Challenge of the 1990s* (London, Routledge, 1994).

[2]C. Oman, *Globalization and Regionalization: The Challenge for Developing Countries* (Paris, Organisation for Economic Co-operation and Development, 1991).

[3]"Total net resource flows to developing countries", OECD press release, 21 June 1995.

[4]*Global Economic Prospects and the Developing Countries* (Washington, D.C., World Bank, 1995).



# Global industrial change: development issues and priorities

## Industrial performance in 1995

While world industrial activity continued to rise in 1995, although at a slower pace, the growth rate of manufacturing value added (MVA), after peaking at 4.8 per cent in 1994, receded to 3.8 per cent, thus making 1995 the third consecutive year of growth since the recession of the early 1990s. MVA growth was in line with global economic performance: the growth rate of world GDP slipped to 2.7 per cent from 3.0 per cent in 1994 (see box 2).

Employment in industry reversed its four-year negative trend to achieve a moderate growth rate of 1.5 per cent in 1995 (see figure 2). The reversal in employment trends applies to both industrialized and developing countries.

In general, MVA growth also slowed at the sectoral level compared with the performance of 1994 (see table 2). In the context of the moderate growth pattern, human-capital-intensive industries such as electrical machinery, transport equipment and professional and scientific goods, which had a combined share of about 23.2 per cent of world MVA in 1995, continued to record reasonable growth rates of, respectively, 4.2, 4.2 and 5.8 per cent. Those growth rates were much higher than the corresponding average growth rates from 1990 to 1994. The major labour-intensive industries—food manufacturing, beverages, textiles and wearing apparel—have also made modest gains in growth, although at lower rates compared with those of human-capital-intensive industries. The four labour-intensive industries, which accounted for only 18.2 per cent of world MVA, recorded an average MVA growth rate of 3.1 per cent for the year. Human-capital-intensive industries are increasingly gaining a dominant share of world MVA at the expense of labour-intensive industries.

### *Slower growth of manufacturing value added in industrialized countries*

The pace of MVA growth in the industrialized countries, which account for more than 75 per cent of world MVA, slowed to 3.4 per cent in 1995 from 4.6 per cent in 1994. Because of their high share of world MVA, the slower pace of growth has considerably weighed down the aggregate performance of world MVA. Slower growth in the industrialized countries was mainly the result of lower demand for industrial goods. The lower demand was due partly to the sharp rise in interest rates in 1994, which had dampened consumer confidence and restrained private consumption and investment, and partly to the marked appreciation of key currencies, notably those of major economies such as Germany and Japan. The appreciation of their currencies has had an adverse impact on the international competitiveness and export performance of those economies.

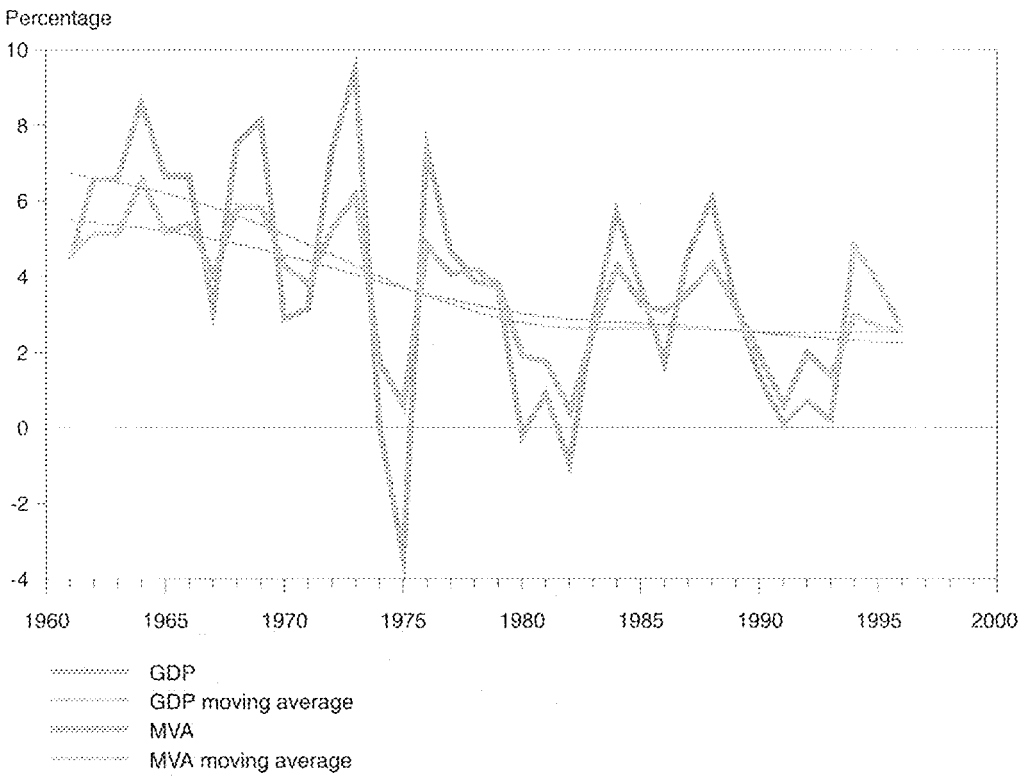
In North America, where about a quarter of total world manufacturing activities are located, the MVA growth rate dropped significantly from 6.1 per cent in 1994 to 3.7 per cent in 1995, mainly as a result of a sharp fall in the MVA growth rate of the United States, which accounts

Strong linkage between GDP and MVA growth

**Box 2. Relationship between world GDP and MVA growth rates**

Total GDP growth is closely interlinked with growth in manufacturing, as can be seen from figure 1. A GDP growth rate in excess of 3 per cent per annum results in a higher MVA growth rate. Likewise, a GDP growth rate lower than 3 per cent per annum results in a lower MVA growth rate. On the other hand, zero growth in GDP is always a combination of negative growth in manufacturing and positive growth in other sectors.

Figure 1. Growth rates of world GDP and MVA, 1961-1995




*Source:* UNIDO database.

The general path of MVA growth rates in the past was similar to that of GDP. The linkage has worked in favour of developing countries that achieved higher MVA growth rates than did the industrialized countries. Compared with the industrialized countries, developing countries achieved 4 per cent higher growth in MVA during the 1970s. At the beginning of the 1990s, the growth differential exceeded 5 per cent, whereas during the 1980s it was only 1.5 per cent. The higher growth differential in favour of developing countries allowed them to increase their share of total world manufacturing. It is expected to improve even more in the future.

for more than 90 per cent of North American MVA. The MVA growth rate of the United States dropped from 6.0 per cent in 1994 to 3.6 per cent in 1995. The rise in interest rates in 1994 dampened both consumption and investment demand. Moreover, the financial crisis of neighbouring Mexico did not bode well for trade within the region, at least in the short run.

Despite stable GDP growth, industry in western Europe, which has the highest concentration of

In general, growth of high-technology industries outpaced that of labour-intensive industries

Table 2. World MVA growth trends by industry, 1990-1995
(Percentage)

| ISIC[a] | Industry | Average annual growth rate 1990-1994 | Annual growth rate 1994 | Annual growth rate 1995 | Total MVA share 1995 |
|---|---|---|---|---|---|
| 311 | Food | 2.7 | 3.5 | 3.5 | 10.0 |
| 313 | Beverages | 2.2 | 3.8 | 3.1 | 2.2 |
| 314 | Tobacco manufactures | 0.4 | 4.4 | 4.0 | 1.5 |
| 321 | Textiles | -0.6 | 2.0 | 2.2 | 3.8 |
| 322 | Wearing apparel | 0.7 | 3.2 | 3.3 | 2.2 |
| 323 | Leather and fur products | 0.5 | 3.2 | 3.8 | 0.4 |
| 324 | Footwear, excluding rubber or plastic | -1.2 | 1.0 | 2.8 | 0.4 |
| 331 | Wood and cork products | 1.9 | 5.3 | 2.7 | 1.7 |
| 332 | Furniture and fixtures | 0.9 | 3.4 | 2.9 | 1.4 |
| 341 | Paper and paper products | -0.7 | 6.1 | 4.0 | 3.0 |
| 342 | Printing and publishing | 2.0 | 4.8 | 3.7 | 5.2 |
| 351 | Industrial chemicals | -1.0 | 6.6 | 3.9 | 5.0 |
| 352 | Other chemical products | 3.3 | 4.5 | 4.5 | 5.9 |
| 353 | Petroleum refineries | 1.6 | 3.4 | 3.5 | 2.9 |
| 354 | Miscellaneous petroleum and coal products | -0.2 | 3.3 | 2.9 | 0.3 |
| 355 | Rubber products | -0.2 | 3.7 | 2.9 | 1.2 |
| 356 | Plastic products n.e.c. | 3.3 | 5.4 | 5.2 | 3.1 |
| 361 | Pottery, china and earthenware | 1.4 | 4.5 | 3.2 | 0.4 |
| 362 | Glass and glass products | — | 4.0 | 3.6 | 0.9 |
| 369 | Other non-metallic mineral products | 1.4 | 5.8 | 3.5 | 2.9 |
| 371 | Iron and steel | -0.6 | 5.2 | 3.1 | 3.7 |
| 372 | Non-ferrous metals | -1.4 | 5.5 | 3.0 | 1.5 |
| 381 | Metal products, excluding machinery | 0.2 | 3.6 | 3.5 | 5.7 |
| 382 | Non-electrical machinery | -1.8 | 2.9 | 2.7 | 10.2 |
| 383 | Electrical machinery | 1.4 | 6.5 | 4.2 | 10.6 |
| 384 | Transport equipment | 0.5 | 4.6 | 4.2 | 10.0 |
| 385 | Professional and scientific goods | 1.6 | 6.7 | 5.8 | 2.6 |
| 390 | Other manufacturing | 0.1 | 1.7 | 3.0 | 1.4 |

*Source:* UNIDO database.
*Note:* Calculations were based on 1990 United States dollars.
[a]International Standard Industrial Classification of all Economic Activities.

world MVA, did not perform as well as expected. Sharp currency appreciation in Germany during the early part of the year and its spillover effects on neighbouring countries dragged down the industrial performance of the region, and MVA growth dropped from 5.4 per cent in 1994 to 3.0 per cent in 1995. The greater decline in MVA growth compared with the relatively stable growth of GDP suggests that other sectors, notably services, grew at a higher rate, counteracting the slower growth of MVA.

Japan has been experiencing one of its longest periods of economic slow-down in the period since the Second World War. The GDP growth rate remained fragile despite several cuts in interest rates which brought the discount rate to a record low of between 0.5 and 1 per cent by mid-1995. Nevertheless, the substantial easing of both fiscal and monetary conditions helped to boost MVA, which grew strongly at 3.4 per cent.

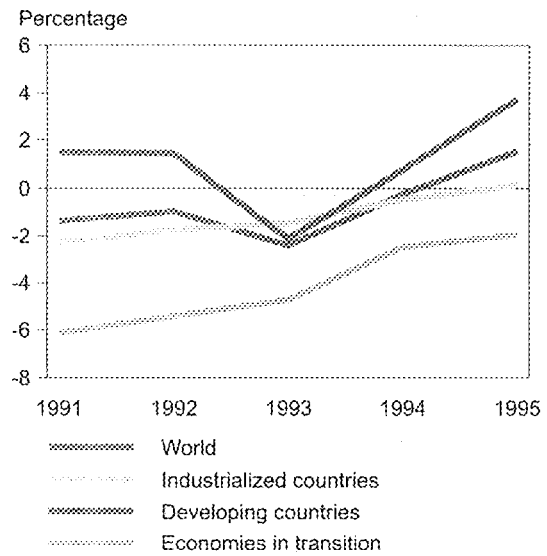
## *Mixed performance in developing countries*

Developing countries on the whole continued to gain ground in terms of world industrial output in 1995, thanks to their relatively stronger MVA growth compared with that of the industrialized countries. MVA grew at a buoyant rate of 6.7 per cent in 1995, slightly lower than the 8.1 per cent achieved in 1994. Strong inflows of FDI as a result of high liquidity in the global financial market contributed to the robust growth. In addition, higher consumer income after several years of economic boom in many developing countries helped to boost domestic demand. The share of the developing countries in world MVA thus increased to 20 per cent in 1995. Growth performance among developing countries is, however, unevenly distributed.

In Latin America and the Caribbean, MVA shrunk by 0.8 per cent compared with a modest growth of 5.9 per cent in 1994, as the financial crisis in Mexico took its toll on some of the countries in the region during 1995. The crisis was the result of several years of unsustainable current account deficits leading to a sharp reversal of capital flows as the confidence of international investors waned. Growth performance in Mexico was badly hit by the financial crisis, which caused the MVA growth rate to plunge to -7.5 per cent from 4.8 per cent in 1994. The crisis prompted the authorities to adopt a bold stabilization programme aimed at containing inflation, fostering domestic savings and reducing external deficits.

## World employment reverses trend to growth levels of recent years

Figure 2. World employment growth rates, 1991-1995




*Source:* UNIDO database.

Apart from Mexico, Argentina, the second-largest industrial producer in the region after Brazil, has been the most affected by the crisis. Its buoyant MVA growth over the previous two years was completely wiped out in 1995, causing growth to plummet to a rate of -7.6 per cent, from 9.4 per cent in 1994. Structural adjustment programmes are now in place to restore the confidence of investors. In Brazil, which accounts for close to 30 per cent of the total MVA of the region, growth has also slowed to 3.0 per cent from 6.1 per cent in 1994.

Chile managed to stave off the negative effects of the crisis without any significant impact on its growth performance. Its resilience was largely due to its firm adherence to the sound policies which it had built up over the years. MVA grew at a stronger rate of 4.4 per cent in 1995, up from 2.6 per cent in 1994.

In sub-Saharan Africa, the MVA growth rate improved in 1995 to 1.8 per cent, compared with 0.5 per cent in 1994. Only a few countries, however, such as Kenya and those belonging to the CFA franc zone, have been able to sustain growth at relatively robust rates and attract FDI in recent years. Those countries have made headway in fostering macroeconomic stability by strengthening economic policies and adopting reform measures. Côte d'Ivoire and Kenya, for example, registered growth rates of, respectively, 7.8 and 6.8 per cent in 1995, compared with 1.7 and 5.8 per cent in 1994. MVA growth in the bigger economies, such as those of Cameroon, Nigeria and Zimbabwe, was unimpressive. Growth in the former two countries remained negative, while that of the latter slowed markedly from 8.3 per cent in 1994 to 2.3 per cent in 1995.

Industrial performance in North Africa was led by its largest manufacturer, Egypt, which registered strong growth in MVA of 4.3 per cent, compared with 2.8 per cent in 1994. Morocco and Tunisia also recorded better growth in 1995. On the other hand, industrial activity in Algeria, which accounts for about 22 per cent of the MVA of North Africa, continued to shrink.

In western Asia, MVA recovered from the 1994 recession and grew at a rate of 6.3 per cent, despite weaker oil prices. Turkey, the largest manufacturer in western Asia, registered dramatic growth in MVA from -8.4 per cent in 1994 to 7.8 per cent in 1995. The Islamic Republic of Iran, on the other hand, recorded a drop in its growth rate from 4.5 per cent in 1994 to 4.0 per cent in 1995. Iraq has begun to show signs of gaining growth momentum by significantly improving its negative growth rate from -24.2 per cent in 1994 to -3.0 per cent in 1995.

In South Asia, MVA growth remained buoyant at an average rate of above 7.5 per cent. Growth was propelled by India and Pakistan, which together account for more than 90 per cent of MVA in the region. After several years of deregulation and structural adjustments, economic recovery is now firmly established in India. Manufacturing exports continued to grow at double-digit levels, and inflows of FDI remained robust, resulting in a strong MVA growth rate of 8.0 per cent, compared to 8.5 per cent in 1994. The performance of Pakistan also improved, with MVA growing at a rate of 4.4 per cent in 1995, compared to 2.7 per cent in 1994. The challenge for the region is to combat rising inflationary pressures, infrastructure bottlenecks and current account deficits, and to implement privatization programmes successfully.

The main force driving world MVA growth in 1995 continued to come from East and South-East Asia, including China. The region, which accounts for slightly more than half of the MVA share of developing countries, registered a growth rate of 10.7 per cent, sustained by stronger demand for industrial goods in both domestic and external markets, as well as buoyant investment in production facilities, in the upgrading of skills and in technological development. Substantial inflows of FDI have fuelled the surge in investment. The robust growth recorded during the past few years has led to "overheating problems" in many countries of the region. Inflationary pressure and persistent current account deficits are the major concerns, as high investment rates have fuelled import demand for capital goods. Those concerns have taken centre stage on the policy agenda of a number of countries. China, for example, has tightened its monetary policy and curbed domestic demand to alleviate its overheating problems. Nevertheless, MVA growth, which remained at a double-digit level of 12.1 per cent, continued to be boosted by stronger than expected exports and FDI.

The performance of the Asian newly industrializing economies (NIEs) was somewhat mixed compared with that of 1994. Moderate MVA growth rates were recorded in the territory of Hong Kong and in Singapore. On the other hand, MVA growth remained robust in the Republic of Korea at 11.0 per cent, while Taiwan Province of China also registered higher growth at 6.2 per cent. The improved MVA performance of those two economies was largely due to higher investment and exports. Their higher exports were the result of the strength of the Japanese yen, which has made Japanese goods less competitive. The so-called near-NIEs, such as Indonesia, Malaysia and Thailand, are also facing overheating problems and persistently large current account deficits. Tighter monetary policy was adopted to counter those problems. As a result, interest rates increased, dampening both consumer demand and investment. Nevertheless, MVA growth remained high at around double-digit figures for all three countries. In the Philippines, a successful stabilization programme has begun to bear results, as reflected in its improved MVA growth rate of 4.9 per cent.

## *Impressive overall performance of economies in transition*

The performance of the economies in transition depends significantly on the stage of their reform programmes. Early reformers with sound macroeconomic policies, such as Albania, Czech Republic, Hungary and Poland, managed to turn in impressive growth in MVA, while the performance of countries which are still facing structural adjustment problems remained discouraging. The economies in transition as a whole recorded an impressive industrial turnaround, reducing their negative overall MVA growth rate from -8.8 per cent in 1994 to -4.1 per cent in 1995. A rapid increase in productive investment and trade together with a strengthening macroeconomic environment contributed to robust growth of the early reformers. Successful macroeconomic stabilization and structural adjustments also restored confidence among foreign investors, leading to large inflows of foreign capital. External demand, particularly from the European Union, has increased considerably, thereby boosting the exports of those economies.

On the other hand, MVA continued to decline in countries which had not made as much progress in economic reform, such as Belarus, Russian Federation (which accounts for close to 50 per cent of MVA in eastern Europe) and Ukraine. Those countries are still plagued by fragile political structures, declining investment rates, high inflation, large fiscal imbalances and major structural weaknesses. For example, in the Russian Federation, despite concerted efforts to curb inflationary pressures through the tightening of both fiscal and monetary policies, prices continued to climb at an annual rate of over 100 per cent during the second quarter of 1995. Its fixed capital investment fell by 13 per cent during the first half of the year.

## Regional perspectives: development trends and issues

The major challenge facing policy makers is to set appropriate development priorities and ensure sustainable long-term industrial growth in a rapidly changing economic environment characterized by increasing global competition. Factor endowments are not given once and for all, but can be changed by appropriate policies. Economic policies also play an important role in ensuring flexibility in the response of an economy to structural change and increasing worldwide competition. Various country groups have responded differently to global challenges. Those differences partly explain their current position in the international division of labour and their differing levels of competitiveness. In this context, an attempt will be made in the following sections to analyse industrial performance, international competitiveness and the

role of investment (including FDI), with a view to highlighting development priorities and issues for the various regions. It should be noted that the inclusion of FDI trends as an indicator of the response of countries to global change does not preclude the potentially important role to be played by domestic private investment in industrial development.

## INDUSTRIALIZED COUNTRIES

Over the past decades, competitive challenges have been handled with mixed success in the major industrialized countries. Employment problems are more pronounced in Europe, where labour markets have been slow in responding to adjustment pressures. In industrialized countries, it is feared that increased competitive pressures, use of new micro-electronic technologies and imports from low-wage countries—encouraged by the relocation of TNCs to developing countries—are directly displacing production, and thus reducing demand for unskilled labour. There is also concern that labour-saving technology introduced to counter the competitive threat of imports from low-wage countries is indirectly reducing such demand. On the other hand, high-technology industries are fast expanding, and high-technology skills increasingly demanded. At the same time, growing unemployment in low-skill industries is often associated with the general shortage of skilled labour, resulting in bigger wage differentials between skilled and unskilled workers and greatly increased calls for protection from imports from low-wage countries.

### *Increasing importance of services*

From 1985 to 1995, world trade has grown faster than world output (GDP), and FDI flows have increased even faster than world trade. A large part of the international trade and capital flows has taken place between industrialized countries and NIEs.* In recent years, a number of developing countries have increased their role in international trade and capital flows. Their success has meant that for the industrialized countries as a group, international trade (exports) has not grown faster than GDP or MVA (see figure 3).*

Another aspect of figure 3 should be noted. MVA has increased at a slower pace compared with GDP in industrialized countries. Since agriculture accounts for a declining share of nominal GDP in those countries, the slower growth of MVA implies an increase in the share of the service sector in GDP, which rose from 64.0 per cent in 1985 to 65.4 per cent in 1995 (see table 3). Globalization has brought a significant relocation of industries from industrialized countries to low-cost developing countries over the last decade. At the same time, the economic structure of industrialized countries has evolved towards services as their international competitiveness in manufacturing industries has eroded.

**Service sector acquires increasing dominance in industrialized countries**

Table 3. Production structure of industrialized countries (Percentage)

| *Sector* | *1985* | *1990* | *1995* |
|---|---|---|---|
| Primary | 2.9 | 2.6 | 2.6 |
| Secondary | 33.1 | 32.9 | 32.1 |
| Tertiary | 64.0 | 64.6 | 65.4 |

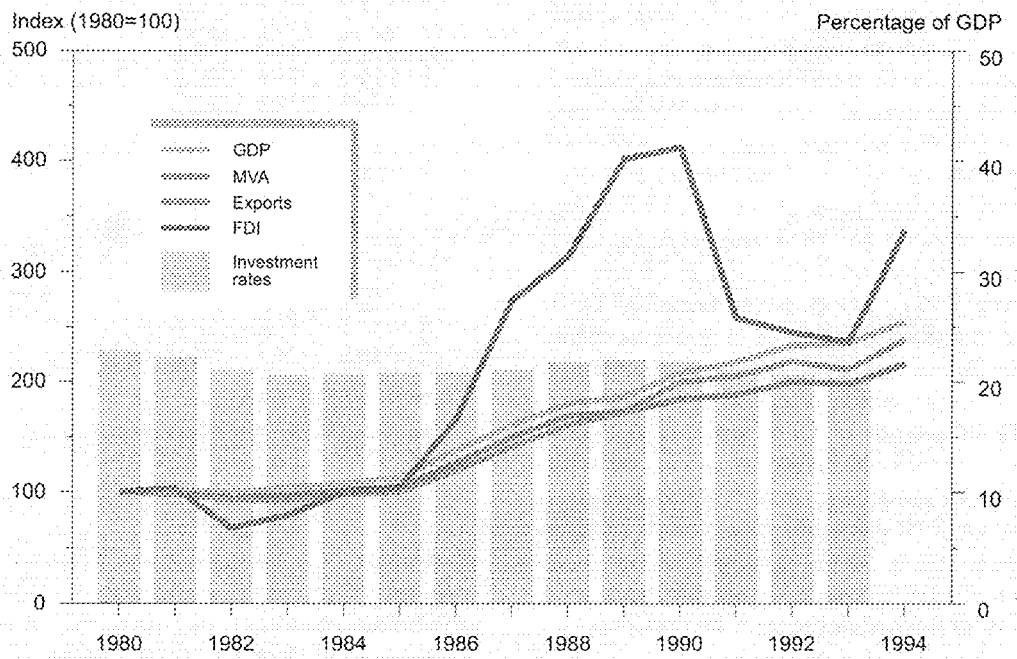
*Source:* UNIDO database.

*For instance, more than 60 per cent of world trade in manufactures (see Peter Nunnenkamp and others, "The return of foreign capital to Latin America: good news from the reform front or a case for policy intervention", in Bernhard Fischer, ed., *Investment and Financing in Developing Countries* (Baden-Baden, Nomos, 1994), pp. 145-179) and about 85 per cent of world FDI flows occurred between industrialized countries (see Jamuna P. Agarwal and others, *European Integration: A Threat to Foreign Investment in Developing Countries*, Discussion Paper No. 246 (Kiel, Institute of World Economics, 1995)).

*The UNIDO database contains two series on MVA which are not fully consistent. Nominal MVA data used in figure 4 (and the corresponding figures for other regions in subsequent sections) are drawn from national account statistics. Likewise, MVA data in 1990 United States dollars for individual countries relate to national accounts. In contrast, (deflated) MVA data drawn from (census-based) industrial statistics are used when calculating MVA shares of regional group totals for the world and for developing countries, in order to analyse industry-specific developments. Discrepancies are generally considered to be small, attention being focused on changes over time.

**Investment rate tends to decline in industrialized countries**

Figure 3. Industrialized countries: GDP, MVA, manufactured merchandise exports and FDI inflows, 1980–1994, and investment rates, 1980–1993




*Source:* UNIDO database.

*Note:* Calculations were based on current United States dollars. Investment rate denotes gross fixed capital formation as a percentage of GDP.

## *Loss of international competitiveness of industrialized countries in manufacturing*

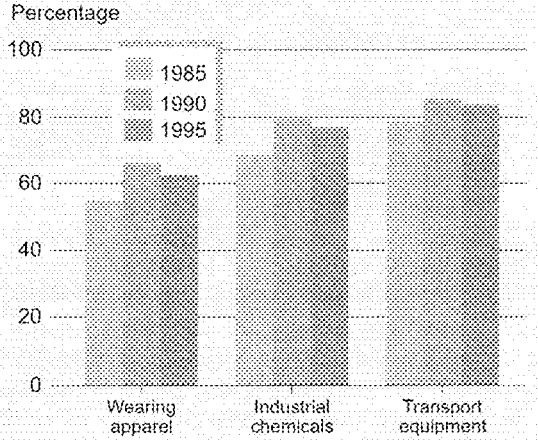
The erosion of the international competitiveness of industrialized countries in manufacturing is more pronounced in labour-intensive industries (see figure 4). Figure 4 shows that the share of industrialized countries in the labour-intensive world production of wearing apparel dropped by 3.4 percentage points in the 1990s, while their share of physical-capital-intensive chemicals and human-capital-intensive transport equipment declined by 2.4 and 1.7 percentage points, respectively.

Table 4 shows that the decline in the share of international trade of industrialized countries is even bigger than the decline in their share of production. The share of manufactured exports of those countries in their home markets declined by 7 percentage points from 1985 to 1995. A similar pattern is found at the industry level. During the period, the share of exports of labour-intensive wearing apparel in total world exports of wearing apparel to industrialized countries fell by 15.2 percentage points to 39.5 per cent. The share of

**Share of labour-intensive industries in manufacturing declines more rapidly than that of human-capital-intensive industries**

Figure 4. Industrialized countries: MVA shares, 1985, 1990 and 1995

Percentage




*Source:* UNIDO database.

*Note:* Calculations were based on 1990 United States dollars. Figures for 1985 are in current prices, while the others are in constant prices.

exports of physical-capital intensive chemicals registered a smaller drop of 3.6 percentage points.

The relatively human-capital-intensive industries in industrialized countries, such as transport equipment, electrical machinery and scientific goods, also appear to have lost some ground to those of developing countries. For example, the export share of industrialized countries in transport equipment fell by 2.3 percentage points during the 10-year period, although trade among industrialized countries still accounts for more than 90 per cent of all exports in this product category. In addition, the export shares of electrical machinery and professional and scientific goods have recorded sharp drops, from, respectively, 86.3 and 93.8 per cent in 1985, to 71.3 and 85.6 per cent in 1995.

During the 1990s, industrialized countries have recorded a marginal decline in investment rates. Those rates are lower than those of developing countries, a trend which is consistent with their lower rates of growth in GDP and MVA. Policy makers in industrialized countries are faced with the challenge of enhancing growth through higher investment, while at the same time ensuring stability in growth. This is made more difficult by their falling rates of saving, which are often insufficient to sustain a long-term increase in investment.

**Industrialized countries lose international competitiveness in low-skilled, labour-intensive manufacturing**

Table 4. Industrialized countries: export share of manufactured goods within industrialized countries by industry, 1985, 1990 and 1995 (Percentage)

| *Economic grouping and industry* | *1985* | *1990* | *1995* |
|---|---|---|---|
| Industrialized countries | 88.0 | 84.0 | 81.0 |
| Wearing apparel | 54.7 | 44.3 | 39.5 |
| Industrial chemicals | 95.0 | 91.7 | 91.4 |
| Electrical machinery | 86.3 | 78.5 | 71.3 |
| Transport equipment | 96.1 | 95.0 | 93.9 |
| Professional and scientific goods | 93.8 | 90.0 | 85.6 |

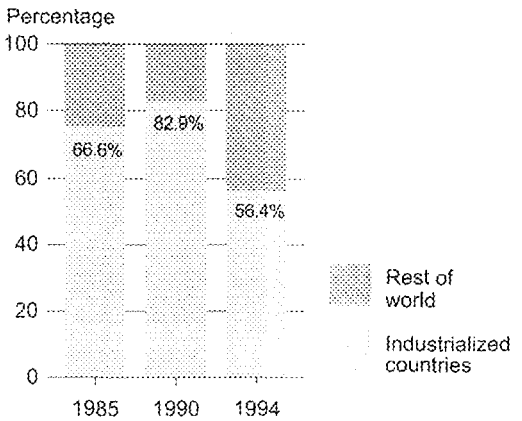
*Source:* UNIDO database.

*Note:* Calculations were based on 1990 United States dollars.

The share of industrialized countries in worldwide inflows of FDI was boosted by regional integration efforts in Europe and North America up to the late 1980s (see figure 5). Additional FDI has been directed towards industrialized countries, mainly in an attempt to exploit the temporary

**Industrialized countries receive direct foreign shares of FDI flows are falling**

Figure 5. Industrialized countries: shares of FDI inflows, 1985,1990 and 1994




*Source:* UNIDO database

*Note:* Calculations were based on current United States dollars.

economies of scale and scope inherent in closer regional integration[1,2]. However, the share of industrialized countries in world FDI inflows has declined substantially in recent years.

## *Decreasing demand for unskilled labour*

Employment in manufacturing as a share of total employment in industrialized countries has fallen significantly over the past decade as a result of the structural change described above. During the decade, demand for unskilled labour, relative to the demand for skilled labour, declined substantially in most industrialized countries. The shifts in employment in industrialized countries have coincided with increased imports from developing countries, provoking debate about whether the wages and employment prospects of low-skill workers in advanced economies are threatened by the global supply of unskilled labour. Although there has been a considerable volume of empirical research on the issue in recent years, views remain divided. The weight of opinion appears to be in favour of the view that trade has not been the main cause of the problems of unskilled workers.* The shift in demand towards services and the changes in technology appear to have had a more significant impact on employment and wages than displacement of domestic production by low-cost imports.

*For recent contributions to the debate, see Adrian Wood, "How trade hurts unskilled workers", *Journal of Economic Perspectives*, vol. 9, No. 3 (1996), and Paul Krugman and Robert Z. Lawrence, "Trade, jobs and wages", *Scientific American*, vol. 270, No. 4 (1994), pp. 22-27.

DEVELOPING COUNTRIES

The MVA share of developing countries in the world total grew from 17.4 per cent to 19.8 per cent over the past decade, and their export share in industrialized markets increased considerably, from 11.6 per cent to 18.5 per cent. The increase in their international competitiveness was more pronounced in labour-intensive industries. During the 10-year period, the share of wearing apparel exports of developing countries to industrialized countries increased markedly from 44.7 per cent to 58.7 per cent. Developing countries thus became the main suppliers of wearing apparel to industrialized countries, a position previously held by the industrialized countries themselves. The share of developing countries in total world inflows of FDI rose strongly from 24.5 per cent in 1985 to 38.9 per cent in 1995, after a temporary setback in 1990. Such results should be seen in the light of the considerable variation in the degree of participation of developing countries in the globalization process. At the extreme ends, East and South-East Asia benefited most from the process, while sub-Saharan Africa appears to have been marginalized.

## *Latin America and the Caribbean*

Compared with other developing regions, Latin America and the Caribbean had more favourable initial conditions for participating fully in the globalization process. The average per capita income of the region in 1980 was the highest among developing countries, exceeding the figure for South and South-East Asian developing countries nearly sixfold. The share of agriculture in the total GDP of Latin America and the Caribbean was below 10 per cent, and manufacturing accounted for nearly one quarter of GDP (the corresponding shares for South and South-East Asia were 25 and 20 per cent, respectively). Moreover, the region had traditionally been a preferred host for FDI: its share in total FDI flows to developing countries was close to 70 per cent in 1980.

Despite favourable starting conditions, Latin America and the Caribbean as a region was much less successful in coping with competitive challenges during the past decade, experiencing what has frequently been called a "lost decade", while the process of catching up accelerated in Asia.

### *Country performance boosted by economic reforms*

During the first half of the 1980s, the output of Latin America and the Caribbean stagnated, and its exports and FDI tended to decline (see figure 6). Those trends, however, were reversed in the second half of the 1980s, when FDI inflows rose sharply, and export growth outpaced GDP and MVA growth. The reversal in trends was largely the result of macroeconomic stabilization and structural adjustment programmes undertaken by many countries of the region, including the major economies. The advent of NAFTA also contributed to the reversal.

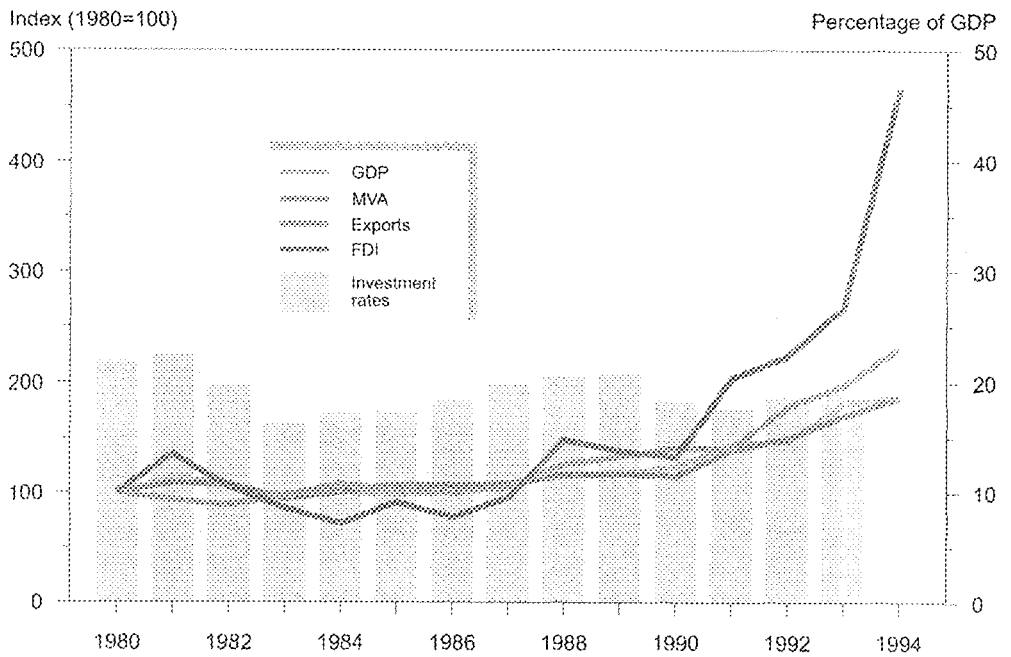
Examination of the disaggregated data reveals that the timing of the reversal depended on the progress of macroeconomic stabilization and structural adjustment undertaken by countries of the region. In Chile, where macroeconomic correction had been achieved by the early 1980s, production roughly doubled after 1984, while manufacturing exports increased by a factor of 2.7, and FDI inflows increased more than tenfold between 1985 and 1994. The evidence for Mexico, which delayed economic reforms until the mid-1980s, is mixed. Between 1985 and 1994, FDI growth clearly exceeded production and export growth. Exports, however, remained sluggish relative to production. A similar pattern is observed in Argentina, which implemented structural adjustment measures together with exchange-rate-based stabilization later than Mexico. In Brazil, a latecomer to the reform process, FDI flows in the early 1990s were substantially below the figures reported a decade earlier.

For the region as a whole, the share of MVA in the world total declined somewhat, while its share in the total MVA of developing countries fell sharply from 37 to 24 per cent between 1985 and 1995, indicating that MVA has shifted from the region to other developing countries rather than to industrialized countries (see table 5).

The export performance of the region, however, is less discouraging, with only a marginal decrease in the share of manufactured exports to industrialized countries from 1985 to 1995 (see table 6). At the industry level, while the market share of the region in chemicals remained relatively stable during the period, the shares for wearing apparel, transport equipment, electrical machinery and professional and scientific goods all improved, largely as a result of offshore processing for the United States market. Because of their low transport and labour costs,[3] the Caribbean region and Mexico in particular have benefited from subcontracting with United States companies following the conclusion of NAFTA.

Latin America and the Caribbean finds it more difficult to reap the benefits of globalization

Figure 6. Latin America and the Caribbean: GDP, MVA, manufactured merchandise exports and FDI inflows, 1980–1994, and investment rates, 1980–1993




*Source:* UNIDO database.

*Note:* Calculations were based on current United States dollars. Investment rate denotes gross fixed capital formation as a percentage of GDP.

## *Low level of domestic investment*

Investment rates in the region have been declining since the early 1980s, falling from about 19.6 per cent to about 18.5 per cent during the 1990s (compared with about 27.3 per cent and 31.7 per cent for East Asia during the same periods). As a result of the progressive drop in investment rates, the buoyant growth of the 1970s could not be sustained, and lower rates of growth were recorded during the past decade. At the same time rates of saving in the region are declining and they are at lower levels than investment rates, resulting in a widening gap between saving and investment. This has raised concern about the ability of many of the countries in the region to achieve sustainable growth.

Prior to the debt crisis of the mid-1980s, Latin America and the Caribbean received the bulk of FDI flows to all developing countries. Its world share, however, plunged to 11.8 per cent by 1994.

The regional trends in FDI obscure differences at the country level (see figure 7), where the national economic environment has affected the role of FDI inflows.* Flows of FDI to Brazil, a traditionally preferred investment location, have dropped considerably, while those of the traditionally smaller recipient countries, such as Chile, have grown significantly. In per capita terms, Chile received more FDI in 1994 ($128) than Mexico ($87). The most impressive performance was recorded by Argentina, which overtook Mexico as the top recipient of FDI inflows in Latin America after implementation of comprehensive reforms in the early 1990s.

*For a more detailed evaluation, see Peter Nunnenkamp, "Economic policies and attractiveness for foreign capital: the experience of highly indebted Latin American countries", in Herman Sautter, ed., *Economic Reforms in Latin America* (Frankfurt, Ibero-Amerika Institut für Wirstschaftsforschung der Universität Göttingen, 1993), pp. 73-96.

## Latin American manufacturing value added fails to respond to globalization

Table 5. Latin America and the Caribbean: MVA shares, 1985, 1990 and 1995 (Percentage)

| | *Share in world total* | | | *Share in total MVA of developing countries* | | |
|---|---|---|---|---|---|---|
| *Region, country and industry* | *1985* | *1990* | *1995* | *1985* | *1990* | *1995* |
| Latin America and the Caribbean | 6.4 | 4.6 | 4.8 | 36.9 | 29.0 | 24.2 |
| Wearing apparel | 7.0 | 5.3 | 5.5 | 40.1 | 33.7 | 27.8 |
| Industrial chemicals | 6.9 | 4.1 | 4.6 | 39.6 | 25.9 | 23.0 |
| Transport equipment | 3.8 | 2.7 | 4.0 | 21.7 | 17.3 | 15.2 |
| Argentina | 0.9 | 0.8 | 0.9 | 5.0 | 5.1 | 4.8 |
| Brazil | 2.3 | 1.6 | 1.7 | 13.2 | 10.0 | 8.4 |
| Chile | 0.1 | 0.1 | 0.1 | 0.5 | 0.7 | 0.7 |
| Mexico | 1.5 | 0.8 | 0.8 | 8.3 | 5.4 | 3.9 |

*Source:* UNIDO database.

*Note:* The figures were calculated in 1990 United States dollars. Figures for 1985 are in current prices, while the others are in constant prices.

## Export performance varies between industries and countries

Table 6. Latin America and the Caribbean: share of manufactured goods exported to industrialized countries by selected industries, 1985, 1990 and 1995 (Percentage)

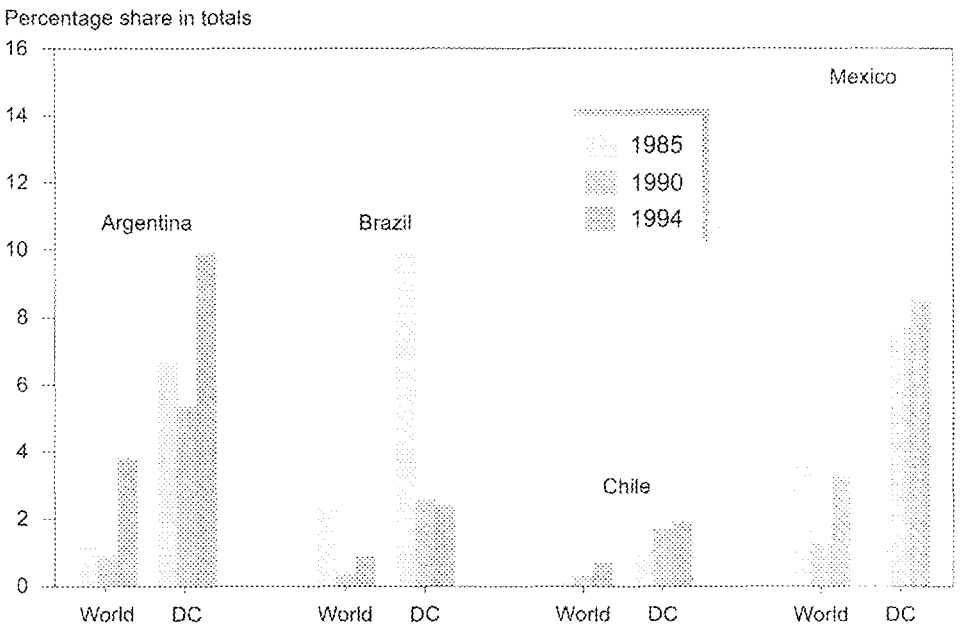
| *Region and country* | *Year* | *All manufacturing* | *Wearing apparel* | *Industrial chemicals* | *Electrical machinery* | *Transport equipment* | *Professional and scientific goods* |
|---|---|---|---|---|---|---|---|
| Latin America and the Caribbean | 1985 | 3.3 | 1.4 | 2.2 | 1.7 | 1.1 | 0.5 |
| | 1990 | 2.7 | 1.6 | 2.6 | 0.8 | 1.9 | 0.4 |
| | 1995 | 2.9 | 2.3 | 2.2 | 4.8 | 2.1 | 1.4 |
| Argentina | 1985 | 0.2 | 0.1 | 0.2 | — | — | — |
| | 1990 | 0.2 | 0.1 | 0.2 | — | — | — |
| | 1995 | 0.1 | — | 0.1 | — | — | — |
| Brazil | 1985 | 1.3 | 0.4 | 0.9 | 0.4 | 0.6 | 0.2 |
| | 1990 | 0.9 | 0.3 | 0.6 | 0.4 | 0.6 | 0.2 |
| | 1995 | 0.6 | 0.2 | 0.4 | 0.2 | 0.3 | 0.1 |
| Chile | 1985 | 0.1 | — | 0.1 | — | — | — |
| | 1990 | 0.2 | — | 0.1 | — | — | — |
| | 1995 | 0.1 | — | 0.1 | — | — | — |
| Mexico | 1985 | 0.5 | 0.2 | 0.3 | 1.1 | 0.4 | 0.3 |
| | 1990 | 0.6 | 0.1 | 0.7 | 0.3 | 1.2 | 0.2 |
| | 1995 | 1.4 | 1.0 | 0.7 | 4.5 | 1.7 | 1.2 |

*Source:* UNIDO database.

*Note:* Calculations were based on 1990 United States dollars.

Argentina attracts highest levels of foreign direct investment in Latin America in 1994, thanks to domestic policy success

Figure 7. Latin America and the Caribbean: shares of FDI inflows, 1985, 1990 and 1994




*Source*: UNIDO database.

*Notes*: Calculations were based on current United States dollars.
DC refers to developing countries.

## *Sustaining recent performance: a major challenge*

The evidence reveals that the competitive position of Latin America in global markets declined considerably, especially when compared with that of the dynamic Asian countries. The recent experiences of Argentina, Chile and Mexico, however, suggest that locational attractiveness can be regained in the aftermath of a major economic setback, such as the debt crisis, once domestic economies are stabilized and structural adjustment is implemented. Foreign investors returned to those Latin American countries in which government credibility had been restored after the debt crisis, and sustained reforms had re-established links with world markets for manufactured goods. For example, Mexican exports and, to some extent, Chilean exports to OECD markets became much more diversified between 1985 and 1995. The contribution of manufactured goods to total Mexican exports to OECD countries increased from 24 to 70 per cent, and in the case of Chile, from 2.78 per cent in 1983 to 12.3 per cent in 1993.[3]

The major challenge facing countries in the midst of a reform process in Latin America and the Caribbean is thus to sustain their access to OECD markets and to continue attracting foreign capital. Countries that have used the exchange rate as a nominal anchor of macroeconomic stabilization have recently experienced substantial currency appreciation in real terms. Calculations of the Economic Commission for Latin America and the Caribbean (ECLAC) for the first nine months of 1994 show that the real effective exchange rate for exports appreciated by about 40 per cent in Mexico since 1987, and by 47 per cent in Argentina since 1989.[4] Many observers have considered the currencies of both countries to be significantly overvalued.[5, 6] The nominal exports of Argentina and Mexico stagnated from 1990 to 1992, and Argentine exports of manufactures to OECD markets declined sharply between 1990 and 1995.[3, 7] Hence, the critical question is whether rapidly rising current account deficits can be financed on a sustainable basis.

The Mexican financial crisis of December 1994 demonstrates that the sustainability of capital inflows cannot be taken for granted. The crisis has

fuelled fears that recent capital inflows largely consist of "hot money" which may be subject to tremendous cyclical variation.[8] Furthermore, the boom in FDI and other long-term capital inflows may prove to be temporary, as soon as the one-time effects of privatization wear off and the repatriation of flight capital levels off.[6] Empirical evidence suggests that the level of investment of a country is essentially constrained by its domestic savings.[9] Few countries have succeeded in attracting sustained net capital inflows in large amounts. This does not imply, however, that the sustainability of capital inflows is completely beyond the control of recipient countries. In the case of Mexico, economic and political uncertainty rendered investment riskier than had previously been assumed by foreign investors. Generally speaking, the threat of sudden reversals in capital inflows to a large degree depends on country-specific policies.* Even if it were true that 30 to 50 per cent of the variation in capital flows to developing countries is due to cyclical external factors, plenty of room would be left for domestic policy to help sustain capital inflows.**

### *Domestic reforms: a prerequisite for successful regional integration*

Another issue confronting the region concerns the role of regional integration in promoting trade and FDI in Latin America. Regional integration has become even more appealing since the conclusion of NAFTA in 1992. Quantitative assessments of the effects of NAFTA have clearly earmarked Mexico as the major beneficiary.*** The envisaged formation of NAFTA may well have already stimulated FDI in Mexico at the beginning of the 1990s. Nonetheless, regional integration *per se* is unlikely to enhance the locational attractiveness of participating countries, and it must not be regarded as a substitute for improved investment conditions at the national level. The Mexican example shows that domestic reforms are a prerequisite for successful regional integration.

*For a comparison of Latin American countries in this respect, see Peter Nunnenkamp and others, "The return of foreign capital to Latin America: good news from the reform front or a case for policy intervention", in Bernhard Fischer, ed., *Investment and Financing in Developing Countries* (Baden-Baden, Nomos, 1994), pp. 145-179.

**For a review of the relevant econometric studies, see IMF, *World Economic Outlook* (Washington, D.C., October, 1994).

***For a review, see Rolf J. Langhammer and Rainer Schweickert, *The Mexican Reform Process: Improving Long-Run Perspectives and Mastering Short-Run Turbulences*, Kiel Discussion Papers, No. 255 (Kiel, Institute of World Economics, 1995).

## ***Sub-Saharan Africa***

Major features of the deep economic crisis of sub-Saharan Africa* include its weak manufacturing base, the decline in its international competitiveness and its failure to participate in the global boom in FDI. Many African least developed countries continue to depend heavily on external aid.

The danger of becoming delinked from the globalization of production and markets appears greatest for sub-Saharan Africa, since many countries of the region still suffer from weak institutions, social conflict and political instability. The policy challenges facing sub-Saharan Africa go far beyond macroeconomic stabilization and structural adjustment. Past trends are unlikely to be reversed unless better governance is ensured and the role of the State is refocused on the provision of public goods, including infrastructure, institution building and education.

### *Weak on all counts*

From 1985 to 1995, the performance of sub-Saharan African economies was, by international standards, generally disappointing. Average per capita income in the region declined by 1.1 per cent per year between 1980 and 1995, the least satisfactory performance among all developing regions. For sub-Saharan Africa as a whole, the average growth rates of GDP, MVA and exports over the past decade and a half have been marginal, and FDI inflows have been erratic (see figure 8).

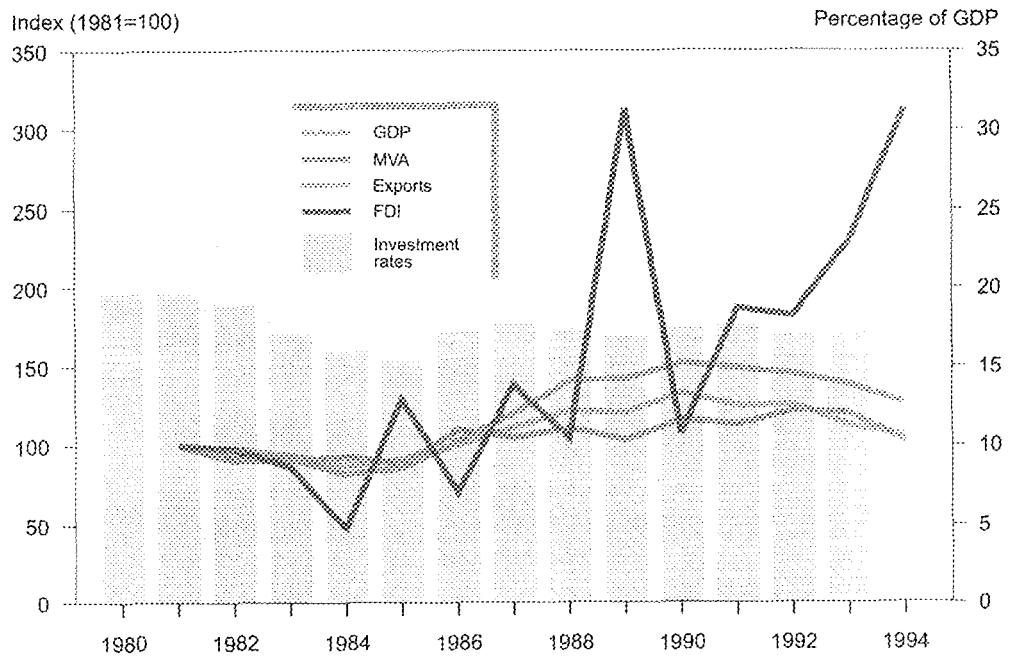
The marginalization of sub-Saharan Africa in the world economy is reflected in its tiny share of about 0.3 per cent of global manufacturing,** which even decreased slightly during the last decade (see table 7). Nor has the region fared well in labour-intensive industries such as wearing apparel. Its share in the world total of MVA for wearing apparel amounted to only 0.6 per cent in 1995, up marginally from 0.4 per cent in 1985. Its capital- and human-capital-intensive industries, such as chemicals and transport equipment, which have only a negligible share in world MVA, have lost further ground, each accounting for only 0.1 per cent of world MVA in 1995. The poor performance of the region is mainly due to the lack of political stability and to a difficult macroeconomic environment. It also results from poor infrastructure, both

*The Republic of South Africa is not included in the group of developing countries of sub-Saharan Africa under the UNIDO classification of regional subgroups of developing countries.

**Within the region, Cameroon, Nigeria and Zimbabwe are the largest manufacturing economies, accounting for about a third of the MVA of sub-Saharan Africa (UNIDO database).

## Sub-Saharan Africa remains marginalized in the globalization process

Figure 8. Sub-Saharan Africa: GDP, MVA, manufactured merchandise exports and FDI inflows, 1980–1994, and investment rates, 1980–1993




*Source:* UNIDO database.

*Note:* Calculations were based on current United States dollars. Investment rate denotes gross fixed capital formation as a percentage of GDP.

## Sub-Saharan Africa loses ground in manufacturing

Table 7. Sub-Saharan Africa: MVA shares, 1985, 1990 and 1995
(Percentage)

| | *Share in world total* | | | *Share in total MVA of developing countries* | | |
|---|---|---|---|---|---|---|
| *Region and industry* | *1985* | *1990* | *1995* | *1985* | *1990* | *1995* |
| Sub-Saharan Africa | 0.4 | 0.3 | 0.3 | 2.2 | 2.2 | 1.6 |
| Wearing apparel | 0.4 | 0.4 | 0.6 | 2.2 | 2.8 | 2.8 |
| Industrial chemicals | 0.2 | 0.1 | 0.1 | 1.0 | 0.9 | 0.8 |
| Transport equipment | 0.2 | 0.2 | 0.1 | 1.1 | 1.0 | 0.6 |

*Source:* UNIDO database.
*Note:* Calculations were based on 1990 United States dollars. Figures for 1985 are in current prices, while the others are in constant prices.

physical and institutional, from insufficient human capital and entrepreneurship, and from small and fragmented markets.

The very weak international competitiveness of the region in manufacturing is supported by data on shares of exports of manufactured goods to the industrialized countries. The data show that both physical- and human-capital-intensive industries of the region are particularly weak in international competitiveness (see table 8). During the last 10 years, the share of manufactured exports of the region to industrialized countries remained constant at only 0.3 per cent. Of the five industries reviewed, only the labour-intensive wearing apparel industry managed to increase its export share from 0.4 to 0.9 per cent during the period. The other four industries, in general, did not make any progress in their export performance, their shares staying below 0.1 per cent.

**Manufactured goods show weak international competitiveness**

Table 8. Sub-Saharan Africa: shares of manufactured goods exported to industrialized countries by selected industries, 1985, 1990 and 1995 (Percentage)

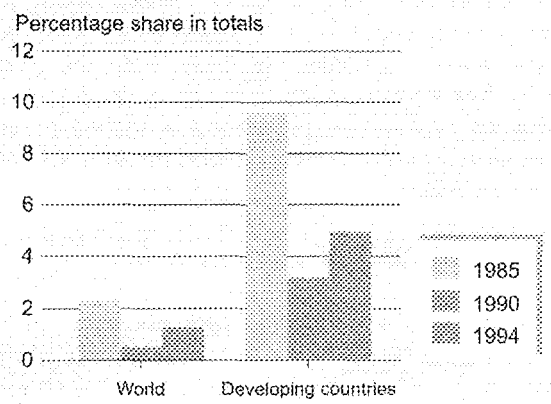
| *Region and industry* | *1985* | *1990* | *1995* |
|---|---|---|---|
| Sub-Saharan Africa | 0.3 | 0.3 | 0.3 |
| Wearing apparel | 0.4 | 0.8 | 0.9 |
| Industrial chemicals | — | 0.1 | — |
| Electrical machinery | — | — | — |
| Transport equipment | — | — | — |
| Professional and scientific goods | 0.1 | 0.1 | 0.1 |

*Source:* UNIDO database.
*Note:* Calculations were based on 1990 United States dollars.

The small manufacturing base and poor export penetration into industrialized markets are consistent with the low rate of investment in the region. Investment rates declined to an average of 17.3 per cent between 1990 and 1993, compared with about 19.6 per cent during the early 1980s. Those rates are the lowest among the developing regions, and have led to structural weaknesses which have hampered industrial performance. The situation is further aggravated by the inability of the region to benefit from the recent surge in FDI flows to developing countries. Despite the recent liberalization of investment codes in many sub-Saharan African countries, only a few recorded higher FDI inflows in recent years, and contributed to the rise in FDI inflows in 1994 (see figure 9). If the recent surge of FDI in Angola and

**FDI inflows fail to respond to the recent liberalization of investment codes**

Figure 9. Sub-Saharan Africa: shares of FDI inflows, 1985, 1990 and 1994




*Source:* UNIDO database.
*Note:* Calculations were based on current United States dollars.

Nigeria is excluded, the region as a whole recorded a decline in FDI inflows, in sharp contrast to other developing regions such as South Asia, where FDI inflows increased. Sub-Saharan Africa is thus in the most unfavourable position among all developing regions. Without political stabilization and consistent economic policies, sub-Saharan Africa faces the threat of being further marginalized in the ongoing globalization of production and markets. If appropriate policies are implemented, however, progress in the region is possible. The region would also be in a better position to benefit from the spillover effects of the growing industrial and trade constellation in southern Africa.

## *Improving government capabilities is essential*

The route to a poverty-reducing growth path for sub-Saharan Africa is fraught with difficulties. Policy reform is clearly necessary, given the undisputed evidence that the pattern of intervention to support industrialization has been haphazard and inefficient. What is less clear, however, is the approach that should be taken to policy reform. Recent World Bank research has suggested that where market-liberalization measures have been implemented by sub-Saharan economies, the result has been a significant improvement in industrial and export growth rates,[10] with a strong positive correlation between the intensity of the market reforms and the strength of economic recovery. Other observers are less sanguine about the effects of policy reform on industry in

Africa.[11, 12, 13] It is argued that markets are inherently imperfect and inefficient, making it necessary for Government to play a role in improving them. Given the need to remedy market deficiencies to achieve sustained industrial development, the priority for reform should be the strengthening of government capabilities. If organization and administrative capabilities are weak, then the types of market improvements that are needed are unlikely to succeed in generating a significant improvement in the economic performance of sub-Saharan Africa.

## *North Africa and western Asia*

Manufacturing activities are unevenly distributed across North Africa and western Asia. Moreover, some of the more important manufacturing economies have moved in opposite directions: Turkey has achieved closer integration into the global economy, whereas the relative participation of the Islamic Republic of Iran in international trade has fallen. Progress in penetrating OECD markets and attracting FDI has been more evident in economies which have been committed to economic reform, namely, Morocco, Tunisia and Turkey.

The countries in the region are unlikely to emerge as internationally competitive suppliers of manufactures, as long as their attractiveness for FDI continues to be poor, although the region may benefit from new trade opportunities with newly independent neighbours in central Asia. Serious constraints to economic progress in the region include declining real prices of oil, the lack of human capital and political conflicts between and within some countries. Investment in human capital formation and political stability are of primary importance, and must be ensured if the region is to benefit from the globalization of the world economy.

### *Little evidence of success*

Figure 10 presents the pattern of output, trade and FDI inflows for the region as a whole.* FDI flows into the region have declined considerably since 1980. GDP growth has been marginal, although MVA and manufacturing exports have managed to register modest growth since the late 1980s.

Production data reveal that the share of the region in worldwide MVA has not altered significantly between 1985 and 1995 (see table 9).** While the share of North Africa decreased slightly to 0.4 per cent, that of western Asia increased marginally to 1.5 per cent during the period.

At the industry level, North African shares in world MVA have remained almost constant during the period for all three industries reviewed, i.e. wearing apparel, chemicals and transport equipment. On the other hand, the MVA shares of western Asia in world totals for wearing apparel and chemicals increased between 1985 and 1995, while its share in developing-country totals for those industries increased even more significantly. The industry-specific production shares for the region are, however, much lower than for Latin America and the Caribbean.

Likewise, the region as a whole is not a major supplier of industrialized markets, as reflected in table 10. The share of the region in manufactured exports to industrialized countries from 1985 to 1995 was flat at 0.9 per cent. Within the region, the export share of Tunisia increased sharply from 0.05 per cent in 1985 to 0.12 per cent in 1995, while the shares of Egypt, Morocco and Turkey remained at about the levels of 1985. All those countries made significant improvements in their shares of exports of wearing apparel, while their shares in human-capital-intensive industries remained negligible.

The rate of investment in the region picked up progressively from about 19 per cent in the late 1980s to over 22 per cent in the early 1990s, but FDI flows to the region have been insignificant in recent years. During the 1980s, major fuel producers such as Saudi Arabia accounted for most of the FDI inflows, but that is no longer the case. Neither North Africa nor western Asia have participated in the worldwide FDI boom since the mid-1980s. As a result, the shares of North Africa and western Asia in both worldwide FDI flows and FDI flows among developing countries have fallen dramatically (see figure 11).

Exceptions to this negative trend are Morocco, Tunisia and, particularly, Turkey, whose success in attracting foreign capital can be related to domestic economic policies, which were reoriented towards macroeconomic stabilization and structural reforms, including reduction of trade barriers and the privatization of State-owned enterprises. In contrast, countries which have not followed consistent programmes of economic reform received only limited FDI inflows.

### *Serious constraints posed by lack of human capital and political uncertainty*

The major oil exporters of the region, considering that real oil prices fell by about two thirds between 1980 and 1995, and that the prospects

*The Islamic Republic of Iran is excluded because of data inconsistencies between GDP and MVA.

**The production data in table 9 include data for the Islamic Republic of Iran.

## North Africa and western Asia show little change in their shares of MVA

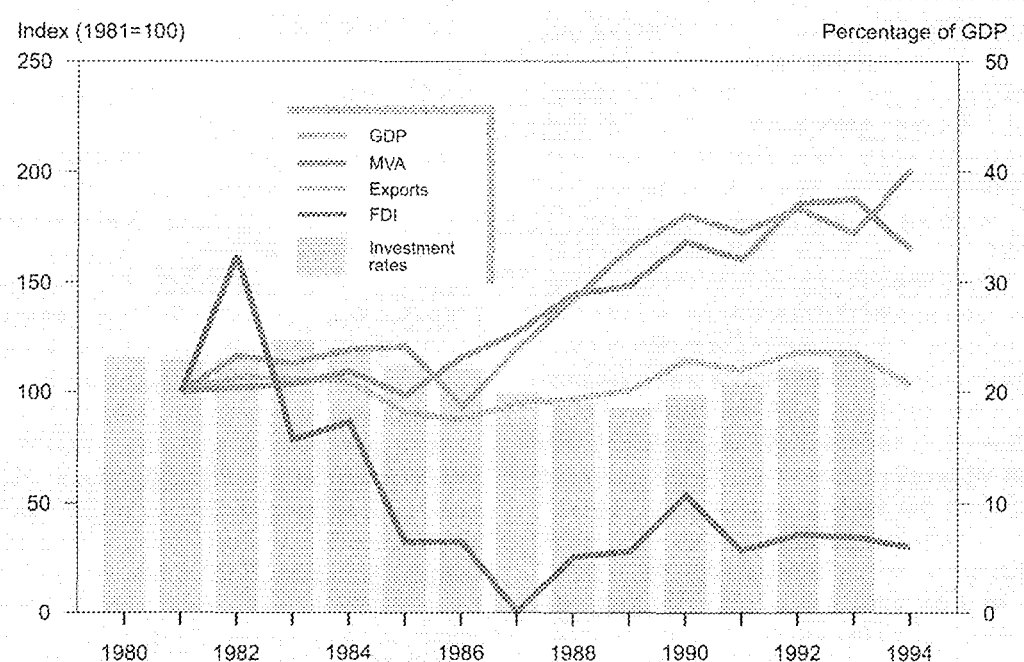
Table 9. North Africa and western Asia: MVA shares, 1985, 1990 and 1995
(Percentage)

| Region and industry | Share in world total | | | Share in total MVA of developing countries | | |
|---|---|---|---|---|---|---|
| | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 |
| North Africa | 0.5 | 0.4 | 0.4 | 2.9 | 2.7 | 2.2 |
| Wearing apparel | 1.0 | 1.1 | 1.0 | 5.5 | 7.1 | 5.1 |
| Industrial chemicals | 0.3 | 0.4 | 0.4 | 2.0 | 2.3 | 1.8 |
| Transport equipment | 0.3 | 0.2 | 0.2 | 1.5 | 1.2 | 0.9 |
| Western Asia | 1.3 | 1.4 | 1.5 | 7.4 | 8.8 | 7.5 |
| Wearing apparel | 0.7 | 1.6 | 1.7 | 4.2 | 10.1 | 8.6 |
| Industrial chemicals | 1.7 | 2.0 | 2.5 | 9.8 | 13.1 | 12.4 |
| Transport equipment | 0.5 | 0.6 | 0.8 | 2.7 | 3.9 | 4.1 |

*Source:* UNIDO database.
*Note:* Figures for 1985 are in current prices, while the others are in 1990 constant prices.

## Domestic investments of North Africa and western Asia are slowly picking up

Figure 10. North Africa and western Asia: GDP, MVA, manufactured merchandise exports and FDI inflows, 1980–1994, and investment rates, 1980–1993




*Source:* UNIDO database.
*Note:* Calculations were based on current United States dollars. Investment rate denotes gross fixed capital formation as a percentage of GDP.

Reform measures enable Morocco, Tunisia and Turkey to maintain or improve their export performance, despite limited participation of the region in global economic change

Table 10. North Africa and western Asia: shares of manufactured exports to industrialized countries by selected industries, 1985, 1990 and 1995
(Percentage)

| Region and country | Year | All manufacturing | Wearing apparel | Industrial chemicals | Electrical machinery | Transport equipment | Professional and scientific goods |
|---|---|---|---|---|---|---|---|
| North Africa and western Asia | 1985 | 0.9 | 4.1 | 0.5 | 0.1 | 0.1 | 0.1 |
| | 1990 | 1.0 | 6.0 | 1.1 | 0.3 | 0.1 | 0.1 |
| | 1995 | 0.9 | 6.4 | 0.9 | 0.3 | 0.1 | 0.1 |
| Egypt | 1985 | — | — | — | — | — | — |
| | 1990 | 0.1 | 0.1 | — | — | — | — |
| | 1995 | — | 0.1 | — | — | — | — |
| Morocco | 1985 | 0.1 | 0.4 | 0.2 | — | — | — |
| | 1990 | 0.1 | 0.8 | 0.2 | 0.1 | — | — |
| | 1995 | 0.1 | 0.7 | 0.2 | 0.1 | — | — |
| Tunisia | 1985 | 0.1 | 0.6 | 0.1 | — | — | — |
| | 1990 | 0.1 | 1.3 | 0.1 | 0.1 | — | 0.1 |
| | 1995 | 0.1 | 1.4 | 0.1 | 0.1 | 0.1 | 0.1 |
| Turkey | 1985 | 0.3 | 3.0 | 0.1 | 0.1 | — | 0.1 |
| | 1990 | 0.4 | 3.6 | 0.2 | 0.2 | — | — |
| | 1995 | 0.3 | 3.9 | 0.1 | 0.2 | 0.1 | — |

*Source*: UNIDO database.
*Note*: Calculations were based on 1990 United States dollars.

for a significant recovery in prices are not encouraging, have little alternative to strengthening adjustment efforts and enhancing their attractiveness for FDI inflows. In the countries of the Co-operation Council for the Arab States of the Gulf, for instance, Governments have started to liberalize their economies and to eliminate some of the structural weaknesses which might constrain diversification from oil. Such weaknesses include excessive protection of national industries from external competition and the dominance of State-run industrial projects.[14] In the more diversified economies, a closer integration into the world economy depends on the implementation of consistent economic reforms. Such reforms would place the economies of western Asia in a stronger position to benefit from the trading opportunities opened up by the newly independent States of central Asia, which partly share borders with the Islamic Republic of Iran and Turkey. The shortage of human capital and the uncertain political environment continue, however, to impose serious constraints on economic development in the region. Unless those constraints are eased, both between and within the countries of the region, it is unlikely to become a more successful participant in the globalization of production and markets, and sustainable FDI inflows and export growth will be difficult to achieve.

## *South Asia*

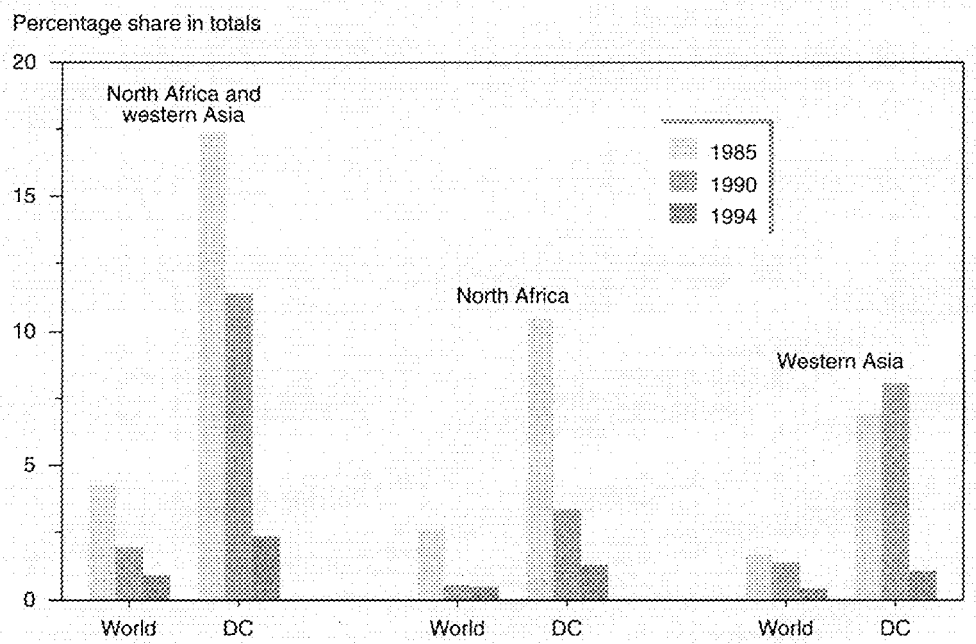
The domestic policy environment, notably persistent import substitution and strict regulation of FDI, have in the past made South Asia less attractive for FDI than developing countries in East and South-East Asia, and South Asia benefited little from the "flying geese"* pattern of industrialization observed elsewhere in Asia. More recently, major policy reforms have been followed by significant improvement in economic performance.

With comparative advantage playing a greater role in industrial specialization, South Asian countries have emerged as important suppliers of labour-intensive products, notably textiles. As competition increases from other low-income countries, however, South Asia must be prepared to move to less labour-intensive forms of export manufactures. This may prove difficult for smaller

*The flying geese pattern refers to the largely Asian phenomena whereby many Asian countries followed the trade and investment pattern of the more dynamic economies in the region, particularly Singapore, Republic of Korea, Hong Kong and Taiwan Province of China.

Flows of foreign direct investment to North Africa and western Asia as a whole declined sharply

Figure 11. North Africa and western Asia: shares of FDI inflows, 1985, 1990 and 1994




*Source:* UNIDO database.

*Notes:* Calculations were based on current United States dollars.
DC refers to developing countries.

economies with limited means of providing complementary domestic factors of production. Investment in education is especially important, and the major challenges are to sustain liberalization and remove infrastructural deficiencies.

## *Labour-intensive industries gaining momentum*

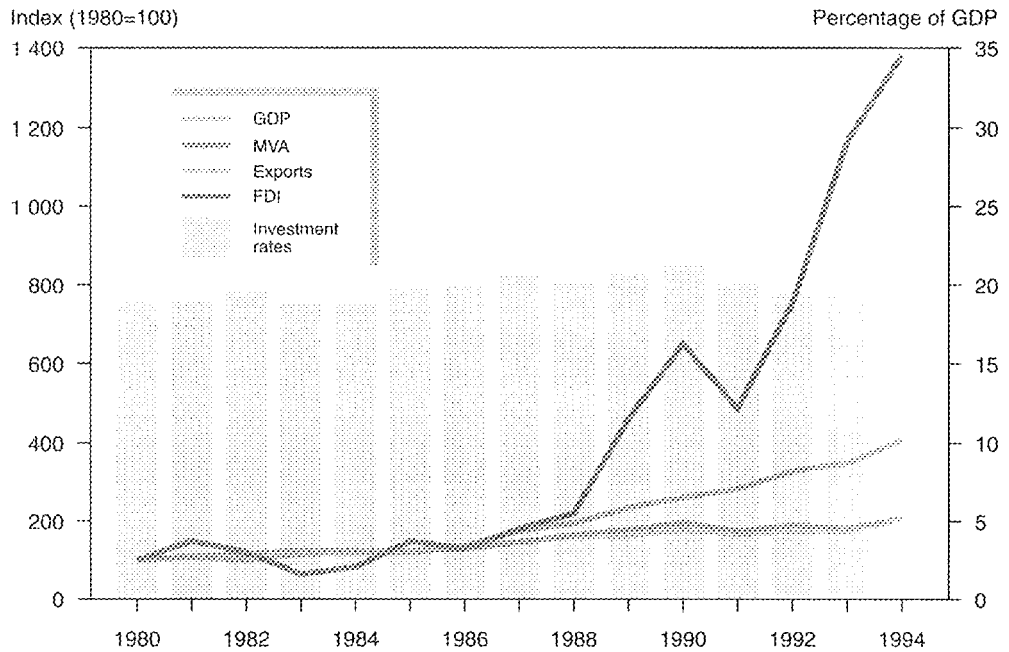
In the past, South Asia fared less well by Asian standards. Per capita income growth was less than half the figure for low- and middle-income economies in East Asia and the Pacific, and in contrast to China and the countries of the Association of South East Asian Nations (ASEAN), South Asia hardly benefited from the increased intra-Asian trade and investment relations stimulated by "flying geese" pattern of industrialization. The participation of South Asia in regional networking through FDI remained marginal compared with that of China and the ASEAN countries.

The picture, however, has changed in recent years. Exports more than tripled in 1994, compared with a relatively slower rise in GDP and MVA. Average FDI inflows in 1994 amounted to nearly nine times the inflows of 1985 (see figure 12). MVA shares in labour-intensive production of wearing apparel as well as in physical-capital-intensive industrial chemicals both increased between 1990 and 1995 (see table 11).

The region has also increased its share of manufactured exports to industrialized countries. The increase is mainly due to big gains in the labour-intensive wearing apparel industry, the share of which rose from 2.4 to 7.5 per cent during the 10-year period. Both India and Pakistan, which had a combined share of more than four fifths of the total exports of South Asia in 1995, had succeeded in raising their contribution to exports to industrialized countries since 1985 (see table 12). Those two countries made remarkable progress in penetrating OECD markets for labour-intensive wearing apparel, and have joined the top 10 suppliers of textiles and wearing apparel in those markets. They remained, however, marginal suppliers of relatively sophisticated products, although the share of India in exports of such products to industrialized countries has increased over the years.

South Asia becomes a major player in globalization since 1985 as a result of liberalizing economic reforms

Figure 12. South Asia: GDP, MVA, manufactured merchandise exports and FDI inflows, 1980–1994, and investment rates, 1980–1993




*Source:* UNIDO database.

*Note:* Calculations were based on current United States dollars. Investment rate denotes gross fixed capital formation as a percentage of GDP.

South Asia increases growth rates of industrial production, especially in labour-intensive industries

Table 11. South Asia: MVA shares, 1985, 1990 and 1995 (Percentage)

| | *Share in world total* | | | *Share in total MVA of developing countries* | | |
|---|---|---|---|---|---|---|
| *Region and sector* | *1985* | *1990* | *1995* | *1985* | *1990* | *1995* |
| South Asia | 1.4 | 1.3 | 1.5 | 7.9 | 8.3 | 7.4 |
| Wearing apparel | 0.4 | 1.3 | 2.0 | 2.3 | 8.3 | 10.0 |
| Industrial chemicals | 2.1 | 1.7 | 2.9 | 11.9 | 10.8 | 14.5 |
| Transport equipment | 0.9 | 1.0 | 1.0 | 5.2 | 6.6 | 5.3 |

*Source:* UNIDO database.

*Note:* Figures for 1985 are in current prices, while the others are in 1990 constant prices.

India and Pakistan gain international competitiveness in labour-intensive production

Table 12. India and Pakistan: shares of manufactured exports to industrialized countries by selected industries, 1985, 1990 and 1995 (Percentage)

| | South Asia | | | India | | | Pakistan | | |
|---|---|---|---|---|---|---|---|---|---|
| Industry | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 | 1985 | 1990 | 1995 |
| All manufactures | 0.3 | 0.6 | 0.9 | 0.2 | 0.4 | 0.6 | 0.1 | 0.2 | 0.2 |
| Wearing apparel | 2.4 | 5.1 | 7.5 | 1.2 | 2.6 | 3.6 | 0.3 | 1.1 | 1.2 |
| Industrial chemicals | — | 0.2 | 0.4 | — | 0.2 | 0.4 | — | — | — |
| Electrical machinery | — | — | 0.1 | — | — | 0.1 | — | — | — |
| Transport equipment | — | — | 0.1 | — | — | 0.1 | — | — | — |
| Professional and scientific goods | 0.1 | 0.1 | 0.2 | — | — | — | 0.1 | 0.1 | 0.1 |

*Source*: UNIDO database.

*Note*: Calculations were based on 1990 United States dollars.

The pace of investment in the region has remained at a low, but stable, level of about 20 per cent since the mid-1980s. Although FDI has recently increased, it has generally constituted a very small percentage of total investment (less than 10 per cent). As in the case of Latin America and the Caribbean, any efforts to stimulate domestic investment in the region must take into account the declining trend in rates of saving, so as to avoid causing undue structural weaknesses in the economy.

The evaluation of FDI in South Asia suffers from data constraints. Nevertheless, the available evidence offers some interesting insights.[15] The region has traditionally been a minor host of FDI, accounting for less than 1 per cent of the world total (see table 13). However, starting from extremely low levels, South Asia has enhanced its attractiveness for FDI in recent years, increasing its shares in both world FDI totals and in total inflows of developing countries.

South Asia attracts FDI in recent years as a result of significant policy changes

Table 13. South Asia: shares of FDI inflows, 1984, 1990 and 1994 (Percentage)

| | Share in world total | | Share in total FDI flows to developing countries | |
|---|---|---|---|---|
| Year | Excluding India | Including India | Excluding India | Including India |
| 1984 | . . | 0.1 | . . | 0.6 |
| 1990 | 0.2 | 0.3 | 1.3 | 2.0 |
| 1994 | 0.2 | 0.6 | 0.6 | 1.6 |

*Source*: UNIDO database.

*Note*: Calculations were based on current United States dollars.

## *Improved economic performance resulting from major policy changes*

Factor endowments suggest that South Asian economies could have benefited from relocation of labour-intensive lines of manufacturing, as did low-income China and ASEAN countries. The major difference between the two groups of countries concerned the domestic policy environment, which in South Asia was less attractive.*

Most importantly, import substitution strategies pursued by all South-Asian Governments lasted longer, and were enforced more rigorously than elsewhere in Asia. The protectionist period resulted in a great deal of misallocation and inefficiency, rather than creating the conditions for dynamic growth of the industrial sector. The strong role of the public sector and inflexible labour markets (notably in India) added to structural rigidity. Administrative controls on economic activity in South Asia were directed at objectives other than efficiency, and led to technological lags and stagnation. In India, in particular, industrial policies held back internal competition by restricting entry, exit and diversification, and by limiting the growth of the most competitive private enterprises. Consequently, established local industries had

*The subsequent paragraphs draw on Lall,[15] OECD, *Linkages: OECD and Major Developing Economies* (Paris, 1995), and Asian Development Bank, *Asian Development Outlook* (Hong Kong, 1994).

weak incentives to keep up with technological advances and to enter world markets. The inflow of foreign technology was constrained by the strict regulation of FDI.

Major policy changes, however, preceded the significant improvement of economic performance that has occurred in recent years. Among the major South-Asian economies, the process of opening up to world markets for goods and capital started in Sri Lanka in the late 1970s, and was undertaken by Bangladesh between 1983 and 1986. India was a latecomer to reform; some adjustment measures were hesitatingly launched in the mid-1980s, but major reforms only started in 1991.

More welcoming attitudes towards FDI have been part of the broadly based liberalization of South-Asian economies.* However, the impact of the revisions to FDI regulations in attracting FDI is likely to differ among potential recipients in the region. For the smaller economies, in particular, it may prove difficult to overcome the constraints of narrow local markets and limited industrial skills. It may take time before countries that have little to offer but cheap labour will be able to move beyond FDI in clothing and resource-based projects (e.g. food processing). In Sri Lanka, the resolution of internal political conflict appears to be another prerequisite for attracting more FDI.

### *Some constraints that need to be overcome*

The level of education and skills training in South Asian countries is likely to be a crucial factor in determining the speed of integration into the global economy. A further important issue concerns the sustainability of liberalization. The reform process is still at a very early stage in some critical areas, and could be slowed down or reversed. Also, infrastructural deficiencies in power, transport and communications persist, especially when compared with competing locations in East and South-East Asia. Again, much of the small and medium-sized industrial sector operates with very low technical skills, and provisions for vocational training are meagre in relation to industrial needs, so that a restructuring of the financing of human capital formation towards investments in technical education and vocational training may be required.

So far, the pace of reform in South Asia has been rather hesitant compared with that of developing countries in other regions, and important obstacles remain. This involves risks for South-Asian economies, whose current comparative advantages are based on cheap, unskilled labour. FDI in low-technology and export-oriented activities represents the first stage of integration into the globalized economy. Such investments tend, however, to be footloose, and may generate few local skills and economic linkages. Hence, Government must continue to play an important role, not only in sustaining the adjustment reforms, but also in developing the capabilities of the economy to derive the full benefit of deeper integration into the world economy.

*For instance, majority foreign ownership is now permitted in India, whereas previously foreign investors were limited to 40 per cent of company shares.

## *East and South-East Asia*

The success of Asian NIEs in penetrating world markets for manufactured goods and attracting FDI is well known. Less advanced Asian economies have also become increasingly involved in globalization. The "flying geese" pattern to be observed in Asia is driven by intra-regional complementarities in supply. The market position of Asian NIEs is being challenged, however, by lower-income competitors, forcing the Asian NIEs to shift to more sophisticated manufacturing activities and to relocate labour-intensive industries to ASEAN countries, and recently also to China and Viet Nam. As a result, the Asian NIEs have succeeded in maintaining their export momentum, and the next generation of ASEAN producers have emerged as new suppliers of manufactured exports and as attractive hosts of FDI.

The process of catching up in Asia has been supported by sustained macroeconomic stability, high investment in physical and human capital and greater openness to international goods and factor markets. Earlier concerns that the region would suffer from trade and FDI diversion, as a consequence of regional integration in Europe and North America, have turned out to be largely unjustified. Hence, past trends in penetrating world markets and attracting FDI are likely to continue, if efforts at upgrading production and exports are sustained. The provision of adequate information, communication and transport facilities is an important factor in this respect, and cooperation among Asian countries will contribute to a reduction in transaction costs of regional trade.

### *Benefits of globalization for East and South-East Asia*

One of the most spectacular developments in post-war international economic relations has been the emergence of East and South-East Asian suppliers in world markets for manufactured goods and their rising attractiveness for internationally mobile

risk capital. The achievements of the first-generation NIEs, namely, Hong Kong, Republic of Korea, Singapore and Taiwan Province of China, have received much attention in the literature.* It is equally important that the Asian success story extends beyond this small group of front runners to a second and third generation of fast growing developing countries, of which ASEAN countries and China are the leading examples. Structural flexibility appears to be a major driving force behind the shifting of standardized production lines from upper- to lower-income economies within Asia.

The typical features of globalization hold for both the first-generation Asian NIEs and lower-income ASEAN countries, notably since the mid-1980s (see figure 13). Notwithstanding the temporary decline after the outbreak of the international debt crisis, FDI flows into Asian NIEs have soared since the mid-1980s. Manufacturing exports have shown strong growth in line with the development of MVA, although at a slower rate than FDI inflows. For the so-called ASEAN4 economies (Indonesia, Malaysia, Philippines and Thailand), manufacturing exports also picked up strongly after the mid-1980s, and consistently exceeded the growth of MVA and GDP. At the same time, substantial restructuring occurred at the industry level. For example, the share of manufactured goods in the merchandise exports of Indonesia soared from 2 per cent in 1980 to 53 per cent in 1993, while that of Malaysia exceeded 70 per cent.

The proposition that both Asian NIEs and ASEAN4 economies have benefited from globalization is supported by significant shifts in MVA towards those country groups (see table 14). Their shares in worldwide MVA nearly doubled within a decade. Table 14 further shows that Asian developing countries have improved their locational attractiveness relative to other developing countries. Asian NIEs and ASEAN4 economies succeeded in increasing their share in the total MVA of developing countries by more than 60 per cent and 45 per cent, respectively. Industry data for all East and South-East Asian developing countries reveal that worldwide MVA shares increased for various industries characterized by different factor intensities.

Given the factor endowments of East and South-East Asian developing countries, it was to be expected that their contribution to worldwide MVA would be highest in labour-intensive production of wearing apparel. Yet the fact that East and South-East Asian developing countries significantly increased their share in worldwide production of both industrial chemicals and transport equipment indicates that the more advanced Asian developing countries have enhanced their locational attractiveness for more sophisticated lines of production. Human capital formation appears to have played a decisive role in this respect.*

Trade data support the view that rising production shares are the consequence of the improved international competitiveness of East and South-East Asia. As reflected in table 15, the region has made substantial progress in penetrating the markets of industrialized countries. The share of manufactured exports of the region to industrialized countries has almost doubled, jumping from 5.9 per cent in 1985 to 11.1 per cent in 1995. That share represents about 60 per cent of the total manufactured exports of developing countries to industrialized countries. In labour-intensive industries such as wearing apparel, the market position of established suppliers of the region was, however, challenged by other developing regions, as reflected in the decline in their export share during the 1990s. The export growth rate of this category of products to industrialized countries also dropped sharply from 9.4 per cent between 1985 and 1990 to 2.3 per cent between 1990 and 1995. On the whole, although the market shares of East and South-East Asia are still relatively low for chemicals and transport equipment compared with those of the industrialized countries, the region succeeded in maintaining its export momentum, further expanding its share in exports of those products to industrialized countries.

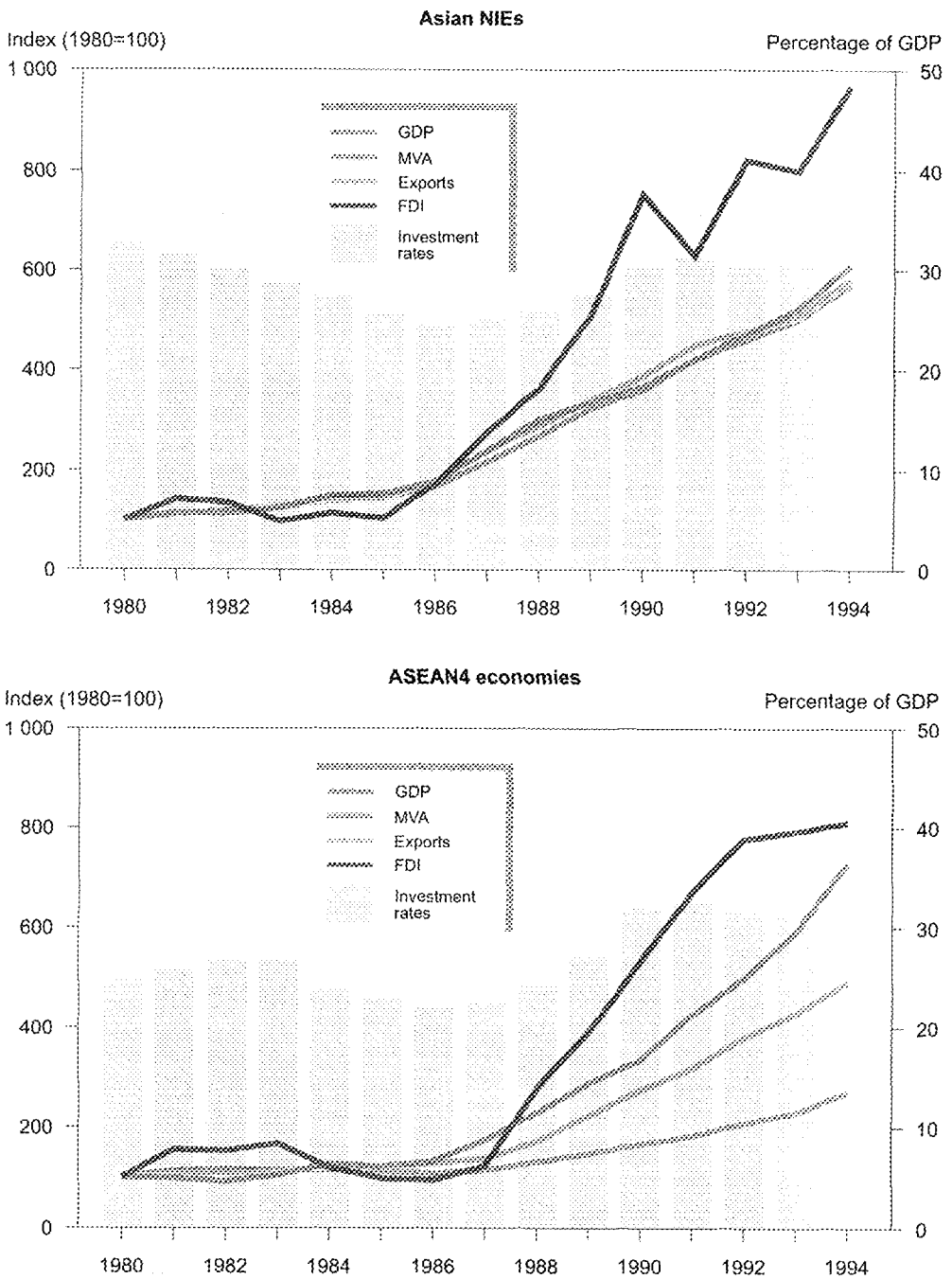
Within the region, the share of the first-generation NIEs in overall manufactured exports to industrialized countries continued to exceed that of the ASEAN economies during the last 10 years. However, the latter group is catching up quickly, thereby causing adjustment pressure on NIEs, which have little choice but to upgrade their exports. The adjustment process has led to their enhanced penetration into industrialized markets for physical- and human-capital-intensive products. Table 15 shows that the share of exports of wearing apparel by NIEs to industrialized countries declined during the last 10 years from 29.4 to 23.7 per cent. On the other hand, their share of exports of professional and scientific goods jumped from 5.0 per cent in 1985 to 8.9 per cent in 1995. The ASEAN economies also made significant gains in the share of their exports of the above-mentioned categories of goods during the period. Their total share of manufactured exports to industrialized countries rose from 0.8 per cent in 1985 to 2.4 per cent in 1995.

*For a recent assessment, see World Bank, *The East Asian Miracle: Economic Growth and Public Policy* (New York, Oxford University Press, 1993).

*The contribution of human capital formation to economic growth is discussed in Alwyn Young, "The tyranny of numbers: confronting the statistical realities of the East Asian growth experience", *Quarterly Journal of Economics*, vol. 110, No. 3 (August 1995), pp. 641-680.

Asian NIEs and ASEAN4 benefit from globalization

Figure 13. Asian NIEs and ASEAN4: GDP, MVA, manufactured merchandise exports and FDI inflows, 1980–1994, and investment rates, 1980–1993




*Source:* UNIDO database.

*Notes:* Calculations were based on current United States dollars. Investment rate denotes gross fixed capital formation as a percentage of GDP.

Asian NIEs include Hong Kong, Republic of Korea, Singapore and Taiwan Province of China. ASEAN4 economies include Indonesia, Malaysia, Philippines and Thailand.

**Asian NIEs and ASEAN4 claim larger shares of world MVA and attract more sophisticated lines of production**

Table 14. Asian NIEs and ASEAN: MVA shares, 1985, 1990 and 1995 (Percentage)

| | Share in world total | | | Share in total MVA of developing countries | | |
|---|---|---|---|---|---|---|
| *Economic grouping, region and industry* | *1985* | *1990* | *1995* | *1985* | *1990* | *1995* |
| East and South-East Asia | 3.4 | 4.5 | 5.9 | 19.2 | 28.8 | 29.6 |
| Wearing apparel | 8.5 | 11.3 | 12.8 | 48.6 | 71.9 | 64.5 |
| Industrial chemicals | 3.1 | 3.6 | 4.4 | 17.5 | 22.9 | 22.3 |
| Transport equipment | 2.1 | 3.1 | 3.8 | 12.1 | 19.6 | 19.2 |
| Asian NIEs[a] | 2.1 | 3.1 | 3.8 | 12.1 | 19.6 | 19.2 |
| ASEAN4[b] | 1.2 | 1.4 | 2.0 | 7.0 | 9.0 | 10.2 |

*Source:* UNIDO database.

*Note:* The figures are calculated in 1990 United States dollars. Figures for 1985 are in current prices while the others are in constant prices.

[a]Asian NIEs include Hong Kong, Republic of Korea, Singapore and Taiwan Province of China.

[b]ASEAN4 economies include Indonesia, Malaysia, Philippines and Thailand.

## *Growth sustained by robust investment*

The rate of investment in the region increased considerably from about 25 per cent during the second half of the 1980s to about 32 per cent during the 1990s, providing the main impetus for growth in the region. Domestic sources of investment remained buoyant during the period. Increasing amounts of investment in developing capabilities in new technologies and in upgrading skills, as well as in infrastructure and production facilities, have helped to sustain long-term growth. The high levels of investment are being financed by the substantial savings accumulated from past years of strong economic growth. The attractiveness of the region for FDI is reflected in its rising shares in total flows of FDI (see figure 14). Within the region, the share of Asian NIEs in total FDI flows into developing countries has fallen sharply in the 1990s, despite a marginal increase in their share in the world total. The pattern applies also to ASEAN4 economies, although less severely. Such changes in the share of FDI are due to the emergence of new competitors for FDI among developing countries. While both Asian NIEs and ASEAN4 have been preferred destinations for FDI inflows, the regional and industry focus of foreign investors has shifted over time, according to changing locational advantages.* In particular, the engagement of Japanese investors in Asian developing countries has shifted over time from NIEs to ASEAN countries such as Indonesia and Malaysia, and, recently, to China and India.[16]

The process of globalization implies that FDI inflows and export performance in the Asian developing countries are driven by a common set of determinants. Attractive investment locations in Asia have enhanced the opportunities for foreign investors to penetrate world markets, and world market success, in turn, has induced further FDI. In other words, the East and South-East Asian countries could derive particularly large benefits from globalization. The share of world-market-oriented FDI in total inflows appears to be higher in Asian developing countries than elsewhere, and in countries such as Malaysia, the Philippines and Thailand, foreign firms have accounted for more than a half of manufactured exports. Moreover, much of the recent export activity of the host countries has been in sectors in which FDI and the associated transfer of technology and managerial know-how have been substantial.[16, 17]

## *Benefits of market-driven networking**

The diffusion of globalization effects from the Asian NIEs to the rest of the region has been helped by networking and linkages in both trade and FDI. As a result, the share of intraregional exports has risen considerably, especially since the mid-1980s, and by 1992, about 37 per cent of manufactured exports of Asian developing countries went to other Asian countries. This is mainly

*For detailed accounts of FDI in Asian LDCs, see Edward K.Y. Chen, "Foreign direct investment in East Asia", *Asian Development Review*, vol. 11, No. 1 (1993), pp. 24-59, and Chia Siow Yue, "Foreign direct investment in ASEAN economies", *Asian Development Review*, vol. 11, No. 1 (1993), pp. 60-102.

*This is distinct from institutionalized regionalism, which may be counterproductive.

## International competitiveness of Asian NIEs and ASEAN4 improves

Table 15. Asian NIEs and ASEAN4: shares of manufactured exports to industrialized countries by selected industries, 1985, 1990 and 1995 (Percentage)

| | *East and South-East Asia* | | | *Asian NIEs*[a] | | | *ASEAN4*[b] | | |
|---|---|---|---|---|---|---|---|---|---|
| *Industry* | *1985* | *1990* | *1995* | *1985* | *1990* | *1995* | *1985* | *1990* | *1995* |
| All manufactures | 6.0 | 9.6 | 11.1 | 5.0 | 7.8 | 8.6 | 0.8 | 1.8 | 2.4 |
| Wearing apparel | 32.6 | 36.7 | 31.2 | 29.4 | 29.8 | 23.7 | 2.2 | 5.7 | 6.6 |
| Industrial chemicals | 1.0 | 2.4 | 3.2 | 0.8 | 2.1 | 2.9 | 0.2 | 0.2 | 0.4 |
| Electrical machinery | 11.5 | 19.7 | 20.9 | 9.7 | 15.6 | 13.8 | 1.8 | 4.0 | 5.6 |
| Transport equipment | 2.3 | 2.5 | 3.1 | 2.3 | 2.3 | 2.8 | 0.1 | 0.2 | 0.4 |
| Professional and scientific goods | 5.2 | 8.8 | 10.2 | 5.0 | 8.1 | 8.9 | 0.2 | 0.7 | 1.3 |

*Source*: UNIDO database.

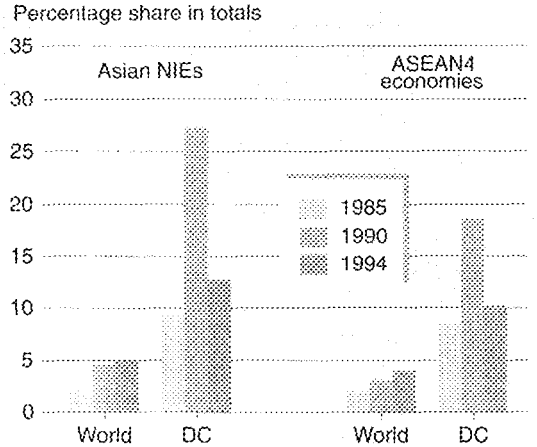
*Note*: Calculations are based on 1990 United States dollars.

[a]Asian NIEs include Hong Kong, Republic of Korea, Singapore and Taiwan Province of China.

[b]ASEAN4 economies include Indonesia, Malaysia, Philippines and Thailand.

## Foreign investors in Asia shift location from NIEs to ASEAN4

Figure 14. Asian NIEs and ASEAN4: shares of FDI inflows, 1985, 1990 and 1994




*Source*: UNIDO database.

*Notes*: Calculations were based on current United States dollars.

Asian NIEs includes Hong Kong, Republic of Korea, Singapore and Taiwan Province of China. Asean4 economies include Indonesia, Malaysia, Philippines and Thailand.

DC refers to developing countries.

the result of different specialization profiles. At the same time, the interindustry pattern of trade between Asian countries at different stages of economic development has been supplemented by trade relations among economies with similar per capita incomes. Intra-industry trade appears to be on the rise among NIEs, for example, in relatively technology-intensive goods, which can be attributed to successful integration into global sourcing and marketing strategies of TNCs.*

Networking with regard to FDI was initiated by Japanese investment in neighbouring developing countries, which was concentrated on sectors in which Japan had lost comparative advantage. In the early phase of investment, Asian NIEs attracted mainly Japanese FDI. Intra-Asian FDI gathered further momentum when Hong Kong, Singapore and Taiwan Province of China emerged as major investors in less advanced Asian economies in the next phase. For example, Hong Kong became the second-largest source of FDI in Indonesia. Asian investors together accounted for nearly two thirds of total FDI approved by the group of ASEAN4 in the late 1980s. Like Japanese FDI, most of the FDI accounted for by NIEs was world-market-oriented, thereby strengthening the export sectors of recipient countries. More recently, ASEAN countries themselves have undertaken significant investment, for example, in China and Viet Nam.

Regional networking facilitates the process of moving up the ladder of comparative advantage both in the source countries of FDI, which shift to more sophisticated activities, and in the host countries, whose industrial employment and manufactured exports expand as a result of relocation.[16] Underlying this process is the need for industrial restructuring as per capita income and wages rise. Successful restructuring, in turn, is conditional on appropriate policy incentives.

*In 1992, 12 per cent of exports of Asian NIEs took place among themselves (Asian Development Bank, *Asian Development Outlook* (Hong Kong, various issues)).

### *Effective domestic industrial policy and industrial restructuring*

While the effectiveness of policy measures in facilitating the successful integration of Asia into world markets is beyond serious doubt, their relative importance continues to be debated.[19, 20] First of all, the Asian economies benefited from maintaining macroeconomic stability. The absence of high and volatile inflation reduced investment risks for both foreign and domestic investors. This resulted in an outstanding performance in enlarging the physical capital stock which stimulated the growth of labour productivity. Secondly, human capital formation figured high on the policy agenda. This factor represents a driving force of economic growth, notably as globalization advances the diffusion of new technologies. Thirdly, the process of catching up was supported by greater openness to international goods and factor markets. Import restrictions have been liberalized considerably in most Asian economies since the 1980s. Financial market reforms have enhanced the stability of the regulatory framework, and provided improved opportunities to draw on new sources of capital. International capital mobility has been encouraged by removing foreign exchange controls and regulations on portfolio investment, and by relaxing restrictions on the remittance of profits. FDI policies have been revised by opening up sectors previously considered "sensitive".[19, 21, 22]

The favourable position of Asian NIEs and ASEAN countries in globalized product and factor markets has therefore been supported by a domestic economic policy environment that encouraged industrial restructuring. The future position of Asian NIEs and ASEAN countries in globalized production will continue to depend largely on their own policies. In view of growing competition from lower-income countries, industrial restructuring will remain high on the policy agenda. Upgrading production and exports will require continuous efforts in human capital formation, in order to further improve local skills in handling more sophisticated technologies. Likewise, investment in infrastructure will prove decisive, given that the benefits to be derived from globalization depend on the provision of adequate information, communication and transport facilities.* Such investment may include projects applying higher environmental production standards, in order to avoid the accusation of "eco-dumping" by international trading partners.

*Increasingly, regional cooperation among Asian countries is aimed at improving infrastructure, thereby reducing the transaction costs of international trade, see Min Tang, "Asian economic cooperation: opportunities and challenges", paper presented at the International Forum on Asian Perspectives: Asian Regional Cooperation and Integration, jointly organized by the Asian Development Bank and OECD, and held at Paris on 3 and 4 July 1995.

## *China*

China illustrates the changes which globalization offers to low-income countries. From 1980 to 1992, China accounted for a rapidly rising share in worldwide manufacturing, increased its exports threefold relative to GDP, and recorded a phenomenal growth in FDI inflows. The legacies of central planning with its neglect of comparative advantage have been largely overcome since the beginning of reforms in the late 1970s. The impressive world market performance was supported by industrial restructuring and diversification of exports. The opening-up of the economy enabled China to join the Asian "flying-geese" formation and to attract foreign investors looking for new markets and low-cost sourcing.

Nevertheless, the future position of China in globalized production is subject to various risks. First, the country is likely to remain one of the principal targets of protectionist measures by industrialized countries, unless the protracted struggle over its membership of the World Trade Organization (WTO) is overcome. Second, persistent stop-go cycles in monetary and fiscal policy may ultimately erode the confidence of foreign and domestic investors. Macroeconomic stability will be difficult to achieve, however, unless the subsidization of State enterprises is abolished. Finally, investment in infrastructure as well as greater autonomy at the enterprise and local Government level seem to be required in order to narrow the gap between the inner provinces and booming coastal regions.

### *Exports and investment are the main sources of growth*

Even by Asian standards, the pace of economic change in China has been outstanding. The country has reported average GDP growth of about 9 per cent per annum since economic reforms started in 1978. Exports have been a strong source of economic growth, and increased threefold relative to GDP from 1982 to 1994 (see figure 15). Investment rates surged to above 35 per cent in recent years, compared with about 24 per cent during the early 1980s. The strong growth in inflows of FDI, which started from a fairly low level in the early 1980s, has also contributed to high rates of investment. In fact, the double-digit economic growth of recent years has raised concern that the rate of investment will need to be reduced in order to maintain macroeconomic stability. In this context, it is important to bear in mind that such efforts

must not hamper any initiatives taken to build up technological capabilities and to promote HRD.

## *Sharp gain in world manufacturing value added, especially in labour-intensive industries*

China accounted for a rapidly rising share in worldwide MVA, from 3.6 per cent in 1985 to about 5.2 per cent in 1995 (see table 16). Industry-specific data point to significantly increased MVA shares in both labour-intensive industries, such as wearing apparel, and more sophisticated manufacturing activities, such as industrial chemicals and transport equipment.* Among those industries, wearing apparel has now surpassed industrial chemicals to become the largest of the three.

From 1985 to 1995, China increased its contribution to world manufacturing exports more than fourfold to 2.5 per cent. It also raised its share in worldwide FDI inflows from 3.0 per cent in 1985 to 7.2 per cent in 1992 and 14 per cent in 1995 (see figure 16), and currently accounts for more than one fifth of FDI flows to all developing countries.

## *Closer trade and investment links within Asia*

The positive economic performance of China in times of global change has been supported by closer trade and FDI links within Asia. The intra-Asian trade relations of China are most pronounced with Asian NIEs, which in 1992 accounted for nearly half of Chinese exports,* and which sent 12 per cent of their exports to China. Furthermore, Asian NIEs, notably Hong Kong and Taiwan Province of China, emerged as leading investors in China. Companies from Indonesia, Malaysia and Thailand followed, and by mid-1993, Asian NIEs and ASEAN countries accounted for 78 per cent of total FDI stocks in China.[12, 16, 23]

The participation of China in the international division of labour went, however, beyond closer trade and investment relations with neighbouring developing countries. OECD-based TNCs seized the opportunity to benefit from low-cost sourcing and the huge market potential, once the integration of China into their globalization strategies was rendered possible by domestic liberalization. This applies particularly to Japan, which directed more than 5 per cent of its FDI engagements in the non-OECD area to China between 1984 and 1992.**

At the same time, China made considerable progress in penetrating industrialized markets (see table 17). The share of manufactures in Chinese exports to the industrialized countries grew to more than 86 per cent in 1995, and the share of China in the market for manufactured goods in industrialized countries increased more than fourfold during the last 10 years. Market shares remained relatively small in human-capital-intensive

*Industry-specific data cover UNIDO data on centrally planned Asia. Statistics for this group, which includes Cambodia, Lao People's Democratic Republic, Mongolia and Viet Nam, are clearly dominated by China. It should be noted, however, that data are drawn from industrial statistics based on production in State-owned and collectively owned enterprises only, which omit all other firms. As a result, MVA growth tends to be seriously understated, since Chinese township and village enterprises, for example, are well known for their outstanding economic performance.

*This exceptionally high share is largely due to entrepôt trade, in which Hong Kong and Singapore played the leading role.

**See OECD, *International Direct Investment Statistics Yearbook* (Paris, 1994). On a contract basis, United States FDI in China was as important as Japanese FDI from 1988 to 1992. Both source countries accounted for about 6 per cent of total FDI in China (see Rolf Langhammer, *The Formation of Greater China and the Future of EU-China Relations*, Working Papers on East Asian Economic Studies, No. 10 (Duisburg, University of Duisburg, 1994), table 3).

China emerges strongly in world manufacturing activities

Table 16. China: MVA shares, 1985, 1990 and 1995 (Percentage)

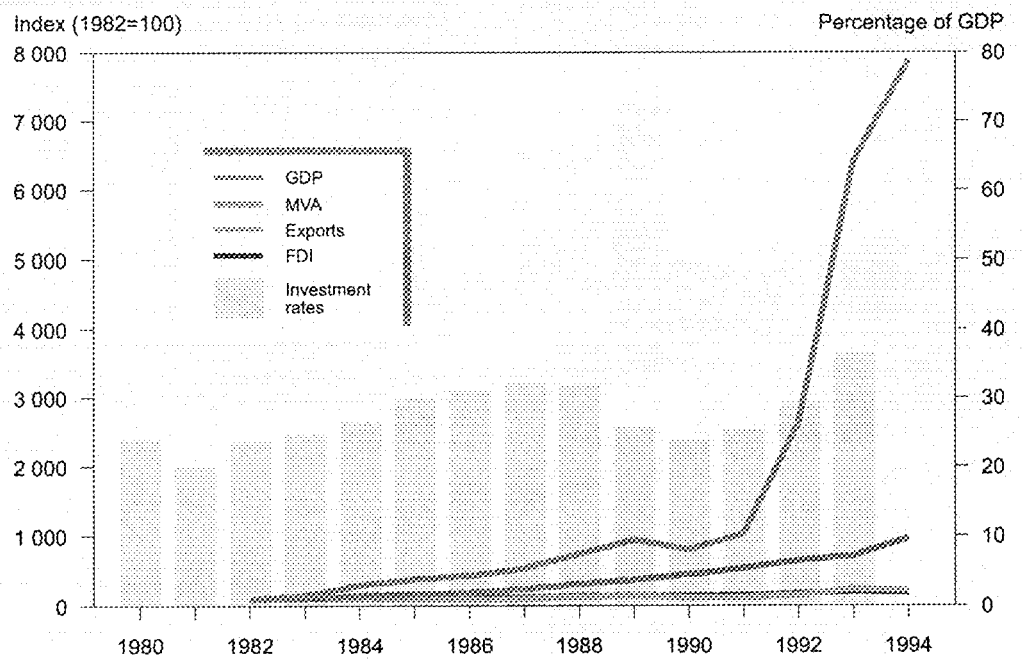
| | *Share in world total* | | | *Share in total MVA of developing countries* | | |
|---|---|---|---|---|---|---|
| *Industry* | *1985* | *1990* | *1995* | *1985* | *1990* | *1995* |
| China | 3.6 | 2.8 | 5.2 | 20.4 | 17.8 | 26.2 |
| Wearing apparel | 3.0 | 3.0 | 7.9 | 17.4 | 19.3 | 40.0 |
| Industrial chemicals | 5.0 | 4.9 | 7.5 | 28.4 | 31.2 | 37.9 |
| Transport equipment | 1.9 | 1.2 | 3.5 | 10.7 | 7.7 | 17.5 |

*Source*: UNIDO database.

*Note*: Calculations were based on 1990 United States dollars. Figures for 1985 are in current prices, while the others are in constant prices.

China registers sharp rise in investments

Figure 15. China: GDP, MVA, manufactured merchandise exports and FDI inflows, 1980–1994, and investment rates, 1980–1993




*Source:* UNIDO database.

*Note:* Calculations were based on current United States dollars. Investment rate denotes gross fixed capital formation as a percentage of GDP.

industries such as transport equipment, electrical machinery and professional and scientific goods, but are gaining increasing importance, particularly in the latter two industries. On the other hand, the share of wearing apparel jumped from 3.5 per cent in 1985 to 10.4 per cent in 1995, challenging the position of the Asian NIEs as the major suppliers of wearing apparel in industrialized markets.

Trade data therefore support the view that the economic development of China has proceeded according to its comparative advantage in labour-intensive manufacturing in the course of market-related reforms.* This development is likely to continue. The large inner provinces of China, greatly lagging behind the coastal region in terms of per capita income and world market integration, may initiate a process of catching up by becoming more outward-oriented. At the same time, the relatively advanced coastal region is likely to compete increasingly for the markets of Asian NIEs in medium-technology industries such as shipbuilding and durable consumer goods.

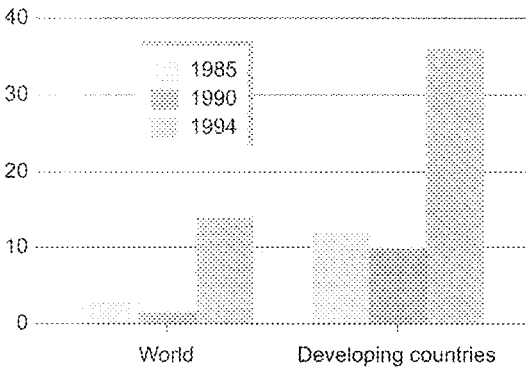
*For details, see Andres Boltho and others, *China's Emergence: Prospects, Opportunities and Challenges*, Policy Research Working Papers (Washington, D.C., World Bank, 1993).

## *Sustaining the momentum*

An important question for China is whether past achievements in attracting foreign capital and expanding trade can be sustained without more far-reaching economic reforms. Two interrelated issues deserve particular attention. First, China has been relatively unsuccessful, by East Asian standards, in maintaining macroeconomic stability, which can be considered a critical factor in global competition for foreign capital. Persistent stop-go cycles in monetary and fiscal policy may erode the confidence of foreign and domestic investors.[24] Second, the subsidization of inefficient and loss-making State-owned enterprises has been a major factor underlying macroeconomic imbalances. This raises the question of how to deal with the increasing number of such loss-making enterprises, whether by privatization, enterprise reform or greater market competition.[25, 26]

China accounts for more than one-fifth of flows of foreign direct investment to all developing countries

Figure 16. China: share of FDI inflows, 1985, 1990 and 1994




*Source:* UNIDO database.

Note: Calculations were based on current United States dollars.

China successfully exploits its comparative advantage in labour-intensive manufactures

Table 17. China: shares of manufactured exports to industrialized countries by selected industries, 1985, 1990 and 1995 (Percentage)

| *Industry* | *1985* | *1990* | *1995* |
|---|---|---|---|
| China | 0.5 | 0.8 | 2.1 |
| Wearing apparel | 3.5 | 4.4 | 10.4 |
| Industrial chemicals | 0.4 | 0.8 | 1.0 |
| Electrical machinery | — | 0.2 | 2.3 |
| Transport equipment | — | 0.1 | 0.2 |
| Professional and scientific goods | 0.1 | 0.2 | 2.4 |

*Source:* UNIDO database.
*Note:* Calculations were based on 1990 United States dollars.

## ECONOMIES IN TRANSITION

The former Soviet bloc was characterized by a deliberate isolation from world markets until the collapse of socialism. The change of regime resulted in a drastic fall in output which has persisted in many countries of the former Soviet Union, and caused a delay in the adoption and implementation of consistent economic reforms. Moreover, the countries of the former Soviet Union have largely failed to penetrate OECD markets. In contrast, the central European economies in transition have been more successful in the redirection of trade and diversification of exports. Frequently, however, FDI inflows have remained smaller than expected, especially where economic and political prospects have continued to be uncertain.

Economies in transition also currently lack the infrastructure for developing alliances and cooperation with other developing countries. The prior emphasis on capital-intensive heavy industries has retarded the development of SMIs which would be key features of such relationships. But given the gathering momentum of the process of privatization and development of the private sector, and given the human capital and technological base in those economies, the emergence of networking may not be too far in the future. Certainly the potential is slowly forming for such approaches in central and eastern Europe.

As a central element in the overall transition process, economic reform appears to be irreversible. Nevertheless, it will be difficult to sustain trade expansion and make FDI more attractive, if liberal trade regimes are undermined by the reintroduction of protectionism. Instead, the policy focus should be on further industrial restructuring and development of the private sector. Since intra-regional trade is likely to play a limited role, a stable framework for investment in internationally competitive industries becomes all the more important. This requires action on various fronts, including sound macroeconomic management, institution-building where a market-oriented infrastructure is still lacking, and enterprise reform by hardening budget constraints.

### *Sharp drop in manufacturing value added*

Because of shortcomings in the coverage and reliability of the data, only tentative assessments can be made of the contribution of the countries of central and eastern Europe and of the former Soviet Union to worldwide MVA (see table 18).* It

*The Baltic States are included among the countries of central and eastern Europe. The countries of the former Soviet Union comprise the member States of the Commonwealth of Independent States plus Azerbaijan and Georgia.

is clear, however, that the countries of the former socialist bloc have experienced significant declines in their shares of MVA. The decline has been most pronounced in the countries of the former Soviet Union, where the MVA share of 1995 was down by almost 56 per cent on the 1990 share.

The different scale of MVA losses among economies in transition may be partly due to differences in the structure of manufacturing. A rigorous test of this proposition is impossible because comparable data are largely lacking, but the following observations lend some support to it. MVA shares declined sharply for all representative industries listed in table 18, but the decline was slightly larger in physical- and human-capital-intensive industries, such as chemicals and transport equipment, than in labour-intensive industries, such as wearing apparel. For instance, the relatively important role of Poland in offshore processing of clothing for western markets may have helped to contain MVA losses. In contrast, other countries, such as the Czech Republic and particularly Slovakia, were characterized by a high concentration on heavy industries that suffered from ageing capital, lagging technology and shortages of energy and other raw materials,[27] as well as greatly diminished markets, especially for its military industries.

A difference in initial industrial structures and in the timing and sequencing of economic transition are other factors which may explain country-specific MVA developments. MVA shares were already on a downward trend in the 1980s, and the decline continued, typically at an accelerated pace, during the second phase of the transition process, when misallocation became evident after transformation programmes had been launched. The trend was halted in Poland in 1992, and in Hungary in 1993. The prospects for industrial production are bleaker in many successor States of the former Soviet Union. The timeliness and consistency of reforms, as well as the conditions in which they are initially undertaken, appears to influence the prospects for recovery. Whereas Hungary implemented gradual reforms in the 1980s, Poland was the first to initiate far-reaching reforms in early 1990.* The Czech Republic and Slovakia were lagging somewhat behind, but were then quite successful in containing the costs of transition by providing State-owned enterprises with appropriate policy incentives for adjustment and restructuring.

*For details, see European Bank for Reconstruction and Development, *Transition Report* (London, October 1994) and Claudia M. Buch and others, *Overcoming Obstacles to Successful Reforms in Economies in Transition*, Kieler Studien, No. 261 (Tübingen, J. C. B. Mohr, 1994).

## *Reform measures to enhance competitiveness*

Trade reform is one of the main elements of the economic reform programmes of economies in transition, and the progress made in their implementation has differed significantly between the countries of central and eastern Europe, on the one hand, and many countries of the former Soviet Union, on the other.[28] The countries of central and eastern Europe are characterized by few remaining import and export quotas, insignificant involvement in trade by Governments and former trade monopolies and almost full convertibility of current accounts. At the same time, trade controls persist in many of the countries of the former Soviet Union. It is thus not surprising that the latter have been largely unsuccessful in penetrating OECD markets. Available data at subregional and country levels for the period 1983-1993 show that the share of all the countries of the former Soviet Union in total OECD manufacturing imports has stagnated since 1987; their contribution to OECD imports of manufactures in 1993, though slightly higher than that of six years earlier, was smaller than that of either Poland or the former Czechoslovakia (see table 19). The countries of the former

**Economies in transition suffer significantly declining shares in world MVA**

Table 18. Economies in transition: MVA shares, 1985, 1990 and 1995 (Percentage)

| | *Share in total world MVA* | | |
|---|---|---|---|
| *Region, country and industry* | *1985* | *1990* | *1995* |
| Central and eastern Europe | 3.5 | 2.1 | 1.6 |
| Wearing apparel | 5.2 | 3.5 | 2.7 |
| Industrial chemicals | 2.6 | 1.4 | 1.1 |
| Transport equipment | 2.6 | 1.5 | 1.1 |
| Former Czechoslovakia | 0.6 | 0.4 | 0.2[a] |
| Hungary | 0.2 | 0.1 | 0.1 |
| Poland | 0.8 | 0.5 | 0.6 |
| Countries of the former Soviet Union | 9.6 | 3.4 | 1.5 |
| Wearing apparel | 17.6 | 6.2 | 3.1 |
| Industrial chemicals | 9.9 | 3.2 | 1.2 |
| Transport equipment | 7.2 | 2.3 | 0.8 |

*Source:* UNIDO database.

*Note:* The figures were calculated in 1990 United States dollars. Figures for 1985 are in current prices while the others are in constant.

[a]Based on combined data for the Czech Republic and Slovakia.

Soviet Union made little progress in diversifying their exports. Dependence on primary commodities continued to be extremely high, and since 1987 the share of manufactures in total exports to OECD markets increased by merely 4 percentage points to 18.5 per cent in 1993.

The trade performance of the countries of central and eastern Europe has been impressive compared with the countries of the former Soviet Union. The countries of central and eastern Europe succeeded in redirecting exports to OECD countries after the collapse of trade between member States of the former Council for Mutual Economic Assistance (CMEA). In 1987, OECD markets absorbed less than one quarter of total exports of the former Czechoslovakia and about two fifths of the exports of Hungary and Poland. Five years later, OECD markets accounted for more than 80 per cent of the exports of the former Czechoslovakia and Poland, and slightly less than 70 per cent of the exports of Hungary. The countries of central and eastern Europe as a whole increased their share in overall OECD imports by 60 per cent from 1990 to 1993. The former Czechoslovakia and, following its dissolution, the Czech Republic and Slovakia, were the top performers, while the performance of Hungary on OECD markets was less satisfactory. All the major countries of central and eastern Europe have substantially increased their contribution of manufactured goods to overall exports to OECD markets, their share approaching 70 per cent in 1993. In terms of the size of their shares in OECD markets for manufactures, Hungary was again outperformed by the Czech Republic, Poland and Slovakia. The penetration of OECD markets by the countries of central and eastern Europe was enhanced in both labour-intensive industries and more sophisticated manufacturing activities. Among the representative product categories covered in table 19, suppliers in central and eastern Europe were clearly most important in OECD imports of clothing. Market shares quadrupled within three years in SITC category 78, which includes finished cars as well as automotive parts and components. This suggests that the engagement of OECD-based TNCs in the automobile industry of some countries of central and eastern Europe has supported the integration of those countries into the international sourcing network.

## *Performance improvement based on linkage with the European Union*

The progress made by the countries of central and eastern Europe in redirecting and diversifying their exports was helped by better market access offered by OECD Governments after the collapse of the former regime. Unprecedented trade concessions granted by the European Union under the so-called Europe agreements with Bulgaria, Czech Republic, Hungary, Poland, Romania and Slovakia are relevant in this respect. Restrictions are applied, however, to some exports from central and eastern Europe in so-called sensitive areas such as steel and certain agricultural products. Those trading partners were effectively promoted to the top of the pyramid of trade preferences of the European Union.[1] Bilateral free trade agreements were concluded between the European Union and the Baltic States and Albania. The countries of the former Soviet Union were treated less generously, being dealt with under the generalized system of preferences through so-called partnership agreements with the European Union.

In addition to trade preferences of the European Union, the former Czechoslovakia (after its dissolution, the Czech Republic and Slovakia), Hungary and Poland benefited from proximity to the European Union and the prospects of acceding to full membership. They are enjoying the advantages of low transaction costs resulting from geographical proximity, cultural similarity and complementarity in resource endowment.[29] Economic distance rendered it much more difficult for the countries of the former Soviet Union to gain access to the markets of the European Union.

Nevertheless, the failure of the countries of the former Soviet Union to penetrate OECD markets cannot be blamed entirely on relatively unfavourable external conditions. Significant differences in export performance prevailed even among the countries forming the free trade area known as the group of Visegrad, namely, Czech Republic, Hungary, Poland and Slovakia, although external conditions were similar. For example, the main reason why Hungary lagged behind the Czech Republic, Poland and Slovakia was the appreciation of its real exchange rate by 31 per cent between 1990 and 1993.[28] Many of the countries of the former Soviet Union continue to apply highly restrictive export regimes, including export duties, quotas and requirements for currency surrender at below-market exchange rates. As a result, complementarities in supply between the European Union and countries of the former Soviet Union could not be fully exploited.

## *Skewed inflows of foreign direct investment*

Both domestic and external factors may enhance the attractiveness of the economies in transition for FDI. On the one hand, it may be argued

## Early reformers gain significant international competitiveness

Table 19. Economies in transition: import shares in OECD markets, 1987, 1990 and 1993
(Percentage)

| Economic grouping, region or country | Year | Total trade (SITC 0-9) | All manufactures (SITC 5-8)[a] | Clothing (SITC 84) | Chemicals (SITC 5) | Vehicles (SITC 78) |
|---|---|---|---|---|---|---|
| Central and eastern Europe | 1987 | 0.94 | 0.67 | 2.24 | 0.94 | 0.19 |
| | 1990 | 0.91 | 0.71 | 2.21 | 1.02 | 0.19 |
| | 1993 | 1.46 | 1.43 | 4.42 | 1.14 | 0.76 |
| Former Czechoslovakia[b] | 1987 | 0.19 | 0.16 | 0.25 | 0.23 | 0.05 |
| | 1990 | 0.19 | 0.17 | 0.24 | 0.25 | 0.07 |
| | 1993 | 0.34 | 0.34 | 0.53 | 0.32 | 0.22 |
| Hungary | 1987 | 0.20 | 0.15 | 0.55 | 0.27 | 0.03 |
| | 1990 | 0.22 | 0.18 | 0.60 | 0.28 | 0.05 |
| | 1993 | 0.26 | 0.25 | 0.81 | 0.28 | 0.09 |
| Poland | 1987 | 0.27 | 0.17 | 0.55 | 0.20 | 0.07 |
| | 1990 | 0.35 | 0.24 | 0.77 | 0.36 | 0.07 |
| | 1993 | 0.42 | 0.39 | 0.42 | 0.27 | 0.14 |
| Countries of the former Soviet Union | 1987 | 1.16 | 0.25 | 0.01 | 0.74 | 0.23 |
| | 1990 | 1.17 | 0.21 | 0.01 | 0.66 | 0.21 |
| | 1993 | 1.17 | 0.31 | 0.29 | 0.96 | 0.13 |

*Source:* Organisation for Economic Co-operation and Development.
*Note:* SITC = Standard International Trade Classification.
[a]Excluding SITC 67 and 68.
[b]For 1993, combined data of the Czech Republic and Slovakia.

that prospective members of the European Union in central and eastern Europe have the best chances to attract FDI, notably from companies based in the European Union.[17] Given that trade and FDI typically reinforce each other, the Europe agreements may also have fostered investment relations. The prospect of membership of the European Union may have provided a further stimulus for companies in the European Union to relocate labour-intensive lines of manufacturing to countries of central and eastern Europe such as the Czech Republic and Poland, where wages are a fraction of labour costs in the major countries of the European Union. Moreover, geographical proximity seems to have encouraged small and medium-sized companies in the European Union to become international by investing in neighbouring countries of central and eastern Europe. On the other hand, favourable external conditions may be insufficient to motivate FDI. That is most likely to be the case in economies in transition, where economic and political instability threatens to undermine the ongoing process of transformation. Furthermore, the cost differences between the European Union and its future members are likely to decline after accession, as both wage costs and environmental standards can be expected to rise.

Empirical evidence on FDI flows to central and eastern Europe and the countries of the former Soviet Union since the late 1980s points to an interplay of external conditions and country-specific internal factors. FDI flows to all economies in transition for which the relevant data are available have increased from $600 million in 1991 to between $4 billion and $5 billion per annum from 1992 to 1994.* Flows to the 15 recipients accounted for 2.8 per cent of world totals in 1992/93 (see table 20). The 1993 flows to all the countries of central and eastern Europe and the former Soviet Union were lower than those to Argentina and Singapore, at levels roughly comparable to flows to Malaysia and Mexico, and below the expectations of Governments of the region.[28]

FDI flows to central and eastern Europe and to the countries of the former Soviet Union have been heavily skewed towards a rather small subset of recipients. Between 1988 and 1994, the Czech Republic, Hungary and the Russian Federation accounted for three quarters of flows to all 15 countries. In per capita terms, Hungary stands out as the most attractive location for FDI. Country-specific investment conditions have played a

*The 1991 figure may be somewhat understated due to missing data for several economies in transition.

**Foreign direct investment flows to central and eastern Europe and to the countries of the former Soviet Union concentrate on a small number of countries**

Table 20. Economies in transition: FDI inflows, 1988-1994

| Economic grouping, region and country | Cumulative net inflows[a] (millions of dollars) | Net inflows 1992-1993 | |
|---|---|---|---|
| | | Per capita[b] (dollars) | Percentage of world total |
| Central and eastern Europe | | | |
| Albania | 116 | 10 | 0.02 |
| Bulgaria | 205 | 5 | 0.03 |
| Croatia | 104 | 6 | 0.02 |
| Czech Republic | 3 319 | 73 | 0.46 |
| Estonia | 468 | 70 | 0.07 |
| Hungary | 6 941 | 186 | 1.16 |
| Latvia | 269 | 17 | 0.02 |
| Lithuania | 74 | 6 | 0.01 |
| Poland[c] | 1 602 | 11 | 0.26 |
| | (2 799)[d] | (31) | (0.73) |
| Romania | 501 | 4 | 0.05 |
| Slovakia | 434 | 23 | 0.07 |
| Slovenia | 374 | 58 | 0.07 |
| Countries of the former Soviet Union | | | |
| Belarus | 32 | 1 | 0.01 |
| Russian Federation | 3 958 | 6 | 0.45 |
| Ukraine | 625 | 4 | 0.12 |
| All countries of central and eastern Europe and the former Soviet Union | 19 022 | 14 | 2.82 |

*Source:* *Economic Survey of Europe in 1994-1995* (United Nations publication, Sales No. E.95.II.E.1) and IMF, *Balance of Payments Statistics Yearbook* (Washington, D.C., various issues).

[a]Data for 1994 are estimated in some cases, and incomplete in others.

[b]Per annum.

[c]Large discrepancies prevail for Poland (in contrast to other countries) between data of the United Nations Economic Commission for Europe and IMF data; the latter are presented in parentheses.

[d]1988-1993.

crucial role. For example, Hungary received the most favourable rating for political stability in the early 1990s. Moreover, foreign participation was a central pillar of the Hungarian strategy of privatization. In contrast, FDI in Poland was hindered by persistent political struggles over the mass privatization programme.

Foreign investors attempting to gain a foothold in new markets generally preferred economies in transition in which macroeconomic, political and institutional stability was fairly advanced. This probably explains why per capita flows of FDI to Bulgaria, Romania and Slovakia were as small as in many countries of the former Soviet Union, despite much better external conditions. Proximity to and closer institutional ties with the European Union were thus helpful, but insufficient to make the economies in transition more attractive for FDI, and hence to promote their penetration of Western markets.

## *Policy challenges*

An examination of recent developments indicates some of the policy challenges facing the countries of central and eastern Europe and those of the former Soviet Union. The major challenge is to follow up the changes in the macroeconomic framework and to address structural impediments at the micro-economic level. In this context, industrial restructuring, privatization and development of SMIs and of the private sector as a whole will be critical. Progress achieved at the macroeconomic level should thus be combined with micro-economic improvements.

Another important question for the economies in transition is how to sustain trade expansion and their attractiveness for FDI. The tremendous cost advantages prevailing in the early stages of transition may increasingly be eroded, if expectations of higher economic, social and environmental stan-

dards are not fulfilled. Competitive pressure from low-cost latecomers to reform is then likely to mount. In order to meet that challenge, structural flexibility is required in the relatively advanced countries of central and eastern Europe. Industrial restructuring and efficient development of the private sector appear to be crucially important for that purpose. By mid-1994, the differences between countries of central and eastern Europe in the contribution of the private sector to GDP continued to be large: the share was highest, at 65 per cent, in the Czech Republic, while standing at about 55 per cent in Hungary and Poland, and at only about 33 per cent in Romania and Slovenia.[28]

Industrial restructuring may prove to be most difficult where State-owned enterprises still play a major role, especially if bankruptcy laws are not enforced. Moreover, development of the private sector depends on efficient domestic financial markets. In some countries of central and eastern Europe, lending decisions continue to be biased in favour of State-owned enterprises in the early stages of transition.[30] Growth of the private sector may be seriously hindered under such conditions. Finally, the need for industrial restructuring implies an adequately trained workforce and the provision of appropriate infrastructure. Thus, human capital formation and investment in infrastructure will be major determinants of the future position of central and eastern Europe in the international division of labour.

The conditions currently prevailing in the countries of the former Soviet Union and the challenges they will have to face in the future are highly diverse.[27] In some of them, notably in the Caucasus region and central Asia, economic progress may be stalled unless political turmoil, civil unrest and border conflicts are overcome. Others have yet to engage in serious economic reform. In Belarus, for example, the private sector accounted for a meagre 15 per cent of GDP by mid-1994. Likewise, Ukraine is unlikely to receive substantial inflows of FDI as long as the degree of administrative control over the economy continues to be virtually the same as it was immediately after independence. In other countries of the former Soviet Union, development of the private sector appears to be much more advanced. For example, the European Bank for Reconstruction and Development estimated that the private sector accounted for about a half of GDP of the Russian Federation in 1994.

Nevertheless, economic prospects are difficult to assess. The first priorities are to restore stability in macroeconomic management and to create greater certainty for domestic and foreign investors. Closer integration into the world economy depends also on institution-building if a market-oriented infrastructure is lacking. The adaptation of enterprises to changing market conditions may remain sluggish, unless budget constraints are effectively hardened by cutting subsidies, avoiding tax discretion and enforcing bankruptcy laws. Recent analysis of the transition process in the countries of the former Soviet Union suggests that progress in industrial restructuring, based on the comparative advantages of the countries concerned, primarily depends on domestic policy incentives. External assistance, for example through additional credit lines granted by international financial institutions, can at best play a supportive role.

**Notes**

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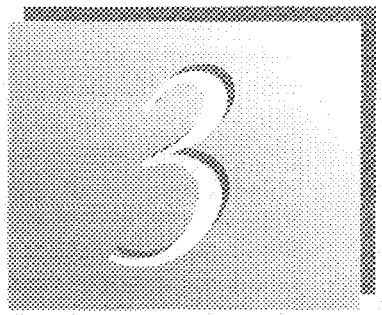


# Technological innovation: can developing countries sustain industrial competitiveness?

The growing integration of the global economy and the accelerating rate of technological change have created a new competitive environment for all countries. As a result of the process of globalization, competition has become increasingly borderless, encompassing all sectors of the economy as well as both domestic and export markets. At the same time, the continuous and rapid improvement of available technologies has made the technological and innovative capabilities of national economies and of individual enterprises increasingly important as determinants of competitiveness.

Under such conditions, international competition is taking a form distinctly different from the traditional one of price competition. Competitiveness now arises from possessing technological knowledge, rather than from minimizing the costs of production using a given type of technology. Effective application of knowledge leads to improved machinery, new products, reduction of costs and improvements in productivity, all of which are important parameters of competitiveness. To survive in the new environment, traditional approaches to competition will need to be radically altered. Continuous efforts must therefore be made by developing countries, no longer able to rely solely on lower prices and wages as the basis for their competitiveness, to upgrade their technological capabilities.

## New technologies: impact on industry

The emergence of generic technologies, such as micro-electronics, information technology, biotechnology and new materials technology, is having a profound impact on industrial development. The new technologies exhibit a number of special characteristics that distinguish them from the conventional technologies which they are rapidly superseding.

Those characteristics include the following:

*(a)* Having the power to transform the conditions of production and the properties of materials, they are giving rise to a variety of new products in such fields as consumer electronics, and inducing a dramatic change in the processes and organization of industrial production, as reflected in the increasing spread of automation, flexibility and mass customization;

*(b)* Having a pervasive, multisectoral scope, the new technologies can be applied in many branches of manufacturing industry, resulting in a blurring of the conventional classifications of industrial subsectors and activities. This is illustrated by the machine tool industry, which now includes as much electrical as non-electrical engineering, and the food-processing and pharmaceutical industries, which employ similar forms of new biotechnologies;

*(c)* Tending to promote increasingly homogeneous processes of industrial production, especially through the growing standardization of components—such as control units and design systems—of the production equipment used in various branches of industry, the new technologies will have significant implications for HRD and vocational training.

## *Impact of generic technologies on industrial production and trade*

The unique characteristics of the new generic technologies are changing the nature of industrial competitiveness in several ways. First of all, the introduction of the new technologies is prompting a shift in the determinants of global industrial competition, with wide-ranging implications for developing countries and economies in transition. In many branches of industry, the comparative advantage of developing countries based on the intensive use of low-cost labour is being eroded or lost as a result of automation in industrialized countries (see box 3). Similarly, the long-term development prospects of producers and exporters of raw materials are being jeopardized by the declining use of raw materials in industrial production in industrialized countries, caused partly by the more efficient use of materials through computer-aided design and computer-aided manufacturing (CAD/CAM) systems, and partly by the substitution effects of applying new biotechnology products and other advanced materials. Since the changes are not so drastic as to bring about a massive relocation of industries from the developing to the industrialized countries, the developing countries have the opportunity to adapt to the new technologies by designing appropriate policies.

New technologies erode price competitiveness of traditional labour-intensive industries

**Box 3. New technologies and the textile and clothing industries**

To ward off the threat to their industries posed by imports of textiles and clothing from developing countries, the industrialized countries erected trade barriers against such imports, and sought to increase their competitiveness through technological innovations. The efficiency of their textile and clothing industries was thereby improved by up to 200 per cent in some stages of the manufacturing process.

Radical technological change has occurred throughout the textile industry, including the extensive use of computers in the management of production, in financial matters, marketing, communications etc. In the knitting process, for example, automated knitting equipment capable of producing finished garments is increasingly common, as is the use of programmable knitting machines that permit change-overs to new styles in a matter of minutes. Computer-controlled dyeing has also greatly improved quality, and allows precise colour-matching when moving from batch to batch or when producing to fill repeat orders.

The impact of technical change and rationalization in the textile industries of industrialized countries has been impressive. Over the last two decades, employment in the textile industries of the North has been reduced from 8.9 million to 6.8 million workers. Moreover, because of the higher cost of new equipment, textile industries in the industrialized countries are now capital-intensive.

The introduction of new technologies in the textile industry has also had a profound impact on productivity. In the United States, during the 15-year period from 1972 to 1987, labour productivity in the industry rose by about 90 per cent, at roughly double the rate at which productivity grew in manufacturing as a whole. Consequently, unit labour costs in the United States, helped by the depreciation of the dollar, now compare favourably with those of its European competitors and of Japan (also declining as a result of labour-saving innovations), and in a number of cases United States producers have begun to reach the price levels prevailing in much lower-cost Asian and Mediterranean economies.

In the clothing industry, the most dramatic changes have occurred in the pre-assembly phase, for which electronics-based capital goods firms have introduced CAD and computerized numerical control (CNC) systems. The CAD system is used for grading patterns (making pattern parts for various sizes) and for marking (laying out the pattern parts as a guide for cutting). By digitizing information on the shape and size of the clothes to be produced, the CAD system uses stored rules to perform, quickly and efficiently, the grading and marking tasks previously carried out manually by highly skilled, well-paid operators.

To sum up, technological innovations based on the increasing use of CAD/CAM systems are bringing about a major restructuring of the textile and clothing industry, largely in favour of the industrialized countries. Import restrictions and quotas imposed by the United States and the European Union have had a major impact on the export of textiles and clothing from developing countries, which, if their comparative advantage is to be retained, must therefore adopt and adapt the new technologies which are transforming the industry.

Second, generic technologies are significantly enhancing product quality and the flexibility of production. The superior performance of many new materials has secured a niche for them in aerospace and military applications, as well as in the sporting goods industry. Similarly, the growing use of CNC machinery is resulting in a substantial increase in product quality, especially in the manufacture of precision tools and professional instruments, in which the use of conventional machinery inevitably results in inconsistent quality, high rejection rates and a loss of competitiveness. The new equipment will also give manufacturers the flexibility needed to meet product specifications within relatively small production runs, especially in branches such as metalworking and engineering, in which approximately 80 per cent of output is small batch production, and in the manufacture of garments, in which adjustment to frequent changes in fashion demands quick and flexible responses.

Third, generic technologies have given rise to organizational innovations designed to maximize the advantages of flexibility and quality, and which include production systems based on mass customization, new management styles represented by quality circles, just-in-time or zero inventory planning and the use of multi-skilled production workers.

Fourth, the growing flexibility of the process of production is causing economies of scale to be eclipsed by economies of scope. In the past, automated industrial equipment was dedicated to specific tasks, such as the production of particular components. Changing its assignment was either impossible, or involved extremely time-consuming and costly adjustments to the equipment. The minimum efficient scale of production was therefore inevitably high, and the production of large volumes of standardized items was required in order to achieve economies of scale in the form of low unit costs. The greater flexibility of the new micro-electronic control systems significantly reduces the trade-off between automation and flexibility, since CNC equipment can be programmed to perform a range of tasks. Such flexibility permits the move from single-product to multiproduct manufacturing, which in turn reduces the need for large production runs to recover high investment costs. It also permits the efficient use of machinery for small batch production of a variety of items, which is the essence of economies of scope and mass customization.*

Fifth, the emergence of generic technologies has tended to be accompanied by increased entry barriers for new companies seeking to start production in the industrial branches concerned. Such barriers arise from difficulties of access to the new technologies and from the lack of skills required to use them, as well as from the additional requirements of capital, R&D capabilities and marketing networks. Those requirements are particularly demanding in the case of flexible automation equipment, which can only be produced on a large scale by big companies with access to the necessary financial, technical and marketing resources. As a result, in most industrialized countries, a major process of corporate concentration has been undertaken at both the national and international levels.* Often, medium-sized companies can only compete successfully if they pool their resources. The barriers are less restrictive in the case of biotechnology, which is highly research-intensive, but not particularly capital-intensive, and is therefore more readily accessible to many developing countries and economies in transition possessing the core scientific capabilities and the supportive industrial infrastructure required to enter specific fields of the biotechnology market.

Sixth, with the increasing trade in high-technology products on an intra-industry basis, comparative cost advantages are no longer the primary determinants of competitiveness. Neither the availability of natural resources nor relative factor endowments determine the high-technology areas of international trade which are rapidly gaining significance. Trade in high-technology products has been described as the sphere of "arbitrary comparative advantage", which implies that the patterns of specialization emerging in particular areas of industrial production are primarily the result, not of factor endowments and relative factor prices, but rather of political intervention. The adage that a nation chooses its comparative advantage therefore holds much truth. It applies not only in the sense that specific lines of technological development are deliberately promoted or subsidized, but also that, in view of the increasing significance of human capital as a factor of production, the educational system and social infrastructure of a country determine its overall competitiveness more strongly than ever before.

Finally, the new technologies are changing the cost structures of all other industries. That is particularly true of information technology, the rapidly falling unit costs of which, together with the proliferation of alternative communications options, are significantly reducing the relative cost

*For details, see S. S. Cohen and J. Zysman, *Manufacturing Matters: the Myth of the Post-Industrial Economy* (New York, Basic Books, 1987), chap. 10.

*An illustrative example of such a process is provided by the powerful Swedish-Swiss industrial conglomerate, the ASEA-BBC group, which has a higher R&D expenditure than the entire industrial sector of a country like Austria.

of processing and transmitting information.* The cost reductions are leading to the extension of telematics in an increasing number of areas: in merchandising by integrating point-of-sale systems with inventory and purchasing; in manufacturing by the worldwide integration of production with inventory and orders, or by means of centralized CAD systems directing machine tools halfway around the world; and in transport through the increasing ability to coordinate and optimize the worldwide dispatch of aeroplanes, ships, trucks or trains through centralized control systems. By facilitating the faster and less costly transmission of information, the new technologies are not only altering the cost structure of industry, but also prompting a major shift towards more knowledge-intensive production processes. The international competitiveness of conventional manufacturing industry therefore increasingly depends on access to information and to systems that allow its low-cost, rapid processing and transmission within the firm or around the world.

The introduction of new generic technologies has far-reaching effects on corporate strategies, structural change, trade and investment patterns and overall competitiveness. Only 10 to 15 years ago, the concepts of flexibility and automation were regarded as mutually antagonistic, and the idea of achieving increased flexibility through automation would have been considered a contradiction in terms. The advent of micro-electronics-based CAD/CAM systems has changed such ways of thinking, and the rules of industrial production have been partly rewritten.

Competition through innovation intensifies with the rapid adoption of new generic technologies. The pervasiveness of the technologies implies that competition through innovation will spread to many industries, including previously stagnant industries which may be reinvigorated by the adoption of the technologies and by the consequent exposure to such competition. For example, the adoption of new control equipment in the textile industry has significantly reduced its labour requirements, and allowed even the industrialized countries to regain competitiveness in this traditionally labour-intensive industry, in which developing countries are normally regarded as having a comparative advantage. A case in point is provided by Italy, which has a wage cost 20 times higher than that of a country like Sri Lanka, but which nevertheless has been able to regain competitiveness in such hitherto labour-intensive industries as textiles, clothing, furniture and food-processing through structural adjustments and the successful adoption of new technologies.

*For example, in 1983, it cost $14,000 per month to lease the United States one half of a private transatlantic voice channel. In recent years, the cost has gone down to about a third of that level.

## Changing terms of entry for industrial development

### *Increasing barriers to industrial development of developing countries*

Economic liberalization and rapid technological change have changed the conditions of industrialization and international trade. The need for ever more sophisticated technologies and a highly skilled workforce has made it more difficult for developing countries to participate in globalized production. At the same time, the process of globalization has concentrated innovative capabilities in the industrialized countries, increasing the gap in such capabilities between industrialized and developing countries, largely as a result of a wave of domestic and cross-border mergers and acquisitions by TNCs, and the ensuing build-up of an international supply structure.

Various assessments of technological capabilities starkly reveal the inferior status of developing countries, particularly the LDCs, in the global system of competition. The United States, Japan and western Europe[1] are estimated to account for about two thirds of global R&D activities, while developing countries undertake only 5 per cent of total world R&D. Even among developing countries, the distribution of innovative capabilities is highly uneven. The East Asian countries appear to be the most advanced, with rapidly rising levels of R&D, while the other developing countries show a stagnating or declining trend. In the countries of central and eastern Europe and of the former Soviet Union, where military and space programmes accounted for a large part of R&D expenditures in the past, the move to a market economy in recent years has brought a rapid decline in their share in world R&D.

Recent trends in global flows of FDI, which reflect the potential for technology transfer to the host countries, show a similarly unbalanced pattern of distribution. Although total global flows of FDI have increased tremendously since the 1980s, from an average of $54.5 billion per year between 1981 and 1985 to an average of $180.4 billion per year between 1991 and 1994, industrialized countries accounted for more than 60 per cent of the inflows during the early 1990s (see table 21). On the other hand, the share of developing countries in total global flows of FDI declined from 32.7 per cent between 1981 and 1985 to 15.2 per cent between 1986 and 1990, before picking up to 36.1 per cent during the early 1990s. The share of

## Inflows of foreign direct investment show a growing North-South gap

Table 21. Inflows of foreign direct investment by region or economic grouping, 1981-1994

| Region or economic grouping | Annual average inflows (billions of dollars) | | | Share of the world total (percentage) | | |
|---|---|---|---|---|---|---|
| | 1981-1985 | 1986-1990 | 1991-1994 | 1981-1985 | 1986-1990 | 1991-1994 |
| World | 54.5 | 149.9 | 180.4 | 100.0 | 100.0 | 100.0 |
| Industrialized countries | 36.7 | 126.9 | 109.1 | 67.3 | 84.7 | 60.5 |
| Central and eastern Europe and countries of the former Soviet Union | — | 0.1 | 6.1 | — | 0.1 | 3.4 |
| Developing countries | 17.8 | 22.8 | 65.2 | 32.7 | 15.2 | 36.1 |
| Least developed countries | 0.1 | 0.5 | 0.9 | 0.2 | 0.3 | 0.5 |
| Africa and western Asia | | | | | | |
| North Africa and western Asia | 6.7 | 2.1 | 2.4 | 12.3 | 1.4 | 1.3 |
| Sub-Saharan Africa | 0.9 | 1.5 | 2.3 | 1.7 | 1.0 | 1.3 |
| Asia | | | | | | |
| China | 0.8 | 3.0 | 19.3 | 1.5 | 2.0 | 10.7 |
| East and South-East Asia | 3.3 | 8.8 | 19.3 | 6.0 | 5.8 | 10.7 |
| South Asia | 0.1 | 0.3 | 1.0 | 0.3 | 0.2 | 0.6 |
| Latin America and the Caribbean | 6.0 | 7.3 | 17.8 | 11.0 | 4.8 | 9.9 |

*Source:* UNIDO database.

*Note:* Figures are based on current United States dollars.

sub-Saharan Africa dropped from 1.7 per cent to 1.3 per cent during the same period, while that of the LDCs remained at a relatively low level, between 0.2 and 0.5 per cent.

An analysis of private technology flows shows that East and South-East Asia, including China, accounted for about 65 per cent of the total imports of capital goods by developing countries in 1994, thereby gaining the best access to the technologies associated with such imports (see table 22). Latin America and the Caribbean came in second, while the share of sub-Saharan Africa dropped sharply from 11.1 per cent in 1970 to 1.9 per cent by 1994.

## There is a high disparity in imports of capital goods by developing countries

Table 22. Regional trends in imports of capital and high-technology goods by developing countries, 1970-1994 (Percentage)

| Region or economic grouping | 1970 | 1980 | 1990 | 1994[a] |
|---|---|---|---|---|
| Developing countries | 100.0 | 100.0 | 100.0 | 100.0 |
| Africa and western Asia | | | | |
| North Africa and western Asia | 16.5 | 31.3 | 18.6 | 11.9 |
| Sub-Saharan Africa | 11.1 | 10.0 | 4.0 | 1.9 |
| Asia | | | | |
| China | 11.0 | 5.1 | 8.2 | 9.7 |
| East and South-East Asia | 20.5 | 24.3 | 49.5 | 54.9 |
| South Asia | 5.1 | 2.9 | 2.8 | 2.6 |
| Latin America and the Caribbean | 30.4 | 23.5 | 14.8 | 19.1 |

*Source:* UNIDO database.

*Note:* Capital and high-technology goods include ISIC 382-385.

[a]Estimates.

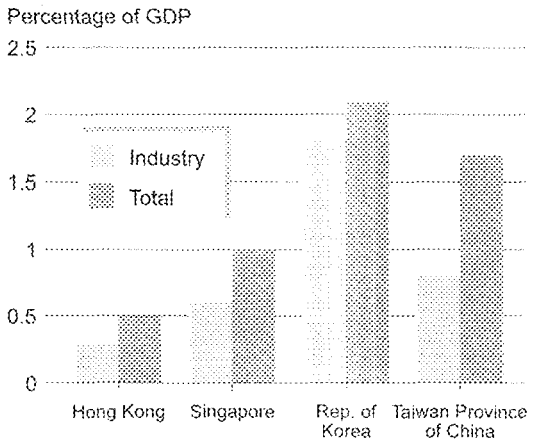
Developing countries have secured only a 13.7 per cent share of the global control and instrumentation market, and 13.1 per cent of the market for industrial equipment, although their share of the total electronic equipment market is slightly higher at 15.6 per cent (see table 23). The lower consumption of science-based industrial and process control equipment suggests that the share of developing countries in industrial automation is not only low, but also biased towards less advanced electronic products. In addition, the use of industrial automation seems to be heavily concentrated in a few developing countries, with Brazil, China and the Republic of Korea accounting for 47.6 per cent of total global purchases of control and instrumentation equipment and 43 per cent of the total purchases of industrial equipment.

The statistics clearly show that in new science-based technology, the share of developing countries in general, and that of LDCs in particular, is extremely low. The only major exception to this generalization is provided by the group of East Asian economies, comprising the Republic of Korea, Singapore and Taiwan Province of China. The R&D expenditure of those economies has grown rapidly since the 1980s, and they currently have a level of R&D intensity approaching that of many European countries (see figure 17). In the late 1980s, their patenting activity also began to rise rapidly, while that of other NIEs, such as those in Latin America, showed little or no change.

Data on human capital formation also clearly show the vast difference in human capital endowment between the industrialized and developing countries. Table 24 gives an indication of such a gap between the industrialized countries and LDCs. Although the literacy rate of LDCs improved during 1970 and 1992, it is still less than half that of the industrialized countries, and even well below the average of all developing countries, suggesting that the gap between LDCs and

**Only the Asian NIEs have R & D expenditures comparable to those of the industrialized countries**

Figure 17. Research and Development expenditures in selected countries, 1992




*Source:* S. Lall "Government and industrialization: The role of policy intervention", background paper prepared for the UNIDO Global Forum on Industry. Perspectives for 2000 and Beyond, held at New Delhi from 16 to 18 October, 1995.

**Industrialized countries focus consumption on high-technology equipment**

Table 23. Apparent consumption of industrial electronic control equipment, 1993
(Percentage share of world consumption)

| *Region or economic grouping* | *Total electronic equipment*[a] | *Control and instrumentation* | *Industrial equipment* |
|---|---|---|---|
| Industrialized countries | 82.3 | 82.3 | 83.7 |
| Western Europe | 26.7 | 33.5 | 26.0 |
| North America | 9.0 | 38.5 | 39.6 |
| Japan | 19.5 | 10.3 | 18.2 |
| Eastern Europe[b] | 2.1 | 4.0 | 3.1 |
| Developing countries | 15.6 | 13.7 | 13.1 |
| Africa[c] and the Middle East | 1.2 | 1.3 | .. |
| Asia | 11.2 | 9.5 | 7.6 |
| Latin America and the Caribbean | 3.2 | 2.9 | .. |

*Source:* *Yearbook of World Electronics Data* (Oxford, Elsevier Advanced Technology, 1993, 1994 and 1995).

[a]Includes office equipment and equipment for data processing, control and instrumentation, industry and communications, as well as components.

[b]Estimates.

[c]More than 65 per cent of the LDCs are located in Africa.

Least developed countries are weak in human capital endowment

Table 24. North-South gap in human capital formation (Industrialized countries = 100)

| Region or economic grouping | Adult literacy | | Mean years of schooling | | Overall enrolment | |
|---|---|---|---|---|---|---|
| | 1970 | 1992 | 1980 | 1992 | 1980 | 1990 |
| Developing countries | 41 | 71 | 38 | 36 | 64 | 61 |
| Least developed countries | 29 | 47 | 17 | 15 | 45 | 42 |
| Sub-Saharan Africa | 28 | 53 | 17 | 15 | 56 | 46 |

*Source*: United Nations Development Programme, *Human Development Report 1994* (New York, Oxford University Press, 1994).

the NIEs has remained high. The same conclusion could be drawn from three other indicators, namely the mean years of schooling, overall enrolment in schooling and the endowment in technical human capital (see table 25).

All the indicators show clearly that developing countries, and LDCs in particular, are facing a daunting task in their efforts to catch up with their competitors in the industrialized economies, as well as in the more advanced developing economies. The uneven distribution of global innovative capabilities constitutes a substantial barrier to the improvement of the development prospects of a large number of developing countries. Furthermore, the conclusion of the Uruguay Round agreements on trade-related intellectual property rights (TRIPs) has led to increasing costs and difficulties in accessing new technologies, and protectionism is rising in the industrialized countries. Fearing dilution of proprietary technologies, TNCs are increasingly reluctant to transfer state-of-the-art technologies to developing countries, especially to their non-equity partners.

Such developments present serious constraints to manufacturing growth and overall industrial diversification in developing countries, particularly LDCs. Given their structural constraints, weak physical infrastructure and unskilled human resources, those countries will find it increasingly difficult, if not impossible, to adopt leapfrogging strategies in building innovative capabilities. That, in turn, will significantly limit their options in attempting to establish themselves in international manufacturing and trade.

## Routes to industrial competitiveness

### *Options for LDCs*

The impact of competition through innovation is not evenly spread across all manufacturing industries. While the spread of generic technologies has increased in all branches of manufacturing, it is more pronounced in some than in others. The traditional paths to industrialization in developing

Least developed countries are also weak in R&D personnel

Table 25. Technical human capital formation (Averages)

| Region or economic grouping | Scientists/technicians per 1,000 persons 1986-1991 | R&D scientists and technicians per 1,000 persons 1986-1991 | Tertiary graduates as percentage of corresponding age group 1987-1990 | Science graduates as percentage of total graduates 1988-1990 |
|---|---|---|---|---|
| World | 25.0 | 12.0 | 3.8 | 24 |
| Industrialized countries | 84.9 | 40.5 | 19.2 | 24 |
| Developing countries | 8.1 | 3.2 | 1.2 | 28 |
| Sub-Saharan Africa | .. | .. | 0.3 | 21 |
| Least developed countries | .. | .. | 0.3 | 18 |

*Source*: United Nations Development Programme, *Human Development Report 1995* (New York, Oxford University Press, 1995).

countries have been less exposed to competition through innovation than others. Many developing countries, in particular LDCs, could still pursue industrialization through the initial production of technologically simple products in a comparatively labour-intensive way. Indeed, the more pressing priority for LDCs, which are still heavily dependent on the primary sector to meet their mounting social needs, is to switch to industrialization as a strategy for sustained growth.

There is more than one route to industrialization. Depending upon the initial conditions prevailing in a particular country, the choice of industrialization strategy will have a considerable impact on its industrial growth and competitiveness. Past experience shows that the industrialization drive embarked upon by developing countries during the 1950s and 1960s failed to achieve the desired objectives, mainly because it was based on the wrong strategy, that of inward-looking import substitution.

Countries generally go through a first phase of import substitution focused on the domestic production of light consumer goods protected by tariffs and other trade barriers, and exploiting a ready market created by imports. As the domestic market for consumer goods is saturated, the import substitution strategy may become unsustainable, leading to chronic balance-of-payments problems, export stagnation and inefficient industries fostered by protection. In such circumstances, a switch to the secondary stage of import substitution based on the domestic production of machinery and equipment, as attempted by Brazil in the mid-1970s and subsequently by Argentina and Mexico, is equally futile, and has now been abandoned by most Latin American countries. It is important to note that in recent decades, industrialized countries have also moved away from self-reliance on capital goods towards intra-industry specialization within the capital goods industry in order to open up export opportunities.

The reasons for the failure to achieve a self-reliant capital goods industry are not difficult to find, the lack of industrial competitiveness being the main culprit. An industrialization strategy that protects domestic industries from international competition, and hence suppresses the inflow of foreign capital goods, risks creating technologically obsolescent and inefficient industries incapable of benefiting from the rapidly changing technologies available in the outside world. In addition, attempts at secondary import substitution to achieve self-sufficiency in capital goods may not reduce the dependence of the country on foreign technology, since the emerging protected industries themselves often require large quantities of imported investment and intermediate goods. In short, the protected industries may suffer a permanent loss of competitiveness in world markets.

## Manufactured exports spur growth in productivity

**Box 4. Relationship between exports and productivity**

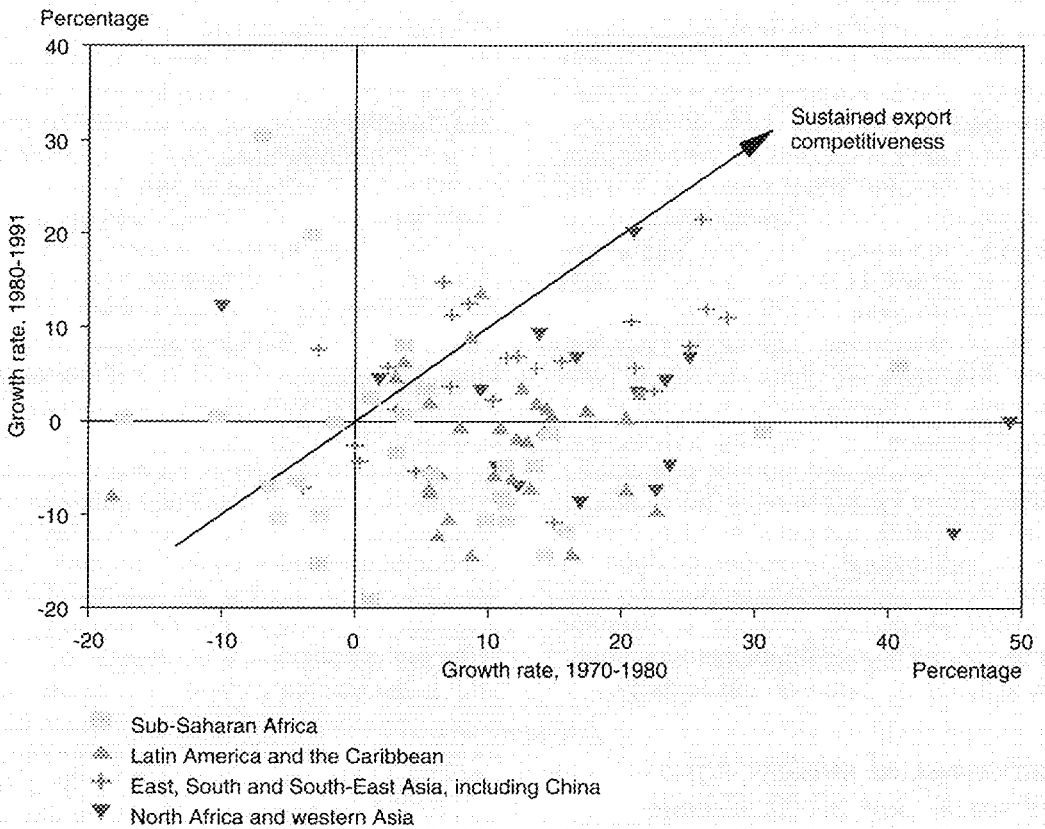
Increased industrial productivity to supply manufactured exports may have three possible sources. The first is improved resource allocation. Exports and foreign competition could force a resource transfer from less productive sectors to more productive ones. The second source of industrial productivity growth is improved technical efficiency, involving a potential output increase for the same inputs. The third consists in lifting scale efficiency, whereby a potential gain in production efficiency results not only from greater capacity utilization in industries in which the minimum efficient size is large relative to the domestic market, but also from moving the optimum scale itself from one level to another as exports expand.

Empirical evidence suggests that industrial performance is likely to be affected by trade more through allocative efficiency than through technical efficiency, especially in the early stages of an export orientation.* However, as a country pursues its EOI strategy, the potential gain in efficiency from reallocating disequilibrium factor markets will rapidly diminish, and any further gain in real income must arise from improved technical efficiency or growth in total factor productivity, as in East Asian countries. In short, export-led industrial growth based on a better allocation of resources may be limited to the early stages of export orientation, and further sustained growth must be driven by productivity growth or improved technical efficiency.

*For details see J. Bergsman, "Commercial policy, allocative efficiency and x-efficiency", *Quarterly Journal of Economics*, vol. 88, No. 3 (1974), pp. 409-433, and H. Leibenstein, "Allocative vs. x-efficiency", *American Economic Review*, vol. 56, No. 3 (1966), pp. 392-415.

Many LDCs could face sustainability problems in export competitiveness

Figure 18. Manufacturing export performance of developing countries, 1970-1991




*Source:* C. Cooper, "Technology, manufactured exports and competitiveness", background paper prepared for the UNIDO Global Forum on industry, Perspectives for 2000 and Beyond, held at New Delhi from 16 to 18 October 1995.

The solution clearly lies in the adoption of an export-oriented industrialization (EOI) strategy, especially in the context of a globalizing world economy. In recent years, attention has increasingly been focused on the link between exports and industrialization, in the light of the export-led success stories in East Asia. The positive effects of the EOI strategy on growth are numerous, and are extensively discussed in the literature (see box 4). They include the promotion of efficient resource allocation, the exploitation of economies of scale, the removal of foreign exchange constraints, the stimulation of competition, the generation of production externalities (such as the creation of new skills and technological upgrading), the facilitation of technology transfer, the limitation of quantitative trade restrictions, the removal of distortions to the economic incentive structure caused by such restrictions and, above all, the encouragement of faster productivity growth.

Empirical evidence shows that many developing countries were able to make considerable headway in expanding their manufactured exports during the past two decades (see figure 18). Those countries include some of the most populous in the world, such as Brazil, China, India, Indonesia and Pakistan. A much larger number of countries, however, including many in sub-Saharan Africa and all the LDCs, have achieved only limited success in sustaining the growth of manufactured exports. The experience of the successful countries shows that the pattern of export growth for developing countries has not generally been linked directly to the use of more complex and sophisticated technologies. Their export competitiveness has not depended solely on technological factors, except

in the establishment of basic production and processing facilities.[2] Only a few economies, such as the Republic of Korea, Singapore, Taiwan Province of China and Thailand, in Asia, and Brazil, in Latin America, have achieved major structural shifts in their export pattern towards more sophisticated products. The growth pattern of this group of countries has been achieved through marked shifts in production away from the technologically simple (and generally labour-intensive) industries towards technologically more sophisticated lines of production, particularly in industries such as electrical machinery (including electronics), non-electrical machinery and transport equipment[2] (see box 5). Associated with the shift is a considerable increase in productivity and learning elasticities. Such a pattern of export growth is referred to as the high productivity growth path.

Most other developing countries, including Bangladesh, Mauritius, Sri Lanka and some Latin American countries, have developed a significant export capability based on cost minimization, less sophisticated technology and a lower-productivity growth path. Those countries have been able to fully exploit their static comparative advantage in labour costs and natural resources in order to sustain their export competitiveness over the past decades. Their production structure is basically characterized by traditional labour-intensive industries such as clothing, footwear and furniture.

## *Competitiveness of modern export-oriented small- and medium-scale industries*

The two groups of successful developing countries cited above have something in common. Dynamic SMIs are the key element of their broad EOI strategy. SMIs have developed over the years into a competitive export-oriented sector, and contributed significantly to the overall success of those developing countries in the international market. Their export activities have increased tremendously over the past two decades in many developing countries and areas, and recent research shows that the share of SMIs in total export earnings now amounts to 56 per cent in Taiwan Province of China, 50 per cent in China, and 40 per cent in the developing countries of East Asia as a whole, as compared with an estimated 20 per cent in the industrialized countries.[3]

The external linkages of SMIs were traditionally established indirectly through subcontracting relations with large firms. In recent years, however, there has been an increasing trend for SMIs in some developing economies, such as NIEs, to export directly to foreign markets or to associated firms. This suggests that SMIs in those economies have been able to improve their competitiveness considerably.

The success of SMIs in the international market is partly the result of concerted industrial intervention to overcome market failure through the introduction of schemes such as "clustering", based on the concept of "flexible specialization".[4] Through inter-firm cooperation and the division of labour, collective efficiency and economies of both scale and scope can be achieved by clusters of small firms. The sources of such collective efficiency include easy availability of raw materials, labour, parts and components, as well as the growth of specialized services firms. Clustering also attracts buyers, export agents and other intermediaries into the cluster, reducing transaction costs for both sides, and gives other advantages through joint action by producer associations and cooperation between individual firms in such areas as

Adoption of new technologies promotes economic growth

**Box 5. Technology and economic growth**

Technology plays an undisputed role in economic growth by increasing the productivity potential of all factors of production, both tangibles, such as labour and capital, and intangibles, such as organization and quality control. As the economies of the world become increasingly globalized, technology emerges as the most decisive factor in determining international competitiveness, and hence growth prospects.

Technology is considered to promote growth in several ways. First, advancements in technology enable a country to obtain a greater output from any given combination of inputs, which means that the productivity of factors of production is enhanced by technology. Secondly, technology can promote and sustain growth through the production of new products (including qualitatively superior products), with higher value added and greater income elasticity. Thirdly (a point related to the above but deserving of special mention), technology can foster growth through improved export performance, which often requires a shift in the composition of exports from primary commodities to manufactures, and within manufactures to more technology-intensive products.

export promotion and the development of local customs and transport facilities.[5]

Success stories of SMI clusters in developing countries include the textile and clothing industries at Tiruppur in India and at Dhaka and Chittagong in Bangladesh, the surgical instruments industry of Sialkot in Pakistan, and the furniture industry in Chile. In the garments, arts and crafts, silk and chemical industries, the township and village enterprises of China account for more than a half of Chinese exports.

Even among SMIs, there appear to be two distinct paths of export growth coinciding with the two patterns of competitiveness discussed above. SMIs of countries with high productivity and export growth have undergone dramatic structural changes over the years. They have shifted from traditional labour-intensive industries such as woven textiles to more advanced industries such as automobile parts, electronics parts and metal-cutting equipment, which have the potential for high-wage, high-productivity and innovation-based operations. Particularly successful cases of such a transition are to be found in the more advanced developing economies such as the Republic of Korea and Taiwan Province of China (see box 6), or in the shoe industry in Brazil, which has successfully responded to competition in the United States market by positioning itself away from cheap leather shoes for men into higher-quality market segments. SMIs in other developing countries are still pursuing the low-productivity, low-technology path by competing on the basis of low prices, cheap materials and cheap labour in line with their overall pattern of export growth.

## Government intervention is crucial to dynamic growth of SMIs in Asian NIEs

**Box 6. Promotion of subcontracting in the Republic of Korea and in Taiwan Province of China**

The Government of the Republic of Korea initially placed the burden of industrial development on the giant conglomerates (*chaebol*), but over time has realized the importance of a dynamic, flexible and efficient SMI sector that can provide specialized subcontracting services to the large firms. Since the early 1980s, a number of laws have been passed to promote SMIs, leading to a perceptible rise in their share of economic activity (from 1975 to 1986, the share of SMIs in employment, sales and value added rose by at least 25 per cent). The system of policy support, covering SMI start-up, productivity improvement, technology development and export promotion, was crucial to the reversal in their performance. A host of tax incentives was provided to firms participating in the programmes, which also benefited from subsidized financing for support services, credit guarantees, government procurement and the setting-up of a specialized bank to finance SMIs. A number of other institutions were set up to help SMIs (such as the Small and Medium Industry Promotion Corporation, which provided financial, technical and training assistance, and the Industrial Development Bank, which provided finance), and the Government greatly increased its own budget contribution to the programme, although SMIs also had to pay a part of the costs for most of the services provided to them.

To promote subcontracting by the *chaebol*, the Government enacted a law designating parts and components that had to be procured through SMIs rather than being made in-house. By 1987, about 1,200 items were so designated, involving 337 principal firms and some 2,200 subcontractors, mainly in the machinery, electrical, electronic and shipbuilding industries. By then, subcontracting accounted for about 43 per cent of manufacturing output and from 65 to 77 per cent of the output value of the electrical, transport equipment and other machinery industries. Generous financial and fiscal support was provided to subcontracting SMIs to support their operations and process and product development. In addition, subcontracting SMIs were exempted from the stamp tax, and were granted tax deductions for a certain percentage of their investments in laboratory and inspection equipment and for the whole of their expenses for technical consultancy. Subcontracting promotion councils were set up for industrial branches and within the Korea Federation of Small Business in order to assist SMIs in the contractual relationship, to arbitrate disputes and to monitor contract implementation. The Government was extremely effective in putting pressure on the *chaebol* to establish vendor networks, the result being a rapid localization of components among subcontractors.

There are three main reasons for the success of the policy of encouraging SMIs in the Republic of Korea. The policy received support at the highest levels, and was backed by considerable financial resources from the government budget. The supporting interventions were comprehensive and well designed. Finally, the presence of a strong business group, the Korea Federation of Small Businesses, gave SMIs a powerful voice in the public domain, and also provided a range of support services.

**Box 6.** *(continued)*

In Taiwan Province of China, the industrial structure, unlike that of the Republic of Korea, is dominated by SMIs, and programmes to promote subcontracting have been of special significance to the industrial development of the economy. There are around 700,000 SMIs in Taiwan Province of China, accounting for 70 per cent of employment, 55 per cent of gross national product (GNP) and 62 per cent of total manufactured exports. In 1981, the Government set up the Medium and Small Business Administration to coordinate the efforts of several support agencies that provided financial, management, accounting, technological and marketing assistance to SMIs. Financial assistance was provided by the Taiwan Medium Business Bank, the Bank of Taiwan, the Small and Medium Business Credit Guarantee Fund and the Small Business Integrated Assistance Centre. Management and technology assistance was provided by the China Productivity Centre, the Industrial Technology Research Institute (ITRI) and a number of industrial technology centres (for the metal industry, textiles, biotechnology, food and information). Of these, the best known is ITRI, which engages in generic R&D in a number of manufacturing industries, and passes on its results to the private sector for commercial development.

The Joint Services Centre of the Ministry of Economic Affairs acts as a source of information on assistance to SMIs, and the Government covers from 50 to 70 per cent of consultation fees for management and technical consultancy services for SMIs. The Medium and Small Business Administration is setting up a fund of 10 billion New Taiwan dollars for promotion of SMIs.

Taiwan Province of China has a Centre-Satellite Factory Promotion Program of the Ministry of Economic Affairs, which organizes and integrates smaller factories around a principal one. The programme has involved vendor assistance and productivity-raising efforts, as well as a rational sharing of tasks between participating enterprises. By 1989, there were 60 networks with 1,186 satellite factories in operation, mainly in the electronics industry.

The Government has also adopted several measures to promote backward linkages by foreign investors. In some cases, especially in the early years, it applied minimum local content requirements in industries such as motor vehicles and consumer electronics. Over the years it moved to indirect measures to promote linkages, by giving incentives for principal firms to use local subcontractors and by improving the technological and business capabilities of SMIs. The outward-oriented trade regime encouraged firms to invest in upgrading their capabilities. Tax incentives were given for R&D expenditures, and skill levels were improved through sustained investments in education and training. The purchase of local equipment and entry into "linkage-intensive" activities were encouraged by tax incentives. In essence, therefore, backward linkages were created by upgrading the technological capabilities of potential subcontractors and by guiding market forces through careful interventions backed by considerable funding and human resources.

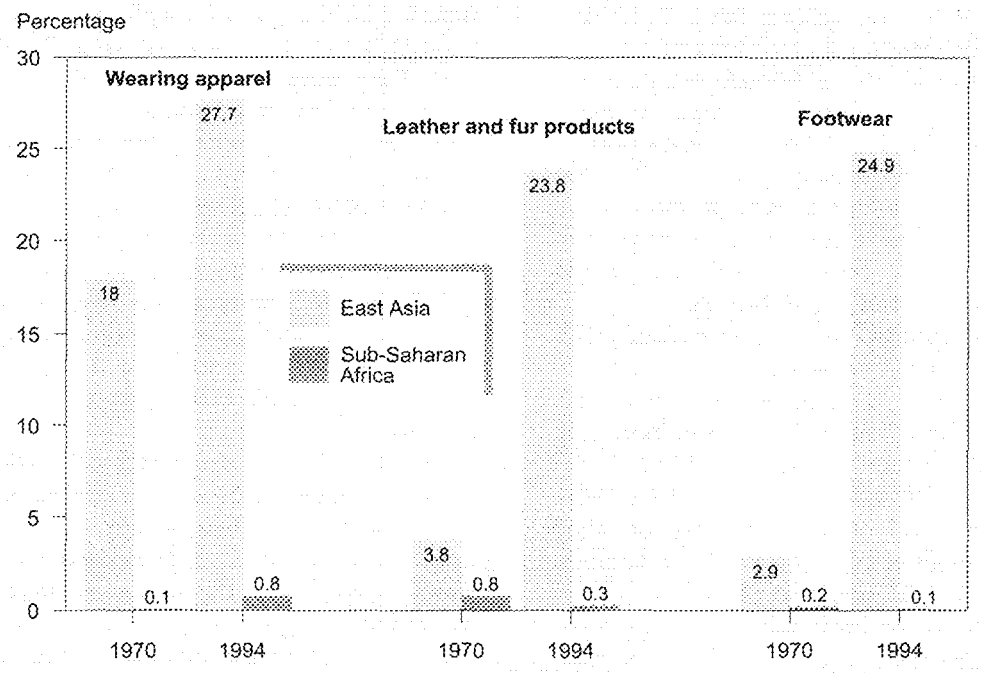
## *Making least developed countries competitive: search for an appropriate strategy*

The experiences of the early industrializers among developing countries will undoubtedly provide valuable lessons for LDCs as latecomers to industrialization. The latter are still relying heavily, if not exclusively, on their agriculture and the primary commodity sector to generate foreign exchange. This reliance has not provided them with a viable growth strategy for several reasons. First of all, the responsiveness of demand to price and income changes for primary goods is lower than for manufactured goods. In addition, commodity exports tend to be subject to frequent cyclical price fluctuations, and the export revenues generated by them may fall short of the cost of manufactured imports in the long run. Still worse is the tendency of any productivity increase in raw materials to depress world commodity prices instead of generating income and employment gains in the producer country. At the same time, primary commodities face an increasing threat from synthetic substitutes, as in the rubber industry.

LDCs have only a short history of industrial development. Their manufacturing base is still very small, and many have not yet established a position in international markets for manufactures, as reflected in their meagre share of less than 0.5 per cent of exports in the world market. The total combined manufactured export revenue of 30 selected sub-Saharan countries, for example, was close to that of a single country such as Indonesia, and was only about 5 per cent of the export earnings of the Republic of Korea.[6] LDCs are also poorly placed in labour-intensive industries, and export virtually no footwear and only a tiny fraction of world clothing and textile production (see table 26 and figure 19).

Sub-Saharan Africa is also weak in traditional labour-intensive exports

Figure 19. Shares of exports of labour-intensive industries of East and South-East Asia (excluding China) and sub-Saharan Africa, 1970-1994




*Source:* UNIDO database.

*LDCs therefore face enormous difficulties both* in developing a manufacturing base and in becoming significant exporters. The situation is further aggravated by the current trends in globalization, which appear to have marginalized LDCs on a variety of fronts, especially in high technology industries. Their capacity to use and adapt technology, in particular the new information technologies, is extremely weak. They risk being unable to cope with the increasing gap between themselves and even countries such as Malaysia and Thailand, the so-called near-NIEs, and thus being shut out of the world market.

For LDCs, the challenge is therefore to move from primary commodity exports to manufactured exports, and to enhance their manufacturing base so as to fulfil one of the prerequisites for initial integration into the global market. Such a move would boost their efforts fully to exploit the potentially vast opportunities in international trade that liberalization and globalization are likely to bring. The increasing relocation of labour-intensive industries away from the industrialized countries, and recently from the more advanced developing economies, will also give their industrialization process an initial boost.

Sub-Saharan Africa has a very weak manufacturing base

Table 26. Regional shares in world manufacturing value added, 1985, 1990 and 1995 (Percentage)

| *Region or economic grouping* | *1985* | *1990* | *1995*[a] |
|---|---|---|---|
| Africa and western Asia | | | |
| North Africa and western Asia | 1.8 | 1.8 | 1.9 |
| Sub-Saharan Africa | 0.4 | 0.3 | 0.3 |
| Asia | | | |
| China | 3.6 | 2.8 | 5.2 |
| East and South-East Asia | 3.4 | 4.5 | 5.9 |
| South Asia | 1.4 | 1.3 | 1.5 |
| Latin America and the Caribbean | 6.4 | 4.6 | 4.8 |

*Source*: UNIDO database.

*Note*: Figures for 1985 are in current prices, other figures are in 1990 constant prices.

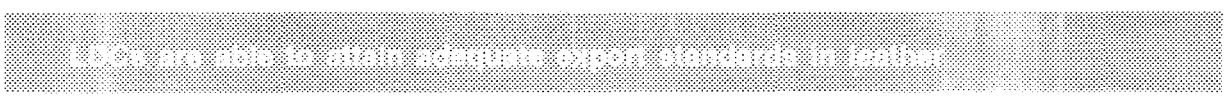
[a]Estimates.

In embarking upon the process of industrialization, the LDCs will have no other alternative but to start with labour-intensive and resource-based lines of production and export. Given their abundant labour and weak innovative capabilities, they will have to exploit their low relative costs, which represent their principal immediate source of competitiveness. Their industrialization should focus on the development of resource-based industries, including the efficient local processing of such primary products as leather and food, in a relatively short period of time. In the early stages of industrialization, they need not become innovators in order to compete; nor must they necessarily adopt new technologies. Finding a niche in the international market for low-wage, labour-intensive products in the shortest possible time must be the principal priority of LDCs (see box 7).

Given their pervasive poverty problems, LDCs urgently need to generate employment and income to fulfil the social needs of their populations. Studies have shown that SMIs can contribute substantially to job creation, because small firms in the early stages of industrialization use labour-intensive techniques and employ relatively unskilled workers. In a study of five sub-Saharan economies, it was found that 43 per cent of the increase in employment between 1980 and 1991 occurred in SMIs employing less than 50 people.[7] In Colombia, India, Indonesia, Kenya, Philippines, United Republic of Tanzania and Zambia, SMIs with up to 50 workers employ half the industrial workers.[8] In addition, small firms often act as a vehicle for the development of entrepreneurial skills, help to meet the basic needs of the rural population, and contribute to improved gender equality by employing a high proportion of women. For those reasons, it is critical for LDCs to integrate the development of an efficient sector of SMIs and micro-enterprises into their overall EOI strategy.

This pattern of industrialization has a rich pedigree, and has been adopted by all developing countries, including those which have now reached a comparatively high level of industrial development. They have successfully exploited the immediate sources of comparative advantage and subsequently strengthened their positions as exporters of manufactured goods. The initial stages of export-oriented manufacturing were in all cases focused on the use of relatively low-productivity, labour-intensive manufacturing techniques or, particularly in Latin America, on resource-intensive lines of production. Given the underlying economic logic of such a pattern of development, its adoption will provide LDCs with a number of advantages.

First, the move towards EOI will mitigate the frequent foreign exchange constraints faced by LDCs, which limit their ability to finance the import of the capital goods needed for their industrial investments. The import of those goods will contribute significantly to initiating a process of learning how to use modern technologies and how to operate and adapt the technologies embodied in the capital goods. Thus, the promotion of low-technology manufactured exports will not only provide the means of financing capital goods imports for the development of other industrial



**Box 7. Leather in Africa**

The leather industry is a resource-based labour-intensive industry. The lack of veterinary facilities and chemicals and the prevalence of low-quality raw stock arising from improper flaying and poor handling and treatment have led to a high percentage of wastage and a downgrading of hides and skins. Neglect of pollution controls has caused a further deterioration of the situation. Urgent technical assistance is needed to develop a finished leather capacity and attain adequate export standards.

UNIDO has embarked on an integrated programme of assistance to African countries which has been highly acclaimed both inside and outside the region. With the financial support of six donor countries (Austria, France, Germany, Italy, Netherlands and Switzerland), UNIDO has provided technical assistance, through investment activities, in technology improvement, information, pollution control, leather products development and promotion, strengthening SMIs, training and quality control of hides and skins (tanneries), footwear and leather products. Eight recipient countries in Africa (Ethiopia, Kenya, Malawi, Sudan, Uganda, United Republic of Tanzania, Zambia and Zimbabwe) were thus able to increase the value added of their hides and skins, to create a Revolving Fund Operation and leather industry associations, and to establish, in Ethiopia, the Leather and Leather Products Institute of the Common Market for Eastern and Southern Africa. Such achievements have helped to enhance the participation of Africa in the world market and to increase the contribution of the leather industry to its national economies.

activities, but will also constitute an intrinsic part of the process of building up innovative technological capabilities.

Secondly, the promotion of SMIs that manufacture low-productivity exports will provide more employment per unit of output than any other strategy in the early stages of industrialization. This hypothesis is supported by a growing body of empirical evidence showing the positive impact on employment generation and income distribution of both SMIs and EOI strategies based on labour-intensive production methods.[9] Such findings make the development of SMIs and EOI strategies particularly desirable for LDCs, which have a significant labour surplus and must urgently provide adequate employment opportunities, reduce poverty, and meet a variety of social objectives.

Thirdly, low-productivity exports provide a hedge against the risks associated with the process of technological upgrading, which can go wrong for both firms and Governments, especially if the technological upgrading is too ambitious. The existence of well-established markets for simple manufactures helps to mitigate the damage that the trade performance of an LDC may suffer in case of failure.

## *Rationale for the pursuit of technology upgrading*

Given the advantages, outlined above, of pursuing a low-productivity growth strategy, why is there a need to shift to a high-productivity growth path through technology upgrading? The answer is clear. The rapid pace of technological change has resulted in innovative competition permeating all sectors of industry. Even if driving down costs and using mature technologies worked well for many developing countries as an initial strategy for entry into the international market during the last decade, the emergence of the new generic technologies has generated conditions in which technological dynamism has become an essential component of the industrialization process, even in its earliest stages and under circumstances in which the technologies employed are still predominantly labour-intensive. This is true even for apparently mature industries such as textiles, because the maintenance of industrial competitiveness increasingly depends on the capacity to use technology innovatively across a range of industrial applications, which in turn requires the constant upgrading of production processes through the introduction and extension of new generic technologies. The acquisition of innovative capabilities is thus becoming essential throughout industry, for somewhere in the world someone will almost certainly be developing innovative combinations of new and existing technology, which will pose a competitive threat to existing producers.

The new generic technologies and the accelerating pace of technological innovation are, by extension, blurring the distinctions between the two alternative industrialization paths that have so far been employed by developing countries: the high-technology, high-productivity route followed by economies such as the Republic of Korea and Taiwan Province of China; and the low-productivity path employing less sophisticated technology followed by countries such as Bangladesh and Sri Lanka. The process of technological upgrading, involving a move towards technologically more sophisticated outputs associated with higher factor productivities and higher rates of learning and productivity growth, should be occurring in both types of economy, if they are to retain their competitiveness.

Apart from its important role in sustaining industrial competitiveness, technological upgrading provides a number of other benefits. It has a positive effect on the distribution of income between capital and labour by opening the way to higher real wages and a higher rate of growth of earnings, which provide an incentive for further investment in measures to upgrade innovative capabilities and human capital. Once initiated, the process develops a dynamism of its own, and helps to support an acceleration of industrial and economic growth, as illustrated by many advanced developing countries, including the Asian NIEs. In addition, technological upgrading allows countries to move towards the export of goods with higher income elasticities of demand in international markets, and especially in the industrialized countries. This will help not only to maintain the shares of the developing countries in world trade, but also to stimulate the growth of their exports.

## Key determinants of innovative capabilities

Sustaining long-term industrial competitiveness through continuous technological upgrading will depend on the fulfilment of a set of demanding preconditions, two of the most important being the development of a capacity for technological innovation and HRD. The former is discussed in some detail below, and the latter will be discussed in chapter 4.

Technologies constitute the starting-point for the development of innovative capabilities. They may be either developed locally or imported from abroad. The choice between the two sources

depends on the initial human capital and financial endowments of the country concerned. Singapore, for instance, has historically adopted comparatively liberal policies towards foreign investment as a vehicle for the acquisition of technology. In the Republic of Korea, technologies have been imported under very restricted investment conditions, while India has attempted to develop technologies locally with limited exposure to foreign technologies. In most cases, however, a mixed strategy has been pursued.

Faced with a variety of disadvantages, most developing countries lack the ability or capacity to engage in the slow and costly process of developing their own indigenous technologies. The only viable option for them is therefore to acquire foreign technologies, and the effective transfer and diffusion of foreign technologies consequently becomes a crucial prerequisite for the development of their innovative capabilities. The manner and effectiveness of the transfer of technology depends on such factors as the stage of development, the size of the economy, the various applications of the new technologies, the availability of skills, existing innovative capabilities and the absorptive capacity of the economy (see box 8).

The pace and method of technology transfer is influenced by the prevailing macroeconomic framework and other factors such as, competition, infrastructure, information flows, level of technology and industrial norms and standards. High rates of saving and capital formation will facilitate technology diffusion, and economic and political stability will also have a positive effect by stimulating higher rates of investment. On the other hand, technology transfer will be inhibited by such measures as foreign exchange controls and restrictions on the repatriation of profits, which will deter foreign investors and other suppliers of technology.

Competition hastens the process of technology transfer. Inferior products cannot be easily sold. The need to stay competitive gives rise to new ways of doing things and new product ideas. Competition has contributed to the global success of many industrialized countries as well as NIEs. This holds true even for capital-intensive industries such as the chemical industry in Germany, the motor vehicle industry in Sweden and the pharmaceutical industry in Switzerland. Market-oriented policies and EOI strategies also induce competition, and international norms and standards promote quality-consciousness and technological development.

Success of Techmarts and Intechmarts

**Box 8. Effective transfer of technology**

To assist developing countries and economies in transition in developing and maintaining their ability to compete, an effective mechanism for the transfer of technology and the promotion of technology partnerships between enterprises is essential.

To that end, UNIDO developed the Techmart Programme, the basic objective of which is to provide a business forum where technology developers and recipients are able to negotiate and to seek, offer, purchase and sell technology. Since UNIDO assisted in the successful organization of the first Techmart, held at Beijing in December 1991, several Techmarts have been held in India, Viet Nam, Zambia and Zimbabwe. Typical participants were SMIs and technology transfer agents who looked upon such an event as an opportunity to match offers with demand and to generate technology partnerships. Universities and research institutes have also participated.

The success of each Techmart prompted UNIDO to extend the scope of the Programme to provide a link between technology promotion (through Techmarts) and investment promotion (through Investmarts). Accordingly, the first Intechmart was jointly organized by the Government of India and UNIDO, and held at New Delhi in March 1995. The attendance of approximately 660 Indian and foreign participants, from over 49 developed and developing countries, at the India Intechmart, held at New Delhi in February 1996, led to the conclusion of business deals worth $663 million, including technology agreements amounting to $97 million and sales of technology by India to other countries worth $32 million.

The organization of Intechmarts and the promotion of technology agreements are, however, only the first step. The next, and probably more important, step is to ensure the necessary follow-up to the agreements concluded at such events. An example of the type of action required is a decision taken in India to establish, in the near future, an Investment and Technology Promotion Initiative in collaboration with UNIDO.

The success of the Programme has led a number of countries, including Brazil, China, Indonesia, Namibia, Pakistan, Slovakia, Thailand, Ukraine and Viet Nam, to express the desire to hold Techmarts and Intechmarts.

Imports of capital goods: more than a main mode of technology transfer in the Asian NIEs

Table 27. Trends in imports of capital goods and high-technology goods, 1970-1994
(Percentage share in GDP)

| Country or area | 1970 | 1980 | 1990 | 1994 |
|---|---|---|---|---|
| Brazil | 2.5 | 2.2 | 2.2 | 1.9 |
| China | 1.6 | 1.9 | 4.4 | 8.3 |
| India | 0.7 | 1.0 | 1.5 | 2.2 |
| Indonesia | 3.4 | 4.6 | 9.0 | 8.2 |
| Hong Kong | 15.0 | 16.8 | 16.4 | 18.6 |
| Kenya | 8.3 | 10.2 | 10.2 | 9.0 |
| Malaysia | 11.6 | 17.8 | 36.0 | 42.2 |
| Mauritius | 4.8 | 8.9 | 20.2 | 15.9 |
| Mexico | 3.5 | 4.5 | 7.9 | 16.8 |
| Republic of Korea | 6.5 | 8.4 | 10.4 | 10.8 |
| Singapore | 32.7 | 66.2 | 84.4 | 87.2 |
| Taiwan Province of China | 8.9 | 10.3 | 13.8 | 14.8 |
| Thailand | 6.6 | 7.4 | 16.7 | 17.9 |

*Source*: UNIDO database.

## *Acquiring foreign technologies*

The transfer of foreign technologies can be conducted in various ways. The formal channels include such methods as the import of machinery and capital goods, non-equity licensing and other contractual modes, FDI, strategic alliances and outward FDI. The informal methods, on the other hand, include the exchange of views, information flows through publications and communication networks, migration of skilled workers, various forms of official government assistance and cooperation, demonstrations and imitation.

### *Capital goods imports*

Over the past decades, the import of capital goods has been the main form of foreign technology acquisition for many developing countries, particularly NIEs. The utilization of new capital equipment embodying the latest technologies from the industrialized countries has contributed greatly to the success of NIEs in sustaining their innovative capabilities. The applications are normally coupled with reverse engineering activities. Table 27 shows a strong reliance of NIEs and ASEAN countries, in particular Malaysia and Thailand, on such technology transfers.

Experience differs among recipient countries in the manner in which the technologies embodied in the imported capital goods are "unpackaged". The process often requires considerable indigenous skills, especially in engineering and adaptive know-how. Among NIEs, the Republic of Korea and Taiwan Province of China have adopted the most complex technologies and recorded the highest degree of local involvement in the unpackaging process. They have therefore acquired greater technical skills than other NIEs, which explains their deeper industrial structure and higher innovative capabilities.[10] Although Singapore also uses complex technologies, it relies more heavily than the Republic of Korea and Taiwan Province of China on TNCs for the supply of sophisticated skills.

Apart from providing embodied technologies, the process of importing capital goods also plays an important role in creating awareness. The initial search for appropriate foreign capital goods provides valuable information on the latest technological developments, major suppliers and characteristics of various capital goods, which facilitates the learning process. Similarly, the training offered by vendors during the handing-over and installation stages also provides a good opportunity for interaction with the vendors and the acquisition of knowledge and information.

### *Licensing*

Foreign technologies may also be acquired under licensing agreements between enterprises. In such cases, the licenser provides the licensee with access to designs, drawings and process know-how in return for a royalty, license fee or lump-sum payment. The contracts may often be accompanied by rights to use the brand or trade name of the licenser. This form of technology transfer is more precise in terms of technology

targeting. It allows the licensee a higher degree of control of the manner in which the acquired technology is to be used, adapted and developed.

Technology licensing has grown considerably in a number of developing countries. More than 1,000 technology agreements between local and foreign enterprises are concluded each year in countries such as Brazil, Mexico and India. The Republic of Korea and Taiwan Province of China, on the other hand, have depended less heavily on this form of technology transfer than on the import of capital goods.[10] In several other countries, such as Kenya, Mauritius, Nigeria and Zimbabwe, technology and know-how agreements have become increasingly popular, and are emerging as a substitute for FDI, particularly in enterprises possessing financial strength and technological capabilities and wishing to retain their autonomy.

Licensing requires a process of negotiation during which considerable information is needed concerning the technology and the technology supplier. It also entails the unpackaging of the foreign technology package, which often lumps together various stages of project implementation, ranging from feasibility studies to post-installation start-up. From a national viewpoint, it would be desirable if the size of the imported technology package were gradually reduced in line with the progressive economic development of the country concerned. That would require the disaggregation of the package into its individual components, including operational know-how and technological services, in order to make an assessment of the cost of each component and to achieve a gradual reduction in the size of the package.

The contractual arrangements for technology transfer, particularly with respect to new technologies and products, may pose difficulties in certain developing countries. This is especially true because of the growing trend towards the privatization of new technologies through intellectual property rights, such as patents and proprietary know-how in micro-electronics and biotechnology and copyrights for computer software. The position regarding intellectual property rights on new technologies is still somewhat blurred, and care should be taken in restructuring national legislation on patents and copyrights, to ensure the adequate protection of national interests. In recent years, several developing countries have acquired considerable experience in the intricacies of technology licensing and contracting. Regulatory bodies dealing with foreign technology have been set up in several countries in Asia and Latin America, as well as in some African countries, to review foreign technology agreements and to ensure their consistency with norms and guidelines laid down by the regulatory bodies.

Contract negotiations relating to new technologies may pose greater difficulties than those relating to more mature technologies. For example, royalty rates in computer software agreements may be higher than the traditional percentage of net sales usually provided for in agreements on the transfer of more mature technologies to developing countries. With respect to other terms and conditions, such as duration, warranty, access to improvements, export rights, tie-in conditions, training, legal jurisdiction and the settlement of disputes, contractual provisions relating to new technologies will be more difficult to negotiate. This is partly due to the nature of the new technologies, and partly to the fact that their implications are often difficult to assess in different situations.

## *Foreign direct investment*

Increasing economic liberalization and globalization have led to the growing importance of FDI as a channel of technology transfer. Technologies, in this case, are packaged with the organizational structure and managerial systems of the foreign investors. In addition to transferring technology, FDI can also be a very efficient means of transferring capital, skills, brand names and access to international markets under appropriate conditions. It also has beneficial spillover effects on local skill formation through demonstration, technological learning and competition. The reliance of developing countries and areas on FDI as a mode of technology transfer varies considerably. Brazil, Hong Kong, Mexico, Singapore and the ASEAN countries have depended highly on this form of technology transfer (see table 28), and they have consistently ranked among the 10 leading recipients of FDI inflows during the past decade. In contrast, the Republic of Korea and Taiwan Province of China show relatively low levels of dependence on FDI. As mentioned earlier, however, many LDCs appear not to have felt the beneficial effects of FDI.

The direction of FDI flows is determined by various factors. The more important determinants include political and economic stability, an established industrial infrastructure, the availability of a pool of low-cost labour, natural resources, a sizeable market and export-processing zones. Proximity to technology support is often another important factor in attracting FDI. Investments will also tend to flow to host countries which can supply high-quality parts and components, a skilled labour force and a good information infrastructure. Countries which lack these advantages will lose FDI to those which have them, resulting in an even greater concentration of FDI in the more advanced developing countries.

Composition of top 10 host countries remains relatively unchanged

Table 28. Average annual inflows of foreign direct investment to the 10 largest recipients among developing countries and areas, 1970-1994 (Millions of dollars[a])

| *Host country or area* | *1970-1980* | *Host country or area* | *1981-1990* | *Host country or area* | *1991-1994* |
|---|---|---|---|---|---|
| Brazil | 1 390 | Mexico | 2 442 | China | 19 295 |
| Mexico | 743 | Singapore | 2 341 | Singapore | 6 587 |
| Singapore | 386 | China | 1 885 | Argentina | 5 558 |
| Malaysia | 381 | Brazil | 1 662 | Mexico | 5 381 |
| Nigeria | 219 | Taiwan Province of China | 1 467 | Malaysia | 4 634 |
| Egypt | 205 | Hong Kong | 1 402 | Indonesia | 2 066 |
| Indonesia | 194 | Malaysia | 1 105 | Hong Kong | 1 564 |
| Hong Kong | 162 | Egypt | 878 | Thailand | 1 440 |
| Argentina | 121 | Thailand | 734 | Brazil | 1 399 |
| Algeria | 120 | Argentina | 700 | Nigeria | 1 228 |
| Percentage share in total flows to developing countries and areas[a] | 67.0 | | 71.9 | | 88.2 |

*Source:* United Nations Conference on Trade and Development and UNIDO database.
[a]Calculations are based on current United States dollars.

The possibility and pace of technology transfer through FDI depends on the technical competence and learning ability of the host countries. It also depends on the willingness of the foreign investors to increase the participation of local personnel. Increased levels of local recruitment in key technical and management positions will hasten the transfer. In this context, subsidiaries of United States companies in Asia have shown a particularly strong willingness to hire local personnel at high levels and with substantial decision-making powers, in sharp contrast to the practice of Japanese companies.

## *Strategic alliances*

A new form of technology partnership, involving inter-enterprise cooperation or strategic alliances, has recently emerged, and is rapidly gaining importance as a result of the growing trend towards globalization and international networking. Although such alliances may take many forms, they usually involve a two-way flow of resources, in contrast to conventional FDI and licensing. The precise terms of such agreements may include cross-licensing between firms with complementary assets or technologies, or the transfer of resources through an exchange of equity stakes between the partners.

LDCs, however, do not have a significant presence in this form of technology transfer. Table 29 shows that more than 95 per cent of the strategic technology partnerships are concentrated within the industrialized countries. Among the industrialized countries, the triad of western Europe, Japan and the United States accounted for nearly 92 per cent. Partnerships between the triad and the NIEs accounted for 2.3 per cent of the total number of alliances, while those between the triad and the LDCs accounted for a mere 1.5 per cent. New generic technologies dominated strategic technology alliances within the triad. Such technologies are more commonly transferred to LDCs through technology transfer agreements (see figure 20). More than 50 per cent of strategic alliances entered into by NIEs involve generic technologies. This pattern supports the view that the distribution of technological cooperation is related to the factor endowment of the partners, particularly human capital. It also suggests that strategic partnerships in high-technology industries are a suboptimal means of transferring technology if the stages of economic development of the partners differ considerably.

## *Outward FDI*

Another new way of gaining access to key technologies and other strategic assets for developing countries is through direct investments in industrialized countries. This method is more applicable to the advanced developing economies which have accumulated sufficient capital surpluses as a result of their rapid economic growth. During the past few decades, thriving venture capital markets in the industrialized countries, especially in the United States, have led to a proliferation of innovative start-ups and spin-offs from existing firms in various new technologies. The difficulty in raising

As many as 95 per cent of strategic technology alliances are concentrated in the industrialized countries

Table 29. International distribution of strategic technology alliances, 1980-1989

| *Fields of technology* | *Number of alliances* | *Percentage for developed economies* | *Percentage for the triad[a]* | *Percentage for the triad and NIEs* | *Percentage for the triad and LDCs* | *Other* |
|---|---|---|---|---|---|---|
| Biotechnology | 846 | 99.1 | 94.1 | 0.4 | 0.1 | 0.5 |
| New materials | 430 | 96.5 | 93.5 | 2.3 | 1.2 | — |
| Computers | 199 | 98.0 | 96.0 | 1.5 | 0.5 | — |
| Industrial automation | 281 | 96.1 | 95.0 | 2.1 | 1.8 | — |
| Micro-electronics | 387 | 95.9 | 95.1 | 3.6 | — | 0.5 |
| Software | 346 | 99.1 | 96.2 | 0.6 | 0.3 | — |
| Telecommunications | 368 | 97.5 | 92.1 | 1.6 | 0.3 | 0.5 |
| Miscellaneous information technology | 148 | 93.3 | 92.6 | 5.4 | 0.7 | 0.7 |
| Automation | 205 | 84.9 | 82.9 | 9.8 | 5.4 | — |
| Aviation | 228 | 96.9 | 94.3 | 0.9 | 1.3 | 0.9 |
| Chemicals | 410 | 87.6 | 80.0 | 3.9 | 7.1 | 1.5 |
| Food and beverages | 42 | 90.5 | 76.2 | 9.5 | — | — |
| Heavy electrical equipment | 141 | 96.5 | 92.2 | 1.4 | 2.1 | — |
| Machine tools and instruments | 95 | 100.0 | 100.0 | — | — | — |
| Other | 66 | 90.9 | 77.3 | 1.5 | 4.5 | 3.0 |
| TOTAL | 4 192 | 95.7 | 91.9 | 2.3 | 1.5 | 0.5 |

*Source:* C. Freeman and J. Hagedoorn, *Globalization of Technology* (Brussels, Commission of the European Communities, 1992).
[a]Western Europe, Japan and the United States.

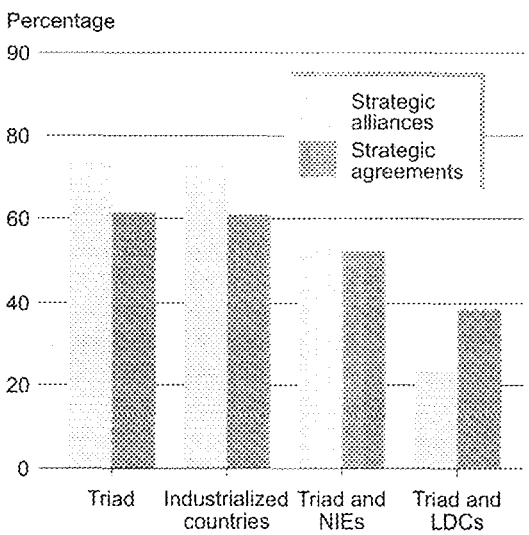
the capital required to commercialize the innovations have created opportunities for NIEs to inject equity into the innovative firms. A number of firms from the Republic of Korea and Taiwan Province of China have thus acquired equity stakes in small electronics firms in Silicon Valley and elsewhere in the United States.[11]

FDI flows originating in developing countries have grown significantly since the mid-1980s. Their sources are mainly the more advanced developing economies, particularly the Asian NIEs. Although their share in world FDI inflows is still small, this trend is expected to increase with the growing participation of more developing countries such as China, India and the near-NIEs in the globalized production system. The trend has widened the options for other developing countries looking for FDI inflows and technology, at least in standardized and mature industries. The LDCs may find it easier to attract FDI originating in developing countries than FDI from industrialized countries.

Table 30 shows that there has been a sharp increase in outward FDI from developing countries since the mid-1980s. Prior to that period, such FDI outflows were motivated mainly by the quest for expanded markets. An increasing share of out-

Strategic technology alliances are still concentrated in the LDCs

Figure 20. Share of generic technologies in strategic technology transfer alliances and technology transfer agreements, 1980-1989




*Source:* C. Freeman and J. Hagedoorn, *Globalization of Technology* (Brussels, Commission of the European Community, 1992).

ward FDI from developing countries to the industrialized countries since the mid-1980s seems to suggest, however, that international competitiveness increasingly outweighs market-seeking as a driving force in the investment strategy of many donor developing countries. The shift in trends coincides with a period of rising protectionist tendencies and the emergence of regional trading blocs in the global economy. In addition, the international competitiveness of East Asian NIEs such as Hong Kong, Republic of Korea and Taiwan Province of China has been affected by currency appreciation, rising domestic wages and exhaustion of their quotas under the Multi-Fibre Arrangement.

The trend of increasing concentration in industrialized countries does not, however, diminish the importance of the donor developing countries as sources of FDI for other developing countries. Except for a couple of countries, the bulk of FDI from developing countries is still concentrated in other developing countries. For example, FDI flows from developing countries account for between 30 and 65 per cent of inward FDI stocks in countries and areas such as Chile, China, Indonesia, Malaysia, Paraguay, Sri Lanka and Taiwan Province of China[12].

## *Regional cooperation*

Technology transfer can also be effected by exploiting opportunities for regional cooperation between developing countries, which would enable them to optimize their gains from the new technologies. Such cooperation may initially involve a greater exchange of information, experience and assessments of new technologies, or commercial arrangements for equity participation and technology transfer between institutions and enterprises in different countries. Information may be exchanged most effectively through information networks and linkages between developing countries.

At a later stage, commercial relationships between enterprises in developing countries may grow through increased technology transfer. In new technologies, regional cooperation between developing countries is still relatively limited. New opportunities are opening up, however. For example, advances in telecommunications are making it possible for regional groupings of developing countries to explore ways in which they can use their common need for telecommunications to overcome some of the problems posed by their small size in matters relating to procurement and local design and manufacture (see box 9).

Increasing outward flow of FDI from developing economies to industrialized countries

Table 30. Stock of outward foreign direct investment made by selected Asian economies and the share in industrialized countries, 1980-1993

| Country or area | Stock of outward FDI (millions of dollars) | | | | Share in industrialized countries (percentage) | |
|---|---|---|---|---|---|---|
| | 1980 | 1985 | 1990 | 1993 | 1980 | 1991 |
| China | 39 | 131 | 2 488 | 7 402 | 34 | 71 |
| India | 149 | 180 | 290 | 707 | 11 | 19 |
| Hong Kong | 1 800 | 9 441 | 18 930 | .. | 8 | 18 |
| Republic of Korea | 142 | 487 | 2 172 | 5 632 | 32 | 56 |
| Singapore | 652 | 1 320 | 4 277 | 6 236 | 9 | 21 |
| Taiwan Province of China | 101 | 215 | 3 075 | 5 619 | .. | .. |

*Source:* UNIDO database.

"There is a vast potential for regional cooperation in telecommunications among developing countries."

**Box 9. Regional cooperation: telecommunication opportunities in Latin America**

Colombia, which has one of the largest markets among the group of smaller countries in Latin America, is shifting to fully digital technology, while Uruguay has developed and installed 100 automatic telegraph exchanges using stored-programme-control (SPC) technology. A closer examination of their investment plans reveals possibilities for collaboration. For instance, the proposed expansion by Colombia of telecommunications in the Amazon region could be an opportunity for cooperation with Brazil, which is also involved in communications projects in the region. Similarly, Paraguay, because of its large demand for rural exchanges, is supporting development work in two electronics institutes. This effort could be greatly strengthened through collaboration with Brazil, which has developed rural exchanges and is willing to engage in technology sharing. Virtually the same situation exists with regard to Costa Rica and its need for rural exchanges.

In Peru, plans have been made to set up an R&D centre to support a shift to SPC technology, and there is a possibility of local participation in peripheral and transmission equipment. Virtually the same scenario is forecast for Bolivia and Chile, both heavy importers, both switching to digital technology, and both looking for ways to build up local capabilities.

If any of the above-mentioned projects for local development and capacity creation is to reach fruition, regional collaboration is essential. It is noteworthy that one of the key characteristics of telecommunications is the need for regional cooperation to ensure technical compatibility in international communications.

In Latin America, as in other regions, there is far greater scope for technology sharing, trading agreements and specialization in manufacturing than has so far been achieved. The aggressive exploration of possibilities for regional collaboration should therefore be a priority item in the plans for investment in telecommunications in all developing countries.

## *Building indigenous innovative capabilities*

Factor-intensity and skill requirements depend largely on the stage of industrial development. In the initial stages of industrialization, many developing countries confine themselves to the production of standard items in labour-intensive industries. The technologies required for the production of such goods are relatively mature, and there is little need for extensive R&D efforts. As the industrial structure of developing countries deepens, however, their need to build up a capacity for indigenous technological innovation increases. That need has become more urgent in the current environment of rapid technological change, in which product life cycles are becoming shorter and the demand for quality and product variety is steadily increasing. The critical success factor for sustaining competitiveness in the new environment is the ability of firms to respond to rapidly changing demand in the shortest possible time and the most efficient manner. This places a high premium on the availability of a capacity for indigenous technological innovation.

Technological innovation and development among the NIEs differ considerably in scale and direction and in the location of R&D. Industrial R&D at a comparatively high level of intensity can be found in Hong Kong, Republic of Korea, Singapore and Taiwan Province of China. More than 60 per cent of the R&D activities in the Asian NIEs are concentrated in the manufacturing sector, compared with only 30 per cent in the Latin American NIEs. Whereas the scale of R&D has changed little in the latter economies during the past decade, it has increased very rapidly in the former. For example, R&D intensity in the Republic of Korea now amounts to almost 2 per cent of GDP, a level comparable to that of western Europe. The rapid increase in R&D is also reflected in international patent statistics, which show that while all NIEs had a relatively low rate of patenting in the United States in the 1970s and early 1980s (approximately 20 to 40 patents per annum for most NIEs), the Republic of Korea and Taiwan Province of China sharply improved their position in the late 1980s and early 1990s, turning out hundreds of patents per annum.[13]

Conclusion

## *Strategies for industrial competitiveness*

Sustaining industrial competitiveness in international markets requires continuous technology upgrading. Many developing countries, and especially the LDCs, are not in a position to undertake

such technology upgrading because of their limited technological and human capital endowments. To exploit their initial comparative advantage, they have no option but to move from the export of primary commodities to the promotion of low-productivity export-oriented manufacturing by traditional labour-intensive industries which derive their competitiveness from adopting existing technologies and operating them at a lower cost than that of their competitors. By following this low-productivity growth path in the initial stages of industrialization, and focusing on resource-based labour-intensive activities such as simple agro-industries, leather goods and woven textiles, the LDCs may be able to build up their weak manufacturing base relatively quickly and efficiently. In doing so, they will be following in the footsteps of all other developing countries that have subsequently achieved sustained international competitiveness.

To alleviate the mounting poverty problems of the LDCs, the low-productivity EOI strategy will need to be integrated with the promotion of a vibrant, labour-intensive, resource-based SMI sector capable of developing into a competitive export-oriented sector. SMIs have considerable potential for generating employment and income and diversifying industrial production over a wider base. Developing an efficient export-oriented SMI sector will require a variety of support measures, including the provision of tax and financial incentives, the establishment of a networking and sub-contracting infrastructure and the development of entrepreneurial and innovative capabilities.

Having taken the first step toward EOI, the LDCs will have to adapt to the new rules of competition arising from rapid technological change, because low wages will no longer guarantee success in sustaining competitiveness. Winners will now increasingly be determined by their relative success in making the most of the new technologies. For the LDCs, the main policy issue will be to determine the appropriate time to make the move to a higher-productivity growth path once a sustained performance in low-productivity manufactured exports is established. The progression, which applies equally well to SMIs and micro-enterprises, and which has the potential to raise productivity and real wages, will require a continuous process of technology upgrading and of building up innovative capabilities. To meet those requirements, greater emphasis must be placed on the effective transfer of technology and the development of a capable pool of human capital with strong entrepreneurial skills. Increased participation of the private sector in technological investment should also be encouraged.

## *Measures to promote technological innovation*

It is becoming widely recognized by both the public and private sectors in developing countries that the development and diffusion of new technologies are increasingly critical as determinants of international competitiveness and structural change within the industrial sector. Given the limited availability of resources for technology acquisition, however, the opportunity costs of pursuing a specific strategy of acquisition must be carefully considered. In the early stage of industrialization, when innovative capabilities are weak, it will be more effective and economical to import foreign technologies rather than developing them locally. As the industrial sector evolves towards more sophisticated production methods, and as indigenous capabilities for technological innovation are developed to a greater extent, a mixed strategy of importing and developing technologies becomes locally feasible. At this stage, R&D efforts need to be intensified, and Governments need to facilitate the process by encouraging the establishment of the necessary infrastructure and providing incentives to support the development of domestic innovative capabilities (see box 10). Such measures will require placing increased emphasis on the development of human capital, and on the maintenance of relatively unrestricted trade and technology flows in order to promote greater access to foreign technologies.

Strategic industrial policy is a useful tool for promoting technological efforts

**Box 10. Encouragement of technological activity in the Republic of Korea**

The Republic of Korea is the best-known example of the use of strategic industrial policy to develop indigenous technological capabilities. It combined import substitution with forceful export promotion, selectively protecting and subsidizing targeted industries that were to provide its future export advantage. The strategy had many remarkable successes, although during the 1970s (when an aggressive and diversified attempt was made to develop heavy industry) it generated large costs and macroeconomic imbalances. The Republic of Korea drew extensively on foreign technology, but in forms that promoted local control: it was one of the largest importers of capital goods in the

**Box 10.** *(continued)*

developing world, and allowed its firms unrestricted access to the latest equipment, except when it was promoting particular domestic products; it encouraged the hiring of individual foreign experts; and it allowed licensing and, when necessary, foreign minority ownership (but foreign majority ownership was discouraged unless deemed necessary to gain access to closely held technologies or to promote exports in internationally integrated activities). It also intervened in major technology contracts to strengthen the negotiating position of domestic firms, and sought to maximize the participation of local consultants in engineering contracts.

Technological development in the Republic of Korea was supported by the Government in several ways. Private sector R&D was directly promoted by a number of incentives and other forms of assistance. These included: tax-exempt funds for the technology development reserve; tax credits for R&D expenditures, for upgrading the skills of R&D personnel, and for setting up industry research institutes; accelerated depreciation for investments in R&D facilities; reduced import duties for imported research equipment; and a reduced excise tax for technology-intensive products. The commercialization of research results was encouraged by a 6 per cent tax credit or special accelerated depreciation of the relevant investments. The import of technology was promoted by tax incentives: transfer costs of patent rights and technology import fees were tax-deductible; income from technology consulting was not taxed; and foreign engineers were exempted from income tax.

The Government of the Republic of Korea invested in a large array of technology infrastructure institutions. In 1966, it set up the Korea Institute of Science and Technology (KIST), which was charged with the responsibility of conducting applied research for industry. In its early years, KIST focused on solving simple problems of technology transfer and absorption. During the 1970s, the Government set up other specialized research institutes related to machinery, metals, electronics, nuclear energy, resources, chemicals, telecommunications, standards, shipbuilding, marine sciences etc. Those bodies were largely offshoots of KIST, and by the end of the decade there were 16 institutions in public R&D. In 1981, the Government decided to reduce their number and rationalize their operations. The existing institutes were merged into nine bodies under the supervision of the Ministry of Science and Technology.

The Government launched a series of national R&D projects in 1982. These were large-scale projects which were regarded as too risky for industry to undertake alone, but which were considered to be in the strategic industrial interest of the country. National projects were conducted jointly by industry, public research institutes and the Government, and covered industries and activities such as semiconductors, computers, fine chemicals, machinery, materials science and plant system engineering. Centres of excellence were formed in those fields to boost the long-term competitiveness of the Republic of Korea. National projects were a continuation of the strategy of interventions designed to identify and develop the dynamic comparative advantage of the country, by orchestrating the different actors involved, underwriting a part of the risks, and directly filling in gaps that the market could not overcome. Strategic technological activities are still targeted and promoted.

Other policy measures to stimulate technological development in the Republic of Korea include: the setting-up of Science Research Centres and Engineering Research Centres at universities around the country to support R&D activities and the common utilization of advanced R&D facilities; and the construction of science towns. Daeduk Science Town has been under construction since 1974, and a large number of research and educational institutions are already well established there. The construction of Kwangju Science Town has started, and others are planned.

In addition to tax incentives, the Government also provided financial grants and long-term low-interest loans to enterprises that participated in national projects (see below). Tax privileges and official funds were given to private and government R&D institutes to carry out those projects. The Korea Production Technology Corporation (KOPTEC) assisted SMIs with shop-floor advice and guidance on upgrading technical capabilities and productivity. KOPTEC complemented the help provided by the Small and Medium Industry Promotion Corporation, which also delivered technical training and other services to SMIs. SMIs were further assisted by the Korea Academy of Industrial Technology, as well as by "technology guidance systems" operated by government research institutes. The Korea Technology Advancement Corporation helped firms to convert research findings into commercial applications. Several legal measures to promote technology development were undertaken. In 1973, the Government enacted two pieces of legislation: the Engineering Service Promotion Law, to protect and strengthen the domestic engineering services sector, in particular small firms; and the Law for the Development of Specially Designated Research Institutes, to provide legal, financial and tax incentives for private and public institutes in selected technological activities.

The elements of government policy on the import of technology will need to be carefully weighed, however. An excessively liberal policy may discourage local technological effort, while an excessively restrictive policy may make local enterprises complacent about the need for constant updating. Technology import policies of developing countries will therefore have to strike a balance between the need to protect local efforts and the need to sustain a constant pressure to innovate. In striking this balance, policy makers will have to take into account the existing level of innovative capabilities in the country concerned.

Technology import policies generally need to be complemented by policies to encourage domestic enterprises to absorb, adapt and update the imported technologies. These policies may include: the provision of technological infrastructure; the subsidization of R&D in enterprises; the granting of protection and support to innovative enterprises; and the establishment of norms and standards institutions, design engineering organizations and consultancies. Although such institutional support is a vital prerequisite for any serious effort to create a domestic capability for technological innovation, it is important to stress that Governments should generally play a supporting rather than a leading role, intervening mainly in cases of market failure.

Since the efficient transfer and diffusion of technology requires timely access to information and close interaction between providers and recipients, the availability of suitable telecommunications networks is a crucial precondition for the spread of new technologies in many developing countries. In the early stages of industrialization, institutional support for the provision of information on sources of technology and the identification and acquisition of technology can play a vital role in helping firms to achieve optimal returns on their investment in technology, although the need for such support is likely to decline as firms build up their own information networks. The existence of a central system of norms and standards may also help to enhance quality and performance, but these norms and standards should be consistent with international specifications in order to ensure that domestically produced goods will be saleable in foreign markets. Services such as design, testing and quality control are best provided by the private sector, including foreign investors. Similarly, while Governments can play a role in ensuring the availability of adequate funds to finance the often costly and risky investments in new technologies, this role will progressively diminish as venture capital financing gains in importance with the development of capital markets.

Regional cooperation in areas of common interest could play a significant role in enabling developing countries to reap the maximum benefit from the process of technological development. The exchange of information on new technologies and the establishment of joint training programmes in such fields as technology forecasting, assessment and planning should thus be encouraged. In this context, special support measures should be designed to enhance the meaningful participation of women in occupations related to the operation of advanced technologies.

In summary, a low-productivity EOI strategy remains a viable option for LDCs and a springboard to the sustained development of their industrial competitiveness. The development of human capital and the integration of a strong export-oriented SMI sector into the industrialization strategy will have a catalytic impact on the process of industrialization, the success of which will depend on the ability of the LDCs to ensure the constant upgrading of their innovative capabilities.

**Notes**

[1]C. Freeman and J. Hagedoorn, "Catching up or falling behind: patterns in international inter-firm technology partnering", *World Development*, vol. 22, No. 5 (1994), pp. 771-780.

[2]C. M. Cooper, "Technology, manufactured exports and competitiveness", background paper for the UNIDO Global Forum on Industry, Perspectives for 2000 and Beyond, held at New Delhi from 16 to 18 October 1995.

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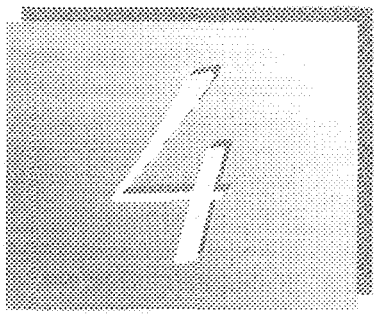


# Sustaining industrial competitiveness through skills development

The ability to acquire and diffuse technologies effectively determines a country's level of industrial capabilities and hence its industrial competitiveness. Without a critical mass of skilled labour, new technologies can neither be devised nor be effectively transferred or diffused. Effective industrial HRD has been a crucial driving force behind the emergence of NIEs and near-NIEs (box 11). It has created a pool of highly skilled manpower in these economies that is capable of broadening and significantly quickening the pace of industrial expansion, as well as continually sharpening the competitive edge of products and conceiving new products in order to successfully compete and thrive in the global market.

## Changing industrial skill requirements

### *Different skills for different stages of industrialization*

Industrial skill requirements have undergone rapid changes over the years in line with technological development and globalization, posing significant challenges to industrial entrepreneurs. No longer can industrial competitiveness be sustained by reliance on low wage costs. A significant fall in the proportion of direct labour costs in the final price of a product or service reflects the impact of new technology and flexible manufacturing systems, as well as advances in communications, information technologies and the organizational structure of business enterprises. This lends credence to the notion that labour productivity is driven by investment in technology and human capital, and that education and training of the workforce--in new ways of organizing and coordinating production and in inventory management, distribution and marketing--are increasingly the principal determinants of industrial competitiveness.

At an early stage of industrialization, industrial activities are normally concentrated on labour-intensive consumer products such as textiles, garments and footwear. Technological requirements for the production of these products are generally less sophisticated and mass production methods are used to gain economies of scale. Most of the production technologies are embodied in imported capital equipment, so the level of sophistication of the available capital stock does not impose a serious constraint. Skill requirements at this stage pertain to installing, operating and maintaining the imported equipment. They encompass the knowledge and skills required for the process of production, where shop-floor experience and learning-by-doing play an important role. At this stage, any shortfall in production capability could be resolved by engaging the services of a foreign equipment supplier or an independent consultant.

Innovative capabilities are gradually built up during this stage by adapting imported capital goods to suit local operating conditions, and the learning process is one of learning-by-using. In fact, the adaptation activities have been a major stimulus to the emergence of new industries in the NIEs, e.g. the capital goods industry. Hong Kong and Taiwan Province of China, for instance, have

emerged as sizeable exporters of textile machinery to other developing countries and areas. This came about as a result of vast improvements in production capability, achieved by blending different foreign technologies.

To sustain industrial growth and diversification, new industries need to be created and new products introduced into new markets, which in turn calls for the development of a new set of capabilities involving increased technological sophistication and productivity. The acquisition of such capabilities requires the availability of appropriate knowledge and skills for establishing new production facilities and expanding and/or modernizing existing ones. Skills are also required for pre-investment feasibility studies and for project implementation (project management, project engineering, procurement and start-up operations). At this stage of industrialization, skills for selecting the appropriate foreign technologies and for negotiating their procurement and mode of transfer are critical. Finally, the firm must supervise the installation and start-up of the facility and become an active participant in the start-up process so as to absorb the principles of the technology.

As the industrial structure evolves into high-technology sectors such as electronics, new demands are placed on the technological capabilities of firms. These include the adoption of automated assembly and testing, the design and production of sophisticated components, the development of software and system integration. Continual upgrading of product design and performance and of process technology is also needed at this later stage to sustain industrial competitiveness, which calls for substantial engineering and organizational capabilities.

As new methods of organizing production are adapted, such as mass customization and networking, the demand for flexibility and adaptability will increase. Mass customization, as distinct from mass production, is characterized by continuous improvement and the diffusion of multi-skilling throughout the labour force. Managerial and organizational skills become increasingly important in this new production system. Managers are encouraged to acquire learning skills so that they will be able to build personal, technical and professional skills continuously throughout their careers. Self-management skills such as time management and stress management will also enhance industrial competitiveness. In addition, the growing need for teamwork will demand good interpersonal skills and the ability to communicate effectively. As the mobility of capital increases there will also be pressure on managers, with their problem-solving and entrepreneurial skills, to accept greater mobility.

## *Key influences on new skill demands*

Rapid and dramatic changes in industrial production in response to the changing determinants of industrial competitiveness call for new approaches to skills development. The industrial structures of developing countries are being increasingly diversified and are becoming more complex, more technologically demanding and more skill-intensive. At the same time, their technological capabilities are expanding. The rapid structural transformation of industrial production in industrialized and newly industrializing countries is being facilitated by remarkable improvements in human skills capable of sustaining industrial

UNIDO prefers a broad definition of human resource development

**Box 11. Definition of industrial human resource development**

Industrial HRD is a dynamic process providing and sustaining opportunities for women and men, in accordance with their aspirations and talents, to acquire knowledge, skills, attitudes and know-how and to apply them in favourable and equitable conditions of employment or self-employment so as to accelerate industrialization for the economic and social benefit of themselves and their community or country.

The meaning of industrial HRD has changed over the past decade: once merely a synonym for training, it has come to mean an integrated process that brings together the related issues of manpower development, employment, science and technology and the quality of life. To achieve such coordination requires an understanding of the dynamic forces that constitute the context in which today's industrial HRD must operate—the demographic pressures, technological changes, trade patterns, economic policy adjustments and environmental constraints. No longer can training be seen as a solution in isolation from the other themes that make up a modern response to human development. And no longer can the traditional emphasis on uncoordinated supply-side factors resolve the demands of the labour market and the more specific manpower needs of industries.

competitiveness (box 12). In these countries traditional labour-intensive industries have been declining in importance, while the use of machinery and equipment has been growing. As foreign investment flows are often attracted by the availability of a skilled labour force, the need for continuous industrial skill development remains crucial.

The key factors that influence policy approaches in skills development merit attention: demographic change, technological change, trade liberalization and competition, structural adjustment and environmental issues. Each of the five factors is likely to have a serious and far-reaching impact on the development of human capital and, therefore, on the ability of national economies to maintain or enhance their competitiveness.

## *Demographic change*

Demographic trends affect employment patterns in several ways. A sharp rise in the population of developing countries is increasing the number of new entrants into the workforce, outpacing the availability of jobs and training facilities. The world's economically active population is forecast to increase from 1.2 billion in 1980 to 1.8 billion by 2000, an increase of 50 per cent.[1] Of these new entrants, more than 90 per cent will be in developing countries, presenting governments there with the formidable task of providing sufficient employment opportunities to raise living standards.

There may even be a temporary decline in unemployment as people attend training programmes and undertake higher education, which will improve the quality of the new entrants into the labour force. Higher levels of education, particularly among girls, have been shown to substantially reduce birth rates and the number of jobseekers. Employment initiatives that take people off the street and give them better living standards have the same effect.

Of all the skill development issues, none is more likely to affect the quality of life than continued migration from rural to urban areas. In the early stages of industrialization, when many processes were labour-intensive, the slower pace of technological progress gave new arrivals in the cities an opportunity to be absorbed into the labour market. Modern technology develops more quickly and often worsens the overall employment situation because the periods of stable demand for labour become shorter. Moreover, rapid advances in technology frequently lead to corresponding

Many databases are available for assessing demand for human resource development.

**Box 12. UNIDO programme on human resource development**

UNIDO has designed a programme on HRD to help countries and regions improve the skills of a critical mass of individuals and teams. The programme offers normative guidelines and conceptual frameworks, methodologies and instruments, primarily through technical cooperation projects. It takes its cue from governments and industrial enterprises that follow a people-centred approach, in the belief that behind every industrial technology or strategy are women and men who either make it or break it. Thus, investing in people is as important as other capital investments. By emphasizing the need for a comprehensive, integrated and modular approach, the programme moves from traditional ways of viewing the human factor in production. The fundamental shift is to facilitate human resourcefulness through holistic, interactive learning rather than conventional training.

Through the programme, UNIDO provides advice to policy makers and promotes synergies between public and private sector institutions, thereby enhancing both the number and the quality of the competencies possessed by entrepreneurs, managers and technicians. The main aim of the programme is to build the human resources base that partner countries need for technological advancement, industrial competitiveness, entrepreneurship development and employment generation. UNIDO policies, strategies and approaches promote the advancement of women by bringing women's issues and gender considerations to the forefront of UNIDO activities. A gender impact analysis and planning methodology has been developed and is being applied.

To achieve its aim, the programme has developed a conceptual model, the Human Resources Diagnosis and Reorientation Map (HRD-ROM) and a number of computerized databases for assessing HRD demand, including regional databases on HRD requirements for industry. Five typology reports on women in the manufacturing sector are available, one for each of the developing regions. Another facility, Global Learning Opportunities for Business Education cum Industrial Networking (GLOBE-IN), enables UNIDO clients to make an informed selection among learning opportunities in industrial development.

changes in the overall number of workers and in the levels and types of skills required.

## *Technological change*

New generic technologies have had an impact on products and processes in many industrial sectors, affecting the associated jobs. Industrial organizations and management have had to cope with radical changes in the way in which work is organized and carried out. This has changed the kinds of skills in demand and put a premium on flexibility, multi-skilling, customer orientation, teamwork and entrepreneurial capabilities.

Training programmes should be designed bearing in mind that technology has two components: one is the means of production, that is, the tools, machinery and equipment involved in the manufacturing process, and the other is the human skills—scientific, technical and otherwise—involved in processes, institutions, organizations, management, administration and communications.[2] While economic influences are an integral part of both components, the means of production depends more on the availability of financial capital and the effective use of these means depends more on human capital.

## *Trade liberalization and competition*

The far-reaching agreements on global trade liberalization reached by the Uruguay Round of trade negotiations, concluded in April 1994 at Marrakesh, Morocco, are expected to greatly stimulate global trade because they will reduce tariffs and expand market access for traded goods. However, at the same time as this effect creates opportunities for enterprises, it increases competition. Global interdependence will likewise grow, since enterprises will be much freer to source materials and intermediates. There will be fewer barriers to exporting, and strategic alliances will become even more popular as a low-cost strategy for achieving a global reach.

It is widely believed that the agreements of the Uruguay Round will provide the most benefits for the developed economies, which already possess the most competitive enterprises. There is also considerable potential for semi-industrialized developing countries and for economies in transition to increase their share of international trade and related investment and technology flows. By contrast, the 70 or so less developed economies in Africa, the Caribbean and the Pacific, and particularly the 48 LDCs, are likely to be adversely affected.

In the face of increased competition, enterprises are under much greater pressure to become more efficient and competitive. As a consequence, employees will also come under more pressure to be flexible and to acquire multiple skills as well as to relocate, even though substantial barriers to cross-border mobility will remain for all but the most senior executives. Already, over the last decade, the industrialized economies have experienced rising long-term unemployment. Their unemployment rate increased from an annual average of 6.7 per cent in 1977-1986 to more than 8 per cent in 1993-1994.[3] The proportion of the economically active population (persons between 15 and 60 years old) in permanent employment has declined sharply. Competition, slower corporate growth and, on occasion, the liquidation of enterprises through mergers, acquisitions and even bankruptcy, will disrupt an individual's lifetime work experience more frequently than before. Relations between employers and employees will generally become less stable. Fewer people will spend a lifetime working for one employer. The uncertain effects of global competition and its implications for industrial restructuring make it ever more difficult to predict the quality, quantity and type of manpower skills required. This is already reflected in the increasing stridency with which enterprises insist on controlling or at least influencing training policy.

## *Structural adjustment*

In a changing world economy, all governments and enterprises are faced with the need for structural adjustment and the impact it will have. The economies of central and eastern Europe and the countries of the former Soviet Union are changing radically as they move from centrally planned to market economies. Many developing countries have undergone extensive economic restructuring and adjustment over the last decade. The problems that need to be tackled by governments include high rates of inflation, overstaffing in State-owned enterprises and unsustainable budget deficits, current overexpenditure and public sector borrowing. Structural adjustment programmes usually entail policy interventions in favour of market-oriented, private-sector-led industrial development.

Industrial restructuring, commercialization and the privatization of State-owned enterprises usually involve substantial reductions in the size of an enterprise's labour force and an increase in the number of those looking for work. In the economies in transition, structural adjustment has meant significant declines in output and sharp rises in unemployment. Downsizing of large public

enterprises should be accompanied by human resource development techniques that will smooth the transition from public employment to self-employment and encourage the setting up of small private enterprises. Industrial restructuring thus calls for the training or retraining of managers and workers in marketing, financial management and accounting, as well as in modern production and quality assurance systems.

### *Environmental issues*

The United Nations Conference on Environment and Development, held at Rio de Janeiro, Brazil, in 1992, brought official recognition to the idea that investing in HRD was an important means of protecting the environment. It was observed that skilled and knowledgeable people were in a better position to respond to incentives and opportunities and were less likely to degrade the environment in the first place. In adopting cleaner production methods, developing countries face a number of constraints: a lack of awareness about the environmental and financial benefits of cleaner production, a lack of information about the techniques and technologies and inadequate funds to purchase imported technology.

Clearly, HRD can play a significant role by promoting awareness of cleaner production activities. There is also an enormous need for training to support the introduction of environmental auditing, environmental reporting and environmental impact assessment in the economies in transition and in developing countries, where, in addition, the market for environmental protection equipment is generally underdeveloped and confined to ordinary end-of-pipe hardware and software. Local capabilities for manufacturing clean production hardware and providing advice to enterprises need to be built up.

Attempts by developing countries to increase their exports of manufactured goods to developed market economies may be hindered by the multitude of eco-labelling schemes that are being discussed. Lack of timely advice on meeting the requirements of these schemes may damage the export opportunities of these countries. Local industry in these countries and in the economies in transition requires assistance in training staff to take account of the environment when upgrading production systems and to promote the environment-friendly aspects of products when marketing them. The drive to minimize costs, brought on by greater global competition, should motivate managers to save energy and materials. The world's limited physical resources will then be used more efficiently by the manufacturing industries and there will be less pollution.

## Principal sources of education and training

Education and training enhance a country's ability to acquire and diffuse the technologies that will strengthen its industrial capabilities and boost competitiveness. While clearly the transfer of new technology occurs more efficiently where the recipients are well educated and trained in scientific and engineering disciplines, the governments of developing countries, given their limited resources, have to choose how best to use these resources to develop their human capital. They have to weigh the cost of providing various levels of education and training against the benefits of imparting the skills needed at the different stages of industrial development. The long gestation period for manpower development warrants launching appropriate short-term programmes within the framework of a long-term strategy. Governments also have to strike a balance between investing in general science education and educating an elite group of scientists and engineers. Another policy issue is the point at which the development of scientific personnel should become the responsibility of all the major players in industrial development, not just the government.

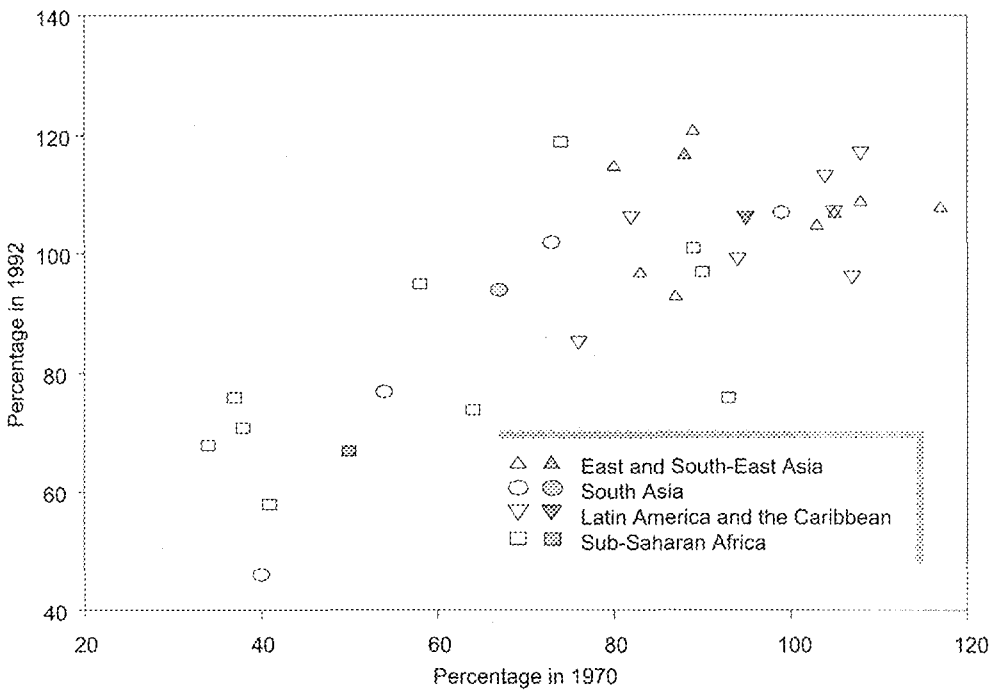
### *Formal education*

The importance of formal education in socio-economic development is well recognized by policy makers, who have everywhere made concerted efforts to improve the literacy rate. Indeed, over the past two decades, there was a worldwide improvement not only in the literacy rate but also in enrolment at the three levels of formal education. Developing countries have recorded significant improvements in school enrolment, especially at the primary level (figure 21), although from a low base. This is particularly true for sub-Saharan Africa and South Asia. Secondary and tertiary education are still in their infancy in the former region (figure 22 and table 31).

Despite the overall improvements, the industrialized countries and the NIEs are clearly ahead of the other developing countries in all levels of education. The Asian NIEs tend to have higher educational attainment than the Latin American NIEs, especially at the secondary and tertiary levels. In fact, the achievements of Asian NIEs such as the Republic of Korea and Taiwan Province of China are almost comparable to those of the industrialized countries, even for the secondary and tertiary levels.

The number of students at the primary level differs greatly from one developing country to another

Figure 21. Primary education enrolment in 1970 and 1992




*Source:* Compiled from UNDP, *Human Development Report 1994* (New York, Oxford University Press, 1994).

*Note:* Solid symbols denote the weighted average for the region; unshaded symbols represent individual countries.

The demand for education depends on the stage of industrial and technological development. Higher levels of education increase innovative capabilities as well as the ability to adopt sophisticated technology and efficient organizational structures. Basic literacy and primary education are essential for efficient industrialization and provide the base of knowledge necessary to develop advanced skills and capabilities.

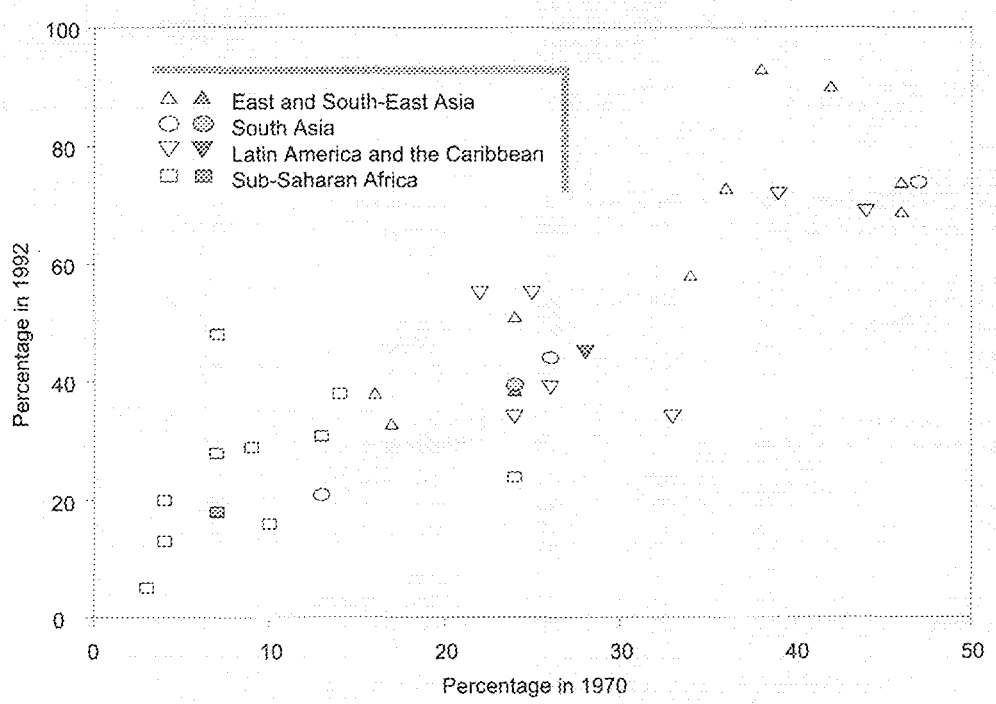
At the early stage of industrialization, the technologies are normally simple. In this stage, the skills required are also apt to be simple and can be learned on the job in a short time. Primary education is therefore generally sufficient for this purpose. As industrial development deepens, demand will grow for more sophisticated and specialized skills, and higher education and advanced training will be needed. The quality of the education available and its ability to meet the demand for skills will be particularly important in a market environment. Secondary education, which is a prerequisite for vocational training, must divert some of its efforts from preparing students for tertiary education to preparing them for vocational training.

New technologies and production systems place yet another set of demands on education and training. Automation will reduce skill requirements, but new organizational structures for production will have a mixed impact on skills depending on the type of organizational technique. In cellular and small batch production, many developing countries, including India and Zimbabwe, have found that training is more important than formal education.[4] However, the key features of the systematic integration of new organizational procedures are continuous improvement and the full participation of a multi-skilled workforce that has enough education and training to understand the underlying technical processes.

When industries move up the technological ladder and invest more heavily in R&D to build

Of the developing regions, sub-Saharan Africa is poorest in secondary education attainment

Figure 22. Secondary education enrolment in 1970 and 1992




*Source:* Compiled from UNDP, *Human Development Report 1994* (New York, Oxford University Press, 1994).

*Note:* Solid symbols denote the weighted average for the region; unshaded symbols represent individual countries.

indigenous technological capabilities, high-quality post-graduate education assumes increasing importance. The demand for scientists and engineers will surge, and it is important that this category of labour is in sufficient supply.

## *Pre-employment vocational education*

The accumulation of skills for industrial development and enhanced competitiveness may require more than simply public investment in education. Very often, the formal general education system fails to impart marketable skills. Pre-employment vocational education and training is used to close the gap between supply of and demand for industrial skills.

Vocational education systems have evolved over time to meet changing economic and employment needs, in line with industrial development. As an economy becomes more industrialized, the skill structure will need to be changed, with vocational education needing even greater adjustment than the general education system.

The vocational education system varies widely from one developing country or area to the next, with Singapore having one of the best (box 13). The Republic of Korea and Taiwan Province of China surpass the Latin American NIEs and India in vocational education and training.[5] The Republic of Korea has a broad range of training institutions that serve a diverse clientele. Training is provided by public and private vocational high schools, evening classes at vocational high schools for employed school-leavers, privately owned junior colleges and public vocational training institutes. It is targeted at students in pre-employment training, new entrants to the labour force, job changers, job losers and the employed (on the job or off the job). This diversity has increased the responsiveness of the training system to the changing demand for skills.

**Tertiary education in some Asian NIEs is comparable to that in some industrialized countries**

Table 31. Literacy rate and enrolment in tertiary education by region, 1970 and 1992

| Region/country or area | Adult literacy rate 1992 (% of age 15+) | Tertiary education (% of relevant age group) 1970 | 1992 | Region/country or area | Adult literacy rate 1992 (% of (age 15+) | Tertiary education (% of relevant age group) 1970 | 1992 |
|---|---|---|---|---|---|---|---|
| East and South-East Asia | 86 | . . | . . | Sub-Saharan Africa | 50 | 1 | 4 |
| China | 50 | 1 | 1 | Cameroon | 57 | 2 | 3 |
| Hong Kong | . . | 11 | 20 | Ghana | 63 | 2 | 2 |
| Indonesia | 80 | 4 | 10 | Kenya | 71 | 1 | 2 |
| Malaysia | 90 | 4 | 7 | Nigeria | 52 | 2 | 4 |
| Philippines | 94 | 28 | 28 | Senegal | 40 | 3 | 3 |
| Republic of Korea | 88 | 16 | 42 | Uganda | 51 | 1 | 1 |
| Singapore | 84 | 8 | .. | Zambia | 75 | 2 | 2 |
| Thailand | 80 | 13 | 19 | Zimbabwe | 69 | 1 | 6 |
| Latin America and the Caribbean | 85 | 15 | 18 | South Asia | 46 | . . | . . |
| Argentina | 96 | 22 | 43 | Bangladesh | . . | 3 | 4 |
| Bolivia | 79 | 13 | 23 | India | 50 | . . | . . |
| Brazil | 82 | 12 | 12 | Sri Lanka | . . | 3 | 6 |
| Chile | 94 | 13 | 23 | | | | |
| Colombia | 87 | 10 | 15 | Japan | 99 | 31 | 32 |
| Mexico | 89 | 14 | 14 | United Kingdom | . . | 20 | 28 |
| Venezuela | 89 | 21 | 30 | United States | . . | 56 | 76 |

*Source*: UNDP, *Human Development Report 1994* (New York, Oxford University Press, 1994).

Other developing countries have similarly diverse vocational education and training systems but are not able to reap the same advantages. Tunisia, for example, has a diverse vocational training system run by both public and private entities, but the public sector accounts for most of the initiatives. As a result, the training system has tended to be supply-driven. Problems arose in the mid-1980s, when the Tunisian economy slowed significantly and was unable to create enough jobs for its rapidly expanding labour force and vocational-school-leavers.

The problem is shared by many other developing countries where the employment environment does not favour vocational schooling. This is mainly because vocational schooling encompasses a fairly narrow range of job skills, and to meet its socio-economic objectives it requires growth in jobs and buoyant demand for the skills it is teaching. In many developing countries, stagnant employment growth in the modern sector, limited demand for specific vocational skills and the higher unit costs of vocational schooling have combined to reduce its rate of return (figure 23).

## *Enterprise-based training*

School-based vocational training systems have their limitations, one of which is their inability to respond quickly to changing demand for skills. This is partly due to lack of linkages between providers of education and employers. It is also due to the high costs of investing in and maintaining equipment as well as the lack of qualified teachers. The problem is exacerbated by the rapid changes in technologies and in the global economic system.

Because enterprises have closer links with the market and are in a better position to judge which skills should be developed, they have an important role to play in the provision of education and training. Since the skills required for entry-level positions can be learned quickly and efficiently if the basic education has been good and there is a training system at the workplace, enterprise-based training can be the most efficient and effective way to develop the skills of the workforce. It requires a shorter gestation period and can be achieved at a lower cost, with trained workers being placed directly in jobs that use their skills. In

## Government provides comprehensive support for upgrading skills

**Box 13. Singapore's human resource development infrastructure**

Singapore's education and training system, which receives considerable financial support from the State, is one of the best in the developing world. Singapore has transformed the colonial elitist education system into a three-tier system: public universities at the top, four polytechnics in the middle and job-oriented training institutes at the bottom. The system has centres set up by the Government in collaboration with transnational corporations as well as centres set up by statutory boards, professional bodies and private institutions.

Singapore is a regional leader in employee training courses held outside the firm. The Vocational and Industrial Training Board (VITB) has established an integrated training infrastructure and trained and certified over 112,000 individuals, or 9 per cent of the workforce, since its inception in 1979. VITB administers several programmes: the Full-Time Institutional Training Programme teaches a variety of pre-employment skills to school-leavers; the Continuing Skills Training Programme offers part-time courses and courses that are customized to fill company needs; and the Continuing Education Programme provides part-time classes for working adults.

The Training and Industry Programme of VITB offers apprenticeships to school-leavers and those who have completed their national service so they can earn wages while they get technical training. It consists of both on-the-job and off-the-job training. At the workplace, apprentices work under the supervision of experienced and qualified personnel, acquiring the skills needed for the job. Off the job, they get lessons in theory, conducted at VITB training institutes or industry/company training centres. Under this Programme VITB helps employers to conduct courses that fill their specific needs. It also provides testing and certification for its own trainees and apprentices as well as for outside candidates. In addition, centres for teaching state-of-the-art manufacturing skills have been set up in cooperation with transnational corporations. The Government subsidizes these centres because it feels they give Singapore a strong competitive edge in attracting high-technology FDI.

Using various grant schemes, the Skill Development Fund (SDF) of the National Productivity Board created 405,621 training places in fiscal year 1990. Initially, the impact of SDF was mainly on large firms, although subsequent efforts to make small and medium firms aware of the training courses and to support industry associations has increased its impact on smaller organizations. One particular programme, the Training Voucher Scheme, supports employers by offsetting training fees. This scheme enabled SDF to reach more than 3,000 new firms in fiscal year 1990, many of which had 50 or fewer employees. The Training Leave Scheme encourages firms to send their employees for training during office hours. It covers 100 per cent of the costs of approved programmes, up to $20 per participant-hour. In fiscal year 1990, over 5,000 workers benefited from this scheme. SDF is successful partly owing to its strategy of incremental implementation. Initially, efforts focused on creating awareness among employers, with ad hoc reimbursement of courses. Next, the policy was refined to target in-plant training, and reimbursement increased to 90 per cent of costs. Further refinements encouraged corporate training programmes by paying grants in advance of expenses, reducing interest costs to firms. More recently SDF has focused on small and medium enterprises and the quality of training.

contrast to formal education, which imparts the basic knowledge and analytical capability to cope with day-to-day problems in an increasingly complex society, in-house training provides employees with the applied and often advanced knowledge and know-how required to do a job.

Investment in training by enterprises is driven by two factors. First, employers are facing pressure to improve productivity and thereby competitiveness. Secondly, trade unions want to increase the wages and mobility of their members by upgrading their skills. Whether training should be done in-house or outside is decided mainly on the basis of costs. If a large number of employees need to be trained and external training is expensive, in-house training is the more likely choice. However, if in-house equipment is costly and the risk of damaging it is high, it may be cheaper to train outside, if trainers having the required skills are available.

Employers are increasingly aware of the need for continuous training, particularly where there is lifelong employment (box 14). This need stems from rapid changes in technology and hence in the skills required to operate it. It is estimated that technical knowledge depreciates 10-15 per cent per year if there is no additional training, and if those on whom the enterprise depends for technological innovation receive none, competitiveness will slip and products, processes and knowledge will become obsolete. The importance of such training grows as an economy develops and becomes more complex.

In general, enterprise-based training is concentrated in large firms and in high technology industries. It becomes increasingly important as higher level skills and more specialized skills are required. It also becomes more intensive when new technologies are being introduced and is often conducted to mitigate the effects of structural adjustment in declining sectors. R&D efforts naturally call for advanced training. To keep up with technological change, some enterprises have to become teaching organizations, and they devote substantial resources to this function.

When changes in technologies and the organization of production involve only slight alterations to the skill mix, on-the-job training is usually sufficient to meet training needs. However, when there are wide-ranging and radical changes in production systems, for example, when flexible manufacturing systems are introduced, new skills have to be mastered and extensive retraining becomes necessary. As people with skills are scarce, firms tend to hire people with relatively high levels of general education for entry-level jobs, with a view to training them on the job. The assumption is that higher levels of literacy and numeracy facilitate training.

## Emerging trends in the provision of education and training

### *The role of government: a need for fresh thinking*

Traditionally, government is the main provider of education and training, particularly at the level of basic education. However, the allocation of government resources for this purpose has often led to unsatisfactory results. One of the reasons for this may be that more money is sometimes spent on educational bureaucracies, school infrastructure, teaching staff and supplies than the productive economy can afford. Another reason may be the inappropriate proportions of funds allocated to different parts of the educational system: for example, higher education may be receiving too much compared to basic education.

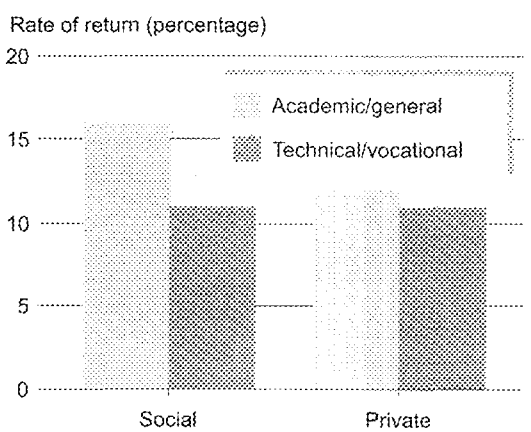
In allocating funds, governments often respond to political demands rather than labour market signals. The result is often a supply-driven education system, which is likely to be very expensive, to use government resources inefficiently and to overconcentrate expenditure at the tertiary level. Supply could be reconciled with demand through a price mechanism at the tertiary level, requiring students to pay for at least part of their education and training, perhaps in the form of a tax on graduates.

A typical example of inefficient government-funding of education and training systems is the type of system prevailing in a number of countries in South Asia. Most of the countries there take a traditional approach to training and development, with the formal public sector continuing to offer most of the technical and vocational preparation. This has created substantial disparities between the supply of and demand for graduates, particularly technical graduates. Moves to privatize State-owned enterprises have resulted in falling employment in the public sector, which together with rising standards in the private sector is likely to raise the number of educated unemployed. In Sri Lanka, social demand for tertiary education, unmatched by labour demand, has swollen the number of graduates looking for work.

Similarly, the heavy involvement of governments in the educational and training systems of most of the economies in transition has brought rigidities to these systems. The economies suffer from an acute imbalance between, on the one hand, heavy investment in scientific and engineering training and in R&D institutions and, on the other hand, the ability to deploy the results of that investment to produce marketable goods at a competitive price. The economic environment of the planned economies did not put enough pressure on firms to improve their performance or make innovative decisions. Indeed, universities and R&D institutes were segregated from the industrial sector. Although those economies had a critical mass of human capital well-trained in science and engineering when they began the reform process in 1989, they lacked an industrial system capable of manufacturing products to meet consumer needs.

**General education gives higher returns on investment than vocational schooling**

Figure 23. Social and private returns to world secondary education, by curriculum type




*Source:* G. Psacharopoulus, "Return to investment in education: a global update", *World Development*, vol. 22, No. 9 (1994), pp. 1325-1343.

## Lifetime employment means lifelong training

**Box 14. Enterprise-based training in Japan**

Strong internal labour markets and a tradition of lifetime employment in a single company are the key to the extensive training provided by large Japanese firms. From the employer's perspective, education before employment serves primarily as a screening device: individuals are hired according to the level of education completed and the quality of the school. Although vocational schools and colleges exist, the relationship between having attended one of these and subsequent occupation is weak.

Japanese firms combine continuous training at all levels with employee evaluation and strong internal labour markets to create a highly trained and flexible workforce. With government support in the form of trainee loans, financial assistance to small and medium firms, and advisory services, virtually all firms provide training. Large firms, which employ about 27 per cent of the workforce, provide it either in-house or outside, perhaps at company-owned training institutions. In 1981, associations of small and medium firms operated 771 training institutions, and although such firms were less likely than large firms to provide regular and systematic training, they were more likely to subsidize individual employees in acquiring skills outside the workplace.

In the former Soviet Union, for example, nearly three quarters of R&D went into defence and space and very little of it went to benefit the civil economy. Social, technical and economic linkages between the State-owned education and R&D systems and enterprise-level production systems were very weak. The production targets built into the central planning mechanism provided few incentives for innovation at the enterprise level. Thus, although the Soviet higher educational system was excellent at its very best, the country's ability to deploy human capital effectively was extremely limited. The structure of Soviet industry, with its heavy emphasis on the vertical integration of State enterprises, encouraged self-reliance and discouraged specialization and networking of expertise between enterprises. The industrial and vocational training system imparted skills for practices and processes that are now mostly obsolete. Thus, although the skill level of a worker in the former Soviet Union was relatively high, it no longer matches the requirements of modern flexible production systems.

## *The role of the private sector: capitalizing on the need for education and training*

In industrialized as well as developing countries, there has been a trend towards private sector participation in enterprise-based training and in the operation of education and training institutions. It is mainly the opportunity for profit that motivates the private sector to try to satisfy mounting demand for education and training. In Malaysia, nearly two thirds of all vocational training takes place in the private sector.[6] Private schools enrol 46 per cent of vocational students in Bangladesh, 62 per cent in Indonesia, 43 per cent in Thailand at the secondary and post-secondary levels, 44 per cent in Lesotho and 38 per cent in Colombia.[7]

Most of these schools offer courses in the commercial and business fields, which require less capital investment and for which teachers are relatively abundant. The schools are operated in a flexible manner: courses are generally short and conducted at times convenient to the students. For the most part they are regulated and subsidized by governments. Given their profit-making motives, they are generally more cost-effective than schools run by governments. This cost-effectiveness could be enhanced if the schools were more closely linked to employers and granted sufficient autonomy to adjust the length and content of courses to meet employer demand.

## *Partnership between the public and private sectors: translating theory into practice*

The trend towards partnership between the public and private sectors is a landmark in the evolution of education and training systems. In some countries, notably Germany, where they are known as the dual system of training, such partnerships have become the principal way in which occupational skills are developed. They succeed because theory and basic skills can be more efficiently taught in schools and training institutions, while advanced technical and practical skills are better learned in the firm (box 15). There is another reason why partnerships are needed: as the lifespan of vocational skills becomes shorter in response to faster technological change and shorter product cycles, governments often cannot keep up with training demands.

Government and private sector share the costs

**Box 15. The dual system of training in Germany**

The dual system of training smooths the transition from school to work by means of high-quality and flexible programmes whose costs are shared by the employers, the Government and the apprentices themselves. Employers bear the direct costs of structured apprenticeship in over 400 occupations. Federal and state governments share the costs of off-the-job learning and they provide extensive regulatory, examination and developmental services. Not all employers provide training, but those that do, train more apprentices than they require, expecting that up to 20 per cent of the trainees will seek employment elsewhere, often in firms that do not provide training. The effectiveness of the dual system rests on several factors. The willingness of firms to take on a large share of the training burden has its roots in the craft guilds of the Middle Ages and is reinforced by the fact that apprentices earn 25-40 per cent of what trained workers earn. Regulations and contracts protect the interests of all parties. Students enter the programme with 10 years of good basic education, especially in mathematics. Becoming an enterprise trainer is an upward move for the most qualified skilled workers and technicians and gives them high professional status. Careful regulation by the Government and professional support from it ensure that apprenticeship programmes meet high standards.

Under the dual system, most training in the early stages is institution-based and relatively little takes the form of short-term placements with employers. In the later stages, the balance shifts to enterprise-based training, supported by short pre-employment courses in theory and basic skills and, occasionally, release from the job for classroom training. This system has emerged in all developing regions. It requires good training capacity on the part of enterprises and strong supervision from training institutions. Generally, the apprenticeship portion of training needs regulation to ensure that the apprentices receive adequate training and are not exploited.

Partnerships of this kind increase employer participation in the design and delivery of institution-based training, improving the relevance of the curriculum and strengthening the linkages between training and employment. The government for its part must provide a high-quality pre-vocational basic education and the private sector can help to finance the partnership arrangements. Moreover, by offering financial incentives targeted at particular industries or occupations, the government can stimulate and guide the provision of training.

## *The role of transnational corporations: useful means to meet international standards*

TNCs are playing an increasingly important role, as a source of new technologies and as providers of training to developing countries and economies in transition. The scale and types of training depend on the type of industry, the size of the investment, the duration of the commitment to operate in a country and the nature of the TNC activities. In general, newly established, high-technology industries will require higher initial investments.

Production workers are trained mainly to give them the skills needed for the production processes and the functioning of the enterprise. A secondary objective may be to instil the corporate culture and values. Many TNCs have systematic vocational training programmes. These are sometimes carried out at or near the production facility and other times at local or regional training centres. On-the-job training for shorter or longer periods is the most common method for production workers. Particular importance is often attached to the training of professional, technical and managerial staff.

The positive effects of the skills and know-how diffused by TNCs are evident in the many developing countries that have enjoyed high rates of FDI. In Latin America, many managers in locally owned firms started their careers in foreign companies, bringing important spillovers to the host countries.[8, 9] Similar spillovers have affected HRD in South-East Asia and central and eastern Europe, as well as in Kenya.

TNC-led training is gaining importance, particularly in the fast growing East and South East Asian developing economies, which face a mounting demand for skills. A number of TNCs, such as Volkswagen, Procter & Gamble and McDonald's, run their own training programmes in the region. More than 50 foreign firms joined forces to finance a skills development centre at Penang, Malaysia, to serve the many high-technology electronics companies that have established subsidiaries there, including such leading-edge TNCs as Motorola, Hewlett Packard, Intel and Acer, a large computer company in Taiwan Province of China.

Even in the economies in transition in central and eastern Europe and the former Soviet Union and Asia, private training is gaining in popularity, especially for foreign languages and computer skills. Sometimes, as in the Penang example, the training required is beyond the capability of individual enterprises, and more formal off-the-job training in specialized institutions may be called for.

The policies of TNCs have a direct bearing on the HRD of many developing countries. For example, when foreign investors force local parts suppliers to meet international quality standards, industrial workers must be trained. In Thailand, Japanese car-makers have demanded that local suppliers meet Japanese standards, so the suppliers have had to invest in local training facilities. Another reason for foreign firms to set up training facilities is to support their marketing efforts. In China, for example, the intense competition between Airbus Industrie and Boeing for market share has led both companies, as part of their marketing strategy, to install flight simulators to train pilots to fly their aircraft.

## Sources of finance for skill formation

Governments are generally the main source of finance for education and formal vocational training. Employers are the second biggest source, and in some countries their contribution outweighs that of the government. In the case of private training institutions, which provide a significant portion of pre-employment vocational training in many countries, students pay all or part of the costs of training, depending on the extent to which the government provides subsidies to those institutions. Scholarship funds enable economically disadvantaged students to gain access to them.

Government funds are generally used for establishing and maintaining educational institutions and skill certification and accreditation systems, as well as for providing vocational guidance, technical assistance and support for SMIs. Public funds can also be used for directly subsidizing trainees by loans and grants. To encourage specific training activities, governments in a number of countries have established funds to provide grants and low-cost loans to training institutions, employers or partnerships. Often these require matching contributions from employers. These grants or loans are targeted at specific skill shortages or to meet retraining needs arising from structural changes in industries and are financed from both government and enterprise sources.

The private sector helps to finance education and training in a variety of ways. Some countries impose a so-called revenue-generating levy on company payrolls or (occasionally) on employee incomes to finance public technical and vocational institutions. This kind of funding mechanism is particularly widespread in Latin America and the Caribbean. In addition to revenues and levies, some developing countries or areas, including Ecuador, Hong Kong, Kenya and Mexico, have attempted to secure training funds by taxing turnover. Singapore imposes a levy on unskilled workers that goes into a skills development fund. The fund is administered by the Economic Development Board of the Government and is aimed at reducing the number of poorly paid unskilled jobs and thereby raising productivity levels by encouraging a greater use of technology in the production process. In Malawi, taxes on enterprises finance the salaries of apprentices in cooperative training arrangements. Both rebate schemes and tax incentives have been used, with varying degrees of success, to stimulate training by enterprises.

Given their resource constraints, governments will need to be more selective about which level(s) of education and training to develop. Estimates of the social return from investments in education indicate that the highest social return is from primary education, followed by secondary education (table 32). The social return from tertiary education is the lowest. This finding applies to all countries including the industrialized countries. By region, the returns from both primary and secondary education are the highest in sub-Saharan Africa, followed by the non-OECD countries of Asia.

While the foregoing appears to suggest that investments in primary and secondary education are more likely than investments in tertiary education to promote equity and raise productivity, research in Asian countries shows that the countries with a balanced expenditure policy in support of all three levels of education (the Republic of Korea and Thailand) are also the countries whose industrial base has expanded most significantly over the past decade. In Singapore and Malaysia, equal amounts were spent on primary and post-secondary vocational training and a larger amount was spent on tertiary education. A balanced approach, which ensures basic literacy and a good foundation in conceptual capabilities that can then be enlarged by technical education or vocational training,[6] will be particularly important where there is a rapidly evolving industrial structure.

## Skill formation for small- and medium-scale industries

SMIs are becoming an integral component of the overall industrial development strategy of developing countries and economies in transition. They are widely recognized as generators of

Primary education provides the highest return on investment

Table 32. Returns on investment in education by level (regional averages) (Percentage)

| Region or economic grouping | Social returns | | | Private returns | | |
|---|---|---|---|---|---|---|
| | Primary | Secondary | Tertiary | Primary | Secondary | Tertiary |
| Asia* | 19.9 | 13.3 | 11.7 | 39.0 | 18.9 | 19.9 |
| Europe/Middle East/North Africa* | 15.5 | 11.2 | 10.6 | 17.4 | 15.9 | 21.7 |
| Latin America and the Caribbean | 17.9 | 12.8 | 12.3 | 26.2 | 16.8 | 19.7 |
| OECD countries | 14.4 | 10.2 | 8.7 | 21.7 | 12.4 | 12.3 |
| Sub-Saharan Africa | 24.3 | 18.2 | 11.2 | 41.3 | 26.6 | 27.8 |
| World | 18.4 | 13.1 | 10.9 | 29.1 | 18.1 | 20.3 |

*Non-OECD.

*Source:* G. Psacharopolos, "Return to investment in education: a global update", *World Development*, vol. 22, No. 9 (1994).

employment, but their success is based mostly on their leanness and ability to survive efficiently within tightly constrained parameters. Thus, an SMI typically relies on a very small number of managers who handle both technical functions and marketing activities. Because SMI resources are very limited, they have little scope to support HRD and staff training, and many of them rely on temporary workers who are recruited from outside the firm when demand arises.

Training directed at SMIs must meet their specific needs. Often, their limited resources lead them to hire low-price consultants, but the advice they get will not give them a good base for keeping pace with the changing business environment.

Distance learning systems are particularly appropriate for small business people, who are typically very busy and work long hours. Government industrial extension workers or business advisers give additional support to small business people because they visit the enterprises and provide customized advice on how to improve the business. Business advisory centres provide entrepreneurship training and advice and serve as a meeting place and forum for owners and managers to discuss their common problems. Chambers of commerce and industry or other associations of entrepreneurs are also useful networks for owners and managers of SMIs, who must often overcome a sense of isolation.

Even in affluent parts of the world knowledge-intensive SMIs find it difficult to enter (or sustain their share of) markets dominated by larger companies. As a result, they frequently end up as subcontractors, supplying goods and services not directly to the market but to the large companies that dominate the market.[2] SMIs carve a niche for themselves in markets where a flexible response is important for business survival. In some industries, where barriers to entry are low, globalization has allowed SMIs in developing countries to enter the market as subcontractors of the TNCs. The entrepreneurs of SMIs invariably have a higher education.

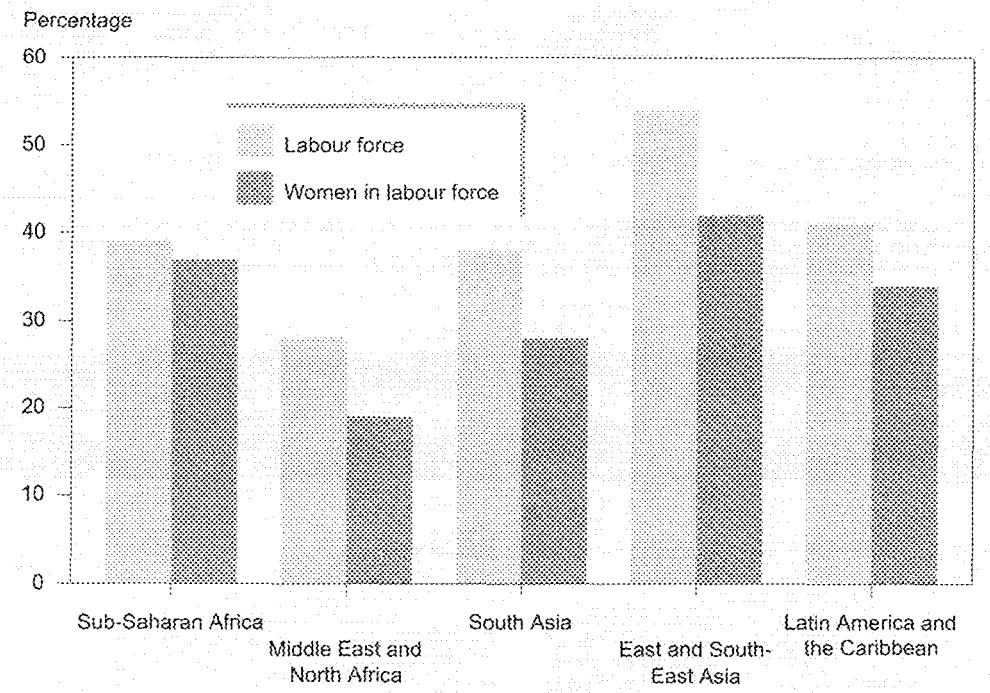
## Skill formation for women

There has been a worldwide increase in the participation of women in the labour force since the 1970s. The increase is mainly due to an increase in the number of women seeking jobs and in the demand for female labour. Of the developing regions, East and South-East Asia registered the highest increase in female employment, with women accounting for about 42 per cent of the labour force in 1990-1992 (figure 24). This is in line with the rapid economic growth in those regions, which has sharply stimulated demand for labour. In central and eastern Europe and the countries of the former Soviet Union, about half of the full-time labour force is female. Even in the Middle East, North Africa and South Asia, where cultural and economic structures inhibit female employment, there was an increase in the female share of the formal sector labour force.

Although there is a trend to the greater participation of women in the labour force, they appear to be concentrated in professional and secretarial/clerical jobs and to have little presence in manufacturing/transportation and administration/management jobs (table 33). This is true in both industrialized and developing countries and consistent with the results of a study showing that, on average, women in industrialized countries are overrepresented in professional, clerical, sales and service occupations and substantially under-

The share of female workers in the labour force varies from region to region

Figure 24. Employment profile, cross-regional comparison, early 1990s




*Source:* UNDP, *Human Development Report 1994* (New York, Oxford University Press, 1994).

represented in managerial and production jobs.[10] That study reveals that an impressive number of women are entering banking, insurance and telecommunications, but not many are entering sectors that experienced rapid growth of jobs, that is, the sectors that employ computer analysts and programmers, software developers, system analysts and management analysts and consultants.

The number of women in top management positions is even more discouraging. These jobs are very demanding and often strain family life. When women reconcile family life and working life, they often compromise their careers to improve the overall quality of their lives.

In most developing countries, fewer females than males attend vocational schools. There is also a marked gender difference in fields of study. Female vocational students are concentrated in traditional women's occupations such as commerce, health and home economics (figure 25) and in white-collar fields, while male vocational students are concentrated in blue-collar trades. Census data from Israel, for example, reveal that of those individuals who have completed secondary vocational education and for whom the subject of study is known, 83 per cent of males were in blue-collar fields of study, while 89 per cent of females were in white-collar fields.[11] In Latin America, more than 80 per cent of the female students were in fields such as secretarial and clerical studies, beauty care and handicrafts, and less than 10 per cent were in fields such as motor vehicle mechanics, electricity and electronics.

Increasingly, however, the rapid expansion of manufacturing industries in combination with declining rates of population growth is beginning to provide job opportunities for women as labour shortages emerge in a number of developing countries, including the Republic of Korea, Singapore and Thailand. These conditions are likely to increase female wage employment and give access to training in a broader range of occupations. The higher levels of female enrolment in industrial and engineering vocational courses in Asia than in other regions reflects these trends.

The quality and quantity of women's employment depends on their ability to acquire the relevant skills,[2] some of which are learnt on the job, some in in-house training and some in formal training institutes. In both developed and developing

**Fewer women work in manufacturing than in other sectors**

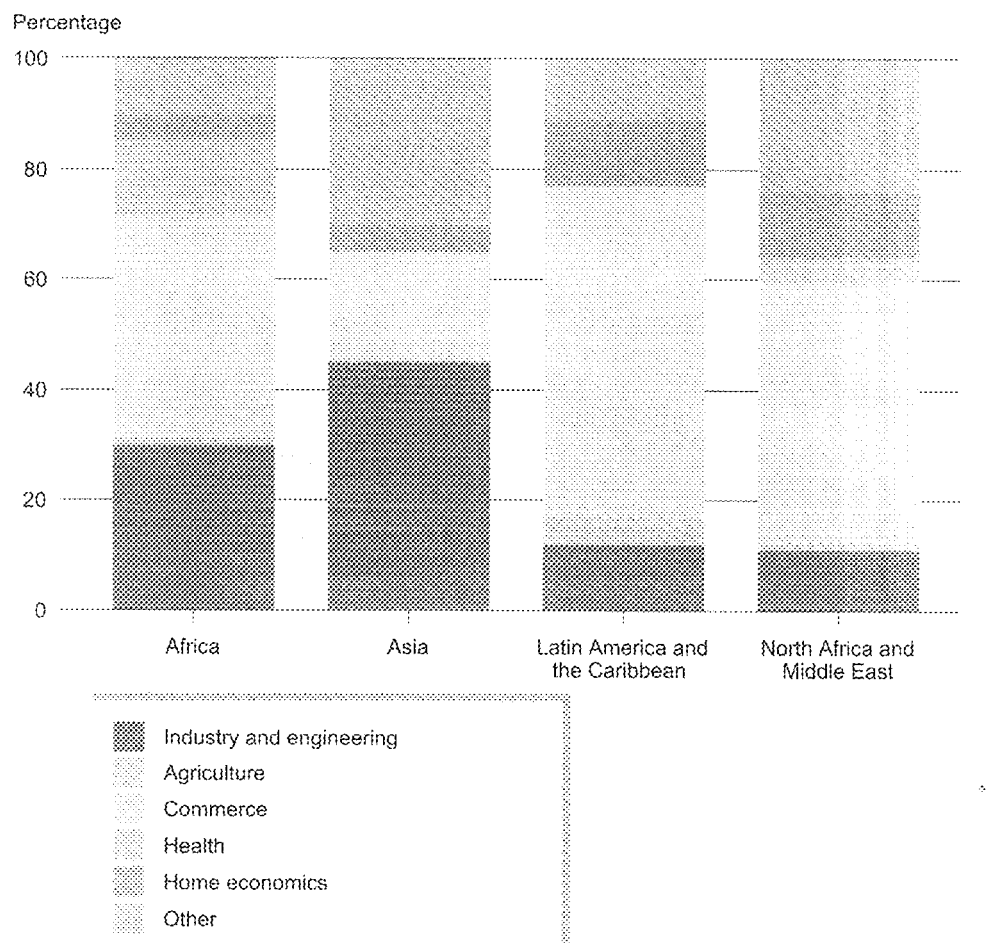
Table 33. Employment of women in different occupations by region, 1980s
(Percentage of jobs held by women)

| *Region or economic grouping* | *Professional/ technical* | *Clerical/ secretarial* | *Sales* | *Manufacturing/ transportation* | *Administration management* |
|---|---|---|---|---|---|
| Africa | 38 | 35 | 42 | 18 | 13 |
| Asia and the Pacific | 37 | 38 | 29 | 17 | 10 |
| Industrialized countries | 47 | 63 | 48 | 18 | 18 |
| Latin America and the Caribbean | 49 | 58 | 47 | 17 | 20 |

*Source:* United Nations, Department of International Economic and Social Affairs, based on Women's Indicators and Statistics Data Base (WISTAT).
*Note:* The percentages reflect the unweighted averages of a number of countries in each region.

**In all regions of the world except Asia, more women work in commerce than in any other sector**

Figure 25. Distribution of female vocational enrolment by field of study, 1988




*Source:* J. Middleton and others, *Skills for Productivity: Vocational Education and Training in Developing Countries* (New York, Oxford University Press, 1993).

countries women find it difficult to enrol in formal training institutes.[12] The hours of training, the costs involved and the structure of the courses are the factors mentioned by older women that conspire against formal training. For young school-leavers, it is the cost of training, especially training to achieve computer literacy, that proves the biggest deterrent.[13] Whereas an average family views the education of sons as an investment in the future, it perceives expenditure on the education of daughters as a luxury. In most parts of the world the trend is to gradual withdrawal of State subsidies for post-primary school education, making it even more difficult for young women, without the support of the family, to continue with expensive vocational education.

Empirical evidence suggests that as the level of skills needed rises, the female share of employment falls. The experience of export-oriented factories (*maquiladoras*) on the United States-Mexico border is instructive in this respect. For many years these *maquiladoras* mainly employed women: with their primary schooling, they were able to do the jobs, which were repetitive and unskilled. By the 1980s, however, the skill requirements of the companies had begun to change, leading to an increased proportion of technical workers and engineers and a concomitant shrinkage in the proportion of women employed, from 77 per cent overall to less than 60 per cent. This downward trend appears to be continuing.[14]

## Policy considerations

### *More investment in education and training*

Specific skills can be taught more effectively when the underlying general education is strong. As primary and lower secondary schools provide an appropriate foundation when a country is at an early stage of industrialization, governments should initially direct their efforts in education at these levels. Primary and secondary education are most effective when they provide a conceptual background for subsequent skill training and when they incorporate sufficient technical and commercial and, above all, practical elements into their curricula.

As industry develops, there needs to be more investment in secondary and vocational education and, later, in quality and in higher education. A significant and rapid increase in the proportion of the workforce with secondary education, especially upper secondary education, is important to improving trainability and flexibility. Then, at an even more advanced stage, extensive programmes for the development of new skills and capabilities will be needed to meet technological requirements. A supply of highly educated graduates becomes essential when new technologies are adopted at a high rate and indigenous R&D efforts begin to be made.

New categories of technical personnel will be needed, as well as specialized facilities in which to train them: computer programmers, systems designers, microbiologists and researchers in biotechnology, energy specialists and other such professionals. The demand for such personnel will swell as new technologies come to these countries, so a schedule for providing the necessary education and training needs to be drawn up. Training programmes to develop entrepreneurial and management capabilities also have to be set up. The organization of production systems is a major new field and constitutes an essential aspect of HRD in relation to new technologies.

### *Improved responsiveness of education to market signals*

Expanding the educational and vocational training system is just one dimension of HRD. To ensure the optimal use of resources, that system needs to be flexible so that it can respond quickly to changing market signals. It must deliver programmes geared to new patterns of employment, knowledge and skills. Curricula have to be redesigned to take account of changing technologies and demand for skills and to anticipate trends. For example, in this era of generic technologies, the system should expose students to computers, automated manufacturing systems, CAD and the like. Computers should be introduced not only in secondary and vocational schools but in primary schools as well, as has been the case in the advanced developing countries.

### *More efficient and effective education and training*

The successful implementation of these programmes will require bringing educators up to date with new skills. Yet in many developing countries the salary levels of educators are generally well below salaries in the industrial or private sectors, which has led to a serious deterioration in the quality of human resources and in the capacity to deliver education and training. Rectifying this problem will require substantial financial resources. It could be done either by raising the salaries of educators or by sending young people overseas for education. Another remedy would be to in-

volve the private sector as a provider of education. This would improve quality but might aggravate the shortage of educators in the public sector as they desert to the private sector for better rewards. A temporary solution to the teacher shortage is to recruit educators from abroad.

As mentioned in the preceding subsection, the quality of vocational education and training depends, to a large extent, on the ability of institutions to adjust the curricula to address changes in the skills being demanded. This adjustment can be very costly, and many developing countries are not able to afford it, leading to rigidities and obsolescence in school curricula. In many centralized systems, these problems are exacerbated by institutional constraints, such as long approval processes and the limited autonomy of the institutions. Steps should therefore be taken to obtain sufficient financing and to make the training institutions more autonomous.

### *Partnerships between the public and private sectors*

One of the most effective ways to improve the responsiveness of education and training systems is to mobilize the resources of employers and private training institutions and forge closer links between the public and private sectors. The sectors must jointly formulate education and vocational training policies so as to close the gap between the skills imparted by pre-employment training and the skills required to enter a job and to allow faster responses to changing demand. Training institutions, both public and private, should be encouraged to arrange with enterprises to retrain their labour force and upgrade skills. The public sector should concentrate on preparing an educable workforce in which the private sector can further invest. This entails strengthening general education at the primary and secondary levels, particularly in science, mathematics and languages.

A strong partnership between the public and private sectors is also required for the establishment of a national scheme for skill standards, testing and certification. The scheme should allow employees to take proficiency tests whose results will be recognized throughout the country. It would improve the mobility of labour, would guide manpower development planners and would ensure that employers get the quality of skills they require for industrial expansion and growth. A strong partnership between the public and private sectors might also be especially relevant to the training, certification and standards that will be needed for eco-labelling.

### *Government support for enterprise-based training*

Enterprise-based training has some weaknesses. The main one is that it is often the first activity to suffer from cut-backs and usually one of the last activities to be restored when business improves. Another weakness is that employers are wary of providing training that will increase staff turnover.

The presence of such market imperfections calls for selective government support to increase the extent and quality of enterprise-based training. One option is for the government to pass laws compelling employers to spend a given amount of money on training. This would make training a fundamental of doing business and encourage the concept of lifelong training. Such practices are found in Brazil, Japan, Nigeria and the Republic of Korea, where the Governments have mandated minimum investments in training. In India and Pakistan, compulsory training schemes in the form of apprenticeship systems are an alternative to levies on employers.

Another form of intervention is the direct involvement of governments in providing vocational training and in expanding and improving the general education system. This is especially true for the LDCs, where industrial development is in its infancy, the manufacturing base is still small and the training capacity of enterprises is not always strong enough to justify on-the-job training. Moreover, skill requirements at this stage of development are generally less exacting and industrial employment is limited. For all these reasons, enterprise-based training is not common, so there is little opportunity for the burgeoning school populations to be exposed to vocational skills if they are not taught in schools. As economies change and grow and enterprises become stronger, a greater share of training responsibility can be assumed by enterprises. The role of public training institutions will more and more be to provide basic skills and support for enterprise management and for their training endeavours. An example of this shifting role is found in Brazil, where the share of pre-employment training carried out by the national training agency has declined from 70 per cent to 17 per cent, while in-house training and the provision of management and training development services to enterprises have increased correspondingly.

### *Support for small- and medium-scale industries and guidance for women*

Too small to have developed their own human resource management and training capacities, SMIs need pre-employment vocational training, in-service training, management consultancy and access to information and support for improving production technology. Training institutions should therefore be encouraged to offer such services to SMIs. It is somewhat problematic, however, for them to establish links with SMIs, and specialized expertise and institutional flexibility will be needed.

With regard to female participation in the vocational and educational system, laws are generally in place to allow equal access to employment opportunities and to technical and vocational education. Unfortunately, however, they are often ignored, so that special efforts need to be made to promote genuine equality of the sexes. Legal measures to encourage women's participation must be accompanied by administrative measures such as maternity leave, grants and day-care facilities. Some traditional views need changing so as to bring about attitudes and behaviour conducive to women's participation in vocational education and training.

Empirical evidence suggests that there is a negative correlation between technological upgrading and the share of female employment. This has significant implications for female workers, who account for a large share of the workforce in labour-intensive, low-technology industries. These industries are the most apt to require constant technology upgrading to sustain their competitiveness. The conflicting demands of improving their skills and running a home make it difficult for women to take up occupations that call for complex skills. It is therefore important to identify appropriate points of intervention to give women access to the new skills required by the market and to have women-friendly training and retraining programmes in the private sector that would lessen the threat of technological redundancy. New technologies could also reconcile the family life and working life of women by creating flexibility in the location and time of work.

**Notes**

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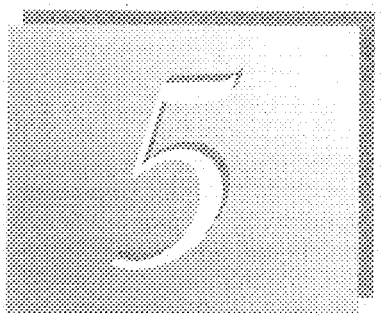
[13]Nirmala Benerjee, "Something old, something new, something borrowed: microelectronics in Calcutta" in Mitter and Rowbotham, eds., op. cit.

[14]Alfredo Hualde, "Trade flows, gender and training in the maquiladora", background paper for Mitter, "Does new technology ...."



# Industry and environment in a globalized world economy

## Sustainable industrial development

In recent years there has been growing concern about whether environmental constraints will limit industrial development and whether industrial growth will seriously damage the environment and health. There is particular concern about the sustainability of current industrial development patterns globally as well as in specific countries. At one time there was an emphasis on the trade-off between economic growth and environmental protection, with economic development held to be incompatible with environmental imperatives and therefore not sustainable in the sense of preserving options for future generations. Rapid industrial growth was linked directly to the rapid depletion of natural resources and raw materials, mounting pollution and health problems. More recently, a new paradigm has been established which recognizes that industrial development and environmental sustainability can often be complementary and that win-win outcomes are possible if the appropriate technology, institutions, policy framework and incentive structures are in place.

There is, however, still some debate about the implications of sustainability for developing countries and economies in transition. First, and at the forefront of the debate, is the issue of globalization and the impact on the environment of one of globalization's key aspects, industrial restructuring and liberalization of markets. The widespread adoption of measures to liberalize prices and trade and the increasing integration of national economies into a global economy have raised fresh concerns about the linkages between economic growth and the environment. Two questions are relevant. What are the environmental implications of market liberalization and economic policy reform? What are the implications for competitiveness of increased environmental regulation at the national and international levels?

A second set of issues concerns the fear that "dirty" industry will move to NIEs to avoid strict environmental controls in the industrialized countries. While this does sometimes occur,* many TNCs claim that they adhere to the same standards whether they manufacture in Europe or Africa, but SMIs are not as closely scrutinized.**

A third set of issues concerns the costs of environment-friendly technologies.*** There are those who think that any major change in technology necessary for meeting stricter environmental standards will be costly and will affect competitiveness and economic growth. Others see enormous opportunities for technological innovation that

*For instance, Montrose Chemical Co., the last producer of dichlorodiphenyltrichloroethane (DDT) in the United States was sold to Indonesian investors in 1983 and literally moved from California to Indonesia, where it has become a notorious local polluter.

**Shell has been criticized for operating its Nigerian facilities to a much less rigorous standard than its facilities in Europe or America. The case of the Union Carbide India Ltd. pesticide plant in Bhopal also raises similar questions, namely whether the accident was due to design flaws, poor maintenance and/or inadequate procedures at the local level or to inadequate supervision from the higher level.

***Cleaner production processes and waste minimization are grouped under the label "environment-friendly technology".

Rapid economic growth requires new patterns of sustainable development

**Box 16. Sustainable industrial development**

Industry is and will continue to be a crucial component of the economies of developing countries and economies in transition. The rapid growth of the industrial sector in these countries and its inevitable impact on the environment make it necessary for industry to develop new patterns of sustainable development.

UNIDO defines ecologically sustainable industrial development as patterns of industrialization that enhance the contribution of industry to economic and social benefits for present and future generations without impairing basic ecological processes. These patterns would increase economic development over time, utilizing non-renewable resources in an efficient way, conserving renewable resources and not exceeding the waste assimilative capacities of ecosystems. They would differ from country to country depending on resource endowments and stage of economic development.

To help developing countries and countries in transition reach this goal, UNIDO has made environment and energy-related activities one of its seven priorities. The main activities are set out in the UNIDO environment and energy programme:

*Environment*

- Supporting the formulation and implementation of national strategies for ecologically sustainable industrial development
- Supporting the transfer of technology for clean and safe industrial production
- Supporting developing countries in the implementation of international protocols, conventions and agreements
- Supporting developing countries in conforming to industry-related international norms and standards

*Energy*

- Conserving and improving industrial end-use efficiency (power, heat and steam)
- Improving the efficiency of industrial and utility fossil-fuel power plants and industrial combustion systems such as furnaces, kilns and dryers
- Promoting the use of natural gas and new and renewable sources of energy in developing countries (fuel switching)
- Supporting the manufacture of energy-efficient equipment and the improvement of fuel efficiency in the transport sector

would be beneficial to the environment as well as profitable to the innovator. Everyone agrees that such opportunities should be exploited, in so far as they exist. The main issue is the magnitude of the costs and who should bear the burden. UNIDO takes the view that win-win opportunities for environmental improvement at little or no cost—or even at a profit—are widespread in the industrial world and probably even more so in the developing countries and economies in transition (box 16).

This chapter discusses the three sets of issues in some detail. It starts by describing industrial waste emissions and their environmental impacts and discussing the technological opportunities for reducing these impacts. It then presents domestic and international response options for governments and industry that would mitigate fears about the adverse consequences of strict environmental regulations and economic reforms on trade and competitiveness. The underlying message is that environmental protection, industrial development and competitiveness can be compatible provided the right policy, technological and institutional measures are adopted by national governments and the international community.

Industrial waste emissions, environmental impacts and cleaner production

## *Waste emissions*

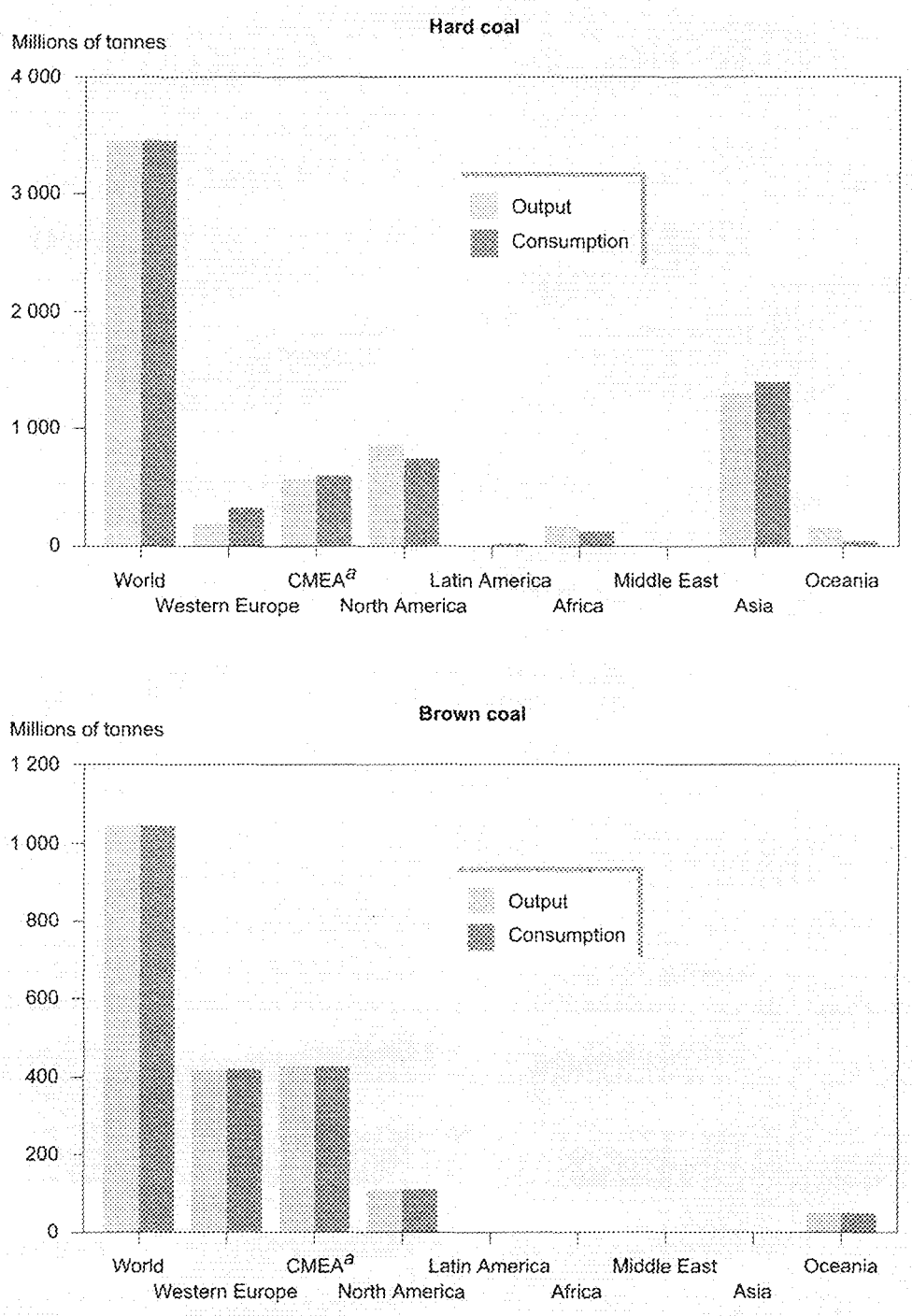
### *Fossil-fuel-related emissions*

As most industrial and household emissions are the direct consequence of the use of fossil fuels, it seems reasonable to consider these sources together.* Emissions result mainly from consumption, although significant quantities of methane are emitted in the course of coal mining and natural gas production and distribution, especially via pipeline. The main emissions from fossil fuel consumption are carbon dioxide, carbon monoxide, sulphur and nitrogen oxides, methane (from coal mining, gas drilling and gas distribution), unburned hydrocarbons, tropospheric ozone, lead (mainly from motor vehicles), small particulates and fly ash (the last mostly from coal burning). Figures 26 and 27 provide data on fuel production and consumption for the various regions of the world.

*It should be noted, however, that aggregating the two sources conceals the fact that household emissions and transportation present greater pollution hazards than industry itself.

Asia and Europe account for major shares in production and consumption of coal

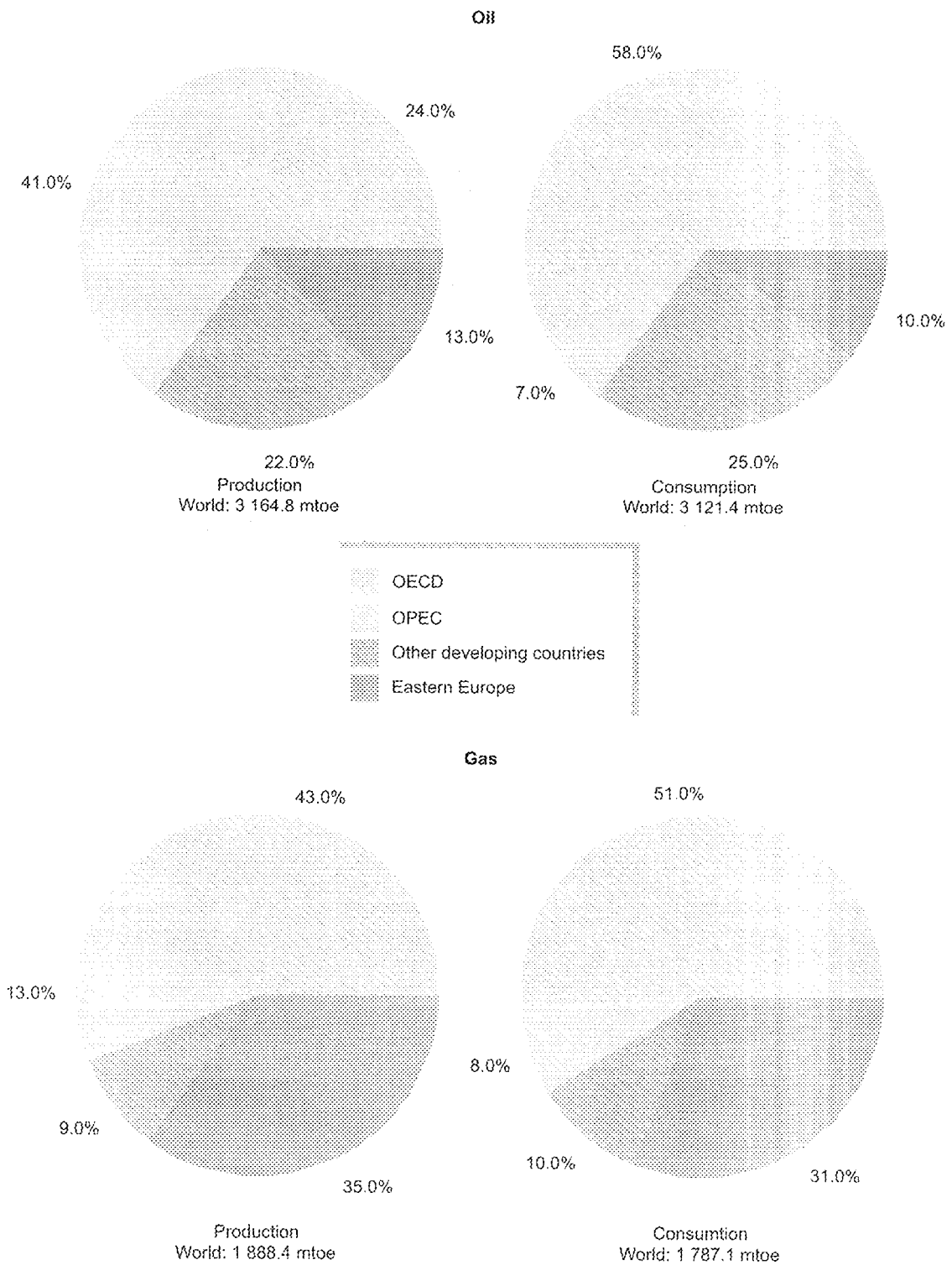
Figure 26. Coal based fuel production and consumption, 1991/92




*Source:* World Energy Council, *1992 Survey of Energy Resources* (London, 1992).

[a] Former Council for Mutual Economic Assistance, also known as Comecon.

Figure 27. World oil and gas trends, 1993




*Source:* Organization of Petroleum Exporting Countries (OPEC), *Facts and Figures* (Vienna, 1993).
*Note:* mtoe refers to million tonnes oil equivalent.

Gas combustion generates about half as much carbon dioxide as coal combustion, per unit energy output, with petroleum-based liquid fuels intermediate. Thus countries and regions that are heavily dependent on burning coal, such as China, which is 76 per cent coal-dependent, the Black Triangle region (the area where the border of the Czech Republic, Germany and Poland meet) and Kazakstan, generate proportionally more carbon dioxide than countries with access to natural gas. Figure 28 illustrates such differences in regional carbon emissions (see also box 17).

The efficiency of downstream energy use is an important determinant of atmospheric carbon emissions. For instance, Chinese industry uses 40 per cent more energy per unit output than industry in industrialized countries. The steel industry in China uses 78 per cent more energy per unit output than in Japan and 68 per cent more than in the United States. Similarly, the electric power sector in China uses 26 per cent more energy (coal) per unit of electricity produced than in Japan.[1] India and other Asian countries suffer from comparable inefficiencies.

In the economies in transition inefficiencies in energy use are the result of the outmoded and badly maintained technologies and capital stock of large-scale heavy industry. In many other developing countries, by contrast, inefficiencies of energy use result largely from the fact that there are large numbers of small-scale local producers, as opposed to few producers and large-scale integration. Many of the smaller local producers also depend on older designs and less technologically advanced equipment.

Eastern and central European countries and the Russian Federation consume four or five times as much energy per capita as countries with similar income levels elsewhere.[2] The basic reason is that in these countries in the days of the command economic system, energy was viewed as the most potent driver of growth. All centrally planned countries historically put enormous emphasis on developing their energy resources, from coal mines to hydroelectric dams, without imposing any price discipline on energy. Energy prices are still subsidized in many of these countries, especially China.[3] However, as the transformation to competitive market economies gathers momentum, the need for industrial restructuring to achieve international competitiveness means that energy subsidies must be phased out. This imperative notwithstanding, the distributional problems of phasing out the subsidies, particularly as it affects households, are difficult economically, socially and politically.

Carbon dioxide accounts for only about half the greenhouse effect

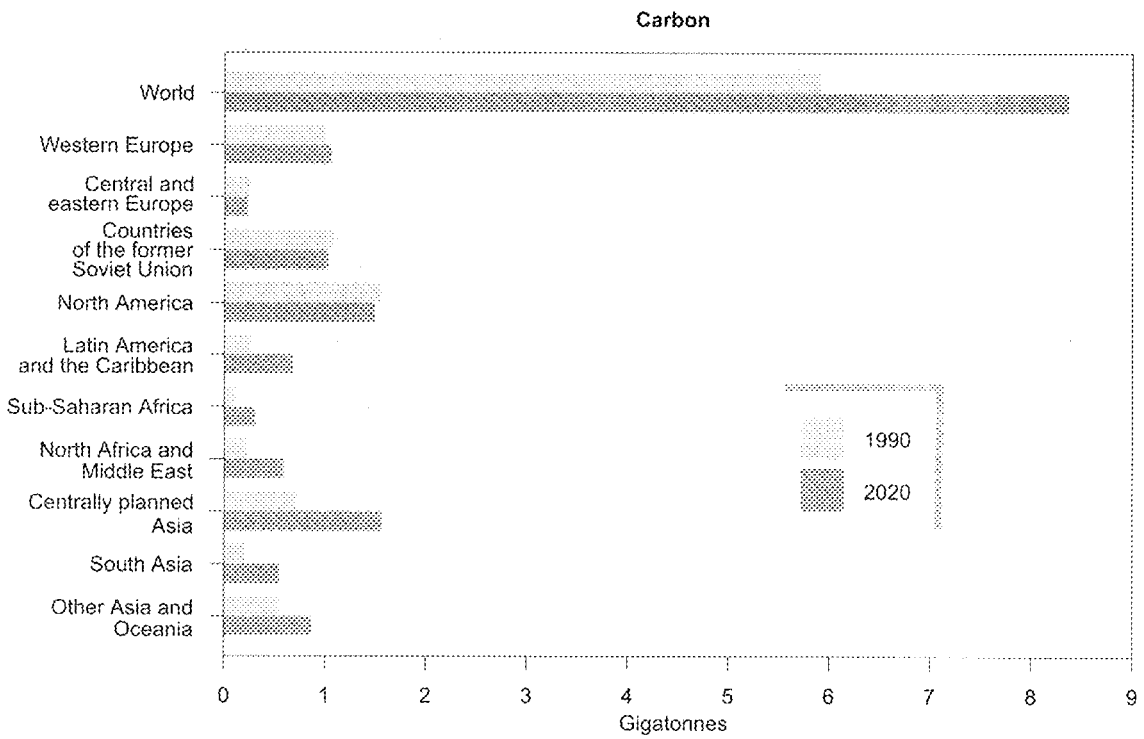
**Box 17. Greenhouse gases other than carbon dioxide**

Carbon dioxide accounts for only about half the greenhouse effect; the other contributors are, in order of importance, chlorofluorocarbons, 20 per cent; methane, 16 per cent; ozone, 8 per cent; and nitrous oxide, 6 per cent. Nor does the energy sector account for all of the greenhouse emissions—indeed it accounts for only about 49 per cent, with agriculture and deforestation accounting for 13 per cent and 14 per cent, respectively. An index of "greenhouse potential" has been computed by the Intergovernmental Panel on Climate Change (IPCC), based on measured physical characteristics of the various gases, namely their infrared (heat) absorptivities and atmospheric lifetimes. Using this index, the United States alone accounted for 19.1 per cent of the greenhouse potential emitted in 1992, followed by the countries of the former Soviet Union with 13.6 per cent and the European Union as a whole (12 countries) with 12.4 per cent. Then came China (9.9 per cent), Japan (5 per cent), Brazil (4.3 per cent, mainly due to massive deforestation in the Amazon), Germany (3.8 per cent) and India (3.7 per cent).

Other important pollutants related to fossil fuel combustion are sulphur dioxide, nitrogen oxides, carbon monoxide, unburned hydrocarbons, ozone, particulates and lead. The first two have regional as well as local significance; the rest are primarily associated with urbanized areas. Data on other emissions (carbon monoxide, hydrocarbons, lead and heavy metals particulates) are much scarcer. In fact, they are available for only a few countries, mainly the United States and parts of western and eastern Europe. There is no way to estimate world totals, except perhaps in the case of coal fly ash, which can be estimated roughly from coal consumption and ash content. Even the best-quality commercial coals average close to 10 per cent ash content. Coals used in some countries (India and the Democratic People's Republic of Korea, for example) contain up to 40 per cent ash. Chinese coals average 13-14 per cent ash.

Coal-dependent regions generate proportionally more carbon dioxide than regions with access to oil and gas

Figure 28. World atmospheric carbon emissions, 1990 and 2020




*Source:* World Energy Council

A closely related problem for the developing countries and some economies in transition, particularly in the countries of the former Soviet Union, is the lag in electrification. In the OECD countries, where scale economies permit greater efficiency of operation and emissions control, most coal is used to generate electricity. By contrast, most of the coal burned in China, for example, is consumed directly by small-scale industry or final consumers. Efficiency is lower, and emissions per unit of energy consumed are higher.

## *Manufacturing emissions*

Disregarding pollutants from fossil fuel production and consumption, the main industrial pollutants comprise solid and liquid wastes from mining operations, emissions to the air from metallurgical operations and chemical industry wastes. The chemical industry is relatively undeveloped outside OECD countries, except in eastern Europe, the Russian Federation and some NIEs.

Chemical manufacturing is a major source of pollution in industrialized countries and also in some economies in transition, such as Armenia and the Sumgait region in Azerbaijan. One exception is ammonia production for fertilizer, which is spreading rapidly to parts of the developing world where there is natural gas, the primary feedstock, particularly the Middle East and Indonesia. The ammonia synthesis process is relatively benign environmentally, except for its high energy-intensity; the pollution problems arise more from overuse in agriculture, not from production.

Phosphate fertilizers are also increasingly in demand in the developing world. In this connection, the processing of phosphate rock into fertilizer via phosphoric acid is likely to shift in coming decades to the countries where the rock is mined. At present there is a great deal of phosphate rock mining in North Africa but relatively little production of phosphoric acid: most of the African ore now seems to go to western Europe for processing into fertilizer and other chemicals.

Apart from fertilizer-related chemicals and sulphuric acid, the modern chemical industry is largely built around petrochemicals. The basic feedstocks for this industry are chlorine, together with methanol, ethylene, propylene, butylene and butadiene. Here again, new refinery capacity is being added mainly in the Middle East, Indonesia, central Asia (Turkmenistan, Tajikistan and Kazakstan) and the Caucasus, largely to exploit the large petroleum and gas reserves in those places.

One of the main polluting industries in industrialized countries in past decades has been the pulp and paper industry, which is likely to grow in importance in the humid tropics, especially in Brazil, Indonesia and Malaysia, and also in the Russian Federation, particularly in the Kaliningrad region on the Baltic coast. Even the cleanest pulp and paper mills in Scandinavia do not recycle all the chemicals they use, and significant amounts of chemicals end up in water treatment sludge or fly ash. In the Russian Federation, by contrast, a pulp and paper plant dumps enormous quantities of untreated wastes into Lake Baikal, one of the ecological treasures of the world. Pulp and paper mills in remote areas have resisted installing expensive treatment facilities.

The same is true of other classic polluters, such as textile dyeing, leather tanning and electroplating. Leather tanning, an extremely dirty industry that uses large quantities of chrome salts, has been moving rapidly out of Europe and North America, where strict pollution standards are enforced. Brazil and India are the two chief "beneficiaries" of this particular shift. However, the bulk of the chromium chemicals, not to mention the organic wastes, ends up in rivers. Electroplating is another industry dominated by small firms that use toxic heavy metals, especially chromium and cadmium, much of which ends up in the rivers (box 18). The stringent environmental controls applied in industrialized countries are rarely enforced in the developing countries. The rapid growth of light manufacturing in Asia and Latin America is certain to increase pollution from such sources.

## *Mining emissions*

In mining operations, it is primarily the tonnage of material handled and processed, and only secondarily the technology used for concentration of the ore, that is of importance environmentally. Iron ore is produced in large quantities mainly because iron itself is used in large quantities. The world's biggest iron ore producer and consumer is the countries of the former Soviet Union, followed by Brazil, Australia and China (figure 29). Coking is probably the dirtiest process in the ferrous metal sector. While modern coking plants in the industrialized world emit only small amounts of pollutants, facilities in central and eastern Europe, the countries of the former Soviet Union and China emit significant amounts of particulates, benzene, xylene, toluene and other aromatics, ammonia and hydrogen sulphide. Authorities in China acknowledge that energy consumption in coking ovens there is 40-100 per cent higher than elsewhere.[1] Much of this excess energy loss is directly translated into pollutant emissions, which are largely uncontrolled in China and other developing countries.

Green technologies for the electroplating industry

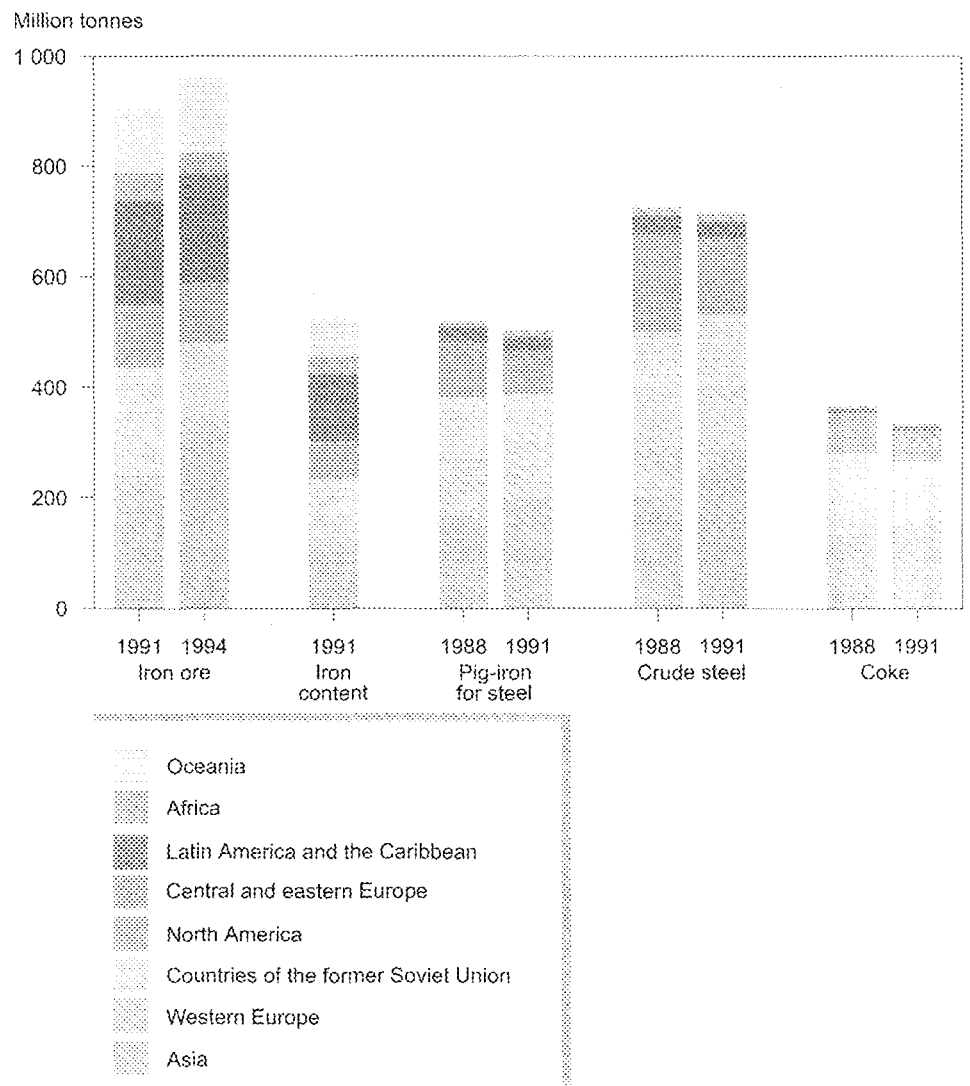
**Box 18. The electroplating industry and environmental hazards**

The electroplating industry continues to cause environmental damage in many countries. The industry in São Paulo comprises large numbers of small- and medium-sized enterprises, many of which are unregistered. These enterprises have severely polluted the Tiete River that flows through the city. Entrepreneurs were unable to meet the strict requirements imposed by the Government of Brazil to reduce pollution and clean up the river, so the industry sought UNIDO's expertise. A large number of facilities were inspected and on-site technical advice was given on low-cost technological changes, better housekeeping and maintenance and the establishment of effluent treatment facilities, including, possibly, a centralized treatment plant.

In Hungary, close to half a million tonnes of untreated galvanic sludge have been improperly disposed of at various sites. After decades of neglect, the Government has recently taken measures to clean up these sites. The mixing of various hazardous residues necessitated developing a new technology, in response to which an ore-dressing company in eastern Hungary decided to build a plant for treating the mixed galvanic sludge. The United States Trade and Development Association helped Hungary to acquire the know-how. Then, UNIDO assisted in setting up a pilot plant. The company is now raising funds for a transportable pilot plant that will treat the sludge at different sites.

The former Soviet Union and Latin America lead in the production of iron ore, but Australia is also well represented in Asia

Figure 29. Iron, steel and coke production, 1988, 1991 and 1994




*Source:* United States Bureau of Mines, *Minerals Yearbook* (Washington, D.C., United States Government Printing Office, 1991).

Aluminium, like iron, is obtained from ores of relatively high grade. The mining operation is a surface (open pit) one since bauxite, the only commercial source of aluminium, is normally found in a thin layer. About 2.2 tonnes of crude bauxite ore yield 1 tonne of dehydrated alumina by the Bayer process. This process consumes large amounts of lime and caustic soda and generates a caustic waste called red mud (the colour is due to the iron content), which is usually left in ponds near the alumina plant. Red mud is a useless, corrosive material and can pollute groundwater, especially in wet climates.

Alumina is reduced to pure aluminium metal by electrolysis, invariably near a cheap source of electric power and normally in remote places as it produces carbon monoxide and carbon dioxide, plus some toxic fluorides. In general the aluminium industry is moving away from western Europe and North America. New facilities have been built in Australia (using coal as a source of energy), Brazil, China and countries of the former Soviet

Union, particularly the Russian Federation, Azerbaijan and Tajikistan. Many of the facilities in the former Soviet Union need rehabilitation to minimize the environmental problems caused by smelting.

Another kind of pollution comes from gold and silver mining. Modern large-scale gold mining operations use a process known as "heap leaching", which uses sodium or potassium cyanide to concentrate the gold ore. The cyanides remain in impoundments from where they can leak into groundwater. An older and much more dangerous process that was once standard practice still prevails in some places: the use of mercury to amalgamate gold particles in low-grade ores. The gold-mercury amalgam is then heated, which vaporizes the mercury and leaves the gold. The vaporized mercury is probably oxidized in the atmosphere, but it ultimately condenses on soil or vegetation, washes into rivers and is taken up by plankton and passes through the aquatic food chain in a highly toxic form, methyl mercury, which is biologically concentrated by fish and birds and is the cause of Minimata disease. Gold panners who handle mercury amalgams in the purification process are subjected to a serious health hazard (box 19).

The mercury amalgam process was widely used for gold and silver mining in the past, leaving large areas, such as the famous Potosí mines of Bolivia, virtually uninhabitable. It is still being used by the small-scale illicit gold miners in the Amazon basin who account for roughly half of Brazil's gold production. Illicit gold mining is not limited to the Amazon basin, of course, but occurs in remote regions in many less developed countries. There is evidence that gold mining is now one of the main uses of mercury, as well as one of the main causes of mercury pollution, in the world (table 34).

## *Environmental impacts of waste emissions*

Industrial emissions have three clearly distinguishable environmental impacts: global, regional and local. These three categories have very different implications for industrial and economic development and should be dealt with in different ways.

### *Global impacts*

There are four industry-related environmental problems of truly global significance:

*(a)* The build-up of greenhouse gases in the atmosphere and the consequent warming of the world's climate. This will shift precipitation patterns and storm tracks, increase the probability of large storms, reduce the snowpack at higher elevations, cause faster and earlier spring run-off and more damaging floods, increase the probability of summer droughts and put more stress on forests and other natural eco-systems;

*(b)* A rise in sea level, as a consequence of climate warming, which poses a serious threat to low-lying coastal areas and estuaries;

*(c)* Damage to the stratospheric ozone layer allowing more ultraviolet radiation to reach the earth's surface. Such radiation has an adverse impact on the many marine organisms that reproduce in shallow water and causes skin cancer and eye damage in humans;

*(d)* Loss of biodiversity, depleting the storehouse of potentially valuable genetic information, especially for breeding plants to resist pests and disease. The loss of genetic resources as a result of

Gold panners encounter serious health hazards

**Box 19. Gold mining: windfall or hazard?**

For every gram of gold recovered, about 2 grams of mercury are released into the environment, causing death and permanently ruining a habitat. To lessen these dangers, UNIDO is launching a programme to introduce safe, high-yield extraction methods that could replace the use of mercury in gold mining. In addition to providing policy advice to governments and local institutions, UNIDO will work to make them more aware of environmental protection. The programme will also be involved with the production of equipment and the instruction of local manufacturers, dissemination of the technology, and the training of miners, especially women, in the use of these alternatives to mercury amalgamation.

The introduction and spread of this technology will have a number of benefits. It will reduce the environmental and health hazards of mercury pollution, especially for the women and children who form a large share of artisanal gold miners, and it will raise incomes by improving gold recovery.

The programme will focus on African countries and LDCs.

Gold mining is an important economic activity in the countries of Latin America, southern Africa, and central and eastern Europe

Table 34. Gold production, 1991 and 1994

| Region/country | Gold ore (million tonnes) | | Gold (tonnes) | |
|---|---|---|---|---|
| | 1991 | 1994 | 1991 | 1994[a] |
| World | 6.333 | 6.780 | 2 111.0 | 2 260.0 |
| Western Europe | 0.059 | 0.047 | 19.5 | 15.5 |
| Eastern Europe | 0.044 | 0.024 | 14.8 | 8.0 |
| Countries of the former Soviet Union | 0.720 | 0.660 | 240.0 | 220.0 |
| North America | 1.434 | 1.431 | 478.0 | 477.0 |
| United States | 0.870 | 0.954 | 290.0 | 318.0 |
| Africa | 1.989 | 2.091 | 663.0 | 697.0 |
| South Africa | 1.803 | 1.752 | 601.0 | 584.0 |
| Asia | 0.588 | 0.939 | 196.0 | 313.0 |
| Japan | 0.025 | 0.029 | 8.3 | 9.6 |
| China | 0.360 | 0.450 | 120.0 | 150.0 |
| Latin America and the Caribbean | 0.513 | 0.597 | 171.0 | 199.0 |
| Brazil | 0.225 | 0.210 | 75.0 | 70.0 |
| Oceania | 0.933 | 0.933 | 311.0 | 331.0 |

*Source:* United States Bureau of Mines, *Minerals Yearbook* (Washington, D.C., United States Government Printing Office, 1991) (gold ore data).

[a]Estimated.

tropical deforestation is a regional problem as well as a global one.

The potential impact of a rise in sea level on the coastal provinces of China was considered in detail in a recent report prepared jointly by the United Nations Environment Programme (UNEP), the World Bank and the National Environmental Protection Agency of China. Based on a scenario that foresees the continued build-up of carbon dioxide and climate warming, a 70-centimetre increase in mean high-tide level is projected off Shanghai and a 60-centimetre increase off the Pearl River delta (Canton) by the year 2050. A one-metre rise in sea level would result in storm flooding and the inundation of areas below the four-metre contour line, which includes a number of major cities and 92,000 square kilometres of fertile agricultural land with a projected population of 76 million people. These are the areas of China currently experiencing the most rapid economic growth, and protective dykes and river barrages using conventional engineering techniques such as those in use in the Netherlands will probably be able to counter the threat.

The countries most seriously threatened by increased storminess and a rise in sea level are the countless islands, estuaries and coastal zones of South-East Asia, from Bangladesh to Indonesia, Indo-China* and the Philippines, as well as Melanesia and Polynesia. These are areas that are still mostly rural and poor but not necessarily unpopulated. While the Chinese coast may be protectable, it is doubtful that tens of thousands of small islands can be protected. Since evacuation in advance of perceived and immediate need is highly unlikely, the people living in threatened locations are very much at risk. Similarly, the possibility of changing atmospheric circulation patterns is most threatening to densely populated tropical countries adapted to, and dependent on, the annual monsoon.

## *Regional impacts*

The main industry-related environmental problems of regional significance are the following:

*(a)* Acidification and toxification of soils and surface waters mainly caused by emissions of combustion products (sulphur and nitrogen oxides) and fly ash, but also to some extent by emissions from other industrial processes, such as mining and smelting;

*(b)* Deforestation, desertification and erosion;

*Cambodia, Lao People's Democratic Republic, Myanmar and Viet Nam.

(c) Loss of natural biodiversity as a protection against catastrophic outbreaks of diseases and/or pests affecting trees and crops.

Regional environmental problems mainly affect people downwind or downstream from sources of pollution, regardless of level of industrialization. For instance, the Rhine, Elbe, Vistula, Po, Rhone, Danube and other big rivers of western Europe drain mostly into shallow seas (North Sea, Baltic Sea, Adriatic Sea, Black Sea) having limited regenerative capacity. All countries bordering on the Baltic Sea suffer from high levels of pollution generated by industry in Germany, Poland and the countries of the former Soviet Union, particularly the Kaliningrad region of the Russian Federation. The Black Sea and the Adriatic Sea are now very nearly dead, and other parts of the Mediterranean and the Aral Sea in central Asia seem to be not far behind. The environmental problems of the Caspian Sea due to industrial pollution are also serious, not least for the caviar industry.

Major river basins in Asia, Africa and Latin America, such as the Brahmaputra, Mekong, Nile and Paraná, which pass through many countries, almost inevitably generate conflicts over environmental issues. Downstream countries need flood control, electric power, fish and water for irrigation; upstream countries are the sources of run-off, silt from erosion (due to mining and hillside deforestation) and pollution (from industry and mining); upstream countries also depend on the rivers for transportation, which would be disrupted by large dams.

Regional problems also arise from the regional dispersion of air and water pollutants, both from industry and domestic activities. The dispersion of mercury from illicit gold mining in the Amazon basin was mentioned above. This mercury is showing up in fish and birds that eat fish as well as in a number of other species, especially predators with high trophic levels. A number of native tribes in the Amazon region are also at risk.

Air-borne pollution can cross national boundaries even more easily than water-borne pollution, and in any direction. The movement of the cloud of radioactive contamination from the Chernobyl reactor in the Ukraine, which travelled first north-west into Sweden and then into western Europe, is a case in point. The problem of environmental acidification has been recognized mainly in northern and central Europe and eastern North America, but is already becoming severe in the industrializing coastal zones of China, owing to the large amounts of coal being burned there.

## *Local impacts*

The three main localized environmental problems are the following:

(a) Exposure to toxic chemicals, especially pesticides;

(b) Urban air pollution;

(c) Contamination of soils, rivers, streams and groundwater with untreated sewage, pesticide and other toxic industrial wastes. Most of these problems are urban, with the exception of pesticide use.

Exposure to waste and emissions from mining and manufacturing activities has an adverse impact on human health. The health and other costs of pesticide use are not well documented and quantitative data are scarce, but a number of country studies have concluded that pesticide use in agriculture can reduce productivity when the associated health costs are counted. For example, a United Nations study on Nicaragua estimated that use of insecticides resulted in measurable environmental and health costs for Nicaragua of $200 million in foreign exchange, while cotton exports earned not more than $141 million in the same year.* Similar results have been reported in a number of other countries.**

The problems of polluted air and water in the large cities of the developing world are far worse than in the developed world. Air pollution arises from three sources: direct use of low-grade fuels for cooking and heating; small-scale industry, such as smelters and foundries operating with no environmental controls; and automotive traffic, where many vehicles use low-grade fuel, maintenance is poor and emission controls are lax or non-existent. Data on the social and health costs of air pollution are available for only a few major cities. The estimates that have been made indicate that health costs, measured in terms of reduced productivity, make up a significant fraction of GDP. The epidemiology of water pollution is well understood, but estimating dose-response functions for water-borne pollution and human health remains very difficult, with the health impact varying according to personal hygiene behaviours and the amount of water available. It has been estimated that in 1979 some 360-400 billion working days were lost in Africa, South America and Asia because of water-related diseases. Even at a nominal $0.50 per day, this would represent a staggering 35 per cent of combined GNP. Thus, even if the estimates of economic costs of wastes and pollution are treated as orders of magnitude only, it still is the case that economic damage to human health is very large.

*Cited by Swezey, Murray and Daxi.[4]

**For a recent review of the literature, see Frey.[5]

In poor countries, solid waste is not at present a big problem, because there is relatively little to begin with and because the sorting, separation and recovery of useful materials constitutes a local source of employment. For example, there are 25,000 rag-pickers in Calcutta, who separate and recover all paper, plastic and metals from municipal wastes.[6] However, increasing consumption-based prosperity will both increase the quantities of this waste and make recycling more difficult.

## *Technological opportunities for reducing environmental damage*

As industrial development proceeds and gains momentum in developing countries and economies in transition, the volume and composition of waste emissions from industry will change. If industry in these countries does not make the appropriate technological choice to mitigate and control pollution loads, the sustainability of their growth will be threatened. The key question is: How should developing countries and economies in transition mitigate the environmental consequences of their industrialization process? The answer lies in the adoption of cleaner, environment-friendly technologies based on pollution prevention as opposed to sole reliance on traditional pollution control methods and end-of-pipe technologies. Whether or not industry will install or replace existing production techniques with environment-friendly technology depends on two factors: the availability of the technology and its cost. Even if technological opportunities for reducing environmental damage exist, industry will implement them only if it is cost-effective to do so.

Developing countries and economies in transition have the choice to adopt either the tried-and-true older technology with all its environmental disadvantages or a strategy that progressively takes in new, cleaner technologies (boxes 20 and 21). If they choose the conservative approach they may be left behind, once again, when the technology inevitably becomes obsolete. If they choose the more progressive approach, however, they will be adopting and implementing a newer technology that is at the beginning of its life cycle, as Japan did so successfully with the basic oxygen process for steel making and with the transistor as a substitute for vacuum tubes in radios and television sets. Of course, this means taking the financial risks of cost overruns, delays and even failure, but private risks of this kind can be partly offset with government help.

Experience shows that not only do clean technologies have environmental benefits, but they can also have economic and financial benefits (box 22), although this need not be true for all types of industry. Irrespective of whether green premiums accrue, investments in pollution prevention and abatement may be costly for SMIs, which should be helped to change over to cleaner production processes. This might be done by providing technical assistance and transferring cleaner and appropriate technologies through multilateral and bilateral assistance programmes. Such assistance could take various forms: demonstrating the economic and environmental benefits of cleaner production processes and waste minimization techniques, disseminating information, providing training and carrying out research on cost-effective solutions.

**Box 20. UNIDO and pollution problems in three industrial sectors in India**

In the wake of its policy statement on pollution abatement, issued in 1992, the Government of India called on UNIDO to help analyse pollution in three industrial sectors (textile dyeing and printing, pulp and paper and pesticide formulation), with a view to introducing cleaner technologies in small-scale enterprises. In collaboration with the National Productivity Council, UNIDO conducted a study called the DESIRE study (Demonstrations in Small Industries for Reducing waste), which showed that although small industry was causing pollution, there were simple and effective ways of tackling the problem.

The pulp and paper industry in India is currently facing legal action if it fails to install waste-water treatment plants. The DESIRE project helped a paper-mill not only to reduce its pollutant discharge by 40 per cent but also to reduce capital investment for end-of-pipe equipment by as much as 25 per cent. Operating and maintenance costs were cut by 35 per cent, and annual output increased by 22 per cent. New products were developed, the quality of the paper improved greatly and additional staff were employed to cope with increased production.

In the small-scale textile dyeing sector, 51 waste minimization options were implemented and it was demonstrated that the volume of effluents could be reduced by 30 per cent and the COD load by 16 per cent. A small initial investment promises high net annual savings.

## UNIDO assists China in implementing clean coal technologies

**Box 21. UNIDO and pollution problems in China due to energy generation**

At the rate at which the economy of the country is expanding, the total installed power-generating capacity of China is projected to reach 300 gigawatts by the turn of the century. Of this, around 220 gigawatts will be fossil-fuel-based. Currently, the amount of coal burned for industrial purposes is 550 million tonnes, which is around 40 per cent of all the coal burned in China, and this amount is growing at the same rate as generating capacity. To combat the serious environmental problems emanating from the use of coal to generate energy, cleaner production technologies must be introduced. Implementing such technologies is a formidable task, however.

Using its wealth of experience in support of industrial development over many years, UNIDO is assisting in the design, manufacture and installation of circulating fluidized-bed combustion (CFBC) boilers of 10-100 megawatts capacity. It is also preparing operating manuals. New CFBC technology will replace inefficient and polluting coal- and oil-fired boilers. The benefits of this technology are many. First, emissions of greenhouse gases and other atmospheric pollutants, including sulphur and nitrogen oxides and particulates, will decrease. Secondly, the new boilers can achieve efficiencies of over 90 per cent, as against the 80-85 per cent worldwide average. Thirdly, the technology consumes less coal, thereby reducing pressures on the coal supply and on transportation systems and saving money. Finally, and most importantly, the fuel requirements of the boilers are flexible enough to permit using the many qualities of coal available in China.

## Clean technologies can bring economic and financial benefits

**Box 22. Savings from pollution prevention: the role of international cooperation**

*The Czech-Norwegian initiative*

With the support of the Norwegian Society of Chartered Engineers, a Czech-Norwegian cleaner production project has completed waste minimization studies at 11 plants. One such plant makes carpets, with an annual production of 1.5 million square metres. Before the study, some 600 tonnes of solid waste, some of it hazardous, was disposed of every year in a communal waste incinerator.

The preventive measures taken as a result of the study completely eliminated the solid wastes and had the following impacts:

- Up to $1.3 million was saved on solid waste disposal;
- Pollution from solid waste incineration is no longer a component of off-site air pollution;
- Water and steam use were cut by 30 and 10 per cent, respectively.

The changes to the various processes also served to improve the overall quality of the output. In all, the plant implemented 15 preventive measures. The total capital costs were $2.3 million and the total savings were $1.3 million, giving a payback period of approximately two years.

*The Czech-UNIDO initiative*

The city of Prague is host to a cleaner production centre set up jointly by UNIDO and the Czech Environment Management Centre. The centre focuses on three kinds of activity:

- In-plant demonstrations of cleaner industrial production in various small- and medium-scale enterprises such as galvanizing shops, plastics fabricators, printing shops and transport companies. It is also being demonstrated at selected hotels that tourism, a major exchange earner for the Czech Republic, can be a clean industry at little extra cost.
- Training of national staff in methods of cleaner industrial production, environmental management systems and other techniques of sustainable industrial development.
- Information dissemination.

International organizations must do more to help developing countries and economies in transition to take advantage of cleaner technology. An assessment should be made of the inputs needed to build local capacity for cleaner production outreach programmes in these countries, including the inputs needed from developed countries. The assessment could lead to an international programme for cleaner production, taking into account regional needs and priorities.

Multilateral and bilateral institutions also need to encourage cooperation between the private environmental market sectors in industrialized countries, in economies in transition and in developing countries. Particularly in developing countries, the environmental market sector is devoted almost exclusively to ordinary end-of-pipe hardware and software. Since neither it nor the machinery sector in those countries is able to supply clean production hardware and software, which are often too expensive to import, local capabilities have to be built up, for which purpose cooperation with the private sector is needed (licences, franchises etc.).

Life-cycle analysis and research on environmentally compatible products could stimulate the demand for environmentally sound products from developing countries and economies in transition. There are two possible areas of investigation: How will life-cycle analysis and eco-design affect industrial and agricultural production in developing countries? Will the demand for environmentally sound products in industrialized countries open new export markets for developing countries?

## Policy challenges: the role of Governments and the international community

International competitiveness and free trade have become an increasingly serious issue in developing countries and economies in transition. For these countries, globalization is accompanied by pressure to comply with the stringent environmental norms of developed importing countries. Developing countries particularly fear that environmental policy will be used to deny them entry into markets (box 23), despite the fact that the rules of the General Agreement on Tariffs and Trade (GATT) and WTO do not permit countries to restrict market access on the basis of domestic environmental policies or practices in the exporting countries. The issue is being considered by WTO, but there are still no firm guidelines. A major source of concern for developing countries and economies in transition is the emergence of eco-labelling requirements. The multitude of schemes and the lack of information, technology and institutional facilities for certification and testing could be seen as barriers to trade and competitiveness. Since eco-labelling criteria and procedures are in the process of being developed, measures to mitigate potential problems need to be taken soon.

More stringent environmental standards in industrialized countries could be a barrier to entry

**Box 23. Meeting the European ban on benzidine dyes and pentachlorophenol**

To comply with stringent product standards, importers in Europe have banned textiles containing benzidine dyes and restricted those containing blue dyes. This has caused problems for the exports of the textile dyeing and printing industries in Brazil and India. In response, the Governments of those two countries have tried to help their industries cut costs; they have encouraged entrepreneurs to adopt more sophisticated equipment and techniques, including photospectrometers, process controllers, computerized colour matching and dosing apparatus. Unfortunately, at the same time as steps like these have reduced the cost of domestically produced dyes by 20-30 per cent, the costs of imported, modern dyes have risen. Improved technologies installed with UNIDO assistance have also brought about savings, in inputs of water, fuel, dyestuffs and auxiliary materials. The volume and toxicity of effluents have been reduced as has the use of salt, caustic soda and acids.

The leather industry in India is suffering the repercussions of a European ban on the use of certain substances, in this case pentachlorophenol and dyes containing formaldehyde and benzidine. To meet the European requirements, testing centres were set up to determine pentachlorophenol content and obtain information on substitutes for it. To facilitate imports of pentachlorophenol substitutes, the Government has reduced the import duty from 150 to 50 per cent *ad valorem*. While a decline in the export share of small firms can be expected, modern tanneries with labour cost advantages may not be affected.

Another aspect of the globalization process relevant for economies in transition is industrial restructuring and market liberalization. The transformation of these economies from command- to market-based has revealed that many of the industrial structures are uncompetitive and that the technologies are outmoded, inefficient and polluting. There is little doubt that industrial restructuring, which entails more efficient production processes and technologies, will, in the long run, significantly improve environmental performance. In the short run, however, adverse impacts on the environment may persist depending on the type of industry, the choice of technology and regulatory requirements.

It is imperative, therefore, that industries should be given the right incentives and policy inducements to enable them to meet international environmental requirements and standards, without putting undue pressure on their short- and medium-term competitive positions. This will require a concerted and cooperative effort on the part of governments and industry to adopt and implement the right policies. What form should these take? Broadly speaking and in keeping with the trend towards globalization, new policies must move away from command-and-control regulation to market-based measures that encourage strategic alliances within the private sector and between the government and private sector. Such measures should provide incentives for the adoption of cleaner technologies and processes and mitigate negative competitive impacts, in so far as they exist. This is especially important for SMIs and resource-intensive industries, which may not find it economically viable to install cleaner production technologies.

## *National policy measures: Getting the right mix*

### *Integration of environmental and industrial policy*

Closer integration of industrial and environmental policies and the adoption of strategies for ecologically sustainable industrial development, especially those that promote cleaner production technologies and waste reduction at the source, could go a long way in easing competitiveness effects and facilitating an environment-related structural adjustment of the economy.

Governments in developing countries need to involve industry in decision-making relating to environmental regulations. They also need to put in place a policy framework for reducing pollution loads, by giving incentives for research into and development of cleaner production methods, investment incentives and infrastructure support. So far, the approach to reducing environmental damage has been dominated by end-of-pipe technologies. The new approach that is emerging as a result of more stringent environmental regulations and the need to maintain comparative advantages is based on pollution prevention: it will allow industry to conserve resources and reduce pollution at the source rather than at the end of the production process. The approach works on two levels. At the policy level it seeks to influence supply-side factors such as technological choice and the level and structure of demand. For example, a price or regulatory policy that limits the use of synthetic fertilizers could be as effective in improving the environment as technical measures to make the production of fertilizers less damaging to the environment. At the micro level the approach seeks to prevent damage by applying production processes that are cleaner, use less energy and give cleaner products. This cradle-to-grave approach should also seek to reduce raw material requirements through recycling, in effect reducing the raw material content of products.

In considering which policy instruments would give the right signals to private agents, it is important to arrive at a suitable mix of command and control (regulatory) measures and market-based measures for pollution prevention. As articulated by OECD, the elements of such a mix will vary depending on "specific considerations such as the regional extent of the problem, the number of pollution sources, the ease of monitoring, the importance of transaction costs and the pervasiveness of other market distortions. Policy options should be as far as possible informed by cost benefit analysis".[7] Three broad categories of policy instruments can be identified.

#### *Regulatory policies*

Discharge standards, technology-based standards, benefits-based standards and ambient-quality standards have been the traditional instruments used by governments to control pollution emissions. Effective implementation of these norms would require an efficient system of monitoring and enforcement, which is very often lacking in developing countries and economies in transition. The setting of standards would also require institutional and technological facilities for monitoring compliance, analytical laboratories, legal instruments (laws and decrees) and information on technology for waste minimization and waste treatment.

In fact these prerequisites are necessary for any system of environmental protection, whether it is

based on standards or on economic incentives. What is worth investigating is whether they can be furnished by the private sector, given the lack of Government resources in many developing countries and economies in transition. This in turn makes the possibility of self-regulation of pollution emissions by industry and voluntary agreements between industry and Governments an interesting one. Such schemes take on even more importance in light of the drive towards market liberalization and privatization in developing countries and economies in transition.

*Economic incentives and disincentives*

There is a growing consensus that traditional methods of command and control, such as emission and effluent standards, penalties and fines, need to be supplemented by economic incentives for industry to improve its environmental performance. Economic instruments such as taxes, pollution charges and the elimination of subsidies for resource use, especially energy and water, establish a link between resource scarcity and prices and lead to better resource management and sustainable development. Policy reform must attempt to internalize the environmental and social effects of industrial policy, correct for market failures and eliminate market-distorting policies.

Economic mechanisms suitable for inclusion in environmental management systems include the following:

*(a)* Fiscal measures (taxation, accelerated depreciation, elimination of subsidies, tax rebates, government procurement, effluent charges, product charges and administrative charges);

*(b)* Direct financial support;

*(c)* Tradable permits;

*(d)* Liability insurance legislation.

The last item, liability insurance legislation, is especially important for economies in transition that are confronted with a stock of past pollution. The question of who is responsible for environmental damage caused by activities that took place before privatization is an urgent one for these countries and must be addressed by proper liability insurance legislation. It is also important that these mechanisms do not conflict with industrial development objectives.

*Spatial policies*

Policies are needed for the siting of industry that reconcile environmental considerations with the need for regional balance, the availability of energy and raw materials, and local and regional aspirations. Of special interest are the policies associated with industrial free zones and export processing zones. Developing countries in Asia and Latin America face a tremendous pressure to set up export-oriented industries, and there is increasing pressure for this in economies in transition as well. It is important to ensure that these industries abide by environmental regulations while maintaining their competitive position in world markets. Special attention must be paid to environmental standards in export processing zones, which should not be perceived as a panacea for all ills.

In short, it is essential that regulations be combined with economic incentives and policies. This mix of measures would encourage industries to reduce pollutant loadings and conserve resources in the most cost-effective manner, without unduly impairing their competitive position.

## *New approaches to fiscal policy and competitiveness*

*Economic instruments and border tax adjustments*

As mentioned above, economic instruments such as pollution charges, user charges and the realistic cost pricing of natural resources are increasingly being advocated as the solution to environmental problems not only in developed countries but also in developing countries and economies in transition. They are more efficient and cost-effective than pure command and control because they provide incentives for pollution control and internalize environmental costs—that is, they include the external costs and benefits associated with pollution into the decision-making process of producers and consumers, ensuring that these costs are accounted for by society. For example, a steel producer may pay a pollution tax on its emissions based on the costs to society of those emissions.

Internalization policies can have negative effects, but these would offset the positive effects only when the environmental costs associated with production are so high that:

*(a)* Internalization requires a very large tax;

*(b)* The country internalizes the full external cost instantaneously and unilaterally;

*(c)* World demand and competing supply are very elastic, so that a small change in price of the goods would significantly alter demand and supply;

*(d)* The country has only a small part of the market, as may be the case in LDCs and some African countries.

Where negative effects dominate owing to application of the eco taxes, such as pollution taxes and taxes on resource use, they can be offset by differential taxes that tax different goods at different rates, sector exemptions or rebates and tax adjustments. A border tax adjustment is the imposition of a charge on imports corresponding to the domestic eco tax, a charge borne by a substitute domestic product or to an exemption or rebate on exported products. WTO rules allow border tax adjustments on final products and intermediate inputs (provided transparency, most-favoured-nation treatment and national treatment obligations are met), but not on primary inputs and processes. For these reasons, product taxes may be preferred to process taxes since they can be adjusted at the border.

### *Tradable emission permits: practical limitations in developing countries and transition economies*

The risk is fairly great that a policy of border adjustment, however well-intentioned, might be used for protectionist purposes, but it might be worth taking if a better solution cannot be found. However, there may be an alternative to eco taxes and border tax adjustments: tradable permits (box 24).

The theoretical virtues of tradable permits are greater than the virtues of effluent or pollution taxes or resource taxes in an important respect. Once the markets are established, the government's opportunity for interference is automatically minimized, especially if the total lifetime emissions permitted can be fixed in advance, allowing markets to optimize resource use over time as well. This is a subtle but extremely important point because it is best to plan the transition to technologies that reduce overall pollution loadings far ahead, but to make most of the investments toward the end of the transition period. This minimizes costs, because it allows for the maximum of technological progress in the alternative technologies before they need to be standardized for large-scale use.

The main difficulty with tradable emission permits is that in most cases, and especially in developing countries and economies in transition, viable auction markets for them cannot be created easily, if at all. The reason is that tradable permits will have market value if, and only if, there is some authority capable of detecting unauthorized emissions and penalizing the polluters with sufficient certainty and severity to deter cheating. Realistically, the scheme in its simple form can be applied in only a very few cases.

## *International policy actions*

International coordination is necessary to deal with pollution problems that have transboundary and global impacts. Moreover, the increasing globalization of economic activities opens up several areas where international cooperation is needed to ensure that developing countries and economies in transition are not marginalized. There are three areas in particular where policy needs to be coordinated at the international level: harmonizing environmental policies that address global problems, re-examining the issues involved in the trade of hazardous wastes and counteracting the adverse impacts of eco-labelling requirements.

Can tradable permits be the way forward?

**Box 24. Tradable emission permits**

A tradable permit to emit a particular pollutant (sulphur dioxide, for example) is a useful idea because it creates a market for the pollutant and allows polluters to trade between themselves. There are two versions to permit trading. In both versions the total allowable emissions are determined at the national level or even at the world level. In one version, rights to emit the pollutant would be allocated to existing polluters in proportion to past activity levels, perhaps with some allowance for prior attempts to reduce emissions. This would minimize transitional problems and would create a property right with some market value. Since owners of permits would have an incentive to maintain or even increase their value, they would have an incentive to identify and prosecute cheaters.

In the other version, the rights would not be allocated free to past users but auctioned off to qualified entities. In this case, the government or the international agency would receive the income from sale of rights, which could be applied to environmental protection, research and development or any other designated public purpose.

## *Harmonization of environmental policies*

Environmental policies should be harmonized only in the case of global or transboundary environmental concerns, such as depletion of the ozone layer and global warming: in the case of domestic environmental concerns, the principle of national sovereignty must be respected, and uniform standards are not advisable. The claim that differences in environmental standards result in competitive disadvantages for some countries is not adequately supported by empirical evidence. Moreover, demands by certain environmental lobbies to level the playing field are not legitimate since identical process standards in two different contexts will not necessarily result in the same environmental quality. The effectiveness of environmental measures also varies between countries at different stages of economic development. It would be unrealistic, for example, to expect that the very low levels of discharge from industry called for in the United States Clean Water Act could be applied in India, where surface waters are contaminated with domestic waste rather than industrial waste.

For global problems, however, process and ambient standards should be harmonized, particularly when actions by individual countries can have negative competitive effects on industry. This would mean a greater role for international regulatory policy. Currently, the only way to achieve international control seems to be negotiations between national Governments. This route is fraught with difficulties, since virtually every Government has an effective veto over any proposal at the negotiating stage.

The most that can be hoped for is international agreement on generalized objectives, such as the Montreal Protocol on Substances that Deplete the Ozone Layer, hereinafter referred to simply as the Montreal Protocol, which will be implemented at the national level by either regulatory or fiscal means (box 25).

The only truly global environmental policy, the Montreal Protocol phases out the use of certain long-lived CFCs (CFC 11, CFC 12 and CFC 21). This phase-out, which involves the substitution of another class of chemicals with hydrogen in the molecule, is already under way. It has been accepted by the Western chemical companies that manufacture the products involved and is not being opposed by any significant group.

## *Trade in hazardous wastes*

Another area of potential international agreement concerns the shipping of wastes from industrialized countries to low-wage countries for disposal or recycling. This sort of trade would seem at first glance to be economically beneficial to both parties, assuming the disposal or recycling method itself were safe and assuming the agreement to be voluntary and arm's-length. In particular, discarded manufactured objects (cars, personal computers, television sets, refrigerators and the like) could be economically disassembled in low-wage countries to recover remanufacturable items such as bearings, pistons, pumps and motors or materials such as antifreeze, CFC refrigerants, copper wire, aluminium, precious metal contacts or catalysts, rubber, glass or stainless steel. This would provide employment, mitigate waste disposal problems in industrialized countries and reduce the consumption of virgin materials and the pollution problems associated with their extraction and processing.

Unfortunately, the most visible trade in wastes has not been in remanufacturable items of the type noted above but in toxic and hazardous wastes that have been shipped routinely, although often illegally, from industrialized countries to neighbouring countries for disposal. For a long time, the former Federal Republic of Germany shipped its industrial wastes to the former German Democratic Republic, in exchange for hard currency. Now that Germany is unified, many of the waste dump sites have been uncovered, creating a whole new set of disposal problems. The biggest flow currently seems to be from Germany to Poland or perhaps beyond. The German Green Dot programme has also created a mountain of potentially recyclable packaging waste, but as yet no recycling industry has been set up to use the material. As a consequence of the supply-demand imbalance, established waste recyclers in neighbouring countries such as France, the Netherlands and the United Kingdom of Great Britain and Northern Ireland were undercut. To solve the problem, shiploads of the German packaging wastes were sent to Indonesia as "raw materials", but there, too, the effect was to undercut the established rag-pickers and deprive them of a livelihood.

Environmental groups in the West, such as Greenpeace, have strongly opposed trading wastes of any kind, on essentially moral grounds. Their argument seems to be that the rich should not have the right to ship their wastes to the poor, even for a suitable fee; instead, each country should be required to dispose of its own. In 1991, 17 African countries signed the Bamako Convention on the Ban on the import of Hazardous Wastes into Africa and on the Control of their Transboundary Movements within Africa, in part owing to Greenpeace revelations of secret deals to dump toxic wastes in some countries. The same principle is already being applied in some industrialized countries, at the state or municipal

An international agreement is safeguarding the ozone layer

**Box 25. The Montreal Protocol and industrial competitiveness**

The Montreal Protocol requires a complete phasing out of the main ozone-depleting substances (ODS) by 2006 in developing countries. To help these countries meet this requirement, a multilateral fund was set up in 1990. The Protocol incorporated financial and technical assistance as well as a few trade measures. The latter are to be used only as a last resort, in the event of non-compliance.

The impact of the Protocol on the competitiveness of industries that produce or use ODS depends on two identifiable factors: the incremental costs of converting to non-ODS methods of production and trade restrictions that may affect the export of ODS such as refrigerants.

Joint efforts are being made by United Nations bodies such as UNEP, UNDP, the World Bank and UNIDO, to speed up implementation and offset incremental costs by providing technological assistance and facilitating the transfer of technology for conversion to non-ODS methods of production. One example is a recently completed project in San Luis, Argentina, where UNIDO helped Bandex S.A. to eliminate the use of chlorofluorocarbons (CFCs), specifically, CFC 11 and CFC 12, in the production of expanded polystyrene foams. The production equipment was replaced so that n-butane could be substituted for the ozone-depleting foaming agent. The new plant was inaugurated at San Luis on 31 October 1995. As a result of converting the production line to n-butane-based technology, 214 metric tonnes of CFC have been phased out.

levels, making it extremely difficult to create a viable disposal or recycling system for small-volume wastes on a national basis. This situation calls for re-examining the whole question of waste trading.

## *Counteracting the adverse impacts of eco-labelling requirements*

Eco-labelling is the voluntary use of labels to inform consumers that a product has been determined to be environmentally more friendly than other products of the same category. Since no products are ecologically sound in all respects and every product has some negative impact during its lifetime, all eco-labelling systems are relative in the sense that they draw attention to products that are less harmful than similar products. Eco-labelling aims at influencing both consumer behaviour and product design in favour of environment-friendly products and technologies. In markets where consumers prefer environment-friendly (green) products, eco-labels serve as a marketing tool.

Of all the international policies to deal with threats to the environment, the ongoing efforts of industrialized countries to promote eco-labelling are probably the most worrying for developing countries and economies in transition, where there is widespread apprehension among exporters that the multitude of schemes and lack of information about them may inadvertently reduce their export competitiveness and market access, until a greater understanding is reached (box 26).

The sheer number and diversity of the various schemes for eco-labelling is overwhelming. The numerous national initiatives, primarily government-sponsored, began when the Government of Germany introduced the Blue Angel eco-label in 1978. The label now covers more than 3,500 products in almost 80 categories. Canada was the second country to initiate an eco-labelling scheme, Environmental Choice Program, in 1988, and Japan launched its scheme, Ecomark, in 1989. There are now approximately 20 national eco-labelling schemes worldwide, including those in several developing countries, such as the Republic of Korea (Ecomark), India (Ecomark), Brazil (Green Seal) and Singapore (Green Label). The European Union has developed an eco-labelling scheme that is intended to replace the national labelling programmes of member States, and it is now being implemented.

The growing diversity of activities related to environmental management and the need for wider Government involvement, as well as the success of the ISO 9000 Series on Quality Management Systems, encouraged the International Organization for Standardization (ISO) to enter the field of environmental management. That decision led to the elaboration of (draft) international environmental management standards (ISO 14000 series). Draft standards for eco-labelling, contained in the ISO/DIS/14020 series, have been developed to lessen some of the concerns about the impact of eco-labelling requirements.

Developing countries and economies in transition perceive, rightly or wrongly, that eco-labelling has the potential in the short run to reduce their export opportunities if it becomes a significant marketing tool in developed countries. This perception may not be valid if eco-labelling requirements are based on international and/or mutually recognized labels developed with the participation of both exporting and importing countries. Currently,

Technical regulation, standards and conformity assessments need to be transparent

**Box 26. Provisions of the Agreement on Technical Barriers to Trade and eco-labelling requirements**

The Agreement on Technical Barriers to Trade (TBT) (GATT) was established to provide transparency and notification disciplines on technical regulations, standards and conformity assessment procedures. It was then revised extensively, and the definitions for technical regulations and standards now include process and production methods for achieving certain final characteristics in a product.

It seems that to the extent that eco-labelling schemes create standards or technical regulations stipulating product characteristics or process and production methods related to those product characteristics, they are subject to the disciplines of the TBT Agreement. In particular, mandatory eco-labelling schemes are covered by articles 2 and 3 of the Agreement, while voluntary eco-labelling schemes are covered by article 4 of the Agreement and by the Code of Good Practice for the Preparation, Adoption and Application of Standards, which forms annex 2 to the TBT Agreement.

TBT requires adherence to five principles:

*(a)* Non-discrimination against imported products;

*(b)* Transparency in the development and implementation of standards;

*(c)* Acceptance of equivalent technical standards of other countries;

*(d)* Special and differential treatment for developing countries;

*(e)* Scientific basis for standards.

Under TBT, technical standards that affect trade are permitted only if they are the least trade-restrictive measure necessary to fulfil a legitimate objective. A legitimate objective is defined to include the prevention of deceptive practices and the protection of human health and safety, animal and plant life, and the environment. If a technical standard is created to fulfil one of these legitimate objectives and is based on an international standard, it is presumed not to be an unnecessary obstacle to international trade and, therefore, consistent with WTO rules.

An eco-labelling system, even though voluntary, might be considered as presenting an unnecessary barrier to trade under the provisions of TBT if one or more of the following is true:

*(a)* The criteria that the product must conform to in order to qualify for the label, in particular with regard to the use of raw materials and production and processing methods, are not based on objective or scientific considerations or fail to take adequately into account the production processes prevailing in other countries;

*(b)* Procedures for verification in granting the label are unnecessarily strict or rigorous, making it almost impossible for a foreign producer to obtain the label;

*(c)* The eco-label is adopted for a product that is almost entirely imported and the right to grant an eco-label rests entirely with the authorities of the importing countries.

however, developing countries and economies in transition lack the pertinent information and infrastructure, the training and the manufacturing processes needed to qualify for many eco-labelling schemes. Their firms have limited access to cleaner technologies and may incur relatively high compliance costs in meeting the requirements of the schemes (those costs are becoming even greater with the growing use of process-related criteria for awarding eco-labels). In addition to having potential economic impacts, eco-labelling schemes could also distort the environmental priorities of developing countries by diverting resources from their own pollution reduction needs to the needs of the developed countries.

The ISO/DIS/14000 (draft) documents have the potential to overcome some of these negative impacts. However, further efforts in matters of international labels, mutual recognition, certification, equivalency, transparency, participation and technical assistance are needed to ensure that eco-labelling is not perceived to be or does not become a barrier to trade.

To alleviate the fears and concerns of developing countries for their exports, a joint effort involving developing countries, developed countries and the international community is required. A number of matters will require special attention at the international level.

*Internationally agreed-upon labels: the best way*

Consumer preferences for environment-friendly products may create trading opportunities for developing countries. The problem faced by most consumers and producers is the difficulty of saying

exactly what is meant by an "environment-friendly" product. Even though in theory eco-labels should help the consumer decide on purchases, the great number of labels often adds to the confusion instead of reducing it. The creation of a single, internationally agreed-upon eco-label might help to counter the proliferation of national labels, many of which are misleading. It might also alleviate the trade problems associated with eco-labelling schemes. To formulate an international label based on uniform criteria, differences in environmental, social and economic conditions would have to be considered and the countries that will be most affected by the label would need to be consulted. Any deviations from the internationally agreed-upon criteria or the use of a separate eco-labelling scheme should be justified.

*Mutual recognition: a good second best*

The use by a developing country or an economy in transition of its own eco-label on export goods might have only limited success, mainly because consumers in developed countries have reservations about the quality promised by such a label and will continue to prefer products with a better-known label. It would therefore be less successful than the use of an international label. However, if no international eco-label exists, an alternative might be the mutual recognition of national eco-labelling schemes. The idea here would be to recognize the validity of diverse environmental criteria and to ensure that trade interests are not unduly affected by that diversity. Under mutual recognition, if certain requirements are met, the fact that a product qualifies for an eco-label in the exporting country would be the basis for awarding it an eco-label in the importing country.

There are three different types of mutual recognition. An exporter would be able to obtain a label in the importing country if it complied with one of the following:

*(a)* The criteria of the exporting country;

*(b)* The process-and-production-method-related criteria of the exporting country and the product-related criteria of the importing countries ("cradle-to-export-border and import-border-to-grave" approach);

*(c)* The criteria of the importing country, with certification being undertaken, however, by the exporting country's eco-labelling programme.

The first form of mutual recognition implies that the eco-criteria set up in the exporting country are equivalent to those set up in the importing country. The second form takes into account environmental conditions in both the producing and importing countries. The third merely entails recognition of the testing and verification bodies of the exporting country by the importing country. A basic requirement of the mutual recognition concept is mutual confidence among the eco-labelling scheme authorities.

*Equivalency and transparency*

Another approach that would avoid trade discrimination and take into account environmental conditions and priorities in the producing country, in particular a developing country, is the concept of equivalency. When compatible environmental goals can be achieved in different ways, different criteria can be accepted as a basis for awarding eco-labels. Besides being a basic requirement for mutual recognition of eco-labelling schemes, the concept of equivalency can be used even if the exporting country does not have its own eco-labelling scheme. Environmental regulations in an exporting country may in some cases be accepted as equivalent to meeting eco-criteria in the importing country. The concept of equivalency may also be applied to different eco-labelling schemes in the importing and exporting countries. Since the main idea of equivalency is to take into account environmental conditions in each country, it is more easily applied with process-related criteria than with product-related criteria.

Improving the transparency of eco-labelling schemes might also mitigate any potential adverse trade effects. There are a number of ways to do this:

*(a)* Spell out environmental objectives and scientific principles;

*(b)* Provide earlier notification of new schemes, product groups and criteria;

*(c)* Solicit comments on draft criteria;

*(d)* Publish draft criteria;

*(e)* Arrange the participation of all interested parties in the setting of criteria and thresholds;

*(f)* Clarify the labelling process and methodology;

*(g)* Set up information centres;

*(h)* Carry out information campaigns;

*(i)* Use sound, repeatable and reproducible scientific methods when developing criteria;

*(j)* Make the rationale and details on which the eco-labelling scheme is based clear and open for examination.

*Technical assistance*

Many developing countries and economies in transition lack the expertise and experience to do the things mentioned above. More importantly,

they lack the technical know-how to establish their own eco-labelling schemes. Industrialized countries or international organizations could help to overcome this problem by rendering technical assistance in testing and verifying products and plants. The fact that such assistance has been rendered may lend credibility to the eco-labels of a developing country. Testing, certification and verification can also be undertaken by international certification firms. However, if the rights to do this are awarded to only a few international certification firms, they may set excessively high prices, so efforts must be made to encourage competition.

## The question of a global authority

Given that some environmental threats, such as climate change, are global in scope and have the potential to be severe, there would seem, at first glance, to be a strong argument for creating a centralized supra-national authority to counter them. Even libertarians agree that national defence is the province of central government. Surely, it can be argued, the same argument must hold for global environmental threats?

A central global authority could theoretically eliminate the competitiveness problem by harmonizing taxes across national boundaries. It would be possible, then, to finance many intergovernmental activities by taxing exhaustible resource extraction, which is currently undertaxed, and using the revenues, in part, to subsidize environment-friendly, renewable alternatives and economic conversion programmes for affected workers.

However, the chances of creating a centralized global authority, given the present state of the world, are probably nil. Even if such an authority could be created by some *deus ex machina*, how would it function?

The primary problem for supra-national solutions is national sovereignty. A sovereign nation, by definition, is not subject to any higher authority unless it allows itself to be. International law exists, but there is a limit to the effectiveness of United Nations resolutions or trade embargoes. There is neither a competent international court system nor an international agency with police power of enforcement.

For this reason, economists have generally concluded that the most effective device is likely to be "side payments" in exchange for performance. For instance, Germany or Sweden might agree to pay neighbouring Poland to cut its sulphur emissions. One problem with this strategy is that it contradicts the polluter-pays principle that has been widely agreed upon. Indeed, it creates opportunities, at least in theory, for countries to profit by polluting. But even if the recipient of the side payment does not intend to cheat, verification of performance remains difficult and probably very expensive.

The question can be rephrased: in the absence of an omnipotent global authority, is there any way to reconcile national sovereignty, which is a fact of life, with the need to solve global environmental problems? At the very least, a country should be able to make progress in protecting its environment without having to get the agreement of other countries or without having to sacrifice its economic competitiveness.

One way of reconciling the need to solve global environmental problems without impinging on national sovereignty would be to devise a set of international environmental regulations. At present, most of the pressure for environmental regulation comes from the highly industrialized countries. It seems to be driven mostly by health concerns and concerns about threats to the survival of exotic species and "nature". If economic development and industrialization continue at the present pace, in Asia especially, the health problems characteristic of too-rapid, unregulated industrialization will soon become acute, as they already are in parts of the Russian Federation and eastern Europe. Once the causes of the environmental crisis are understood, there is likely to be an even stronger demand in those places for environmental regulation than anything yet seen in the developed countries.

At first, this demand for regulation may be resisted by economic interests on the grounds that it is anti-growth. But there is another possibility: it might encourage technological innovation. Regulations that are intelligently drawn up can actually encourage economically beneficial technological innovation.* Some influential commentators have argued that regulation-induced innovativeness can constitute a national competitive advantage.[8, 9] There is a belief that both Japan and Germany have exploited such an advantage, at least to the extent of developing an export sector in end-of-pipe pollution treatment equipment. In fact, this argument has much to recommend it, but, at least for the present, it has few proponents in the business community.

The question that comes to mind is: in the absence of a global authority, which agencies should be entrusted with the task of formulating and implementing international regulations or

*On the other hand, regulations that are too detailed or too specific can inhibit technological innovations and perpetuate the problems that prompted the regulation in the first place. For instance, the introduction of catalytic convertors for automobiles has been a bonanza for the catalyst industry but has probably inhibited the development of alternative clean-burn engines, which would be both cheaper and more effective over the life of the engine.

conventions on global environmental problems? Or, should international conventions, such as those on climate change, biodiversity and the ozone layer, continue to be drawn up and their secretariats to function as independent bodies within the United Nations system?

Another idea that may be worth investigating is consumption quotas at the national level, with tradable allowances (or permits) to emit pollutants of global environmental significance, applicable to importers as well as domestic producers. This would eliminate trade distortions and hence any adverse impacts on competitiveness. For instance, Germany could decide unilaterally to cut energy consumption or carbon emissions, without adversely affecting German exporters. Importers would be treated the same as domestic producers. Other countries could follow suit, in the same way. Trade would eventually decline, but competitiveness would not be adversely affected.

The problem of international equity could also be attacked by means of a rationing system. For instance, the United Nations financing system could be completely reformed by agreeing to global per capita quotas for universally traded commodities, such as carbon emissions. Countries wanting to emit more than their per capita share would have to purchase excess carbon emission rights from an underuser, in an auction market that would have to be created for the purpose. Payments for the underlying commodities, such as petroleum and gas, would go to the sellers, as they do at present. But payments for consumption quota rights, in hard currencies, could go into a centrally administered fund and be redistributed on behalf of underusers according to a formula. By one plausible redistribution formula, the payments might be used for the following purposes: *(a)* (hard currency) to pay United Nations membership dues; *(b)* to pay off existing International Monetary Fund debts and World Bank debts, thus reducing debt service; *(c)* to increase the capital of the World Bank; *(d)* to finance the Environment Fund of UNEP; and *(e)* to co-finance a new international venture-capital fund earmarked for developing countries.

Many will argue that such schemes are too visionary to be seriously considered. On the other hand, thinking visionary thoughts may be cheaper than correcting problems that come from thoughtless action.

**Notes**

[1]Jiang, Zhenping, "Energy efficiency in China: Past experience and future prospects", in R. H. Socolow and others, eds., *Industrial Ecology and Global Change* (Cambridge, Cambridge University Press, 1994).

[2]"Survey of the global economy", *The Economist*, 1 October 1994, p. 36.

[3]Ashok Gadgil, "Integrating environmentally friendly technologies in the development process", in R. H. Socolow and others, eds., op. cit.

[4]S. L. Swesey, D. L. Murray and R. G. Daxi, "Nicaragua's revolution in pesticide policy", *Environment*, No. 28, 1986, pp. 6-9 and 29-36.

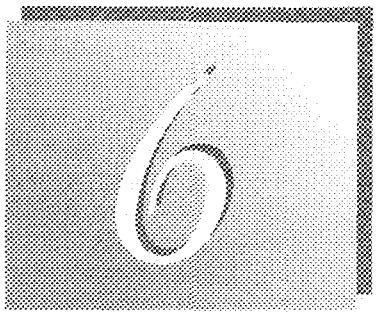
[5]R. Scott Frey, "The international traffic in pesticides", *Journal of Technological Forecasting and Social Change*, vol. 50, No. 2 (October 1995), pp. 151-169.

[6]Madhusree Mukerjee, "The fishy business of waste", *Scientific American*, April 1995, p. 25.

[7]OECD, *Economic Studies*, No. 16 (Paris).

[8]Michael Porter, "America's competitiveness strategy", *Scientific American*, April 1991.

[9]Benjamin Bonifant, Michael Porter and Claas van der Linde, *Competitive Implications of Environmental Regulation* (Washington, D.C., Management Institute of Environment and Business, 1995).



# A new role for Governments and the international community

## Challenge for Governments

Liberalization and deregulation in recent years have firmly established the primacy of the market system, and the private sector has increasingly become the engine driving industrial development. The development of that sector, however, in developing countries and economies in transition alike, requires a new policy framework. It requires, in particular, policies to increase competitiveness and export orientation; to mobilize and secure new investment, especially FDI; to ensure the inflow, absorption and adaptation of new technologies; to achieve appropriate levels of privatization; and to accelerate HRD and training.

In this new climate, the role of governments is seen as controversial. It is often supposed that with the increased market orientation associated with liberalization and deregulation, that role should be reduced substantially. Growing globalization implies increased interdependence of national economies and, concomitantly, less autonomy for Governments when it comes to formulating and especially implementing national policy. Notwithstanding debate over the size of their role, governments clearly have a number of essential tasks: to regulate the economic process, to ensure competition and to facilitate the private sector's active participation in international trade, production, investment and technology systems.

### *The new role of government*

The traditional role and functions of government are changing fundamentally. Across the world there has been a shift towards more open and market-oriented regimes, with greater reliance on private business and less direction of resource allocation. Past strategies of development are being abandoned: protective barriers are being lowered, restrictions on foreign direct investment removed and the private sector allowed into areas previously reserved for the public sector. In particular, the Uruguay Round of multilateral trade agreements and the policy advice, particularly on structural readjustment, being given by the World Bank and the International Monetary Fund (IMF) are creating a highly liberal environment for all forms of international transactions and private enterprise.

The emerging international environment for enterprises in developing countries and economies in transition will thus be very different from the one they were nurtured in. They are being exposed to world competition at a time when the pace of competition is intensifying and the technologies driving it are evolving even more rapidly. The growth of globalized production, under the aegis of TNCs, offers a way forward for those countries that are able to attract sufficient amounts of transnational interest. But doing this is not simply a matter of opening up the economy in a passive sense: it requires the creation of productive factors, skills and supplier systems. FDI does make a crucial contribution to these factors and skills, but it cannot replace indigenous development, for the very existence of a dynamic and competitive domestic industrial sector attracts higher quality foreign investment and allows the host economy to reap much larger benefits from that investment. It should be remembered that the ratio of FDI inflows to gross domestic capital

formation in developing countries during 1985-1990 totalled less than 3 per cent on average and reached only 4.9 per cent in 1992. This demonstrates that it is domestic investment, domestic policies and domestic entrepreneurial skills that are ultimately decisive in industrial development.[1]

In this context, it is important to note that there are strong complementarities between foreign and domestic investment. First, attracting greater inflows of FDI also requires stimulating local entrepreneurship, and often entails the provision of domestic counterpart funds at the same time. The establishment of joint venture agreements is frequently predicated on the availability of active and competent local partners. Small domestic firms often act as important suppliers of key components and parts for large firms. Most importantly, it is only by fully supporting the development of domestic entrepreneurship and investment that FDI can have a significant multiplier effect, and thus galvanize overall economic development, particularly in the private sector.

In designing FDI policies and promotional measures, Governments should thus be careful not to discriminate against domestic investors. In general, fiscal incentives and tax rebates given to attract FDI should also be available to domestic investors. Better coordination of FDI policies with domestic investment promotion and entrepreneurship development activities is thus essential. In that regard, it may be useful to explore whether venture capital funds could be a means of fostering domestic investment in new areas of industrial activity, particularly in support of industrial restructuring, privatization, and the promotion of spin-off SMIs.

The basic challenge that the globalization, liberalization and deregulation of markets presents for a Government is whether the country's enterprises have the capacity to compete in open markets. To enhance that capacity, Governments need to adopt measures that do the following:

*(a)* Raise the efficiency and competitiveness of the manufacturing sector, including SMIs;

*(b)* Lead to a more export-oriented development strategy;

*(c)* Promote regional and subregional cooperation, particularly those forms of cooperation that expand the market and make available the least costly inputs and technologies.

They will need to do this with the close consultation and involvement of the key players in the private sector. But it should be remembered that competitiveness is not an end in itself. Rather, it is a means of enabling sustainable economic growth and thus of raising living standards and increasing social welfare. Given the growing interdependence caused by globalization, the autonomy of a national government to apply policy measures that would increase the economy's overall competitiveness will be more limited.

Rather than concentrating on the regulation of economic activities and resources, Governments in the new global economy will have to provide transparent and equitable rules of the game and a legal, regulatory, financial, institutional and physical infrastructure that facilitates competition and entrepreneurship, and that promotes investment and overall growth of the private sector. Government also has an important role to play in removing obstacles to and uncertainties associated with investment, particularly in terms of the macroeconomy and changes in the market and the legal and regulatory framework. A stable and predictable environment increases not only the amount but also the quality of investment. Government will thus play the role of a facilitator, a catalyst and pathbreaker for innovation, rather than a traditional regulatory role. Firms increasingly expect Governments not only to ensure clear and predictable conditions in which to pursue their activities, but also to create the right framework and provide opportunities for them to build up and maintain their competitiveness. Nevertheless, exactly what Governments should provide and how they should do so remain controversial.

## *A fresh approach to industrial policy**

Nowhere is the need for change more apparent than in the development and implementation of industrial policy. The impact of national economic policies is becoming diluted as economies are liberalized and decontrolled and nation States become more interdependent. At the same time, economic policy is converging on the middle ground as policy makers eschew extreme interventionist or free-market solutions. The debate on industrialization strategies has shifted decisively over the past decade: the disagreements of the 1970s over inward-looking versus outward-looking industrial policy have been replaced by a dialogue on the most effective strategies for building competitive advantage at a time of accelerating technological progress, global liberalization and heightened market competition.

Industrial policy reform must be in the direction of conformance to market forces, but the failures that exist in many markets mean that reform cannot consist simply of a wholesale withdrawal of Governments from markets and resource allocation. The best way to approach industrial strategy

*This section draws on Sanjaya Lall.[2]

may be to gear it directly to enhancing industrial competitiveness, i.e. improving the ability of exporters and import-substituting industries to compete in world markets. When the resources and skills of the Government and the economy at large are limited, a targeted approach will achieve the best outcome.

Policy makers can respond to the challenge of a globalized environment by doing a number of things:

- Shifting industrial policy "upstream", away from interventions designed to protect and promote a specific industry or sector, towards more general interventions aimed at boosting economy-wide competitiveness indirectly—for example, increased investment in infrastructure, education and R & D, improved transport facilities, greater support for technology development and technology transfer, protection of the environment and a broader, more efficient range of industry-related services.
- Shifting policy towards support for export-oriented production.
- Putting greater emphasis on regional objectives, by policies designed to help backward regions within a country, or backward countries within a region.
- Promoting competitiveness by, in particular, improving the technological capabilities of the industrial sector, supporting the restructuring and privatization of existing enterprises, particularly in economies in transition and in developing economies with large State-owned enterprises, and providing more technological and institutional support for SMIs.

The industrial policy debate has focused on the extent to which and manner in which developing countries as a group can replicate the rapid, sustained, export-driven economic growth of East Asia. Because there is no single East Asian model to emulate and no consensus on precisely which form of intervention will optimize industrial and economic growth in developing countries, industrial policy is best viewed as a menu of options, with policies that succeeded in the market conditions of the 1970s and 1980s not necessarily being any longer appropriate.

One of the most important lessons of the East Asian experience is that intervention worked where it was carried out in close coordination with the private sector and within the framework of a market-driven economy. In the Republic of Korea, for example, interventions that work well have generally been those that work through markets, by influencing prices and incentives. Industrial policy responded to the problems and needs of private enterprise rather than seeking to impose elaborate schemes based on overambitious national plans.

Competitiveness analysis is now increasingly used by many industrializing countries when they set industrial policy. Although it has several variants, it essentially analyses the trade and growth performance of industries, relating this to evidence of technological efficiency at the industrial and firm level, and identifies the most important support measures that need to be undertaken to raise efficiency and performance. It involves the following steps:

*(a)* Trace the competitive evolution of the industrial sector;

*(b)* Identify potential and existing industry clusters that can be promoted with the limited resources available;

*(c)* Assess the prospects for competitiveness in the industrial sector;

*(d)* Devise policies to improve industrial competitiveness;

*(e)* Strengthen the information, administrative and human resources needed to undertake such policies, including organizational reforms of the government apparatus.

In any economy—industrialized, developing or transitional—industrial restructuring will succeed only if the policy framework is appropriate. In the past, government intervention focused on picking winners, that is, industries that will do well in international markets. But in the 1990s and beyond, policy makers are required to also anticipate losers, industries that may fail. Thus, they need to forecast "sunset" as well as "sunrise" industry situations and devise policies to mitigate the impact of industrial closures and retrenchments.

In short, in the new global economy the role of Governments is changing. They cannot, however, be content with simply fostering a suitable climate for private sector investments, as is advocated by some commentators. Experience from successfully industrializing countries, and from developed countries as well, shows that they need to make specific and carefully orchestrated interventions to correct market failures and shortcomings and to ensure the necessary investment and technological capability for achieving increased competitiveness and sustainability. These interventions generally take the form of policy measures, including the promotion of and support for restructuring subsectors and enterprises with growth potential, programmes to develop human resources and technology programmes and institutional support for enterprises.

At the same time, Governments have the wider responsibility for ensuring that the socio-economic benefits that are the ultimate goal of industrialization—the creation of jobs and increased income in developing regions—are realized. In most developing countries and many economies in transition, this would necessitate an extensive programme for the development of SMIs and local entrepreneurship, especially in less-developed regions. SMIs must be at the heart of programmes for job creation, especially in rural regions and for weaker sections of the population. They must become more competitive by forming clusters, upgrading their technology and developing their innovative capability.

## Tasks for the international community and the United Nations Industrial Development Organization

### *Opportunities and the threat of marginalization: African countries and least developed countries**

Globalization means greater opportunities for all countries: for trade in a greater variety of goods, larger flows of FDI and, most importantly, greater access to new technologies and skills. For the developing countries especially, with their huge untapped markets and large pools of labour, the long-run prospects are positive. They may be able to benefit from the extensive internationalization of products and services, for instance from the opportunity to provide labour-intensive professional services such as data processing and software development.

Because of various policy and structural weaknesses, however, African countries and LDCs in particular have been unable to integrate fully, if at all, into the global economy and enjoy the benefits this entails. Indeed, there is serious concern that these countries are being marginalized in the globalization process.

African countries and LDCs suffer from a number of well-known structural weaknesses that make them particularly vulnerable to exogenous shocks. Technologically, they often have a limited base and weak development capabilities, particularly when it comes to technological innovation. Although there are outstanding countervailing examples, these countries generally lack the critical managerial, marketing, sales and modern technological skills, especially those needed to apply modern technologies to production processes and products and to organize enterprises more efficiently. They have yet to accumulate the entrepreneurial skills and experience that are so crucial under current global market conditions. Legal, accountancy and auditing skills are also weak. More fundamentally, they lack the requisite educational and training framework for developing their human resource base.

Although these weaknesses are gradually being overcome, these countries also lack adequate policy support for accelerated private sector development. This is especially the case for SMIs and micro-enterprises in the informal sector. Supporting institutions—especially business centres and institutions involved in business training, HRD and technology transfer and diffusion—are thin on the ground and often suffer from fluctuating political support and finance. The lack of an adequate commercial banking system and other financial services to provide long-term finance, credit to SMIs and export credits is a major constraint. All these factors, combined with the susceptibility of these countries to natural disasters (floods, droughts, desertification, famine and disease), the fragility and volatility of their political structures, instability in their macroeconomic frameworks and the additional risk this entails for investors, keep African countries and LDCs—and some other developing and transition countries as well—from being able to attract joint venture partners (or, indeed, any other form of equity) from the industrialized countries or NIEs.

The ability to attract FDI, so essential for growth, is compromised by other difficulties: domestic savings and incomes are low and markets small; growth is slow but population growth is high, so per capita GDPs are falling; and population is sparse in many LDCs. African countries and LDCs are, moreover, heavily burdened by external debt. Twenty-five countries in sub-Saharan Africa have debt/GDP ratios in excess of 0.8 and debt/export ratios of more than 2.2. Compared to other developing countries, they are apparently being bypassed by FDI flows. On average, African countries received $3 billion of FDI each year in 1986-1994. But despite globalization and liberalization, investment flows to Africa continued to account for less than 5 per cent of total FDI flows to developing countries in 1991-1994.

The lack of infrastructure—reliable water, energy and power supplies, roads, railways and airports, communications, especially telecommunications—and supporting industrial services (repair, maintenance, information, informatics) are also considerable impediments. These impediments are particularly problematic as many countries are landlocked or small island countries. Thus, many of the bene-

*This section draws on Assaf.[3]

fits of FDI—remembering that it will never, and should not, take the place of domestic investors, who are the real long-term builders of a viable competitive economy—may be bypassing African countries and LDCs. Recent figures showing that the ratio of total trade to GNP in Africa has been falling and is lower now than it was 20 years ago are a cause for concern, especially as the comparable figures for almost all other regions of the world show an increase over the same period.* If African countries are to benefit from globalization, increased trade is a must.

These countries are also not helped by an over-dependence on primary commodity exports and the volatility of the markets for these. Often, a number of these countries produce the same or similar products—for example, bananas or tropical fruits—and some rely on only one crop or natural resource such as tea or copper. Given that globalization, as defined in chapter 1, does not extend to trade in primary products, the lack of a diversified export base in these countries is a serious impediment, at least in the short and medium term, to their further integration. To add some perspective, it is true that some countries, such as Malaysia and Mauritius, have recently been able to use primary commodities as a launching pad for more diversified and sustainable growth, but these have been few and far between.

Because of their difficulties in attracting FDI, African countries and LDCs will have to rely on ODA to supplement their own meagre resources. Unfortunately, since the early 1990s "donor fatigue" appears to have set in and FDI flows have dropped significantly in real terms.[4] The ratio of ODA to GNP for all donor countries taken together has fallen to 0.3, the lowest level in the last 20 years. Also, since 1989 central and eastern European countries and the countries of the former Soviet Union have stopped providing ODA, and OPEC donors have severely cut their assistance. Thus, the prospects for African countries and LDCs do not seem bright. In the face of the considerable need for aid, the commitment to provide that aid is weakening visibly, so these countries will increasingly be forced to rely on their own efforts to achieve sustainable development. Despite having made much progress in recent years, African countries and LDCs will need to redouble their efforts to achieve sustainable and equitable industrial development by elaborating market-oriented development programmes.

*According to UNCTAD,[4] flows of official development assistance (ODA) to the LDCs declined in real terms from 0.09 per cent of the GNP of OECD countries in 1990 to 0.07 per cent in 1994.

## *The policy challenge for African countries and LDCs**

To compete in open markets, African countries and LDCs will need to raise the efficiency and competitiveness of their manufacturing sectors, particularly their SMIs. They will also need to adopt a more export-led strategy and to cooperate at the regional and subregional levels to enlarge their markets. In addition, they will require access to inputs and technology, which calls for close interaction between the private sector and the Government and, in many cases, support from international organizations.

If African countries and LDCs are to compete on world markets, they must develop the technological base and technical skills to master the new production processes—including, ultimately, the techniques of flexible automation—and to satisfy the increasingly stringent standards for product quality and environmental protection required by the global market-place. They must ensure quality not only for industrial products but also for agricultural products, which comprise the bulk of their exports. With the growing international acceptance and use of ISO 9000 and ISO 14000 standards, African countries and LDCs will need to heed environmental concerns and assure high-quality finished products, production processes, technology and machinery and other facets of production all the way back to the raw materials. There will be a particular need to assure the quality of agricultural products by paying attention to the use of fertilizers and pesticides and even to the size, form and colour of packaging materials. Agriculture will remain critically important for Africa and LDCs, but it needs to be supported by an industrial sector that has been revitalized and made competitive by effective industrial policies.

The international community must eschew the stopgap approach of the past and reassess and, where necessary, reconceive its efforts to assist African countries and LDCs in building their own capabilities, upon which their development ultimately depends. In the face of international concerns with quality assurance and environmental protection, which the developing countries must reckon with, there is a special need for the international community to provide technical and financial assistance to these countries to build up their own capabilities in areas such as ISO 9000 and ISO 14000 standards, eco-labelling requirements and the introduction of clean technologies.

*This section also draws on UNIDO[3] and Assaf.[3]

## *UNIDO is responding to the challenge**

Despite the progress made by developing countries, particularly those in South-East Asia, and economies in transition, there is great need for specialized industrial support services in all developing regions. This is most marked in African countries and LDCs, where the pace of industrial growth remains very unsatisfactory. Support services must be geared to improving competitiveness and to encouraging equitable and environmentally sustainable growth.

UNIDO has responded to this challenge in a number of ways. One of the main elements in its reform process has been to target its services to meet the industrial support needs occasioned by the global economy. In line with its mandate and the expertise and resources available to it, it has set new priorities and is refocusing its efforts on the following areas:

*(a)* The poorest countries, particularly African countries and LDCs, which are also the most likely to be adversely affected by globalization;

*(b)* A smaller number of industrial subsectors, with emphasis on the agro-based subsector and underlying industrial needs such as HRD and technology transfer;

*(c)* Five clear development objectives: industrial and technological growth and competitiveness; equitable development through industrial development; international cooperation in industrial investment and technology; the development of human resources for industry; and ecologically sustainable industrial development;

*(d)* Seven thematic priorities: institution-building for global economic integration; environment and energy; development of SMIs; innovation, productivity and quality for international competitiveness; industrial information, investment and technology promotion; rural industrial development; and, lastly, LDCs and Africa, focusing on activities linking industry with agriculture.

With clear objectives and priorities that allow it to translate needs into specific programme and project support, UNIDO can help developing countries and economies in transition meet the challenges of globalization. But it is in its dual role—it is both a global forum that supports and promotes industrial development and a provider of integrated technical cooperation services—that UNIDO can make its greatest contribution. As a global forum for industry, UNIDO is at work in several areas:

*(a)* Building understanding of global interdependence among industrialized and developing countries and economies in transition and promoting partnerships and initiatives for international industrial cooperation;

*(b)* Spreading knowledge about technologies and about approaches to industrial development;

*(c)* Transferring the lessons of industrial development from North to South, South to South and West to East. In 1994 alone, UNIDO organized and supported 84 expert group meetings and forums on different areas of industrial development and issued a number of specialized publications;

*(d)* Stimulating economic cooperation between developing countries at different levels of industrialization;

*(e)* Providing industrial statistics and ensuring the international comparability of industrial data and standards to facilitate their collection, processing and reporting. In 1994, following a decision of the Statistical Commission of the United Nations, UNIDO was designated the official United Nations depository of industrial statistics for all developing countries and economies in transition;

*(f)* Assisting in the establishment and/or implementation of international conventions, norms and standards, among them the following:

(i) The Montreal Protocol on Substances that Deplete the Ozone Layer and the United Nations Framework Convention on Climate Change;

(ii) Eco-labelling schemes in various industrial subsectors;

(iii) The accreditation and articulation of ISO 9000 and the introduction of ISO 14000;

(iv) Structural design codes for timber;

*(g)* Acting as an honest broker with specialized capabilities to support developing countries in addressing the challenges of globalization.

## *The Alliance for Africa's Industrialization*

In the context of the United Nations System-wide Special Initiative for Africa, launched in March 1996, UNIDO has set up the Alliance for Africa's Industrialization. Although targeted at Africa, the Alliance will be of relevance to LDCs in other regions as well.

*This section draws on "Impact of reform: an outline of improvements at UNIDO 1994-1995", report by the Director-General to the Sixth Session of the General Conference, Vienna, 4-8 December 1995 (GC.6/30/Add.1).

The Alliance for Africa's Industrialization aims to focus the attention of African decision makers and the international community on the region's industrial potential and on the need to mobilize this potential by enhancing the role of the private sector and integrating the region into the global economy. The structure of industry and the prospects of specific subsectors differ significantly from one African country to the other. In general, however, natural-resource-based industries play a central role and are given priority by policy makers in the region, because they comprise a subsector in which the continent possesses a potential advantage that could be built up and exploited through national and international efforts and investments. The Alliance for Africa's Industrialization accordingly attaches great importance to this subsector, recognizing that it directly addresses the issues of food security and the alleviation of poverty, especially in rural areas (box 27).

A new focus is required to capture the opportunities globalization presents

**Box 27. The Alliance for Africa's Industrialization**

The objectives of the Alliance are as follows:

*(a)* To develop a truly Africa-oriented industrial development strategy in order to address, more directly and more effectively, Africa's principal economic problems of low industrial output and domestic value-added, unemployment, poverty and food insecurity. Particular emphasis will be placed on ensuring a genuine African ownership of this strategy, the need for which is underscored by the fact that aid and technical assistance are not, and cannot be, a replacement for the desire and strong resolve of a people to better itself through its own endeavours, supported by the strong belief of the political and business leadership in the empowerment of the private sector;

*(b)* To establish new partnerships and strategic alliances between African countries, development agencies, financial institutions and corporate and private-sector entities within and outside Africa, in order to draw greater global attention to, and ensure the widest possible participation in, the urgent task of accelerating industrial development in Africa. Such partnerships will combine the strengths, comparative advantages and financial resources of the various players involved in the development process, and will permit a comprehensive and coordinated effort to be made to maximize the socio-economic developmental impact of their activities in Africa;

*(c)* To stimulate increased international interest in and commitment to African development and generate increased efforts to promote sustainable industrial growth and development in Africa through measures to increase industrial competitiveness and through strengthening local capacities at the policy, institutional, sectoral and enterprise levels;

In pursuit of those objectives, the Alliance will focus on three specific themes:

*(a)* Capacity building for HRD, institution-building for both the private and public sectors, enhancement of government efficiency and socio-economic progress for the African community at large;

*(b)* Promotion of competitiveness through private-sector development, strategic alliances and partnerships, and investment and technological innovation and upgrading in key industries enjoying potential comparative advantages;

*(c)* Natural-resource-based industrialization and other industrial activities based on potential comparative advantages.

These activities will need to be undertaken jointly by African industry, African government authorities and institutions, multilateral and bilateral organizations and foreign commercial entities. UNIDO will provide catalytic inputs and coordinate the programme.

The Alliance for Africa's Industrialization seeks to overcome the impediments to industrial development in Africa, enabling industry to capture and utilize opportunities presented by the global economy.

The United Nations System-wide Special Initiative for Africa has set five priorities: water, food security, governance, the social and human condition and resource mobilization. Various United Nations agencies are involved in each of these priority areas and will be contributing through their respective programmes.

The Alliance for Africa's Industrialization addresses the industry-related issues of the Special Initiative and synthesizes them into a consistent programme. It is based on the principle set forth by the Secretary-General in that Initiative: "While Africa needs external support, it is the Africans

themselves, men and women, who must take charge of their destiny and who should have the fundamental responsibility for bringing about development on their continent."

There are three preconditions for Africa's long-term industrial development: Africans must be in charge and it must be built on ongoing national, subregional and regional initiatives; it must rely on the mobilization of local resources, investments and leadership; there must be political and economic stability. The Alliance will be between, on the one hand, African decision makers in government, the private sector and the business community across the region and, on the other hand, African and international institutions in both the public and private sectors.

Clearly, increased globalization and liberalization of trade will necessitate specialized assistance with a sharper focus on enhancing private-sector development, market orientation and competitiveness. This assistance will need to come from international organizations, in particular from UNIDO, which is the principal organization charged with promoting and accelerating industrial and technological development in the developing and transition countries.

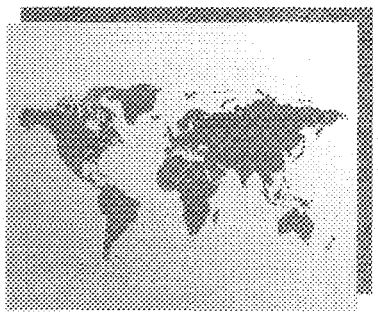
**Notes**

[1]H. Muegge, "Industrial development and international cooperation", *Intereconomics*, January/February 1996.

[2]Sanjaya Lall, "Governments and industrialization: The role of policy interventions", paper prepared for the UNIDO Global Forum on Industry, held at New Delhi from 16 to 18 October 1995 (ID/WG.542/23(SPEC)).

[3]G. B. Assaf, "UNIDO's diagnostic surveys of industrial rehabilitation needs in Africa with emphasis on agro-based industries: An integrated programme approach", in *African Development Perspectives Yearbook 1990/91*, vol. II, Karl Wohlmath and others, eds. (Hamburg, Lit Verlag, 1992), pp. 111-134.

[4]UNCTAD, *Report of the Secretary General of UNCTAD to the Ninth Session of the Conference*, 2 January 1996 (TDI 366).



# Statistical annex: world industry development indicators

## Technical notes

1. Sources for the country tables are as follows:

*(a)* The UNIDO consolidated database of Industrial Statistics;

*(b)* National Accounts Statistics from the Statistics Division of the Department of Economic and Social Information and Policy Analysis (all entries followed by "/na", supplemented by other sources (listed below under item 6);

*(c)* Population figures from United Nations demographic statistics and the *Monthly Bulletin of Statistics*.

*(d)* Estimates and forecasts of GDP and MVA were made by UNIDO, Research and Publications Division, Studies and Research Branch, with MVA having been based on National Accounts Statistics for 28 industrial branches.

2. All values are in millions of United States dollars at current prices, except where otherwise indicated. Generally, official exchange rates have been applied to generate dollar values. For selected countries (Afghanistan, Argentina, Brazil, Chile, Dominican Republic, El Salvador, Egypt, Ghana, Guatemala, Honduras, Islamic Republic of Iran, Mexico, Nicaragua, Nigeria, Paraguay, Peru, Sierra Leone, Sudan, Syrian Arab Republic, Trinidad and Tobago, Uganda and Uruguay) and selected periods, a correction factor was calculated to compensate for the temporary overvaluation of the national currency. The correction was done by adapting exchange rates to the reported inflation rates. Exchange rates for Hungary, Poland and Romania are average market (principal) rates as reported by IMF in *International Financial Statistics*.

3. Figures followed by "/c" are in 1990 constant prices.

4. There are two parts to the annex. The first part consists of full-page reports on 117 countries for which more complete data are available. This is a subset of the sample of 135 countries used to derive the sectoral forecasts of MVA for 28 industrial branches. Each of these pages contains graphs of industrial structure and GDP and MVA annual growth rates (described in items 5 and 6 below) and graphs of GDP per capita, MVA shares in GDP and the industrial production index as well as tabular data (described in items 7-12 below). The second part of the annex consists of short tables for each of the remaining countries.

5. The diagram of industrial structure is based on the value added in 1990 deflated prices. In general, the GDP deflator is used for the conversion. If no GDP deflator was available, the consumer price deflator has been used. A bar chart shows the five-year (if not stated otherwise) average sectoral share in the total industry value added, contrasted with a needle plot of the five-year average growth rate for the corresponding sector. The importance of the sector in the industry is thereby contrasted with its growth performance.

6. GDP and MVA growth rates are mainly based on data supplied by the Statistics Division. However, if that Division did not report one, a figure was taken from one of the following sources:

*(a)* National statistical institute of the country concerned;

*(b)* United Nations regional economic commission for the country concerned;

*(c)* *International Financial Statistics* (Washington, D.C., International Monetary Fund);

*(d)* *National Accounts, Detailed Tables* (Paris, Organisation for Economic Co-operation and Development) vol. II;

*(e)* *World Outlook* and *Quarterly Economic Review* (London, Economist Intelligence Unit);

*(f)* *World Tables* (Washington, D.C., World Bank);

*(g)* *Economic Forecast* (Amsterdam, North-Holland);

*(h)* Asian Development Bank;

*(i)* African Development Bank.

Otherwise, the figure was estimated using statistical analysis and other ad hoc information, including various periodicals and newspapers.

Forecast growth rates for each country were projected using the following:

*(a)* The long-term trend in GDP;

*(b)* Cyclical deviations from that trend;

*(c)* When it proved significant, GDP in another country or a group of other countries.

Growth rates of aggregate MVA (from National Accounts) were forecast using regression techniques establishing a relationship between MVA and GDP. Five different types of regression were tested for this purpose. The relationship producing the best *ex post* forecasting figures was finally selected.

Estimates of sectoral MVA for each country were based on regression equations having GDP, aggregate MVA, lagged own-sector MVA and production indices as independent variables. Regressions were performed using deflated sectoral MVA values. Results were then reconverted into current dollar figures. Again, various sources and UNIDO estimates were used to improve the coverage of the data. The forecasts were based on estimates of the contribution of two components: *(a)* the dependence of the sector on the overall economic situation in the country concerned, expressed in terms of GDP or MVA and *(b)* the sector-specific time behaviour expressed in terms of a lag structure of the value added of the sector.

7. Two figures were reported for MVA. One was based on the national income accounts definition and the other on the industrial census definition. The two main differences are as follows: *(a)* included in the national income accounts figure but not in the industrial census figure is the activity of establishments with less than some specified number of employees (typically 5 or 10, although the number is not fixed across countries) and *(b)* in the industrial census, each establishment is considered to be either industrial or non-industrial, and all activities for the establishment are similarly classified, whereas in the national income accounting framework, output is classified as industrial depending on the nature of the product.

The industrial census data included the receipts for non-industrial activities but excluded their costs. For further information, see *International Recommendations for Industrial Statistics*, Statistical Papers, Series M, No.48, Rev.1 (United Nations publication, Sales No. E.83.XVII.8).

8. The figures under the item "profitability" were defined as follows:

Intermediate input = 100 · (gross output–value added)/gross output

Wages and salaries = 100 · (wages and salaries)/gross output

Operating surplus = 100 · (value added – wages and salaries)/gross output

9. The items "profitability" and "productivity" were averages across all branches, except that only those branches were included for which all the required data (gross output, value added, wages and salaries, and employment) were available. Whenever available, the number of persons engaged was used for the calculation; otherwise, the number of employees was used.

10. For the calculation of the structural indices, value added figures in 1990 deflated prices were used. The measure for structural change, $S$, is defined by:

$$S = \frac{\sum_i | s_i(t) - s_i(t-5) |}{2}$$

where $s_i(t)$ is the share of the $i$-th branch in total manufacturing value added in the year $t$. It is the sum of the absolute values of sectoral changes in the share of total manufacturing value over a five-year period across all sectors, divided by 2. A value of 100 per cent means complete reversal of the structure; a value of 50 per cent means that exactly half of the industry has relocated in terms of MVA.

11. The item "MVA growth rate per structural change" is the growth rate of real value added for every percentage point of structural change in the five-year periods. It relates MVA growth to structural change.

12. The degree of specialization is defined as follows:

$$h = 100 \cdot \left( 1 + \frac{\sum_i s_i \cdot \ln s_i}{h_{max}} \right)$$

where $s_i$ is defined as above and $h_{max}$ is the natural logarithm of the number of branches.

If the shares of all branches are equal, the degree of specialization equals 0. If only one branch exists, the value is 100.

## *Summary of indicators*

/na Value originating from National Accounts Statistics

/c In 1990 constant prices

*italic* Estimated by UNIDO, Research and Publication Division, Research and Studies Branch

.. No value available

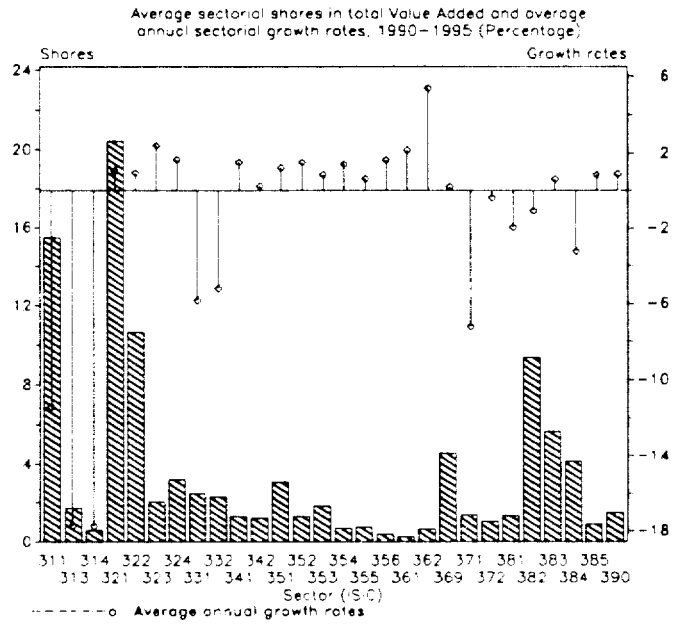
– Value is less than half a unit

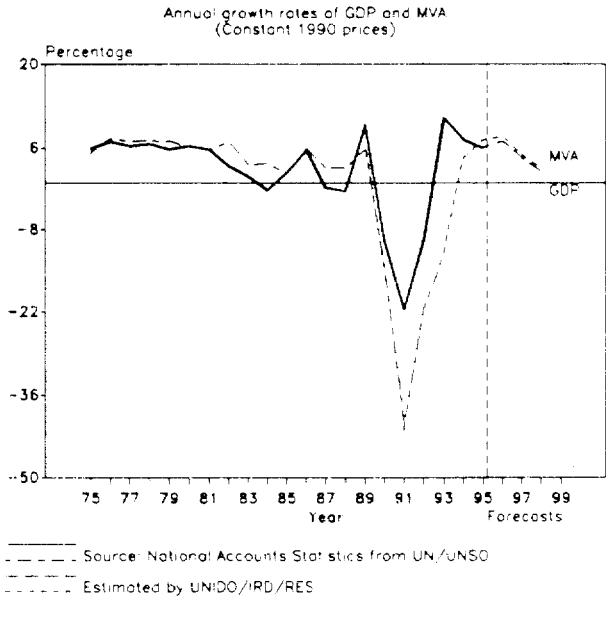
Questions concerning the preparation of data can be directed via e-mail to gmargreiter@unido.org

## Regional classification of countries and territories

| Country | Region | Page |
|---|---|---|
| AFGHANISTAN | South Asia | 244 |
| ALBANIA | Eastern Europe (south) | 129 |
| ALGERIA | North Africa | 130 |
| ARGENTINA | Latin America and the Caribbean | 131 |
| ARMENIA | Trans-Caucasus and Central Asia | 132 |
| AUSTRALIA | Other developed market economies | 133 |
| AUSTRIA | Western Europe (industrialized) | 134 |
| AZERBAIJAN | Trans-Caucasus and Central Asia | 244 |
| BAHAMAS | Latin America and the Caribbean | 244 |
| BAHRAIN | Western Asia | 244 |
| BANGLADESH | South Asia | 135 |
| BARBADOS | Latin America and the Caribbean | 136 |
| BELARUS | Russian Federation and other European CIS countries | 244 |
| BELGIUM | Western Europe (industrialized) | 137 |
| BELIZE | Latin America and the Caribbean | 244 |
| BENIN | Sub-Saharan Africa (excl. South Africa) | 245 |
| BERMUDA | North America | 245 |
| BHUTAN | South Asia | 245 |
| BOLIVIA | Latin America and the Caribbean | 138 |
| BOSNIA AND HERZEGOVINA | Eastern Europe (south) | 245 |
| BOTSWANA | Sub-Saharan Africa (excl. South Africa) | 139 |
| BRAZIL | Latin America and the Caribbean | 140 |
| BRUNEI DARUSSALAM | East and South-East Asia, Oceania (market economies) | 245 |
| BULGARIA | Eastern Europe (south) | 141 |
| BURKINA FASO | Sub-Saharan Africa (excl. South Africa) | 142 |
| BURUNDI | Sub-Saharan Africa (excl. South Africa) | 143 |
| CAMEROON | Sub-Saharan Africa (excl. South Africa) | 144 |
| CANADA | North America | 145 |
| CAPE VERDE | Sub-Saharan Africa (excl. South Africa) | 245 |
| CENTRAL AFRICAN REPUBLIC | Sub-Saharan Africa (excl. South Africa) | 146 |
| CHAD | Sub-Saharan Africa (excl. South Africa) | 246 |
| CHILE | Latin America and the Caribbean | 147 |
| CHINA | China, East Asian transition countries | 148 |
| TAIWAN PROVINCE OF CHINA | East Asia NIEs (four countries) | 149 |
| COLOMBIA | Latin America and the Caribbean | 150 |
| CONGO | Sub-Saharan Africa (excl. South Africa) | 151 |
| COSTA RICA | Latin America and the Caribbean | 152 |
| CÔTE D'IVOIRE | Sub-Saharan Africa (excl. South Africa) | 153 |
| CROATIA | Eastern Europe (south) | 154 |
| CUBA | Latin America and the Caribbean | 155 |
| CYPRUS | Western Asia | 156 |
| CZECH REPUBLIC | Eastern Europe (north) | 157 |
| DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA | China, East Asian transition countries | 246 |
| DENMARK | Western Europe (industrialized) | 158 |
| DJIBOUTI | Sub-Saharan Africa (excl. South Africa) | 246 |
| DOMINICAN REPUBLIC | Latin America and the Caribbean | 246 |
| ECUADOR | Latin America and the Caribbean | 159 |
| EGYPT | North Africa | 160 |
| EL SALVADOR | Latin America and the Caribbean | 161 |
| EQUATORIAL GUINEA | Sub-Saharan Africa (excl. South Africa) | 246 |
| ESTONIA | Eastern Europe (north) | 246 |
| ETHIOPIA (incl. ERITREA) | Sub-Saharan Africa (excl. South Africa) | 162 |
| FIJI | East and South-East Asia, Oceania (market economies) | 163 |
| FINLAND | Western Europe (industrialized) | 164 |
| FRANCE | Western Europe (industrialized) | 165 |
| FRENCH GUIANA | Latin America and the Caribbean | 247 |
| FRENCH POLYNESIA | East and South-East Asia, Oceania (market economies) | 247 |
| GABON | Sub-Saharan Africa (excl. South Africa) | 166 |

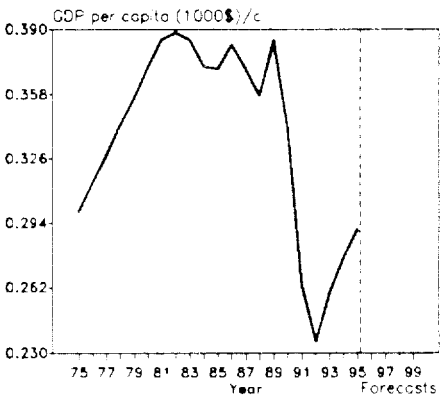
**ALBANIA**

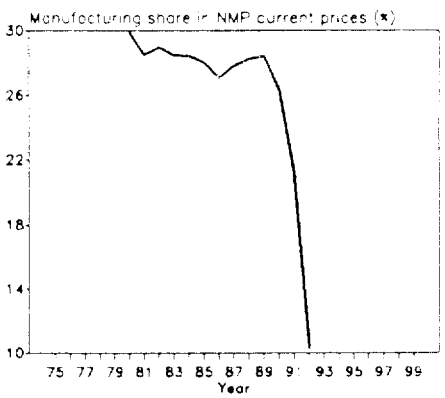


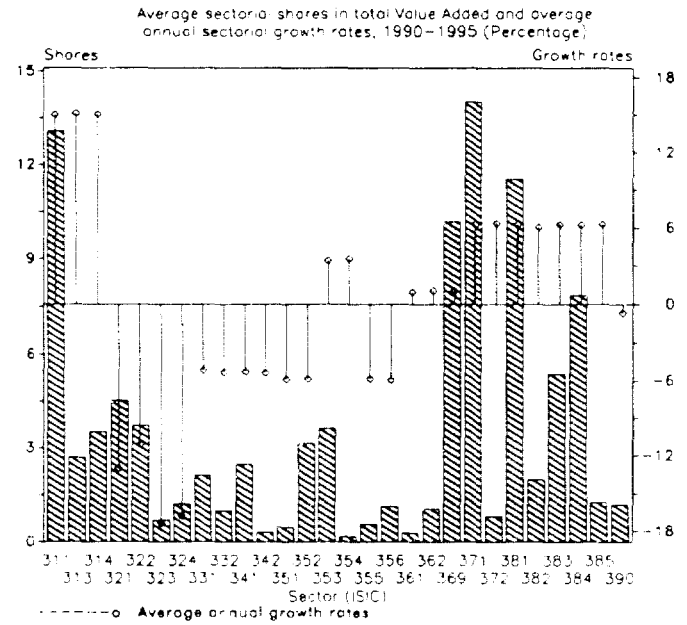

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 992 | 1 098 | 1 121 | 945 |
| Per capita [na] (1990-dollars) | 371 | 371 | 341 | 277 |
| Manufacturing share [na] (%) (current factor prices) | 29.9 | 28.0 | 26.3 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 245 | 298 | 295 | *123* |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | *580* | 675 | 300 | *364* |
| Gross output (millions of dollars) | .. | .. | .. | .. |
| Employment (thousands) | *165* | *204* | 252 | *63* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | .. | .. | .. | .. |
| Wages and salaries including supplements | .. | .. | .. | .. |
| Gross operating surplus and net taxes (%) | .. | .. | .. | .. |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | .. | .. | .. | .. |
| Value added per worker | *3 463* | *3 307* | 1 190 | *5 817* |
| Average wage (including supplements) | *829* | *858* | *424* | *521* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *7.59* | *10.53* | *10.15* | *12.07* |
| as a percentage of 1970-1975 structural change | *100* | *139* | *134* | *159* |
| MVA growth rate per structural change (%) | 4.61 | 2.61 | 0.57 | -0.69 |
| Degree of specialization | 16.9 | 18.1 | 18.6 | 18.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *151* | *147* | *60* | *40* |
| 313 Beverages | *20* | *29* | *8* | *4* |
| 314 Tobacco products | *5* | *6* | *3* | *1* |
| 321 Textiles | *68* | *106* | *55* | *81* |
| 322 Wearing apparel | *28* | *57* | *28* | *42* |
| 323 Leather and fur products | *9* | *8* | *6* | *8* |
| 324 Footwear | *13* | *16* | *9* | *13* |
| 331 Wood and wood products | *25* | *19* | *8* | *8* |
| 332 Furniture and fixtures | *23* | *16* | *8* | *8* |
| 341 Paper and paper products | *3* | 7 | 4 | *5* |
| 342 Printing and publishing | *7* | 7 | 3 | *5* |
| 351 Industrial chemicals | *22* | *19* | *9* | *12* |
| 352 Other chemical products | *10* | *7* | *4* | *5* |
| 353 Petroleum refineries | *14* | *13* | *5* | *7* |
| 354 Miscellaneous petroleum and coal products | *4* | *4* | *2* | *3* |
| 355 Rubber products | *7* | *6* | *2* | *3* |
| 356 Plastic products | *2* | *2* | *1* | *2* |
| 361 Pottery, china and earthenware | - | *1* | *1* | *1* |
| 362 Glass and glass products | *2* | *2* | *1* | *3* |
| 369 Other non-metal mineral products | *21* | 23 | 13 | *18* |
| 371 Iron and steel | *22* | *16* | *5* | *4* |
| 372 Non-ferrous metals | *10* | *9* | *3* | *4* |
| 381 Metal products | *8* | *10* | *4* | *5* |
| 382 Non-electrical machinery | *35* | *59* | *25* | *35* |
| 383 Electrical machinery | *27* | *31* | *15* | *22* |
| 384 Transport equipment | *20* | *31* | *12* | *15* |
| 385 Professional and scientific equipment | *4* | *5* | *2* | *4* |
| 390 Other manufacturing industries | *19* | 16 | 4 | *6* |

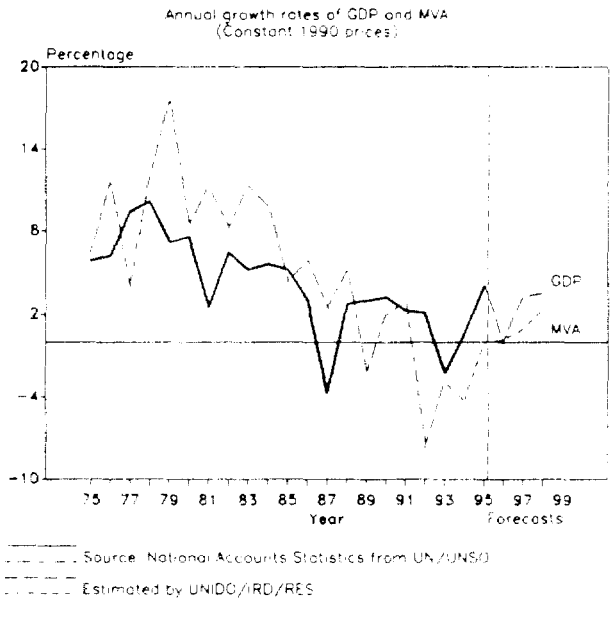
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.



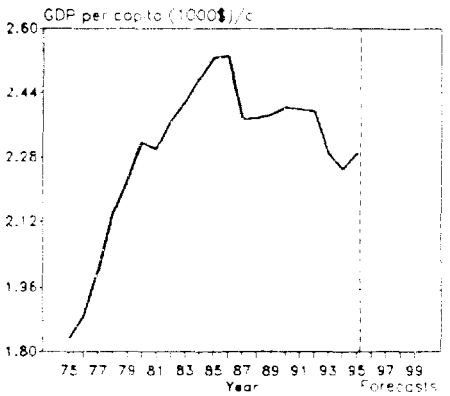
## ALGERIA

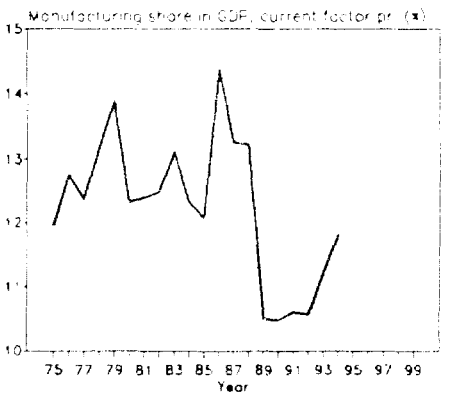


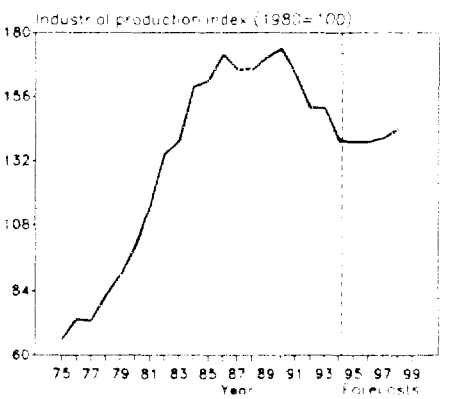




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 43 416 | 55 328 | 59 902 | 61 504 |
| Per capita [na] (1990-dollars) | 2 317 | 2 528 | 2 402 | 2 251 |
| Manufacturing share [na] (%) (current factor prices) | 12.3 | 12.1 | 10.5 | *11.8* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 3 333 | 5 101 | 5 783 | 5 092 |
| Industrial production index (1980=100) | 100 | 162 | 174 | 139 |
| Value added (millions of dollars) | 3 644 | 6 515 | 5 556 | *4 084* |
| Gross output (millions of dollars) | 9 023 | 14 579 | 12 773 | *9 147* |
| Employment (thousands) | 312 | 420 | 435 | *419* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 60 | 55 | 56 | *55* |
| Wages and salaries including supplements | 22 | 24 | 19 | *16* |
| Gross operating surplus and net taxes (%) | 18 | 21 | 24 | *29* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 28 928 | 34 739 | 29 371 | *21 831* |
| Value added per worker | 11 682 | 15 525 | 12 776 | *9 819* |
| Average wage (including supplements) | 6 380 | 8 175 | 5 581 | *3 503* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 9.26 | 10.55 | 9.54 | *12.70* |
| as a percentage of 1970-1975 structural change | 100 | 114 | 103 | *137* |
| MVA growth rate per structural change (%) | 4.04 | 5.16 | 2.32 | 0.21 |
| Degree of specialization | 14.4 | 13.7 | 12.8 | 18.1 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 655 | 811 | 481 | *686* |
| 313 Beverages | 135 | 167 | 99 | *141* |
| 314 Tobacco products | 176 | 218 | 129 | *184* |
| 321 Textiles | 282 | 529 | 414 | *132* |
| 322 Wearing apparel | 227 | 426 | 333 | *109* |
| 323 Leather and fur products | 57 | 71 | 71 | *15* |
| 324 Footwear | 100 | 123 | 124 | *27* |
| 331 Wood and wood products | 109 | 171 | 159 | *79* |
| 332 Furniture and fixtures | 51 | 80 | 75 | *37* |
| 341 Paper and paper products | 129 | 199 | 186 | *92* |
| 342 Printing and publishing | 14 | 25 | 23 | *11* |
| 351 Industrial chemicals | 14 | 27 | 32 | *13* |
| 352 Other chemical products | 93 | 184 | 216 | *89* |
| 353 Petroleum refineries | 83 | 165 | 194 | *146* |
| 354 Miscellaneous petroleum and coal products | 4 | 8 | 9 | *7* |
| 355 Rubber products | 17 | 33 | 39 | *16* |
| 356 Plastic products | 34 | 67 | 79 | *32* |
| 361 Pottery, china and earthenware | 10 | 17 | 17 | *10* |
| 362 Glass and glass products | 36 | 61 | 62 | *37* |
| 369 Other non-metal mineral products | 355 | 595 | 602 | *358* |
| 371 Iron and steel | 323 | 777 | 698 | *594* |
| 372 Non-ferrous metals | 19 | 45 | 41 | *34* |
| 381 Metal products | 265 | 639 | 574 | *489* |
| 382 Non-electrical machinery | 46 | 112 | 100 | *83* |
| 383 Electrical machinery | 123 | 297 | 267 | *227* |
| 384 Transport equipment | 181 | 435 | 390 | *333* |
| 385 Professional and scientific equipment | 30 | 71 | 64 | *55* |
| 390 Other manufacturing industries | 76 | 164 | 79 | *47* |

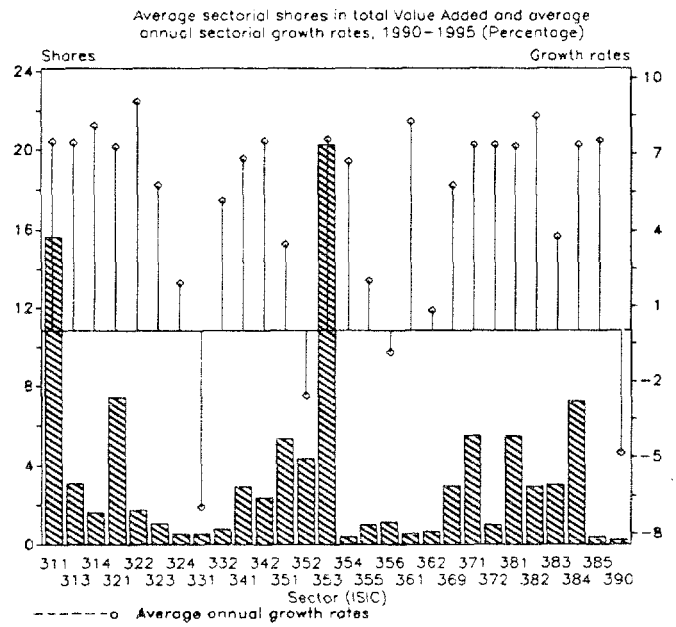
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

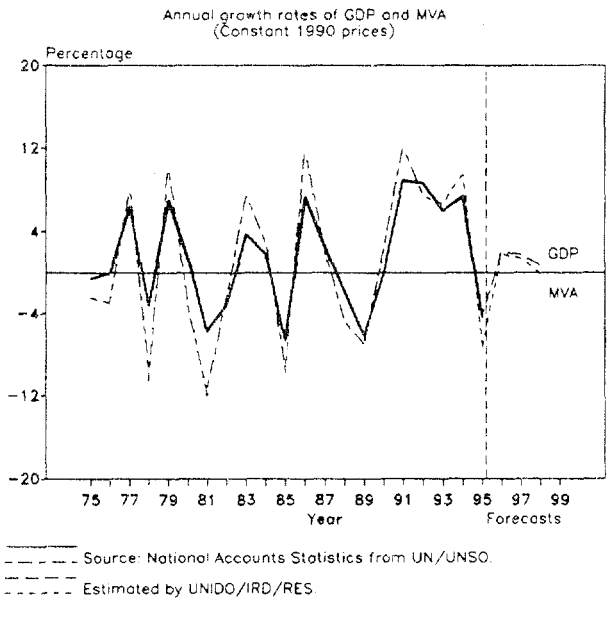


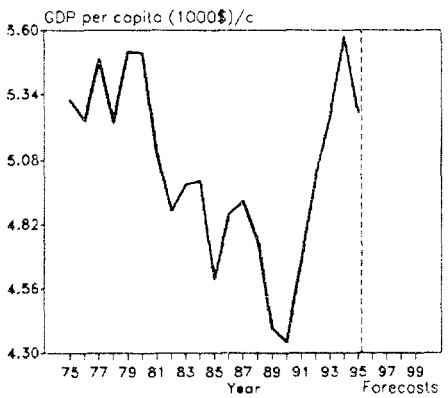
**ARGENTINA**



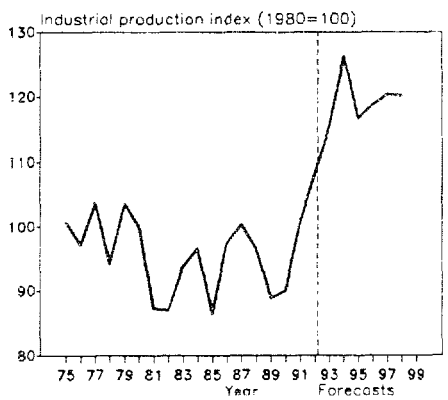




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 154 859 | 139 450 | 141 353 | 190 518 |
| Per capita [na] (1990-dollars) | 5 508 | 4 599 | 4 343 | 5 574 |
| Manufacturing share [na] (%) (current factor prices) | 29.5 | 29.6 | 27.1 | *25.0* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 43 566 | 37 054 | 37 868 | *53 044* |
| Industrial production index (1980=100) | 100 | 86 | 90 | *126* |
| Value added (millions of dollars) | 24 511 | 28 891 | 31 156 | *88 366* |
| Gross output (millions of dollars) | *55 936* | *48 084* | *79 001* | *217 063* |
| Employment (thousands) | *1 346* | 1 174 | *942* | *982* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *56* | *40* | *61* | *59* |
| Wages and salaries including supplements | *10* | *11* | *8* | *6* |
| Gross operating surplus and net taxes (%) | *33* | *49* | *31* | *34* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *41 553* | *34 798* | *83 878* | *220 539* |
| Value added per worker | *18 208* | 20 908 | *33 080* | *89 820* |
| Average wage (including supplements) | *4 302* | *4 411* | *6 767* | *13 818* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 5.79 | 8.36 | 8.30 | *6.57* |
| as a percentage of 1970-1975 structural change | 100 | 144 | 143 | *113* |
| MVA growth rate per structural change (%) | 2.22 | -0.99 | -2.36 | -0.46 |
| Degree of specialization | 13.0 | 15.9 | 16.3 | 17.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 3 544 | 4 912 | 4 695 | *13 932* |
| 313 Beverages | 703 | 942 | 932 | *2 753* |
| 314 Tobacco products | 498 | 719 | 480 | *1 454* |
| 321 Textiles | 1 703 | 1 832 | 2 209 | *6 747* |
| 322 Wearing apparel | 919 | 558 | 492 | *1 647* |
| 323 Leather and fur products | 284 | 350 | 336 | *958* |
| 324 Footwear | 245 | 240 | 190 | *433* |
| 331 Wood and wood products | 363 | 283 | 255 | *370* |
| 332 Furniture and fixtures | 226 | 185 | 246 | *648* |
| 341 Paper and paper products | 554 | 763 | 882 | *2 628* |
| 342 Printing and publishing | 679 | 800 | 695 | *2 147* |
| 351 Industrial chemicals | 914 | 1 367 | 1 844 | *4 588* |
| 352 Other chemical products | 1 206 | 1 916 | 1 791 | *3 094* |
| 353 Petroleum refineries | 3 647 | 5 120 | 6 069 | *18 143* |
| 354 Miscellaneous petroleum and coal products | 86 | 121 | 122 | *360* |
| 355 Rubber products | 331 | 327 | 368 | *878* |
| 356 Plastic products | 424 | 485 | 436 | *865* |
| 361 Pottery, china and earthenware | 189 | 130 | 156 | *500* |
| 362 Glass and glass products | 199 | 153 | 249 | *560* |
| 369 Other non-metal mineral products | 659 | 587 | 932 | *2 542* |
| 371 Iron and steel | 900 | 1 239 | 1 651 | *4 856* |
| 372 Non-ferrous metals | 235 | 257 | 305 | *899* |
| 381 Metal products | 1 272 | 1 499 | 1 611 | *4 924* |
| 382 Non-electrical machinery | 1 358 | 930 | 835 | *2 718* |
| 383 Electrical machinery | 902 | 936 | 1 025 | *2 655* |
| 384 Transport equipment | 2 289 | 2 054 | 2 140 | *6 564* |
| 385 Professional and scientific equipment | 86 | 95 | 112 | *347* |
| 390 Other manufacturing industries | 96 | 92 | 97 | *154* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

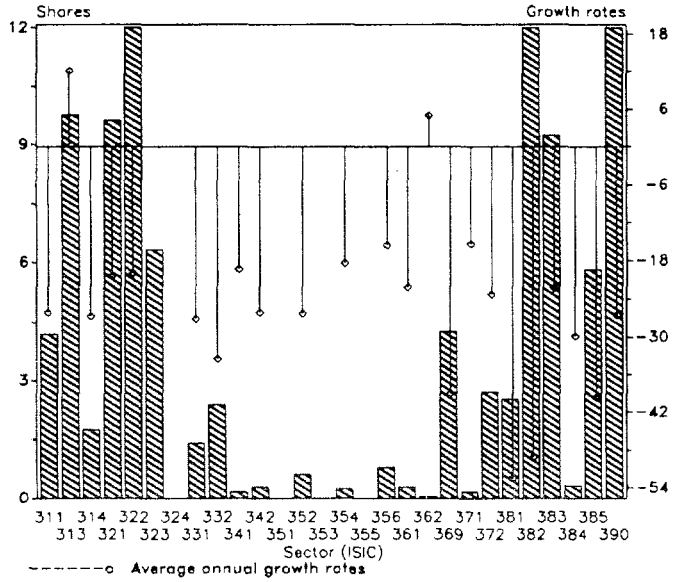




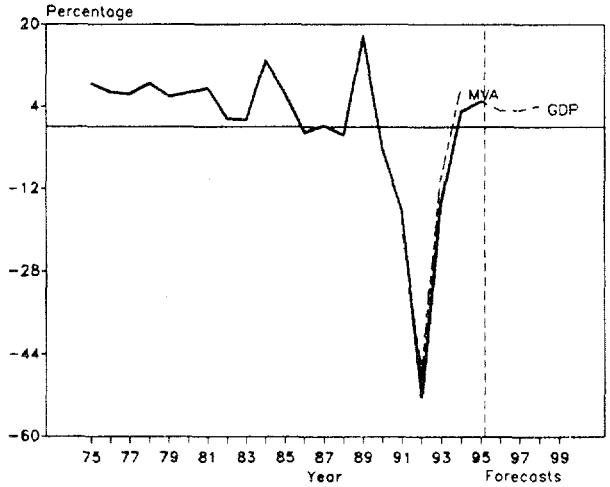


**ARMENIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



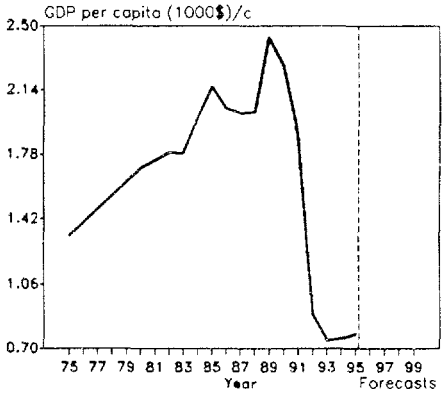

Annual growth rates of GDP and MVA (Constant 1990 prices)



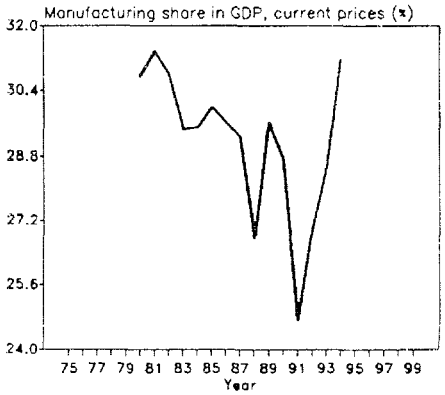

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 5 227 | 6 971 | 7 650 | 2 689 |
| Per capita [na] (1990-dollars) | 1 702 | 2 157 | 2 282 | 758 |
| Manufacturing share [na] (%) (current factor prices) | 30.8 | 30.0 | *28.7* | *31.2* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | .. | .. | *2 199* | *866* |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | *1 350* | *1 212* | *907* | *368* |
| Gross output (millions of dollars) | *12 433* | *8 917* | 5 419 | *962* |
| Employment (thousands) | *265* | *302* | 354 | *295* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *89* | *86* | *83* | *60* |
| Wages and salaries including supplements | *11* | *14* | 16 | *21* |
| Gross operating surplus and net taxes (%) | *0* | *0* | *1* | *19* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *39 287* | *23 952* | 15 291 | *3 260* |
| Value added per worker | *4 350* | *3 460* | *2 696* | *1 324* |
| Average wage (including supplements) | *4 404* | *3 468* | 2 462 | *781* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *5.73* | *6.73* | *12.29* | *19.34* |
| as a percentage of 1970-1975 structural change | *100* | *117* | *215* | *338* |
| MVA growth rate per structural change (%) | 2.65 | 1.89 | 0.46 | -1.48 |
| Degree of specialization | 18.3 | 16.7 | 19.8 | 21.8 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *89* | *76* | 40 | *15* |
| 313 Beverages | *11* | *38* | 15 | *58* |
| 314 Tobacco products | *23* | *21* | 18 | *8* |
| 321 Textiles | *102* | *99* | 78 | *46* |
| 322 Wearing apparel | *139* | *132* | 101 | *69* |
| 323 Leather and fur products | .. | .. | 38 [a] | .. |
| 324 Footwear | .. | .. | [a] | .. |
| 331 Wood and wood products | *35* | *30* | 16 | *6* |
| 332 Furniture and fixtures | *38* | *33* | *31* | *7* |
| 341 Paper and paper products | *2* | *2* | 1 | *1* |
| 342 Printing and publishing | *4* | *4* | 3 | *1* |
| 351 Industrial chemicals | *32* | *29* | -46 | *20* |
| 352 Other chemical products | *10* | *9* | 7 | *3* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | *3* | *3* | *2* | *2* |
| 355 Rubber products | *10* | *9* | -10 | *1* |
| 356 Plastic products | *10* | *10* | 5 | *4* |
| 361 Pottery, china and earthenware | *5* | *5* | *2* | *1* |
| 362 Glass and glass products | *2* | *1* | - | *1* |
| 369 Other non-metal mineral products | *97* | *76* | *56* | *8* |
| 371 Iron and steel | *3* | *3* | 1 | *1* |
| 372 Non-ferrous metals | *60* | *50* | 23 | *12* |
| 381 Metal products | *47* | *35* | *48* | *2* |
| 382 Non-electrical machinery | *248* | *173* | *206* | *12* |
| 383 Electrical machinery | *108* | *109* | 75 | *39* |
| 384 Transport equipment | *9* | *9* | 4 | *1* |
| 385 Professional and scientific equipment | *97* | *79* | *88* | *12* |
| 390 *Other manufacturing industries* | *167* | *173* | *106* | *40* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c

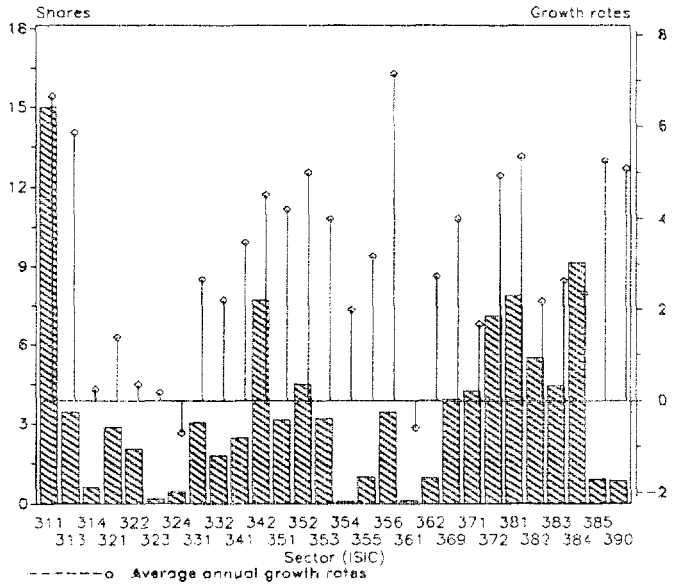



Manufacturing share in GDP, current prices (%)

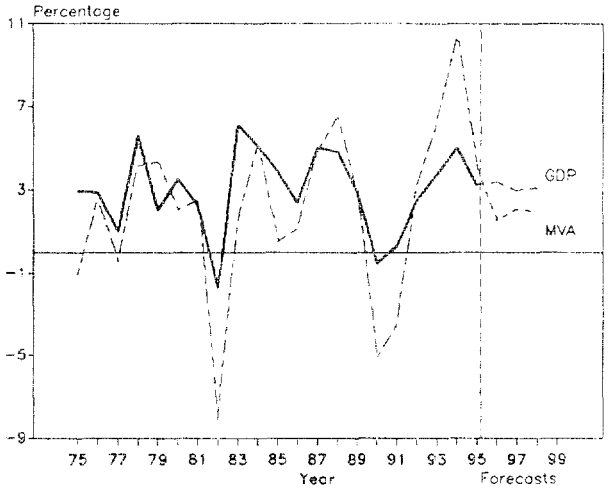


**AUSTRALIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

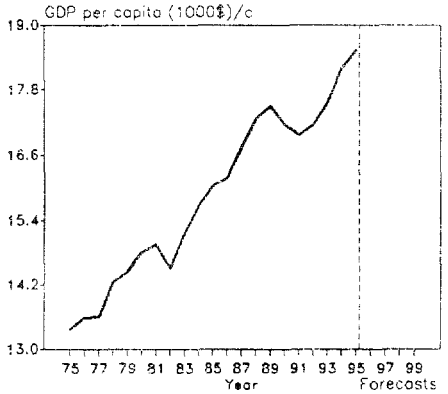



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

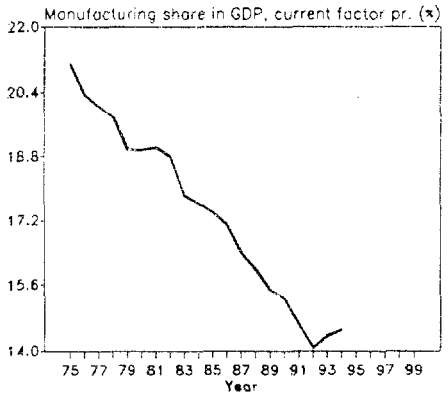
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [ns] **(millions of 1990-dollars)** | 215 620 | 251 024 | 289 788 | 324 841 |
| Per capita [ns] (1990-dollars) | 14 800 | 16 049 | 17 159 | 18 195 |
| Manufacturing share [ns] (%) (current factor prices) | 19.0 | 17.4 | 15.3 | *14.5* |
| **MANUFACTURING:** | | | | |
| Value added [ns] (millions of 1990-dollars) | 40 263 | 40 619 | 44 683 | 52 061 |
| Industrial production index (1980=100) | 100 | 101 | 111 | 127 |
| Value added (millions of dollars) | 29 173 | 26 900 | 54 097 | *64 417* |
| Gross output (millions of dollars) | 75 474 | 69 330 | 128 983 | *143 435* |
| Employment (thousands) | 1 139 | 1 014 | 1 017 | *916* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 61 | 61 | 58 | *55* |
| Wages and salaries including supplements | 20 | 19 | 16 | *16* |
| Gross operating surplus (%) | 18 | 20 | 26 | *29* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 65 402 | 67 785 | 125 117 | *156 517* |
| Value added per worker | 25 280 | 26 301 | 52 475 | *70 383* |
| Average wage (including supplements) | 13 356 | 12 977 | 20 719 | *25 067* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 3.74 | 4.19 | 4.57 | *4.72* |
| as a percentage of 1970-1975 structural change | 100 | 112 | 122 | *126* |
| MVA growth rate per structural change (%) | 1.29 | 0.40 | 2.70 | 5.39 |
| Degree of specialization | 11.1 | 11.1 | 11.4 | 12.1 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 3 993 | 3 764 | 7 647 | *10 043* |
| 313 Beverages | 785 | 847 | 1 723 | *2 222* |
| 314 Tobacco products | 248 | 179 | 365 | *373* |
| 321 Textiles | 1 050 | 955 | 1 673 | *1 792* |
| 322 Wearing apparel | 821 | 722 | 1 223 | *1 261* |
| 323 Leather and fur products | 93 | 77 | 105 | *109* |
| 324 Footwear | 223 | 205 | 279 | *272* |
| 331 Wood and wood products | 1 052 | 1 028 | 1 728 | *1 942* |
| 332 Furniture and fixtures | 505 | 507 | 1 032 | *1 130* |
| 341 Paper and paper products | 744 | 704 | 1 302 | *1 540* |
| 342 Printing and publishing | 1 818 | 2 131 | 4 058 | *4 946* |
| 351 Industrial chemicals | 969 | 982 | 1 660 | *1 998* |
| 352 Other chemical products | 1 186 | 1 191 | 2 291 | *2 879* |
| 353 Petroleum refineries | 323 | 285 | 1 659 | *1 990* |
| 354 Miscellaneous petroleum and coal products | 30 | 25 | 34 | *39* |
| 355 Rubber products | 341 | 264 | 546 | *631* |
| 356 Plastic products | 831 | 808 | 1 702 | *2 311* |
| 361 Pottery, china and earthenware | 46 | 41 | 76 | *76* |
| 362 Glass and glass products | 246 | 254 | 528 | *598* |
| 369 Other non-metal mineral products | 1 183 | 1 085 | 2 170 | *2 560* |
| 371 Iron and steel | 1 920 | 1 391 | 2 431 | *2 637* |
| 372 Non-ferrous metals | 1 473 | 1 409 | 3 791 | *4 624* |
| 381 Metal products | 2 467 | 2 040 | 4 215 | *5 234* |
| 382 Non-electrical machinery | 2 091 | 1 575 | 3 070 | *3 417* |
| 383 Electrical machinery | 1 351 | 1 329 | 2 466 | *2 777* |
| 384 Transport equipment | 2 830 | 2 579 | 5 379 | *5 860* |
| 385 Professional and scientific equipment | 290 | 279 | 498 | *601* |
| 390 Other manufacturing industries | 263 | 246 | 445 | *555* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

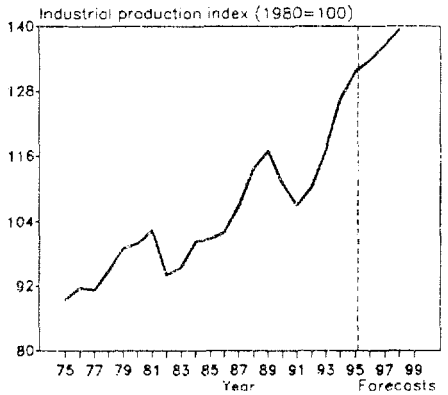
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

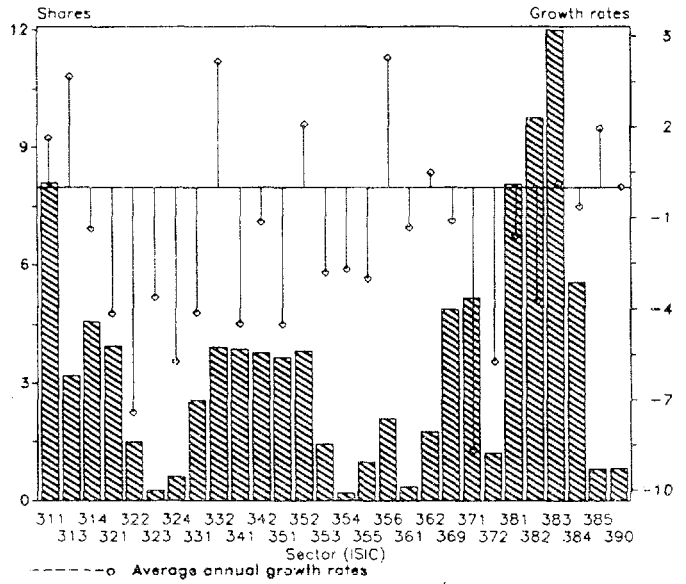



Industrial production index (1980=100)

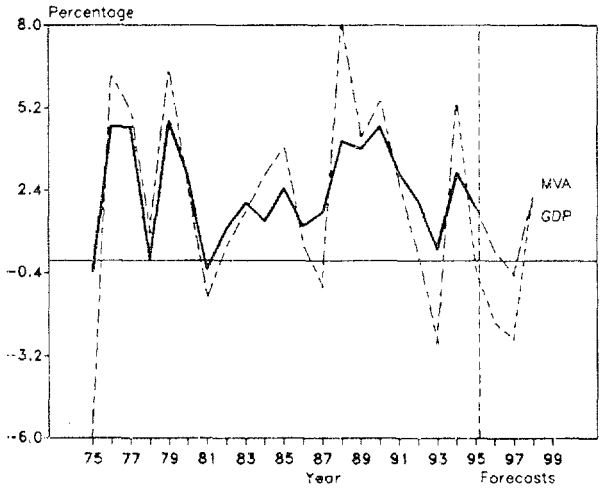


## AUSTRIA

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

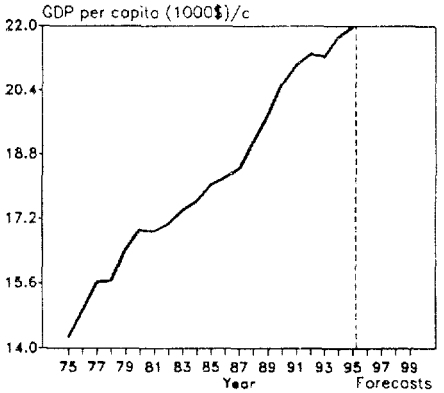



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

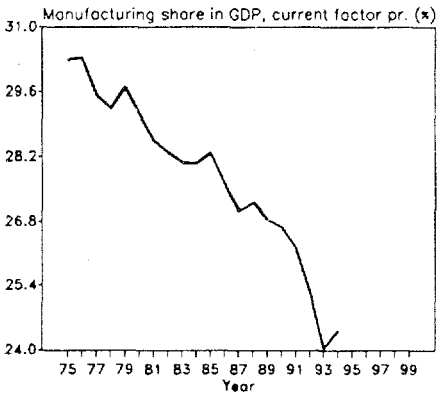
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 127 712 | 136 332 | 158 427 | 172 084 |
| *Per capita* [na] *(1990-dollars)* | 16 918 | 18 038 | 20 562 | 21 733 |
| Manufacturing share [na] (%) (current factor prices) | 29.1 | 28.3 | 26.7 | *24.4* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 32 106 | 34 533 | 40 785 | 42 856 |
| *Industrial production index (1980=100)* | 100 | 111 | 138 | *147* |
| Value added (millions of dollars) | 15 949 | 13 394 | 31 318 | *33 721* |
| Gross output (millions of dollars) | 48 872 | 41 230 | 90 474 | 96 296 |
| Employment (thousands) | 699 | 654 | 642 | *562* |
| **-PROFITABILITY:** *(in percent of gross output)* | | | | |
| Intermediate input | 67 | 68 | 65 | *65* |
| Wages and salaries including supplements | 24 | 23 | 23 | *25* |
| Gross operating surplus and net taxes (%) | 9 | 10 | 11 | *10* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 69 500 | 62 508 | 139 901 | *170 107* |
| Value added per worker | 22 681 | 20 307 | 48 427 | *61 797* |
| Average wage (including supplements) | 16 754 | 14 288 | 33 021 | *42 899* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 7.14 | 5.55 | 5.10 | *6.17* |
| as a percentage of 1970-1975 structural change | 100 | 78 | 71 | *86* |
| MVA growth rate per structural change (%) | 1.26 | 1.60 | 1.70 | 0.57 |
| Degree of specialization | 9.7 | 9.9 | 10.3 | 10.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 1 240 | 1 073 | 2 302 | *2 849* |
| 313 Beverages | 454 | 368 | 841 | *1 166* |
| 314 Tobacco products | 807 | 725 | 1 417 | *1 546* |
| 321 Textiles | 852 | 623 | 1 291 | *1 279* |
| 322 Wearing apparel | 447 | 303 | 547 | *449* |
| 323 Leather and fur products | 51 | 37 | 82 | *82* |
| 324 Footwear | 209 | 146 | 213 | *199* |
| 331 Wood and wood products | 192 | 298 | 879 | *828* |
| 332 Furniture and fixtures | 539 | 407 | 994 | *1 428* |
| 341 Paper and paper products | 631 | 500 | 1 333 | *1 229* |
| 342 Printing and publishing | 624 | 513 | 1 163 | *1 274* |
| 351 Industrial chemicals | 638 | 555 | 1 277 | *1 176* |
| 352 Other chemical products | 534 | 398 | 1 070 | *1 374* |
| 353 Petroleum refineries | 80 | 72 | 489 | *492* |
| 354 Miscellaneous petroleum and coal products | 32 | 24 | 65 | *65* |
| 355 Rubber products | 230 | 168 | 311 | *326* |
| 356 Plastic products | 281 | 215 | 545 | *768* |
| 361 Pottery, china and earthenware | 63 | 42 | 112 | *121* |
| 362 Glass and glass products | 235 | 229 | 518 | *606* |
| 369 Other non-metal mineral products | 815 | 652 | 1 473 | *1 628* |
| 371 Iron and steel | 1 223 | 1 051 | 2 088 | *1 570* |
| 372 Non-ferrous metals | 280 | 241 | 434 | *378* |
| 381 Metal products | 1 283 | 942 | 2 534 | *2 711* |
| 382 Non-electrical machinery | 1 656 | 1 400 | 3 292 | *3 160* |
| 383 Electrical machinery | 1 579 | 1 430 | 3 926 | *4 589* |
| 384 Transport equipment | 709 | 743 | 1 652 | *1 858* |
| 385 Professional and scientific equipment | 130 | 115 | 222 | *282* |
| 390 Other manufacturing industries | 136 | 123 | 249 | *289* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

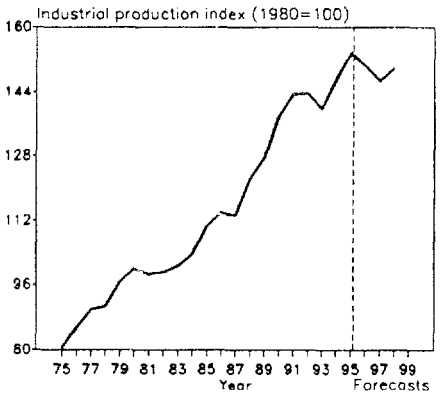
GDP per capita (1000$)/c



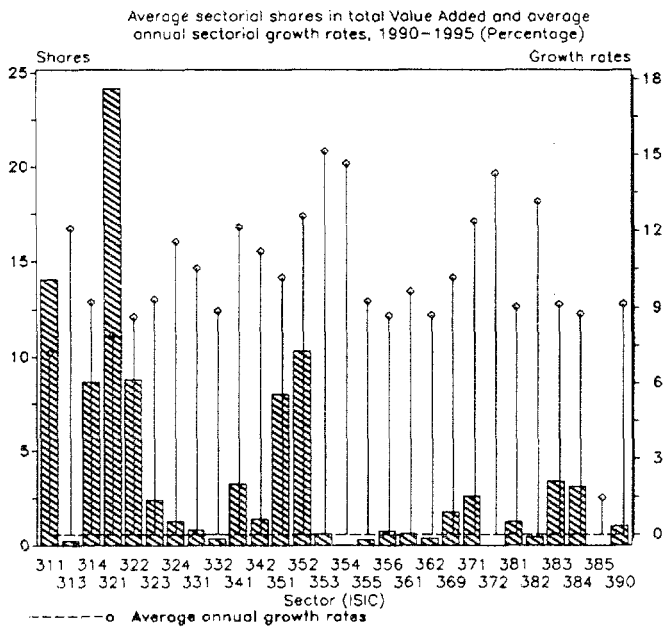

Manufacturing share in GDP, current factor pr. (x)

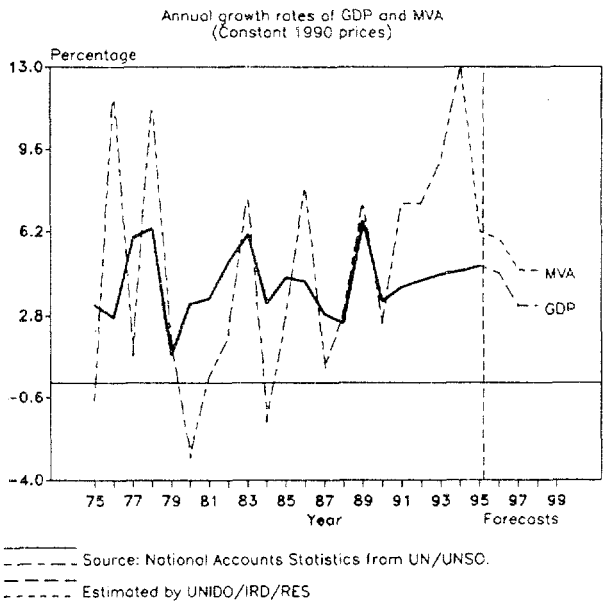



Industrial production index (1980=100)



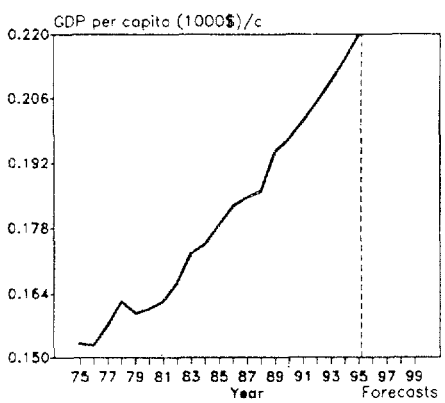
**BANGLADESH**



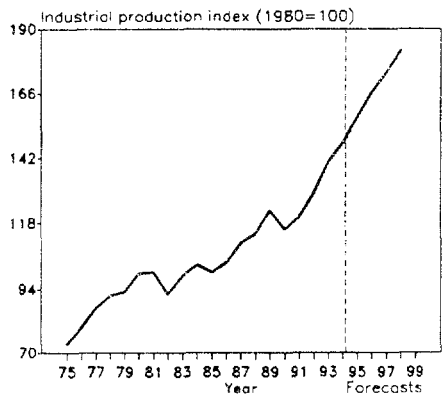




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 14 177 | 17 610 | 21 336 | 25 269 |
| Per capita [na] (1990-dollars) | 161 | 179 | 197 | 215 |
| Manufacturing share [na] (%) (current factor prices) | 11.0 | 9.9 | 8.7 | *10.4* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 1 374 | 1 523 | 1 866 | 2 647 |
| Industrial production index (1980=100) | 100 | 100 | 116 | 148 |
| Value added (millions of dollars) | 834 | 863 | 1 759 | *2 576* |
| Gross output (millions of dollars) | 2 253 | 2 497 | 5 504 | *7 430* |
| Employment (thousands) | 412 | 469 | 1 028 | *1 240* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 63 | 65 | 68 | *65* |
| Wages and salaries including supplements | *12* | 10 | *16* | *17* |
| Gross operating surplus and net taxes (%) | 25 | 24 | *16* | *18* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 5 466 | 5 191 | 4 418 | *4 966* |
| Value added per worker | 2 023 | 1 793 | 1 412 | *1 722* |
| Average wage (including supplements) | *639* | 557 | *859* | *1 016* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 14.31 | 16.43 | 19.43 | *20.27* |
| as a percentage of 1970-1975 structural change | 100 | 115 | 136 | *142* |
| MVA growth rate per structural change (%) | 3.73 | 4.89 | 1.89 | 2.47 |
| Degree of specialization | 36.0 | 25.3 | 24.9 | 24.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 78 | 98 | 265 | *359* |
| 313 Beverages | 7 | 6 | 4 | *6* |
| 314 Tobacco products | 111 | 109 | 153 | *225* |
| 321 Textiles | 336 | 230 | 439 | *617* |
| 322 Wearing apparel | - | 8 | 158 | *225* |
| 323 Leather and fur products | 18 | 14 | 42 | *62* |
| 324 Footwear | 4 | 10 | 21 | *34* |
| 331 Wood and wood products | 3 | 10 | 14 | *21* |
| 332 Furniture and fixtures | 1 | 2 | 6 | *9* |
| 341 Paper and paper products | 23 | 19 | 53 | *86* |
| 342 Printing and publishing | 6 | 8 | 23 | *36* |
| 351 Industrial chemicals | 33 | 70 | 134 | *199* |
| 352 Other chemical products | 97 | 85 | 166 | *274* |
| 353 Petroleum refineries | 2 | 75 | 9 | *16* |
| 354 Miscellaneous petroleum and coal products | 1 | 2 | 1 | *1* |
| 355 Rubber products | 4 | 1 | 5 | *8* |
| 356 Plastic products | - | 2 | 14 | *19* |
| 361 Pottery, china and earthenware | 2 | 4 | 10 | *15* |
| 362 Glass and glass products | 4 | 4 | 7 | *10* |
| 369 Other non-metal mineral products | 14 | 7 | 31 | *46* |
| 371 Iron and steel | 39 | 35 | 43 | *69* |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 9 | 13 | 22 | 32 |
| 382 Non-electrical machinery | 4 | 17 | 7 | *12* |
| 383 Electrical machinery | 19 | 18 | 60 | *88* |
| 384 Transport equipment | 11 | 10 | 56 | *80* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 8 | 7 | 18 | *27* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

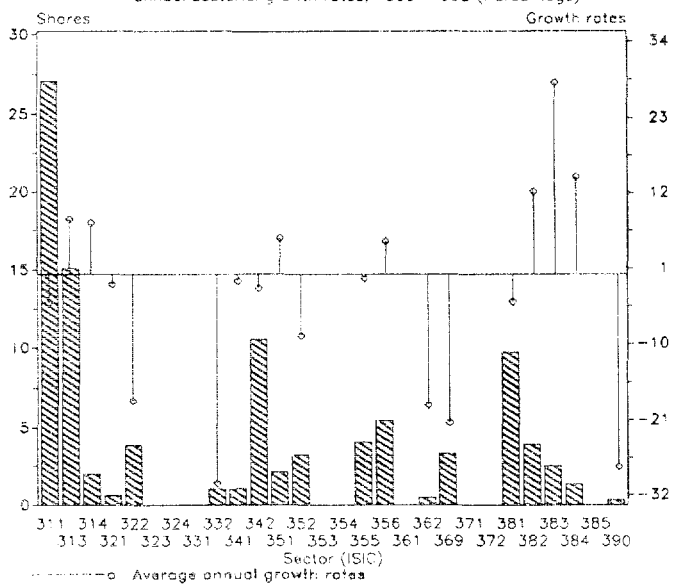




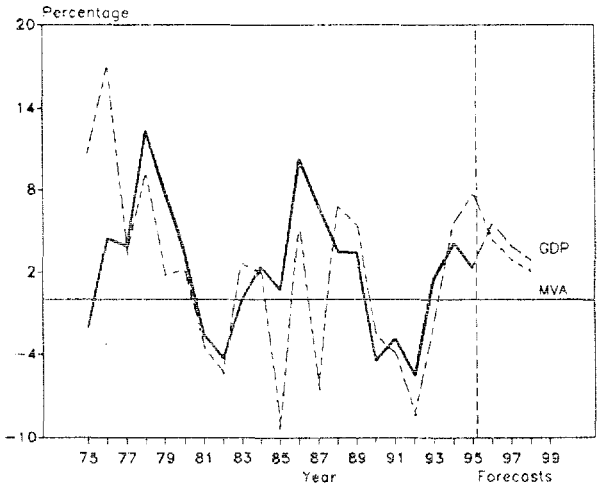


## BARBADOS

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990-1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

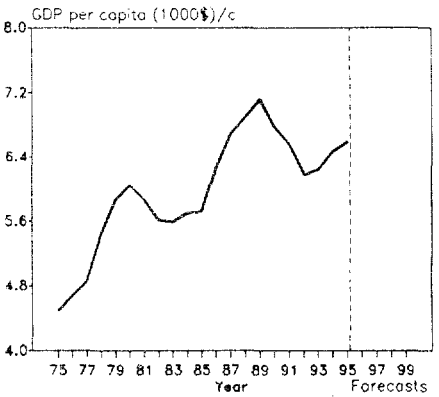



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

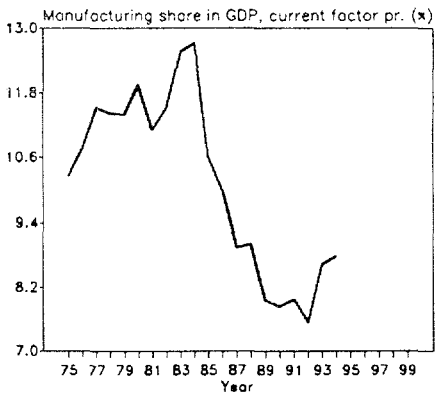
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 506 | 1 447 | 1 743 | 1 691 |
| Per capita [na] (1990-dollars) | 6 049 | 5 720 | 6 783 | 6 478 |
| Manufacturing share [na] (%) (current factor prices) | 11.9 | 10.6 | 7.8 | *8.8* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 127 | 110 | 118 | 107 |
| Industrial production index (1980=100) | 100 | 87 | 88 | 80 |
| Value added (millions of dollars) | 53 | 90 | 95 | *100* |
| Gross output (millions of dollars) | 241 | 383 | 412 | *434* |
| Employment (thousands) | 8 | 9 | 7 | *6* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 78 | 77 | 77 | *78* |
| Wages and salaries including supplements | 14 | 18 | *16* | *14* |
| Gross operating surplus and net taxes (%) | 8 | 5 | *7* | *8* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 31 297 | 41 552 | 60 974 | *74 716* |
| Value added per worker | 6 853 | 9 724 | 13 984 | *16 472* |
| Average wage (including supplements) | 4 336 | 7 725 | *9 537* | *10 684* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 11.36 | 15.51 | 21.85 | *26.16* |
| as a percentage of 1970-1975 structural change | 100 | 137 | 192 | *230* |
| MVA growth rate per structural change (%) | 0.11 | 0.78 | 0.11 | -0.90 |
| Degree of specialization | 14.3 | 15.6 | 20.1 | 20.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 12 | 25 | 30 | *27* |
| 313 Beverages | 6 | 12 | 10 | *16* |
| 314 Tobacco products | 1 | 2 | 1 | *2* |
| 321 Textiles | - | - | 1 | *1* |
| 322 Wearing apparel | 6 | 7 | 5 | *2* |
| 323 Leather and fur products | - | - | - | - |
| 324 Footwear | - | - | - | - |
| 331 Wood and wood products | - | - | - | - |
| 332 Furniture and fixtures | 1 | 2 | 2 | *1* |
| 341 Paper and paper products | - | 1 | 1 | *1* |
| 342 Printing and publishing | 4 | 8 | 10 | *10* |
| 351 Industrial chemicals | - | *1* | 2 | *2* |
| 352 Other chemical products | 1 | 3 | 4 | *3* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | *2* | 2 | *4* | *4* |
| 356 Plastic products | *1* | *3* | *4* | *6* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | 1 | - |
| 369 Other non-metal mineral products | 3 | -3 | 5 | *2* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 3 | 5 | 10 | *9* |
| 382 Non-electrical machinery | 5 | 11 | 3 | *5* |
| 383 Electrical machinery | 3 | 8 | 1 | *4* |
| 384 Transport equipment | 1 | 2 | 1 | *2* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 3 | 1 | 1 | - |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

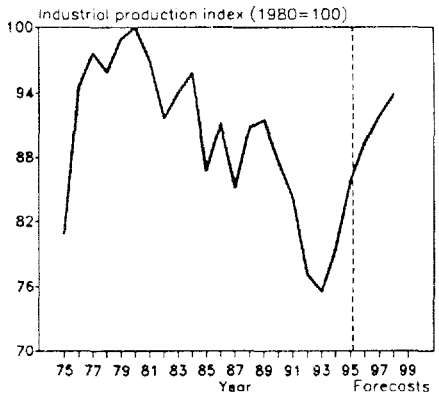
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

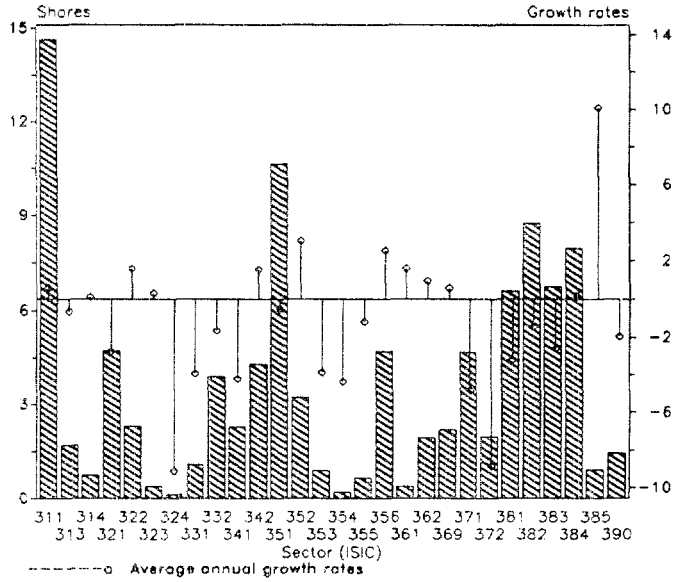



Industrial production index (1980=100)

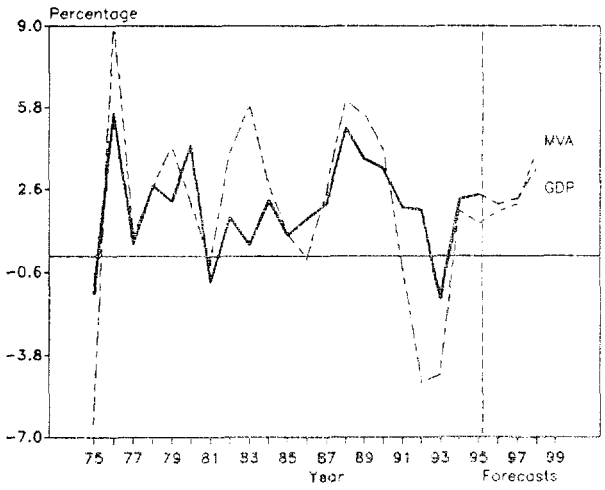


**BELGIUM**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

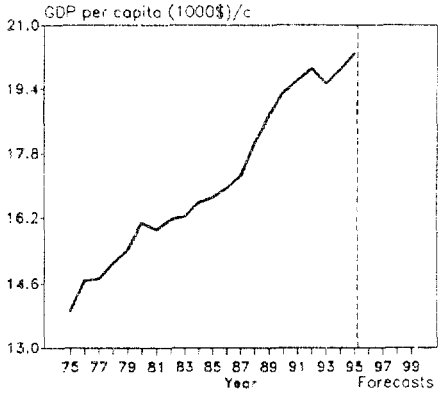



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

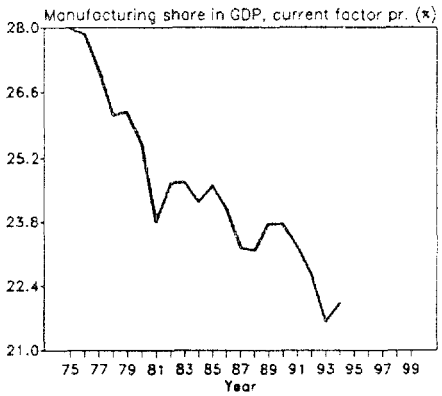
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [ns] (millions of 1990-dollars) | 158 406 | 164 715 | 192 174 | 200 488 |
| Per capita [ns] (1990-dollars) | 16 079 | 16 710 | 19 312 | 19 890 |
| Manufacturing share [ns] (%) (current factor prices) | 25.5 | 24.6 | 23.8 | *22.1* |
| **MANUFACTURING:** | | | | |
| Value added [ns] (millions of 1990-dollars) | 32 018 | 36 333 | 43 280 | 39 724 |
| Industrial production index (1980=100) | 100 | 108 | 128 | 118 |
| Value added (millions of dollars) | 28 130 | 18 229 | 42 213 | 44 163 |
| Gross output (millions of dollars) | *94 373* | *67 382* | *148 452* | 155 650 |
| Employment (thousands) | 872 | 755 | 735 | *676* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *70* | *73* | *72* | 72 |
| Wages and salaries including supplements | *15* | *12* | *11* | *12* |
| Gross operating surplus (%) | *15* | *15* | *17* | *17* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *102 512* | *84 112* | *190 250* | *216 108* |
| Value added per worker | 30 556 | 22 755 | 54 098 | *61 596* |
| Average wage (including supplements) | *16 066* | *10 617* | *22 774* | *26 600* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 6.37 | 6.31 | 6.36 | 5.71 |
| as a percentage of 1970-1975 structural change | 100 | 99 | 100 | 90 |
| MVA growth rate per structural change (%) | 1.18 | 0.21 | 0.92 | 0.92 |
| Degree of specialization | 12.5 | 14.0 | 12.8 | 13.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 3 991 | 2 863 | 5 814 | 6 574 |
| 313 Beverages | 549 | 359 | 678 | 730 |
| 314 Tobacco products | 199 | 123 | 310 | 340 |
| 321 Textiles | 1 445 | 937 | 2 065 | 2 056 |
| 322 Wearing apparel | 671 | 392 | 914 | 1 069 |
| 323 Leather and fur products | 136 | 93 | 143 | 163 |
| 324 Footwear | 67 | 35 | 56 | 40 |
| 331 Wood and wood products | 226 | 131 | 503 | 447 |
| 332 Furniture and fixtures | 1 123 | 614 | 1 613 | 1 632 |
| 341 Paper and paper products | 612 | 441 | 1 042 | 929 |
| 342 Printing and publishing | 926 | 602 | 1 677 | 1 968 |
| 351 Industrial chemicals | 2 401 | 2 250 | 4 483 | 4 771 |
| 352 Other chemical products | 665 | 467 | 1 199 | 1 491 |
| 353 Petroleum refineries | *465* | *197* | *383* | 353 |
| 354 Miscellaneous petroleum and coal products | *124* | *51* | *91* | 82 |
| 355 Rubber products | 193 | 130 | 272 | 285 |
| 356 Plastic products | 819 | 633 | 1 716 | 2 045 |
| 361 Pottery, china and earthenware | 107 | 61 | 150 | 177 |
| 362 Glass and glass products | 516 | 289 | 761 | 881 |
| 369 Other non-metal mineral products | 654 | 307 | 872 | 1 000 |
| 371 Iron and steel | 2 294 | 985 | 2 305 | 2 040 |
| 372 Non-ferrous metals | 487 | 417 | 1 140 | 787 |
| 381 Metal products | 2 071 | 1 228 | 2 954 | 2 755 |
| 382 Non-electrical machinery | 2 490 | 1 556 | 3 826 | 3 906 |
| 383 Electrical machinery | 2 303 | 1 451 | 3 034 | 2 919 |
| 384 Transport equipment | 1 892 | 1 217 | 3 329 | 3 632 |
| 385 Professional and scientific equipment | 170 | 106 | 282 | 493 |
| 390 Other manufacturing industries | 537 | 294 | 603 | 598 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

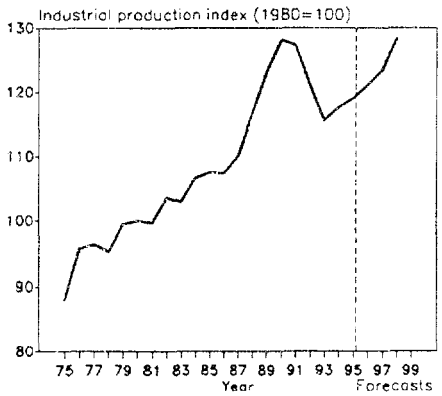
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

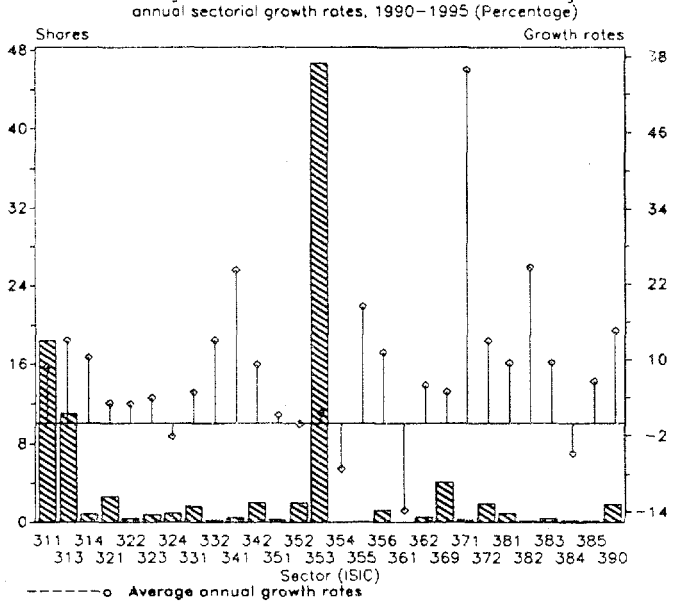



Industrial production index (1980=100)

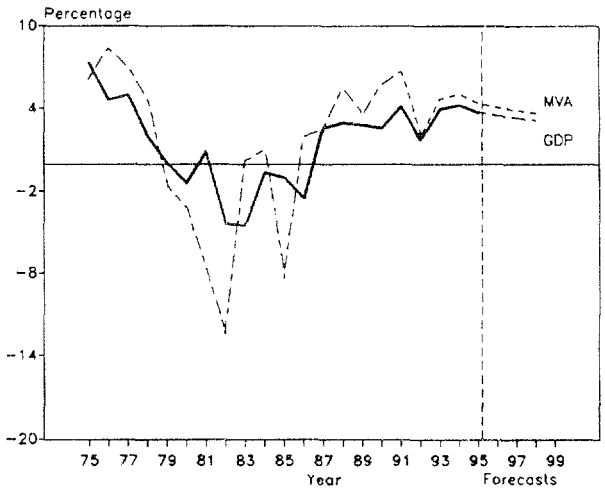


**BOLIVIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



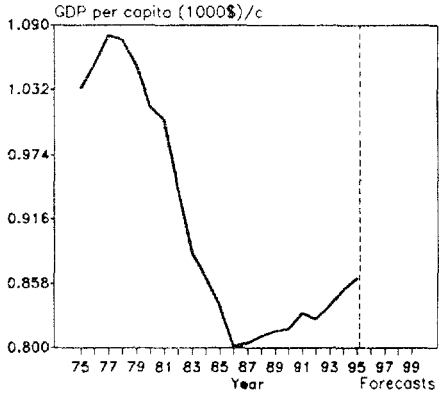

Annual growth rates of GDP and MVA (Constant 1990 prices)



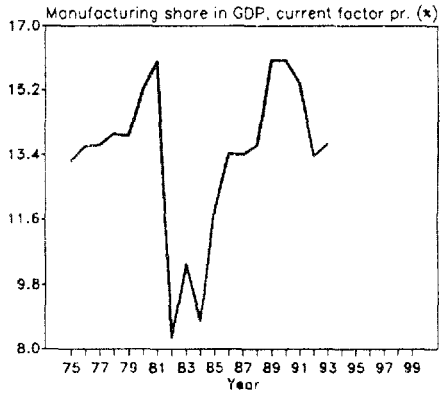

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 5 445 | 4 943 | 5 373 | 6 169 |
| *Per capita* [na] *(1990-dollars)* | 1 017 | 839 | 817 | 852 |
| Manufacturing share [na] (%) (current factor prices) | 15.2 | 11.8 | *16.0* | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 953 | 715 | 862 | *1 029* |
| *Industrial production index (1980=100)* | *100* | *65* | *77* | *92* |
| Value added (millions of dollars) | 619 | 394 | 640 | *847* |
| Gross output (millions of dollars) | 1 698 | 1 078 | 1 417 | *1 907* |
| Employment (thousands) | 43 | 28 | 28 | *34* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 64 | 64 | 55 | *56* |
| Wages and salaries including supplements | 8 | 6 | 6 | *6* |
| Gross operating surplus and net taxes (%) | 28 | 31 | 39 | *38* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 38 348 | 38 228 | 49 821 | *54 533* |
| Value added per worker | 13 977 | 13 947 | 22 468 | *24 238* |
| Average wage (including supplements) | 3 147 | 2 129 | 3 149 | *3 399* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 21.84 | 32.61 | 43.96 | *25.82* |
| as a percentage of 1970-1975 structural change | 100 | 149 | 201 | *118* |
| MVA growth rate per structural change (%) | 3.60 | 0.80 | 0.18 | 0.33 |
| Degree of specialization | 25.9 | 40.5 | 46.2 | 41.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 93 | 193 | 104 | *162* |
| 313 Beverages | 57 | 34 | 51 | *99* |
| 314 Tobacco products | 21 | 4 | 5 | *8* |
| 321 Textiles | 34 | 26 | 18 | *23* |
| 322 Wearing apparel | 6 | 3 | 3 | *3* |
| 323 Leather and fur products | 5 | 2 | 5 | *6* |
| 324 Footwear | 24 | 14 | 8 | *7* |
| 331 Wood and wood products | 15 | 5 | 11 | *14* |
| 332 Furniture and fixtures | 2 | 1 | 1 | *2* |
| 341 Paper and paper products | - | 1 | 1 | *4* |
| 342 Printing and publishing | 14 | 9 | 12 | *19* |
| 351 Industrial chemicals | 3 | 2 | 2 | *2* |
| 352 Other chemical products | 16 | 11 | 15 | *15* |
| 353 Petroleum refineries | 159 | 29 | 336 | *375* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 1 | - | - | - |
| 356 Plastic products | 11 | 4 | 7 | *12* |
| 361 Pottery, china and earthenware | *1* | - | - | - |
| 362 Glass and glass products | 6 | 6 | 3 | *4* |
| 369 Other non-metal mineral products | 21 | 28 | 29 | *36* |
| 371 Iron and steel | 1 | 1 | - | *3* |
| 372 Non-ferrous metals | 89 | 14 | 10 | *18* |
| 381 Metal products | 14 | 4 | 5 | *8* |
| 382 Non-electrical machinery | 16 | - | 1 | *1* |
| 383 Electrical machinery | 3 | 1 | 2 | *4* |
| 384 Transport equipment | 5 | - | 2 | *2* |
| 385 Professional and scientific equipment | 1 | 1 | 1 | *1* |
| 390 Other manufacturing industries | 2 | - | 8 | *17* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

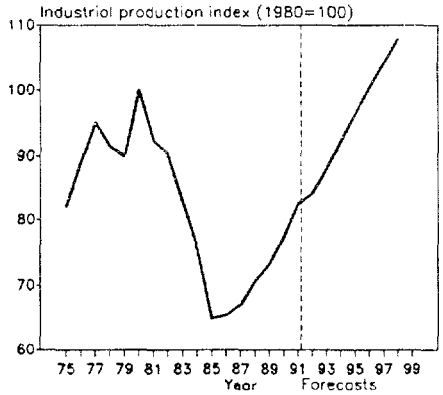
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

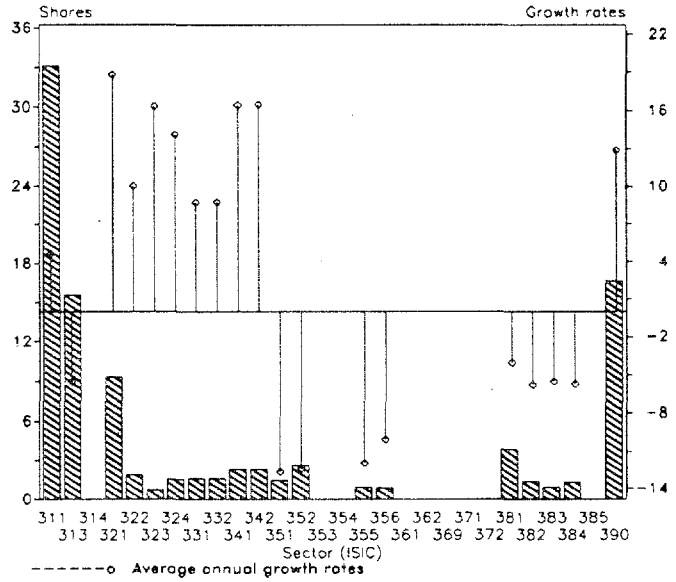



Industrial production index (1980=100)

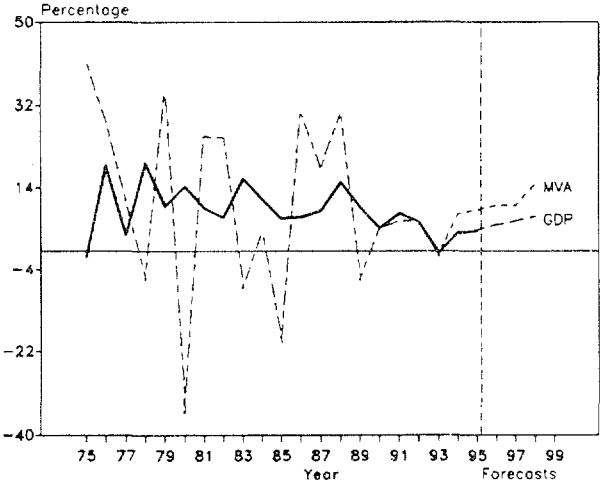


**BOTSWANA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

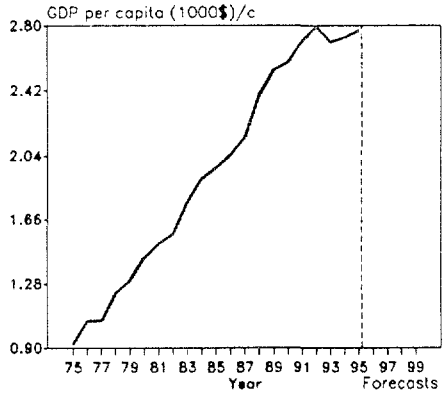



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

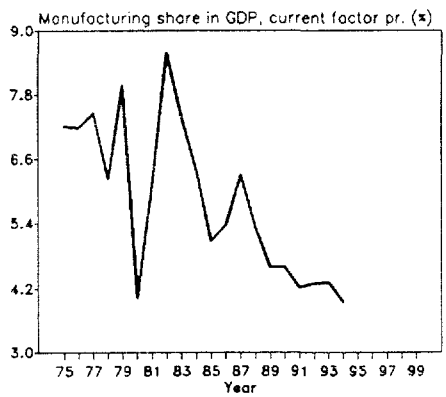
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 298 | 2 119 | 3 296 | 3 940 |
| Per capita [na] (1990-dollars) | 1 433 | 1 968 | 2 583 | 2 731 |
| Manufacturing share [na] (%) (current factor prices) | 4.0 | 5.1 | 4.6 | *3.9* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 62 | 74 | 144 | *175* |
| Industrial production index (1980=100) | 100 | 169 | 290 | *352* |
| Value added (millions of dollars) | 41 | 46 | *140* | 186 |
| Gross output (millions of dollars) | 149 | 169 | *552* | *794* |
| Employment (thousands) | 5 | 10 | 24 | 22 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 73 | 73 | *75* | *77* |
| Wages and salaries including supplements | *14* | *11* | *10* | *12* |
| Gross operating surplus and net taxes (%) | *14* | *16* | 15 | *11* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 27 102 | 16 581 | *22 719* | *35 784* |
| Value added per worker | 7 445 | 4 518 | *5 773* | 8 386 |
| Average wage (including supplements) | *3 664* | *1 880* | *2 293* | *4 354* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *3.10* | *13.72* | *14.66* | *14.29* |
| as a percentage of 1970-1975 structural change | *100* | *442* | *472* | *461* |
| MVA growth rate per structural change (%) | 11.04 | 2.53 | 5.05 | 3.32 |
| Degree of specialization | 33.7 | 27.1 | 25.6 | 27.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 13 | 14 | *45* | 61 |
| 313 Beverages | 4 | 10 | *30* | 24 |
| 314 Tobacco products | - | - | - | - |
| 321 Textiles | *4* | *2* | *8* | *21* |
| 322 Wearing apparel | *2* | *1* | *2* | *4* |
| 323 Leather and fur products | - | - | *1* | *2* |
| 324 Footwear | *1* | - | *2* | *3* |
| 331 Wood and wood products | - | - | *2* | *3* |
| 332 Furniture and fixtures | - | - | *2* | *3* |
| 341 Paper and paper products | - | *1* | *2* | *5* |
| 342 Printing and publishing | - | *1* | *2* | *5* |
| 351 Industrial chemicals | - | *1* | *3* | *2* |
| 352 Other chemical products | - | *1* | *6* | *3* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | *2* | *1* |
| 356 Plastic products | - | - | *2* | *1* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | - | - | - | - |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | *1* | *2* | *6* | *6* |
| 382 Non-electrical machinery | *1* | *1* | *2* | *2* |
| 383 Electrical machinery | - | *1* | *2* | *1* |
| 384 Transport equipment | *1* | *1* | *2* | *2* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 12 | 8 | *19* | 37 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

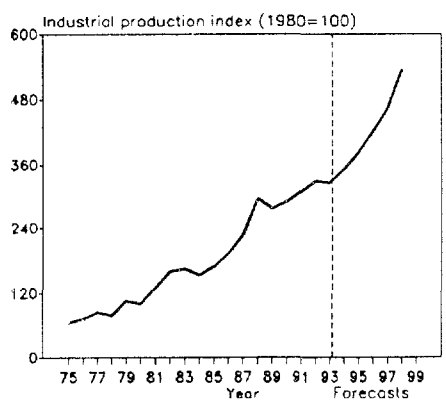
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

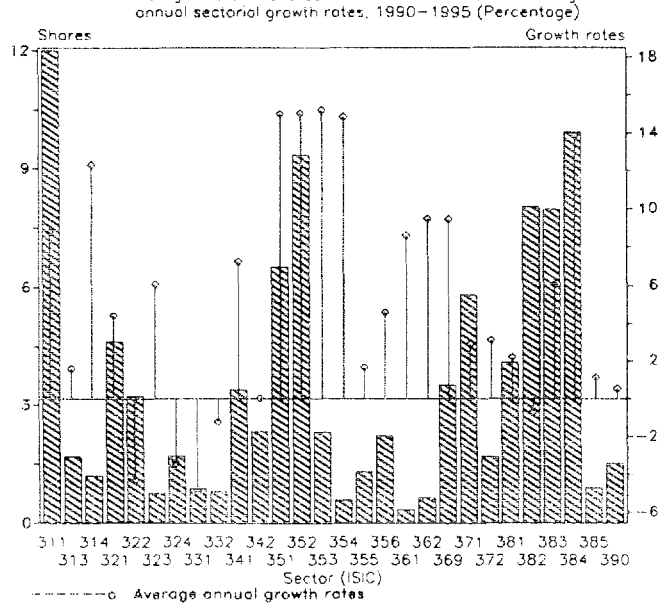



Industrial production index (1980=100)

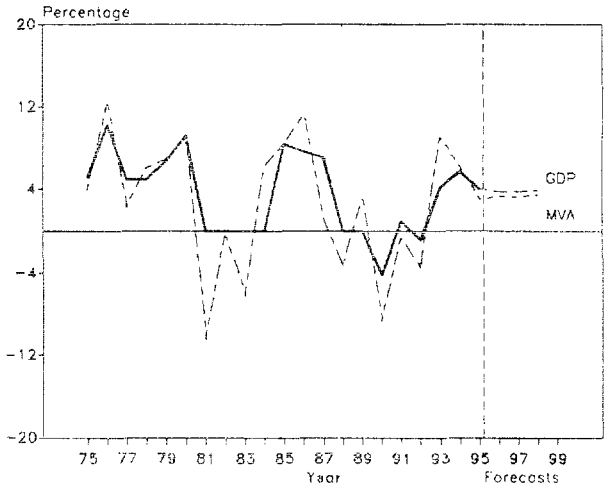


**BRAZIL**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



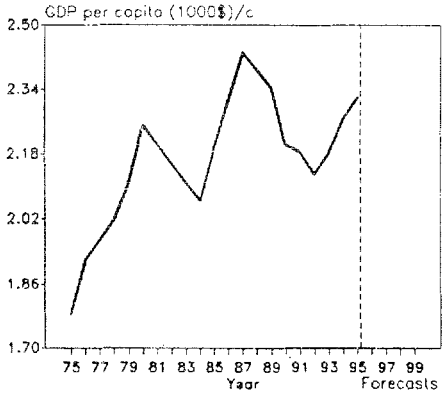

Annual growth rates of GDP and MVA (Constant 1990 prices)



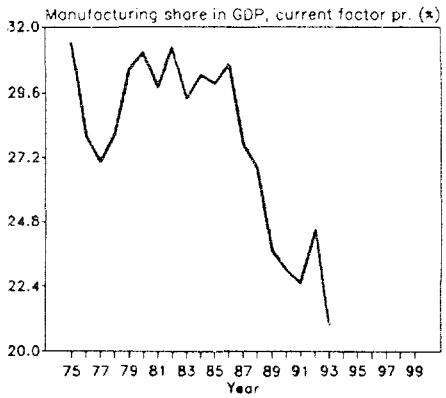

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP: [na] (millions of 1990-dollars)** | 273 079 | 295 835 | 327 129 | 360 879 |
| Per capita [na] (1990-dollars) | 2 252 | 2 191 | 2 203 | 2 268 |
| Manufacturing share [na] (%) (current factor prices) | 31.1 | 30.0 | 23.0 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 75 491 | 72 703 | 74 263 | *82 231* |
| Industrial production index (1980=100) | 100 | 107 | 109 | *121* |
| Value added (millions of dollars) | 71 700 | 77 082 | 85 189 | *154 425* |
| Gross output (millions of dollars) | 189 076 | 174 341 | 175 803 | *285 569* |
| Employment (thousands) | 5 562 | 5 501 | 4 688 | *4 698* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 62 | 56 | 52 | *46* |
| Wages and salaries including supplements | 10 | *9* | *11* | *12* |
| Gross operating surplus and net taxes (%) | 28 | *36* | *37* | *42* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 33 993 | 31 692 | 37 131 | *60 670* |
| Value added per worker | 12 891 | 14 012 | 17 992 | *34 853* |
| Average wage (including supplements) | 3 400 | *2 756* | *4 230* | *7 072* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 8.01 | 9.69 | *9.59* | *13.45* |
| as a percentage of 1970-1975 structural change | 100 | 121 | *120* | *168* |
| MVA growth rate per structural change (%) | 9.91 | 3.60 | -0.03 | -0.12 |
| Degree of specialization | 8.9 | 10.0 | 10.4 | 11.8 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 7 996 | 9 259 | 8 687 | *19 394* |
| 313 Beverages | 1 375 | 957 | 1 388 | *2 313* |
| 314 Tobacco products | 495 | 587 | 726 | *1 940* |
| 321 Textiles | 4 860 | 4 586 | 3 862 | *7 101* |
| 322 Wearing apparel | 2 307 | 2 639 | *3 816* | *4 408* |
| 323 Leather and fur products | 309 | 464 | *584* | *1 155* |
| 324 Footwear | 985 | 1 353 | *1 957* | *2 359* |
| 331 Wood and wood products | 1 903 | 1 220 | 951 | *1 158* |
| 332 Furniture and fixtures | 1 087 | 949 | 843 | *1 130* |
| 341 Paper and paper products | 2 238 | 2 260 | 2 556 | *5 282* |
| 342 Printing and publishing | 1 901 | 1 496 | 2 305 | *3 400* |
| 351 Industrial chemicals | 3 428 | *5 379* | *6 346* | *10 907* |
| 352 Other chemical products | 3 544 | *7 296* | *9 025* | *15 655* |
| 353 Petroleum refineries | 3 075 | *2 058* | *2 265* | *3 910* |
| 354 Miscellaneous petroleum and coal products | 1 216 | *612* | *594* | *966* |
| 355 Rubber products | 941 | 1 420 | 1 059 | *1 770* |
| 356 Plastic products | 1 994 | 1 742 | 1 847 | *3 387* |
| 361 Pottery, china and earthenware | 200 | 844 | *249* | *537* |
| 362 Glass and glass products | 558 | 525 | *466* | *1 036* |
| 369 Other non-metal mineral products | 3 447 | 1 941 | *2 553* | *5 675* |
| 371 Iron and steel | 4 128 | 4 927 | *5 198* | *8 833* |
| 372 Non-ferrous metals | 1 115 | 1 564 | *1 496* | *2 564* |
| 381 Metal products | 3 599 | 3 063 | *3 711* | *6 081* |
| 382 Non-electrical machinery | 7 171 | 7 092 | 8 355 | *11 600* |
| 383 Electrical machinery | 4 536 | 5 831 | 6 341 | *12 329* |
| 384 Transport equipment | 5 625 | 4 954 | 5 652 | *15 994* |
| 385 Professional and scientific equipment | 453 | 910 | *861* | *1 310* |
| 390 Other manufacturing industries | 1 216 | 1 154 | *1 497* | *2 230* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

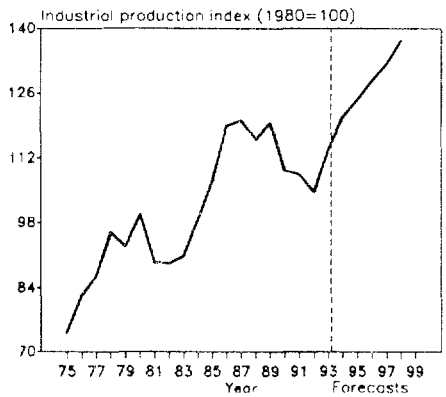
GDP per capita (1000$)/c



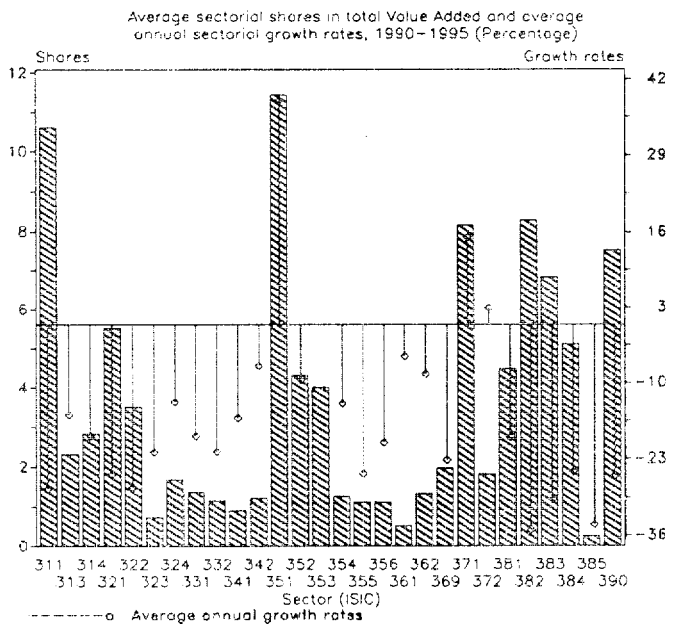

Manufacturing share in GDP, current factor pr. (*)

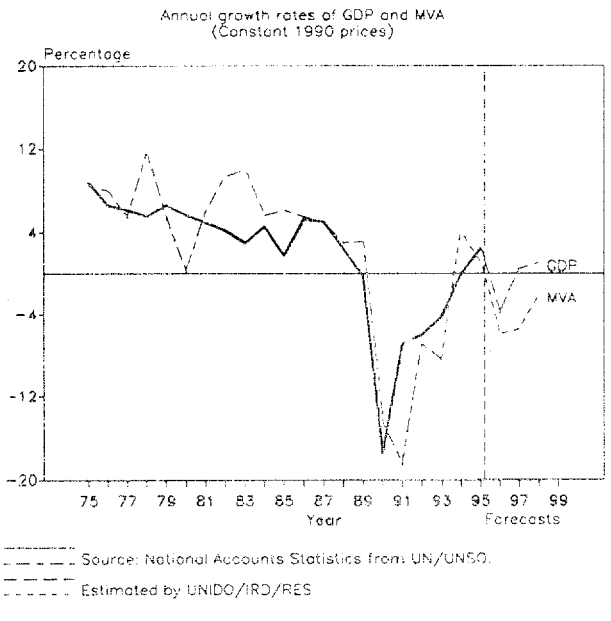



Industrial production index (1980=100)



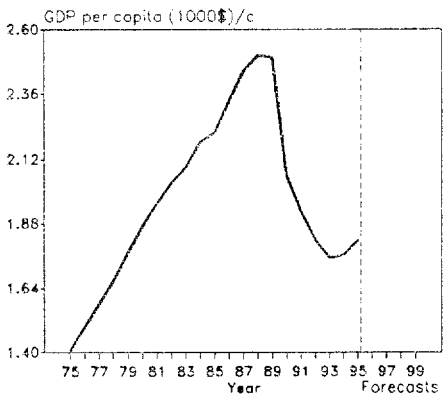
**BULGARIA**

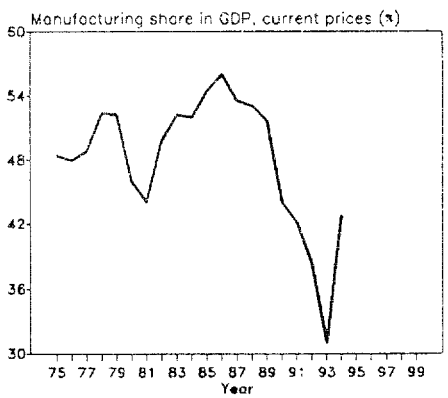


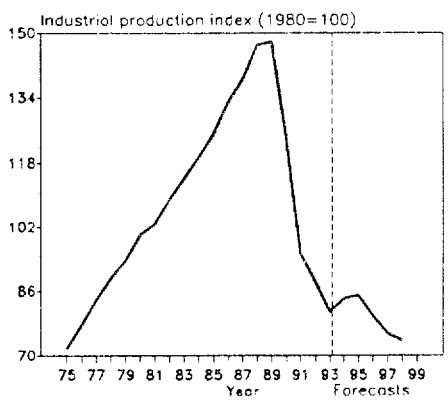




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 16 571 | 19 885 | 18 543 | 15 544 |
| Per capita [na] (1990-dollars) | 1 870 | 2 219 | 2 062 | 1 763 |
| Manufacturing share [na] (%) (current factor prices) | 46 0 | 54.4 | 44.0 | *42.8* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 5 715 | 8 153 | 8 166 | *5 883* |
| Industrial production index (1980=100) | 100 | 125 | 124 | *84* |
| Value added (millions of dollars) | 11 771 | 20 759 | 10 227 | 5 889 |
| Gross output (millions of dollars) | *25 818* | *44 413* | 21 453 | 7 835 |
| Employment (thousands) | 1 260 | 1 316 | 1 374 | 744 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *54* | *53* | 52 | 25 |
| Wages and salaries including supplements | *8* | *7* | *10* | 9 |
| Gross operating surplus and net taxes (%) | *38* | *39* | *38* | 66 |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *21 221* | *35 355* | 16 252 | 11 262 |
| Value added per worker | 9 675 | 16 525 | 7 748 | 8 464 |
| Average wage (including supplements) | *1 737* | *2 649* | *1 693* | *1 195* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *12.26* | 12.13 | 5.46 | 26.58 |
| as a percentage of 1970-1975 structural change | *100* | 99 | 45 | 217 |
| MVA growth rate per structural change (%) | 6.62 | 5.41 | 2.17 | -0.71 |
| Degree of specialization | 12.4 | 12.8 | 13.8 | 21.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 1 870 | 3 093 | 1 429 | 392 |
| 313 Beverages | 308 | 504 | 230 | 133 |
| 314 Tobacco products | 426 | 627 | 260 | 125 |
| 321 Textiles | 904 | 1 421 | 760 | 240 |
| 322 Wearing apparel | 517 | 967 | 518 | 141 |
| 323 Leather and fur products | 84 | 179 | 91 | 31 |
| 324 Footwear | 156 | 332 | 169 | 97 |
| 331 Wood and wood products | 248 | 384 | 142 | 68 |
| 332 Furniture and fixtures | 233 | 365 | 137 | 56 |
| 341 Paper and paper products | 119 | 186 | 84 | 47 |
| 342 Printing and publishing | 83 | 146 | 86 | 76 |
| 351 Industrial chemicals | 404 | 671 | 264 | 1 945 [b] |
| 352 Other chemical products | 291 | 585 | 292 | *224* [b] |
| 353 Petroleum refineries | .. | .. | .. | |
| 354 Miscellaneous petroleum and coal products | 126 | 179 | 93 | *61* |
| 355 Rubber products | 227 | 350 | 134 | *44* |
| 356 Plastic products | 110 | 234 | 123 | *46* |
| 361 Pottery, china and earthenware | 45 | 63 | 38 | 37 |
| 362 Glass and glass products | 121 | 178 | 109 | 87 |
| 369 Other non-metal mineral products | 469 | 685 | 242 | 92 |
| 371 Iron and steel | 447 | 636 | 285 | 712 |
| 372 Non-ferrous metals | 189 | 342 | 105 | 145 |
| 381 Metal products | 484 | 946 | 529 | 211 |
| 382 Non-electrical machinery | *1 614* | *2 850* | *1 407* | 227 |
| 383 Electrical machinery | 743 | 1 585 | 968 | 192 |
| 384 Transport equipment | 567 | 1 194 | 714 | 197 |
| 385 Professional and scientific equipment | *49* | *88* | *43* | *7* |
| 390 Other manufacturing industries | 937 | 1 967 | 974 | 257 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

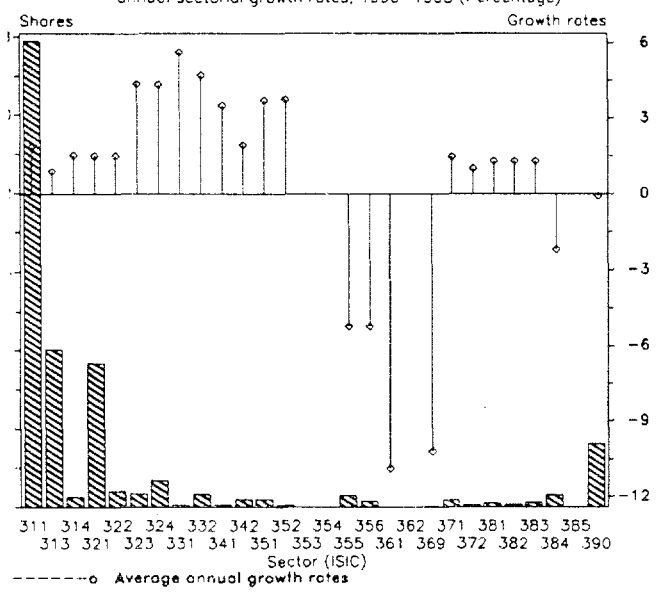


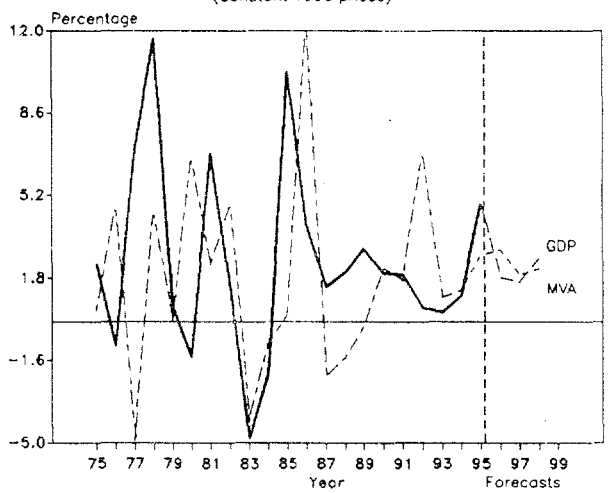



**BURKINA FASO**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

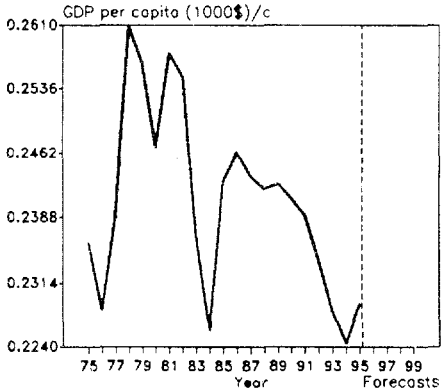



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

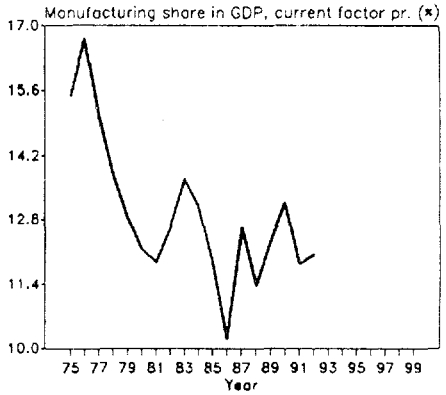
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 718 | 1 915 | 2 165 | 2 255 |
| Per capita [na] (1990-dollars) | 247 | 243 | 241 | 224 |
| Manufacturing share [na] (%) (current factor prices) | 12.2 | 11.9 | 13.2 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 231 | 235 | 258 | *287* |
| Industrial production index (1980=100) | 100 | 110 | 130 | *136* |
| Value added (millions of dollars) | 144 | *120* | *201* | *131* |
| Gross output (millions of dollars) | 391 | *318* | *596* | *420* |
| Employment (thousands) | 8 | *9* | *10* | *10* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 63 | *62* | *66* | *69* |
| Wages and salaries including supplements | 8 | *7* | *8* | *8* |
| Gross operating surplus (%) | 28 | *31* | *26* | *24* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 47 326 | *36 048* | *62 714* | *41 717* |
| Value added per worker | 17 465 | *13 637* | *21 189* | *13 073* |
| Average wage (including supplements) | 4 021 | *2 637* | *5 028* | *3 257* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 8.07 | *7.91* | *5.27* | *3.13* |
| as a percentage of 1970-1975 structural change | 100 | *98* | *65* | *39* |
| MVA growth rate per structural change (%) | 1.73 | 1.48 | 2.38 | 1.25 |
| Degree of specialization | 36.8 | 43.0 | 43.2 | 43.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 55 | *56* | *95* | *63* |
| 313 Beverages | 29 | *20* | *33* | *21* |
| 314 Tobacco products | 1 | *1* | *2* | *1* |
| 321 Textiles | 20 | *18* | *29* | *19* |
| 322 Wearing apparel | 2 | *2* | *3* | *2* |
| 323 Leather and fur products | 2 | *1* | *3* | *2* |
| 324 Footwear | 3 | *3* | *5* | *4* |
| 331 Wood and wood products | - | - | - | - |
| 332 Furniture and fixtures | 2 | *1* | *2* | *2* |
| 341 Paper and paper products | - | - | - | - |
| 342 Printing and publishing | 1 | *1* | *2* | *1* |
| 351 Industrial chemicals | 1 | *1* | *1* | *1* |
| 352 Other chemical products | - | - | - | - |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 4 | *2* | *3* | *1* |
| 356 Plastic products | 2 | *1* | *1* | *1* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | - | - | - | - |
| 371 Iron and steel | *1* | *1* | *1* | *1* |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 1 | - | *1* | - |
| 382 Non-electrical machinery | 1 | - | - | - |
| 383 Electrical machinery | 1 | - | *1* | *1* |
| 384 Transport equipment | 3 | *1* | *3* | *2* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 12 | *9* | *13* | *8* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

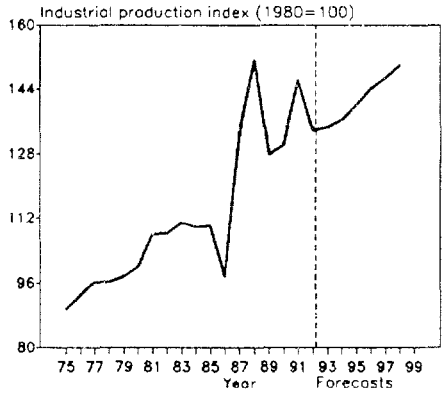
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

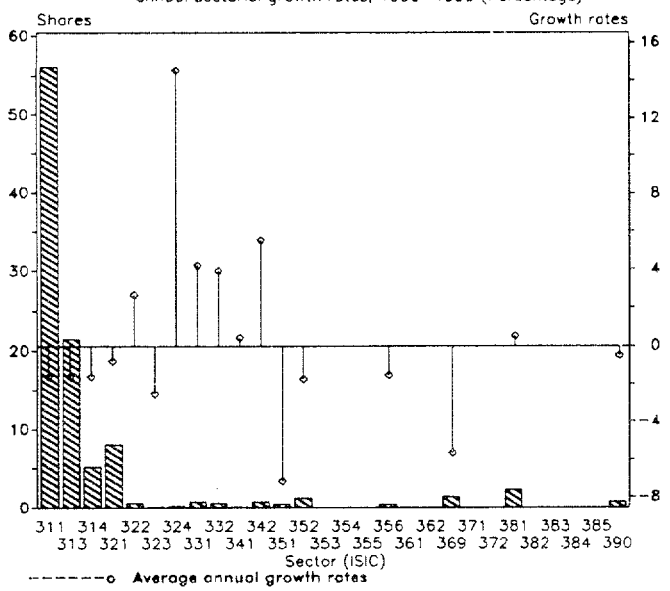



Industrial production index (1980=100)

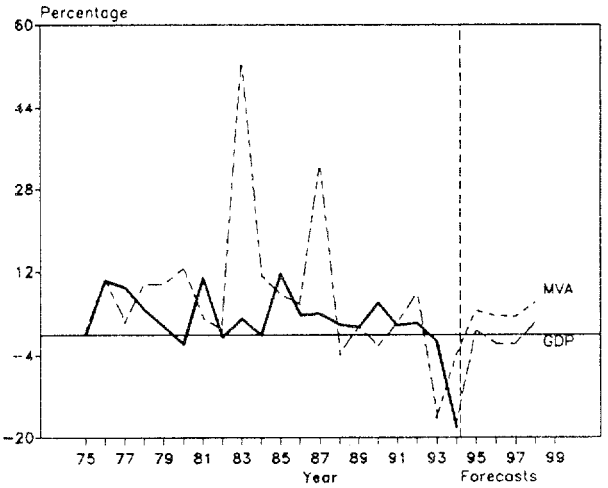


**BURUNDI**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

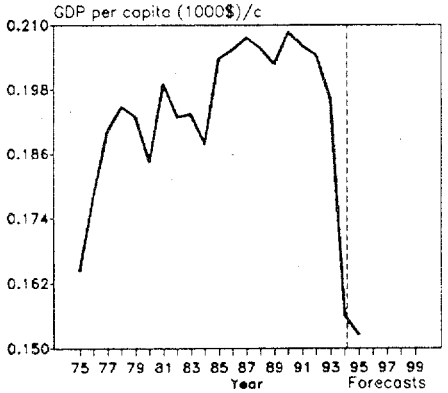



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

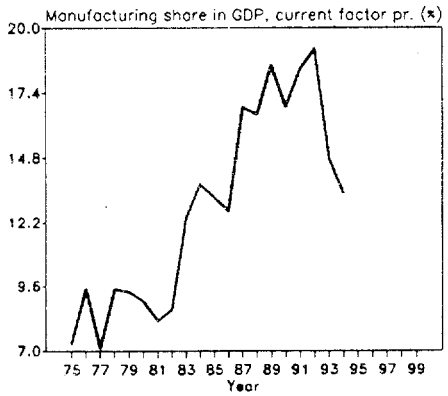
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 762 | 968 | 1 148 | 969 |
| Per capita [na] (1990-dollars) | 184 | 204 | 209 | 156 |
| Manufacturing share [na] (%) (current factor prices) | 9.0 | 13.2 | 16.8 | *13.4* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 75 | 142 | 189 | *167* |
| Industrial production index (1980=100) | 100 | *142* | *174* | *188* |
| Value added (millions of dollars) | 56 | *94* | 105 | *94* |
| Gross output (millions of dollars) | 95 | *190* | *209* | *172* |
| Employment (thousands) | 3 | *5* | 7 | *8* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 41 | *51* | *50* | *45* |
| Wages and salaries including supplements | 9 | *8* | *10* | *12* |
| Gross operating surplus and net taxes (%) | 51 | *41* | *40* | *43* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 27 639 | *38 404* | *31 820* | *22 221* |
| Value added per worker | 16 370 | *19 249* | 16 048 | *12 368* |
| Average wage (including supplements) | 2 357 | *3 169* | 3 303 | *2 742* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 19.13 | *17.04* | *6.90* | *6.10* |
| as a percentage of 1970-1975 structural change | 100 | *89* | *36* | *32* |
| MVA growth rate per structural change (%) | 1.45 | 2.78 | 4.54 | 1.87 |
| Degree of specialization | 41.1 | 48.9 | 49.3 | 49.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 30 | *51* | 59 | *53* |
| 313 Beverages | 11 | *20* | 23 | *20* |
| 314 Tobacco products | 3 | *5* | 5 | *5* |
| 321 Textiles | 2 | *9* | 9 | *8* |
| 322 Wearing apparel | 3 | *1* | 1 | *1* |
| 323 Leather and fur products | 1 | - | - | - |
| 324 Footwear | - | - | - | - |
| 331 Wood and wood products | - | - | *1* | *1* |
| 332 Furniture and fixtures | - | - | *1* | *1* |
| 341 Paper and paper products | - | - | - | - |
| 342 Printing and publishing | 1 | *1* | 1 | *1* |
| 351 Industrial chemicals | 1 | *1* | - | - |
| 352 Other chemical products | - | *1* | 1 | *1* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | - | - |
| 356 Plastic products | - | *1* | - | - |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | 1 | 2 | 2 | *1* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 2 | *3* | 2 | *2* |
| 382 Non-electrical machinery | - | - | - | - |
| 383 Electrical machinery | - | - | - | - |
| 384 Transport equipment | - | - | - | - |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | - | - | *1* | *1* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

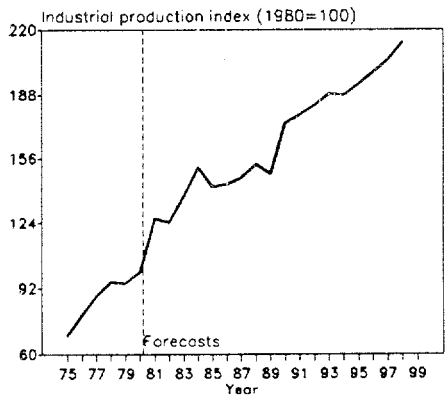
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

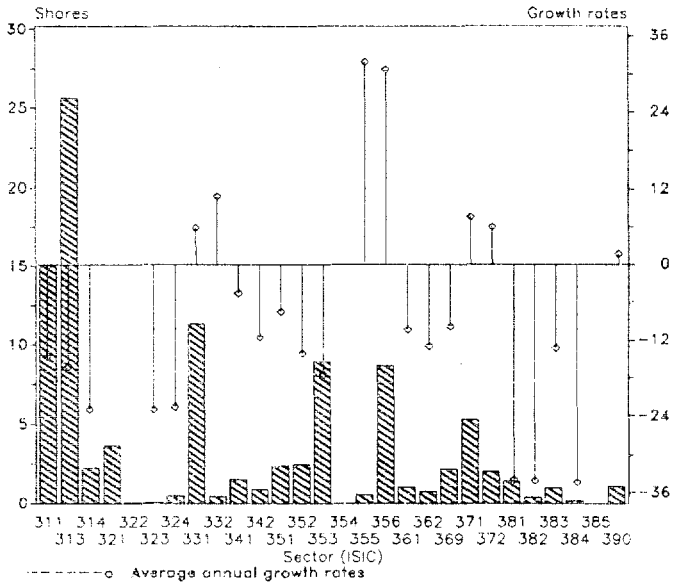



Industrial production index (1980=100)

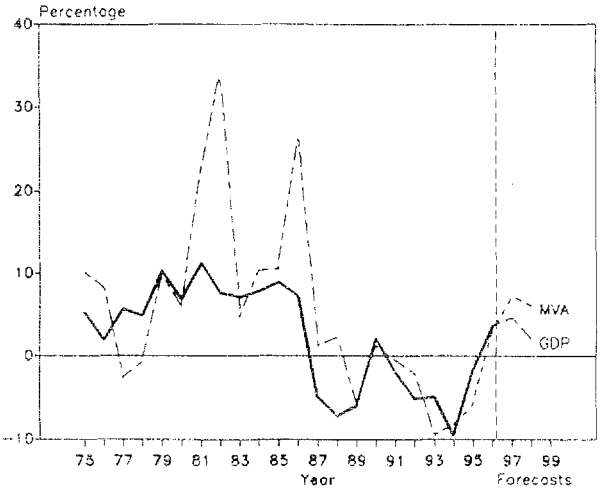


**CAMEROON**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

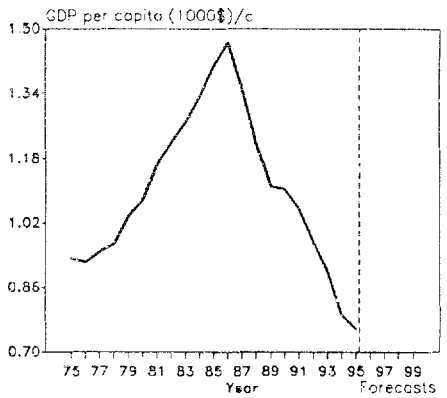



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

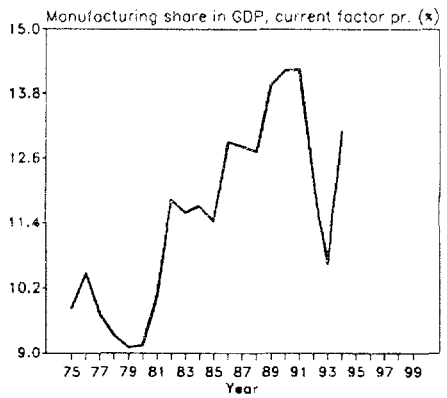
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 9 332 | 14 036 | 12 735 | 10 195 |
| Per capita [na] (1990-dollars) | 1 078 | 1 408 | 1 105 | 792 |
| Manufacturing share [na] (%) (current factor prices) | 9.2 | 11.4 | 14.2 | 13.1 |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 689 | 1 437 | 1 781 | *1 437* |
| Industrial production index (1980=100) | 100 | 151 | 176 | *144* |
| Value added (millions of dollars) | *692* | *702* | 826 | 470 |
| Gross output (millions of dollars) | *1 708* | *1 480* | 2 530 | 1 333 |
| Employment (thousands) | *51* | *67* | 50 | 50 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *60* | *53* | 67 | 65 |
| Wages and salaries including supplements | *14* | *15* | *15* | *12* |
| Gross operating surplus and net taxes (%) | *26* | *32* | *18* | *23* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *33 434* | *22 199* | 50 106 | 26 897 |
| Value added per worker | *13 583* | *10 398* | 16 357 | 9 490 |
| Average wage (including supplements) | *4 794* | *3 261* | *7 281* | *3 332* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *25.22* | *19.87* | *22.60* | *24.58* |
| as a percentage of 1970-1975 structural change | *100* | *79* | *90* | *97* |
| MVA growth rate per structural change (%) | 2.17 | 2.47 | -0.01 | -0.76 |
| Degree of specialization | 24.3 | 23.4 | 23.7 | 24.7 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *187* | *135* | 185 | 54 |
| 313 Beverages | *183* | *195* | 294 | 89 |
| 314 Tobacco products | *24* | *26* | 23 | 5 |
| 321 Textiles | *36* | *51* | - 104 | 36 |
| 322 Wearing apparel | *10* | *9* | -9 | 1 |
| 323 Leather and fur products | *7* | *3* | *1* | - |
| 324 Footwear | *10* | *5* | *7* | *1* |
| 331 Wood and wood products | *30* | *63* | 84 | 77 |
| 332 Furniture and fixtures | *13* | *16* | 3 | 3 |
| 341 Paper and paper products | *17* | *7* | 11 | 7 |
| 342 Printing and publishing | *20* | *8* | 6 | 3 |
| 351 Industrial chemicals | *10* | *18* | 17 | *9* |
| 352 Other chemical products | *12* | *21* | 21 | *7* |
| 353 Petroleum refineries | - | *10* | *114* | *32* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | *2* | *3* | *2* | *4* |
| 356 Plastic products | *16* | *20* | *24* | *66* |
| 361 Pottery, china and earthenware | *6* | *5* | 8 | *3* |
| 362 Glass and glass products | *4* | *4* | 6 | *2* |
| 369 Other non-metal mineral products | *12* | *10* | 16 | *7* |
| 371 Iron and steel | *24* | *35* | 38 | *38* |
| 372 Non-ferrous metals | *19* | *23* | 15 | *15* |
| 381 Metal products | *13* | *11* | *37* | *3* |
| 382 Non-electrical machinery | *18* | *11* | *11* | *1* |
| 383 Electrical machinery | *4* | *3* | 9 | 3 |
| 384 Transport equipment | *3* | *6* | 3 | - |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | *11* | *5* | 6 | 5 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

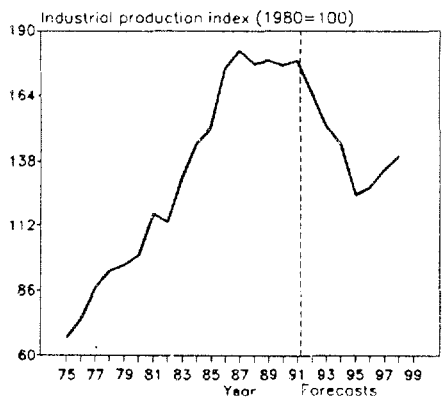
GDP per capita (1000$)/c



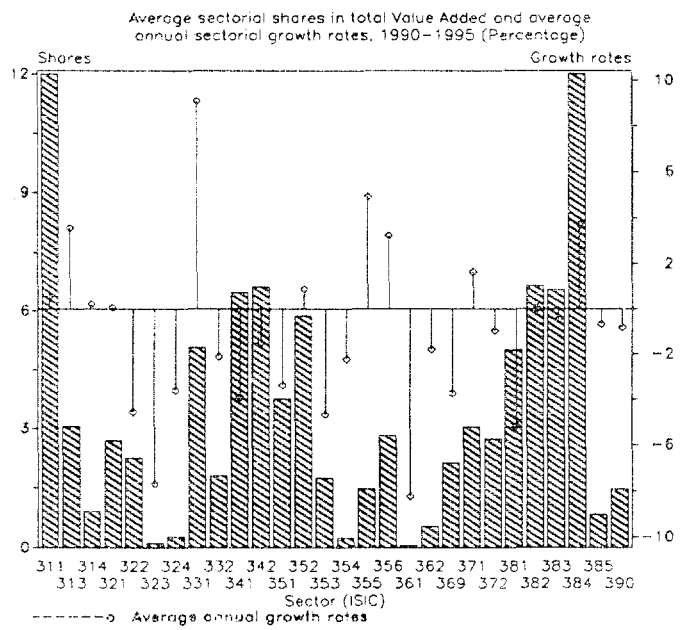

Manufacturing share in GDP, current factor pr. (%)

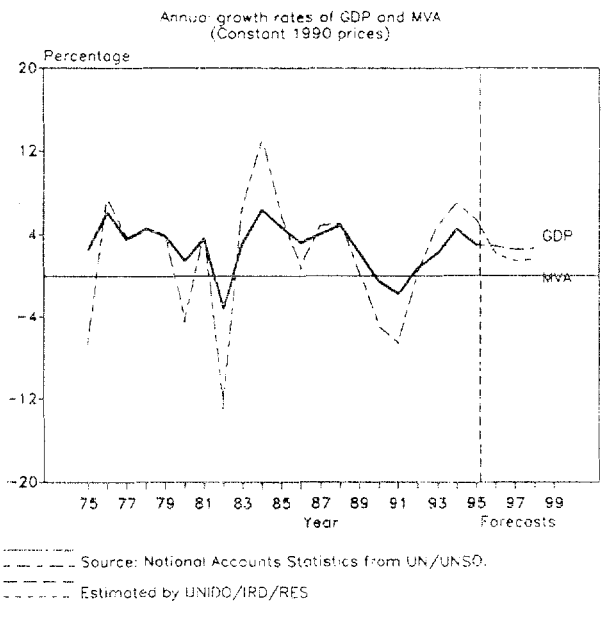



Industrial production index (1980=100)



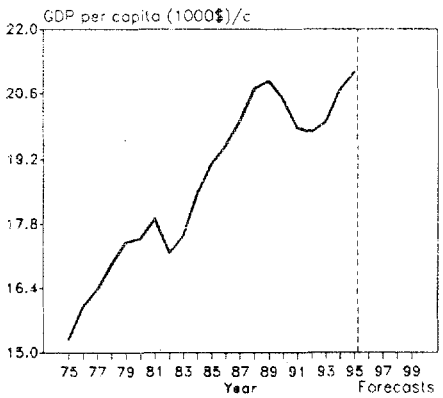
**CANADA**

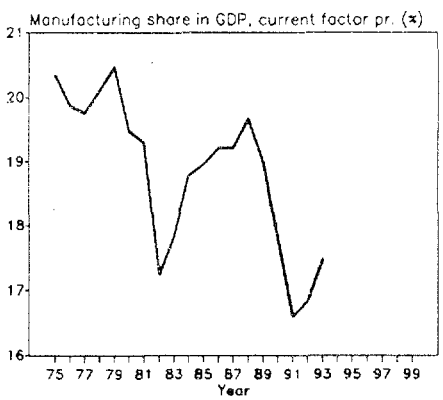


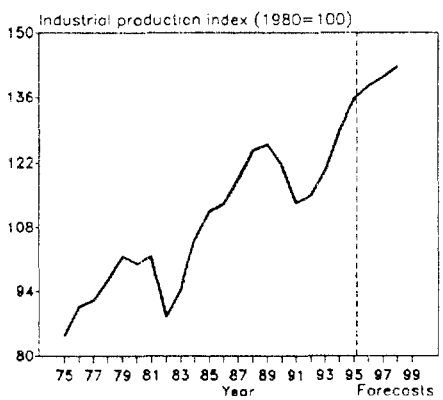




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 429 917 | 496 034 | 569 433 | 602 557 |
| Per capita [na] (1990-dollars) | 17 481 | 19 121 | 20 490 | 20 677 |
| Manufacturing share [na] (%) (current factor prices) | 19.5 | 19.0 | 17.7 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 74 712 | 85 669 | 90 399 | 94 853 |
| Industrial production index (1980=100) | 100 | 111 | 121 | 129 |
| Value added (millions of dollars) | 59 803 | 74 209 | 112 195 | *100 322* |
| Gross output (millions of dollars) | 167 211 | 211 017 | 295 448 | 286 933 |
| Employment (thousands) | 1 853 | 1 765 | 1 867 | *1 655* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 64 | 65 | 62 | *65* |
| Wages and salaries including supplements | 17 | 16 | 17 | *16* |
| Gross operating surplus and net taxes (%) | 19 | 19 | 21 | *19* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 89 995 | 119 306 | 158 104 | *166 552* |
| Value added per worker | 32 187 | 41 957 | 60 039 | *58 465* |
| Average wage (including supplements) | 15 296 | 19 168 | 27 543 | *26 916* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 4.03 | 5.96 | 6.09 | *6.30* |
| as a percentage of 1970-1975 structural change | 100 | 148 | 151 | *156* |
| MVA growth rate per structural change (%) | 5.66 | 2.28 | 1.08 | 0.59 |
| Degree of specialization | 10.3 | 11.0 | 11.5 | 12.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 6 142 | 8 001 | 12 701 | *11 740* |
| 313 Beverages | 1 660 | 2 189 | 2 948 | *3 131* |
| 314 Tobacco products | 479 | 608 | 977 | *894* |
| 321 Textiles | 2 130 | 2 152 | 2 974 | *2 679* |
| 322 Wearing apparel | 1 694 | 1 933 | 2 828 | *2 083* |
| 323 Leather and fur products | 154 | 154 | 163 | *105* |
| 324 Footwear | 299 | 344 | 334 | *264* |
| 331 Wood and wood products | 2 968 | 3 236 | 4 465 | *5 941* |
| 332 Furniture and fixtures | 1 044 | 1 332 | 2 245 | *1 763* |
| 341 Paper and paper products | 5 714 | 5 410 | 8 750 | *6 118* |
| 342 Printing and publishing | 3 054 | 4 517 | 7 671 | *6 359* |
| 351 Industrial chemicals | 2 164 | 2 570 | 4 808 | *3 596* |
| 352 Other chemical products | 2 421 | 3 755 | 6 256 | *5 855* |
| 353 Petroleum refineries | 1 531 | 1 867 | 2 271 | *1 654* |
| 354 Miscellaneous petroleum and coal products | 111 | 132 | 291 | *236* |
| 355 Rubber products | 873 | 1 069 | 1 397 | *1 583* |
| 356 Plastic products | 873 | 1 654 | 2 897 | *2 945* |
| 361 Pottery, china and earthenware | 43 | 29 | 69 | *43* |
| 362 Glass and glass products | 385 | 578 | 643 | *503* |
| 369 Other non-metal mineral products | 1 497 | 1 713 | 2 803 | *2 002* |
| 371 Iron and steel | 2 652 | 2 906 | 3 231 | *3 222* |
| 372 Non-ferrous metals | 2 190 | 2 284 | 3 222 | *2 674* |
| 381 Metal products | 4 414 | 4 363 | 6 454 | *4 622* |
| 382 Non-electrical machinery | 3 952 | 4 912 | 7 576 | *6 794* |
| 383 Electrical machinery | 3 849 | 4 531 | 7 465 | *6 435* |
| 384 Transport equipment | 5 911 | 10 088 | 14 124 | *14 824* |
| 385 Professional and scientific equipment | 667 | 659 | 926 | *820* |
| 390 Other manufacturing industries | 932 | 1 223 | 1 706 | *1 437* |

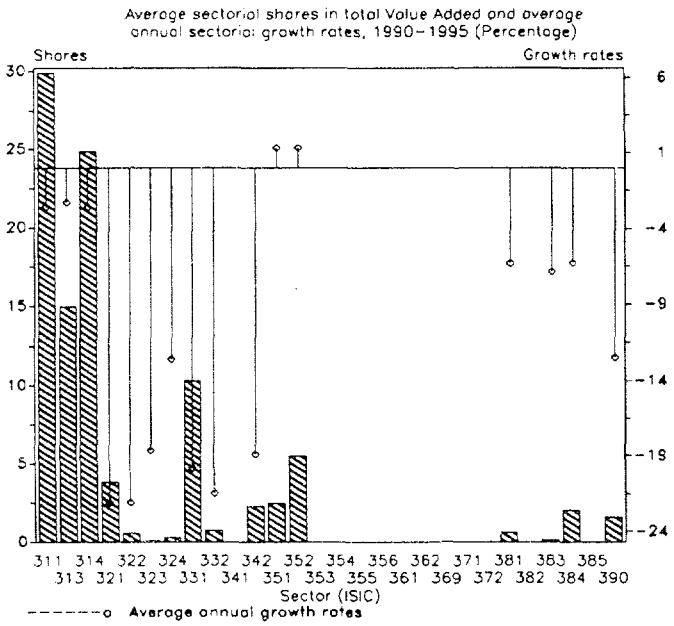
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

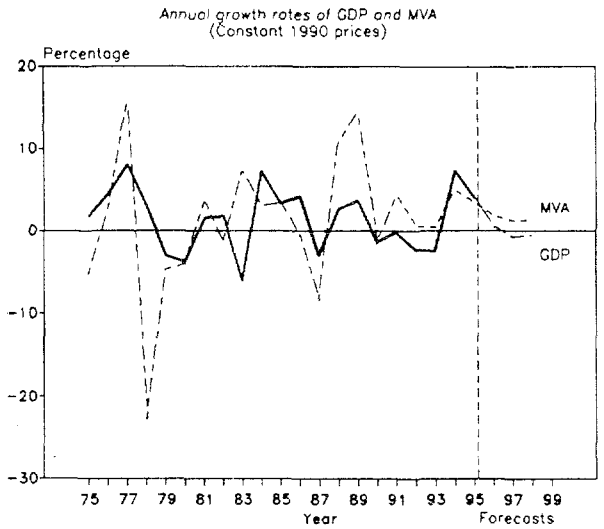


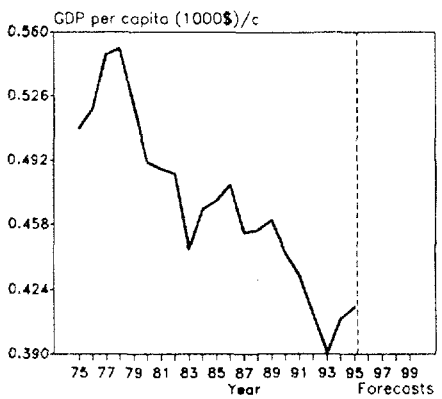
## CENTRAL AFRICAN REPUBLIC

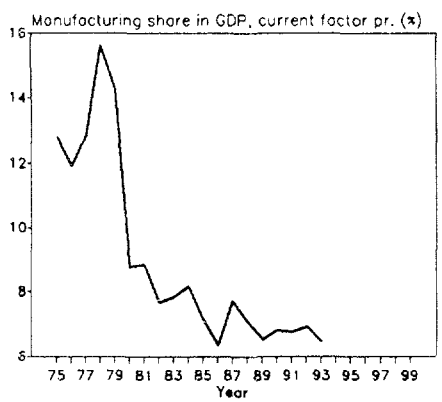


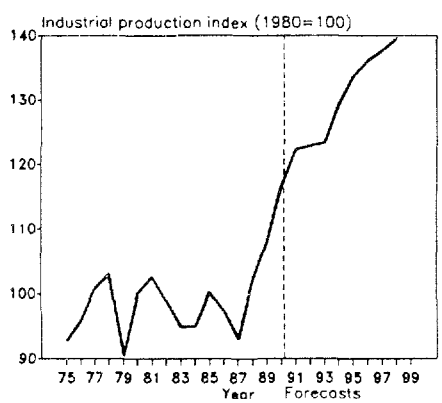




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 136 | 1 222 | 1 296 | 1 323 |
| Per capita [na] (1990-dollars) | 491 | 471 | 443 | 409 |
| Manufacturing share [na] (%) (current factor prices) | 8.8 | 7.1 | 6.8 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 67 | 78 | 89 | *98* |
| Industrial production index (1980=100) | 100 | 100 | 117 | *129* |
| Value added (millions of dollars) | *35* | 33 | 62 | *26* |
| Gross output (millions of dollars) | *98* | 108 | 165 | *67* |
| Employment (thousands) | *6* | 8 | 5 | *5* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *64* | 70 | 62 | *61* |
| Wages and salaries including supplements | *16* | *18* | *15* | *15* |
| Gross operating surplus (%) | *19* | *12* | *22* | *24* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *16 613* | 13 857 | 30 521 | *14 000* |
| Value added per worker | *5 935* | 4 156 | 11 454 | *5 644* |
| Average wage (including supplements) | *2 703* | *2 428* | *4 654* | *2 050* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *14.30* | *22.79* | 17.19 | *12.90* |
| as a percentage of 1970-1975 structural change | *100* | *159* | 120 | *90* |
| MVA growth rate per structural change (%) | -1.57 | 0.03 | 1.40 | 0.92 |
| Degree of specialization | 23.3 | 27.0 | 25.8 | 32.3 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 5 | 8 | 15 | *8* |
| 313 Beverages | 3 | 4 | 8 | *4* |
| 314 Tobacco products | 4 | 6 | 13 | *7* |
| 321 Textiles | *5* | - | *3* | *1* |
| 322 Wearing apparel | *1* | - | - | - |
| 323 Leather and fur products | - | - | - | - |
| 324 Footwear | - | - | - | - |
| 331 Wood and wood products | *11* | 8 | 12 | *2* |
| 332 Furniture and fixtures | - | 1 | 1 | - |
| 341 Paper and paper products | - | - | - | - |
| 342 Printing and publishing | 1 | 2 | 3 | - |
| 351 Industrial chemicals | 1 | 1 | 1 | *1* |
| 352 Other chemical products | 2 | 1 | 3 | *2* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | - | - |
| 356 Plastic products | - | - | - | - |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | - | - | - | - |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 1 | - | - | - |
| 382 Non-electrical machinery | - | - | - | - |
| 383 Electrical machinery | - | - | - | - |
| 384 Transport equipment | 2 | 1 | 1 | *1* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | - | 1 | 1 | - |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

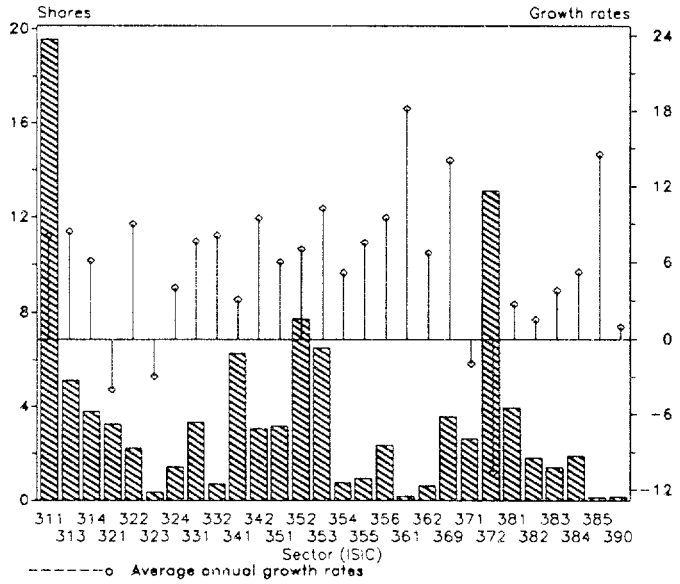


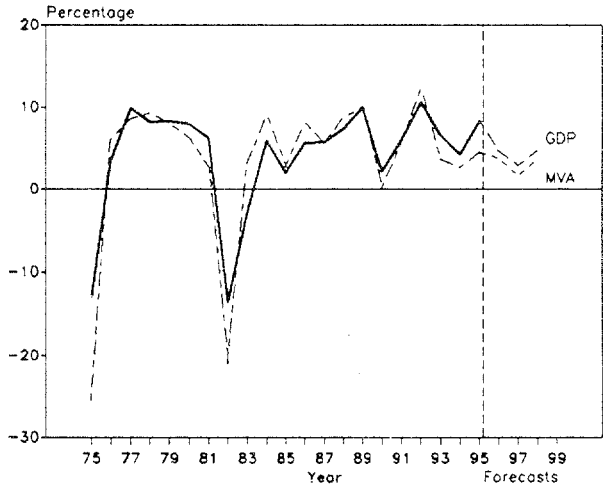



**CHILE**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

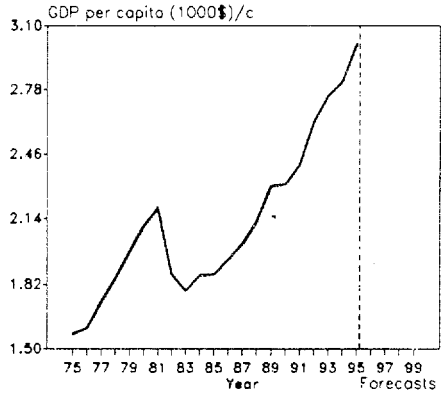



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

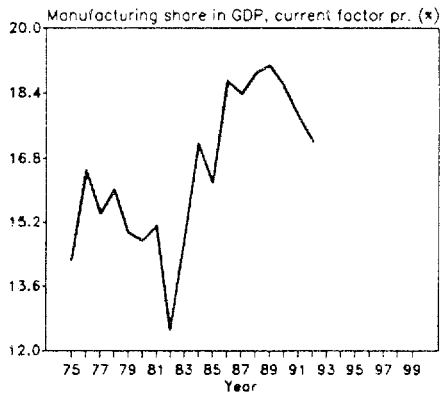
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 23 413 | 22 550 | 30 387 | 39 626 |
| Per capita [na] (1990-dollars) | 2 101 | 1 867 | 2 310 | 2 822 |
| Manufacturing share [na] (%) (current factor prices) | 14.7 | 16.2 | 18.6 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 4 209 | 3 933 | 5 359 | 6 736 |
| Industrial production index (1980=100) | 100 | 100 | 128 | 159 |
| Value added (millions of dollars) | 4 991 | 4 713 | 8 757 | *13 022* |
| Gross output (millions of dollars) | 10 790 | 10 477 | 21 215 | *30 237* |
| Employment (thousands) | 206 | 185 | 298 | *337* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 54 | 55 | 59 | *57* |
| Wages and salaries including supplements | *9* | 6 | 7 | *8* |
| Gross operating surplus and net taxes (%) | *38* | 39 | 34 | *35* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 51 994 | 56 380 | 70 919 | *89 485* |
| Value added per worker | 24 050 | 25 363 | 29 274 | *38 542* |
| Average wage (including supplements) | *4 444* | 3 499 | 4 861 | *7 419* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 17.60 | 13.61 | 10.02 | *11.37* |
| as a percentage of 1970-1975 structural change | 100 | 77 | 57 | *65* |
| MVA growth rate per structural change (%) | 0.16 | 0.30 | 3.58 | 3.71 |
| Degree of specialization | 16.0 | 20.4 | 17.0 | 14.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 827 | 805 | 1 543 | *2 725* |
| 313 Beverages | 289 | 177 | 374 | *671* |
| 314 Tobacco products | 214 | 205 | 303 | *488* |
| 321 Textiles | 234 | 162 | 333 | *360* |
| 322 Wearing apparel | 111 | 83 | 163 | *314* |
| 323 Leather and fur products | 22 | 18 | 37 | *43* |
| 324 Footwear | 77 | 51 | 121 | *184* |
| 331 Wood and wood products | 153 | 143 | 270 | *467* |
| 332 Furniture and fixtures | 37 | 14 | 53 | *97* |
| 341 Paper and paper products | 281 | 278 | 561 | *782* |
| 342 Printing and publishing | 182 | 104 | 224 | *420* |
| 351 Industrial chemicals | 55 | 94 | 247 | *412* |
| 352 Other chemical products | 324 | 289 | 617 | *1 037* |
| 353 Petroleum refineries | 184 | 277 | 480 | *937* |
| 354 Miscellaneous petroleum and coal products | 27 | 47 | 69 | *105* |
| 355 Rubber products | 60 | 49 | 72 | *134* |
| 356 Plastic products | 50 | 63 | 178 | *350* |
| 361 Pottery, china and earthenware | 14 | 9 | 9 | *28* |
| 362 Glass and glass products | 38 | 27 | 51 | *89* |
| 369 Other non-metal mineral products | 146 | 115 | 218 | *535* |
| 371 Iron and steel | 188 | 226 | 284 | *331* |
| 372 Non-ferrous metals | 965 | 1 175 | 1 716 | *1 265* |
| 381 Metal products | 181 | 130 | 366 | *527* |
| 382 Non-electrical machinery | 96 | 50 | 168 | *230* |
| 383 Electrical machinery | 90 | 61 | 125 | *195* |
| 384 Transport equipment | 127 | 50 | 153 | *255* |
| 385 Professional and scientific equipment | 5 | 4 | 9 | *21* |
| 390 Other manufacturing industries | 13 | 7 | 14 | *20* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

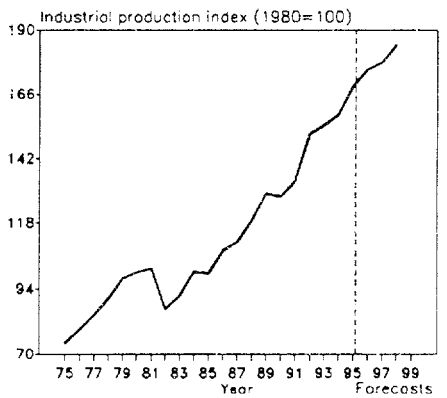
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (*)

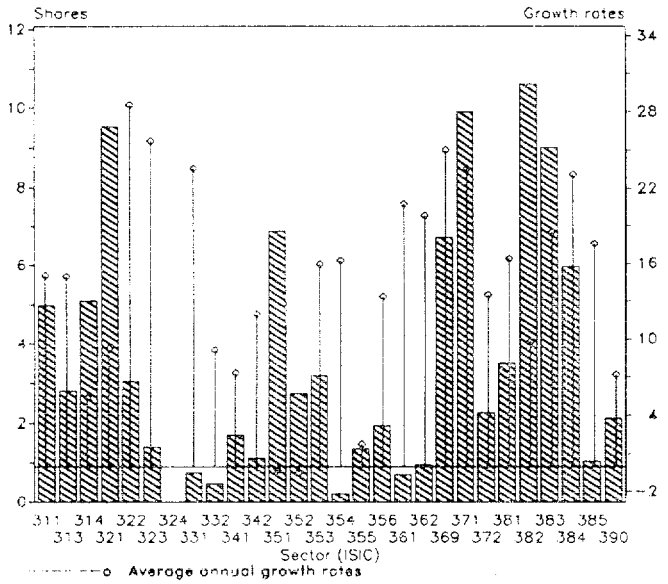



Industrial production index (1980=100)

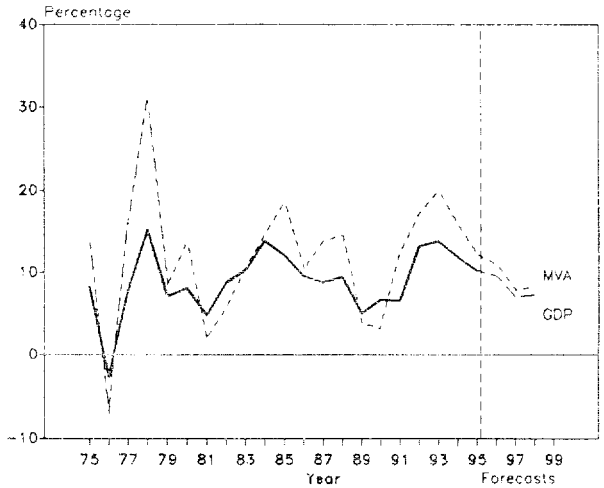


**CHINA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

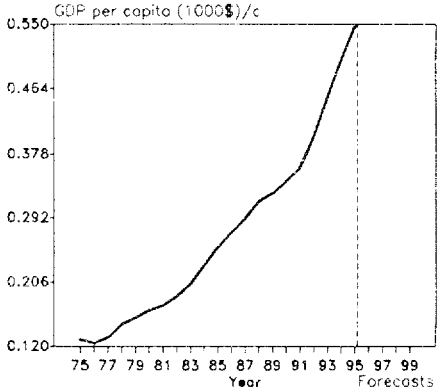



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 165 378 | 265 369 | 388 125 | 596 060 |
| Per capita [na] (1990-dollars) | 169 | 253 | 342 | 502 |
| Manufacturing share [na] (%) (current factor prices) | 41.0 | 37.2 | 33.6 | *30.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | *52 672* | 84 816 | 130 329 | 237 818 |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | *88 577* | 78 380 | 90 259 | *139 031* |
| Gross output (millions of dollars) | *232 460* | 246 331 | 349 604 | 451 906 |
| Employment (thousands) | 24 390 | 39 957 | 52 627 | *61 931* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *62* | 68 | 74 | *69* |
| Wages and salaries including supplements | *6* | 5 | *5* | *5* |
| Gross operating surplus and net taxes (%) | *32* | 27 | *21* | *26* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *9 531* | 6 017 | 6 643 | *7 297* |
| Value added per worker | *3 632* | 1 946 | 1 715 | *2 245* |
| Average wage (including supplements) | 548 | 286 | *317* | *340* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *5.02* | *7.81* | 8.61 | *10.28* |
| as a percentage of 1970-1975 structural change | *100* | *156* | 172 | *205* |
| MVA growth rate per structural change (%) | 4.12 | 4.24 | 3.18 | 4.96 |
| Degree of specialization | 12.6 | 10.8 | 10.8 | 11.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *3 764* | 3 433 | 4 489 | 7 149 |
| 313 Beverages | *1 587* | 1 696 | 2 414 | 3 834 |
| 314 Tobacco products | 3 545 | 3 999 | 6 220 | 6 410 |
| 321 Textiles | 13 409 | 8 587 | 10 299 | 12 964 |
| 322 Wearing apparel | 1 866 [a] | 1 716 [a] | 2 109 [a] | 4 120 [a] |
| 323 Leather and fur products | 911 | 747 | 944 | 2 347 |
| 324 Footwear | [a] | [a] | [a] | [a] |
| 331 Wood and wood products | *751* | 591 | 502 | 1 155 |
| 332 Furniture and fixtures | *653* | 514 | 455 | 682 |
| 341 Paper and paper products | *1 929* | 1 532 | 1 949 | 2 226 |
| 342 Printing and publishing | 1 042 | 960 | 1 036 | 1 443 |
| 351 Industrial chemicals | 7 125 | 5 584 | 8 459 | *6 595* |
| 352 Other chemical products | 2 924 | 2 292 | 3 372 | *2 603* |
| 353 Petroleum refineries | 4 223 | 3 676 | 2 714 | *4 686* |
| 354 Miscellaneous petroleum and coal products | *154* | 183 | 208 | *352* |
| 355 Rubber products | 2 175 | 1 593 | 1 603 | 1 605 |
| 356 Plastic products | 1 256 | 1 317 | 1 736 | 2 572 |
| 361 Pottery, china and earthenware | 439 | 431 | 504 | *1 025* |
| 362 Glass and glass products | 838 | 822 | 705 | 1 386 |
| 369 Other non-metal mineral products | 4 425 | 4 340 | 4 524 | 10 931 |
| 371 Iron and steel | *6 538* | 5 810 | 6 571 | 14 972 |
| 372 Non-ferrous metals | *1 868* | 1 730 | 2 050 | 3 057 |
| 381 Metal products | 4 861 | 2 582 | 2 946 | 5 106 |
| 382 Non-electrical machinery | 13 418 | 10 941 | 10 116 | *15 425* |
| 383 Electrical machinery | 3 216 | 6 458 | 7 445 | *13 746* |
| 384 Transport equipment | 3 013 | 4 134 | 3 918 | 8 764 |
| 385 Professional and scientific equipment | 810 | 1 021 | 843 | 1 499 |
| 390 Other manufacturing industries | *1 838* | 1 691 | 2 125 | 2 378 |

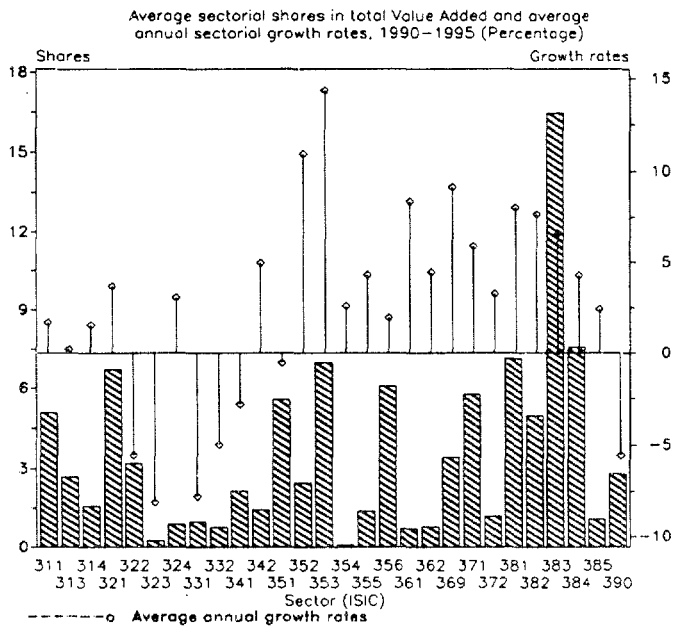
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

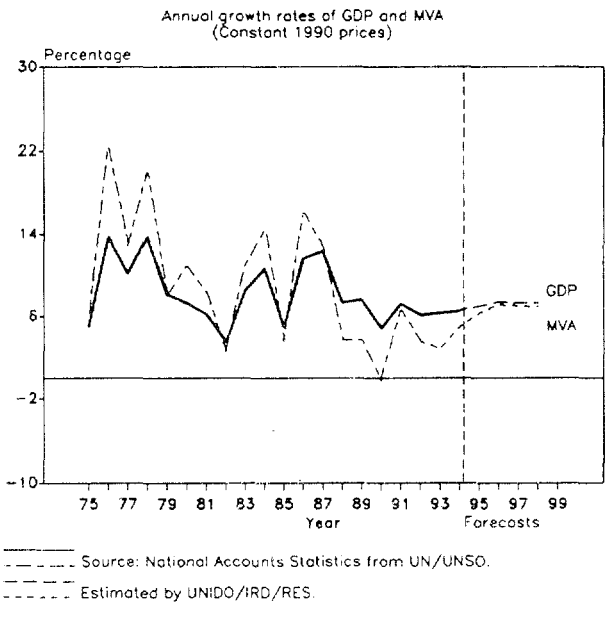
GDP per capita (1000$)/c




Manufacturing share in GDP, current prices (%)

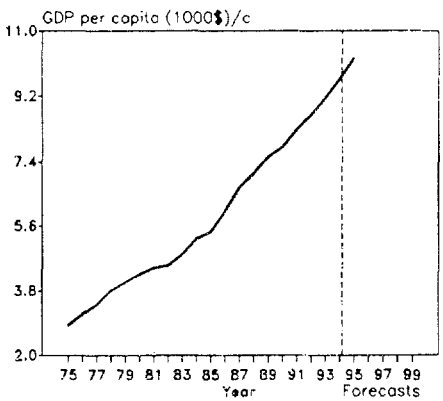
## TAIWAN PROVINCE OF CHINA

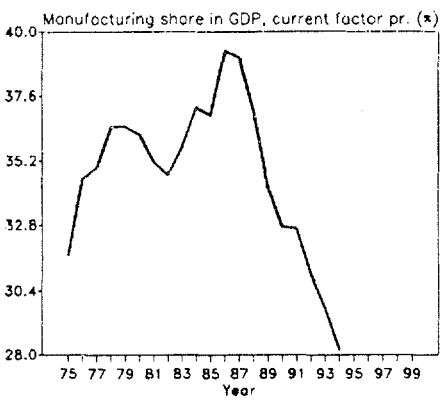


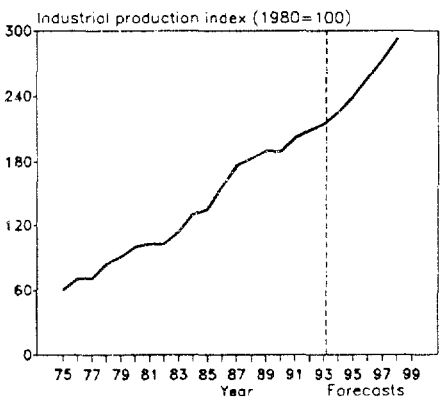




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 75 618 | 104 655 | 158 873 | 204 570 |
| Per capita [na] (1990-dollars) | 4 247 | 5 434 | 7 815 | 9 654 |
| Manufacturing share [na] (%) (current factor prices) | 36.2 | 36.9 | 32.7 | 28.2 |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 25 884 | 37 738 | 52 916 | *62 903* |
| Industrial production index (1980=100) | 100 | 135 | 189 | *225* |
| Value added (millions of dollars) | 14 915 | 23 316 | 52 916 | *73 295* |
| Gross output (millions of dollars) | 55 374 | 75 673 | 167 929 | *218 564* |
| Employment (thousands) | 1 997 | 2 462 | 2 265 | *2 170* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 73 | 69 | 68 | *66* |
| Wages and salaries including supplements | 10 | 12 | 13 | *14* |
| Gross operating surplus and net taxes (%) | 17 | 18 | 18 | *19* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 27 734 | 30 732 | 74 143 | *100 706* |
| Value added per worker | 7 470 | 9 469 | 23 363 | *33 766* |
| Average wage (including supplements) | 2 679 | 3 832 | 9 826 | *14 469* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 12.46 | 7.73 | 8.58 | *9.31* |
| as a percentage of 1970-1975 structural change | 100 | 62 | 69 | *75* |
| MVA growth rate per structural change (%) | 4.09 | 8.88 | 4.88 | 3.46 |
| Degree of specialization | 9.5 | 9.8 | 10.8 | 12.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 971 | 1 709 | 2 911 | *3 609* |
| 313 Beverages | 455 | 723 | 1 623 | *1 885* |
| 314 Tobacco products | 413 | 519 | 885 | *1 130* |
| 321 Textiles | 1 385 | 1 995 | 3 544 | *4 843* |
| 322 Wearing apparel | 815 | 1 480 | 2 196 | *2 047* |
| 323 Leather and fur products | 182 | 222 | 194 | *152* |
| 324 Footwear | 65 | 223 | 487 | *619* |
| 331 Wood and wood products | 316 | 394 | 677 | *568* |
| 332 Furniture and fixtures | 119 | 228 | 487 | *452* |
| 341 Paper and paper products | 469 | 655 | 1 372 | *1 397* |
| 342 Printing and publishing | 219 | 258 | 745 | *1 066* |
| 351 Industrial chemicals | 885 | 1 610 | 3 344 | *3 750* |
| 352 Other chemical products | 197 | 363 | 1 088 | *1 990* |
| 353 Petroleum refineries | 997 | 1 338 | 2 431 | *5 384* |
| 354 Miscellaneous petroleum and coal products | 19 | 22 | 37 | *49* |
| 355 Rubber products | 205 | 330 | 732 | *1 022* |
| 356 Plastic products | 839 | 1 543 | 3 454 | *4 268* |
| 361 Pottery, china and earthenware | 85 | 137 | 330 | *550* |
| 362 Glass and glass products | 114 | 165 | 419 | *581* |
| 369 Other non-metal mineral products | 484 | 575 | 1 588 | *2 776* |
| 371 Iron and steel | 828 | 1 155 | 2 965 | *4 458* |
| 372 Non-ferrous metals | 139 | 220 | 667 | *869* |
| 381 Metal products | 582 | 1 028 | 3 391 | *5 516* |
| 382 Non-electrical machinery | 431 | 710 | 2 360 | *3 795* |
| 383 Electrical machinery | 1 794 | 2 852 | 8 432 | *12 668* |
| 384 Transport equipment | 880 | 1 274 | 3 966 | *5 425* |
| 385 Professional and scientific equipment | 190 | 292 | 590 | *751* |
| 390 Other manufacturing industries | 838 | 1 297 | 1 999 | *1 676* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

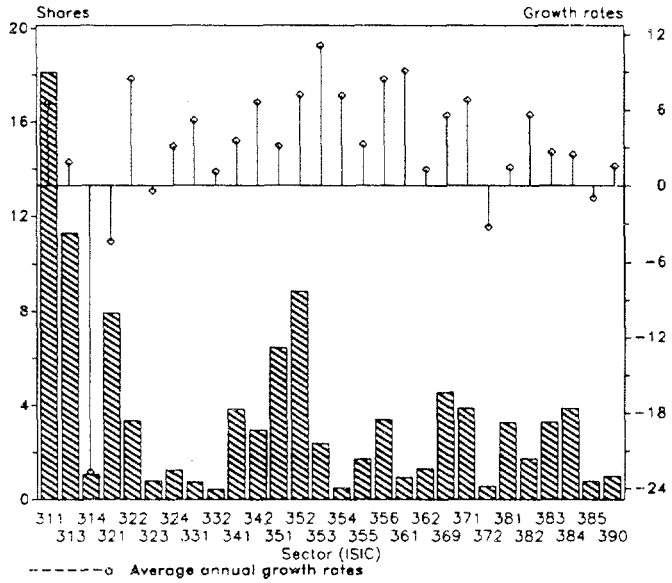


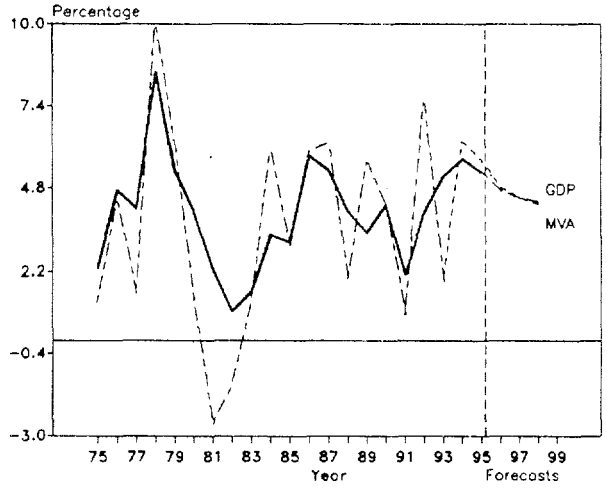



**COLOMBIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

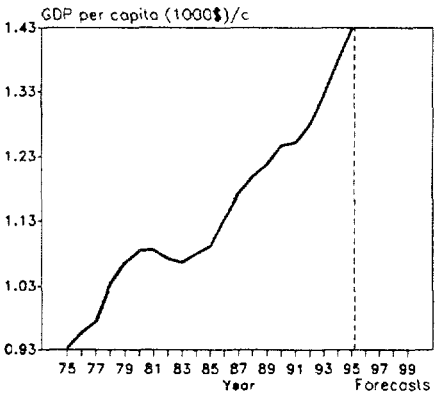



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

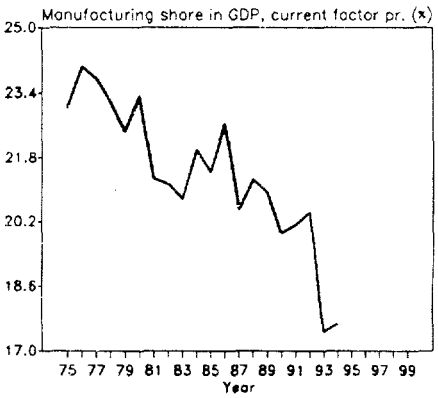
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 28 799 | 32 184 | 40 274 | 47 572 |
| Per capita [na] (1990-dollars) | 1 086 | 1 092 | 1 247 | 1 377 |
| Manufacturing share [na] (%) (current factor prices) | 23.3 | 21.4 | 19.9 | *17.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 6 010 | 6 365 | 8 034 | *9 427* |
| Industrial production index (1980=100) | 100 | 108 | 130 | 144 |
| Value added (millions of dollars) | 7 131 | 6 711 | 7 882 | *10 846* |
| Gross output (millions of dollars) | 16 453 | 16 823 | 20 601 | *25 882* |
| Employment (thousands) | 508 | 440 | 489 | *616* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 57 | 60 | 62 | *58* |
| Wages and salaries including supplements | 8 | 7 | 6 | *7* |
| Gross operating surplus and net taxes (%) | 35 | 33 | 33 | *35* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 31 860 | 37 635 | 41 526 | *38 235* |
| Value added per worker | 13 809 | 15 012 | 15 887 | *16 022* |
| Average wage (including supplements) | 2 583 | 2 709 | 2 359 | *2 972* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 9.62 | 11.67 | 9.69 | *7.16* |
| as a percentage of 1970-1975 structural change | 100 | 121 | 101 | *74* |
| MVA growth rate per structural change (%) | 4.13 | 1.91 | 2.02 | 4.02 |
| Degree of specialization | 14.6 | 14.7 | 13.0 | 13.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 951 | 1 166 | 1 306 | *2 068* |
| 313 Beverages | 1 021 | 1 032 | 928 | *1 175* |
| 314 Tobacco products | 160 | 224 | 173 | *54* |
| 321 Textiles | 803 | 619 | 816 | *761* |
| 322 Wearing apparel | 241 | 206 | 221 | *387* |
| 323 Leather and fur products | 59 | 47 | 66 | *75* |
| 324 Footwear | 50 | 54 | 100 | *133* |
| 331 Wood and wood products | 50 | 46 | 54 | *81* |
| 332 Furniture and fixtures | 34 | 29 | 38 | *47* |
| 341 Paper and paper products | 227 | 274 | 301 | *410* |
| 342 Printing and publishing | 185 | 180 | 213 | *339* |
| 351 Industrial chemicals | 303 | 405 | 522 | *692* |
| 352 Other chemical products | 419 | 457 | 597 | *981* |
| 353 Petroleum refineries | 773 | 90 | 151 | *290* |
| 354 Miscellaneous petroleum and coal products | 17 | 28 | 34 | *54* |
| 355 Rubber products | 117 | 138 | 131 | *180* |
| 356 Plastic products | 141 | 169 | 223 | *384* |
| 361 Pottery, china and earthenware | 44 | 46 | 60 | *107* |
| 362 Glass and glass products | 76 | 92 | 113 | *138* |
| 369 Other non-metal mineral products | 232 | 264 | 338 | *513* |
| 371 Iron and steel | 217 | 205 | 281 | *445* |
| 372 Non-ferrous metals | 34 | 36 | 56 | *53* |
| 381 Metal products | 260 | 242 | 279 | *347* |
| 382 Non-electrical machinery | 120 | 114 | 124 | *187* |
| 383 Electrical machinery | 244 | 211 | 271 | *353* |
| 384 Transport equipment | 256 | 221 | 332 | *412* |
| 385 Professional and scientific equipment | 26 | 38 | 70 | *76* |
| 390 Other manufacturing industries | 72 | 78 | 84 | *104* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

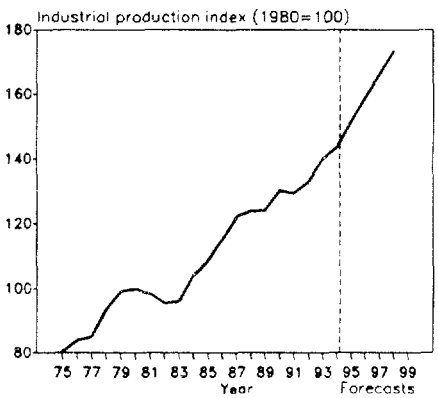
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

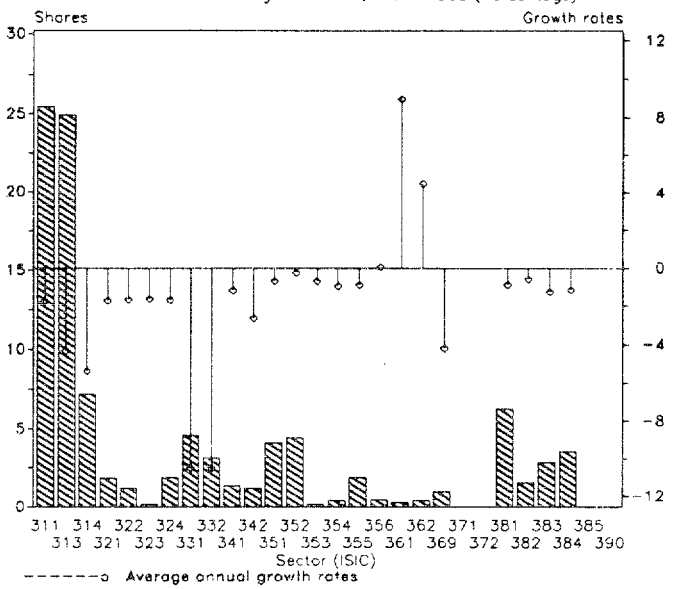



Industrial production index (1980=100)

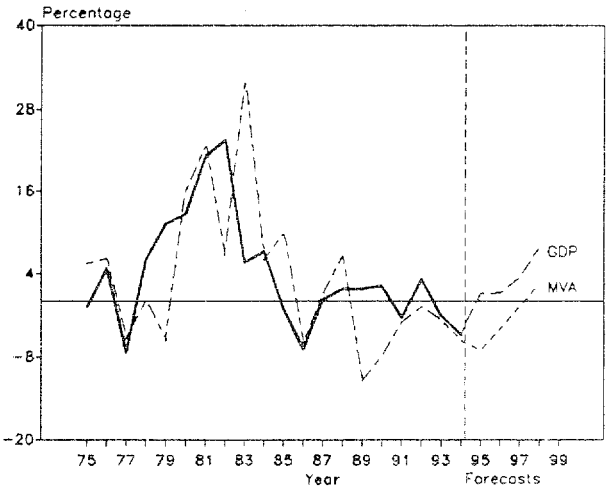


**CONGO**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

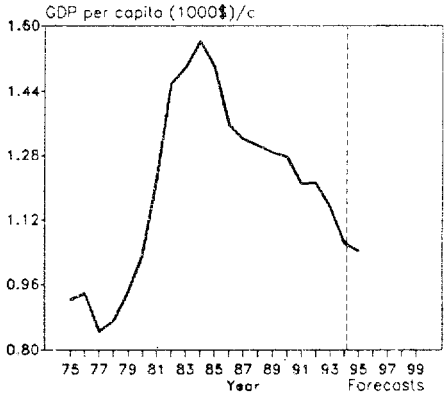



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 722 | 2 887 | 2 851 | 2 674 |
| Per capita [na] (1990-dollars) | 1 032 | 1 501 | 1 277 | 1 063 |
| Manufacturing share [na] (%) (current factor prices) | 7.7 | 5.7 | 8.2 | 8.6 |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 139 | 278 | 227 | 200 |
| Industrial production index (1980=100) | 100 | 172 | 127 | 113 |
| Value added (millions of dollars) | 61 | 54 | 90 | 75 |
| Gross output (millions of dollars) | 163 | 154 | 260 | 233 |
| Employment (thousands) | 6 | 9 | 8 | 8 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 62 | 65 | 65 | 68 |
| Wages and salaries including supplements | 13 | 17 | 15 | 15 |
| Gross operating surplus and net taxes (%) | 24 | 18 | 20 | 18 |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 13 445 | 17 546 | 34 506 | 30 370 |
| Value added per worker | 5 062 | 6 209 | 11 957 | 9 774 |
| Average wage (including supplements) | 3 411 | 3 032 | 5 248 | 4 435 |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 14.40 | 12.56 | 13.60 | 8.43 |
| as a percentage of 1970-1975 structural change | 100 | 87 | 94 | 59 |
| MVA growth rate per structural change (%) | -1.11 | -0.48 | 0.15 | -2.06 |
| Degree of specialization | 15.9 | 18.0 | 25.1 | 25.3 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 11 | 10 | 22 | 20 |
| 313 Beverages | 11 | 11 | 23 | 19 |
| 314 Tobacco products | 3 | 3 | 7 | 5 |
| 321 Textiles | 3 | 2 | 2 | 1 |
| 322 Wearing apparel | 2 | 1 | 1 | 1 |
| 323 Leather and fur products | - | - | - | - |
| 324 Footwear | 3 | 2 | 2 | 1 |
| 331 Wood and wood products | 5 | 5 | 5 | 3 |
| 332 Furniture and fixtures | 3 | 3 | 3 | 2 |
| 341 Paper and paper products | 1 | - | 1 | 1 |
| 342 Printing and publishing | 1 | - | 1 | 1 |
| 351 Industrial chemicals | 2 | 2 | 3 | 3 |
| 352 Other chemical products | 3 | 2 | 4 | 3 |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 1 | 1 | 2 | 1 |
| 356 Plastic products | - | - | - | - |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | 1 | 2 | 1 | 1 |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 4 | 4 | 5 | 5 |
| 382 Non-electrical machinery | 1 | 1 | 1 | 1 |
| 383 Electrical machinery | 2 | 2 | 2 | 2 |
| 384 Transport equipment | 2 | 2 | 3 | 3 |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | - | - | - | - |

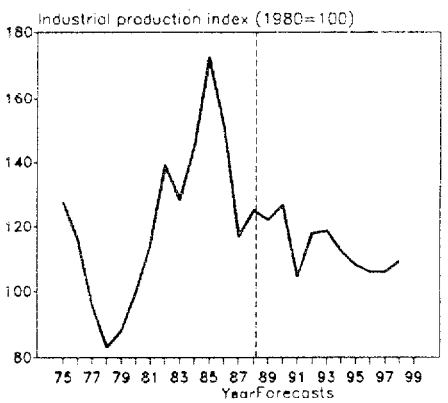
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c



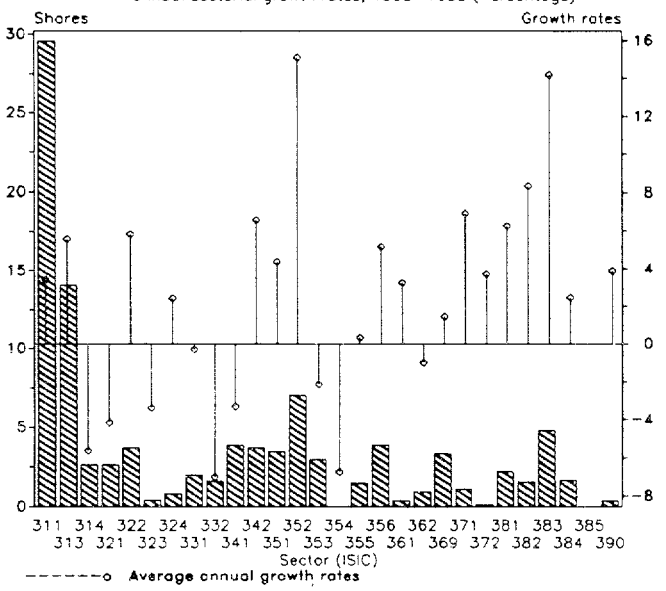

Manufacturing share in GDP, current factor pr. (x)


Industrial production index (1980=100)

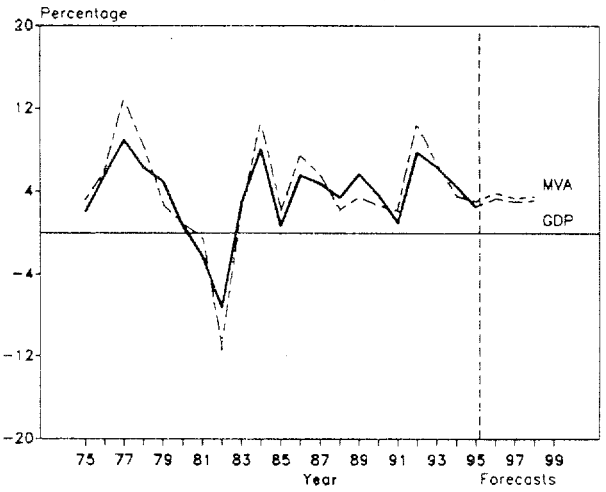


## COSTA RICA

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

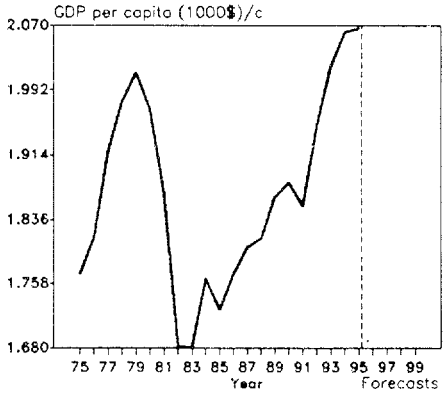



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

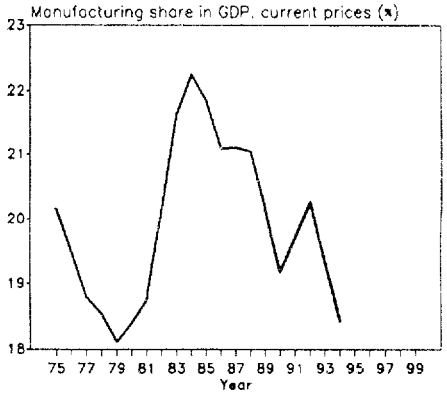
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 4 496 | 4 560 | 5 710 | 6 902 |
| Per capita [na] (1990-dollars) | 1 969 | 1 726 | 1 881 | 2 062 |
| Manufacturing share [na] (%) (current factor prices) | 18.4 | 21.9 | 19.2 | *18.4* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 882 | 891 | 1 095 | 1 359 |
| Industrial production index (1980=100) | 100 | 103 | 123 | 153 |
| Value added (millions of dollars) | 788 | 761 | 968 | 1 300 |
| Gross output (millions of dollars) | 2 743 | 2 466 | 3 197 | 4 407 |
| Employment (thousands) | *77* | 104 | 134 | *157* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 71 | 69 | 70 | 71 |
| Wages and salaries including supplements | 12 | 9 | 12 | *13* |
| Gross operating surplus and net taxes (%) | 17 | 22 | 19 | *17* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *35 669* | 23 786 | 23 834 | *28 082* |
| Value added per worker | *13 796* | 7 341 | 7 217 | *8 291* |
| Average wage (including supplements) | *4 118* | 2 201 | 2 781 | *3 528* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 9.27 | 8.08 | 8.39 | 8.15 |
| as a percentage of 1970-1975 structural change | 100 | 87 | 91 | 88 |
| MVA growth rate per structural change (%) | 3.15 | 2.67 | 1.98 | 1.68 |
| Degree of specialization | 20.4 | 20.7 | 20.1 | 21.3 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 241 | 247 | 292 | 379 |
| 313 Beverages | 96 | 94 | 128 | 185 |
| 314 Tobacco products | 24 | 28 | 31 | 26 |
| 321 Textiles | 33 | 23 | 32 | 29 |
| 322 Wearing apparel | 31 | 34 | 32 | 48 |
| 323 Leather and fur products | 7 | 5 | 5 | 5 |
| 324 Footwear | 10 | 9 | 8 | 10 |
| 331 Wood and wood products | 30 | 25 | 22 | 25 |
| 332 Furniture and fixtures | 26 | 14 | 21 | 17 |
| 341 Paper and paper products | 20 | 22 | 45 | 42 |
| 342 Printing and publishing | 18 | 21 | 34 | 49 |
| 351 Industrial chemicals | 19 | 26 | 33 | 45 |
| 352 Other chemical products | 40 | 42 | 50 | 112 |
| 353 Petroleum refineries | 40 | 45 | 35 | 33 |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 14 | 15 | 17 | 19 |
| 356 Plastic products | 19 | 26 | 36 | 51 |
| 361 Pottery, china and earthenware | 1 | 2 | 3 | 4 |
| 362 Glass and glass products | 3 | 7 | 11 | 11 |
| 369 Other non-metal mineral products | 25 | 19 | 36 | 43 |
| 371 Iron and steel | 4 | - | *10* | *15* |
| 372 Non-ferrous metals | *1* | - | 1 | 1 |
| 381 Metal products | 18 | 12 | 20 | 30 |
| 382 Non-electrical machinery | 8 | 10 | 13 | 22 |
| 383 Electrical machinery | 25 | 21 | 33 | 71 |
| 384 Transport equipment | 31 | 10 | 16 | 22 |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 2 | 3 | 4 | 5 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

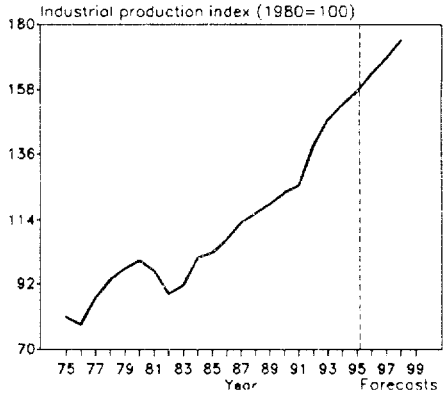
GDP per capita (1000$)/c




Manufacturing share in GDP, current prices (%)

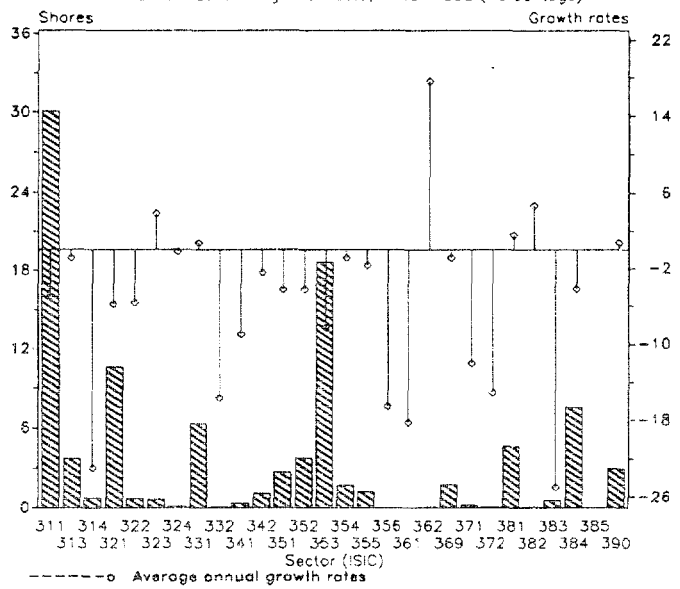



Industrial production index (1980=100)

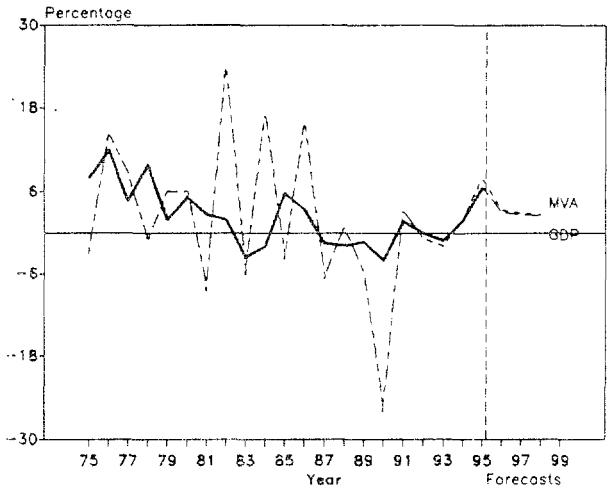


**CÔTE D'IVOIRE**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

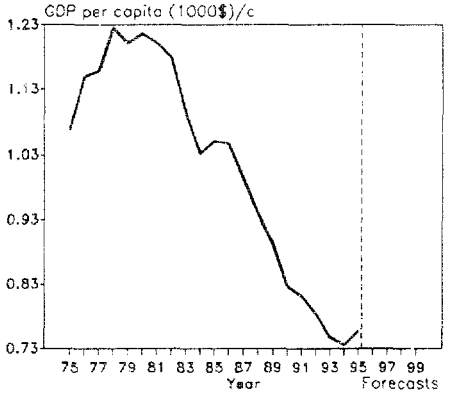



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

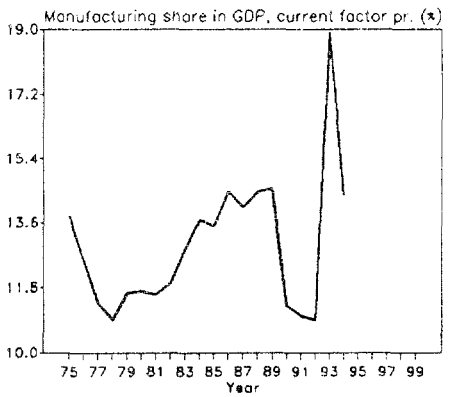
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 9 965 | 10 439 | 9 899 | 10 136 |
| Per capita [na] (1990-dollars) | 1 216 | 1 051 | 827 | 736 |
| Manufacturing share [na] (%) (current factor prices) | 11.7 | 13.5 | 11.3 | *14.4* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 1 246 | 1 487 | 1 120 | *1 141* |
| Industrial production index (1980=100) | 100 | 100 | 96 | 111 |
| Value added (millions of dollars) | 1 273 | *914* | 2 029 | *1 022* |
| Gross output (millions of dollars) | 4 006 | *2 608* | *5 137* | *3 337* |
| Employment (thousands) | 67 | *56* | *53* | *53* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 68 | *65* | *60* | *69* |
| Wages and salaries including supplements | 10 | *10* | *8* | *8* |
| Gross operating surplus and net taxes (%) | 22 | *25* | *32* | *22* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 59 630 | *46 337* | *93 963* | *58 698* |
| Value added per worker | 18 950 | *16 241* | *37 429* | *18 078* |
| Average wage (including supplements) | 6 026 | *4 739* | *7 540* | *5 241* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *8.82* | *12.55* | *11.63* | *13.95* |
| as a percentage of 1970-1975 structural change | *100* | *142* | *132* | *158* |
| MVA growth rate per structural change (%) | 3.92 | 1.97 | 1.00 | 0.22 |
| Degree of specialization | 23.2 | *29.2* | 31.0 | *29.7* |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 303 | *230* | *599* | *289* |
| 313 Beverages | 75 | *38* | 66 | *42* |
| 314 Tobacco products | 66 | *17* | *22* | *4* |
| 321 Textiles | 169 | *113* | *224* | *104* |
| 322 Wearing apparel | 8 | *6* | *14* | *7* |
| 323 Leather and fur products | *5* | *7* | *10* | *7* |
| 324 Footwear | *5* | *2* | *1* | *1* |
| 331 Wood and wood products | 67 | *32* | *109* | *74* |
| 332 Furniture and fixtures | 21 | *2* | *1* | - |
| 341 Paper and paper products | *14* | *7* | *8* | *3* |
| 342 Printing and publishing | *22* | *9* | *20* | *12* |
| 351 Industrial chemicals | *22* | *19* | *54* | *26* |
| 352 Other chemical products | *53* | *32* | *78* | *39* |
| 353 Petroleum refineries | *167* | *194* | *427* | *193* |
| 354 Miscellaneous petroleum and coal products | *14* | *17* | *32* | *19* |
| 355 Rubber products | 4 | *4* | *22* | *14* |
| 356 Plastic products | *1* | - | - | - |
| 361 Pottery, china and earthenware | *2* | - | - | - |
| 362 Glass and glass products | - | - | - | *1* |
| 369 Other non-metal mineral products | *27* | *13* | *32* | *20* |
| 371 Iron and steel | *5* | *2* | *5* | *2* |
| 372 Non-ferrous metals | *3* | *1* | *2* | *1* |
| 381 Metal products | 70 | *36* | *80* | *54* |
| 382 Non-electrical machinery | 3 | *1* | - | - |
| 383 Electrical machinery | 20 | *5* | *18* | *3* |
| 384 Transport equipment | 106 | *95* | 151 | *74* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 20 | *29* | 51 | *32* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

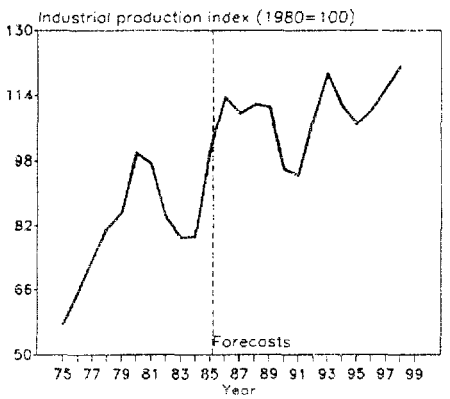
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

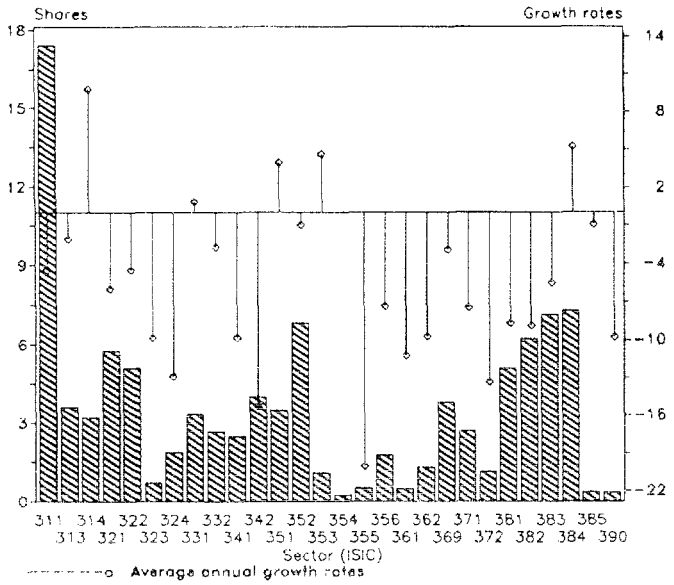



Industrial production index (1980=100)

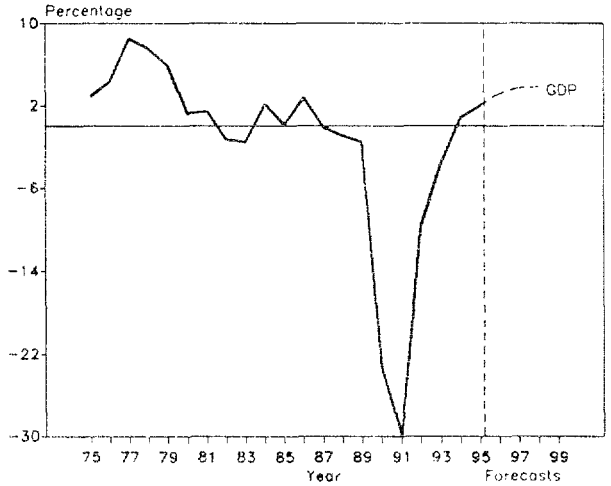


**CROATIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rate of GDP (Constant 1990 prices)

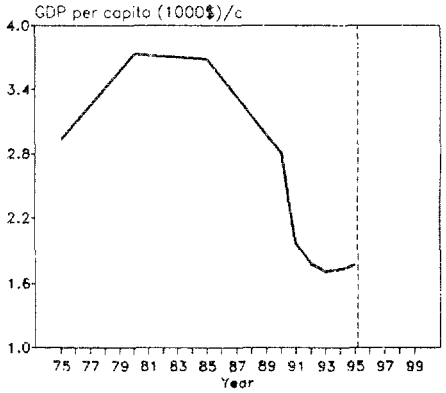



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

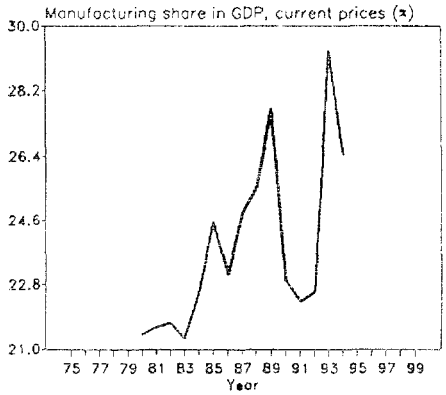
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 16 339 | 16 475 | 12 672 | 7 783 |
| Per capita [na] (1990-dollars) | 3 733 | 3 685 | 2 805 | 1 728 |
| Manufacturing share [na] (%) (current factor prices) | 21.4 | 24.6 | 22.9 | *26.5* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | .. | .. | .. | .. |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | *4 972* | *3 498* | 3 389 | *5 227* |
| Gross output (millions of dollars) | *19 701* | *12 136* | 8 527 | *12 129* |
| Employment (thousands) | *620* | *562* | 533 | *322* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *75* | *71* | 60 | *57* |
| Wages and salaries including supplements | *17* | *14* | *26* | *14* |
| Gross operating surplus and net taxes (%) | *9* | *15* | *14* | *29* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *31 697* | *21 579* | 16 011 | *37 554* |
| Value added per worker | *8 033* | *6 228* | 6 364 | *16 194* |
| Average wage (including supplements) | *5 246* | *2 957* | *4 101* | *5 334* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *8.21* | *7.82* | *10.54* | *11.74* |
| as a percentage of 1970-1975 structural change | *100* | *95* | *128* | *143* |
| MVA growth rate per structural change (%) | 5.69 | 3.94 | -0.71 | -0.01 |
| Degree of specialization | 9.8 | 9.9 | 9.8 | 11.2 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *659* | *397* | 572 | *895* |
| 313 Beverages | *88* | *75* | 110 | *194* |
| 314 Tobacco products | *54* | *41* | 61 | *190* |
| 321 Textiles | *306* | *251* | 207 | *285* |
| 322 Wearing apparel | *284* | *172* | 168 | *260* |
| 323 Leather and fur products | *83* | *50* | 29 | *33* |
| 324 Footwear | *144* | *123* | 90 | *84* |
| 331 Wood and wood products | *121* | *112* | 92 | *188* |
| 332 Furniture and fixtures | *160* | *97* | 85 | *140* |
| 341 Paper and paper products | *144* | *88* | 100 | *115* |
| 342 Printing and publishing | *234* | *142* | 195 | *167* |
| 351 Industrial chemicals | *179* | *120* | 75 | *176* |
| 352 Other chemical products | *195* | *117* | 188 | *361* |
| 353 Petroleum refineries | *138* | *76* | 61 | *171* |
| 354 Miscellaneous petroleum and coal products | *36* | *22* | -1 | *18* |
| 355 Rubber products | *72* | *44* | 31 | *19* |
| 356 Plastic products | *108* | *66* | 67 | *86* |
| 361 Pottery, china and earthenware | *21* | *18* | 22 | *23* |
| 362 Glass and glass products | *55* | *33* | 52 | *60* |
| 369 Other non-metal mineral products | *145* | *111* | 121 | *203* |
| 371 Iron and steel | *108* | *113* | 114 | *142* |
| 372 Non-ferrous metals | *51* | *39* | 53 | *49* |
| 381 Metal products | *355* | *273* | 203 | *244* |
| 382 Non-electrical machinery | *490* | *412* | 256 | *302* |
| 383 Electrical machinery | *335* | *258* | 247 | *362* |
| 384 Transport equipment | *372* | *225* | 168 | *425* |
| 385 Professional and scientific equipment | *17* | *10* | 10 | *19* |
| 390 Other manufacturing industries | *18* | *11* | 14 | *16* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c

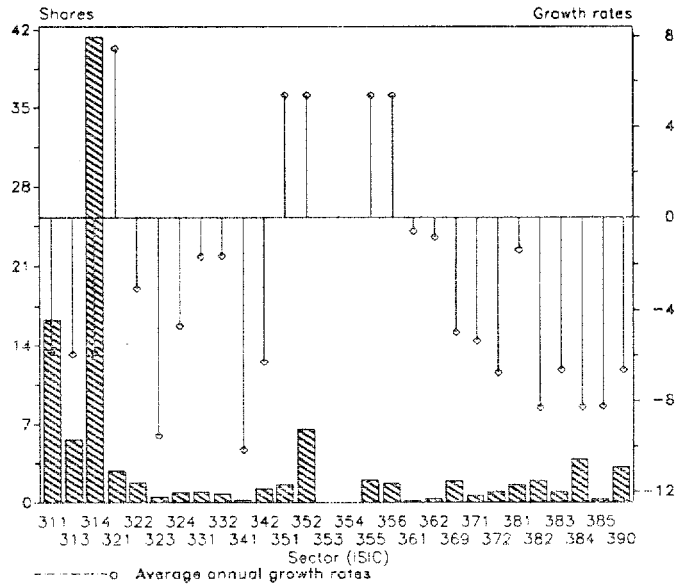



Manufacturing share in GDP, current prices (%)

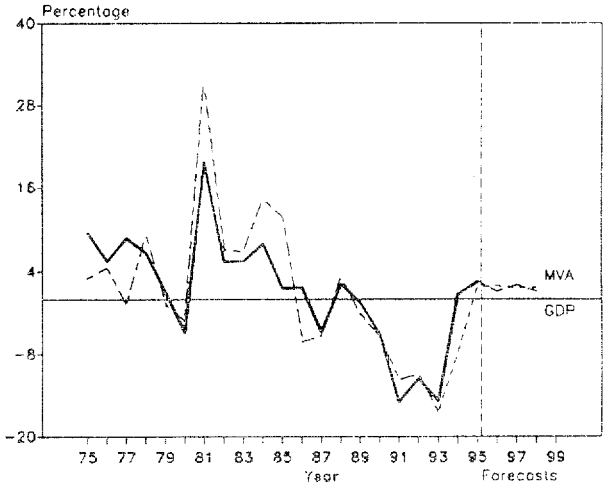


**CUBA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

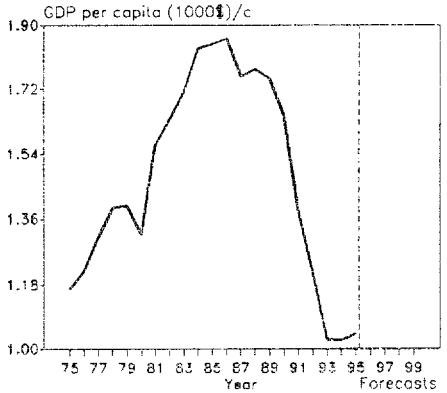



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

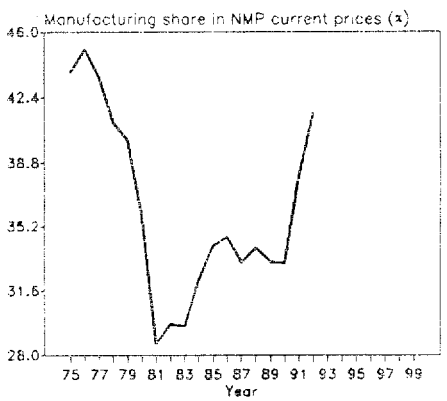
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 12 800 | 18 663 | 17 453 | 11 239 |
| Per capita [na] (1990-dollars) | 1 318 | 1 847 | 1 647 | 1 025 |
| Manufacturing share [na] (%) (current factor prices) | 35.8 | 34.1 | *33.1* | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 3 609 | 6 863 | 5 782 | *3 471* |
| Industrial production index (1980=100) | 100 | 132 | 125 | *81* |
| Value added (millions of dollars) | 4 909 | 5 148 | *5 942* | *5 560* |
| Gross output (millions of dollars) | 9 779 | 12 098 | *17 699* | *16 548* |
| Employment (thousands) | 501 | 654 | *701* | *652* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 50 | 57 | *66* | *66* |
| Wages and salaries including supplements | *13* | *14* | *13* | *14* |
| Gross operating surplus and net taxes (%) | *37* | *29* | *21* | *20* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 19 527 | 18 488 | *25 255* | *25 354* |
| Value added per worker | 9 802 | 7 867 | *8 515* | *8 682* |
| Average wage (including supplements) | *2 620* | *2 528* | *3 194* | *3 576* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *7.53* | *9.85* | *9.13* | *8.38* |
| as a percentage of 1970-1975 structural change | *100* | *131* | *121* | *111* |
| MVA growth rate per structural change (%) | 0.10 | 1.82 | 1.49 | -1.23 |
| Degree of specialization | 25.8 | 31.3 | 34.0 | 30.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 658 | 962 | *1 014* | *870* |
| 313 Beverages | 247 | 275 | *352* | *300* |
| 314 Tobacco products | 1 815 | 2 015 | *2 580* | *2 210* |
| 321 Textiles | 51 | 41 | *119* | *196* |
| 322 Wearing apparel | 147 | 98 | *97* | *101* |
| 323 Leather and fur products | 53 | 32 | *33* | *26* |
| 324 Footwear | 79 | 49 | *52* | *50* |
| 331 Wood and wood products | 58 | 53 | *52* | *57* |
| 332 Furniture and fixtures | 48 | 44 | *43* | *47* |
| 341 Paper and paper products | 47 | 45 | *14* | *10* |
| 342 Printing and publishing | 97 | 59 | *80* | *67* |
| 351 Industrial chemicals | *80* | *54* | *71* | *108* |
| 352 Other chemical products | *327* | *222* | *288* | *440* |
| 353 Petroleum refineries | .. | .. | .. | .. |
| 354 Miscellaneous petroleum and coal products | .. | .. | .. | .. |
| 355 Rubber products | *99* | *67* | *87* | *133* |
| 356 Plastic products | *86* | *59* | *76* | *116* |
| 361 Pottery, china and earthenware | 8 | 6 | *8* | *9* |
| 362 Glass and glass products | 17 | 13 | *19* | *21* |
| 369 Other non-metal mineral products | 189 | 105 | *115* | *109* |
| 371 Iron and steel | 27 | 44 | *37* | *32* |
| 372 Non-ferrous metals | 41 | 48 | *61* | *49* |
| 381 Metal products | 108 | 92 | *84* | *90* |
| 382 Non-electrical machinery | *114* | *164* | *127* | *95* |
| 383 Electrical machinery | 60 | 58 | *58* | *51* |
| 384 Transport equipment | *232* | *331* | *254* | *192* |
| 385 Professional and scientific equipment | *17* | *24* | *19* | *14* |
| 390 Other manufacturing industries | 202 | 189 | *203* | *165* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

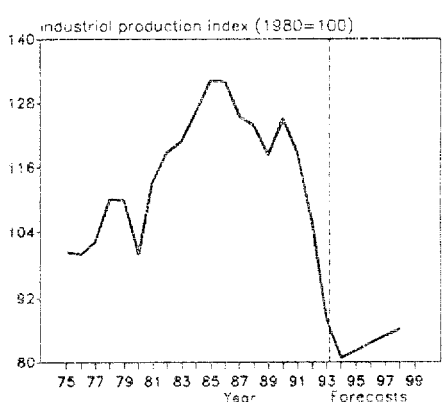
GDP per capita (1000$)/c




Manufacturing share in NMP current prices (%)

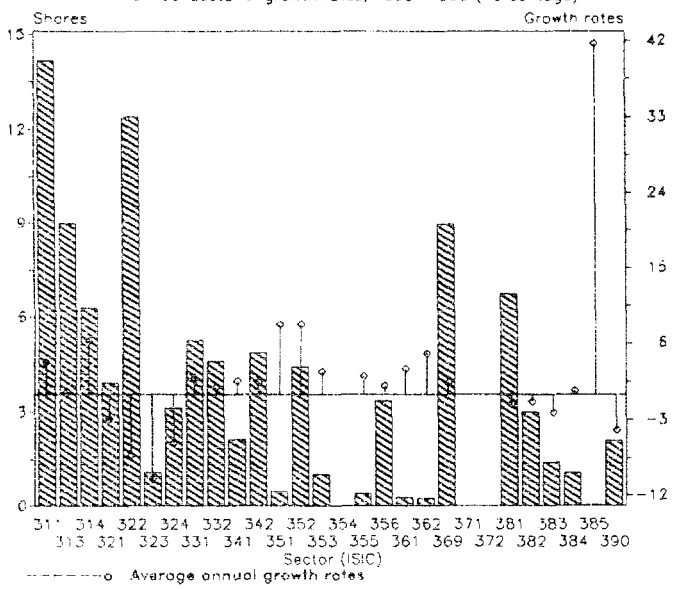



Industrial production index (1980=100)

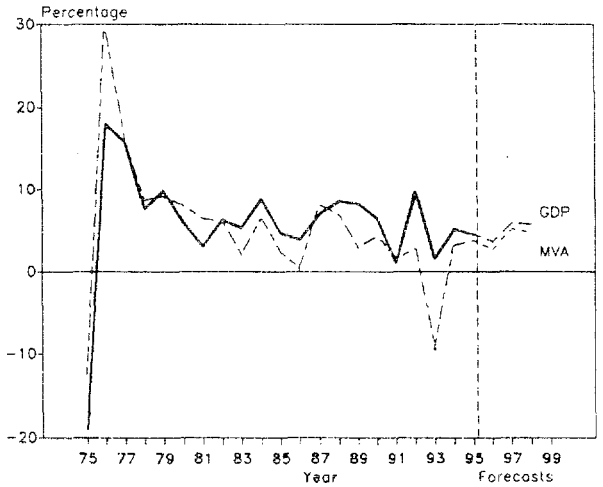


## CYPRUS

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

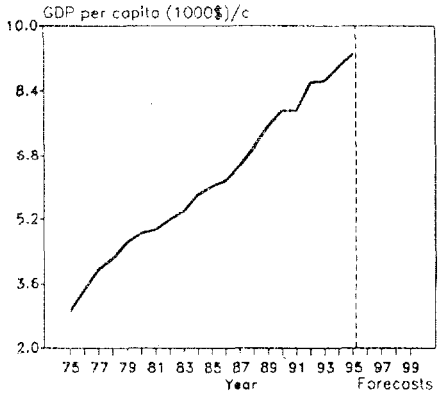



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

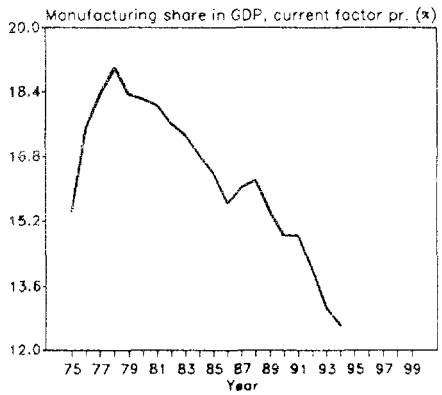
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 3 051 | 4 010 | 5 574 | 6 600 |
| Per capita [na] (1990-dollars) | 4 850 | 6 030 | 7 939 | 8 992 |
| Manufacturing share [na] (%) (current factor prices) | 18.2 | 16.4 | 14.8 | *12.5* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 513 | 641 | 796 | 774 |
| Industrial production index (1980=100) | 100 | 117 | 143 | 139 |
| Value added (millions of dollars) | 406 | 378 | 792 | 899 |
| Gross output (millions of dollars) | 1 134 | 1 122 | 2 196 | 2 302 |
| Employment (thousands) | 34 | 39 | 43 | 40 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 64 | 66 | 64 | 61 |
| Wages and salaries including supplements | *15* | 18 | 19 | *22* |
| Gross operating surplus and net taxes (%) | *21* | 16 | 17 | *17* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 29 417 | 25 804 | 46 057 | 53 226 |
| Value added per worker | 10 525 | 8 697 | 16 606 | 20 782 |
| Average wage (including supplements) | *5 062* | 5 143 | 9 738 | *12 616* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 13.84 | 13.72 | 8.69 | 7.62 |
| as a percentage of 1970-1975 structural change | 100 | 99 | 63 | 55 |
| MVA growth rate per structural change (%) | 5.98 | 6.63 | 2.95 | 2.54 |
| Degree of specialization | 11.3 | 11.7 | 13.3 | 13.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 42 | 49 | 101 | 136 |
| 313 Beverages | 37 | 29 | 73 | 84 |
| 314 Tobacco products | 36 | 26 | 41 | 63 |
| 321 Textiles | 16 | 14 | 32 | 31 |
| 322 Wearing apparel | 53 | 54 | 118 | 90 |
| 323 Leather and fur products | 5 | 6 | 11 | 7 |
| 324 Footwear | 21 | 19 | 30 | 25 |
| 331 Wood and wood products | 19 | 23 | 39 | 48 |
| 332 Furniture and fixtures | 17 | 22 | 36 | 42 |
| 341 Paper and paper products | 11 | 8 | 17 | 21 |
| 342 Printing and publishing | 15 | 18 | 37 | 44 |
| 351 Industrial chemicals | 3 | 2 | 3 | 5 |
| 352 Other chemical products | 12 | 12 | 28 | 46 |
| 353 Petroleum refineries | 6 | 5 | 7 | 10 |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 3 | 2 | 3 | 4 |
| 356 Plastic products | 11 | 11 | 25 | 29 |
| 361 Pottery, china and earthenware | - | 1 | 2 | 2 |
| 362 Glass and glass products | - | - | 1 | 2 |
| 369 Other non-metal mineral products | 44 | 24 | 69 | 85 |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 23 | 26 | 55 | 58 |
| 382 Non-electrical machinery | 11 | 12 | 24 | 26 |
| 383 Electrical machinery | 5 | 6 | 12 | 12 |
| 384 Transport equipment | 8 | 4 | 9 | 10 |
| 385 Professional and scientific equipment | - | - | - | 1 |
| 390 Other manufacturing industries | 7 | 7 | 19 | 18 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

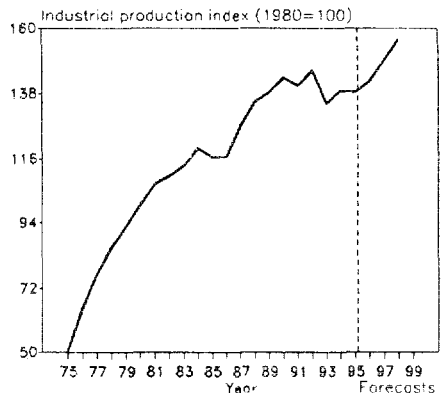
GDP per capita (1000$)/c



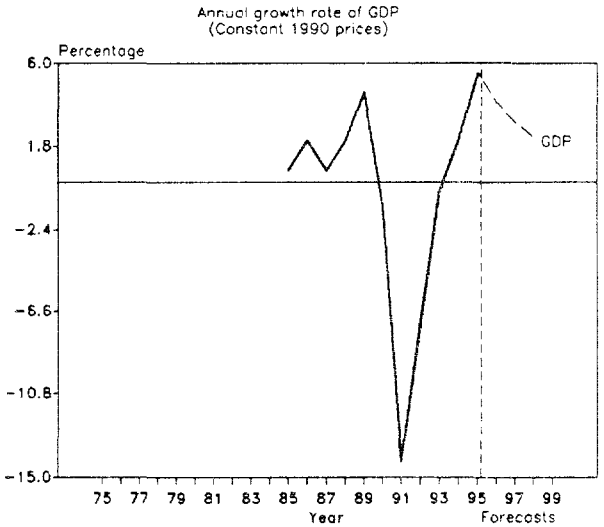

Manufacturing share in GDP, current factor pr. (%)

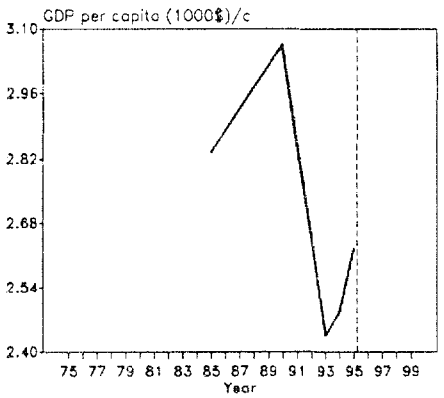



Industrial production index (1980=100)



**CZECH REPUBLIC**

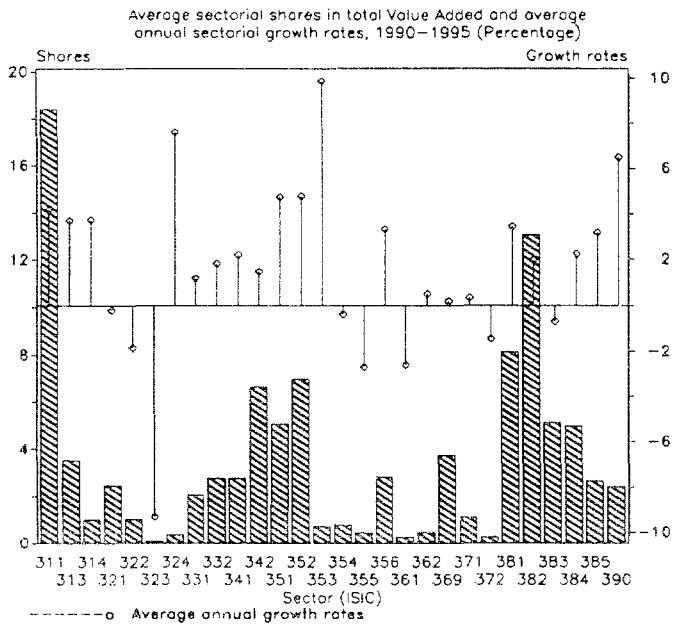


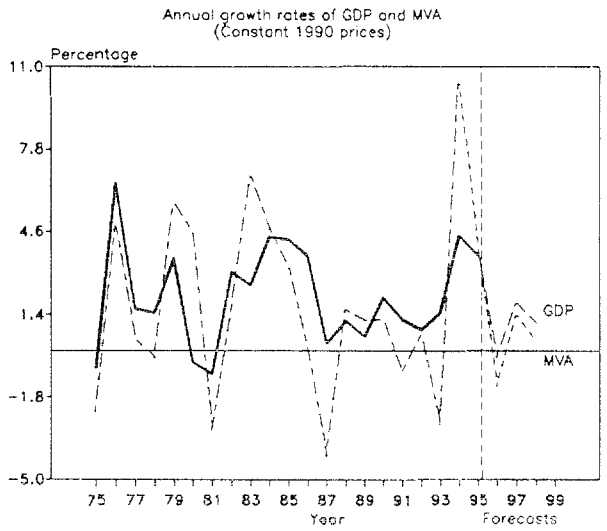




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | .. | 29 214 | 31 604 | 25 597 |
| Per capita [na] (1990-dollars) | .. | 2 835 | 3 067 | 2 486 |
| Manufacturing share [na] (%) (current factor prices) | .. | .. | .. | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | .. | .. | .. | .. |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | .. | .. | .. | .. |
| Gross output (millions of dollars) | 30 577 | *28 725* | *36 458* | *46 951* |
| Employment (thousands) | .. | *1 758* | 1 577 | *1 186* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | .. | .. | .. | .. |
| Wages and salaries including supplements | .. | .. | .. | .. |
| Gross operating surplus and net taxes (%) | .. | .. | .. | .. |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | .. | *16 336* | *23 119* | *39 599* |
| Value added per worker | .. | .. | .. | .. |
| Average wage (including supplements) | .. | *2 151* | 2 223 | *2 685* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | .. | .. | .. | .. |
| as a percentage of 1970-1975 structural change | .. | .. | .. | .. |
| MVA growth rate per structural change (%) | .. | .. | .. | .. |
| Degree of specialization | .. | .. | .. | .. |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | .. | .. | .. | .. |
| 313 Beverages | .. | .. | .. | .. |
| 314 Tobacco products | .. | .. | .. | .. |
| 321 Textiles | .. | .. | .. | .. |
| 322 Wearing apparel | .. | .. | .. | .. |
| 323 Leather and fur products | .. | .. | .. | .. |
| 324 Footwear | .. | .. | .. | .. |
| 331 Wood and wood products | .. | .. | .. | .. |
| 332 Furniture and fixtures | .. | .. | .. | .. |
| 341 Paper and paper products | .. | .. | .. | .. |
| 342 Printing and publishing | .. | .. | .. | .. |
| 351 Industrial chemicals | .. | .. | .. | .. |
| 352 Other chemical products | .. | .. | .. | .. |
| 353 Petroleum refineries | .. | .. | .. | .. |
| 354 Miscellaneous petroleum and coal products | .. | .. | .. | .. |
| 355 Rubber products | .. | .. | .. | .. |
| 356 Plastic products | .. | .. | .. | .. |
| 361 Pottery, china and earthenware | .. | .. | .. | .. |
| 362 Glass and glass products | .. | .. | .. | .. |
| 369 Other non-metal mineral products | .. | .. | .. | .. |
| 371 Iron and steel | .. | .. | .. | .. |
| 372 Non-ferrous metals | .. | .. | .. | .. |
| 381 Metal products | .. | .. | .. | .. |
| 382 Non-electrical machinery | .. | .. | .. | .. |
| 383 Electrical machinery | .. | .. | .. | .. |
| 384 Transport equipment | .. | .. | .. | .. |
| 385 Professional and scientific equipment | .. | .. | .. | .. |
| 390 Other manufacturing industries | .. | .. | .. | .. |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

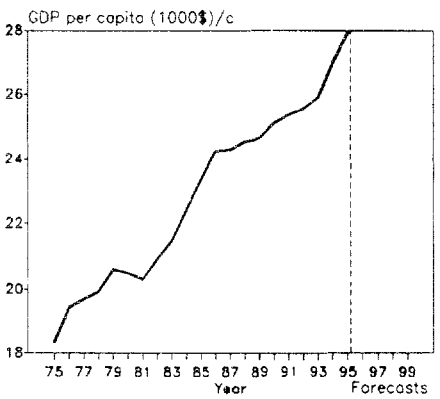
**DENMARK**

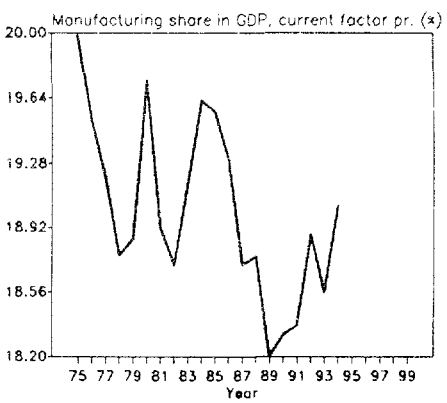


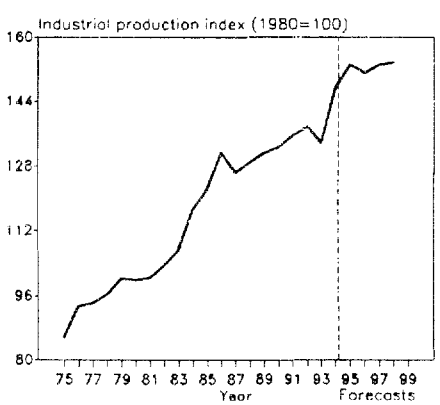




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 104 994 | 119 647 | 129 116 | 139 659 |
| Per capita [na] (1990-dollars) | 20 495 | 23 396 | 25 120 | 26 998 |
| Manufacturing share [na] (%) (current factor prices) | 19.7 | 19.6 | 18.3 | *19.0* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 18 562 | 21 047 | 20 992 | 22 453 |
| Industrial production index (1980=100) | 100 | 122 | 133 | 148 |
| Value added (millions of dollars) | 11 944 | 10 451 | 22 988 | *26 633* |
| Gross output (millions of dollars) | 29 347 | 25 713 | 52 700 | *61 511* |
| Employment (thousands) | 381 | 405 | 511 | *494* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 59 | 59 | 56 | *57* |
| Wages and salaries including supplements | 26 | 24 | 28 | *26* |
| Gross operating surplus (%) | 15 | 17 | 15 | *17* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 76 623 | 63 316 | 99 957 | *123 541* |
| Value added per worker | 31 187 | 25 734 | 43 602 | *54 677* |
| Average wage (including supplements) | 19 697 | 15 021 | 29 241 | *33 017* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 7.43 | 4.77 | 3.59 | *4.43* |
| as a percentage of 1970-1975 structural change | 100 | 64 | 48 | *60* |
| MVA growth rate per structural change (%) | 0.64 | 3.04 | 2.66 | 2.43 |
| Degree of specialization | 14.8 | 15.1 | 15.1 | 15.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 2 232 | 1 925 | 4 072 | *4 964* |
| 313 Beverages | 484 | 381 | 757 | *945* |
| 314 Tobacco products | 108 | 95 | 203 | *260* |
| 321 Textiles | 366 | 324 | 610 | *631* |
| 322 Wearing apparel | 204 | 176 | 259 | *253* |
| 323 Leather and fur products | 27 | 18 | 25 | *16* |
| 324 Footwear | 55 | 38 | 65 | *100* |
| 331 Wood and wood products | 252 | 193 | 486 | *537* |
| 332 Furniture and fixtures | 271 | 305 | 642 | *721* |
| 341 Paper and paper products | 300 | 262 | 628 | *726* |
| 342 Printing and publishing | 845 | 675 | 1 592 | *1 746* |
| 351 Industrial chemicals | 534 | 482 | 1 107 | *1 404* |
| 352 Other chemical products | 604 | 599 | 1 537 | *1 900* |
| 353 Petroleum refineries | 53 | 51 | 118 | *193* |
| 354 Miscellaneous petroleum and coal products | 64 | 59 | 207 | *205* |
| 355 Rubber products | 75 | 56 | 122 | *113* |
| 356 Plastic products | 238 | 264 | 635 | *767* |
| 361 Pottery, china and earthenware | 83 | 40 | 71 | *67* |
| 362 Glass and glass products | 94 | 58 | 114 | *120* |
| 369 Other non-metal mineral products | 568 | 432 | 941 | *968* |
| 371 Iron and steel | 167 | 118 | 281 | *292* |
| 372 Non-ferrous metals | 67 | 42 | 73 | *69* |
| 381 Metal products | 825 | 798 | 1 837 | *2 178* |
| 382 Non-electrical machinery | 1 616 | 1 387 | 3 050 | *3 443* |
| 383 Electrical machinery | 703 | 622 | 1 319 | *1 311* |
| 384 Transport equipment | 644 | 572 | 1 128 | *1 316* |
| 385 Professional and scientific equipment | 275 | 294 | 622 | *701* |
| 390 Other manufacturing industries | 192 | 185 | 489 | *685* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

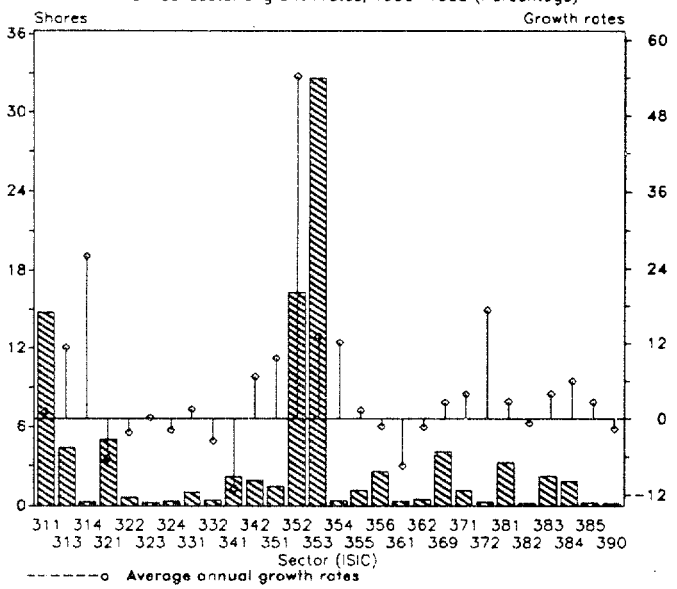


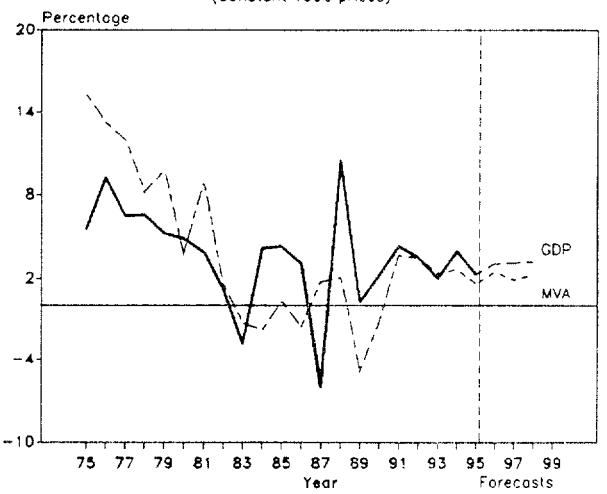



**ECUADOR**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

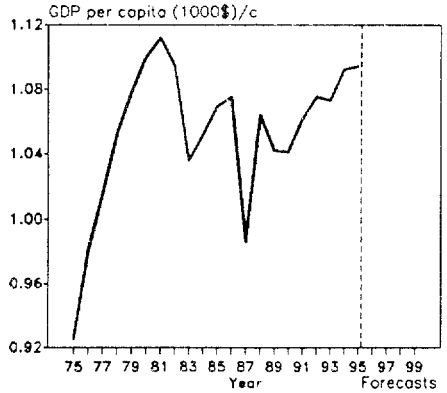



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

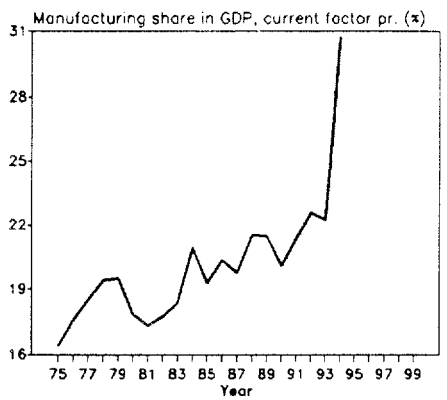
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 8 755 | 9 730 | 10 686 | 12 257 |
| Per capita [na] (1990-dollars) | 1 100 | 1 069 | 1 041 | 1 092 |
| Manufacturing share [na] (%) (current factor prices) | 17.8 | 19.3 | 20.1 | *30.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 2 017 | 2 160 | 2 068 | *2 329* |
| Industrial production index (1980=100) | 100 | 110 | 128 | *162* |
| Value added (millions of dollars) | 1 289 | 1 322 | 1 196 | 3 095 |
| Gross output (millions of dollars) | 3 571 | 4 379 | 3 934 | 7 834 |
| Employment (thousands) | 112 | 97 | 112 | 124 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 64 | 70 | 70 | 60 |
| Wages and salaries including supplements | *16* | 13 | 9 | *4* |
| Gross operating surplus and net taxes (%) | *21* | 18 | 21 | *36* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 31 623 | 45 072 | 35 083 | 63 021 |
| Value added per worker | 11 414 | 13 606 | 10 667 | 24 896 |
| Average wage (including supplements) | *4 976* | 5 677 | 3 137 | *2 461* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 11.22 | 11.99 | 20.04 | 30.12 |
| as a percentage of 1970-1975 structural change | 100 | 107 | 179 | 269 |
| MVA growth rate per structural change (%) | 5.13 | 1.67 | 0.73 | 2.41 |
| Degree of specialization | 17.2 | 16.7 | 27.5 | 37.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 294 | 328 | 228 | 366 |
| 313 Beverages | 96 | 65 | 33 | 86 |
| 314 Tobacco products | 46 | 17 | 1 | 7 |
| 321 Textiles | 134 | 146 | 95 | 103 |
| 322 Wearing apparel | 20 | 15 | 10 | 13 |
| 323 Leather and fur products | 7 | 6 | 4 | 5 |
| 324 Footwear | 6 | 7 | 6 | 7 |
| 331 Wood and wood products | 35 | 18 | 16 | 25 |
| 332 Furniture and fixtures | 28 | 23 | 9 | 11 |
| 341 Paper and paper products | 42 | 41 | 34 | 27 |
| 342 Printing and publishing | 40 | 35 | 27 | 54 |
| 351 Industrial chemicals | 25 | 32 | 17 | 40 |
| 352 Other chemical products | 90 | 76 | 75 | 923 |
| 353 Petroleum refineries | 29 | 38 | 374 | 989 |
| 354 Miscellaneous petroleum and coal products | 4 | 14 | 4 | 10 |
| 355 Rubber products | 25 | 29 | 17 | 27 |
| 356 Plastic products | 34 | 57 | 42 | 57 |
| 361 Pottery, china and earthenware | 7 | 15 | 7 | 7 |
| 362 Glass and glass products | 9 | 15 | 8 | 11 |
| 369 Other non-metal mineral products | 100 | 101 | 60 | 99 |
| 371 Iron and steel | 25 | 56 | 19 | 33 |
| 372 Non-ferrous metals | 5 | 10 | 2 | 8 |
| 381 Metal products | 93 | 78 | 44 | 73 |
| 382 Non-electrical machinery | 4 | 7 | 3 | 4 |
| 383 Electrical machinery | 59 | 58 | 32 | 57 |
| 384 Transport equipment | 23 | 23 | 22 | 42 |
| 385 Professional and scientific equipment | 2 | 9 | 3 | 5 |
| 390 Other manufacturing industries | 7 | 5 | 3 | 5 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

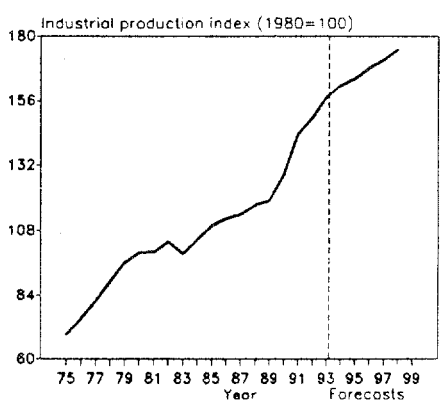
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

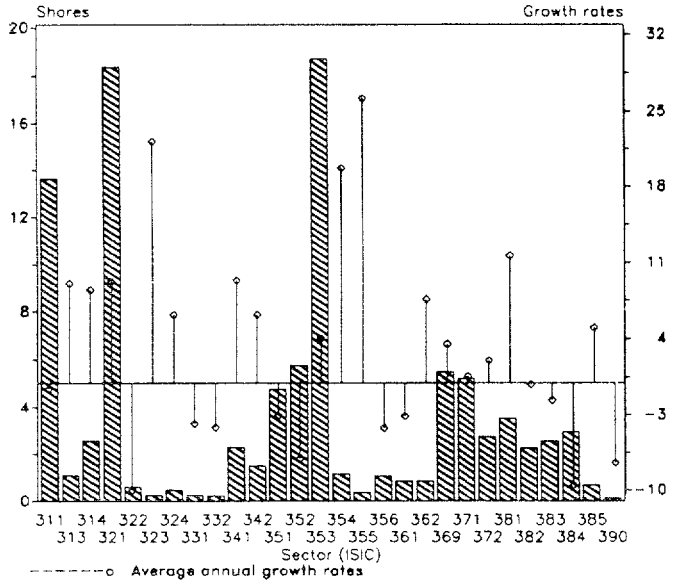



Industrial production index (1980=100)

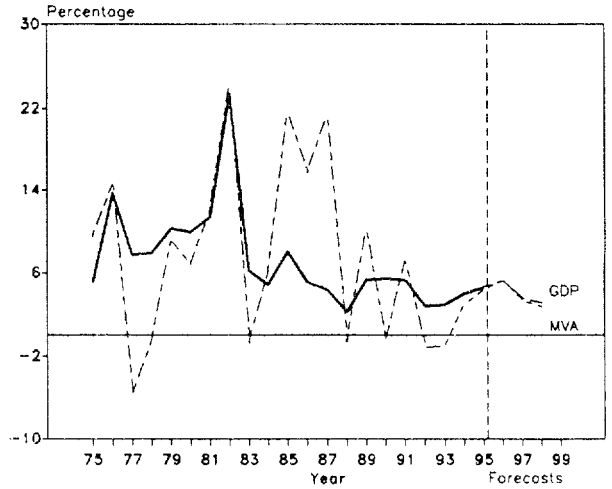


## EGYPT

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

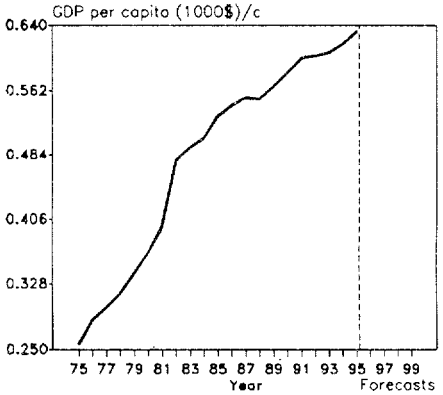



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

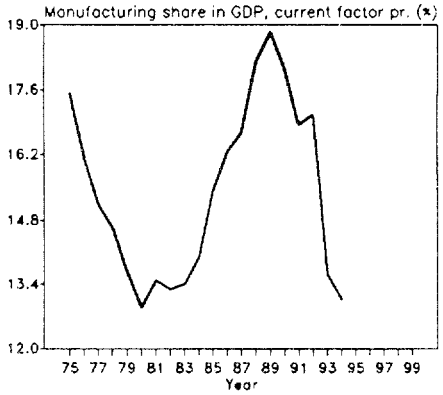
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 15 986 | 26 438 | 32 907 | 38 104 |
| Per capita [na] (1990-dollars) | 365 | 531 | 584 | 618 |
| Manufacturing share [na] (%) (current factor prices) | 12.9 | 15.4 | 18.0 | *13.0* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 2 041 | 3 612 | 5 502 | *5 920* |
| Industrial production index (1980=100) | 100 | 183 | 155 | *169* |
| Value added (millions of dollars) | 1 769 | 2 938 | 4 498 | *6 405* |
| Gross output (millions of dollars) | 6 986 | 10 260 | 15 664 | *19 566* |
| Employment (thousands) | 868 | 907 | 1 077 | *1 155* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 75 | 71 | 71 | *67* |
| Wages and salaries including supplements | *17* | *18* | *12* | *10* |
| Gross operating surplus and net taxes (%) | *8* | *10* | *17* | *22* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 7 984 | 11 232 | 14 550 | *16 945* |
| Value added per worker | 2 023 | 3 216 | 4 178 | *5 549* |
| Average wage (including supplements) | *1 360* | *2 058* | *1 756* | *1 751* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 11.36 | 17.07 | 23.50 | *15.60* |
| as a percentage of 1970-1975 structural change | 100 | 150 | 207 | *137* |
| MVA growth rate per structural change (%) | 3.23 | 1.42 | 1.13 | 1.43 |
| Degree of specialization | 22.6 | 15.0 | 21.3 | 22.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 308 | 421 | 712 | *860* |
| 313 Beverages | 14 | 71 | 35 | *65* |
| 314 Tobacco products | 21 | 131 | 100 | *190* |
| 321 Textiles | 506 | 509 | 635 | *1 264* |
| 322 Wearing apparel | 6 | 15 | 40 | *28* |
| 323 Leather and fur products | 3 | 7 | 5 | *17* |
| 324 Footwear | 22 | 9 | 17 | *29* |
| 331 Wood and wood products | 9 | 24 | 13 | *14* |
| 332 Furniture and fixtures | 7 | 19 | 10 | *10* |
| 341 Paper and paper products | 42 | 76 | 63 | *124* |
| 342 Printing and publishing | 39 | 101 | 57 | *96* |
| 351 Industrial chemicals | 69 | 145 | 254 | *272* |
| 352 Other chemical products | 87 | 205 | 365 | *314* |
| 353 Petroleum refineries | 40 | 59 | 867 | *1 329* |
| 354 Miscellaneous petroleum and coal products | 61 | 78 | 27 | *83* |
| 355 Rubber products | 12 | 28 | 6 | *23* |
| 356 Plastic products | 33 | -21 | 54 | *54* |
| 361 Pottery, china and earthenware | 6 | 12 | 47 | *50* |
| 362 Glass and glass products | 17 | 22 | 31 | *57* |
| 369 Other non-metal mineral products | 78 | 167 | 248 | *365* |
| 371 Iron and steel | 88 | 98 | 235 | *303* |
| 372 Non-ferrous metals | 64 | 279 | 132 | *176* |
| 381 Metal products | 42 | 95 | 108 | *235* |
| 382 Non-electrical machinery | 54 | 83 | 107 | *131* |
| 383 Electrical machinery | 69 | 181 | 120 | *136* |
| 384 Transport equipment | 65 | 106 | 178 | *132* |
| 385 Professional and scientific equipment | 4 | 13 | 28 | *44* |
| 390 Other manufacturing industries | 1 | 6 | 6 | *5* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

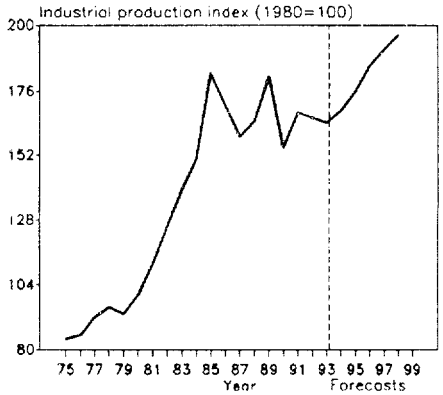
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

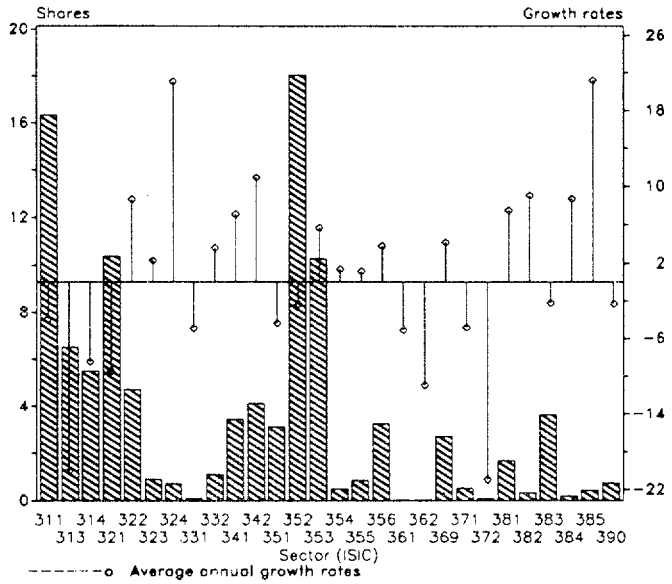



Industrial production index (1980=100)

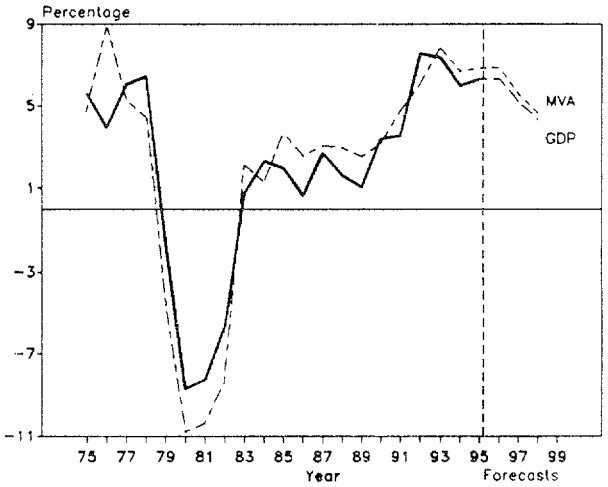


**EL SALVADOR**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

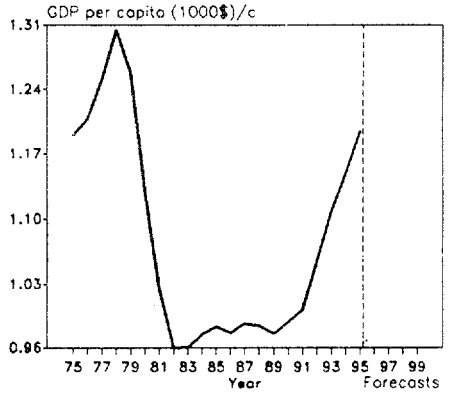



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

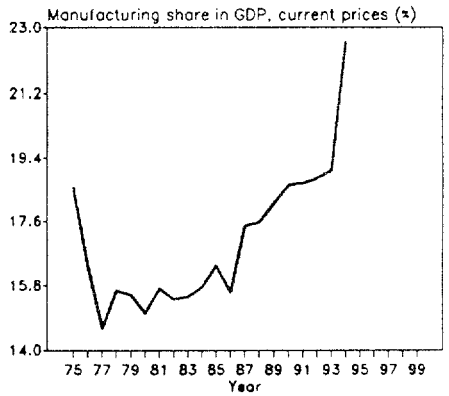
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 5 119 | 4 660 | 5 113 | 6 479 |
| Per capita [na] (1990-dollars) | 1 131 | 983 | 989 | 1 149 |
| Manufacturing share [na] (%) (current factor prices) | 15.0 | 16.4 | 18.6 | *22.6* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 943 | 828 | 952 | *1 216* |
| Industrial production index (1980=100) | 100 | 88 | 101 | *129* |
| Value added (millions of dollars) | 448 | 393 | *569* | *521* |
| Gross output (millions of dollars) | 1 130 | 860 | *1 272* | *1 111* |
| Employment (thousands) | 39 | 25 | *26* | *48* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 60 | 54 | *55* | *53* |
| Wages and salaries including supplements | *15* | *12* | *10* | *13* |
| Gross operating surplus and net taxes (%) | *24* | *34* | *34* | *34* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 28 857 | 34 129 | *46 893* | *22 960* |
| Value added per worker | 11 426 | 15 593 | *21 162* | *10 823* |
| Average wage (including supplements) | *4 376* | *3 991* | *5 012* | *3 060* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 19.26 | 21.78 | *14.77* | *14.63* |
| as a percentage of 1970-1975 structural change | 100 | 113 | *77* | *76* |
| MVA growth rate per structural change (%) | 1.05 | -1.28 | -0.84 | -0.28 |
| Degree of specialization | 19.1 | 18.0 | 23.0 | 19.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 78 | 55 | *90* | *83* |
| 313 Beverages | 63 | 59 | *65* | *21* |
| 314 Tobacco products | 26 | 29 | *39* | *26* |
| 321 Textiles | 62 | 40 | *74* | *45* |
| 322 Wearing apparel | 16 | 10 | *18* | *28* |
| 323 Leather and fur products | 5 | 5 | *5* | *5* |
| 324 Footwear | 13 | 1 | *2* | *5* |
| 331 Wood and wood products | 1 | - | *1* | - |
| 332 Furniture and fixtures | 3 | 4 | *5* | *6* |
| 341 Paper and paper products | 40 | 24 | *16* | *22* |
| 342 Printing and publishing | 8 | 8 | *16* | *27* |
| 351 Industrial chemicals | 4 | 7 | *19* | *15* |
| 352 Other chemical products | 46 | 57 | *100* | *91* |
| 353 Petroleum refineries | 14 | 20 | *43* | *60* |
| 354 Miscellaneous petroleum and coal products | 2 | - | *2* | *3* |
| 355 Rubber products | 4 | 3 | *4* | *5* |
| 356 Plastic products | 13 | 15 | *16* | *20* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | 11 | 13 | *13* | *16* |
| 371 Iron and steel | 9 | 7 | *3* | *3* |
| 372 Non-ferrous metals | 1 | 1 | *1* | - |
| 381 Metal products | 10 | 12 | *8* | *11* |
| 382 Non-electrical machinery | 6 | 7 | *1* | *2* |
| 383 Electrical machinery | 9 | 12 | *21* | *19* |
| 384 Transport equipment | 1 | - | *1* | *1* |
| 385 Professional and scientific equipment | - | 1 | *1* | *3* |
| 390 Other manufacturing industries | 4 | 2 | *4* | *4* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

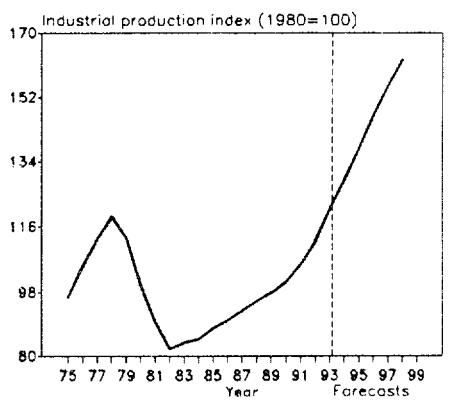
GDP per capita (1000$)/c



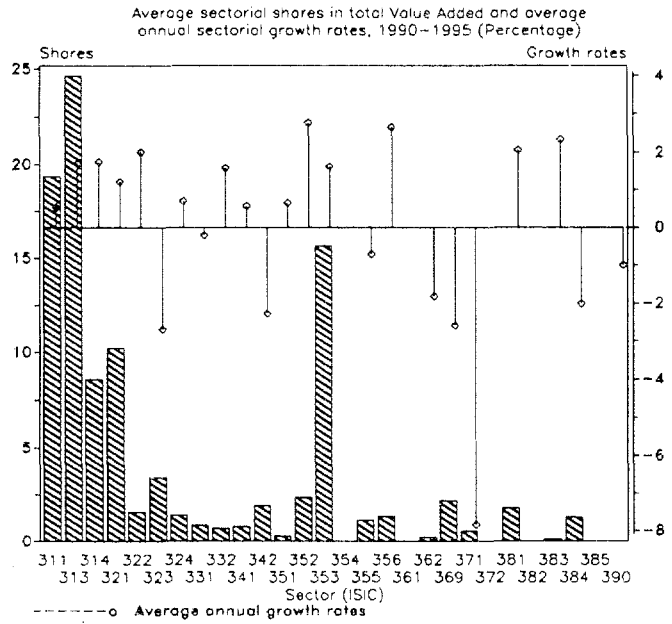

Manufacturing share in GDP, current prices (%)




Industrial production index (1980=100)

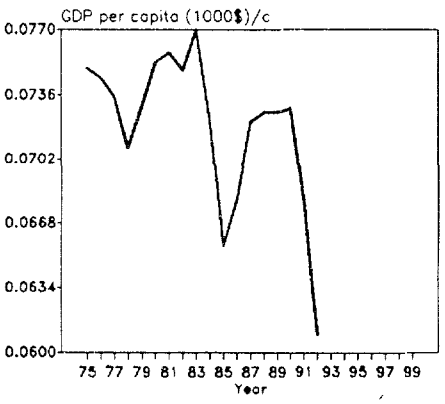


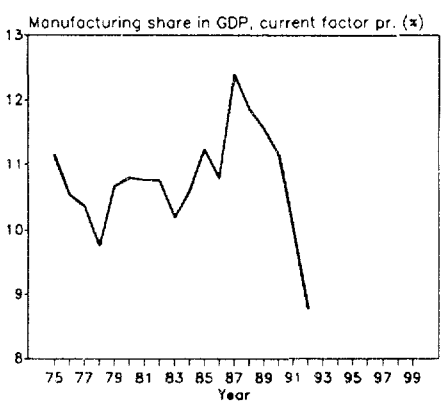
## ETHIOPIA (INCL. ERITREA)

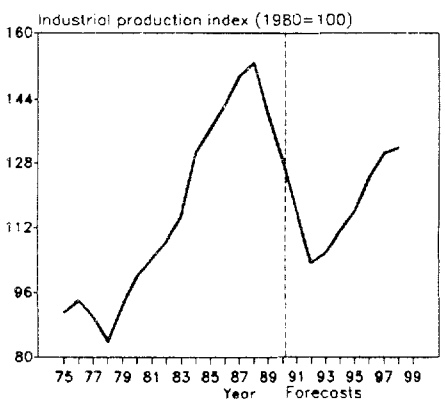



| | 1980 | 1985 | 1990 | 1992 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 2 919 | 2 875 | 3 681 | 3 266 |
| Per capita [na] (1990-dollars) | 75 | 66 | 73 | 61 |
| Manufacturing share [na] (%) (current factor prices) | 10.8 | 11.2 | 11.2 | 8.8 |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 260 | 311 | 375 | *358* |
| Industrial production index (1980=100) | 100 | 137 | 129 | *103* |
| Value added (millions of dollars) | 273 | *311* | *532* | *529* |
| Gross output (millions of dollars) | 604 | 741 | *1 155* | *1 105* |
| Employment (thousands) | 77 | *88* | *105* | *104* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 55 | *58* | *54* | *52* |
| Wages and salaries including supplements | *8* | *9* | *9* | *9* |
| Gross operating surplus and net taxes (%) | *37* | *33* | *37* | *39* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 7 859 | 8 385 | *10 959* | *10 591* |
| Value added per worker | 3 551 | *3 519* | *5 049* | *5 069* |
| Average wage (including supplements) | *642* | *718* | *987* | *985* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 11.57 | *15.90* | *14.54* | *11.78* |
| as a percentage of 1970-1975 structural change | 100 | *137* | *126* | *102* |
| MVA growth rate per structural change (%) | 3.44 | 1.06 | 1.63 | 1.38 |
| Degree of specialization | 25.8 | 21.7 | 26.1 | 27.2 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 66 | *61* | *106* | *97* |
| 313 Beverages | 50 | 76 | *129* | *130* |
| 314 Tobacco products | 18 | 19 | *45* | *45* |
| 321 Textiles | 63 | 37 | *52* | *57* |
| 322 Wearing apparel | 2 | 6 | *8* | *8* |
| 323 Leather and fur products | 9 | 7 | *21* | *18* |
| 324 Footwear | 6 | 5 | *8* | *7* |
| 331 Wood and wood products | 5 | 3 | *5* | *5* |
| 332 Furniture and fixtures | 1 | 2 | *3* | *4* |
| 341 Paper and paper products | 5 | 5 | *4* | *4* |
| 342 Printing and publishing | 6 | 9 | *11* | *10* |
| 351 Industrial chemicals | 1 | 1 | *1* | *1* |
| 352 Other chemical products | 8 | 11 | *12* | *12* |
| 353 Petroleum refineries | 12 | 29 | *78* | *88* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 4 | 7 | *6* | *6* |
| 356 Plastic products | 2 | 6 | *7* | *7* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | 1 | 2 | *1* | *1* |
| 369 Other non-metal mineral products | 5 | 10 | *13* | *11* |
| 371 Iron and steel | 5 | 4 | *4* | *3* |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 4 | 7 | *9* | *9* |
| 382 Non-electrical machinery | - | - | - | - |
| 383 Electrical machinery | - | - | - | - |
| 384 Transport equipment | - | 4 | *8* | *7* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | - | - | - | - |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.



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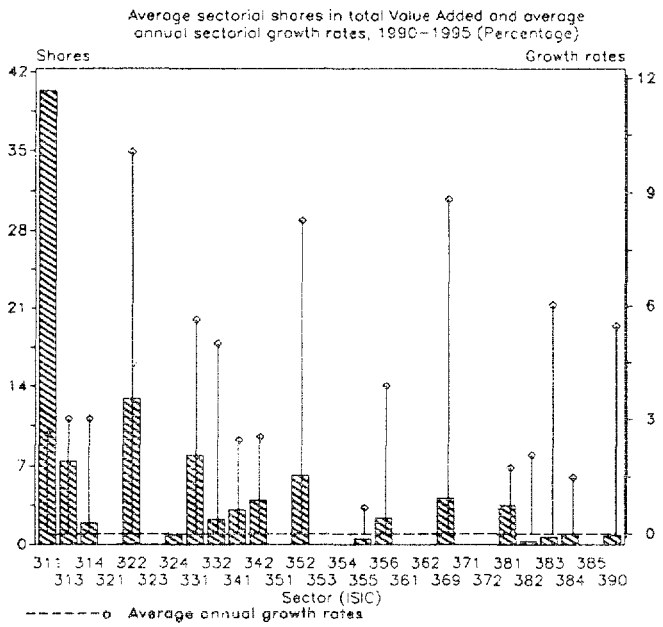
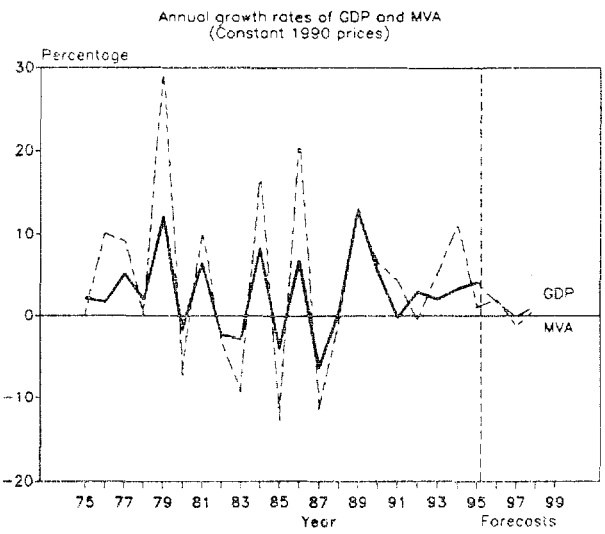
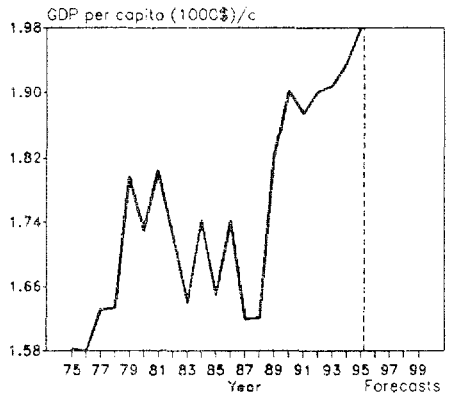
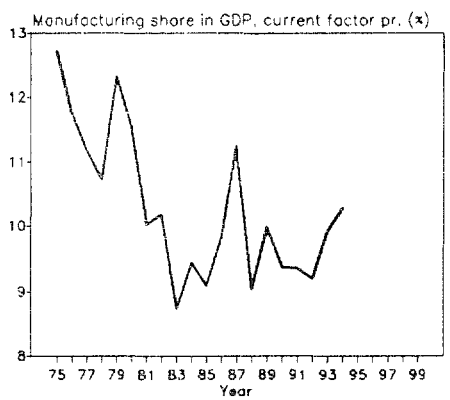


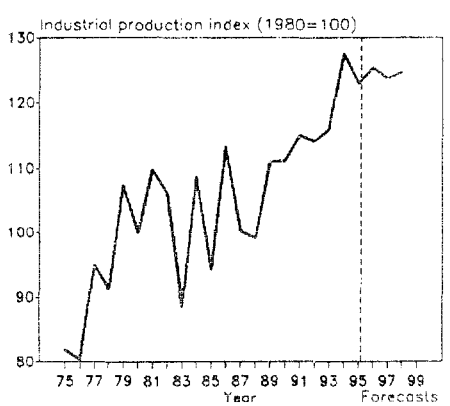




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 097 | 1 153 | 1 381 | 1 492 |
| Per capita [na] (1990-dollars) | 1 730 | 1 650 | 1 902 | 1 936 |
| Manufacturing share [na] (%) (current factor prices) | 11.5 | 9.1 | 9.4 | *10.3* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 99 | 97 | 122 | 146 |
| Industrial production index (1980=100) | 100 | 94 | 111 | 128 |
| Value added (millions of dollars) | 121 | 90 | 142 | *210* |
| Gross output (millions of dollars) | 489 | 395 | 642 | *834* |
| Employment (thousands) | 13 | 13 | 21 | *15* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 75 | 78 | 80 | *75* |
| Wages and salaries including supplements | 11 | 13 | 11 | *10* |
| Gross operating surplus and net taxes (%) | 14 | 8 | 9 | *15* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 37 145 | 28 850 | 30 433 | *53 616* |
| Value added per worker | 9 230 | 7 197 | 9 240 | *14 184* |
| Average wage (including supplements) | 4 114 | 3 992 | 3 253 | *5 414* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 9.91 | 13.07 | *14.43* | *12.59* |
| as a percentage of 1970-1975 structural change | 100 | 132 | *146* | *127* |
| MVA growth rate per structural change (%) | 3.58 | -0.08 | 0.75 | 2.30 |
| Degree of specialization | 40.4 | 24.4 | 27.3 | 26.2 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 71 | 37 | 60 | *84* |
| 313 Beverages | 6 | *7* | *11* | *15* |
| 314 Tobacco products | 2 | 2 | *3* | *4* |
| 321 Textiles | - | - | - | - |
| 322 Wearing apparel | 2 | *4* | *16* | *28* |
| 323 Leather and fur products | - | - | - | - |
| 324 Footwear | - | - | *1* | *2* |
| 331 Wood and wood products | 7 | 6 | 11 | *16* |
| 332 Furniture and fixtures | 3 | 3 | 3 | *5* |
| 341 Paper and paper products | 2 | 2 | 5 | *6* |
| 342 Printing and publishing | 4 | 5 | 6 | *8* |
| 351 Industrial chemicals | - | - | - | - |
| 352 Other chemical products | 4 | 5 | 7 | *13* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 1 | 1 | 1 | *1* |
| 356 Plastic products | 2 | 2 | 3 | *5* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | 6 | *7* | *5* | *9* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 6 | 4 | 5 | *8* |
| 382 Non-electrical machinery | 1 | - | - | *1* |
| 383 Electrical machinery | - | *1* | *1* | *1* |
| 384 Transport equipment | 4 | 3 | 1 | *2* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | - | 1 | 1 | *2* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

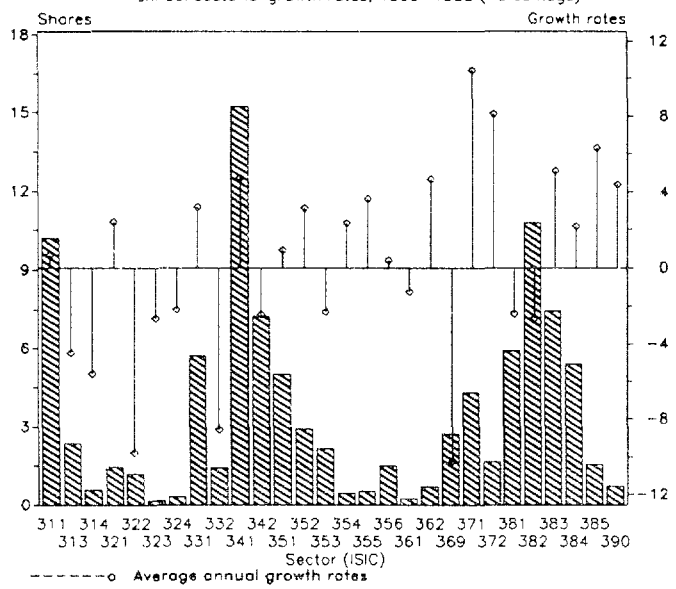


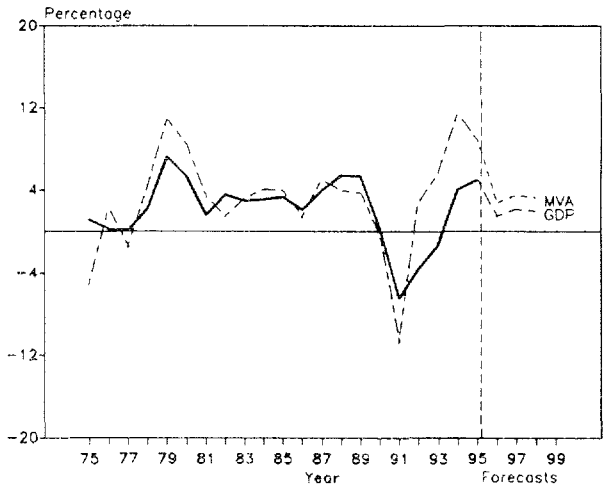



**FINLAND**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



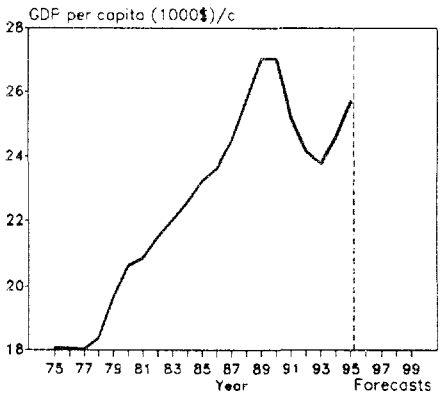

Annual growth rates of GDP and MVA (Constant 1990 prices)



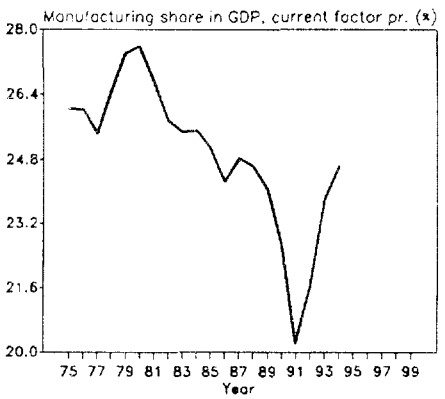

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 98 701 | 113 888 | 134 788 | 125 113 |
| Per capita [na] (1990-dollars) | 20 649 | 23 233 | 27 033 | 24 614 |
| Manufacturing share [na] (%) (current factor prices) | 27.6 | 25.1 | 22.7 | *24.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 20 708 | 24 192 | 27 558 | 29 713 |
| Industrial production index (1980=100) | 100 | 115 | 131 | 142 |
| Value added (millions of dollars) | 14 343 | 13 594 | 26 980 | 20 950 |
| Gross output (millions of dollars) | 40 839 | 36 967 | 74 497 | 59 336 |
| Employment (thousands) | 531 | 496 | 432 | 341 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 65 | 63 | 64 | 65 |
| Wages and salaries including supplements | 19 | 20 | 21 | *18* |
| Gross operating surplus and net taxes (%) | 16 | 17 | 15 | *18* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 76 435 | 74 030 | 171 573 | 173 801 |
| Value added per worker | 26 845 | 27 223 | 62 136 | 61 365 |
| Average wage (including supplements) | 14 694 | 14 599 | 36 741 | *30 933* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 9.30 | 8.04 | 7.62 | 7.26 |
| as a percentage of 1970-1975 structural change | 100 | 86 | 82 | 78 |
| MVA growth rate per structural change (%) | 3.00 | 1.45 | 0.04 | -0.50 |
| Degree of specialization | 13.3 | 13.8 | 13.8 | 15.2 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 1 402 | 1 413 | 2 576 | 1 935 |
| 313 Beverages | 225 | 227 | 666 | 386 |
| 314 Tobacco products | 46 | 57 | 177 | 100 |
| 321 Textiles | 469 | 309 | 386 | 321 |
| 322 Wearing apparel | 499 | 435 | 428 | 204 |
| 323 Leather and fur products | 54 | 38 | 48 | 31 |
| 324 Footwear | 134 | 106 | 93 | 60 |
| 331 Wood and wood products | 1 196 | 652 | 1 578 | 1 367 |
| 332 Furniture and fixtures | 257 | 215 | 515 | 238 |
| 341 Paper and paper products | 2 088 | 1 845 | 3 603 | 3 672 |
| 342 Printing and publishing | 1 080 | 1 222 | 2 113 | 1 357 |
| 351 Industrial chemicals | 555 | 561 | 1 371 | 1 040 |
| 352 Other chemical products | 349 | 371 | 707 | 607 |
| 353 Petroleum refineries | 445 | 384 | 674 | 432 |
| 354 Miscellaneous petroleum and coal products | 46 | 47 | 121 | 99 |
| 355 Rubber products | 105 | 84 | 133 | 118 |
| 356 Plastic products | 164 | 168 | 425 | 314 |
| 361 Pottery, china and earthenware | 46 | 40 | 73 | 51 |
| 362 Glass and glass products | 105 | 78 | 163 | 148 |
| 369 Other non-metal mineral products | 434 | 434 | 1 053 | 455 |
| 371 Iron and steel | 544 | 463 | 850 | 1 016 |
| 372 Non-ferrous metals | 142 | 103 | 363 | 405 |
| 381 Metal products | 756 | 768 | 1 759 | 1 145 |
| 382 Non-electrical machinery | 1 469 | 1 618 | 3 355 | 2 129 |
| 383 Electrical machinery | 694 | 764 | 1 832 | 1 703 |
| 384 Transport equipment | 823 | 915 | 1 405 | 1 130 |
| 385 Professional and scientific equipment | 110 | 166 | 344 | 337 |
| 390 Other manufacturing industries | 107 | 112 | 168 | 151 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

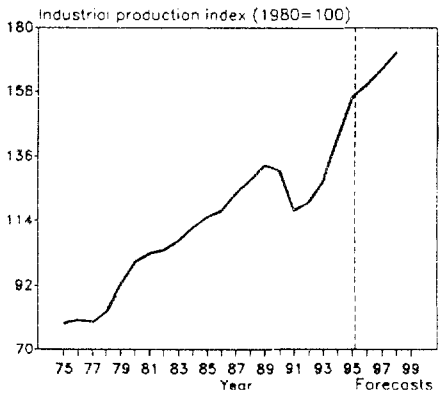
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

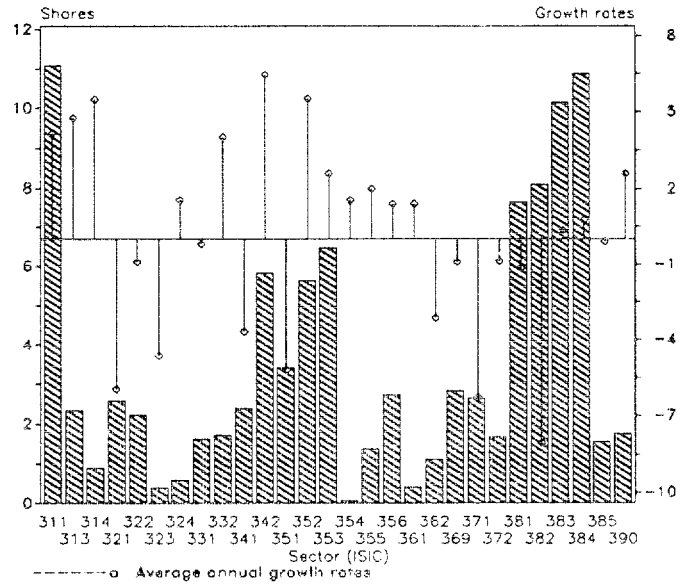



Industrial production index (1980=100)

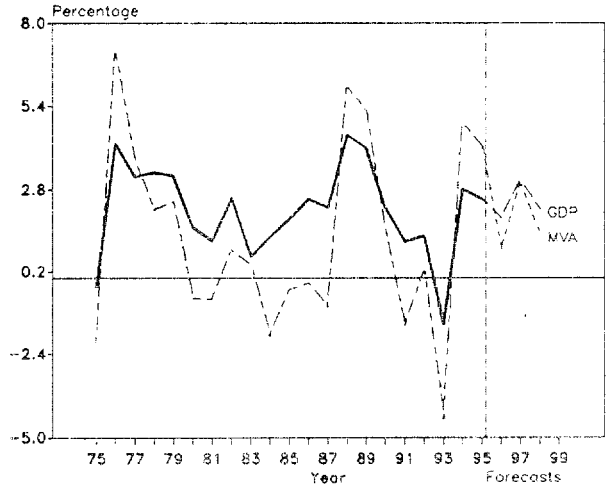


**FRANCE**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



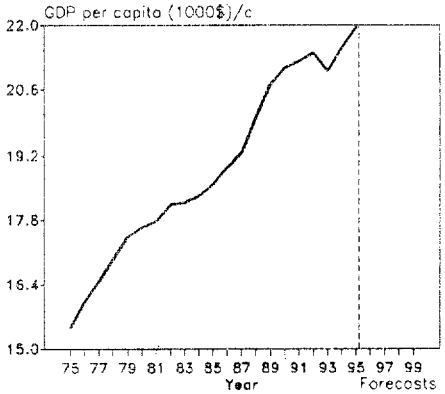

Annual growth rates of GDP and MVA (Constant 1990 prices)



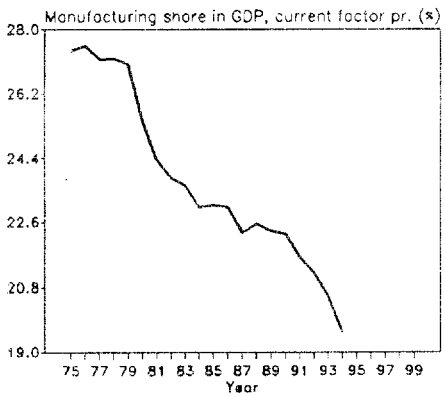

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 950 787 | 1 025 299 | 1 195 498 | 1 241 863 |
| Per capita [na] (1990-dollars) | 17 646 | 18 584 | 21 078 | 21 505 |
| Manufacturing share [na] (%) (current factor prices) | 25.5 | 23.1 | 22.3 | *19.6* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 232 560 | 228 763 | 256 107 | 253 271 |
| Industrial production index (1980=100) | 100 | 95 | 109 | 106 |
| Value added (millions of dollars) | 161 552 | 115 474 | 257 284 | *268 611* |
| Gross output (millions of dollars) | 453 636 | 326 406 | 681 401 | 685 694 |
| Employment (thousands) | 5 103 | 4 579 | 4 389 | *3 959* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 64 | 65 | 62 | *61* |
| Wages and salaries including supplements | 24 | 23 | 22 | *23* |
| Gross operating surplus and net taxes (%) | 11 | 12 | 16 | *17* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 84 523 | 67 851 | 148 266 | *165 478* |
| Value added per worker | 30 101 | 24 004 | 56 000 | *65 118* |
| Average wage (including supplements) | 21 643 | 16 725 | 34 299 | *39 098* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *4.74* | 4.61 | 5.23 | *6.20* |
| as a percentage of 1970-1975 structural change | *100* | 97 | 110 | *131* |
| MVA growth rate per structural change (%) | 2.19 | 0.72 | 1.08 | 1.01 |
| Degree of specialization | 10.4 | 11.1 | 11.1 | 11.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 15 952 | 12 825 | 25 556 | *31 850* |
| 313 Beverages | 3 486 | 2 268 | 5 382 | *7 000* |
| 314 Tobacco products | 1 497 | 948 | 1 919 | *2 687* |
| 321 Textiles | 6 130 | 4 239 | 7 666 | *6 128* |
| 322 Wearing apparel | 4 742 | 3 104 | 5 807 | *5 878* |
| 323 Leather and fur products | 757 | 527 | 1 130 | *946* |
| 324 Footwear | 1 411 | 929 | 1 420 | *1 572* |
| 331 Wood and wood products | 2 888 | 1 704 | 4 183 | *4 318* |
| 332 Furniture and fixtures | 2 846 | 1 632 | 3 973 | *4 953* |
| 341 Paper and paper products | 3 592 | 2 817 | 6 823 | *5 926* |
| 342 Printing and publishing | 6 660 | 5 069 | 12 500 | *17 124* |
| 351 Industrial chemicals | 6 462 | 4 669 | 10 873 | *8 330* |
| 352 Other chemical products | 6 302 | 4 996 | 12 427 | *16 498* |
| 353 Petroleum refineries | 9 973 | 8 127 | 15 129 | *17 966* |
| 354 Miscellaneous petroleum and coal products | 118 | *83* | *177* | *197* |
| 355 Rubber products | 2 483 | 1 544 | 3 341 | *3 729* |
| 356 Plastic products | 3 083 | 2 415 | 6 663 | *7 374* |
| 361 Pottery, china and earthenware | 639 | *406* | *1 000* | *1 093* |
| 362 Glass and glass products | 2 170 | 1 365 | 3 090 | *2 788* |
| 369 Other non-metal mineral products | 5 653 | 3 153 | 7 523 | *7 538* |
| 371 Iron and steel | 6 741 | 3 788 | 8 434 | *6 403* |
| 372 Non-ferrous metals | 2 479 | 2 340 | 4 534 | *4 453* |
| 381 Metal products | 12 119 | 7 792 | 20 097 | *19 783* |
| 382 Non-electrical machinery | 16 245 | 11 998 | 24 821 | *18 792* |
| 383 Electrical machinery | 14 411 | 11 491 | 25 771 | *26 923* |
| 384 Transport equipment | 17 733 | 11 316 | 28 618 | *29 222* |
| 385 Professional and scientific equipment | 2 206 | 1 752 | 4 109 | *4 141* |
| 390 Other manufacturing industries | 2 772 | 2 178 | 4 319 | *5 000* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

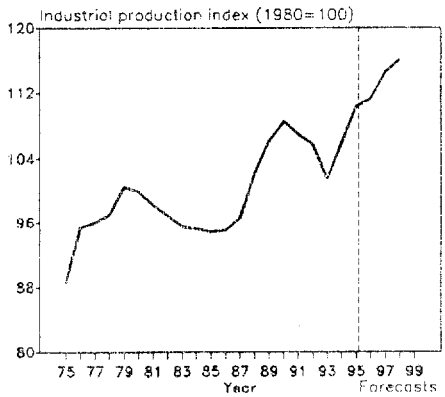
GDP per capita (1000$)/c



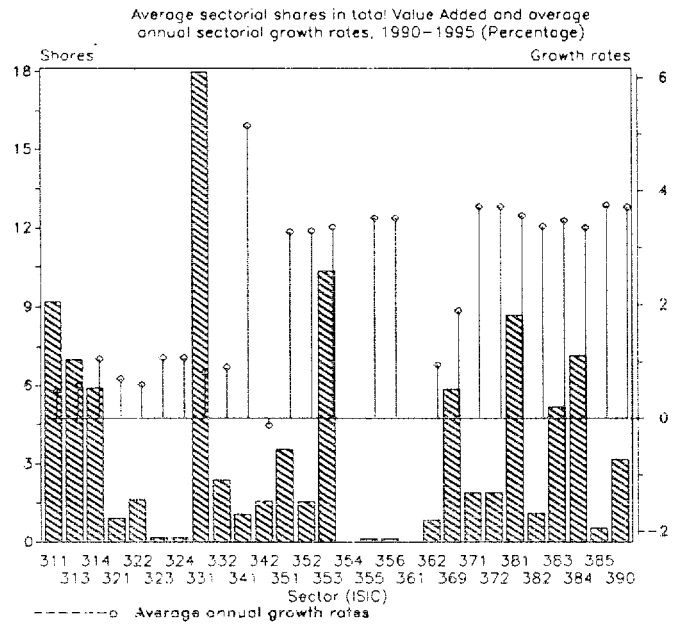

Manufacturing share in GDP, current factor pr. (%)

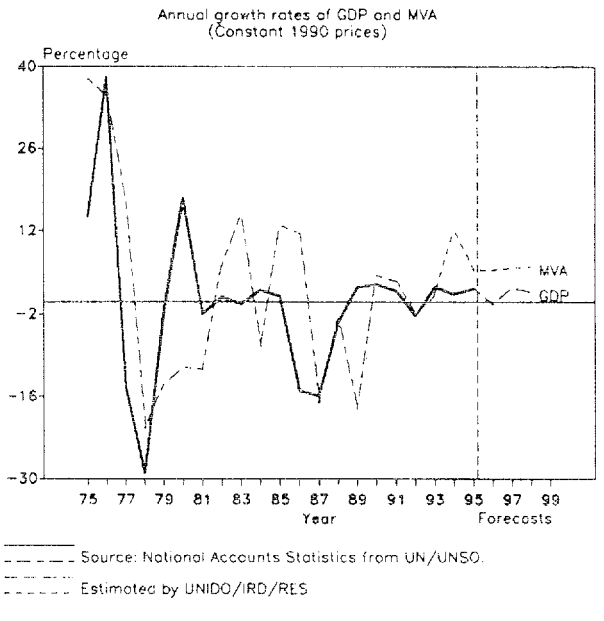



Industriol production index (1980=100)



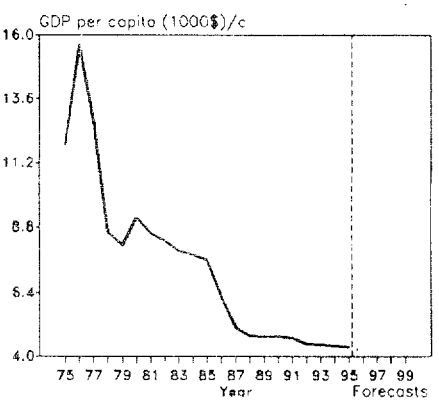
**GABON**

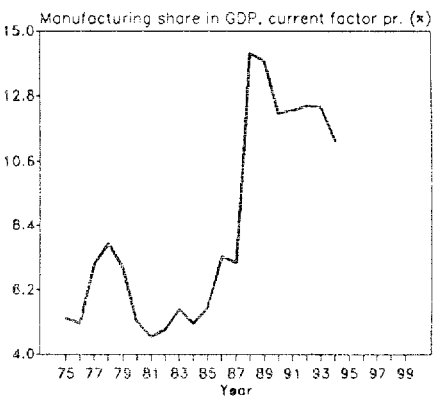


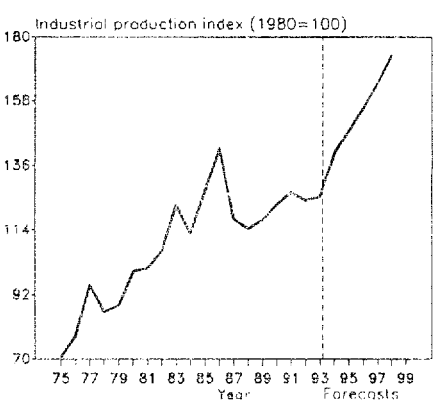




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 7 369 | 7 484 | 5 456 | 5 637 |
| Per capita [na] (1990-dollars) | 9 142 | 7 598 | 4 761 | 4 394 |
| Manufacturing share [na] (%) (current factor prices) | 5.1 | 5.6 | 12.2 | *11.3* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 740 | 825 | 631 | *722* |
| Industrial production index (1980=100) | 100 | 127 | 123 | *140* |
| Value added (millions of dollars) | 224 | *188* | *281* | *174* |
| Gross output (millions of dollars) | 690 | *630* | *935* | *592* |
| Employment (thousands) | *18* | *18* | *16* | *16* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *68* | *70* | *70* | *71* |
| Wages and salaries including supplements | *16* | *17* | *19* | *20* |
| Gross operating surplus and net taxes (%) | *16* | *13* | *11* | *10* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *38 481* | *35 477* | *59 531* | *35 912* |
| Value added per worker | *12 470* | *10 852* | *18 130* | *10 804* |
| Average wage (including supplements) | *6 283* | *6 107* | *11 669* | *7 243* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 20.11 | *14.98* | *9.24* | *3.21* |
| as a percentage of 1970-1975 structural change | 100 | *75* | *46* | *16* |
| MVA growth rate per structural change (%) | 2.04 | 0.54 | -0.28 | -0.66 |
| Degree of specialization | 21.0 | 16.2 | 15.8 | 15.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *18* | *17* | *26* | *16* |
| 313 Beverages | 19 | *13* | *20* | *12* |
| 314 Tobacco products | 17 | *12* | *17* | *10* |
| 321 Textiles | 3 | *2* | *3* | *2* |
| 322 Wearing apparel | 5 | *3* | *5* | *3* |
| 323 Leather and fur products | 1 | - | *1* | - |
| 324 Footwear | 1 | - | *1* | - |
| 331 Wood and wood products | 64 | *35* | *51* | *31* |
| 332 Furniture and fixtures | 9 | *5* | *7* | *4* |
| 341 Paper and paper products | 2 | *1* | *3* | *2* |
| 342 Printing and publishing | 3 | *3* | *5* | *3* |
| 351 Industrial chemicals | 6 | *6* | *10* | *6* |
| 352 Other chemical products | 3 | *3* | *4* | *3* |
| 353 Petroleum refineries | 18 | *18* | *28* | *18* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | - | - |
| 356 Plastic products | - | - | - | - |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | 1 | *2* | *2* | *1* |
| 369 Other non-metal mineral products | 8 | *14* | *17* | *10* |
| 371 Iron and steel | 3 | *3* | *5* | *3* |
| 372 Non-ferrous metals | 3 | *3* | *5* | *3* |
| 381 Metal products | 13 | *15* | *24* | *16* |
| 382 Non-electrical machinery | 2 | *2* | *3* | *2* |
| 383 Electrical machinery | 8 | *9* | *14* | *9* |
| 384 Transport equipment | 11 | *13* | *20* | *13* |
| 385 Professional and scientific equipment | 1 | *1* | *1* | *1* |
| 390 Other manufacturing industries | 5 | *6* | *9* | *6* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

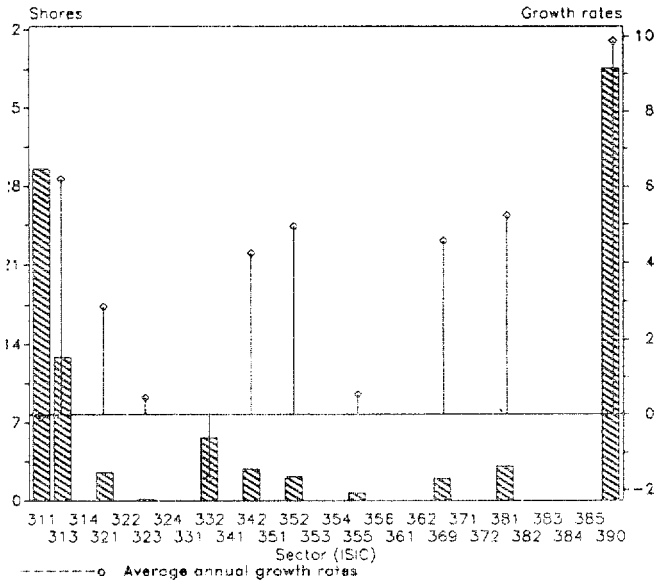


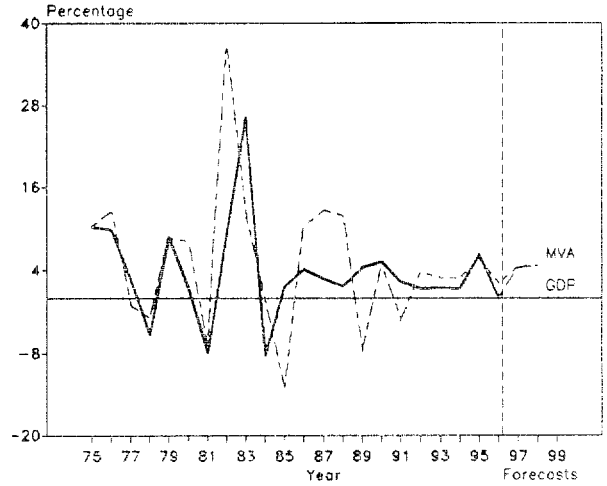



**GAMBIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

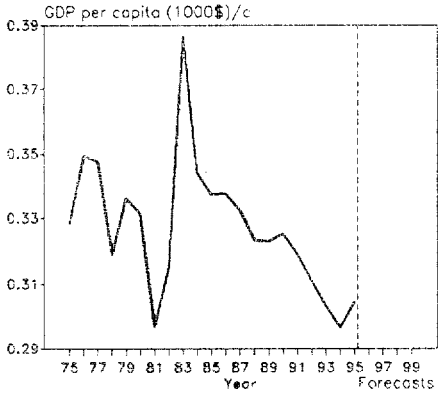



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

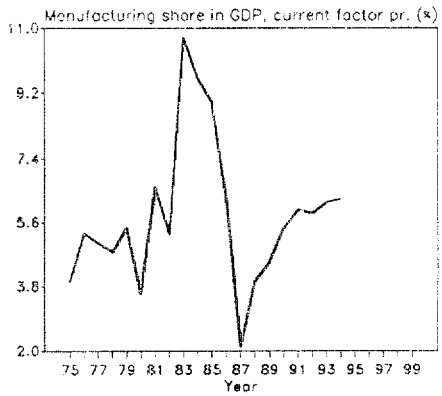
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 212 | 251 | 300 | 321 |
| Per capita [na] (1990-dollars) | 331 | 338 | 325 | 297 |
| Manufacturing share [na] (%) (current factor prices) | 3.6 | 8.9 | 5.4 | *6.3* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 10 | 13 | 17 | *18* |
| Industrial production index (1980=100) | 100 | *104* | 133 | *141* |
| Value added (millions of dollars) | 11 | *9* | *16* | *21* |
| Gross output (millions of dollars) | 30 | *41* | *57* | *69* |
| Employment (thousands) | 2 | *3* | *4* | *4* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 62 | *77* | *71* | *70* |
| Wages and salaries including supplements | 10 | *7* | *8* | *8* |
| Gross operating surplus and net taxes (%) | 28 | *16* | *21* | *22* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 16 115 | *14 058* | *16 890* | *18 681* |
| Value added per worker | 6 094 | *3 309* | *5 278* | *8 373* |
| Average wage (including supplements) | 1 566 | *1 007* | *1 330* | *1 468* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 33.35 | *44.64* | *19.51* | *12.20* |
| as a percentage of 1970-1975 structural change | 100 | *134* | *58* | *37* |
| MVA growth rate per structural change (%) | 2.11 | 1.42 | 0.88 | 2.05 |
| Degree of specialization | 36.7 | 32.4 | 29.4 | 31.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 3 | *4* | *5* | *6* |
| 313 Beverages | 1 | *1* | *2* | *3* |
| 314 Tobacco products | - | - | - | - |
| 321 Textiles | - | - | - | *1* |
| 322 Wearing apparel | - | - | - | - |
| 323 Leather and fur products | - | - | - | - |
| 324 Footwear | - | - | - | - |
| 331 Wood and wood products | - | - | - | - |
| 332 Furniture and fixtures | 1 | *1* | *1* | *1* |
| 341 Paper and paper products | - | - | - | - |
| 342 Printing and publishing | - | - | - | *1* |
| 351 Industrial chemicals | - | - | - | - |
| 352 Other chemical products | - | - | - | - |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | - | - |
| 356 Plastic products | - | - | - | - |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | - | - | - | - |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | - | - | - | *1* |
| 382 Non-electrical machinery | - | - | - | - |
| 383 Electrical machinery | - | - | - | - |
| 384 Transport equipment | - | - | - | - |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 6 | *2* | *6* | *8* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

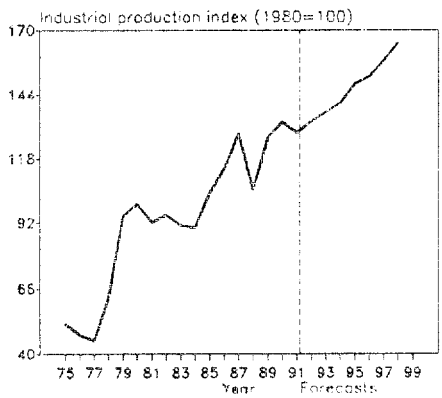
GDP per capita (1000$)/c



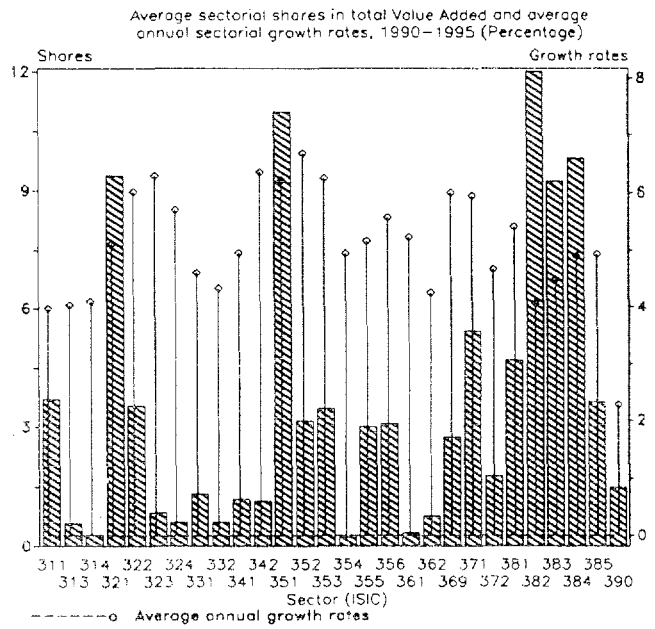

Manufacturing share in GDP, current factor pr. (%)

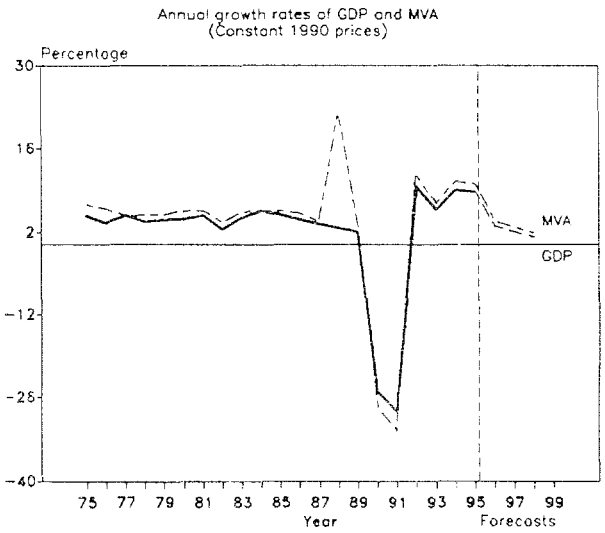



Industrial production index (1980=100)



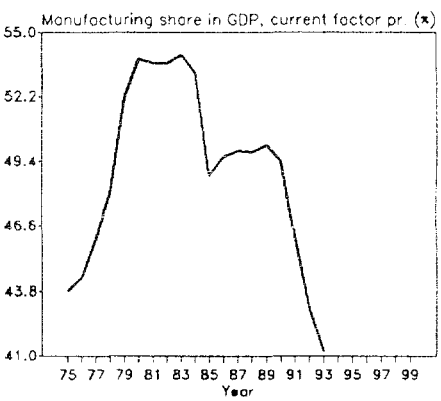
## GERMAN DEMOCRATIC REPUBLIC, FORMER

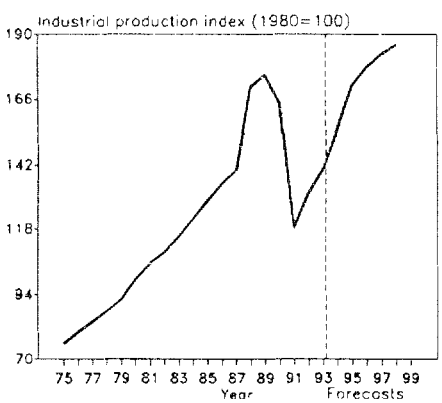


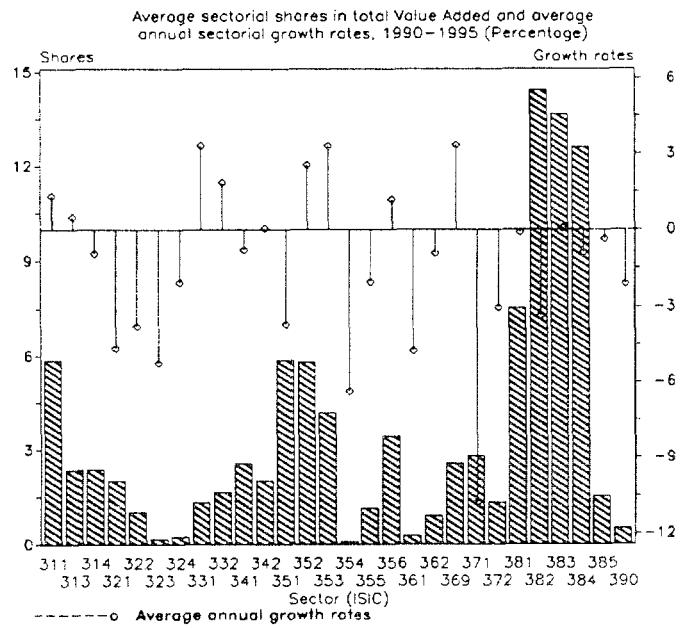

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 149 747 | 186 903 | 158 586 | 143 876 |
| Per capita [na] (1990-dollars) | 8 947 | 11 229 | 9 759 | *9 623* |
| Manufacturing share [na] (%) (current factor prices) | *53.8* | *48.8* | *49.4* | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | *58 141* | *74 743* | 73 170 | *65 784* |
| Industrial production index (1980=100) | 100 | *129* | *164* | *156* |
| Value added (millions of dollars) | 70 096 | *85 842* | *82 094* | *109 126* |
| Gross output (millions of dollars) | 132 645 | 159 661 | *248 487* | *300 868* |
| Employment (thousands) | 2 895 | 2 988 | *2 783* | *2 746* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 47 | *46* | *67* | *64* |
| Wages and salaries including supplements | *15* | *9* | *10* | *10* |
| Gross operating surplus and net taxes (%) | *38* | *45* | *23* | *26* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 45 819 | 53 434 | *88 834* | *108 012* |
| Value added per worker | 24 213 | *28 729* | *29 385* | *39 202* |
| Average wage (including supplements) | *6 771* | *4 836* | *9 159* | *10 930* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *3.36* | *7.64* | *10.38* | *6.62* |
| as a percentage of 1970-1975 structural change | *100* | *227* | *309* | *197* |
| MVA growth rate per structural change (%) | 9.98 | 7.57 | 2.02 | -1.82 |
| Degree of specialization | 13.3 | 11.6 | 13.3 | 13.2 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 6 043 | *5 958* | *3 194* | *4 001* |
| 313 Beverages | 1 040 | *1 025* | *503* | *631* |
| 314 Tobacco products | 254 | *250* | *248* | *313* |
| 321 Textiles | 6 276 | 8 477 | *7 736* | *10 270* |
| 322 Wearing apparel | 2 199 | *2 626* | *2 785* | *3 874* |
| 323 Leather and fur products | 839 | *988* | *681* | *949* |
| 324 Footwear | 631 | *775* | *508* | *687* |
| 331 Wood and wood products | 1 178 | *1 418* | *1 114* | *1 443* |
| 332 Furniture and fixtures | 1 081 | *1 284* | *522* | *663* |
| 341 Paper and paper products | 931 | *1 103* | *990* | *1 306* |
| 342 Printing and publishing | 726 | *874* | *897* | *1 267* |
| 351 Industrial chemicals | 4 899 | *8 840* | *8 665* | *12 118* |
| 352 Other chemical products | 1 220 | *2 202* | *2 414* | *3 460* |
| 353 Petroleum refineries | 2 853 | *5 149* | *2 785* | *3 844* |
| 354 Miscellaneous petroleum and coal products | 141 | *253* | *187* | *244* |
| 355 Rubber products | 1 430 | *2 579* | *2 476* | *3 288* |
| 356 Plastic products | 1 528 | *2 755* | *2 507* | *3 392* |
| 361 Pottery, china and earthenware | 232 | *288* | *279* | *372* |
| 362 Glass and glass products | 473 | *559* | *637* | *815* |
| 369 Other non-metal mineral products | 1 768 | 2 403 | *2 166* | *3 007* |
| 371 Iron and steel | 2 651 | 4 704 | *4 332* | *5 987* |
| 372 Non-ferrous metals | 884 | 1 570 | *1 485* | *1 929* |
| 381 Metal products | 3 171 | *3 059* | *3 775* | *5 104* |
| 382 Non-electrical machinery | 9 950 | *9 597* | *11 140* | *14 079* |
| 383 Electrical machinery | 7 480 | *7 132* | *7 736* | *9 992* |
| 384 Transport equipment | 6 898 | *6 651* | *8 046* | *10 611* |
| 385 Professional and scientific equipment | 2 714 | *2 590* | *2 971* | *3 927* |
| 390 Other manufacturing industries | 608 | *735* | *1 314* | *1 555* |

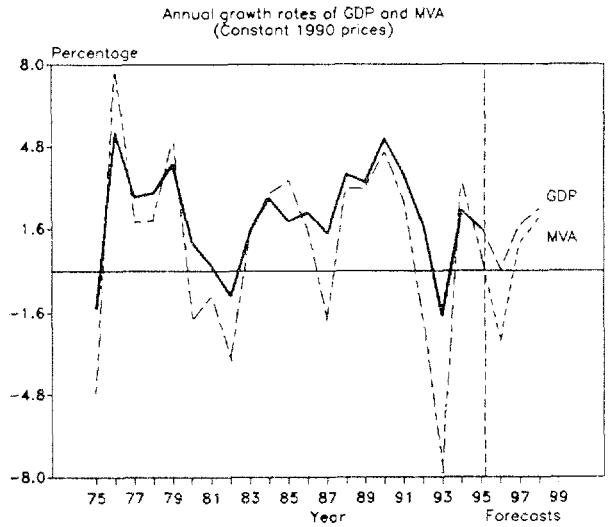
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

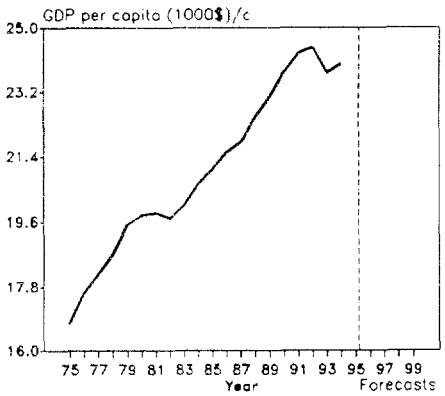
## GERMANY, FEDERAL REPUBLIC OF, FORMER

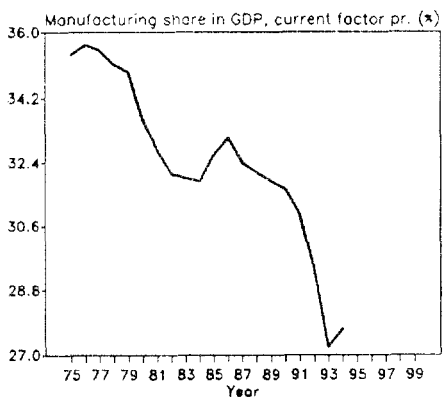


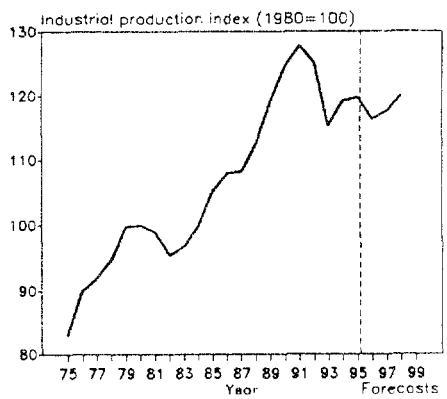




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 217 500 | 1 284 926 | 1 501 516 | 1 593 771 |
| Per capita [na] (1990-dollars) | 19 775 | 21 056 | 23 747 | *23 987* |
| Manufacturing share [na] (%) (current factor prices) | 33.6 | 32.6 | 31.6 | *27.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 402 545 | 415 035 | 458 965 | 439 420 |
| Industrial production index (1980=100) | 100 | 105 | 125 | 119 |
| Value added (millions of dollars) | 265 588 | 223 253 | 535 541 | *583 065* |
| Gross output (millions of dollars) | 632 161 | 489 414 | 1 098 621 | 1 210 439 |
| Employment (thousands) | 7 229 | 6 616 | 7 120 | *6 768* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 58 | 54 | 51 | *52* |
| Wages and salaries including supplements | 26 | 24 | 25 | *26* |
| Gross operating surplus and net taxes (%) | 16 | 22 | 24 | 22 |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 87 448 | 73 973 | 154 301 | *176 114* |
| Value added per worker | 36 739 | 33 744 | 75 216 | *88 680* |
| Average wage (including supplements) | 22 606 | 17 563 | 38 487 | *46 740* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 4.23 | 7.86 | 7.55 | *4.76* |
| as a percentage of 1970-1975 structural change | 100 | 186 | 179 | *113* |
| MVA growth rate per structural change (%) | 1.30 | 1.79 | 2.19 | 1.63 |
| Degree of specialization | 12.1 | 14.7 | 15.4 | 15.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 18 570 | 10 830 | 28 590 | *35 360* |
| 313 Beverages | 6 452 | 5 047 | 11 911 | *14 056* |
| 314 Tobacco products | 6 909 | 5 720 | 12 633 | *13 760* |
| 321 Textiles | 6 964 | 5 526 | 11 849 | *10 950* |
| 322 Wearing apparel | 4 934 | 2 803 | 5 887 | *5 550* |
| 323 Leather and fur products | 935 | 501 | 944 | *844* |
| 324 Footwear | 1 205 | 726 | 1 152 | *1 225* |
| 331 Wood and wood products | 4 485 | 2 431 | 6 179 | *8 447* |
| 332 Furniture and fixtures | 5 548 | 3 084 | 7 885 | 9 923 |
| 341 Paper and paper products | 5 099 | 5 221 | 13 490 | *14 675* |
| 342 Printing and publishing | 6 150 | 4 139 | 10 255 | *11 708* |
| 351 Industrial chemicals | 13 944 | 16 570 | 35 537 | *33 831* |
| 352 Other chemical products | 8 003 | 11 597 | 27 942 | *35 768* |
| 353 Petroleum refineries | 14 637 | *9 580* | *19 130* | *25 759* |
| 354 Miscellaneous petroleum and coal products | 990 | *546* | *528* | *453* |
| 355 Rubber products | 3 201 | 2 880 | 6 414 | *6 587* |
| 356 Plastic products | 6 095 | 5 638 | 17 313 | *20 615* |
| 361 Pottery, china and earthenware | 1 304 | 671 | 1 555 | *1 446* |
| 362 Glass and glass products | 2 492 | 1 917 | 4 791 | *5 164* |
| 369 Other non-metal mineral products | 7 937 | 4 876 | 12 031 | *16 171* |
| 371 Iron and steel | 18 872 | 9 538 | 19 205 | *13 254* |
| 372 Non-ferrous metals | 2 508 | 3 412 | 7 733 | *7 505* |
| 381 Metal products | 14 455 | 14 162 | 39 181 | *43 835* |
| 382 Non-electrical machinery | 34 263 | 33 812 | 82 544 | *79 701* |
| 383 Electrical machinery | 30 501 | 28 329 | 72 567 | *81 957* |
| 384 Transport equipment | 31 232 | 29 078 | 67 434 | *72 597* |
| 385 Professional and scientific equipment | 6 205 | 3 446 | 8 011 | *8 950* |
| 390 Other manufacturing industries | 1 700 | 1 175 | 2 849 | *2 934* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

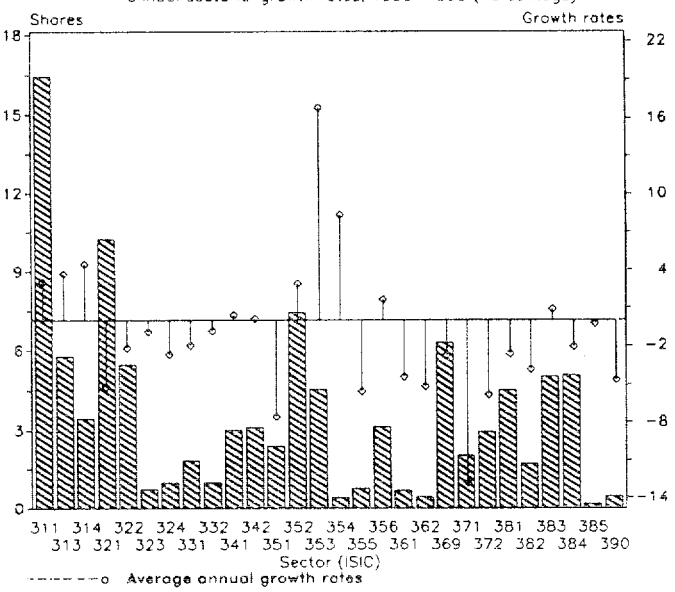


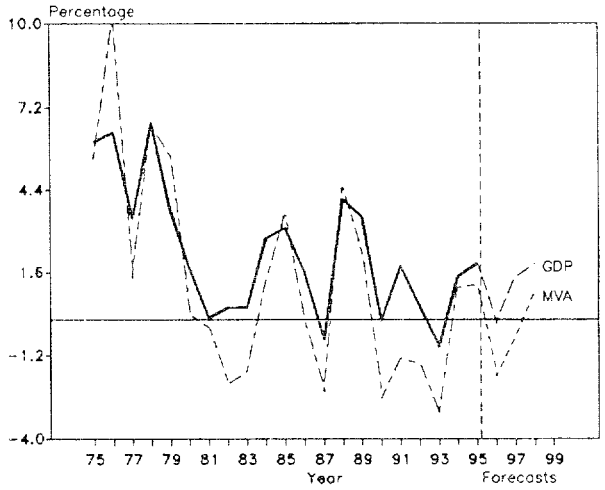



## GREECE

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



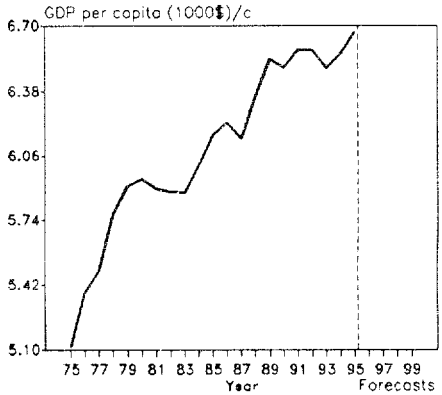

Annual growth rates of GDP and MVA (Constant 1990 prices)



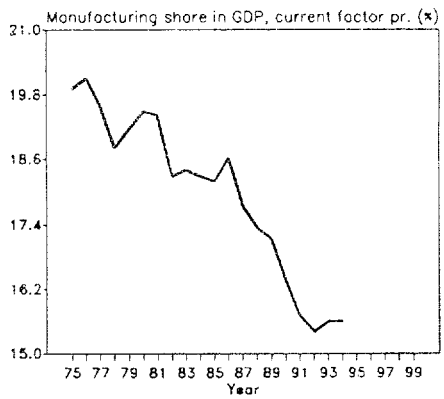

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 57 305 | 61 238 | 66 532 | 68 402 |
| Per capita [na] (1990-dollars) | 5 943 | 6 164 | 6 499 | 6 567 |
| Manufacturing share [na] (%) (current factor prices) | 19.5 | 18.2 | 16.4 | *15.1* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 9 362 | 9 405 | 9 534 | 9 067 |
| Industrial production index (1980=100) | 100 | 98 | 99 | 94 |
| Value added (millions of dollars) | 6 129 | 4 644 | 9 293 | *10 412* |
| Gross output (millions of dollars) | 20 906 | 16 937 | 29 649 | 29 836 |
| Employment (thousands) | 378 | 352 | 346 | *312* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 71 | 73 | 69 | *65* |
| Wages and salaries including supplements | 14 | 15 | 17 | *17* |
| Gross operating surplus (%) | 15 | 12 | 15 | *18* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 55 275 | 48 081 | 85 619 | *95 485* |
| Value added per worker | 16 204 | 13 184 | 26 837 | *33 368* |
| Average wage (including supplements) | 7 964 | 7 281 | 14 319 | *16 381* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *7.27* | 5.82 | 7.53 | *9.36* |
| as a percentage of 1970-1975 structural change | *100* | 80 | 104 | *129* |
| MVA growth rate per structural change (%) | 5.13 | 2.77 | 0.49 | 0.54 |
| Degree of specialization | 11.8 | 12.5 | 11.3 | 12.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 731 | 631 | 1 349 | *1 787* |
| 313 Beverages | 233 | 217 | 474 | *635* |
| 314 Tobacco products | 138 | 114 | 280 | *394* |
| 321 Textiles | 987 | 762 | 1 109 | *990* |
| 322 Wearing apparel | 283 | 235 | 552 | *558* |
| 323 Leather and fur products | 46 | 38 | 68 | *74* |
| 324 Footwear | 76 | 61 | 100 | *100* |
| 331 Wood and wood products | 138 | 65 | 176 | *183* |
| 332 Furniture and fixtures | 54 | 34 | 93 | *102* |
| 341 Paper and paper products | 118 | 94 | 272 | *315* |
| 342 Printing and publishing | 155 | 99 | 289 | *332* |
| 351 Industrial chemicals | 180 | 192 | 290 | *224* |
| 352 Other chemical products | 314 | 223 | 628 | *808* |
| 353 Petroleum refineries | 152 | 140 | 217 | *538* |
| 354 Miscellaneous petroleum and coal products | 31 | 19 | 27 | *47* |
| 355 Rubber products | 58 | 44 | 84 | *72* |
| 356 Plastic products | 186 | 109 | 276 | *343* |
| 361 Pottery, china and earthenware | 61 | 43 | 73 | *68* |
| 362 Glass and glass products | 49 | 23 | 49 | *45* |
| 369 Other non-metal mineral products | 414 | 276 | 641 | *633* |
| 371 Iron and steel | 200 | 153 | 280 | *162* |
| 372 Non-ferrous metals | 245 | 184 | 347 | *294* |
| 381 Metal products | 365 | 276 | 449 | *451* |
| 382 Non-electrical machinery | 125 | 81 | 178 | *168* |
| 383 Electrical machinery | 295 | 219 | 441 | *525* |
| 384 Transport equipment | 453 | 268 | 488 | *503* |
| 385 Professional and scientific equipment | 8 | 5 | 16 | *18* |
| 390 Other manufacturing industries | 31 | 39 | 47 | *43* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

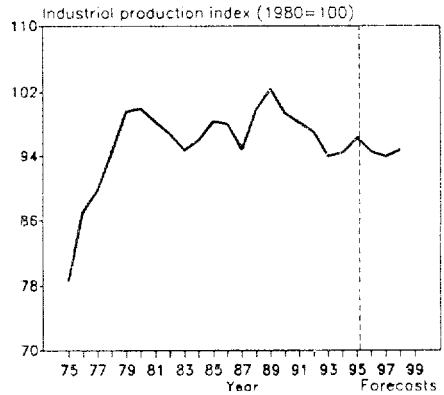
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

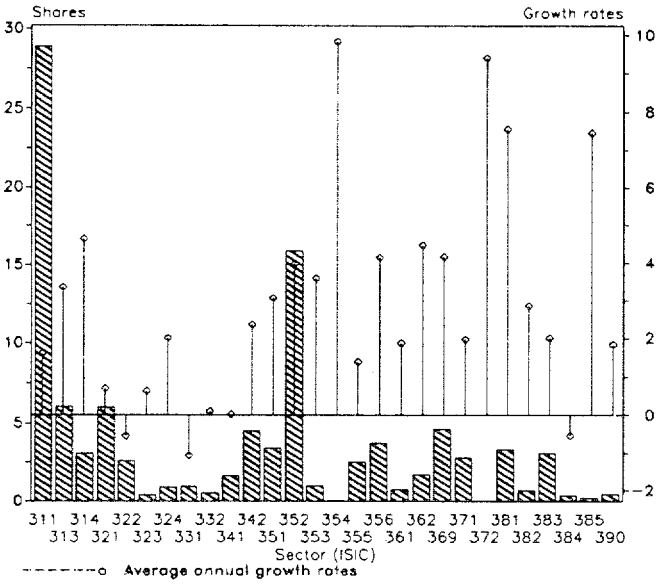



Industrial production index (1980=100)

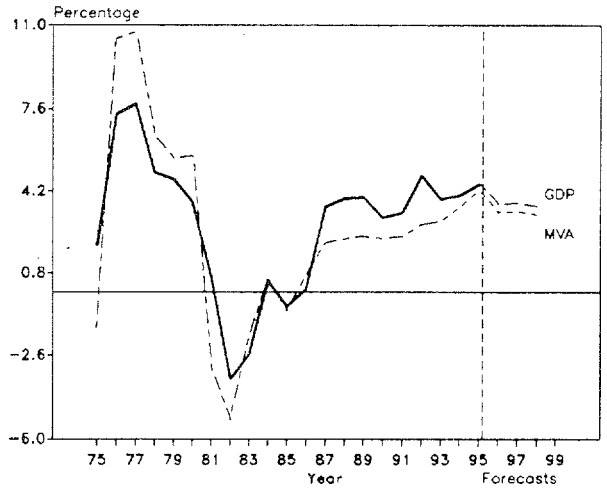


**GUATEMALA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

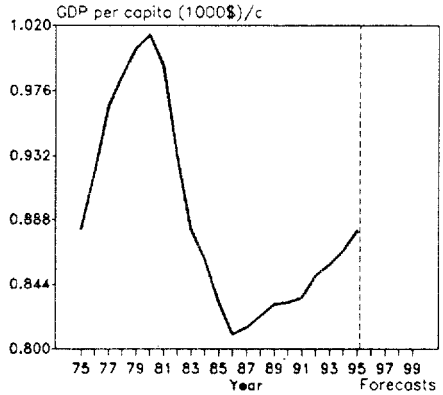



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

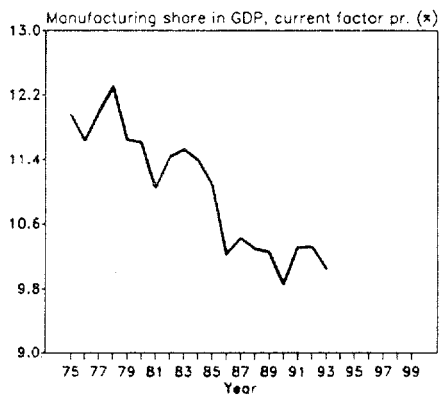
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 7 012 | 6 627 | 7 650 | 8 951 |
| Per capita [na] (1990-dollars) | 1 014 | 832 | 832 | 867 |
| Manufacturing share [na] (%) (current factor prices) | 11.6 | 11.1 | 9.9 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 772 | 694 | 761 | *853* |
| Industrial production index (1980=100) | 100 | 97 | 106 | *118* |
| Value added (millions of dollars) | 794 | 907 | *851* | *1 325* |
| Gross output (millions of dollars) | 1 968 | 2 195 | *2 067* | *3 183* |
| Employment (thousands) | 82 | 73 | *93* | *103* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 60 | 59 | *59* | *58* |
| Wages and salaries including supplements | *10* | *10* | *8* | *8* |
| Gross operating surplus and net taxes (%) | *30* | *31* | *33* | *33* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 23 189 | 28 305 | *20 481* | *28 378* |
| Value added per worker | 9 359 | 11 690 | *8 429* | *11 813* |
| Average wage (including supplements) | *2 477* | *3 079* | *1 874* | *2 579* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 11.37 | 11.76 | *9.24* | *5.63* |
| as a percentage of 1970-1975 structural change | 100 | 103 | *81* | *50* |
| MVA growth rate per structural change (%) | 3.20 | 0.45 | 1.52 | 3.84 |
| Degree of specialization | 20.4 | 24.5 | 23.1 | 22.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 204 | 276 | *254* | *378* |
| 313 Beverages | 91 | 89 | *50* | *81* |
| 314 Tobacco products | 14 | 15 | *24* | *42* |
| 321 Textiles | 45 | 71 | *53* | *77* |
| 322 Wearing apparel | 19 | 13 | *24* | *34* |
| 323 Leather and fur products | 3 | 3 | *3* | *5* |
| 324 Footwear | 15 | 13 | *8* | *12* |
| 331 Wood and wood products | 10 | 7 | *8* | *12* |
| 332 Furniture and fixtures | 4 | 3 | *5* | *7* |
| 341 Paper and paper products | 19 | 21 | *15* | *21* |
| 342 Printing and publishing | 34 | 34 | *38* | *59* |
| 351 Industrial chemicals | 28 | 28 | *29* | *45* |
| 352 Other chemical products | 110 | 121 | *130* | *214* |
| 353 Petroleum refineries | 14 | 8 | *8* | *13* |
| 354 Miscellaneous petroleum and coal products | 2 | - | - | *1* |
| 355 Rubber products | 21 | 24 | *22* | *33* |
| 356 Plastic products | 19 | 37 | *30* | *50* |
| 361 Pottery, china and earthenware | 2 | 8 | *6* | *10* |
| 362 Glass and glass products | 22 | 17 | *14* | *23* |
| 369 Other non-metal mineral products | 34 | 41 | *38* | *62* |
| 371 Iron and steel | 16 | 21 | *24* | *36* |
| 372 Non-ferrous metals | 1 | - | - | *1* |
| 381 Metal products | 23 | 23 | *25* | *47* |
| 382 Non-electrical machinery | 6 | 4 | *6* | *9* |
| 383 Electrical machinery | 25 | 19 | *27* | *41* |
| 384 Transport equipment | 8 | 5 | *3* | *5* |
| 385 Professional and scientific equipment | 1 | 1 | *2* | *3* |
| 390 Other manufacturing industries | 4 | 3 | *4* | *6* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

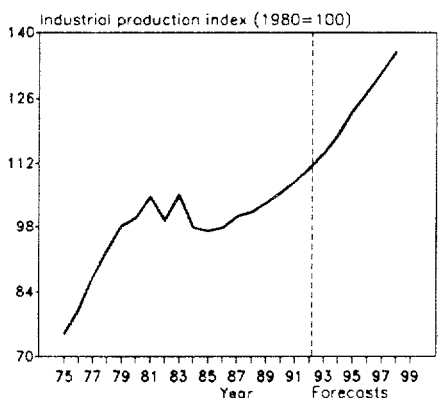
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (*)

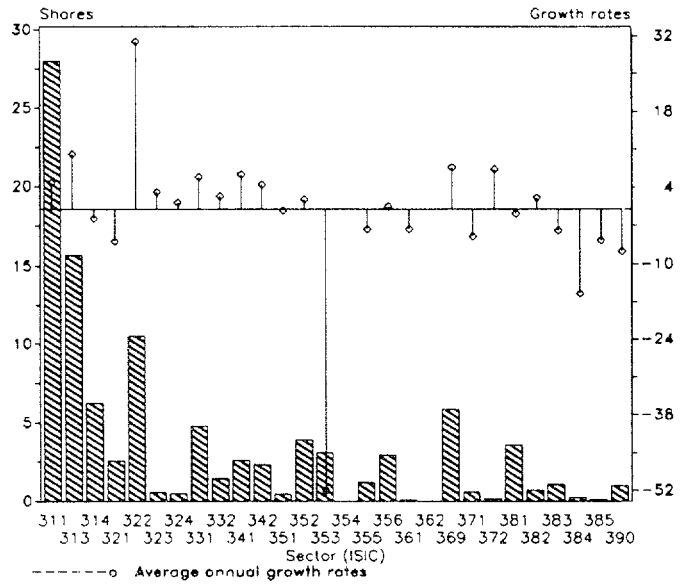



Industrial production index (1980=100)

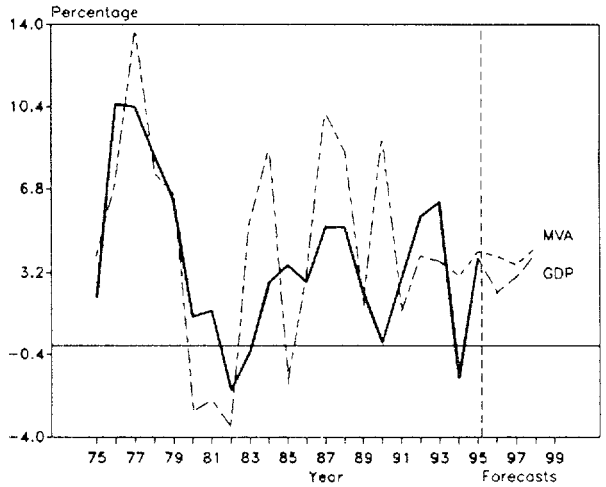


## HONDURAS

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

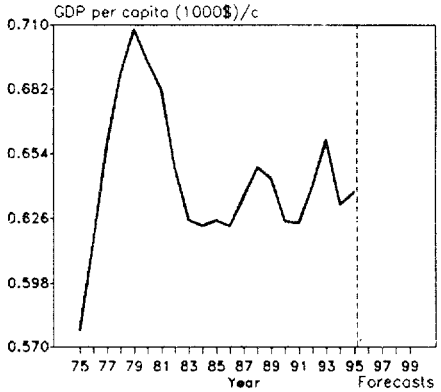



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 2 476 | 2 617 | 3 049 | 3 472 |
| Per capita [na] (1990-dollars) | 694 | 625 | 625 | 632 |
| Manufacturing share [na] (%) (current factor prices) | 15.1 | 15.1 | 16.3 | *17.0* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 308 | 326 | 443 | *499* |
| Industrial production index (1980=100) | 100 | 140 | 219 | *353* |
| Value added (millions of dollars) | *296* | 498 | 466 | 470 |
| Gross output (millions of dollars) | *1 021* | 1 618 | 1 651 | 1 663 |
| Employment (thousands) | 58 | 64 | 79 | 133 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *71* | 69 | 72 | 72 |
| Wages and salaries including supplements | *12* | 13 | 11 | 12 |
| Gross operating surplus and net taxes (%) | *17* | 18 | 18 | 17 |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *16 728* | 25 279 | 20 996 | 12 553 |
| Value added per worker | *4 961* | 7 785 | 5 926 | 3 550 |
| Average wage (including supplements) | *2 039* | 3 219 | 2 239 | 1 477 |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *7.74* | *8.73* | 7.60 | 9.88 |
| as a percentage of 1970-1975 structural change | *100* | *113* | 98 | 128 |
| MVA growth rate per structural change (%) | 4.43 | 3.25 | 3.12 | 2.27 |
| Degree of specialization | 23.1 | 22.0 | 20.7 | 26.7 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *75* | 130 | 128 | 133 |
| 313 Beverages | *58* | 78 | 59 | 80 |
| 314 Tobacco products | *20* | 42 | 34 | 26 |
| 321 Textiles | *13* | 14 | 16 | 10 |
| 322 Wearing apparel | *9* | 17 | 20 | 61 |
| 323 Leather and fur products | *3* | 2 | 3 | 3 |
| 324 Footwear | *3* | 2 | 2 | 2 |
| 331 Wood and wood products | *22* | 30 | 20 | 23 |
| 332 Furniture and fixtures | *5* | 8 | 8 | 7 |
| 341 Paper and paper products | *5* | 9 | 12 | 13 |
| 342 Printing and publishing | *7* | 13 | 10 | 10 |
| 351 Industrial chemicals | *1* | 2 | 2 | 2 |
| 352 Other chemical products | *12* | 20 | 20 | 18 |
| 353 Petroleum refineries | *13* | 38 | 39 | 1 |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | *5* | 8 | 7 | 5 |
| 356 Plastic products | *9* | 18 | 16 | 13 |
| 361 Pottery, china and earthenware | - | - | 1 | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | *15* | 24 | 26 | 31 |
| 371 Iron and steel | *1* | 2 | 4 | 2 |
| 372 Non-ferrous metals | *1* | 1 | 1 | 1 |
| 381 Metal products | *13* | 21 | 21 | 16 |
| 382 Non-electrical machinery | *1* | 3 | 4 | 3 |
| 383 Electrical machinery | *4* | 8 | 7 | 5 |
| 384 Transport equipment | - | 2 | 2 | 1 |
| 385 Professional and scientific equipment | - | 1 | 1 | - |
| 390 Other manufacturing industries | *2* | 5 | 6 | 3 |

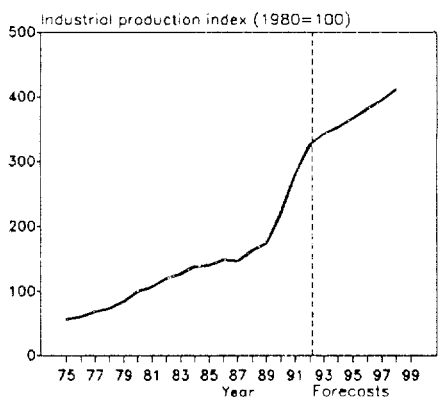
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c



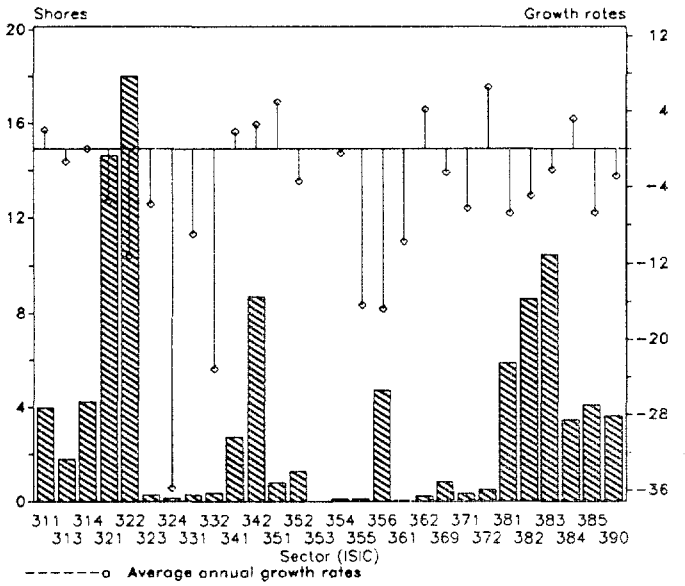

Manufacturing share in GDP, current factor pr. (x)


Industrial production index (1980=100)

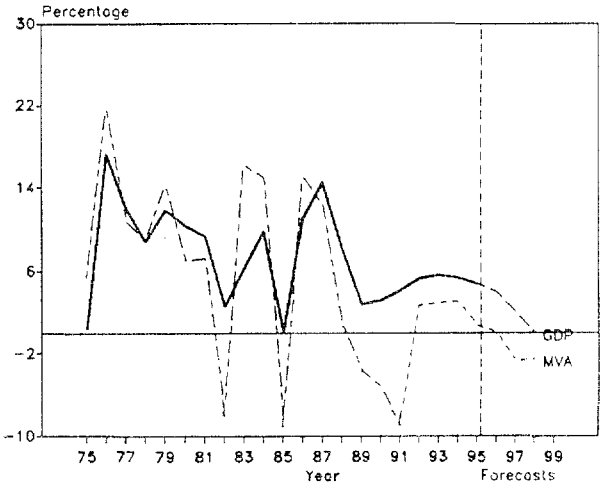


**HONG KONG**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

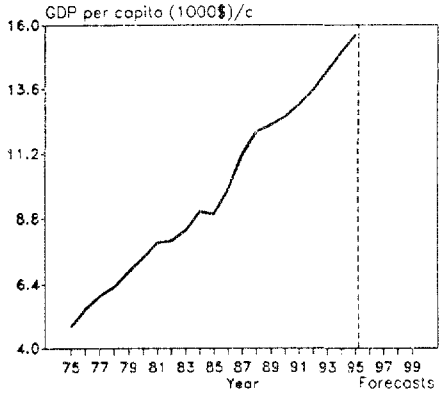



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

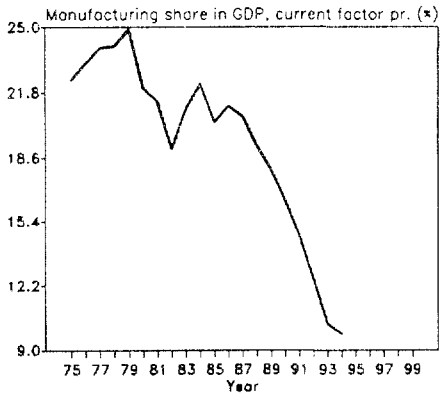
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 37 318 | 48 997 | 71 649 | 87 473 |
| Per capita [na] (1990-dollars) | 7 406 | 8 980 | 12 559 | 14 983 |
| Manufacturing share [na] (%) (current factor prices) | 22.0 | 20.4 | 16.5 | *9.8* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 8 346 | 9 974 | 11 826 | *11 714* |
| Industrial production index (1980=100) | 100 | 131 | 185 | 191 |
| Value added (millions of dollars) | 7 343 | 6 582 | 12 034 | *13 118* |
| Gross output (millions of dollars) | 22 187 | 22 835 | 41 513 | *44 159* |
| Employment (thousands) | 937 | 908 | 763 | *496* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 67 | 71 | 71 | *70* |
| Wages and salaries including supplements | *18* | 19 | 17 | *17* |
| Gross operating surplus and net taxes (%) | *15* | 10 | 12 | *13* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 23 686 | 25 140 | 54 430 | *88 957* |
| Value added per worker | 7 840 | 7 246 | 15 779 | *26 436* |
| Average wage (including supplements) | *4 238* | 4 808 | 9 161 | *15 160* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 11.24 | 8.75 | 9.40 | *11.47* |
| as a percentage of 1970-1975 structural change | 100 | 78 | 84 | *102* |
| MVA growth rate per structural change (%) | 5.88 | 4.69 | 0.84 | -0.19 |
| Degree of specialization | 24.2 | 22.6 | 21.3 | 19.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 161 | 171 | 397 | *593* |
| 313 Beverages | 99 | 125 | 200 | *264* |
| 314 Tobacco products | 81 | 127 | 394 | *546* |
| 321 Textiles | 1 027 | 964 | 1 801 | *1 905* |
| 322 Wearing apparel | 1 920 | 1 594 | 2 455 | *2 031* |
| 323 Leather and fur products | 43 | 26 | 38 | *39* |
| 324 Footwear | 59 | 62 | 35 | *6* |
| 331 Wood and wood products | 45 | 32 | 38 | *37* |
| 332 Furniture and fixtures | 62 | 54 | 66 | *28* |
| 341 Paper and paper products | 110 | 90 | 275 | *394* |
| 342 Printing and publishing | 290 | 350 | 877 | *1 345* |
| 351 Industrial chemicals | 40 | 36 | 64 | *112* |
| 352 Other chemical products | 77 | 71 | 153 | *175* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | 13 | *17* |
| 355 Rubber products | 29 | 17 | 16 | *10* |
| 356 Plastic products | 563 | 612 | 759 | *480* |
| 361 Pottery, china and earthenware | 5 | 3 | 6 | *5* |
| 362 Glass and glass products | 10 | 17 | 19 | *33* |
| 369 Other non-metal mineral products | 55 | 47 | 95 | *118* |
| 371 Iron and steel | 31 | 17 | 44 | *46* |
| 372 Non-ferrous metals | 35 | 20 | 40 | *77* |
| 381 Metal products | 638 | 460 | 716 | *725* |
| 382 Non-electrical machinery | 188 | 236 | 1 077 | *1 105* |
| 383 Electrical machinery | 987 | 752 | 1 153 | *1 440* |
| 384 Transport equipment | 176 | 157 | 333 | *533* |
| 385 Professional and scientific equipment | 362 | 289 | 536 | *529* |
| 390 Other manufacturing industries | 250 | 253 | 432 | *524* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

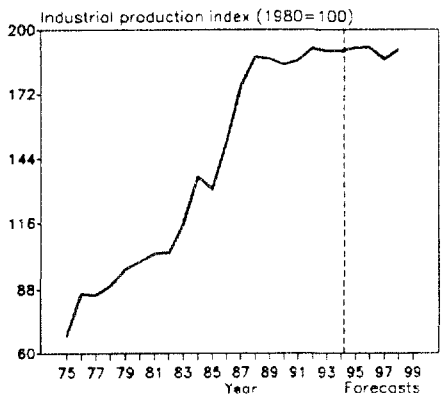
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (*)

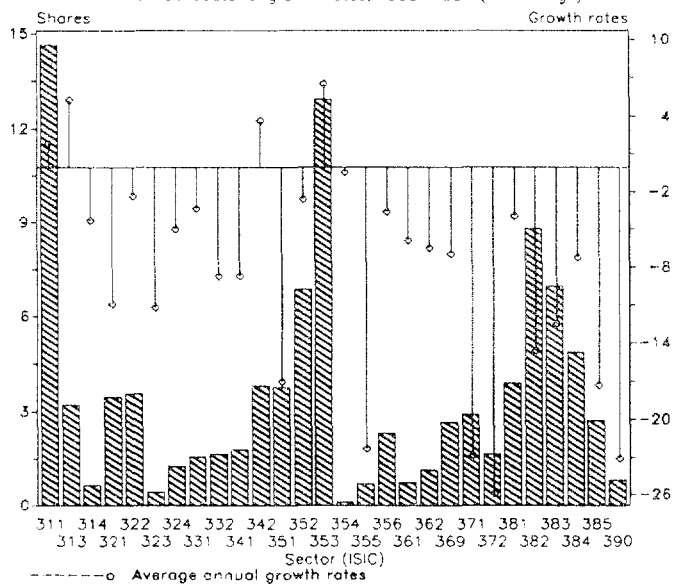



Industrial production index (1980=100)

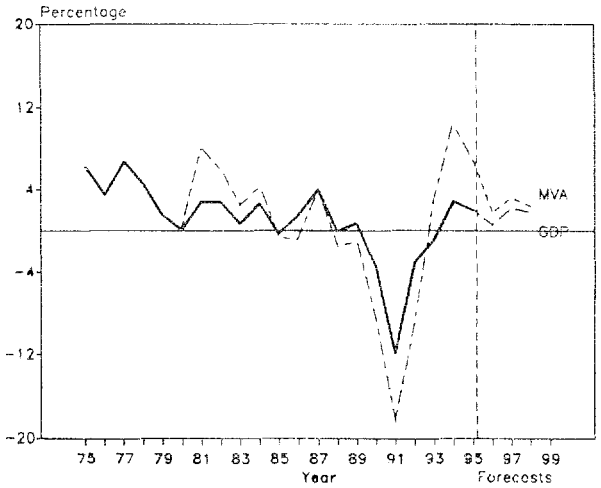


## HUNGARY

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

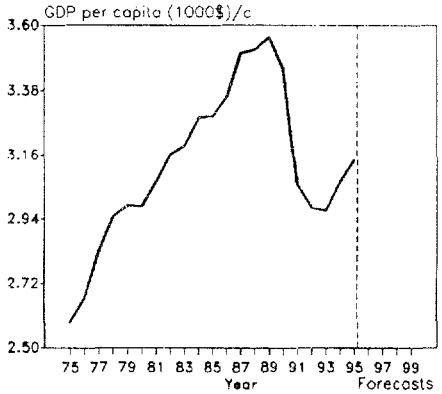



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

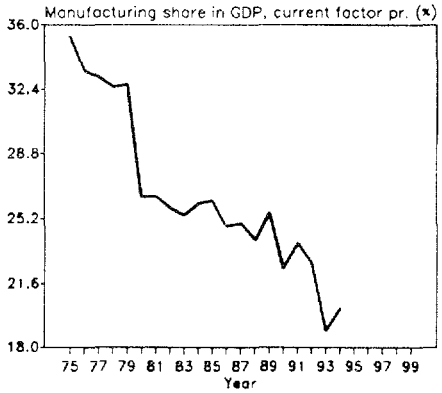
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 31 945 | 34 855 | 35 775 | 31 197 |
| Per capita [na] (1990-dollars) | 2 984 | 3 295 | 3 452 | 3 070 |
| Manufacturing share [na] (%) (current factor prices) | 26.4 | 26.2 | 22.5 | *20.2* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 6 236 | 7 562 | 6 906 | 5 788 |
| Industrial production index (1980=100) | 100 | 112 | 104 | 80 |
| Value added (millions of dollars) | 5 907 | 5 356 | *7 805* | *7 523* |
| Gross output (millions of dollars) | 24 898 | 21 690 | 25 081 | *23 110* |
| Employment (thousands) | 1 384 | 1 278 | 1 117 | *746* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 76 | 75 | *69* | *67* |
| Wages and salaries including supplements | 8 | 8 | 11 | *12* |
| Gross operating surplus and net taxes (%) | 16 | 16 | *20* | *21* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 17 990 | 16 972 | 22 454 | *30 908* |
| Value added per worker | 4 268 | 4 191 | *6 988* | *10 087* |
| Average wage (including supplements) | 1 437 | 1 403 | 2 495 | *3 696* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 6.12 | 9.85 | *14.42* | *18.72* |
| as a percentage of 1970-1975 structural change | 100 | 161 | *236* | *306* |
| MVA growth rate per structural change (%) | 1.05 | -1.59 | -0.25 | -1.00 |
| Degree of specialization | 9.9 | 10.9 | 9.4 | 13.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 555 | 281 | *798* | *1 185* |
| 313 Beverages | 83 | 107 | *171* | *299* |
| 314 Tobacco products | 27 | 28 | *44* | *47* |
| 321 Textiles | 353 | 325 | *322* | *242* |
| 322 Wearing apparel | 194 | 158 | *233* | *270* |
| 323 Leather and fur products | 48 | 39 | *40* | *30* |
| 324 Footwear | 79 | 85 | *93* | *95* |
| 331 Wood and wood products | 81 | 42 | *102* | *118* |
| 332 Furniture and fixtures | 101 | 92 | *134* | *115* |
| 341 Paper and paper products | 94 | 106 | *142* | *125* |
| 342 Printing and publishing | 83 | 94 | *205* | *337* |
| 351 Industrial chemicals | 417 | 320 | *443* | *241* |
| 352 Other chemical products | 242 | 303 | *480* | *551* |
| 353 Petroleum refineries | *153* | *193* | *591* | *1 103* |
| 354 Miscellaneous petroleum and coal products | *2* | *2* | *6* | *8* |
| 355 Rubber products | 55 | 71 | *92* | *34* |
| 356 Plastic products | 61 | 80 | *166* | *187* |
| 361 Pottery, china and earthenware | 57 | 46 | *59* | *59* |
| 362 Glass and glass products | 70 | 71 | *90* | *84* |
| 369 Other non-metal mineral products | 204 | 161 | *217* | *200* |
| 371 Iron and steel | 370 | 200 | *413* | *149* |
| 372 Non-ferrous metals | 215 | 54 | *276* | *80* |
| 381 Metal products | 214 | 215 | *298* | *315* |
| 382 Non-electrical machinery | 497 | 569 | *823* | *532* |
| 383 Electrical machinery | 655 | 758 | *716* | *503* |
| 384 Transport equipment | 486 | 507 | *422* | *408* |
| 385 Professional and scientific equipment | 272 | 287 | *318* | *161* |
| 390 Other manufacturing industries | 237 | 164 | *112* | *46* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

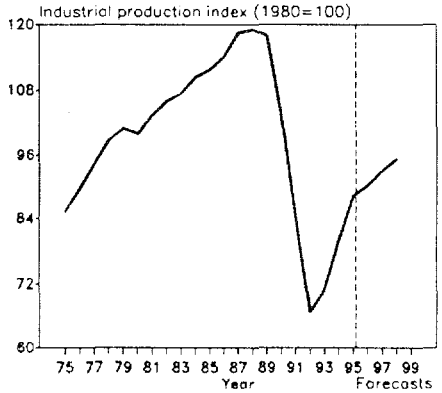
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

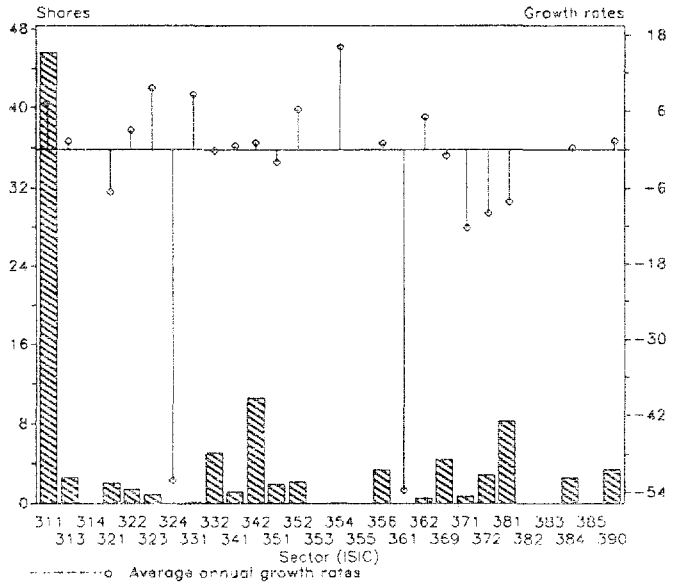



Industrial production index (1980=100)

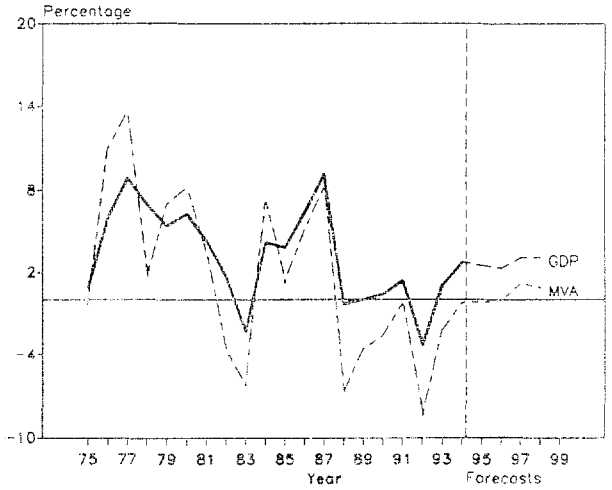


**ICELAND**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

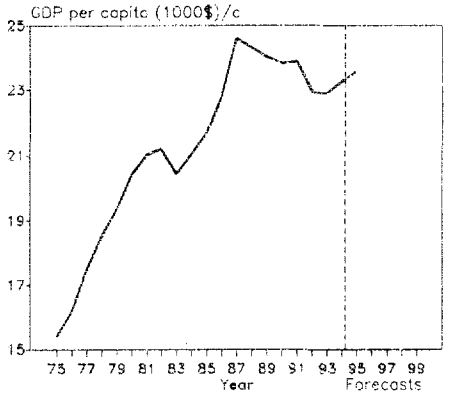



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

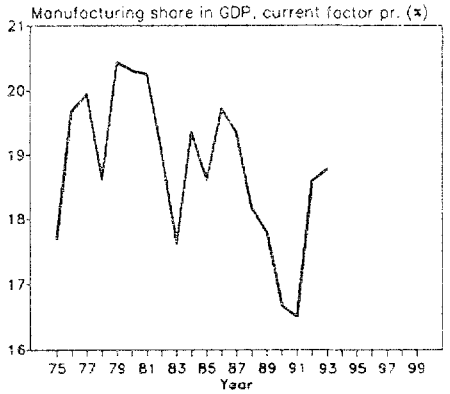
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 4 657 | 5 225 | 6 080 | 6 193 |
| Per capita [na] (1990-dollars) | 20 425 | 21 681 | 23 844 | 23 282 |
| Manufacturing share [na] (%) (current factor prices) | 20.3 | 18.6 | 16.7 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 813 | 823 | 819 | *727* |
| Industrial production index (1980=100) | 100 | 101 | 101 | *89* |
| Value added (millions of dollars) | 518 | 429 | 755 | *818* |
| Gross output (millions of dollars) | 1 676 | 1 471 | 2 602 | *2 475* |
| Employment (thousands) | 28 | 30 | 22 | *21* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 69 | 71 | 71 | *67* |
| Wages and salaries including supplements | 25 | 22 | 22 | *22* |
| Gross operating surplus and net taxes (%) | 6 | 7 | 7 | *11* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 61 052 | 51 071 | 111 991 | *116 366* |
| Value added per worker | 18 864 | 14 907 | 32 498 | *38 630* |
| Average wage (including supplements) | 15 021 | 11 345 | 25 775 | *26 773* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 11.30 | 13.57 | 9.74 | *10.89* |
| as a percentage of 1970-1975 structural change | 100 | 120 | 86 | *96* |
| MVA growth rate per structural change (%) | 2.18 | 0.30 | -0.07 | 0.29 |
| Degree of specialization | 26.5 | 27.9 | 27.1 | 34.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 188 | 175 | 285 | *397* |
| 313 Beverages | 11 | 10 | 21 | *21* |
| 314 Tobacco products | .. | .. | .. | .. |
| 321 Textiles | 23 | 17 | 21 | *15* |
| 322 Wearing apparel | 15 | 10 | 10 | *12* |
| 323 Leather and fur products | 6 | 6 | 5 | *8* |
| 324 Footwear | 1 | 1 | 1 | - |
| 331 Wood and wood products | - | - | 1 | *1* |
| 332 Furniture and fixtures | 45 | 29 | 40 | *40* |
| 341 Paper and paper products | 4 | 4 | 9 | *9* |
| 342 Printing and publishing | 35 | 36 | 84 | *84* |
| 351 Industrial chemicals | 8 | 7 | 17 | *15* |
| 352 Other chemical products | 7 | 8 | 15 | *19* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | - | - |
| 356 Plastic products | 11 | 11 | 27 | *27* |
| 361 Pottery, china and earthenware | 1 | - | 1 | - |
| 362 Glass and glass products | 3 | 3 | 4 | *4* |
| 369 Other non-metal mineral products | 23 | 21 | 37 | *34* |
| 371 Iron and steel | 6 | 11 | 9 | *5* |
| 372 Non-ferrous metals | 39 | 13 | 36 | *21* |
| 381 Metal products | 62 | 44 | 85 | *56* |
| 382 Non-electrical machinery | - | - | - | - |
| 383 Electrical machinery | - | - | - | - |
| 384 Transport equipment | 21 | 13 | 20 | *21* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 10 | 11 | 27 | *28* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

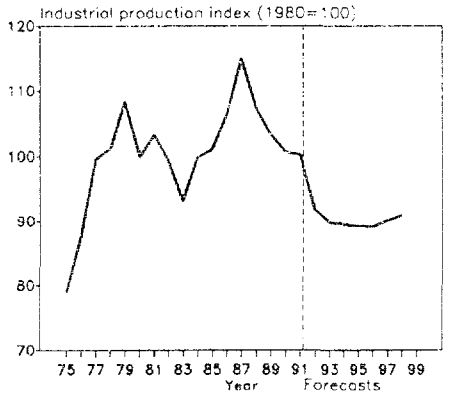
GDP per capita (1000$)/c



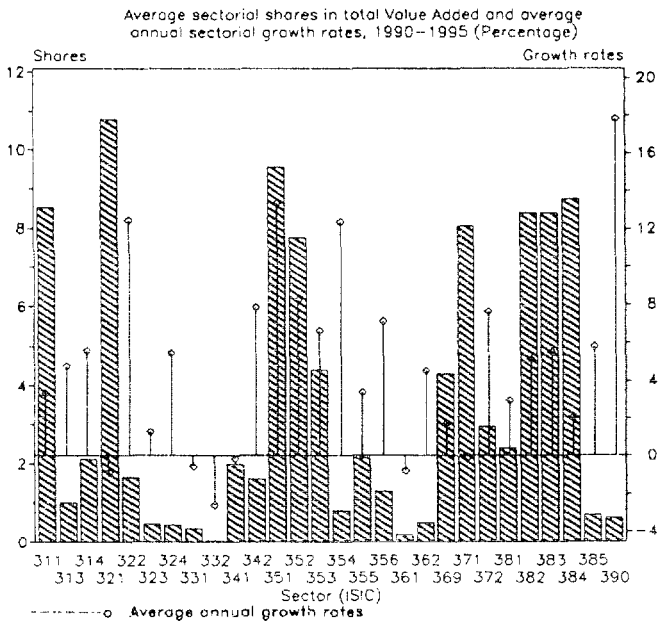

Manufacturing share in GDP, current factor pr. (%)

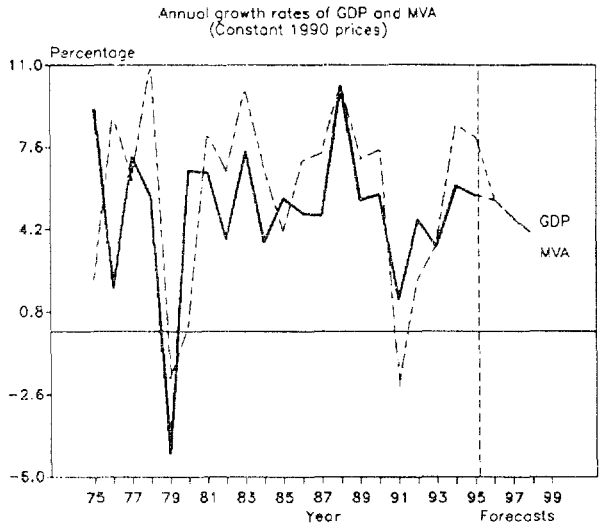



Industrial production index (1980=100)



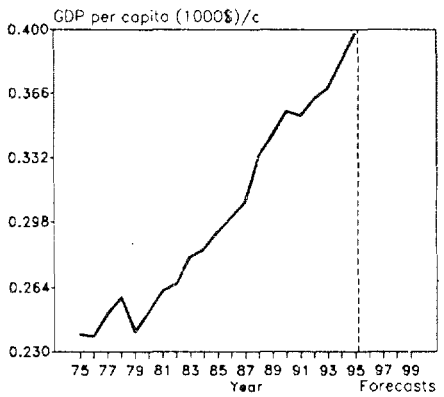
**INDIA**

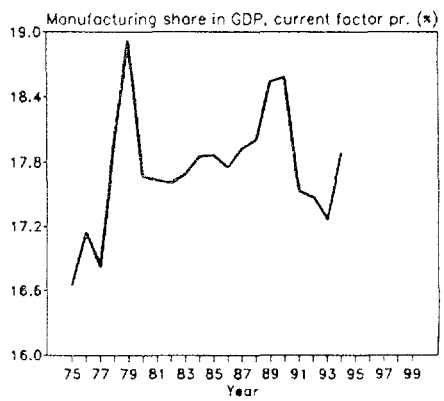


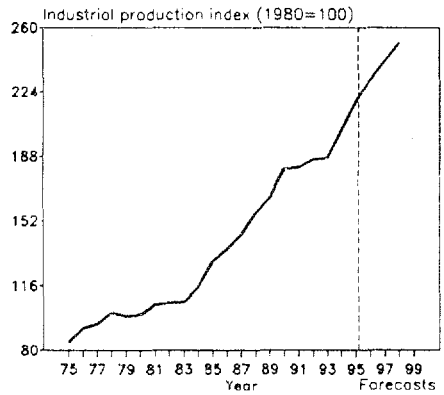




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 173 216 | 224 966 | 303 282 | 352 516 |
| Per capita [na] (1990-dollars) | 251 | 293 | 357 | 384 |
| Manufacturing share [na] (%) (current factor prices) | 17.7 | 17.9 | 18.6 | *17.9* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 24 608 | 34 472 | 50 174 | 56 223 |
| Industrial production index (1980=100) | 100 | 129 | 181 | 203 |
| Value added (millions of dollars) | 13 086 | 15 526 | 25 097 | *24 396* |
| Gross output (millions of dollars) | 71 387 | 88 304 | 140 511 | *137 990* |
| Employment (thousands) | 6 992 | 6 578 | 7 299 | *8 382* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 82 | 82 | 82 | *82* |
| Wages and salaries including supplements | *11* | 10 | *8* | *8* |
| Gross operating surplus (%) | *8* | 8 | *10* | *10* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 10 210 | 13 423 | 19 250 | *16 456* |
| Value added per worker | 1 872 | 2 360 | 3 438 | *2 911* |
| Average wage (including supplements) | *1 083* | 1 298 | *1 592* | *1 269* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 6.47 | 7.96 | 9.01 | *8.35* |
| as a percentage of 1970-1975 structural change | 100 | 123 | 139 | *129* |
| MVA growth rate per structural change (%) | 2.51 | 2.39 | 4.72 | 4.33 |
| Degree of specialization | 19.3 | 16.9 | 15.3 | 14.3 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 899 | 1 436 | 2 212 | *2 019* |
| 313 Beverages | 99 | 135 | 246 | *241* |
| 314 Tobacco products | 196 | 230 | 489 | *508* |
| 321 Textiles | 2 642 | 2 135 | 3 264 | *2 503* |
| 322 Wearing apparel | 62 | 87 | 316 | *427* |
| 323 Leather and fur products | 48 | 52 | 123 | *102* |
| 324 Footwear | 37 | 52 | 104 | *106* |
| 331 Wood and wood products | 74 | 73 | 102 | *79* |
| 332 Furniture and fixtures | 8 | 7 | 8 | *6* |
| 341 Paper and paper products | 296 | 233 | 574 | *451* |
| 342 Printing and publishing | 256 | 280 | 340 | *396* |
| 351 Industrial chemicals | 778 | 1 200 | 1 833 | *2 601* |
| 352 Other chemical products | 1 062 | 1 146 | 1 647 | *1 922* |
| 353 Petroleum refineries | 203 | 344 | 1 072 | *1 154* |
| 354 Miscellaneous petroleum and coal products | 151 | 152 | 146 | *204* |
| 355 Rubber products | 234 | 363 | 566 | *522* |
| 356 Plastic products | 93 | 166 | 297 | *317* |
| 361 Pottery, china and earthenware | 47 | 27 | 53 | *40* |
| 362 Glass and glass products | 67 | 101 | 111 | *109* |
| 369 Other non-metal mineral products | 399 | 775 | 1 122 | *954* |
| 371 Iron and steel | 1 489 | 1 790 | 2 551 | *1 983* |
| 372 Non-ferrous metals | 81 | 115 | 654 | *726* |
| 381 Metal products | 421 | 425 | 614 | *554* |
| 382 Non-electrical machinery | 1 130 | 1 506 | 2 011 | *2 021* |
| 383 Electrical machinery | 1 061 | 1 201 | 2 009 | *2 052* |
| 384 Transport equipment | 1 088 | 1 231 | 2 374 | *2 065* |
| 385 Professional and scientific equipment | 92 | 118 | 165 | *168* |
| 390 Other manufacturing industries | 72 | 146 | 92 | *165* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

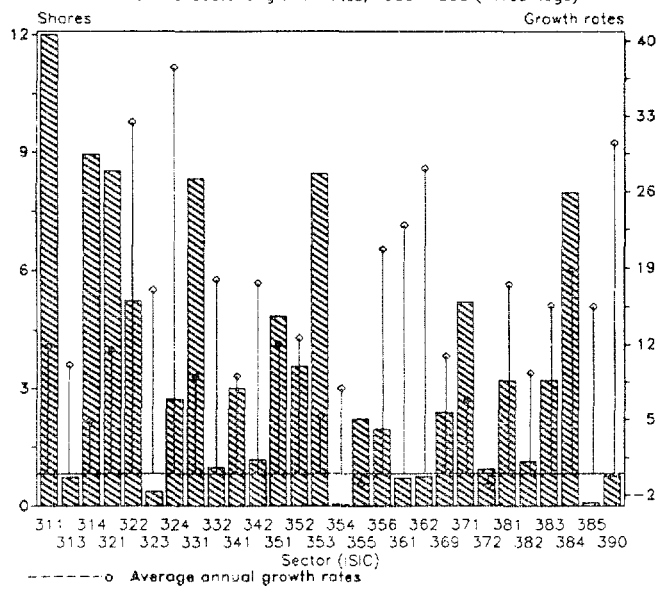


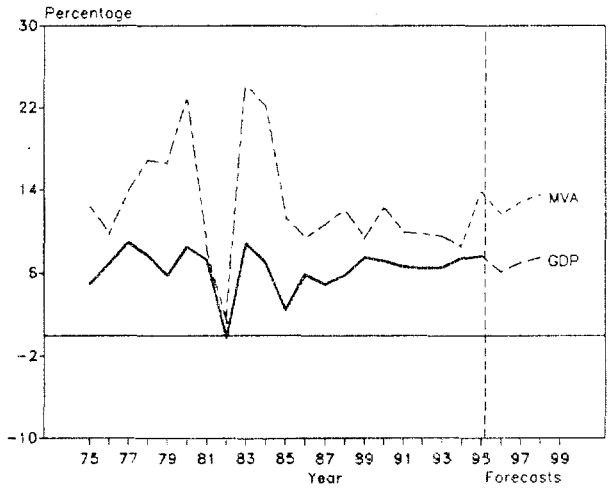



**INDONESIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990-1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

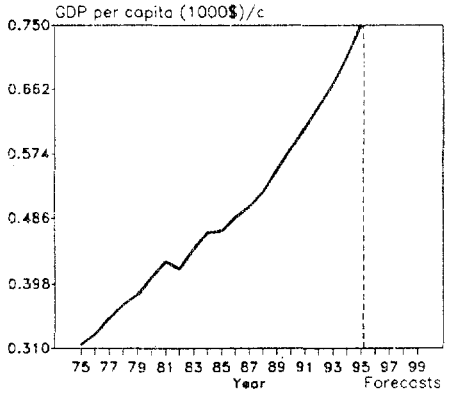



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

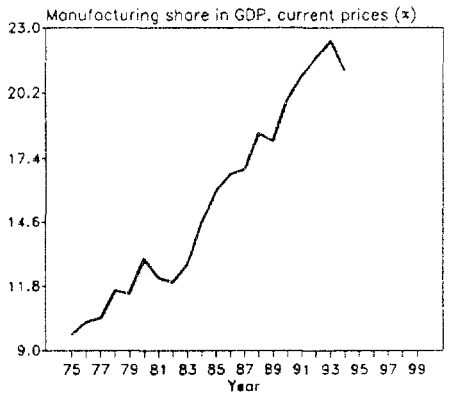
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 61 524 | 78 453 | 106 141 | 137 690 |
| Per capita [na] (1990-dollars) | 408 | 469 | 581 | 707 |
| Manufacturing share [na] (%) (current factor prices) | 13.0 | 16.0 | 19.9 | *21.2* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 6 923 | 12 730 | 21 115 | *30 162* |
| Industrial production index (1980=100) | 100 | 117 | 190 | *245* |
| Value added (millions of dollars) | 4 371 | *8 103* | 15 295 | *28 605* |
| Gross output (millions of dollars) | 13 226 | 23 120 | 40 944 | *79 062* |
| Employment (thousands) | 964 | 1 673 | 2 649 | *3 801* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 67 | *65* | *63* | *64* |
| Wages and salaries including supplements | *6* | *7* | 5 | *5* |
| Gross operating surplus and net taxes (%) | *27* | *28* | *33* | *31* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 11 237 | 12 320 | 14 363 | *19 818* |
| Value added per worker | 3 499 | 3 852 | 5 127 | *6 954* |
| Average wage (including supplements) | 744 | 921 | 674 | *1 001* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 20.74 | *16.55* | *15.18* | *19.64* |
| as a percentage of 1970-1975 structural change | 100 | *80* | *73* | *95* |
| MVA growth rate per structural change (%) | 4.25 | 5.67 | 7.21 | 5.97 |
| Degree of specialization | 21.2 | 17.2 | 14.8 | 12.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 376 | 870 | 1 910 | *3 546* |
| 313 Beverages | 51 | 77 | 112 | *192* |
| 314 Tobacco products | 649 | 741 | 1 732 | *2 330* |
| 321 Textiles | 420 | 687 | 1 306 | *2 379* |
| 322 Wearing apparel | 15 | 105 | 458 | *1 938* |
| 323 Leather and fur products | 5 | 14 | 43 | *100* |
| 324 Footwear | 26 | 31 | 189 | *985* |
| 331 Wood and wood products | 239 | 612 | 1 382 | *2 250* |
| 332 Furniture and fixtures | 6 | 18 | 117 | *284* |
| 341 Paper and paper products | 43 | 110 | 477 | *774* |
| 342 Printing and publishing | 51 | 92 | 150 | *358* |
| 351 Industrial chemicals | 145 | 385 | 687 | *1 284* |
| 352 Other chemical products | 241 | 430 | 535 | *1 028* |
| 353 Petroleum refineries | 978 | *1 611* | *1 636* | *2 239* |
| 354 Miscellaneous petroleum and coal products | *4* | *5* | 8 | *12* |
| 355 Rubber products | 164 | 328 | 494 | *498* |
| 356 Plastic products | 25 | 175 | 228 | *611* |
| 361 Pottery, china and earthenware | 8 | 24 | 77 | *231* |
| 362 Glass and glass products | 36 | 98 | 64 | *236* |
| 369 Other non-metal mineral products | 200 | 262 | 374 | *667* |
| 371 Iron and steel | 107 | *301* | 1 045 | *1 542* |
| 372 Non-ferrous metals | - | *168* | 188 | *189* |
| 381 Metal products | 118 | 278 | 402 | *955* |
| 382 Non-electrical machinery | 53 | 76 | 171 | *282* |
| 383 Electrical machinery | 180 | 246 | 403 | *882* |
| 384 Transport equipment | 217 | 331 | 1 036 | *2 544* |
| 385 Professional and scientific equipment | 2 | 4 | 10 | *22* |
| 390 Other manufacturing industries | 13 | 24 | 61 | *245* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

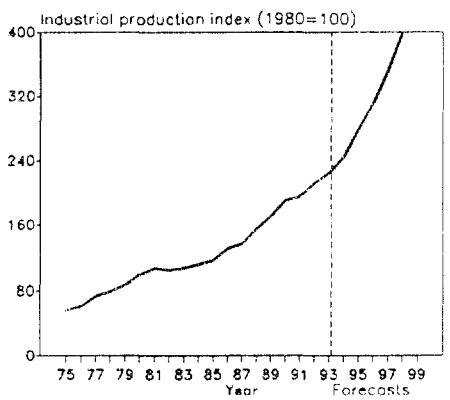
GDP per capita (1000$)/c



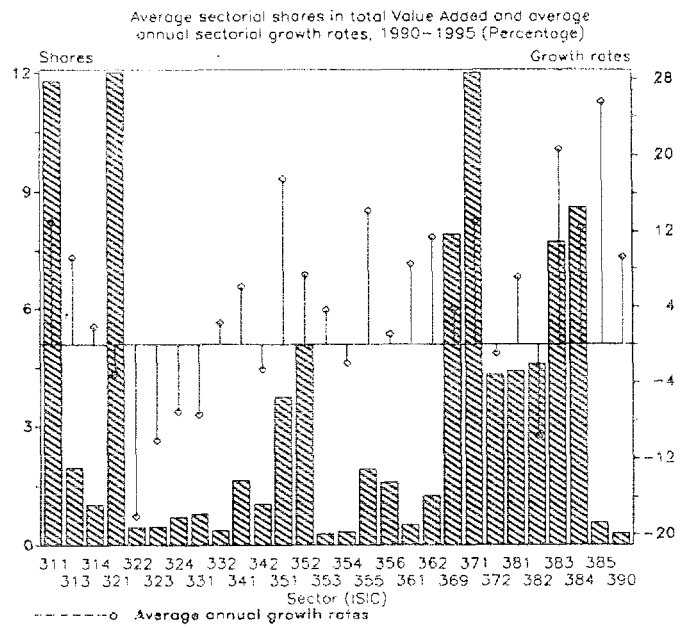

Manufacturing share in GDP, current prices (x)

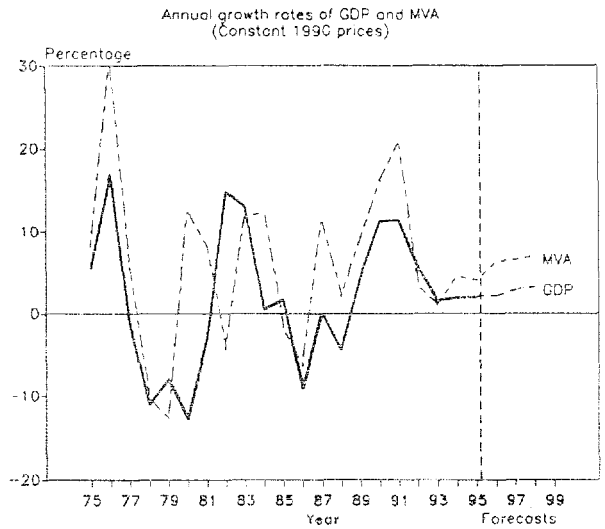



Industrial production index (1980=100)



## IRAN (ISLAMIC REPUBLIC OF)

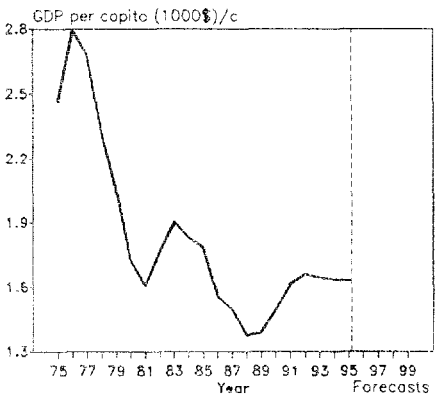


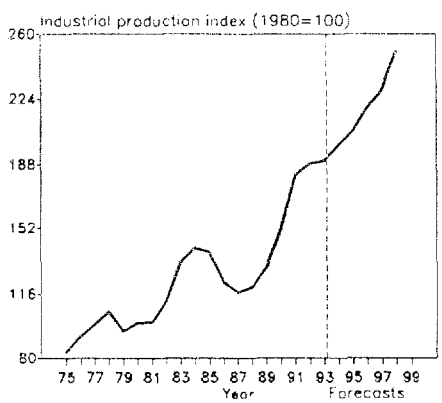

Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 67 761 | 87 299 | 88 173 | 107 581 |
| Per capita [na] (1990-dollars) | 1 726 | 1 785 | 1 496 | 1 636 |
| Manufacturing share [na] (%) (current factor prices) | 9.1 | 8.5 | 12.3 | *13.5* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 6 234 | 7 920 | 10 621 | *13 947* |
| Industrial production index (1980=100) | 100 | 139 | 151 | *199* |
| Value added (millions of dollars) | 8 186 | 5 374 | 7 994 | *5 839* |
| Gross output (millions of dollars) | 15 870 | 10 994 | 17 373 | *13 302* |
| Employment (thousands) | 470 | 611 | 653 | *626* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 48 | 52 | 54 | *56* |
| Wages and salaries including supplements | 29 | 28 | 15 | *16* |
| Gross operating surplus and net taxes (%) | 23 | 19 | 31 | *28* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 33 756 | 17 161 | 26 007 | *20 553* |
| Value added per worker | 17 411 | 8 790 | 11 966 | *9 120* |
| Average wage (including supplements) | 9 668 | 4 893 | 3 925 | *3 465* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 20.59 | 20.08 | 16.52 | *19.20* |
| as a percentage of 1970-1975 structural change | 100 | 98 | 80 | *93* |
| MVA growth rate per structural change (%) | 1.38 | 0.83 | 1.08 | 1.96 |
| Degree of specialization | 20.3 | 15.9 | 15.9 | 17.2 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 930 | 553 | 737 | *755* |
| 313 Beverages | 145 | 133 | 152 | *127* |
| 314 Tobacco products | *190* | 46 | 82 | *52* |
| 321 Textiles | 1 329 | 931 | 1 355 | *635* |
| 322 Wearing apparel | 78 | 33 | 85 | *16* |
| 323 Leather and fur products | 36 | 30 | 69 | *21* |
| 324 Footwear | 100 | 71 | 85 | *35* |
| 331 Wood and wood products | 68 | 52 | 108 | *40* |
| 332 Furniture and fixtures | 33 | 21 | 32 | *19* |
| 341 Paper and paper products | 135 | 115 | 130 | *96* |
| 342 Printing and publishing | 80 | 42 | 114 | *54* |
| 351 Industrial chemicals | 93 | 102 | 227 | *281* |
| 352 Other chemical products | 278 | 266 | 412 | *317* |
| 353 Petroleum refineries | 1 652 | *386* | *31* | *19* |
| 354 Miscellaneous petroleum and coal products | 2 | 14 | 38 | *18* |
| 355 Rubber products | 93 | 79 | 116 | *122* |
| 356 Plastic products | 198 | 103 | 164 | *92* |
| 361 Pottery, china and earthenware | 45 | 33 | 41 | *33* |
| 362 Glass and glass products | 115 | 73 | 73 | *68* |
| 369 Other non-metal mineral products | 819 | 601 | 688 | *451* |
| 371 Iron and steel | 367 | 313 | 893 | *890* |
| 372 Non-ferrous metals | 48 | 84 | 413 | *209* |
| 381 Metal products | 319 | 244 | 338 | *261* |
| 382 Non-electrical machinery | 208 | 277 | 724 | 230 |
| 383 Electrical machinery | 391 | 329 | 332 | *461* |
| 384 Transport equipment | 399 | 407 | 504 | *473* |
| 385 Professional and scientific equipment | 24 | 24 | 23 | *39* |
| 390 Other manufacturing industries | 11 | 12 | 28 | *24* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

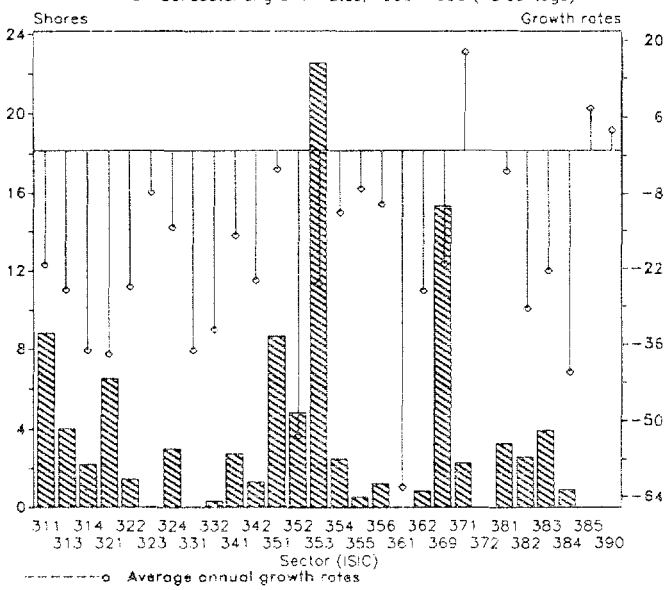




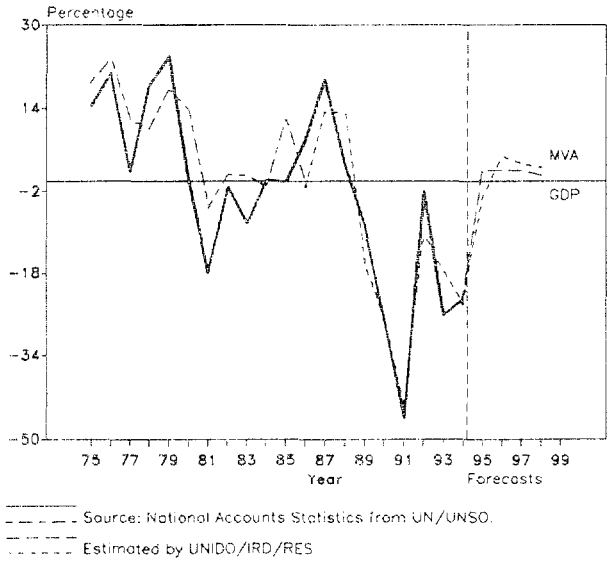


**IRAQ**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



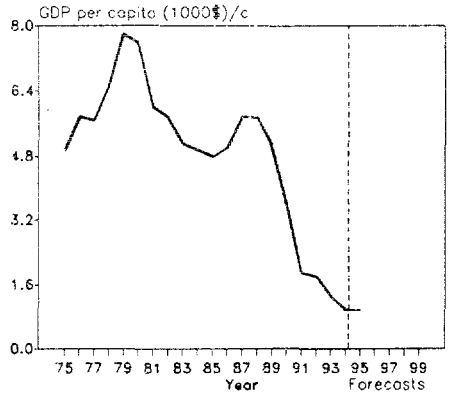

Annual growth rates of GDP and MVA (Constant 1990 prices)



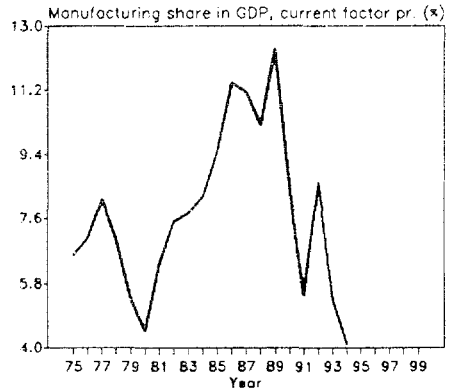

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 98 479 | 73 401 | 64 898 | 19 529 |
| Per capita [na] (1990-dollars) | 7 571 | 4 792 | 3 590 | 980 |
| Manufacturing share [na] (%) (current factor prices) | 4.5 | 9.5 | 8.4 | *4.1* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 6 983 | 7 445 | 5 735 | *1 753* |
| Industrial production index (1980=100) | 100 | 106 | 131 | *61* |
| Value added (millions of dollars) | *2 070* | 3 676 | *3 623* | *606* |
| Gross output (millions of dollars) | *5 155* | 7 162 | *7 560* | *1 387* |
| Employment (thousands) | 177 | 174 | *134* | *117* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *60* | 49 | *36* | *56* |
| Wages and salaries including supplements | *13* | 13 | *64* | *16* |
| Gross operating surplus (%) | *27* | 39 | *-1* | *27* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *29 100* | 41 091 | *6 611* | *11 707* |
| Value added per worker | *11 686* | 21 089 | *27 250* | *5 153* |
| Average wage (including supplements) | 3 700 | 5 242 | *3 552* | *1 933* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *23.16* | *17.65* | *11.80* | *17.02* |
| as a percentage of 1970-1975 structural change | *100* | *76* | *51* | *73* |
| MVA growth rate per structural change (%) | 1.39 | 3.51 | 1.59 | -0.99 |
| Degree of specialization | 19.9 | 24.2 | 23.2 | 22.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *183* | 396 | *306* | *59* |
| 313 Beverages | *91* | 125 | *139* | *19* |
| 314 Tobacco products | *108* | 140 | *125* | *7* |
| 321 Textiles | *246* | 248 | *362* | *20* |
| 322 Wearing apparel | *42* | 53 | *47* | *7* |
| 323 Leather and fur products | *24* | 1 | *1* | - |
| 324 Footwear | *18* | 81 | *70* | *22* |
| 331 Wood and wood products | *1* | 1 | *1* | - |
| 332 Furniture and fixtures | *10* | 13 | *14* | *1* |
| 341 Paper and paper products | *48* | 52 | *78* | *20* |
| 342 Printing and publishing | *29* | 33 | *50* | *8* |
| 351 Industrial chemicals | *67* | 151 | *167* | *79* |
| 352 Other chemical products | *187* | 389 | *362* | *6* |
| 353 Petroleum refineries | *405* | 868 | *836* | *127* |
| 354 Miscellaneous petroleum and coal products | *27* | 40 | *56* | *19* |
| 355 Rubber products | *5* | 10 | *11* | *4* |
| 356 Plastic products | *11* | 33 | *28* | *10* |
| 361 Pottery, china and earthenware | *1* | 1 | *1* | - |
| 362 Glass and glass products | *21* | 35 | *31* | *4* |
| 369 Other non-metal mineral products | *190* | 565 | *557* | *100* |
| 371 Iron and steel | *7* | *20* | *17* | *24* |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | *53* | 47 | *56* | *28* |
| 382 Non-electrical machinery | *160* | 149 | *111* | *13* |
| 383 Electrical machinery | *122* | 185 | *139* | *26* |
| 384 Transport equipment | *15* | 40 | *56* | *3* |
| 385 Professional and scientific equipment | *1* | - | - | - |
| 390 Other manufacturing industries | *1* | - | - | -. |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

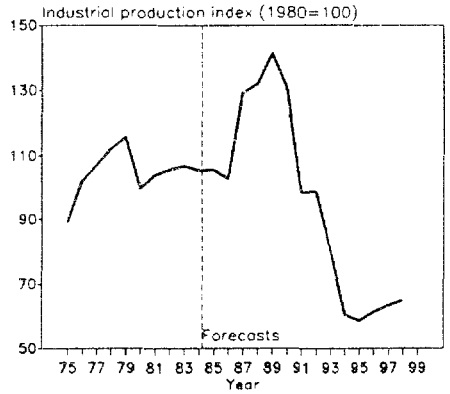
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

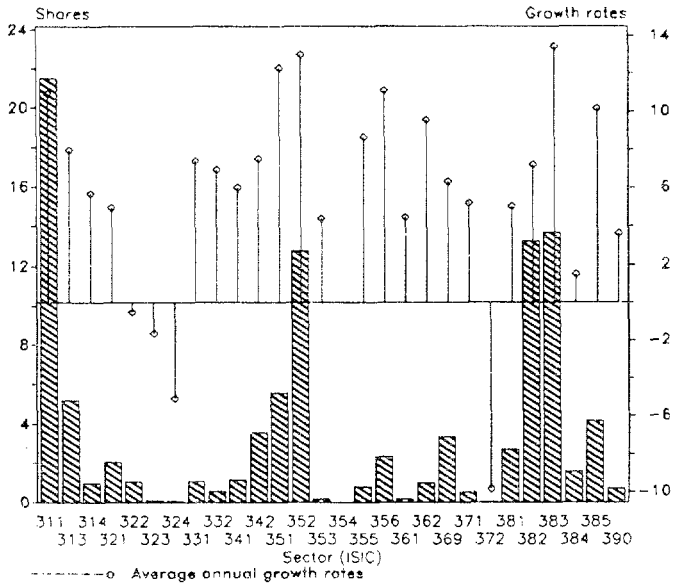



Industrial production index (1980=100)

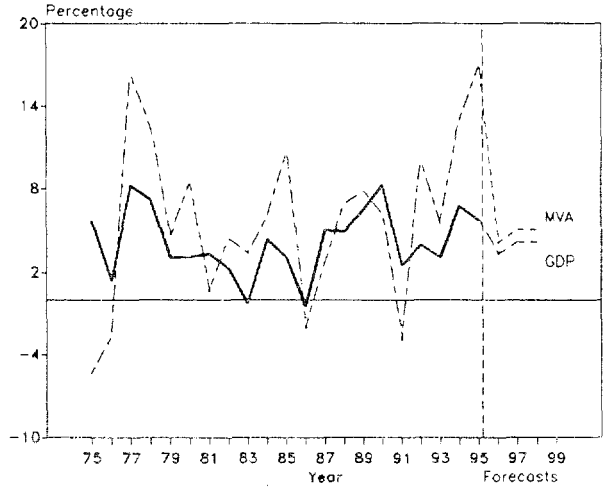


**IRELAND**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)



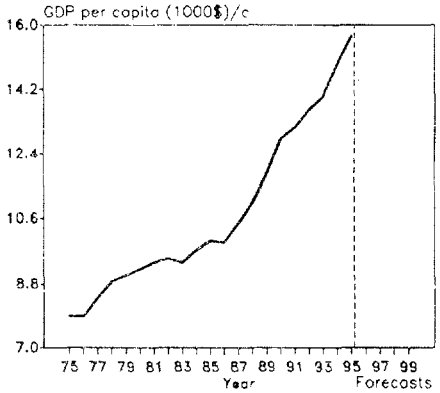

Source: National Accounts Statistics from UN/UNSO

Estimated by UNIDO/IRD/RES

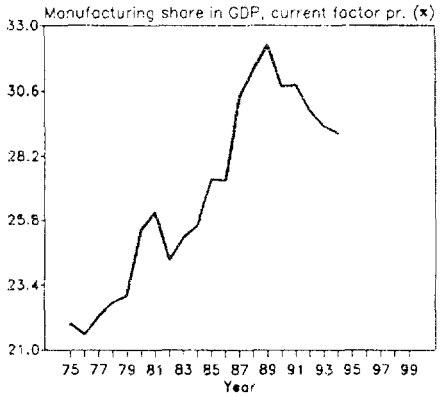
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 31 322 | 35 523 | 44 930 | 52 691 |
| Per capita [na] (1990-dollars) | 9 210 | 10 001 | 12 826 | 14 889 |
| Manufacturing share [na] (%) (current factor prices) | 25.5 | 27.3 | 30.8 | *29.1* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 7 339 | 9 323 | 11 445 | 14 510 |
| Industrial production index (1980=100) | 100 | 116 | 168 | 226 |
| Value added (millions of dollars) | 5 700 | 5 995 | 15 013 | *20 101* |
| Gross output (millions of dollars) | 15 905 | 15 394 | 33 527 | 42 642 |
| Employment (thousands) | 225 | 186 | 194 | *209* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 64 | 61 | 55 | *52* |
| Wages and salaries including supplements | *17* | *14* | *14* | *13* |
| Gross operating surplus (%) | *19* | *25* | *31* | *34* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 70 084 | 82 216 | 172 604 | *201 607* |
| Value added per worker | 25 118 | 32 017 | 77 289 | *100 050* |
| Average wage (including supplements) | *11 907* | *11 606* | *23 773* | *26 817* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 13.80 | 14.18 | 9.87 | *6.61* |
| as a percentage of 1970-1975 structural change | 100 | 103 | 72 | *48* |
| MVA growth rate per structural change (%) | 2.70 | 2.01 | 2.80 | 5.40 |
| Degree of specialization | 14.9 | 18.7 | 21.1 | 23.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 1 264 | 1 194 | 3 068 | *4 331* |
| 313 Beverages | 325 | 331 | 792 | *1 004* |
| 314 Tobacco products | 83 | 83 | 166 | *189* |
| 321 Textiles | 266 | 181 | 349 | *375* |
| 322 Wearing apparel | 147 | 118 | 207 | *171* |
| 323 Leather and fur products | 28 | 12 | 21 | *16* |
| 324 Footwear | 42 | 22 | 19 | *12* |
| 331 Wood and wood products | 93 | 66 | 170 | *210* |
| 332 Furniture and fixtures | 59 | 40 | 86 | *105* |
| 341 Paper and paper products | 105 | 75 | 190 | *215* |
| 342 Printing and publishing | 265 | 219 | 561 | *695* |
| 351 Industrial chemicals | 236 | 315 | 757 | *1 154* |
| 352 Other chemical products | 536 | 715 | 1 718 | *2 701* |
| 353 Petroleum refineries | *22* | *15* | *30* | *32* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 52 | *58* | 118 | *150* |
| 356 Plastic products | 113 | *125* | 332 | *478* |
| 361 Pottery, china and earthenware | 28 | 13 | 28 | *30* |
| 362 Glass and glass products | 109 | 113 | 144 | *195* |
| 369 Other non-metal mineral products | 322 | 260 | 560 | *653* |
| 371 Iron and steel | 31 | 37 | 92 | *102* |
| 372 Non-ferrous metals | 15 | 8 | 10 | *5* |
| 381 Metal products | 335 | 216 | 469 | *504* |
| 382 Non-electrical machinery | 449 | 854 | 2 235 | *2 644* |
| 383 Electrical machinery | 337 | 512 | 1 840 | *2 876* |
| 384 Transport equipment | 190 | 116 | 309 | *287* |
| 385 Professional and scientific equipment | 168 | 261 | 611 | *833* |
| 390 Other manufacturing industries | 79 | 39 | 132 | *132* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

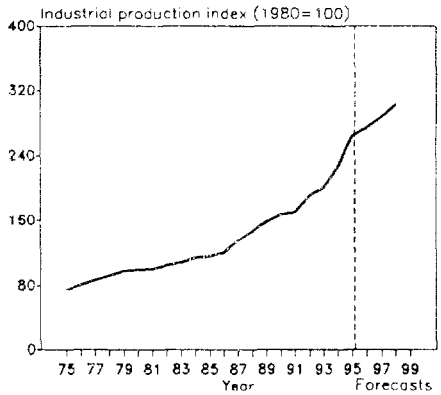
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

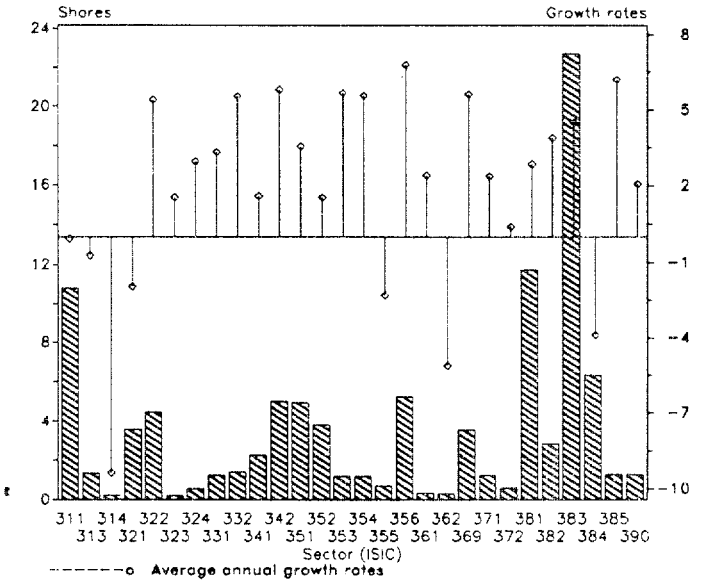



Industrial production index (1980=100)

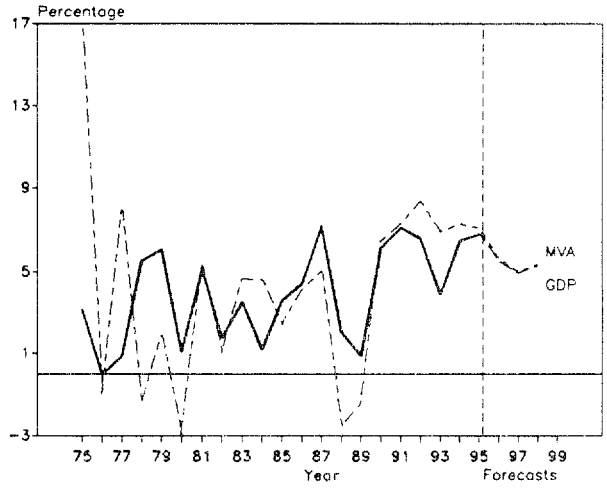


**ISRAEL**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



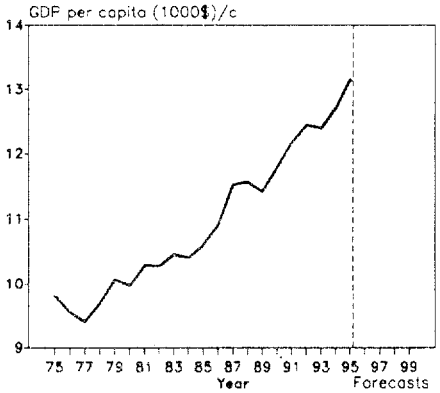

Annual growth rates of GDP and MVA (Constant 1990 prices)



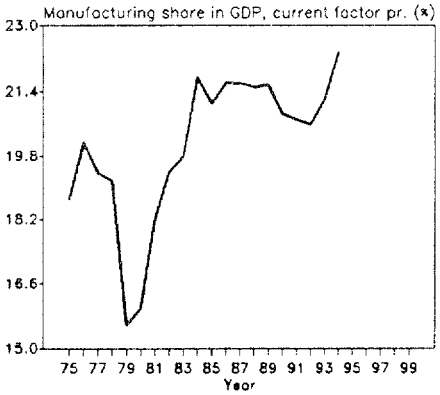

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 38 687 | 44 907 | 54 910 | 69 365 |
| Per capita [na] (1990-dollars) | 9 973 | 10 609 | 11 783 | 12 709 |
| Manufacturing share [na] (%) (current factor prices) | 16.0 | 21.1 | 20.9 | *21.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 6 303 | 7 513 | 8 394 | 11 185 |
| Industrial production index (1980=100) | 100 | 119 | 133 | 168 |
| Value added (millions of dollars) | 6 490 | 6 655 | 10 193 | *12 030* |
| Gross output (millions of dollars) | 14 332 | 16 351 | 24 574 | *33 407* |
| Employment (thousands) | 259 | 292 | 292 | *343* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 55 | 59 | 59 | *64* |
| Wages and salaries including supplements | *30* | *30* | *32* | *31* |
| Gross operating surplus and net taxes (%) | *15* | *11* | *10* | *5* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 54 619 | 55 297 | 83 073 | *96 122* |
| Value added per worker | 24 733 | 22 506 | 34 461 | *34 618* |
| Average wage (including supplements) | *16 734* | *16 765* | *26 622* | *29 689* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 10.22 | 12.57 | 9.51 | *8.19* |
| as a percentage of 1970-1975 structural change | 100 | 123 | 93 | *80* |
| MVA growth rate per structural change (%) | 4.49 | 2.06 | -0.35 | 2.68 |
| Degree of specialization | 14.8 | 18.3 | 18.0 | 18.1 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 706 | 748 | 1 221 | *1 249* |
| 313 Beverages | 66 | 56 | 146 | *153* |
| 314 Tobacco products | 24 | 10 | 33 | *23* |
| 321 Textiles | 422 | 243 | 404 | *393* |
| 322 Wearing apparel | 293 | 229 | 427 | *561* |
| 323 Leather and fur products | 18 | 13 | 19 | *22* |
| 324 Footwear | 38 | 42 | 55 | *65* |
| 331 Wood and wood products | 112 | 78 | 116 | *149* |
| 332 Furniture and fixtures | 90 | 81 | 131 | *180* |
| 341 Paper and paper products | 150 | 135 | 241 | *269* |
| 342 Printing and publishing | 184 | 227 | 470 | *648* |
| 351 Industrial chemicals | 256 | 317 | 498 | *614* |
| 352 Other chemical products | 250 | 241 | 420 | *462* |
| 353 Petroleum refineries | 93 | 106 | 115 | *152* |
| 354 Miscellaneous petroleum and coal products | 93 | 106 | 115 | *152* |
| 355 Rubber products | 104 | 64 | 76 | *74* |
| 356 Plastic products | 212 | 290 | 468 | *666* |
| 361 Pottery, china and earthenware | 26 | 25 | 30 | *36* |
| 362 Glass and glass products | 30 | 23 | 37 | *31* |
| 369 Other non-metal mineral products | 239 | 143 | 306 | *433* |
| 371 Iron and steel | 148 | 118 | 113 | *137* |
| 372 Non-ferrous metals | 61 | 36 | 61 | *66* |
| 381 Metal products | 1 060 | 967 | 1 228 | *1 426* |
| 382 Non-electrical machinery | 245 | 224 | 279 | *359* |
| 383 Electrical machinery | 831 | 1 415 | 2 200 | *2 784* |
| 384 Transport equipment | 610 | 522 | 742 | *614* |
| 385 Professional and scientific equipment | 66 | 129 | 125 | *171* |
| 390 Other manufacturing industries | 63 | 67 | 120 | *141* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

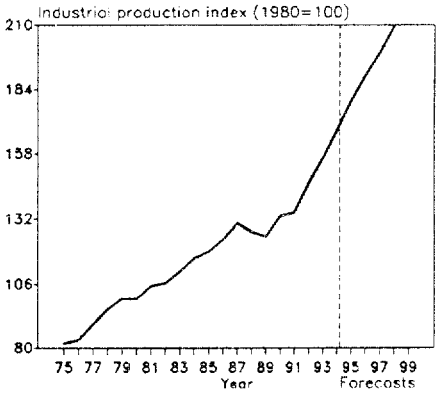
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

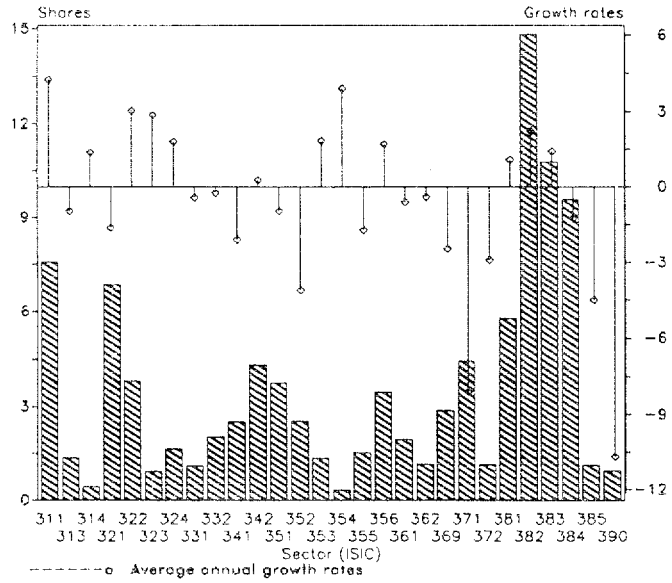



Industrial production index (1980=100)

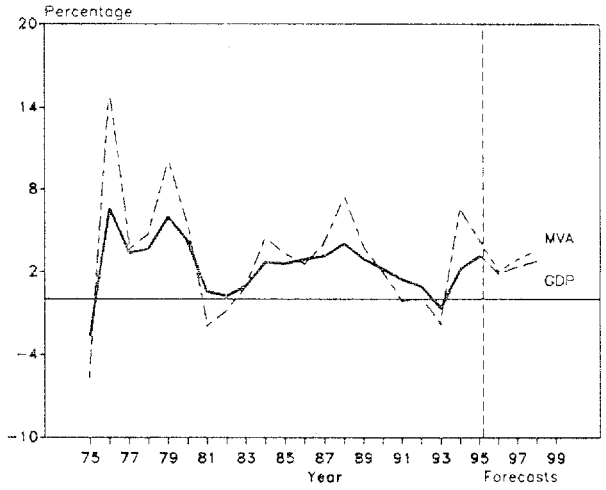


**ITALY**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

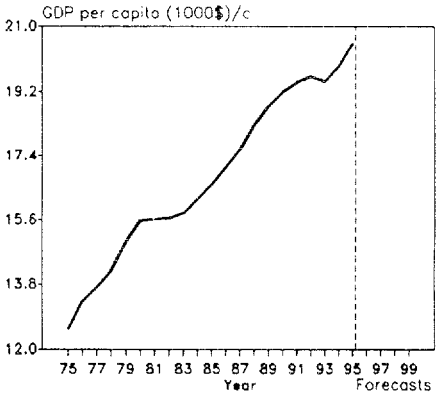



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

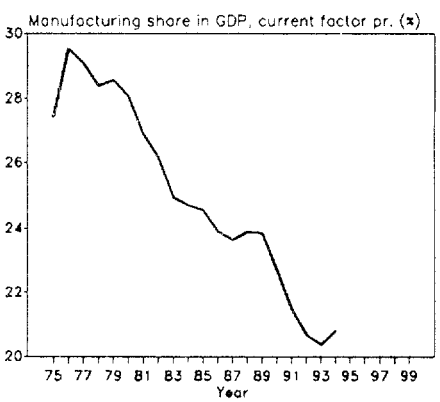
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 878 864 | 942 069 | 1 095 122 | 1 138 253 |
| Per capita [na] (1990-dollars) | 15 573 | 16 594 | 19 205 | 19 914 |
| Manufacturing share [na] (%) (current factor prices) | 28.1 | 24.5 | 22.7 | *20.8* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 191 990 | 202 705 | 245 232 | 255 658 |
| Industrial production index (1980=100) | 100 | 96 | 112 | 110 |
| Value added (millions of dollars) | 97 032 | 64 726 | 144 733 | *128 486* |
| Gross output (millions of dollars) | 250 912 | 212 913 | 478 032 | 428 813 |
| Employment (thousands) | 3 333 | 2 875 | 2 757 | *2 692* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 61 | 70 | 70 | *70* |
| Wages and salaries including supplements | *21* | *18* | *27* | *28* |
| Gross operating surplus and net taxes (%) | *18* | *12* | *4* | *2* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 74 433 | 73 115 | 170 315 | *156 427* |
| Value added per worker | 28 784 | 22 227 | 51 566 | *46 871* |
| Average wage (including supplements) | *15 647* | *13 630* | *46 298* | *44 166* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *5.63* | *5.87* | 7.64 | *6.38* |
| as a percentage of 1970-1975 structural change | *100* | *104* | 136 | *113* |
| MVA growth rate per structural change (%) | 4.30 | -0.91 | -1.43 | -0.24 |
| Degree of specialization | 10.0 | 10.7 | 11.0 | 12.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 6 362 | 3 618 | 9 599 | *10 333* |
| 313 Beverages | 1 672 | 1 354 | 2 015 | *1 739* |
| 314 Tobacco products | 307 | 224 | 556 | *552* |
| 321 Textiles | 6 716 | 5 062 | 10 327 | *8 584* |
| 322 Wearing apparel | 3 197 | 2 322 | 4 876 | *4 986* |
| 323 Leather and fur products | 718 | 560 | 1 234 | *1 243* |
| 324 Footwear | 1 495 | 1 260 | 2 231 | *2 171* |
| 331 Wood and wood products | 1 318 | 786 | 1 616 | *1 421* |
| 332 Furniture and fixtures | 1 936 | 1 257 | 2 900 | *2 553* |
| 341 Paper and paper products | 2 260 | 1 661 | 3 878 | *3 124* |
| 342 Printing and publishing | 3 017 | 2 271 | 6 171 | *5 661* |
| 351 Industrial chemicals | *6 354* | *4 219* | 5 906 | *4 807* |
| 352 Other chemical products | *4 068* | *2 471* | 3 974 | *3 001* |
| 353 Petroleum refineries | *1 128* | *936* | 1 718 | *1 707* |
| 354 Miscellaneous petroleum and coal products | *206* | *170* | 406 | *438* |
| 355 Rubber products | 1 832 | 1 107 | 2 254 | *1 876* |
| 356 Plastic products | 1 465 | 1 729 | 4 799 | *4 547* |
| 361 Pottery, china and earthenware | *1 984* | *1 178* | 2 860 | *2 463* |
| 362 Glass and glass products | *1 336* | *806* | 1 673 | *1 467* |
| 369 Other non-metal mineral products | *3 361* | *1 864* | 4 299 | *3 458* |
| 371 Iron and steel | 8 354 | 3 846 | 8 117 | *4 899* |
| 372 Non-ferrous metals | 1 315 | 875 | 1 788 | *1 418* |
| 381 Metal products | 5 687 | 3 405 | 8 014 | *7 390* |
| 382 Non-electrical machinery | 9 326 | 8 914 | 20 330 | *19 846* |
| 383 Electrical machinery | 8 435 | 5 813 | 14 990 | *14 198* |
| 384 Transport equipment | 10 280 | 6 172 | 14 550 | *12 325* |
| 385 Professional and scientific equipment | 2 032 | 550 | 1 761 | *1 291* |
| 390 Other manufacturing industries | 871 | 297 | 1 890 | *989* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

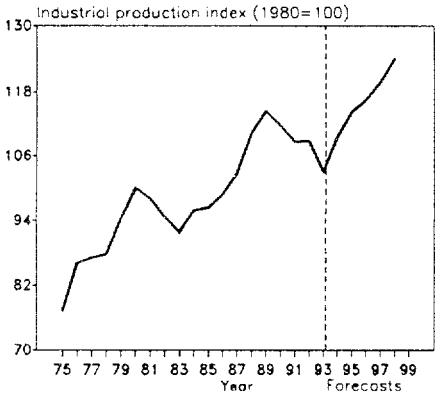
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

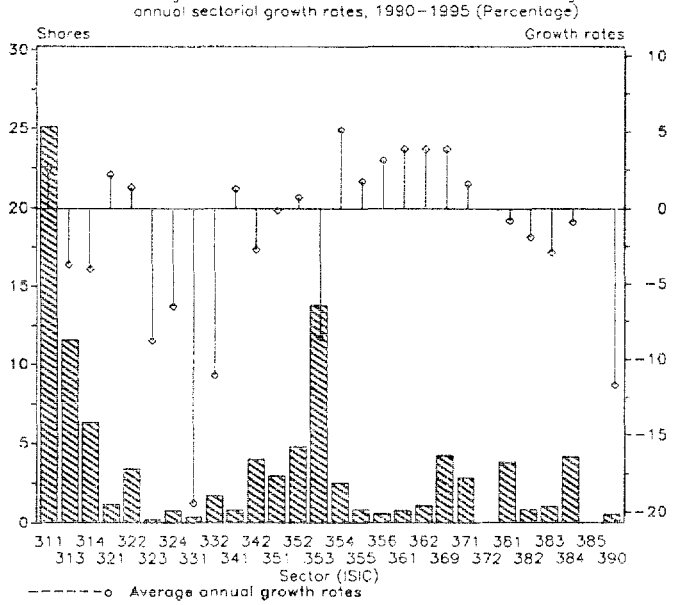



Industrial production index (1980=100)

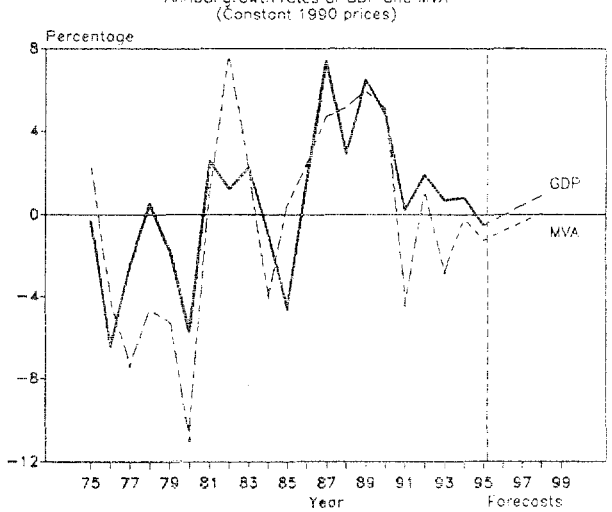


**JAMAICA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1980–1995 (Percentage)



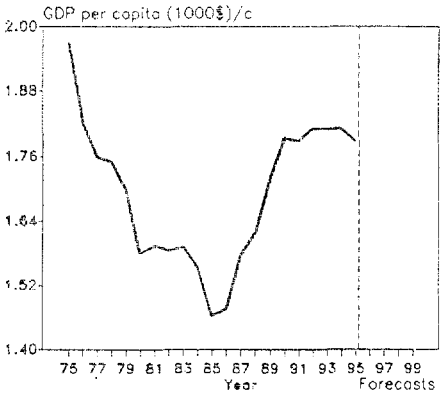

Annual growth rates of GDP and MVA (Constant 1990 prices)



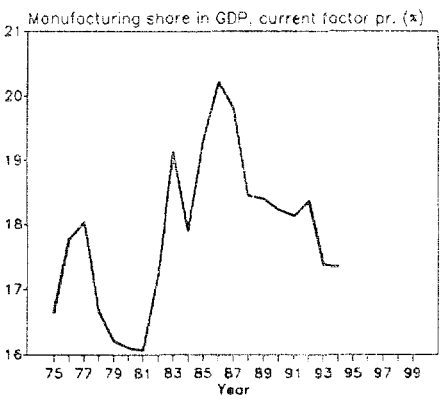

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 3 369 | 3 382 | 4 242 | 4 397 |
| Per capita [na] (1990-dollars) | 1 579 | 1 463 | 1 793 | 1 810 |
| Manufacturing share [na] (%) (current factor prices) | 16.1 | 19.3 | 18.2 | *17.4* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 619 | 658 | 824 | *771* |
| Industrial production index (1980=100) | 100 | 106 | 133 | *124* |
| Value added (millions of dollars) | 436 | *363* | 831 | *728* |
| Gross output (millions of dollars) | 1 661 | 1 498 | 2 549 | *3 063* |
| Employment (thousands) | 44 | *54* | 65 | *73* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 79 | *76* | 73 | *77* |
| Wages and salaries including supplements | *11* | *10* | *10* | *10* |
| Gross operating surplus and net taxes (%) | *9* | *14* | *17* | *13* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 48 137 | *27 805* | 42 821 | *40 629* |
| Value added per worker | *9 883* | *6 737* | 11 620 | *9 641* |
| Average wage (including supplements) | *5 427* | *2 797* | *4 449* | *4 096* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *9.29* | *12.83* | *11.35* | *13.61* |
| as a percentage of 1970-1975 structural change | *100* | *138* | *122* | *147* |
| MVA growth rate per structural change (%) | -0.43 | -0.57 | 3.53 | 1.77 |
| Degree of specialization | 18.1 | 18.4 | 20.1 | 19.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 78 | *74* | 182 | *194* |
| 313 Beverages | 63 | *44* | 103 | *83* |
| 314 Tobacco products | 61 | *40* | 56 | *44* |
| 321 Textiles | *3* | *4* | *8* | *9* |
| 322 Wearing apparel | *15* | *12* | *25* | *26* |
| 323 Leather and fur products | 2 | *2* | 2 | *1* |
| 324 Footwear | 8 | *4* | 7 | *5* |
| 331 Wood and wood products | 3 | *2* | 5 | *2* |
| 332 Furniture and fixtures | 12 | *11* | 19 | *10* |
| 341 Paper and paper products | *8* | *3* | *6* | *6* |
| 342 Printing and publishing | *13* | *13* | *35* | *29* |
| 351 Industrial chemicals | *5* | *7* | *23* | *20* |
| 352 Other chemical products | *22* | *23* | *38* | *37* |
| 353 Petroleum refineries | 55 | *51* | 151 | *87* |
| 354 Miscellaneous petroleum and coal products | - | - | *16* | *20* |
| 355 Rubber products | *12* | *3* | *6* | *6* |
| 356 Plastic products | *13* | *2* | *4* | *4* |
| 361 Pottery, china and earthenware | *1* | *2* | *5* | *6* |
| 362 Glass and glass products | *2* | *3* | *8* | *9* |
| 369 Other non-metal mineral products | *8* | *11* | *29* | *33* |
| 371 Iron and steel | *1* | *10* | *21* | *22* |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | *12* | *13* | *29* | *27* |
| 382 Non-electrical machinery | *8* | *4* | *6* | *6* |
| 383 Electrical machinery | *6* | *4* | *8* | *7* |
| 384 Transport equipment | *24* | *19* | *32* | *30* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 4 | *3* | 6 | *3* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

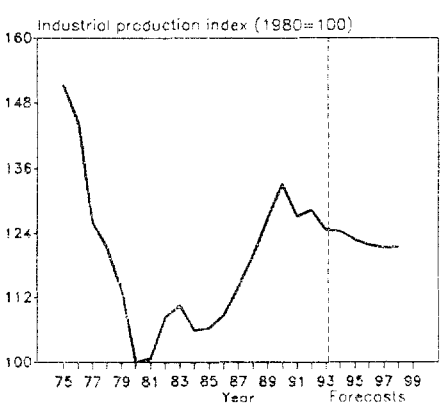
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

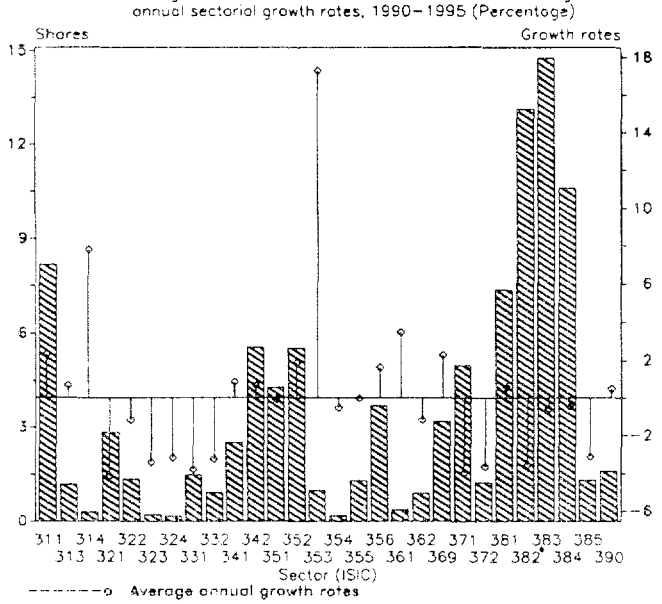



Industrial production index (1980=100)

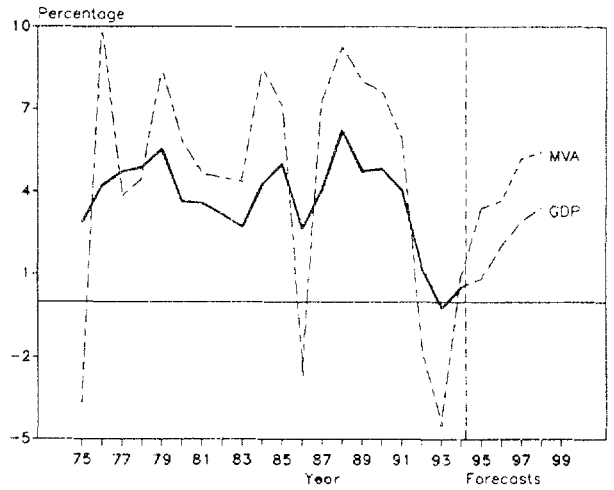


**JAPAN**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

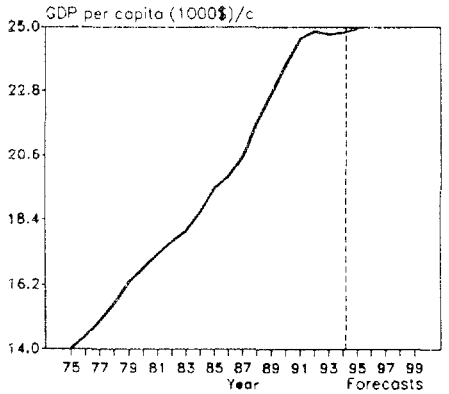



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

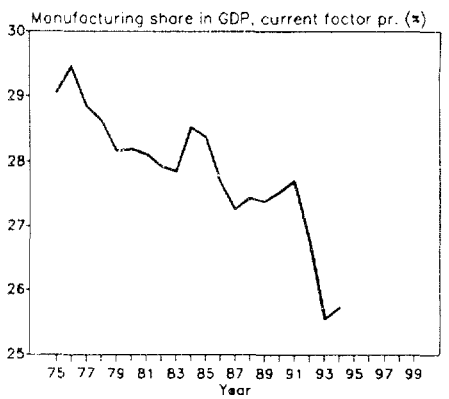
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 959 820 | 2 354 213 | 2 932 088 | 3 098 620 |
| Per capita [na] (1990-dollars) | 16 778 | 19 483 | 23 734 | 24 826 |
| Manufacturing share [na] (%) (current factor prices) | 28.2 | 28.4 | 27.5 | *25.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 485 633 | 643 188 | 852 566 | 853 531 |
| Industrial production index (1980=100) | 100 | 120 | 150 | 140 |
| Value added (millions of dollars) | 339 234 | 412 505 | 891 767 | *1 257 761* |
| Gross output (millions of dollars) | 970 567 | 1 114 671 | 2 245 766 | 3 062 847 |
| Employment (thousands) | 10 253 | 10 652 | 11 172 | *10 853* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 65 | 63 | 60 | *59* |
| Wages and salaries including supplements | 12 | 13 | 13 | *15* |
| Gross operating surplus and net taxes (%) | 23 | 24 | 27 | *26* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 88 443 | 102 310 | 201 017 | *278 841* |
| Value added per worker | 30 912 | 37 862 | 79 822 | *117 764* |
| Average wage (including supplements) | 11 522 | 13 644 | 26 368 | *41 297* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 5.99 | 6.39 | 5.61 | *3.95* |
| as a percentage of 1970-1975 structural change | 100 | 107 | 94 | *66* |
| MVA growth rate per structural change (%) | 3.08 | 3.55 | 3.47 | 2.60 |
| Degree of specialization | 11.8 | 15.1 | 15.8 | 15.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 25 889 | 32 041 | 66 676 | *108 436* |
| 313 Beverages | 5 015 | 5 303 | 10 305 | *15 450* |
| 314 Tobacco products | 1 888 | 700 | 2 003 | *4 138* |
| 321 Textiles | 15 436 | 15 259 | 27 046 | *32 752* |
| 322 Wearing apparel | 5 156 | 5 622 | 11 921 | *16 605* |
| 323 Leather and fur products | 886 | 977 | 1 865 | *2 350* |
| 324 Footwear | 697 | 658 | 1 478 | *1 873* |
| 331 Wood and wood products | 8 997 | 6 888 | 14 006 | *18 111* |
| 332 Furniture and fixtures | 3 788 | 3 798 | 8 730 | *11 047* |
| 341 Paper and paper products | 9 310 | 9 759 | 22 287 | *32 558* |
| 342 Printing and publishing | 17 099 | 20 789 | 47 938 | *71 862* |
| 351 Industrial chemicals | 13 809 | 16 811 | 38 076 | *54 911* |
| 352 Other chemical products | 15 471 | 19 758 | 46 764 | *72 650* |
| 353 Petroleum refineries | 6 620 | 4 595 | 4 841 | *15 270* |
| 354 Miscellaneous petroleum and coal products | 1 063 | 713 | 1 540 | *2 266* |
| 355 Rubber products | 4 150 | 5 077 | 11 403 | *16 198* |
| 356 Plastic products | 9 478 | 13 570 | 30 796 | *47 093* |
| 361 Pottery, china and earthenware | 1 623 | 1 627 | 2 984 | *4 899* |
| 362 Glass and glass products | 2 876 | 4 029 | 8 467 | *11 431* |
| 369 Other non-metal mineral products | 12 565 | 12 321 | 26 652 | *43 689* |
| 371 Iron and steel | 26 444 | 25 224 | 48 539 | *59 300* |
| 372 Non-ferrous metals | 7 458 | 5 236 | 11 976 | *15 460* |
| 381 Metal products | 22 409 | 26 356 | 62 905 | *92 613* |
| 382 Non-electrical machinery | 39 270 | 53 576 | 126 563 | *152 326* |
| 383 Electrical machinery | 38 868 | 63 180 | 133 884 | *184 888* |
| 384 Transport equipment | 32 107 | 45 158 | 95 594 | *133 377* |
| 385 Professional and scientific equipment | 5 685 | 6 972 | 12 798 | *15 807* |
| 390 Other manufacturing industries | 5 178 | 6 510 | 13 730 | *20 405* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

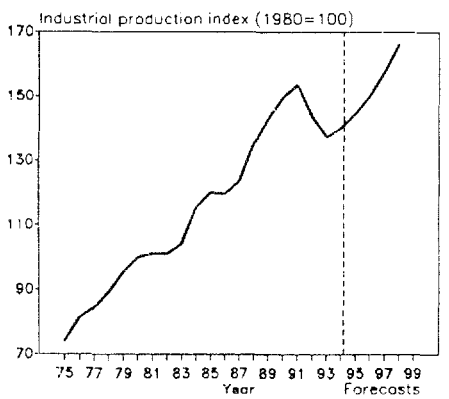
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

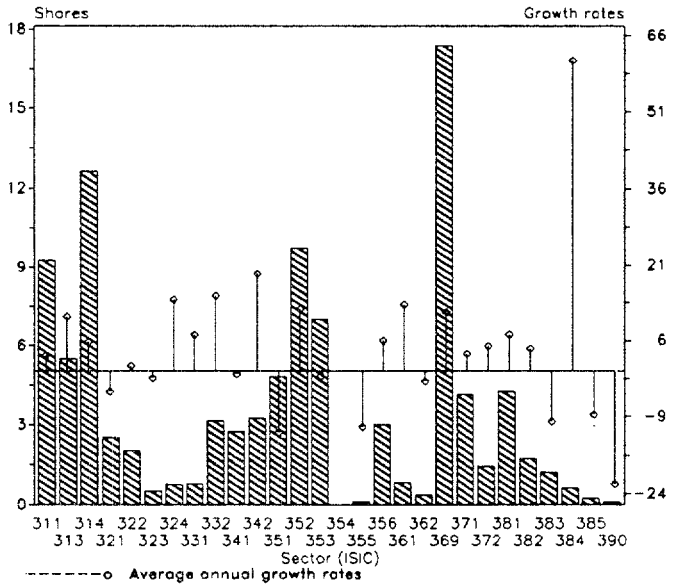



Industrial production index (1980=100)

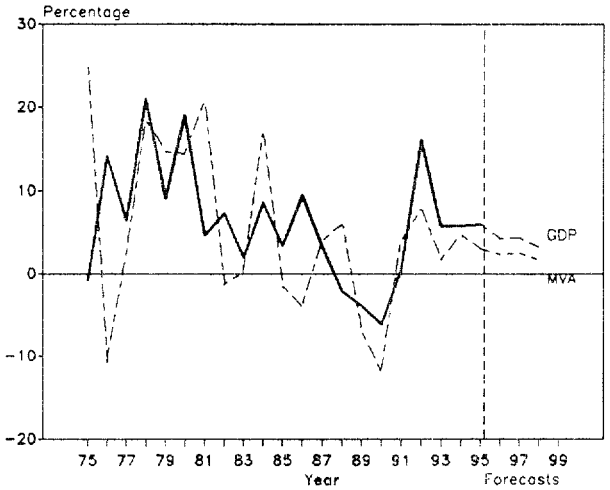


**JORDAN**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

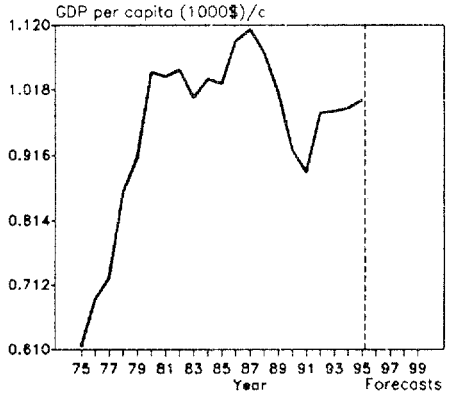



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

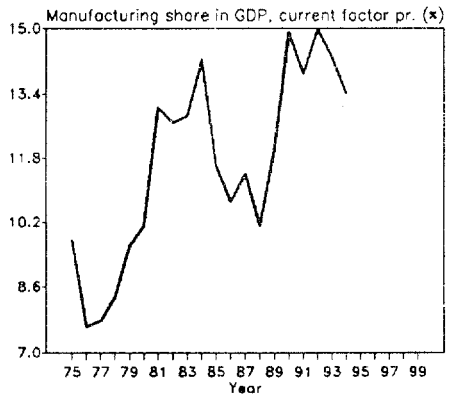
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 3 057 | 3 940 | 3 934 | 5 143 |
| Per capita [na] (1990-dollars) | 1 046 | 1 028 | 924 | 989 |
| Manufacturing share [na] (%) (current factor prices) | 10.1 | 11.6 | 14.9 | *13.2* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 441 | 603 | 520 | 620 |
| Industrial production index (1980=100) | 100 | 157 | 204 | 245 |
| Value added (millions of dollars) | 406 | 581 | 583 | *862* |
| Gross output (millions of dollars) | 917 | 1 997 | 1 846 | *2 966* |
| Employment (thousands) | 25 | 42 | 44 | *68* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 56 | 71 | 68 | *71* |
| Wages and salaries including supplements | 12 | 9 | 8 | *7* |
| Gross operating surplus and net taxes (%) | 32 | 20 | 24 | *22* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 26 708 | 38 671 | 33 085 | *36 466* |
| Value added per worker | 11 819 | 11 243 | 10 443 | *10 603* |
| Average wage (including supplements) | 4 418 | 4 326 | 3 175 | *2 974* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 19.05 | 18.77 | 16.04 | *19.48* |
| as a percentage of 1970-1975 structural change | 100 | 99 | 84 | *102* |
| MVA growth rate per structural change (%) | 4.39 | 3.97 | 1.70 | 0.97 |
| Degree of specialization | 19.5 | 21.1 | 15.3 | 16.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 24 | 48 | 58 | *78* |
| 313 Beverages | 20 | 27 | 28 | *53* |
| 314 Tobacco products | 50 | 92 | 75 | *110* |
| 321 Textiles | 10 | 14 | 20 | *18* |
| 322 Wearing apparel | 8 | 10 | 13 | *16* |
| 323 Leather and fur products | 2 | 2 | 4 | *4* |
| 324 Footwear | 8 | 8 | 3 | *7* |
| 331 Wood and wood products | 7 | 7 | 4 | *6* |
| 332 Furniture and fixtures | 11 | 11 | 14 | *31* |
| 341 Paper and paper products | 9 | 9 | 20 | *22* |
| 342 Printing and publishing | 7 | 11 | 12 | *32* |
| 351 Industrial chemicals | 10 | 14 | 44 | *28* |
| 352 Other chemical products | 20 | 28 | 42 | *91* |
| 353 Petroleum refineries | 53 | 87 | 55 | *55* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | 1 | *1* |
| 356 Plastic products | 12 | 13 | 17 | *25* |
| 361 Pottery, china and earthenware | 2 | 3 | 3 | *7* |
| 362 Glass and glass products | 2 | 3 | 3 | *3* |
| 369 Other non-metal mineral products | 98 | 123 | 85 | *161* |
| 371 Iron and steel | *11* | 8 | 24 | *32* |
| 372 Non-ferrous metals | *5* | 4 | 9 | *13* |
| 381 Metal products | *27* | 31 | 23 | *36* |
| 382 Non-electrical machinery | *2* | 4 | 9 | *14* |
| 383 Electrical machinery | 2 | 2 | 11 | *9* |
| 384 Transport equipment | - | 1 | 1 | *9* |
| 385 Professional and scientific equipment | - | - | 2 | *1* |
| 390 Other manufacturing industries | 7 | 23 | 2 | - |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

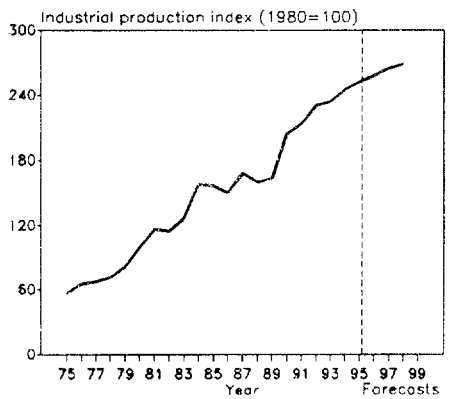
GDP per capita (1000$)/c



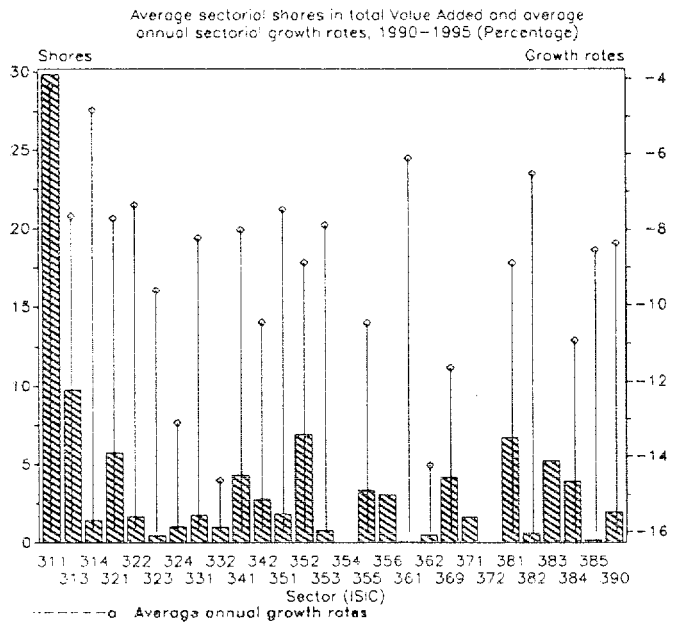

Manufacturing share in GDP, current factor pr. (x)

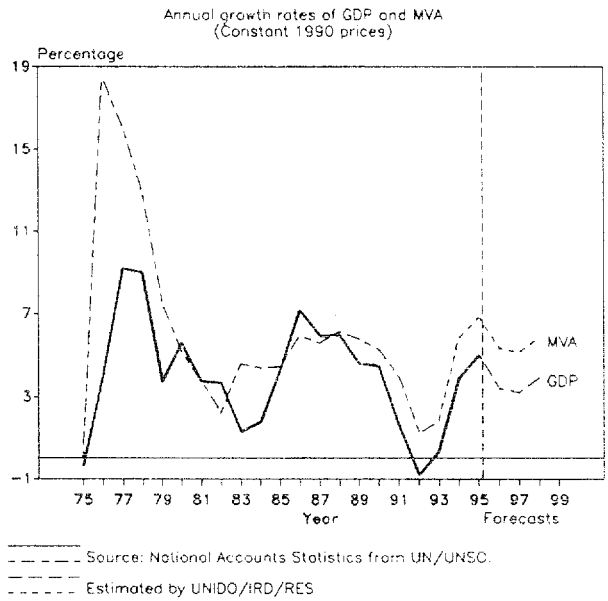



Industrial production index (1980=100)



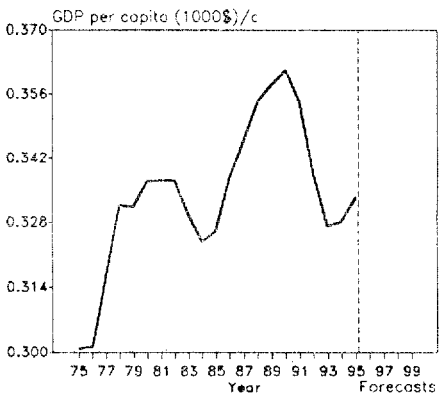
**KENYA**

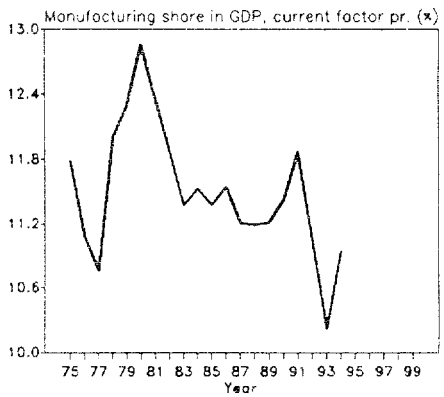


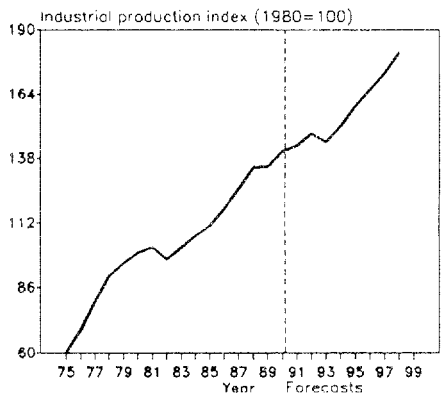




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 5 605 | 6 485 | 8 532 | 8 974 |
| Per capita [na] (1990-dollars) | 337 | 326 | 361 | 328 |
| Manufacturing share [na] (%) (current factor prices) | 12.9 | 11.4 | 11.4 | *10.9* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 540 | 652 | 862 | *976* |
| Industrial production index (1980=100) | 100 | 111 | 141 | *151* |
| Value added (millions of dollars) | 744 | 670 | 921 | 715 |
| Gross output (millions of dollars) | 3 656 | 4 301 | 7 975 | 8 260 |
| Employment (thousands) | *143* | 163 | 188 | *196* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 80 | 84 | 88 | 91 |
| Wages and salaries including supplements | 9 | 7 | 4 | *3* |
| Gross operating surplus and net taxes (%) | 11 | 9 | 8 | *6* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *25 544* | 26 428 | 42 491 | *42 133* |
| Value added per worker | *5 197* | 4 115 | 4 907 | *3 592* |
| Average wage (including supplements) | *2 269* | 1 795 | 1 605 | *1 113* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 10.55 | 9.80 | 9.33 | 7.10 |
| as a percentage of 1970-1975 structural change | 100 | 93 | 88 | 67 |
| MVA growth rate per structural change (%) | 4.92 | 1.59 | 1.26 | -1.21 |
| Degree of specialization | 15.8 | 18.7 | 18.1 | 21.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 177 | 185 | 252 | 228 |
| 313 Beverages | 65 | 72 | 90 | 68 |
| 314 Tobacco products | 10 | 13 | 12 | 11 |
| 321 Textiles | 59 | 40 | 55 | 40 |
| 322 Wearing apparel | 17 | 19 | 16 | 12 |
| 323 Leather and fur products | 6 | 3 | 4 | 3 |
| 324 Footwear | 9 | 6 | 13 | 7 |
| 331 Wood and wood products | 20 | 17 | 17 | 12 |
| 332 Furniture and fixtures | 9 | 8 | 11 | 6 |
| 341 Paper and paper products | 34 | 23 | 42 | 31 |
| 342 Printing and publishing | 22 | 19 | 27 | 18 |
| 351 Industrial chemicals | 25 | 16 | 17 | 14 |
| 352 Other chemical products | 39 | 50 | 67 | 46 |
| 353 Petroleum refineries | 15 | 6 | 7 | 6 |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 25 | 27 | 33 | 21 |
| 356 Plastic products | 14 | 13 | 24 | 23 |
| 361 Pottery, china and earthenware | 1 | - | 1 | 1 |
| 362 Glass and glass products | 3 | 4 | 5 | 3 |
| 369 Other non-metal mineral products | 20 | 17 | 42 | 26 |
| 371 Iron and steel | *12* [a] | *6* [a] | 12 [a] | *11* [a] |
| 372 Non-ferrous metals | [a] | [a] | [a] | [a] |
| 381 Metal products | 44 | 31 | 64 | 45 |
| 382 Non-electrical machinery | 6 | 4 | 5 | 4 |
| 383 Electrical machinery | 40 | 36 | 44 | 40 |
| 384 Transport equipment | 64 | 43 | 39 | 26 |
| 385 Professional and scientific equipment | 1 | 1 | 2 | *1* |
| 390 Other manufacturing industries | 6 | 8 | 18 | *13* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

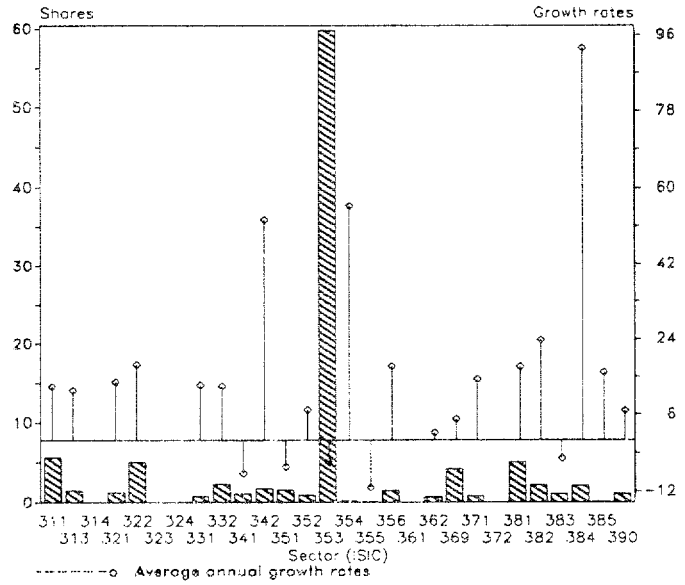


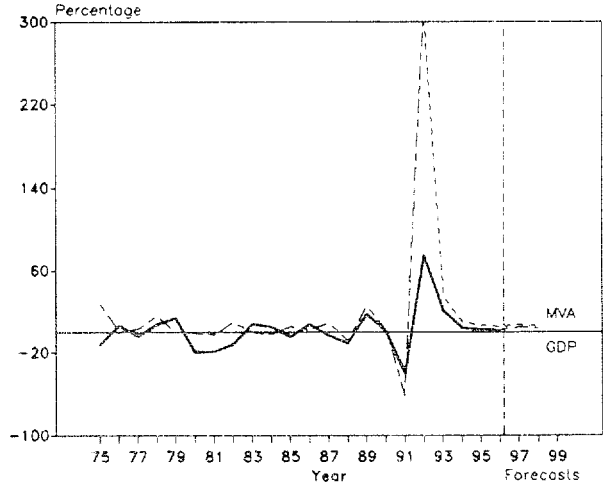



**KUWAIT**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

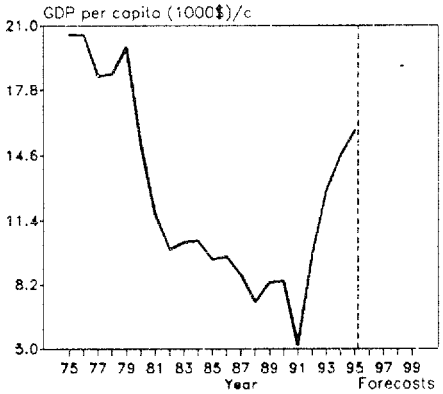



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

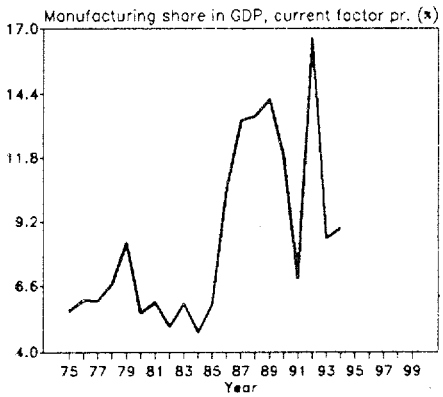
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 20 913 | 16 270 | 17 969 | 23 841 |
| Per capita [na] (1990-dollars) | 15 209 | 9 459 | 8 385 | 14 600 |
| Manufacturing share [na] (%) (current factor prices) | 5.6 | 5.9 | 11.9 | *9.0* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 1 607 | 1 717 | 2 151 | *4 398* |
| Industrial production index (1980=100) | 100 | 138 | 136 | *136* |
| Value added (millions of dollars) | 1 752 | 1 275 | 2 179 | *2 436* |
| Gross output (millions of dollars) | 6 218 | 7 435 | 5 531 | *5 629* |
| Employment (thousands) | 43 | 46 | 56 | *61* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 72 | 83 | 61 | *57* |
| Wages and salaries including supplements | *7* | 8 | *8* | *13* |
| Gross operating surplus and net taxes (%) | *21* | 9 | *31* | *30* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 144 813 | 151 542 | 94 963 | *88 969* |
| Value added per worker | 40 798 | 25 988 | 37 394 | *38 604* |
| Average wage (including supplements) | *9 789* | 13 000 | *8 062* | *12 286* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 20.37 | 12.95 | 23.38 | *33.79* |
| as a percentage of 1970-1975 structural change | 100 | 64 | 115 | *166* |
| MVA growth rate per structural change (%) | 3.00 | 3.39 | 0.29 | 2.43 |
| Degree of specialization | 39.7 | 31.3 | 61.5 | 41.3 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 96 | 101 | 69 | *140* |
| 313 Beverages | 20 | 31 | 21 | *40* |
| 314 Tobacco products | - | - | - | - |
| 321 Textiles | 7 | 8 | 16 | *32* |
| 322 Wearing apparel | 84 | 75 | 54 | *134* |
| 323 Leather and fur products | - | - | - | - |
| 324 Footwear | - | - | - | - |
| 331 Wood and wood products | 40 | 14 | 10 | *20* |
| 332 Furniture and fixtures | 41 | 31 | 30 | *60* |
| 341 Paper and paper products | 5 | 12 | 31 | *22* |
| 342 Printing and publishing | 40 | 52 | 5 | *49* |
| 351 Industrial chemicals | 118 | 56 | 43 | *37* |
| 352 Other chemical products | 13 | 16 | 15 | *23* |
| 353 Petroleum refineries | 915 | 561 | 1 652 | *1 385* |
| 354 Miscellaneous petroleum and coal products | 1 | 1 | - | *4* |
| 355 Rubber products | 5 | 7 | 2 | *1* |
| 356 Plastic products | 24 | 24 | 16 | *39* |
| 361 Pottery, china and earthenware | 2 | - | - | *1* |
| 362 Glass and glass products | 2 | 4 | 12 | *15* |
| 369 Other non-metal mineral products | 143 | 115 | 72 | *102* |
| 371 Iron and steel | 7 | 14 | 11 | *23* |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 99 | 88 | 54 | *130* |
| 382 Non-electrical machinery | 10 | 30 | 19 | *59* |
| 383 Electrical machinery | 22 | 15 | 27 | *27* |
| 384 Transport equipment | 45 | 12 | 2 | *67* |
| 385 Professional and scientific equipment | 5 | *2* | *1* | *2* |
| 390 Other manufacturing industries | 7 | 5 | 17 | *25* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

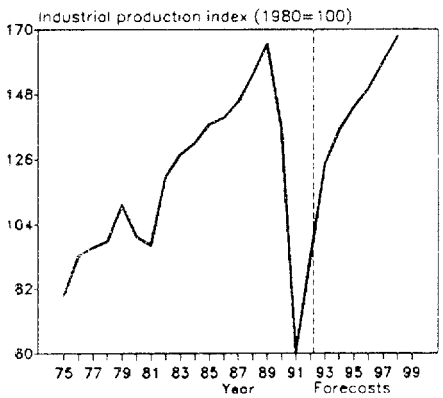
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

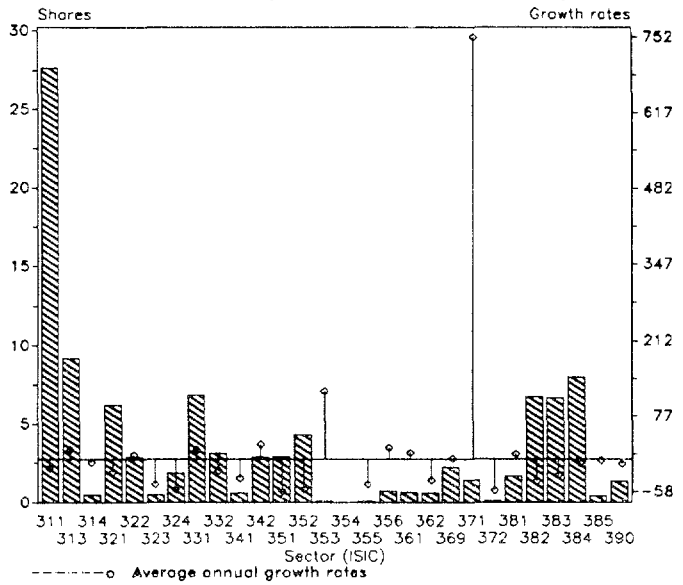



Industrial production index (1980=100)

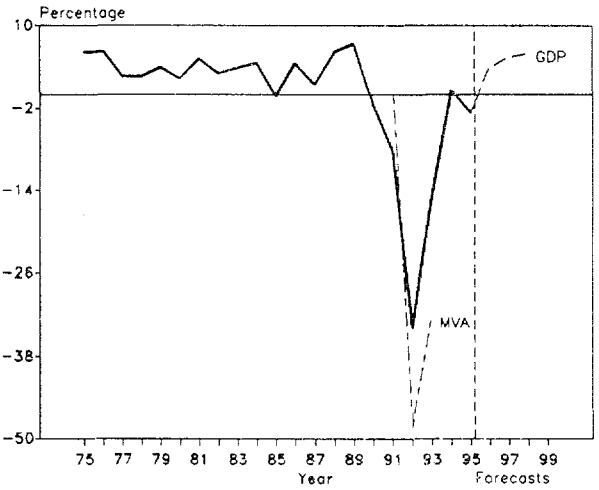


## LATVIA

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1993-1994 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

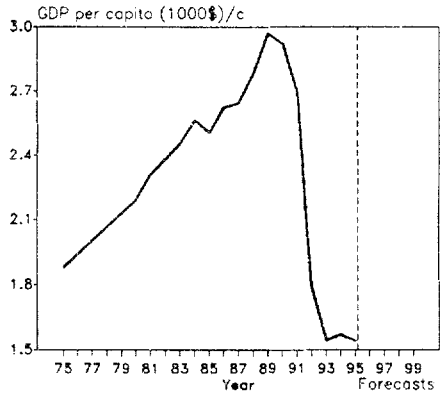



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

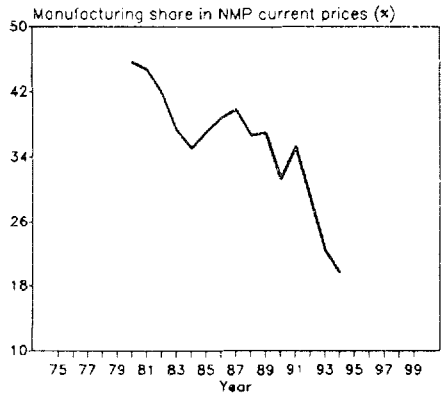
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 5 551 | 6 540 | 7 805 | 4 057 |
| Per capita [na] (1990-dollars) | 2 191 | 2 503 | 2 922 | 1 570 |
| Manufacturing share [na] (%) (current factor prices) | 45.7 | 37.1 | 31.4 | *19.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | .. | .. | 2 690 | .. |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | .. | .. | .. | 706 |
| Gross output (millions of dollars) | *87* | *55* | 6 362 | 1 520 |
| Employment (thousands) | *522* | *385* | 346 | 164 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | .. | .. | .. | 54 |
| Wages and salaries including supplements | .. | .. | .. | *11* |
| Gross operating surplus and net taxes (%) | .. | .. | .. | *35* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *161* | *136* | 18 413 | 9 279 |
| Value added per worker | .. | .. | .. | 4 307 |
| Average wage (including supplements) | *12* | *15* | *2 396* | *1 055* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | .. | .. | .. | .. |
| as a percentage of 1970-1975 structural change | .. | .. | .. | .. |
| MVA growth rate per structural change (%) | .. | .. | .. | .. |
| Degree of specialization | .. | .. | .. | .. |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | .. | .. | .. | 193 |
| 313 Beverages | .. | .. | .. | 76 |
| 314 Tobacco products | .. | .. | .. | 4 |
| 321 Textiles | .. | .. | .. | 41 |
| 322 Wearing apparel | .. | .. | .. | 23 |
| 323 Leather and fur products | .. | .. | .. | 3 |
| 324 Footwear | .. | .. | .. | 9 |
| 331 Wood and wood products | .. | .. | .. | 56 |
| 332 Furniture and fixtures | .. | .. | .. | 21 |
| 341 Paper and paper products | .. | .. | .. | 4 |
| 342 Printing and publishing | .. | .. | .. | 24 |
| 351 Industrial chemicals | .. | .. | .. | 13 |
| 352 Other chemical products | .. | .. | .. | 21 |
| 353 Petroleum refineries | .. | .. | .. | 1 |
| 354 Miscellaneous petroleum and coal products | .. | .. | .. | .. |
| 355 Rubber products | .. | .. | .. | - |
| 356 Plastic products | .. | .. | .. | 6 |
| 361 Pottery, china and earthenware | .. | .. | .. | 5 |
| 362 Glass and glass products | .. | .. | .. | 4 |
| 369 Other non-metal mineral products | .. | .. | .. | 17 |
| 371 Iron and steel | .. | .. | .. | 19 |
| 372 Non-ferrous metals | .. | .. | .. | - |
| 381 Metal products | .. | .. | .. | 13 |
| 382 Non-electrical machinery | .. | .. | .. | 39 |
| 383 Electrical machinery | .. | .. | .. | 42 |
| 384 Transport equipment | .. | .. | .. | 59 |
| 385 Professional and scientific equipment | .. | .. | .. | 3 |
| 390 Other manufacturing industries | .. | .. | .. | 10 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

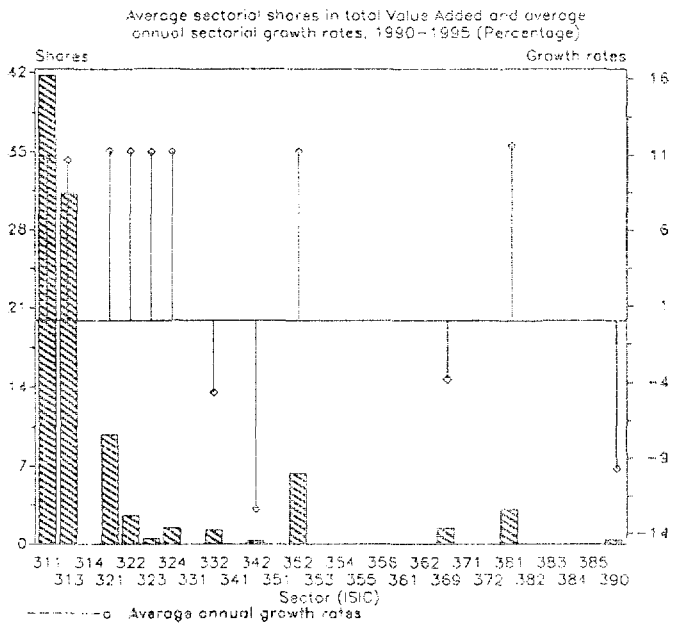
GDP per capita (1000$)/c

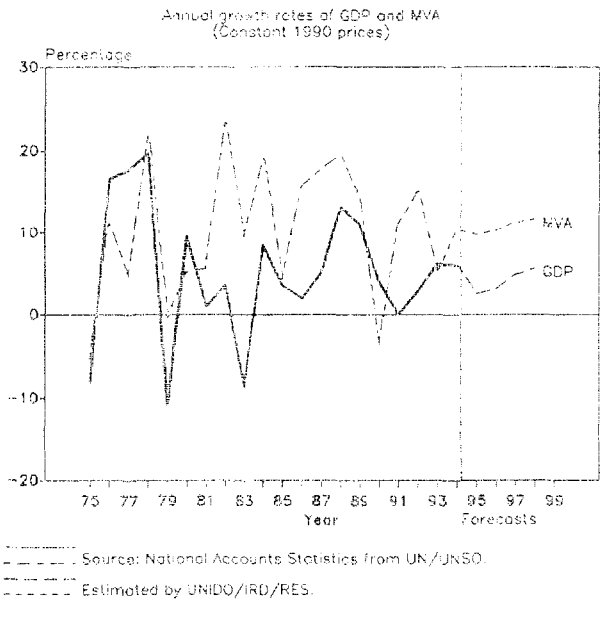



Manufacturing share in NMP current prices (x)



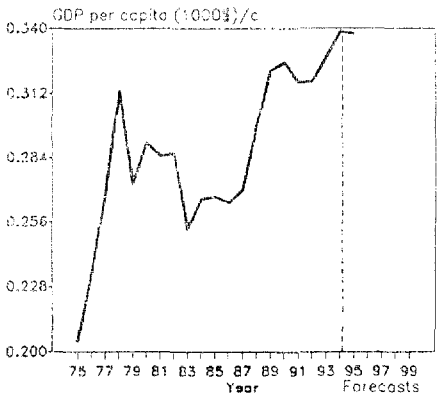
**LESOTHO**



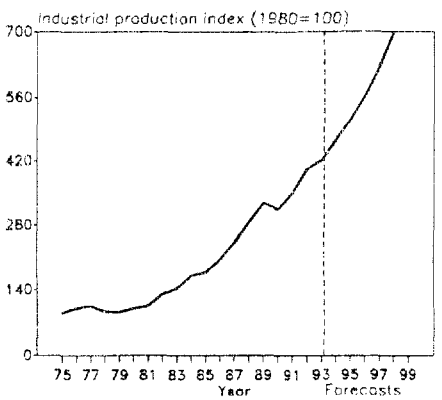




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 389 | 417 | 584 | 676 |
| Per capita [na] (1990-dollars) | 290 | 267 | 326 | 338 |
| Manufacturing share [na] (%) (current factor prices) | 6.3 | 10.4 | 13.1 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 20 | 36 | 64 | *95* |
| Industrial production index (1980=100) | 100 | 177 | 315 | *466* |
| Value added (millions of dollars) | *14* | *22* | *67* | *121* |
| Gross output (millions of dollars) | *57* | *66* | *189* | *332* |
| Employment (thousands) | *4* | *7* | *19* | *14* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 75 | 67 | *65* | *63* |
| Wages and salaries including supplements | *6* | *9* | *11* | *8* |
| Gross operating surplus and net taxes (%) | *18* | *24* | *25* | *29* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *14 314* | 9 778 | *10 138* | *23 364* |
| Value added per worker | *3 535* | 3 234 | *3 588* | *8 829* |
| Average wage (including supplements) | *1 032* | *941* | *1 103* | *1 838* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *11.15* | *9.29* | *4.81* | *5.78* |
| as a percentage of 1970-1975 structural change | *100* | *83* | *43* | *52* |
| MVA growth rate per structural change (%) | 2.39 | 8.44 | 19.48 | 8.70 |
| Degree of specialization | 33.2 | 33.9 | 35.1 | 37.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *6* | *9* | *28* | *51* |
| 313 Beverages | *5* | *7* | *21* | *38* |
| 314 Tobacco products | .. | .. | .. | .. |
| 321 *Textiles* | *1* | *2* | *6* | *12* |
| 322 Wearing apparel | - | *1* | *2* | *3* |
| 323 Leather and fur products | - | - | - | *1* |
| 324 Footwear | - | - | *1* | *2* |
| 331 Wood and wood products | .. | .. | .. | .. |
| 332 Furniture and fixtures | - | - | *1* | *1* |
| 341 Paper and paper products | .. | .. | .. | .. |
| 342 Printing and publishing | - | - | - | - |
| 351 Industrial chemicals | .. | .. | .. | .. |
| 352 Other chemical products | 1 | 1 | *4* | *8* |
| 353 Petroleum refineries | .. | .. | .. | .. |
| 354 Miscellaneous petroleum and coal products | .. | .. | .. | .. |
| 355 Rubber products | .. | .. | .. | .. |
| 356 Plastic products | .. | .. | .. | .. |
| 361 Pottery, *china and earthenware* | .. | .. | .. | .. |
| 362 Glass and glass products | .. | .. | .. | .. |
| 369 Other non-metal mineral products | - | - | *1* | *1* |
| 371 Iron and steel | .. | .. | .. | .. |
| 372 Non-ferrous metals | .. | .. | .. | .. |
| 381 Metal products | 1 | 1 | 2 | *4* |
| 382 Non-electrical machinery | .. | .. | .. | .. |
| 383 Electrical machinery | .. | .. | .. | .. |
| 384 Transport equipment | .. | .. | .. | .. |
| 385 Professional and scientific equipment | .. | .. | .. | .. |
| 390 Other manufacturing industries | - | - | - | - |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.







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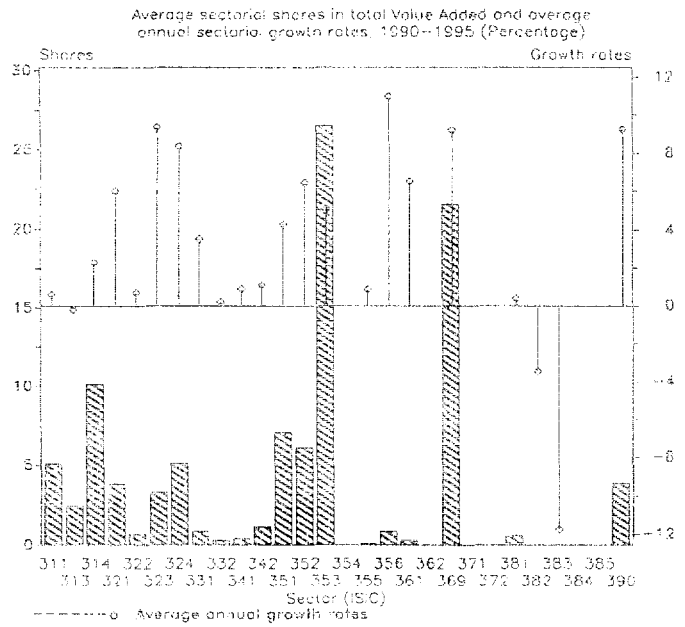
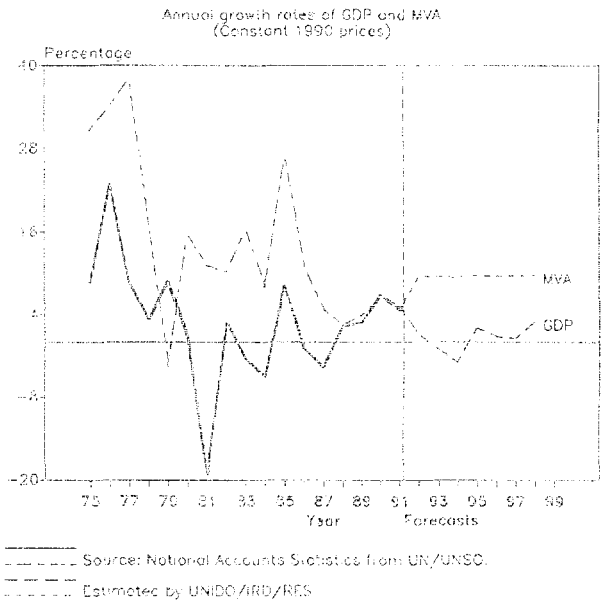
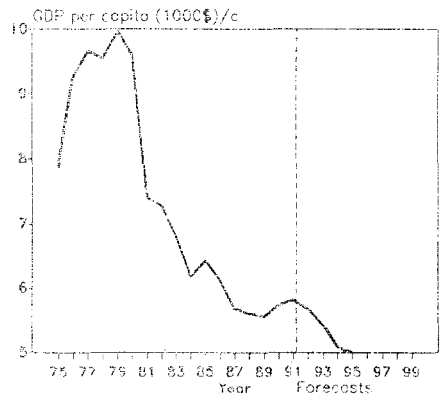


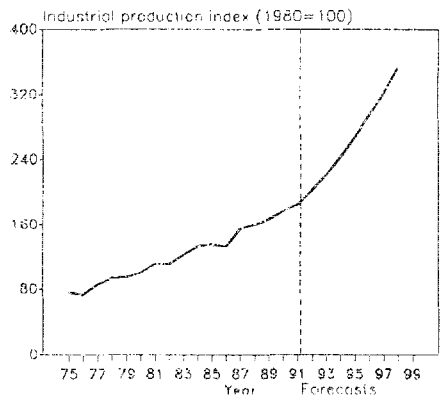




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 29 196 | 24 333 | 26 078 | *26 524* |
| Per capita [na] (1990-dollars) | 9 594 | 6 427 | 5 738 | *5 076* |
| Manufacturing share [na] (%) (current factor prices) | 1.9 | 4.5 | *8.4* | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 855 | 1 662 | 2 185 | *3 003* |
| Industrial production index (1980=100) | 100 | 136 | 177 | *244* |
| Value added (millions of dollars) | 358 | *540* | *724* | *784* |
| Gross output (millions of dollars) | 1 177 | *1 727* | *2 392* | *2 530* |
| Employment (thousands) | 18 | *23* | *27* | *32* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 70 | *69* | *70* | *69* |
| Wages and salaries including supplements | 13 | *12* | *12* | *12* |
| Gross operating surplus and net taxes (%) | 17 | *19* | *19* | *19* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *64 186* | *76 077* | *87 224* | *77 559* |
| Value added per worker | *19 577* | *24 663* | *28 543* | *26 395* |
| Average wage (including supplements) | *8 327* | *9 580* | *10 337* | *9 369* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 24.41 | *24.55* | *7.92* | *6.11* |
| as a percentage of 1970-1975 structural change | 100 | *101* | *32* | *25* |
| MVA growth rate per structural change (%) | 1.40 | 0.93 | 3.73 | 5.11 |
| Degree of specialization | 18.9 | 23.2 | 25.9 | 26.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 35 | *37* | *40* | *36* |
| 313 Beverages | 17 | *18* | *20* | *18* |
| 314 Tobacco products | 55 | *73* | *79* | *77* |
| 321 Textiles | 14 | *22* | *27* | *30* |
| 322 Wearing apparel | *5* | *5* | *6* | *5* |
| 323 Leather and fur products | 7 | *15* | *21* | *27* |
| 324 Footwear | 14 | *25* | *34* | *42* |
| 331 Wood and wood products | *3* | *5* | *6* | *7* |
| 332 Furniture and fixtures | *2* | *2* | *2* | *2* |
| 341 Paper and paper products | 3 | *3* | *3* | *3* |
| 342 Printing and publishing | - | *8* | *9* | *8* |
| 351 Industrial chemicals | 35 | *41* | *52* | *54* |
| 352 Other chemical products | 21 | *34* | *43* | *48* |
| 353 Petroleum refineries | 81 | *124* | *200* | *204* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | *1* | - |
| 356 Plastic products | 2 | *4* | *5* | *7* |
| 361 Pottery, china and earthenware | 1 | *2* | *2* | *2* |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | 51 | *99* | *142* | *177* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 3 | *5* | *5* | *4* |
| 382 Non-electrical machinery | - | - | - | - |
| 383 Electrical machinery | - | - | - | - |
| 384 Transport equipment | - | - | - | - |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 9 | *18* | *25* | *32* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

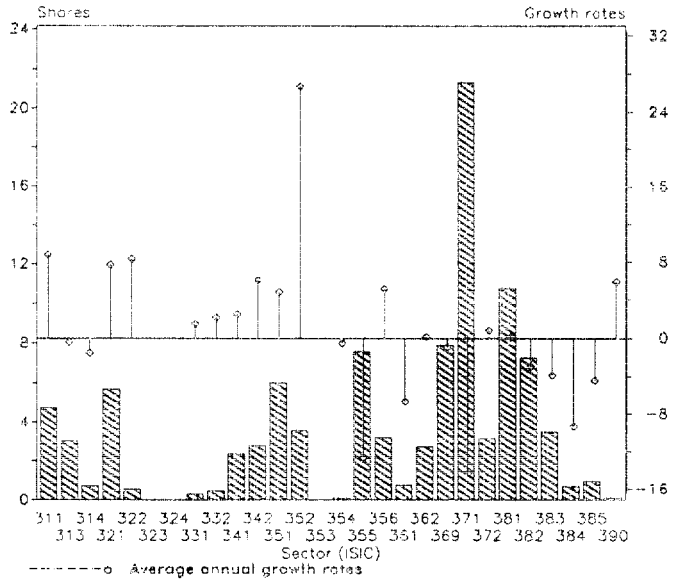




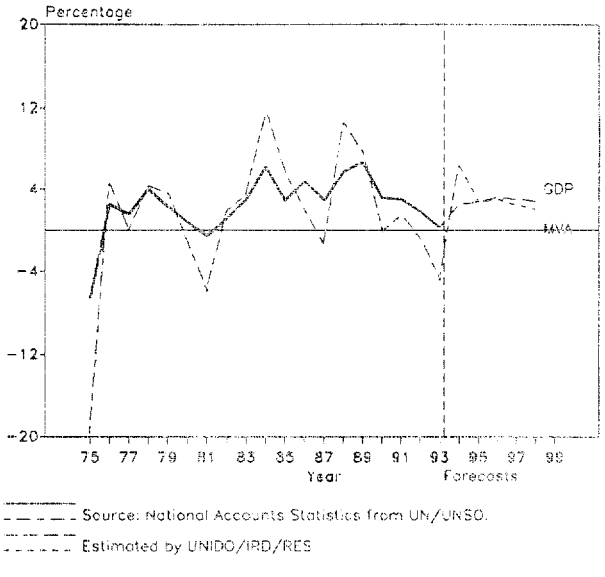


**LUXEMBOURG**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



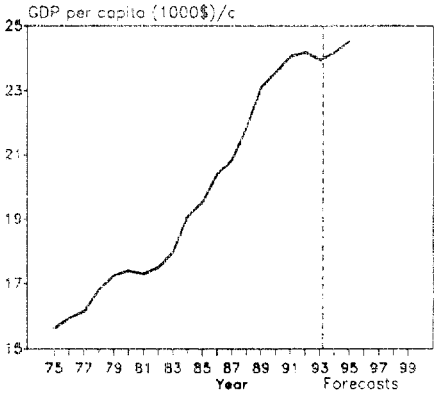

Annual growth rates of GDP and MVA (Constant 1990 prices)



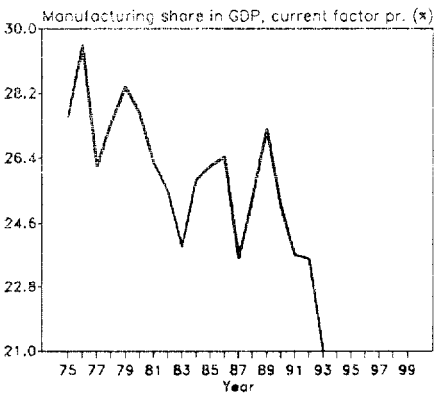

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 6 329 | 7 164 | 8 989 | *9 696* |
| Per capita [na] (1990-dollars) | 17 386 | 19 520 | 23 594 | *24 180* |
| Manufacturing share [na] (%) (current factor prices) | 27.6 | 26.2 | 25.1 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 1 670 | 1 946 | 2 316 | 2 354 |
| Industrial production index (1980=100) | 100 | 118 | 138 | 142 |
| Value added (millions of dollars) | 1 168 | 944 | 2 130 | *2 035* |
| Gross output (millions of dollars) | 3 269 | 2 916 | 6 056 | 6 428 |
| Employment (thousands) | 38 | 37 | 36 | *34* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 70 | 73 | 73 | *73* |
| Wages and salaries including supplements | *26* | *18* | *18* | *20* |
| Gross operating surplus and net taxes (%) | *3* | *9* | *9* | *8* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 90 292 | 80 337 | 189 546 | *187 954* |
| Value added per worker | 28 479 | 24 028 | 54 403 | *53 895* |
| Average wage (including supplements) | *23 529* | *15 449* | *34 244* | *40 451* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *9.75* | *10.81* | *13.69* | *16.95* |
| as a percentage of 1970-1975 structural change | *100* | *111* | *140* | *174* |
| MVA growth rate per structural change (%) | -0.91 | 0.34 | 1.12 | -0.15 |
| Degree of specialization | 38.2 | 32.0 | 21.0 | 13.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 31 | 33 | 67 | *110* |
| 313 Beverages | *32* | *24* | *59* | *65* |
| 314 Tobacco products | *10* | *7* | *14* | *15* |
| 321 Textiles | 24 | *15* | *88* | *133* |
| 322 Wearing apparel | 5 | 3 | *8* | *13* |
| 323 Leather and fur products | - | - | - | .. |
| 324 Footwear | - | - | - | .. |
| 331 Wood and wood products | *2* | *2* | *5* | *7* |
| 332 Furniture and fixtures | *2* | *3* | *8* | *10* |
| 341 Paper and paper products | *17* | *16* | *42* | *52* |
| 342 Printing and publishing | *14* | *17* | *44* | *65* |
| 351 Industrial chemicals | *31* | *31* | *100* | *137* |
| 352 Other chemical products | 3 | 8 | 28 | *98* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | *1* | *1* | *2* | *2* |
| 355 Rubber products | *127* | *110* | *199* | *125* |
| 356 Plastic products | *13* | *14* | *53* | *73* |
| 361 Pottery, china and earthenware | *10* | *6* | *18* | *14* |
| 362 Glass and glass products | *13* | *14* | *55* | *57* |
| 369 Other non-metal mineral products | *48* | *40* | *163* | *168* |
| 371 Iron and steel | 592 | 405 | 623 | *341* |
| 372 Non-ferrous metals | 32 | 26 | 62 | *70* |
| 381 Metal products | 24 | 78 | 210 | *225* |
| 382 Non-electrical machinery | 98 | 63 | 158 | *149* |
| 383 Electrical machinery | 19 | *20* | *81* | *72* |
| 384 Transport equipment | 7 | 4 | 19 | *12* |
| 385 Professional and scientific equipment | 10 | *6* | *22* | *20* |
| 390 Other manufacturing industries | *1* | *1* | *2* | *2* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

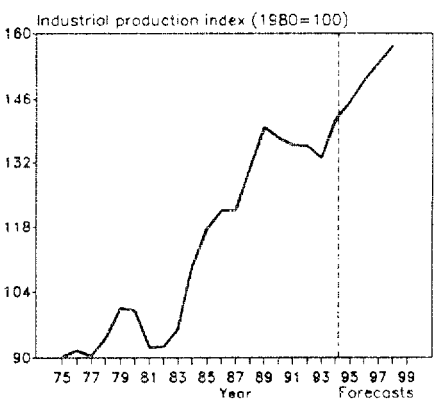
GDP per capita (1000$)/c



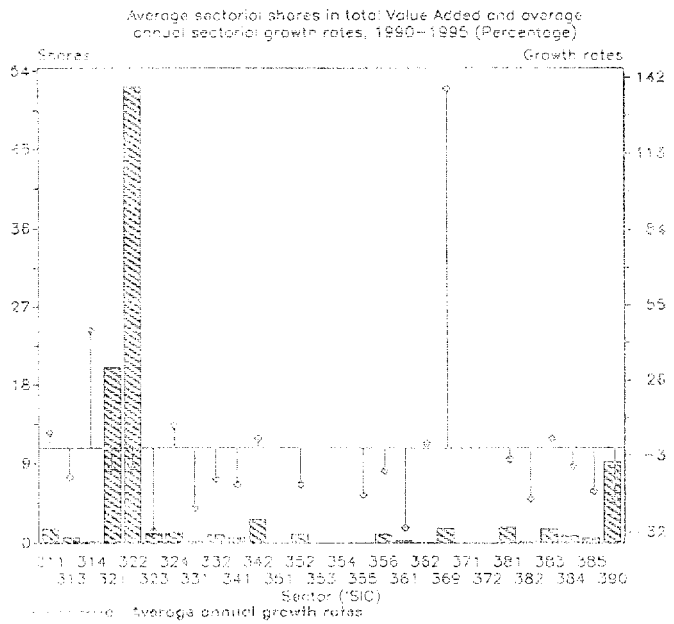

Manufacturing share in GDP, current factor pr. (%)

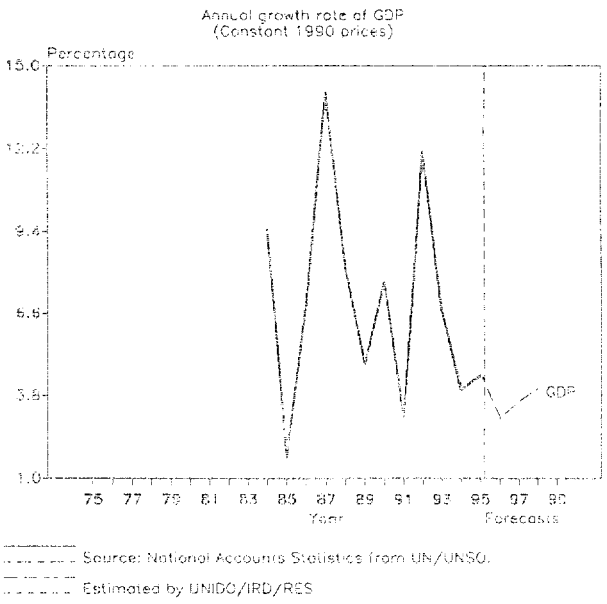



Industrial production index (1980=100)



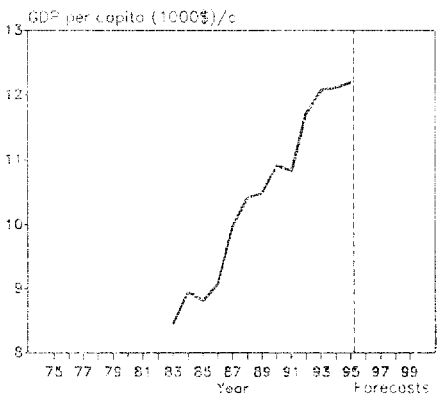
**MACAO**

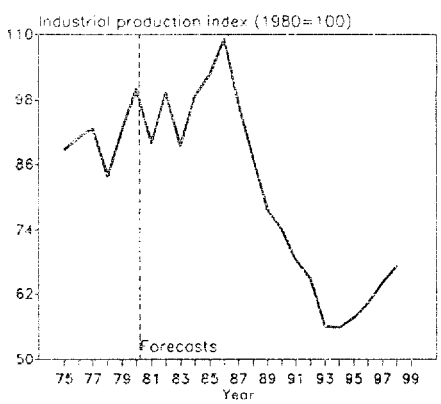



| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | .. | 2 502 | 3 731 | 4 784 |
| Per capita [na] (1990-dollars) | .. | 8 810 | 10 909 | 12 111 |
| Manufacturing share [na] (%) (current factor prices) | .. | .. | .. | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | .. | .. | .. | .. |
| Industrial production index (1980=100) | 100 | *103* | *74* | *56* |
| Value added (millions of dollars) | 127 | 225 | 470 | 446 |
| Gross output (millions of dollars) | .. | 759 | 1 625 | 1 661 |
| Employment (thousands) | 46 | 59 | 63 | 46 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | .. | 70 | 71 | 73 |
| Wages and salaries including supplements | .. | 17 | 16 | *16* |
| Gross operating surplus and net taxes (%) | .. | 13 | 13 | *11* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | .. | 12 557 | 25 090 | 35 513 |
| Value added per worker | 2 693 | 3 723 | 7 263 | 9 540 |
| Average wage (including supplements) | .. | 2 113 | 4 155 | *5 760* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 18.09 | 20.43 | 14.48 | 11.90 |
| as a percentage of 1970-1975 structural change | 100 | 113 | 80 | 66 |
| MVA growth rate per structural change (%) | -1.12 | -0.03 | 2.47 | 1.48 |
| Degree of specialization | 43.1 | 45.3 | 45.7 | 44.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 1 | 3 | 6 | 10 |
| 313 Beverages | 1 | 1 | 4 | 3 |
| 314 Tobacco products | - | - | - | 1 |
| 321 Textiles | 31 | 43 | 92 | 84 |
| 322 Wearing apparel | 71 | 99 | 231 | 232 |
| 323 Leather and fur products | 2 | 4 | 8 | 2 |
| 324 Footwear | - | 1 | 5 | 9 |
| 331 Wood and wood products | 1 | 1 | 2 | 1 |
| 332 Furniture and fixtures | 1 | 2 | 5 | 3 |
| 341 Paper and paper products | 1 | 2 | 4 | 2 |
| 342 Printing and publishing | 4 | 3 | 9 | 14 |
| 351 Industrial chemicals | - | - | - | - |
| 352 Other chemical products | - | 1 | 6 | 4 |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | - | - |
| 356 Plastic products | 2 | 1 | 3 | 2 |
| 361 Pottery, china and earthenware | - | 2 | 3 | *1* |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | - | - | - | 19 |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 1 | 1 | 8 | 9 |
| 382 Non-electrical machinery | - | - | 1 | 1 |
| 383 Electrical machinery | 2 | 8 | 7 | 10 |
| 384 Transport equipment | 1 | 2 | 4 | 4 |
| 385 Professional and scientific equipment | 1 | 3 | 4 | - |
| 390 Other manufacturing industries | 6 | 46 | 68 | 35 |

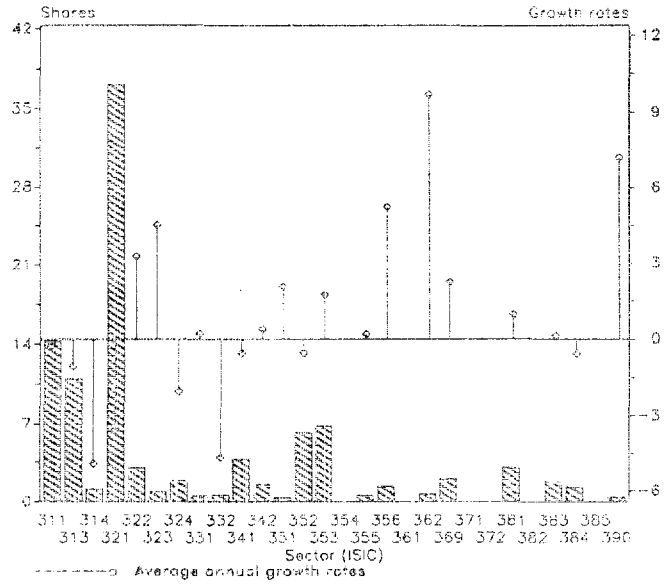
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.



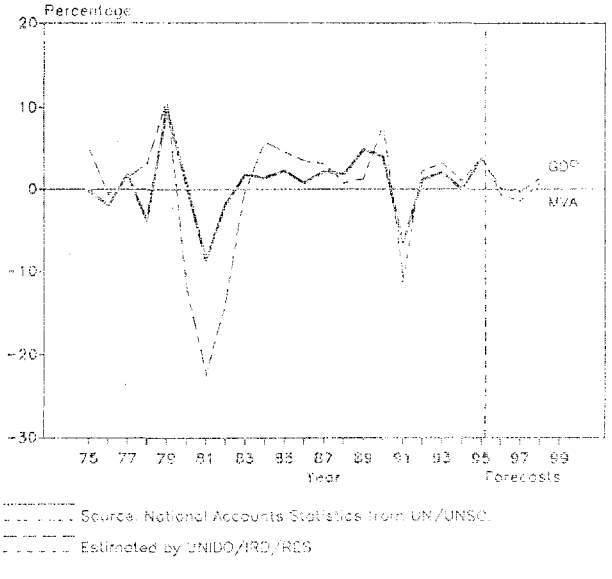



**MADAGASCAR**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

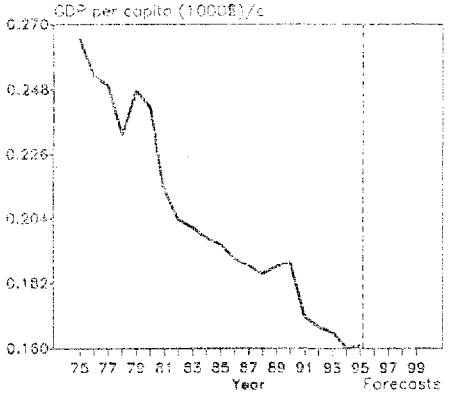



Source: National Accounts Statistics from UN/UNSO
Estimated by UNIDO/IRD/RES

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 2 194 | 2 076 | 2 376 | 2 292 |
| Per capita [na] (1990-dollars) | 242 | 195 | 189 | 160 |
| Manufacturing share [na] (%) (current factor prices) | *11.9* | *10.2* | 12.4 | *9.4* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 335 | 244 | 285 | *268* |
| Industrial production index (1980=100) | 100 | 75 | 92 | *66* |
| Value added (millions of dollars) | 221 | 132 | *145* | *121* |
| Gross output (millions of dollars) | 569 | 328 | *351* | *300* |
| Employment (thousands) | 41 | 47 | *47* | *49* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 61 | 60 | *59* | *60* |
| Wages and salaries including supplements | 15 | 16 | *13* | *13* |
| Gross operating surplus and net taxes (%) | 24 | 25 | *28* | *27* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 14 005 | 6 872 | *7 089* | *5 721* |
| Value added per worker | 5 439 | 2 782 | *2 975* | *2 333* |
| Average wage (including supplements) | 2 083 | 1 099 | *972* | *804* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 17.92 | 24.85 | *31.59* | *7.58* |
| as a percentage of 1970-1975 structural change | 100 | 139 | *176* | *42* |
| MVA growth rate per structural change (%) | 0.11 | -0.42 | -0.05 | -0.48 |
| Degree of specialization | 22.4 | 24.2 | 30.2 | 26.8 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 23 | 45 | *19* | *18* |
| 313 Beverages | 34 | 16 | *16* | *13* |
| 314 Tobacco products | 3 | 3 | *2* | *1* |
| 321 Textiles | 67 | 16 | *59* | *43* |
| 322 Wearing apparel | 19 | 6 | *4* | *4* |
| 323 Leather and fur products | 3 | 1 | *1* | *1* |
| 324 Footwear | 8 | 5 | *3* | *2* |
| 331 Wood and wood products | 2 | 1 | *1* | *1* |
| 332 Furniture and fixtures | 2 | - | *1* | *1* |
| 341 Paper and paper products | 4 | 3 | *5* | *5* |
| 342 Printing and publishing | 6 | 2 | *2* | *2* |
| 351 Industrial chemicals | 1 | 1 | *1* | - |
| 352 Other chemical products | 10 | 11 | *9* | *8* |
| 353 Petroleum refineries | *11* | *7* | *9* | *9* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 1 | 1 | *1* | *1* |
| 356 Plastic products | 3 | 2 | *2* | *2* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | 2 | - | *1* | *1* |
| 369 Other non-metal mineral products | 2 | 1 | *3* | *3* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 9 | 5 | *4* | *4* |
| 382 Non-electrical machinery | - | - | - | - |
| 383 Electrical machinery | 3 | 3 | *2* | *2* |
| 384 Transport equipment | 7 | *2* | *2* | *2* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 2 | 1 | - | *1* |

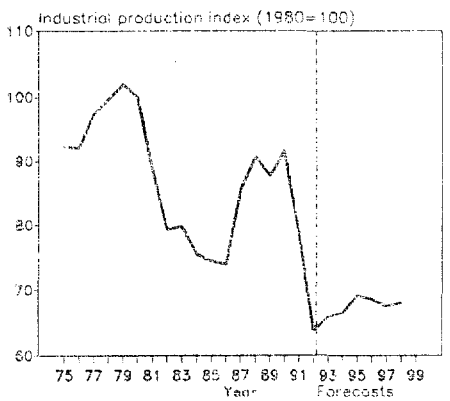
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c

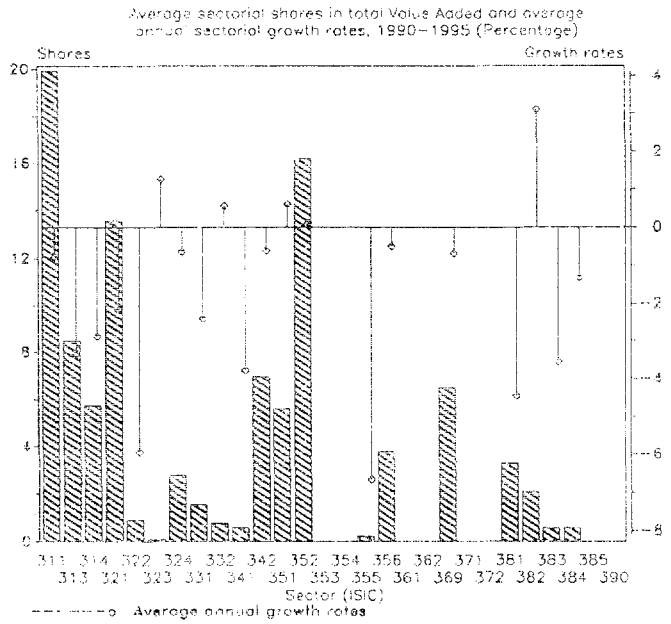


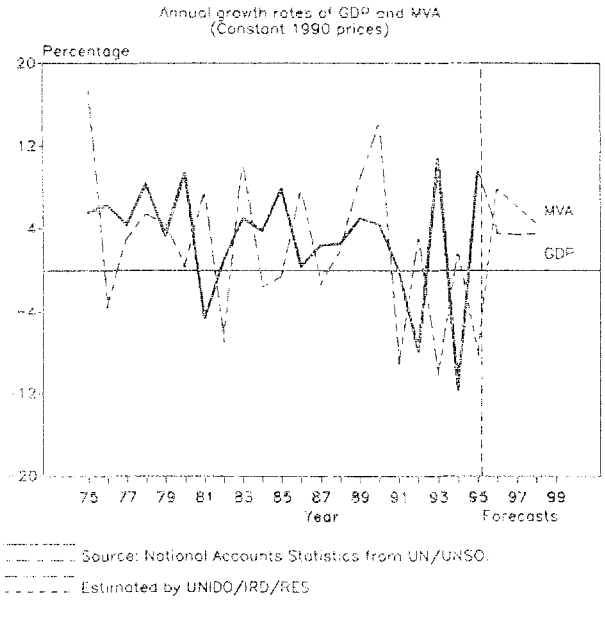

Manufacturing share in GDP, current factor pr. (%)


Industrial production index (1980=100)



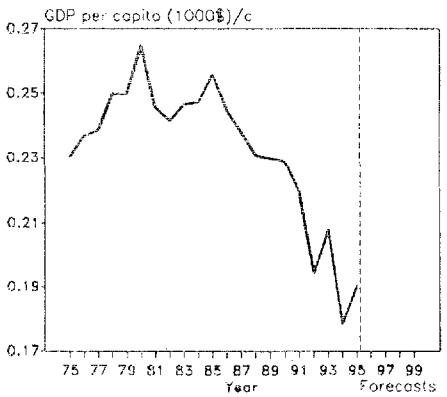
**MALAWI**

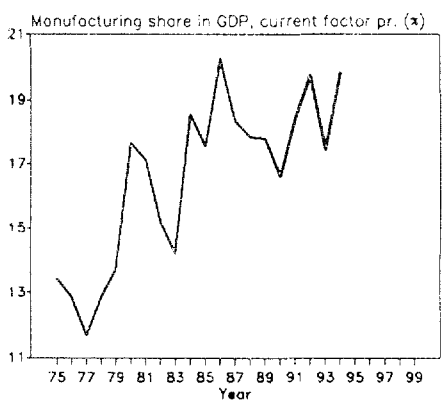


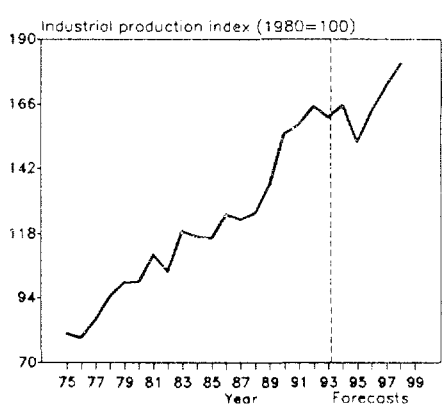




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 638 | 1 855 | 2 145 | 1 934 |
| Per capita [na] (1990-dollars) | 265 | 256 | 229 | 178 |
| Manufacturing share [na] (%) (current factor prices) | 17.6 | 17.5 | 16.6 | *20.4* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 220 | 236 | 315 | 267 |
| Industrial production index (1980=100) | 100 | 116 | 155 | 166 |
| Value added (millions of dollars) | 123 | 90 | *133* | *92* |
| Gross output (millions of dollars) | 340 | 330 | *586* | *377* |
| Employment (thousands) | 39 | 31 | *46* | *50* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 64 | 73 | *77* | *76* |
| Wages and salaries including supplements | 12 | 10 | *10* | *11* |
| Gross operating surplus (%) | 24 | 18 | *13* | *13* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 8 783 | 10 745 | *12 793* | *7 594* |
| Value added per worker | 3 174 | 2 923 | *3 030* | *1 950* |
| Average wage (including supplements) | 1 046 | 1 035 | *1 282* | *874* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 20.15 | 30.15 | *24.18* | *12.67* |
| as a percentage of 1970-1975 structural change | 100 | 150 | *120* | *63* |
| MVA growth rate per structural change (%) | 2.51 | 1.11 | -0.21 | -0.66 |
| Degree of specialization | 27.7 | 16.7 | 17.8 | 19.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 54 | 14 | *26* | *19* |
| 313 Beverages | 8 | 7 | *12* | *7* |
| 314 Tobacco products | 9 | 5 | *8* | *5* |
| 321 Textiles | 12 | 14 | *18* | *12* |
| 322 Wearing apparel | 2 | 1 | *1* | *1* |
| 323 Leather and fur products | - | - | - | - |
| 324 Footwear | *1* | 3 | *4* | *2* |
| 331 Wood and wood products | 2 | 2 | *2* | *1* |
| 332 Furniture and fixtures | 1 | 1 | *1* | *1* |
| 341 Paper and paper products | 2 | 2 | *1* | - |
| 342 Printing and publishing | 8 | 6 | *9* | *6* |
| 351 Industrial chemicals | 2 | 8 | *7* | *5* |
| 352 Other chemical products | 5 | 14 | *21* | *16* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 1 | 1 | - | - |
| 356 Plastic products | 2 | 2 | *5* | *4* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | 3 | 1 | *8* | *6* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 6 | 6 | *5* | *3* |
| 382 Non-electrical machinery | - | 1 | *3* | *2* |
| 383 Electrical machinery | 5 | 1 | *1* | - |
| 384 Transport equipment | *1* | 1 | *1* | *1* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | - | - | - | - |

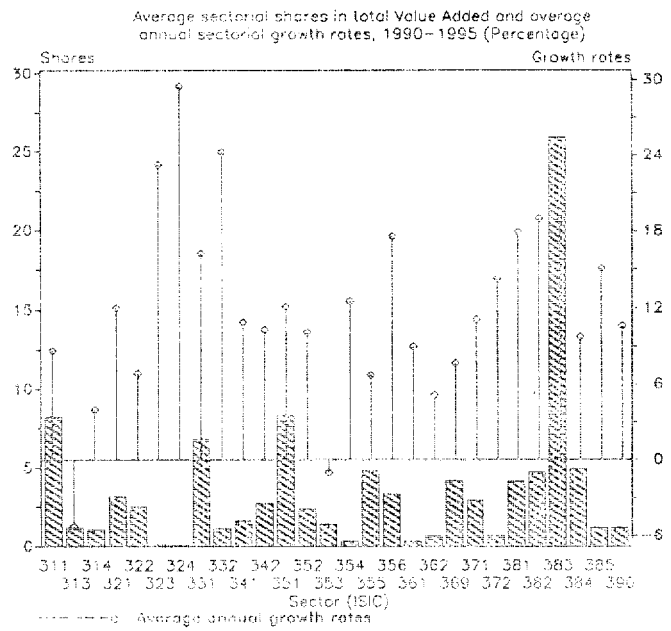
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

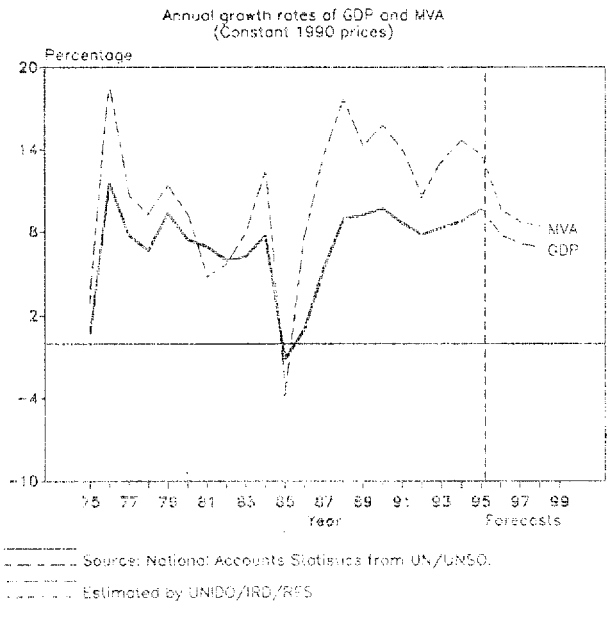


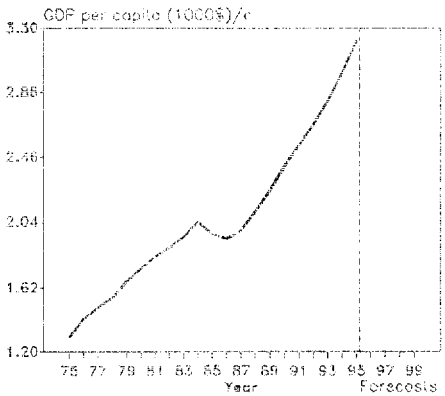
**MALAYSIA**

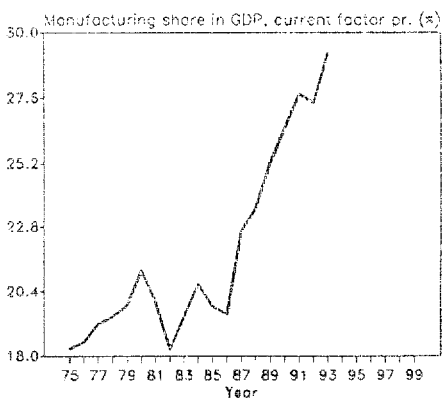


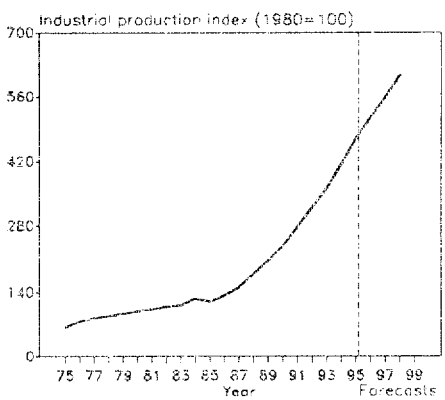




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 23 997 | 30 794 | 42 822 | 59 071 |
| Per capita [na] (1990-dollars) | 1 744 | 1 964 | 2 393 | 2 999 |
| Manufacturing share [na] (%) (current factor prices) | 21.2 | 19.9 | 26.5 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 4 708 | 6 066 | 11 493 | 18 733 |
| Industrial production index (1980=100) | 100 | 120 | 239 | 414 |
| Value added (millions of dollars) | *3 623* | 4 879 | 9 068 | *18 560* |
| Gross output (millions of dollars) | *13 181* | 18 359 | 35 422 | *68 789* |
| Employment (thousands) | *456* | 473 | 831 | *1 210* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *73* | 73 | 74 | *73* |
| Wages and salaries including supplements | *8* | 9 | 8 | *8* |
| Gross operating surplus (%) | *20* | 18 | 18 | *19* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *28 526* | 38 561 | 42 503 | *56 486* |
| Value added per worker | *8 060* | 10 249 | 10 881 | *15 317* |
| Average wage (including supplements) | *2 253* | 3 375 | 3 240 | *4 555* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *13.98* | *13.49* | 17.34 | *12.93* |
| as a percentage of 1970-1975 structural change | *100* | *96* | 124 | *92* |
| MVA growth rate per structural change (%) | 6.20 | 4.50 | 2.72 | 5.45 |
| Degree of specialization | 15.5 | 15.3 | 14.8 | 18.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *668* | 703 | 865 | *1 480* |
| 313 Beverages | *106* | 122 | 201 | *170* |
| 314 Tobacco products | *94* | 205 | 127 | *172* |
| 321 Textiles | *185* | 133 | 297 | *577* |
| 322 Wearing apparel | *67* | 100 | 280 | *432* |
| 323 Leather and fur products | *3* | 2 | 6 | *20* |
| 324 Footwear | *11* | 5 | 4 | *16* |
| 331 Wood and wood products | *388* | 263 | 584 | *1 378* |
| 332 Furniture and fixtures | *34* | 40 | 70 | *231* |
| 341 Paper and paper products | *34* | 55 | 155 | *289* |
| 342 Printing and publishing | *144* | 197 | 266 | *494* |
| 351 Industrial chemicals | *79* | 616 | 748 | *1 468* |
| 352 Other chemical products | *115* | 153 | 232 | *417* |
| 353 Petroleum refineries | *115* | 136 | 199 | *213* |
| 354 Miscellaneous petroleum and coal products | *2* | 21 | 32 | *65* |
| 355 Rubber products | *295* | 250 | 528 | *836* |
| 356 Plastic products | *69* | 92 | 261 | *646* |
| 361 Pottery, china and earthenware | *10* | 13 | 36 | *61* |
| 362 Glass and glass products | *24* | 23 | 73 | *104* |
| 369 Other non-metal mineral products | *169* | 297 | 441 | *717* |
| 371 Iron and steel | *78* | 153 | 287 | *540* |
| 372 Non-ferrous metals | *39* | 35 | 63 | *135* |
| 381 Metal products | *140* | 147 | 316 | *798* |
| 382 Non-electrical machinery | *116* | 99 | 348 | *920* |
| 383 Electrical machinery | *435* | 738 | 1 945 | *5 088* |
| 384 Transport equipment | *153* | 211 | 494 | *873* |
| 385 Professional and scientific equipment | *25* | 30 | 97 | *214* |
| 390 Other manufacturing industries | *23* | 39 | 111 | *204* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.



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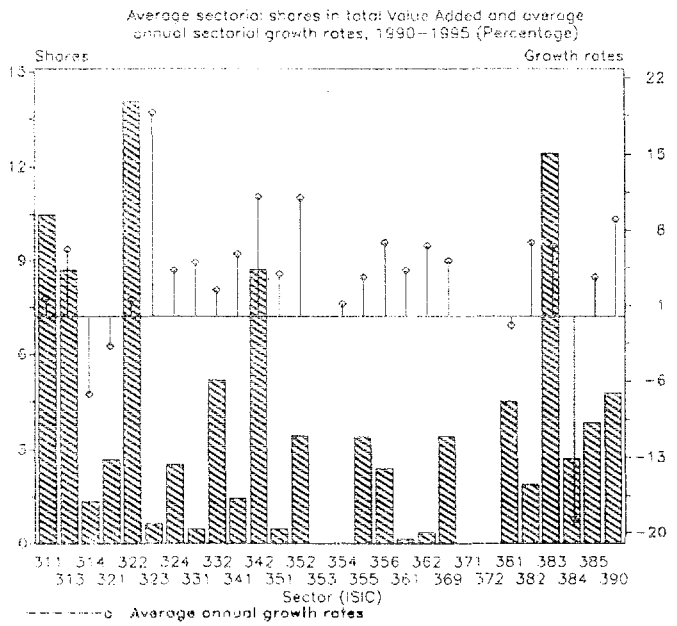
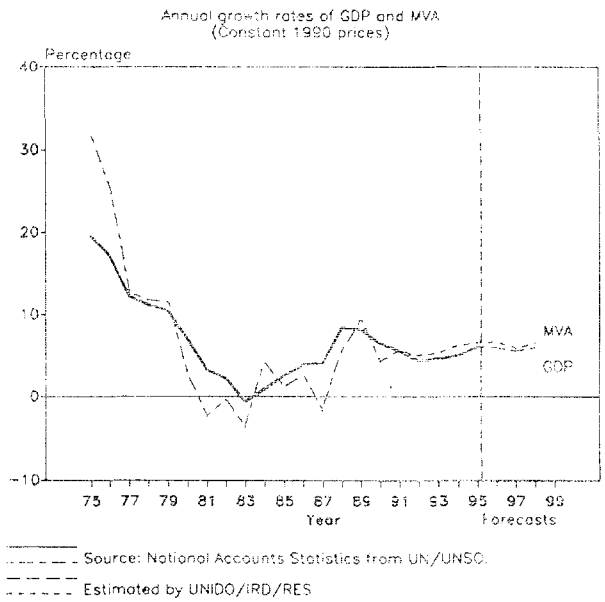
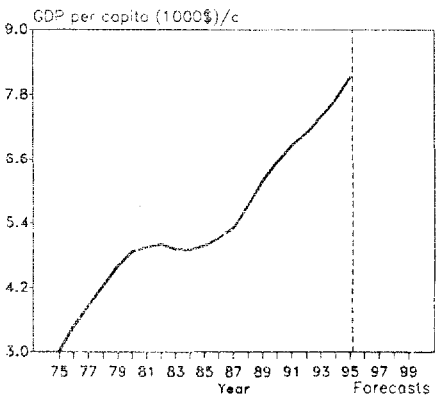
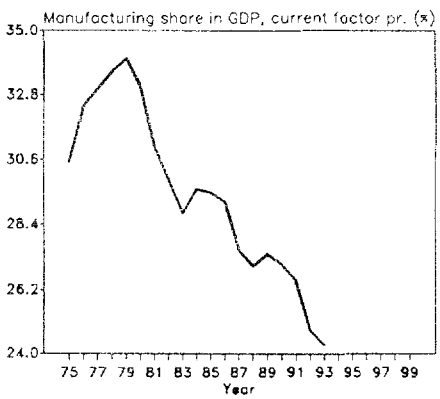


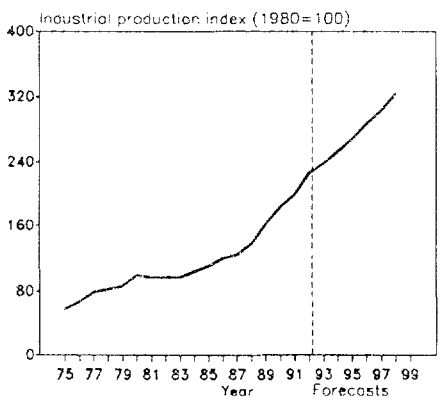




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 578 | 1 716 | 2 318 | 2 805 |
| Per capita [na] (1990-dollars) | 4 871 | 4 989 | 6 547 | 7 706 |
| Manufacturing share [na] (%) (current factor prices) | 33.1 | 29.5 | 27.0 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 464 | 458 | 554 | *686* |
| Industrial production index (1980=100) | 100 | 111 | 184 | *254* |
| Value added (millions of dollars) | 302 | 265 | 511 | *550* |
| Gross output (millions of dollars) | 706 | 650 | 1 637 | *2 121* |
| Employment (thousands) | 29 | 26 | 27 | *27* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 57 | 59 | 69 | *74* |
| Wages and salaries including supplements | *23* | 22 | *17* | *14* |
| Gross operating surplus and net taxes (%) | *20* | 19 | *15* | *12* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 23 265 | 24 271 | 58 341 | *75 489* |
| Value added per worker | 9 945 | 9 914 | 18 230 | *19 583* |
| Average wage (including supplements) | *5 653* | 5 561 | *10 150* | *11 095* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 22.05 | 12.71 | 13.78 | *13.91* |
| as a percentage of 1970-1975 structural change | 100 | 58 | 62 | *63* |
| MVA growth rate per structural change (%) | 3.97 | 3.37 | 0.88 | 1.49 |
| Degree of specialization | 18.3 | 17.7 | 13.6 | 14.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 20 | 25 | 56 | *56* |
| 313 Beverages | 20 | 22 | 42 | *51* |
| 314 Tobacco products | 8 | 8 | 9 | *6* |
| 321 Textiles | 17 | 8 | 17 | *14* |
| 322 Wearing apparel | 88 | 65 | 80 | *76* |
| 323 Leather and fur products | 4 | 1 | 2 | *4* |
| 324 Footwear | 8 | 9 | 12 | *14* |
| 331 Wood and wood products | 2 | 1 | 2 | *3* |
| 332 Furniture and fixtures | 14 | 9 | 28 | *29* |
| 341 Paper and paper products | 2 | 3 | 7 | *8* |
| 342 Printing and publishing | 22 | 17 | 34 | *51* |
| 351 Industrial chemicals | 1 | 2 | 2 | *3* |
| 352 Other chemical products | 5 | 6 | *14* | *20* |
| 353 Petroleum refineries | - | - | - | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 10 | 7 | 17 | *18* |
| 356 Plastic products | 6 | 4 | 11 | *14* |
| 361 Pottery, china and earthenware | 1 | - | 1 | *1* |
| 362 Glass and glass products | 2 | 1 | 2 | *2* |
| 369 Other non-metal mineral products | 6 | 7 | 15 | *18* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 14 | 10 | 26 | *22* |
| 382 Non-electrical machinery | 5 | 8 | 8 | *11* |
| 383 Electrical machinery | 22 | 31 | 61 | *74* |
| 384 Transport equipment | 6 | 3 | 27 | *8* |
| 385 Professional and scientific equipment | 12 | 12 | 19 | *20* |
| 390 Other manufacturing industries | 8 | 5 | 21 | *28* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

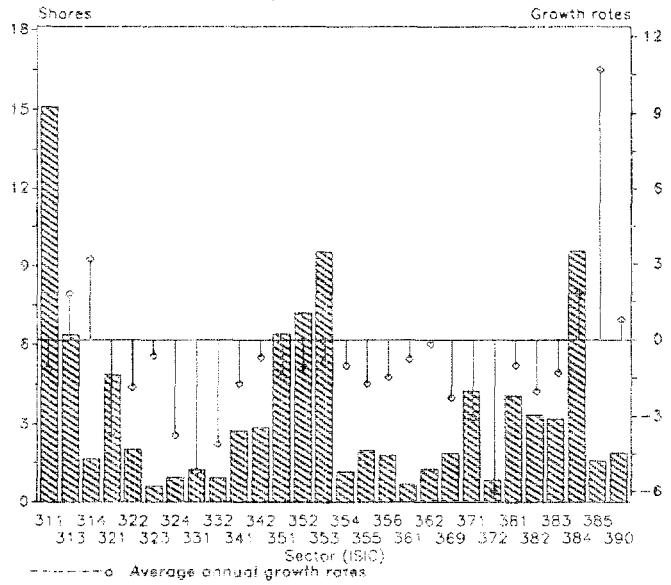


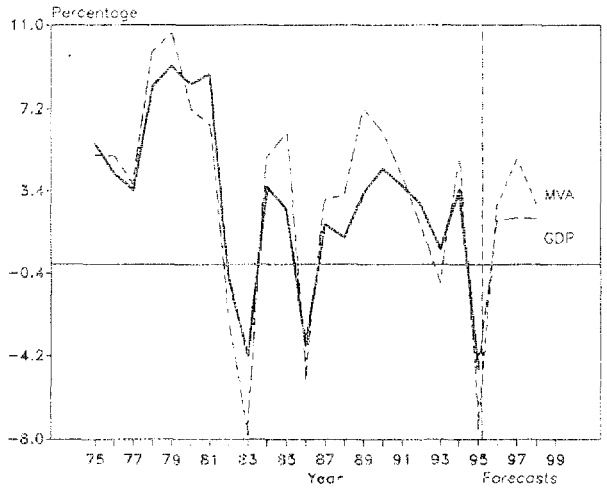



**MEXICO**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



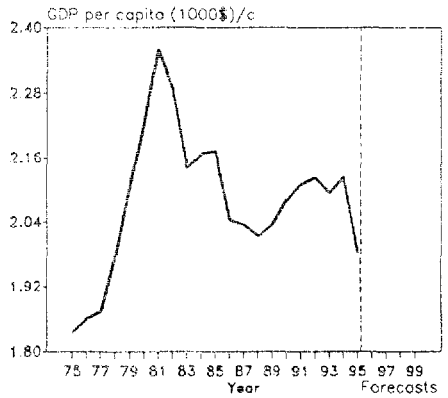

Annual growth rates of GDP and MVA (Constant 1990 prices)



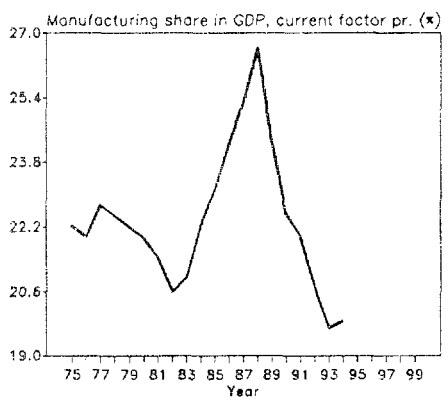

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 149 092 | 164 099 | 175 839 | 195 137 |
| Per capita [na] (1990-dollars) | 2 223 | 2 173 | 2 081 | 2 124 |
| Manufacturing share [na] (%) (current factor prices) | 21.9 | 23.1 | 22.5 | *19.9* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 32 931 | 35 007 | 40 055 | 43 956 |
| Industrial production index (1980=100) | 100 | 106 | 122 | 133 |
| Value added (millions of dollars) | 43 048 | *46 373* | *41 416* | *49 208* |
| Gross output (millions of dollars) | 102 047 | *106 972* | *95 678* | 114 648 |
| Employment (thousands) | 2 417 | *2 314* | *2 145* | *1 993* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 58 | *57* | *57* | *57* |
| Wages and salaries including supplements | 14 | *9* | *9* | *8* |
| Gross operating surplus and net taxes (%) | 28 | *34* | *35* | *35* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 42 221 | *46 227* | *44 602* | *57 296* |
| Value added per worker | 17 811 | *20 040* | *19 307* | *27 697* |
| Average wage (including supplements) | 5 846 | *4 192* | *3 872* | *4 514* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 5.06 | *7.88* | *6.85* | *5.72* |
| as a percentage of 1970-1975 structural change | 100 | *156* | *135* | *113* |
| MVA growth rate per structural change (%) | 7.32 | 3.89 | 1.83 | 1.20 |
| Degree of specialization | 8.9 | 9.6 | 10.4 | 10.8 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 6 989 | *7 015* | *6 240* | *7 282* |
| 313 Beverages | 2 723 | *2 589* | *2 377* | *3 181* |
| 314 Tobacco products | 623 | *740* | *571* | *838* |
| 321 Textiles | 3 133 | *3 099* | *2 216* | *2 266* |
| 322 Wearing apparel | 1 277 | *1 094* | *863* | *943* |
| 323 Leather and fur products | 366 | *397* | *250* | *297* |
| 324 Footwear | 845 | *658* | *414* | *440* |
| 331 Wood and wood products | 919 | *786* | *609* | *597* |
| 332 Furniture and fixtures | 784 | *498* | *407* | *426* |
| 341 Paper and paper products | 1 189 | *1 180* | *1 196* | *1 343* |
| 342 Printing and publishing | 1 050 | *1 250* | *1 192* | *1 414* |
| 351 Industrial chemicals | 2 235 | *2 982* | *2 738* | *3 167* |
| 352 Other chemical products | 2 235 | *2 562* | *2 972* | *3 567* |
| 353 Petroleum refineries | 1 917 | *4 341* | *3 987* | *4 750* |
| 354 Miscellaneous petroleum and coal products | 222 | *529* | *489* | *576* |
| 355 Rubber products | 767 | *1 164* | *865* | *981* |
| 356 Plastic products | 754 | *767* | *774* | *891* |
| 361 Pottery, china and earthenware | 383 | *420* | *287* | *332* |
| 362 Glass and glass products | 566 | *529* | *511* | *623* |
| 369 Other non-metal mineral products | 1 464 | *1 113* | *752* | *872* |
| 371 Iron and steel | 2 070 | *2 227* | *1 955* | *2 067* |
| 372 Non-ferrous metals | 562 | *506* | *430* | *391* |
| 381 Metal products | 1 961 | *1 849* | *1 718* | *1 995* |
| 382 Non-electrical machinery | 2 074 | *1 643* | *1 463* | *1 621* |
| 383 Electrical machinery | 1 900 | *1 635* | *1 374* | *1 570* |
| 384 Transport equipment | 2 980 | *3 621* | *3 542* | *4 976* |
| 385 Professional and scientific equipment | 305 | *381* | *485* | *849* |
| 390 Other manufacturing industries | 754 | *798* | *738* | *952* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

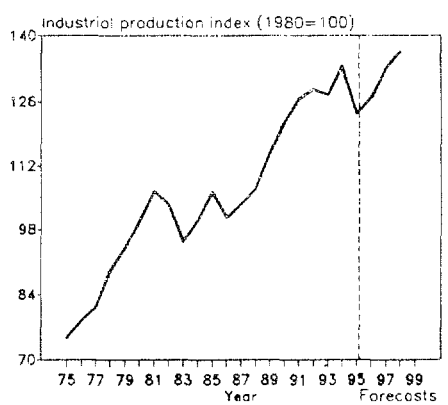
GDP per capita (1000$)/c



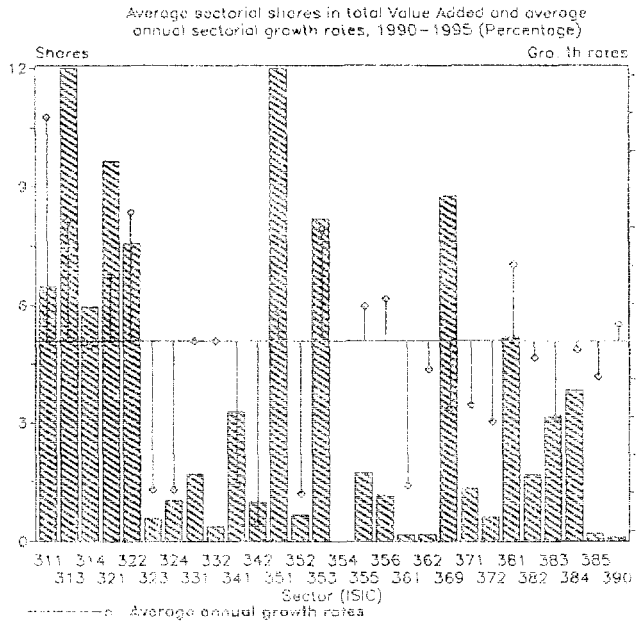

Manufacturing share in GDP, current factor pr. (%)

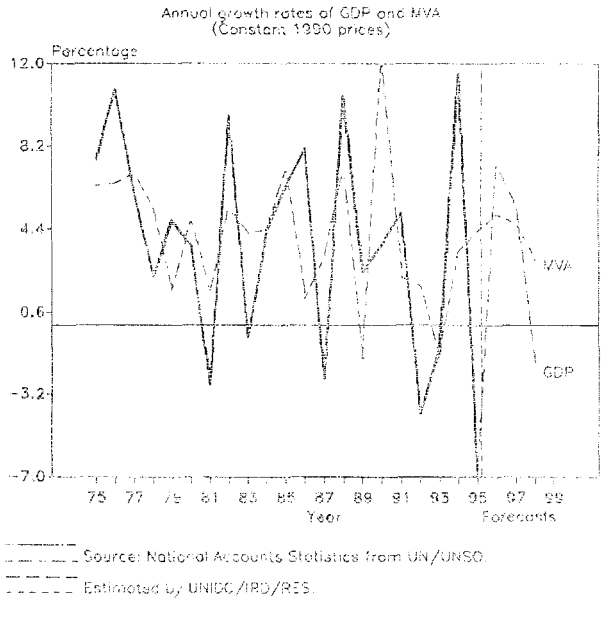



Industrial production index (1980=100)



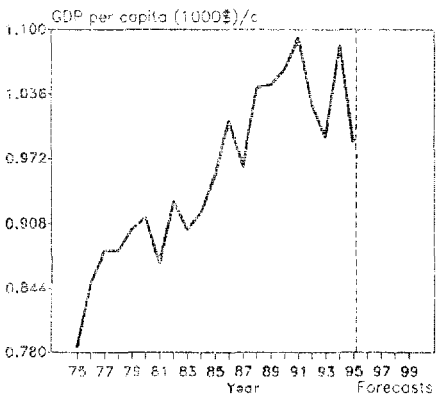
**MOROCCO**

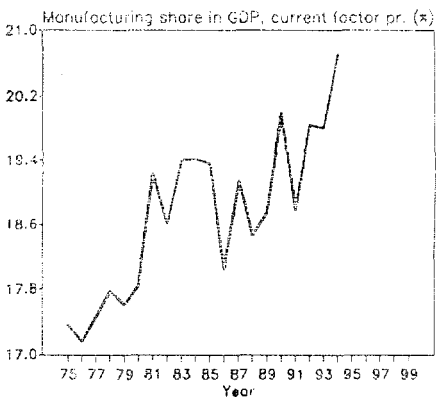


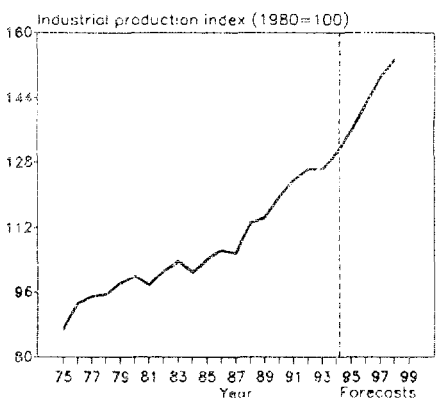




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 17 733 | 20 850 | 25 826 | 28 743 |
| Per capita [na] (1990-dollars) | 915 | 956 | 1 061 | 1 085 |
| Manufacturing share [na] (%) (current factor prices) | 17.8 | 19.4 | 20.0 | *20.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 3 198 | 3 975 | 4 888 | 5 179 |
| Industrial production index (1980=100) | 100 | 104 | 120 | 130 |
| Value added (millions of dollars) | 1 485 | *1 372* | *3 360* | *4 165* |
| Gross output (millions of dollars) | 6 244 | 4 704 | 11 261 | *12 188* |
| Employment (thousands) | 176 | 227 | 307 | *393* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 77 | *71* | *71* | *68* |
| Wages and salaries including supplements | 13 | *12* | *11* | *13* |
| Gross operating surplus and net taxes (%) | 10 | *16* | *18* | *20* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 33 920 | 19 786 | 35 324 | *29 758* |
| Value added per worker | 7 801 | *5 664* | *10 141* | *9 769* |
| Average wage (including supplements) | 4 363 | *2 434* | *3 774* | *3 784* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *9.44* | *14.70* | *15.20* | *13.36* |
| as a percentage of 1970-1975 structural change | *100* | *156* | *161* | *142* |
| MVA growth rate per structural change (%) | 2.90 | 2.27 | 3.51 | 3.90 |
| Degree of specialization | 12.8 | 14.7 | 14.2 | 16.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 130 | 110 | 144 | *304* |
| 313 Beverages | 62 | *126* | *408* | *588* |
| 314 Tobacco products | 38 | *117* | *224* | *249* |
| 321 Textiles | 202 | 172 | 315 | *414* |
| 322 Wearing apparel | 32 | 45 | 228 | *336* |
| 323 Leather and fur products | 15 | *11* | *24* | *20* |
| 324 Footwear | 24 | *20* | *44* | *35* |
| 331 Wood and wood products | 30 | *34* | *65* | *72* |
| 332 Furniture and fixtures | 19 | *7* | *14* | *16* |
| 341 Paper and paper products | 64 | 64 | 151 | *127* |
| 342 Printing and publishing | 26 | 19 | 43 | *32* |
| 351 Industrial chemicals | 127 | 166 | 403 | *464* |
| 352 Other chemical products | 97 | 13 | 30 | *22* |
| 353 Petroleum refineries | *114* | *90* | *248* | *365* |
| 354 Miscellaneous petroleum and coal products | .. | .. | .. | .. |
| 355 Rubber products | 34 | *38* | *60* | *71* |
| 356 Plastic products | 20 | *17* | *40* | *48* |
| 361 Pottery, china and earthenware | 6 | *2* | *6* | *6* |
| 362 Glass and glass products | 10 | *5* | *7* | *7* |
| 369 Other non-metal mineral products | 154 | *80* | *315* | *333* |
| 371 Iron and steel | 7 | *4* | *56* | *56* |
| 372 Non-ferrous metals | 8 | *4* | *25* | *25* |
| 381 Metal products | 110 | 96 | 166 | *211* |
| 382 Non-electrical machinery | 30 | *24* | 60 | *72* |
| 383 Electrical machinery | 61 | 56 | 132 | *133* |
| 384 Transport equipment | 62 | 49 | 140 | *148* |
| 385 Professional and scientific equipment | 1 | *3* | 7 | *7* |
| 390 Other manufacturing industries | 2 | 1 | 4 | *5* |

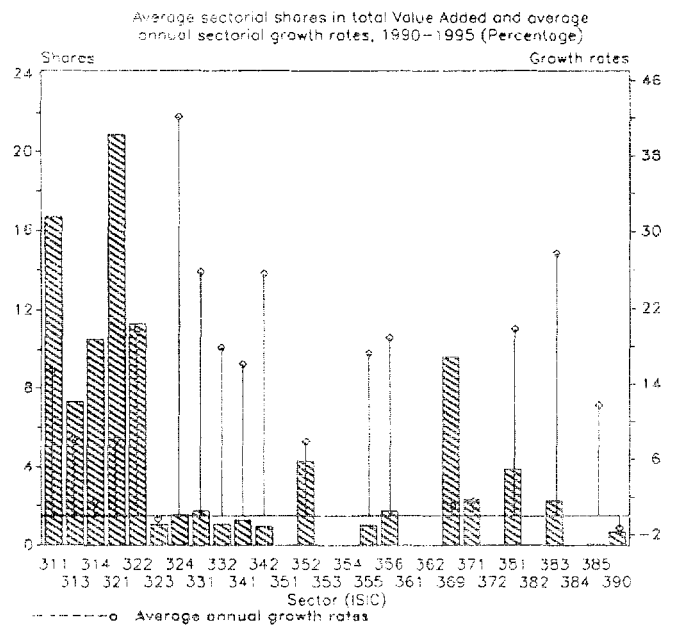
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

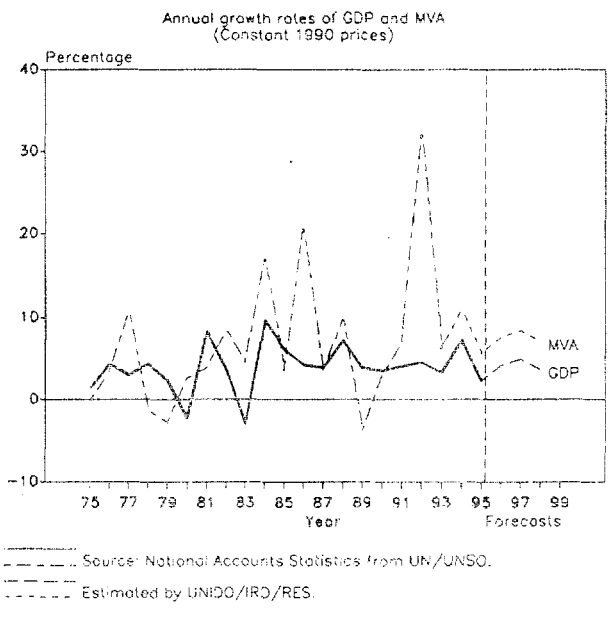


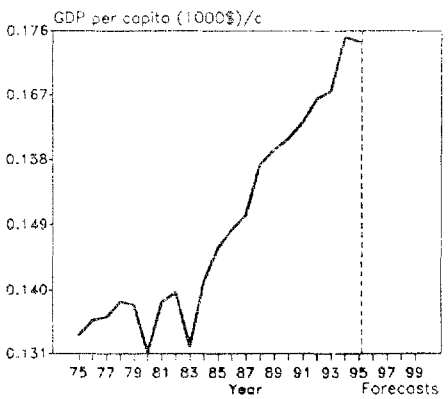
**NEPAL**

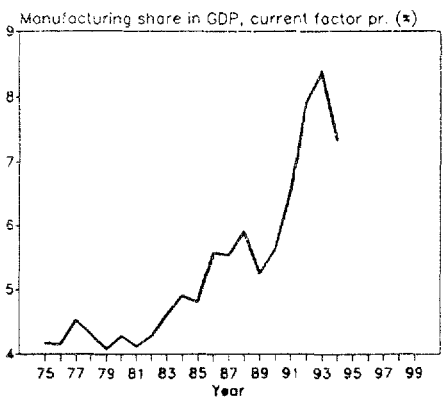


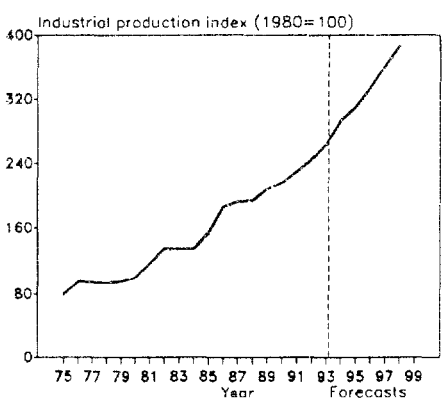




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 950 | 2 477 | 3 099 | 3 739 |
| Per capita [na] (1990-dollars) | 131 | 146 | 161 | 175 |
| Manufacturing share [na] (%) (current factor prices) | 4.3 | 4.8 | 5.6 | *7.3* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 84 | 120 | 163 | *270* |
| Industrial production index (1980=100) | 100 | 154 | 215 | *293* |
| Value added (millions of dollars) | *91* | *179* | 269 | *388* |
| Gross output (millions of dollars) | *513* | *661* | 656 | *979* |
| Employment (thousands) | *62* | *127* | 156 | *228* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *82* | *73* | 59 | *60* |
| Wages and salaries including supplements | *4* | *6* | 10 | *9* |
| Gross operating surplus and net taxes (%) | *14* | *21* | 31 | *31* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *7 409* | *4 756* | 4 068 | *3 963* |
| Value added per worker | *1 323* | *1 289* | 1 666 | *1 570* |
| Average wage (including supplements) | *300* | *313* | 400 | *387* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *7.41* | *19.16* | *24.12* | *22.17* |
| as a percentage of 1970-1975 structural change | *100* | *259* | *325* | *299* |
| MVA growth rate per structural change (%) | 2.87 | 3.20 | 2.75 | 3.23 |
| Degree of specialization | 33.6 | 26.2 | 20.5 | 17.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *38* | *59* | 38 | *70* |
| 313 Beverages | *1* | *5* | 23 | *29* |
| 314 Tobacco products | *17* | *26* | 40 | *37* |
| 321 Textiles | *5* | *23* | 54 | *70* |
| 322 Wearing apparel | *1* | *7* | 24 | *50* |
| 323 Leather and fur products | *2* | *3* | 4 | *4* |
| 324 Footwear | - | *1* | 1 | *7* |
| 331 Wood and wood products | *2* | *4* | 3 | *7* |
| 332 Furniture and fixtures | *4* | *3* | 2 | *4* |
| 341 Paper and paper products | - | *1* | 3 | *6* |
| 342 Printing and publishing | *1* | *3* | 2 | *4* |
| 351 Industrial chemicals | - | - | - | - |
| 352 Other chemical products | *2* | *8* | 13 | *17* |
| 353 Petroleum refineries | .. | .. | - | .. |
| 354 Miscellaneous petroleum and coal products | .. | .. | - | .. |
| 355 Rubber products | - | *1* | 2 | *4* |
| 356 Plastic products | - | *2* | 3 | *7* |
| 361 Pottery, china and earthenware | .. | .. | - | .. |
| 362 Glass and glass products | .. | .. | .. | .. |
| 369 Other non-metal mineral products | *3* | *22* | 34 | *32* |
| 371 Iron and steel | *3* | *4* | 8 | *8* |
| 372 Non-ferrous metals | .. | .. | - | .. |
| 381 Metal products | *1* | *5* | 8 | *17* |
| 382 Non-electrical machinery | .. | .. | - | .. |
| 383 Electrical machinery | *1* | *2* | 4 | *11* |
| 384 Transport equipment | .. | .. | - | .. |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | *10* | *1* | 3 | *3* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

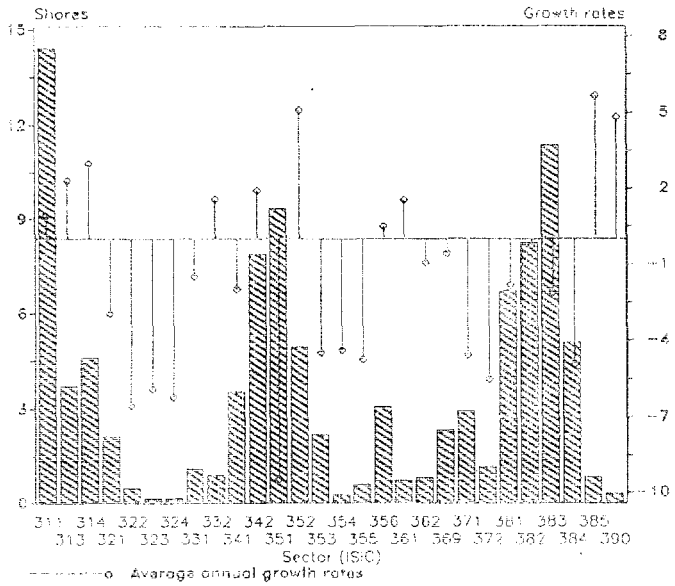


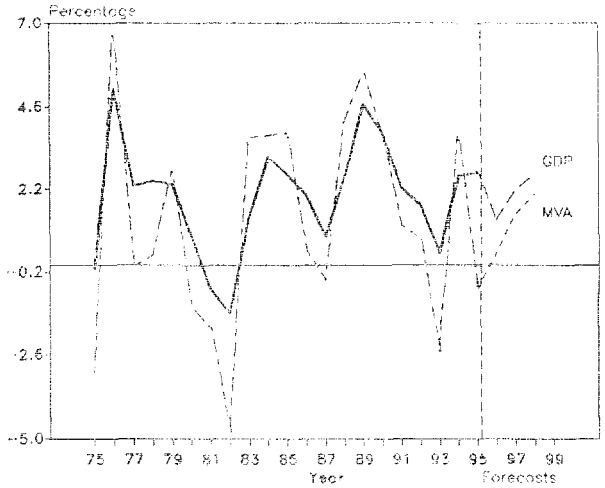



## NETHERLANDS

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

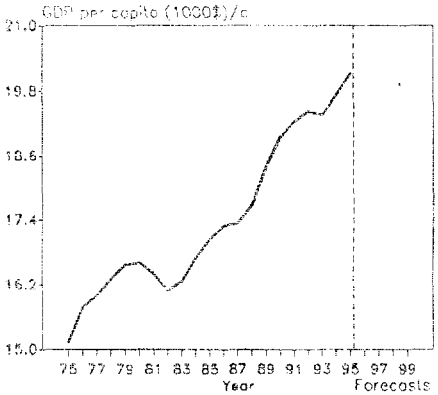



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

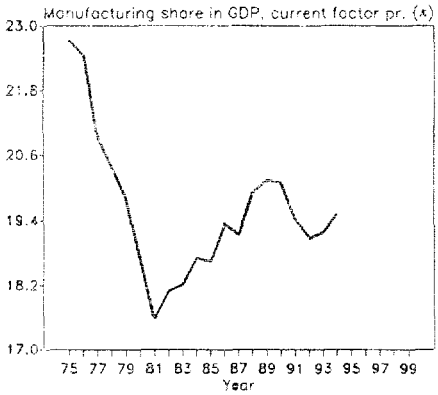
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 234 973 | 246 975 | 283 525 | 303 765 |
| Per capita [na] (1990-dollars) | 16 613 | 17 042 | 18 962 | 19 729 |
| Manufacturing share [na] (%) (current factor prices) | 18.7 | 18.6 | 20.1 | *19.5* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 45 186 | 47 167 | 53 804 | 55 497 |
| Industrial production index (1980=100) | 100 | 104 | 119 | 123 |
| Value added (millions of dollars) | 29 080 | 20 714 | 45 102 | *47 829* |
| Gross output (millions of dollars) | 109 618 | 80 068 | 153 729 | 154 166 |
| Employment (thousands) | 944 | 797 | 780 | *711* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 73 | 74 | 71 | *69* |
| Wages and salaries including supplements | *20* | *21* | *19* | *21* |
| Gross operating surplus and net taxes (%) | *7* | *5* | *10* | *10* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 109 994 | 87 795 | 157 847 | *215 003* |
| Value added per worker | 29 285 | 22 914 | 46 622 | *69 616* |
| Average wage (including supplements) | *23 135* | *21 037* | *37 835* | *45 935* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 5.56 | 8.80 | 7.91 | *7.30* |
| as a percentage of 1970-1975 structural change | 100 | 158 | 142 | *131* |
| MVA growth rate per structural change (%) | -0.74 | -0.33 | 0.82 | 0.65 |
| Degree of specialization | 15.0 | 15.2 | 14.9 | 14.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 4 562 | 2 896 | 6 037 | *7 080* |
| 313 Beverages | 654 | 737 | 1 500 | *1 900* |
| 314 Tobacco products | 282 | 775 | 1 848 | *2 421* |
| 321 Textiles | 734 | 463 | 1 002 | *1 045* |
| 322 Wearing apparel | 372 | *134* | 234 | *204* |
| 323 Leather and fur products | 68 | *34* | 70 | *62* |
| 324 Footwear | 118 | 51 | 72 | *64* |
| 331 Wood and wood products | 594 | 234 | 477 | *515* |
| 332 Furniture and fixtures | 418 | 164 | 362 | *442* |
| 341 Paper and paper products | 805 | 660 | 1 618 | *1 655* |
| 342 Printing and publishing | 2 480 | 1 446 | 3 217 | *3 938* |
| 351 Industrial chemicals | 2 263 | 2 436 | 5 592 | *3 897* |
| 352 Other chemical products | 913 | 902 | 1 846 | *2 639* |
| 353 Petroleum refineries | 533 | 521 | 1 095 | *985* |
| 354 Miscellaneous petroleum and coal products | 101 | 55 | 131 | *119* |
| 355 Rubber products | 156 | 139 | 284 | *265* |
| 356 Plastic products | 472 | 466 | 1 305 | *1 528* |
| 361 Pottery, china and earthenware | 134 | 77 | 304 | *373* |
| 362 Glass and glass products | 245 | *145* | 358 | *392* |
| 369 Other non-metal mineral products | 893 | *465* | 1 016 | *1 125* |
| 371 Iron and steel | 882 | *798* | *1 502* | *1 345* |
| 372 Non-ferrous metals | 371 | *329* | *607* | *521* |
| 381 Metal products | 2 455 | 1 293 | 2 904 | *3 227* |
| 382 Non-electrical machinery | 2 369 | 1 628 | 3 552 | *3 934* |
| 383 Electrical machinery | 3 687 | 2 656 | 5 286 | *5 354* |
| 384 Transport equipment | 1 927 | 1 015 | 2 464 | *2 194* |
| 385 Professional and scientific equipment | 237 | 146 | 308 | *444* |
| 390 Other manufacturing industries | 356 | 49 | 111 | *161* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

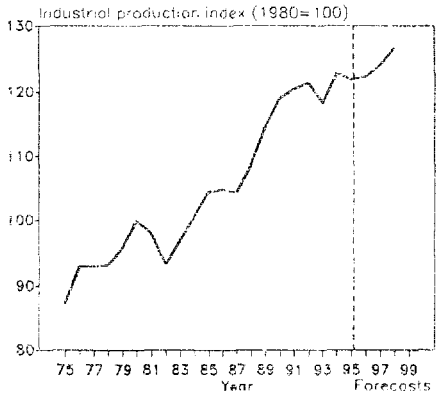
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

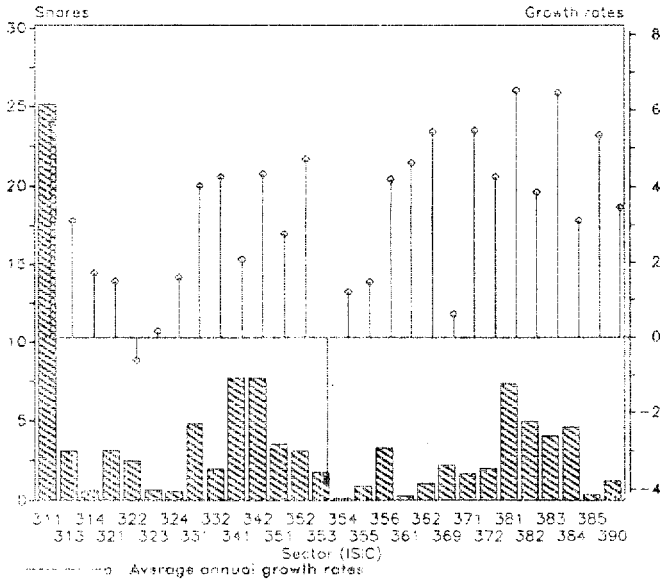



Industrial production index (1980=100)

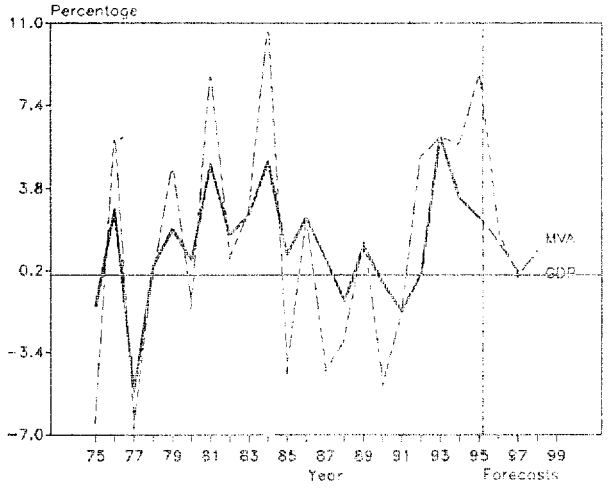


**NEW ZEALAND**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

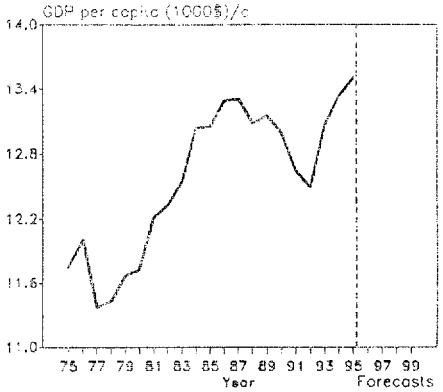



Source: National Accounts Statistics from UN/UNSC.
Estimated by UNIDO/IRD/RES

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 36 487 | 42 371 | 43 657 | 47 092 |
| Per capita [na] (1990-dollars) | 11 721 | 13 049 | 12 993 | 13 337 |
| Manufacturing share [na] (%) (current factor prices) | 21.7 | 20.7 | 18.0 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 6 998 | 8 323 | 7 636 | 8 828 |
| Industrial production index (1980=100) | 100 | 118 | 120 | 140 |
| Value added (millions of dollars) | 4 756 | 4 657 | 6 923 | *8 251* |
| Gross output (millions of dollars) | 14 790 | 15 399 | 23 433 | *27 804* |
| Employment (thousands) | *285* | 278 | 217 | *229* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 68 | 70 | 70 | *70* |
| Wages and salaries including supplements | *22* | *18* | *17* | *17* |
| Gross operating surplus and net taxes (%) | *10* | *12* | *12* | *12* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *51 964* | 50 964 | 97 510 | *107 604* |
| Value added per worker | *16 711* | 15 414 | 28 808 | *32 618* |
| Average wage (including supplements) | *11 354* | *10 180* | *18 863* | *21 181* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 6.03 | 5.05 | 6.79 | *7.22* |
| as a percentage of 1970-1975 structural change | 100 | 84 | 113 | *120* |
| MVA growth rate per structural change (%) | 2.82 | 1.46 | -0.89 | -0.78 |
| Degree of specialization | 14.6 | 14.7 | 15.3 | 16.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 1 098 | 1 082 | 1 676 | *2 114* |
| 313 Beverages | 110 | 93 | 216 | *249* |
| 314 Tobacco products | 30 | 19 | 45 | *49* |
| 321 Textiles | 222 | 193 | 232 | *248* |
| 322 Wearing apparel | 185 | 170 | 202 | *192* |
| 323 Leather and fur products | 45 | 46 | 54 | *52* |
| 324 Footwear | 55 | 46 | 41 | *44* |
| 331 Wood and wood products | 253 | 257 | 323 | *392* |
| 332 Furniture and fixtures | 92 | 95 | 126 | *160* |
| 341 Paper and paper products | 266 | 276 | 553 | *626* |
| 342 Printing and publishing | 294 | 326 | 537 | *636* |
| 351 Industrial chemicals | 140 | 134 | 249 | *289* |
| 352 Other chemical products | 155 | 142 | 211 | *257* |
| 353 Petroleum refineries | 26 | -1 | 137 | *137* |
| 354 Miscellaneous petroleum and coal products | 9 | 7 | 9 | *10* |
| 355 Rubber products | 96 | 70 | 62 | *70* |
| 356 Plastic products | 110 | 138 | 229 | *268* |
| 361 Pottery, china and earthenware | 13 | 11 | *18* | *22* |
| 362 Glass and glass products | 44 | 41 | *70* | *88* |
| 369 Other non-metal mineral products | 114 | 127 | *169* | *174* |
| 371 Iron and steel | 93 | 71 | 113 | *140* |
| 372 Non-ferrous metals | 82 | 102 | 139 | *168* |
| 381 Metal products | 371 | 404 | 480 | *629* |
| 382 Non-electrical machinery | 235 | 264 | 340 | *404* |
| 383 Electrical machinery | 239 | 200 | 260 | *341* |
| 384 Transport equipment | 318 | 274 | 322 | *362* |
| 385 Professional and scientific equipment | 14 | 20 | 24 | *30* |
| 390 Other manufacturing industries | 45 | 48 | 86 | *100* |

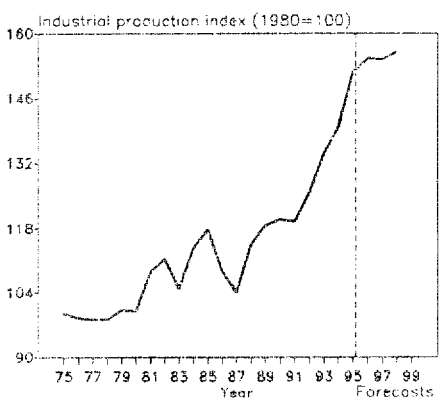
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c

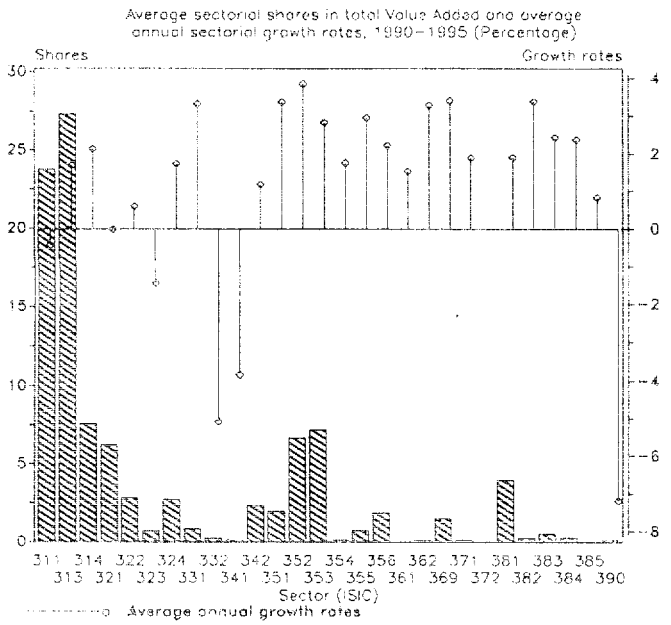


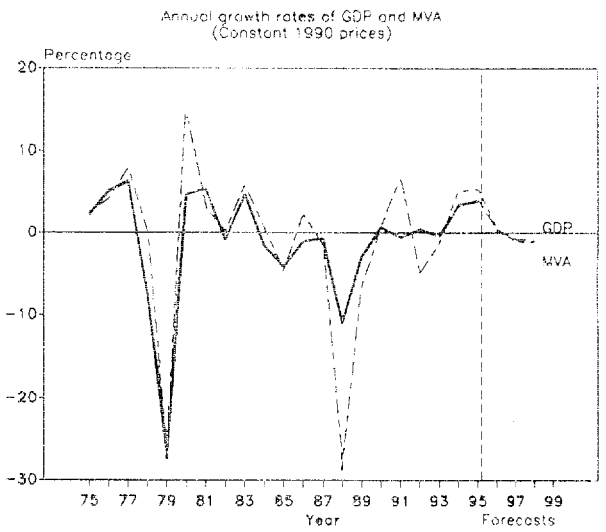

Manufacturing share in GDP, current factor pr. (%)


Industrial production index (1980=100)



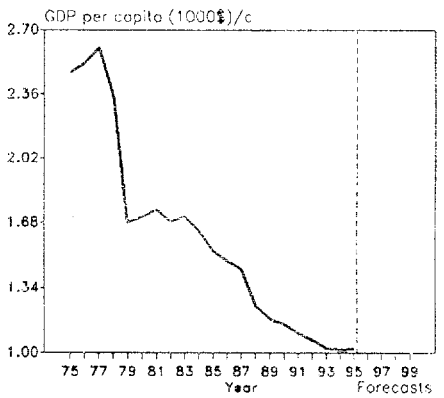
**NICARAGUA**

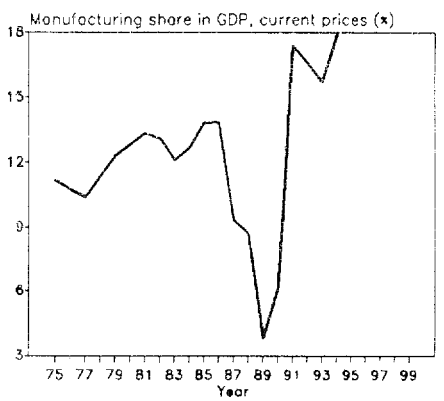


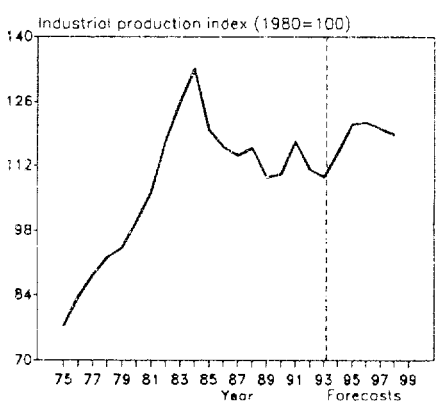




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 4 790 | 4 945 | 4 232 | 4 349 |
| Per capita [na] (1990-dollars) | 1 710 | 1 531 | 1 151 | 1 017 |
| Manufacturing share [na] (%) (current factor prices) | 12.8 | 13.8 | 6.2 | *17.9* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 374 | 389 | 260 | *272* |
| Industrial production index (1980=100) | 100 | *120* | 110 | *115* |
| Value added (millions of dollars) | 242 | 982 | *1 579* | *653* |
| Gross output (millions of dollars) | 612 | 1 587 | *2 404* | *975* |
| Employment (thousands) | 34 | 39 | *47* | *56* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 60 | 38 | *34* | *33* |
| Wages and salaries including supplements | 12 | 10 | *11* | *12* |
| Gross operating surplus and net taxes (%) | 28 | 52 | *55* | *55* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 18 017 | 38 009 | *47 856* | *16 343* |
| Value added per worker | 7 131 | 23 515 | *31 430* | *10 935* |
| Average wage (including supplements) | 2 078 | 4 152 | *5 725* | *2 084* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 18.18 | 22.25 | *10.89* | *6.21* |
| as a percentage of 1970-1975 structural change | 100 | 122 | *60* | *34* |
| MVA growth rate per structural change (%) | 0.20 | -0.39 | 0.39 | -1.63 |
| Degree of specialization | 27.7 | 29.6 | 30.7 | 30.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 52 | 268 | *393* | *152* |
| 313 Beverages | 48 | 227 | *421* | *178* |
| 314 Tobacco products | 28 | 64 | *118* | *51* |
| 321 Textiles | 9 | 70 | *102* | *40* |
| 322 Wearing apparel | 4 | 23 | *44* | *18* |
| 323 Leather and fur products | 2 | 6 | *12* | *4* |
| 324 Footwear | 4 | 27 | *42* | *18* |
| 331 Wood and wood products | 3 | 10 | *14* | *6* |
| 332 Furniture and fixtures | 1 | 4 | *4* | *1* |
| 341 Paper and paper products | 1 | 3 | *3* | *1* |
| 342 Printing and publishing | 4 | 22 | *36* | *15* |
| 351 Industrial chemicals | 11 | 23 | *31* | *13* |
| 352 Other chemical products | 14 | 56 | *100* | *45* |
| 353 Petroleum refineries | 35 | 78 | *111* | *47* |
| 354 Miscellaneous petroleum and coal products | - | 1 | *2* | *1* |
| 355 Rubber products | 1 | 6 | *11* | *5* |
| 356 Plastic products | 4 | 20 | *29* | *12* |
| 361 Pottery, china and earthenware | - | 2 | - | - |
| 362 Glass and glass products | - | 1 | *1* | *1* |
| 369 Other non-metal mineral products | 7 | 17 | *23* | *10* |
| 371 Iron and steel | - | 1 | *2* | *1* |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 9 | 40 | *62* | *26* |
| 382 Non-electrical machinery | - | 3 | *4* | *2* |
| 383 Electrical machinery | 1 | 5 | *8* | *4* |
| 384 Transport equipment | 1 | 3 | *4* | *2* |
| 385 Professional and scientific equipment | 1 | - | - | - |
| 390 Other manufacturing industries | - | 2 | *2* | *1* |

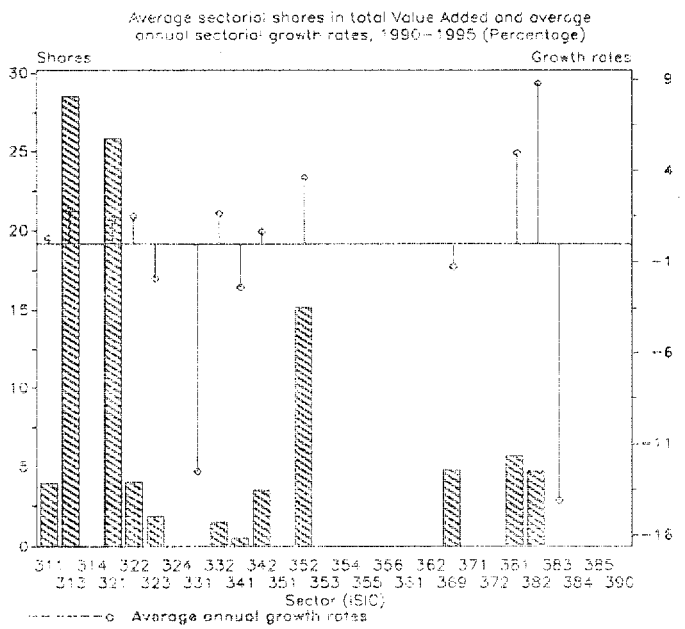
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

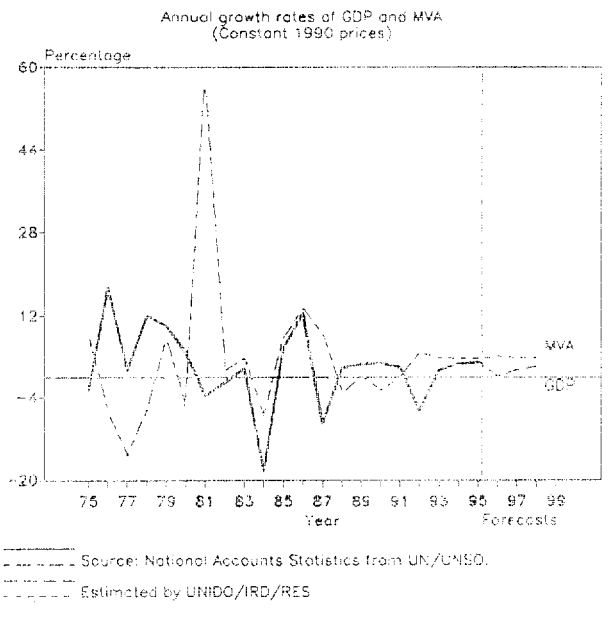


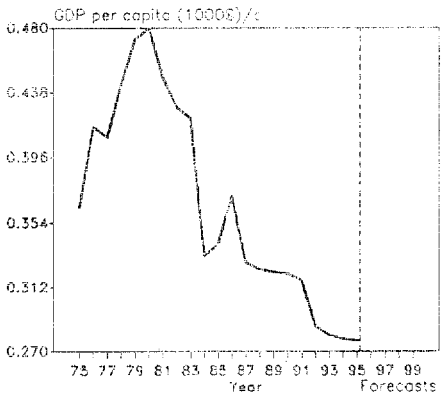
**NIGER**

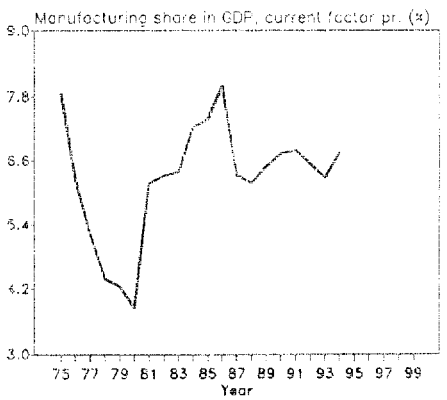


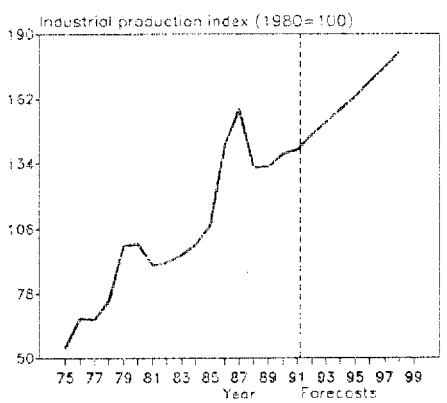




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 2 680 | 2 251 | 2 481 | 2 462 |
| Per capita [na] (1990-dollars) | 480 | 341 | 321 | 278 |
| Manufacturing share [na] (%) (current factor prices) | 3.8 | 7.4 | 6.7 | *6.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 87 | 141 | 163 | *184* |
| Industrial production index (1980=100) | 100 | 108 | *138* | *157* |
| Value added (millions of dollars) | *31* | *20* | *29* | *18* |
| Gross output (millions of dollars) | *90* | *59* | *92* | *58* |
| Employment (thousands) | *2* | *3* | *3* | *3* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 65 | *64* | *66* | *66* |
| Wages and salaries including supplements | 15 | *14* | *15* | *14* |
| Gross operating surplus and net taxes (%) | 20 | *22* | *20* | *20* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 43 832 | *21 122* | *30 241* | *16 780* |
| Value added per worker | 15 137 | *7 639* | *10 466* | *5 896* |
| Average wage (including supplements) | 6 552 | *2 953* | *4 248* | *2 316* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *12.73* | *17.85* | *10.55* | *4.83* |
| as a percentage of 1970-1975 structural change | *100* | *140* | *83* | *38* |
| MVA growth rate per structural change (%) | 2.27 | 1.21 | -0.07 | 1.62 |
| Degree of specialization | 25.3 | 23.5 | 22.2 | 22.7 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 2 | *1* | *1* | *1* |
| 313 Beverages | 7 | *6* | *8* | *5* |
| 314 Tobacco products | .. | .. | .. | .. |
| 321 Textiles | 6 | *5* | *8* | *5* |
| 322 Wearing apparel | 1 | *1* | *1* | *1* |
| 323 Leather and fur products | *1* | - | *1* | - |
| 324 Footwear | 1 | .. | .. | .. |
| 331 Wood and wood products | - | - | - | - |
| 332 Furniture and fixtures | - | - | - | - |
| 341 Paper and paper products | - | - | - | - |
| 342 Printing and publishing | 2 | *1* | *1* | *1* |
| 351 Industrial chemicals | 2 | .. | .. | .. |
| 352 Other chemical products | 3 | *3* | *4* | *3* |
| 353 Petroleum refineries | .. | .. | .. | .. |
| 354 Miscellaneous petroleum and coal products | .. | .. | .. | .. |
| 355 Rubber products | .. | .. | .. | .. |
| 356 Plastic products | 1 | .. | .. | .. |
| 361 Pottery, china and earthenware | - | .. | .. | .. |
| 362 Glass and glass products | .. | .. | .. | .. |
| 369 Other non-metal mineral products | 2 | *1* | *2* | *1* |
| 371 Iron and steel | .. | .. | .. | .. |
| 372 Non-ferrous metals | .. | .. | .. | .. |
| 381 Metal products | 3 | *1* | *2* | *1* |
| 382 Non-electrical machinery | - | *1* | *1* | *1* |
| 383 Electrical machinery | - | - | - | - |
| 384 Transport equipment | .. | .. | .. | .. |
| 385 Professional and scientific equipment | .. | .. | .. | .. |
| 390 Other manufacturing industries | .. | .. | .. | .. |

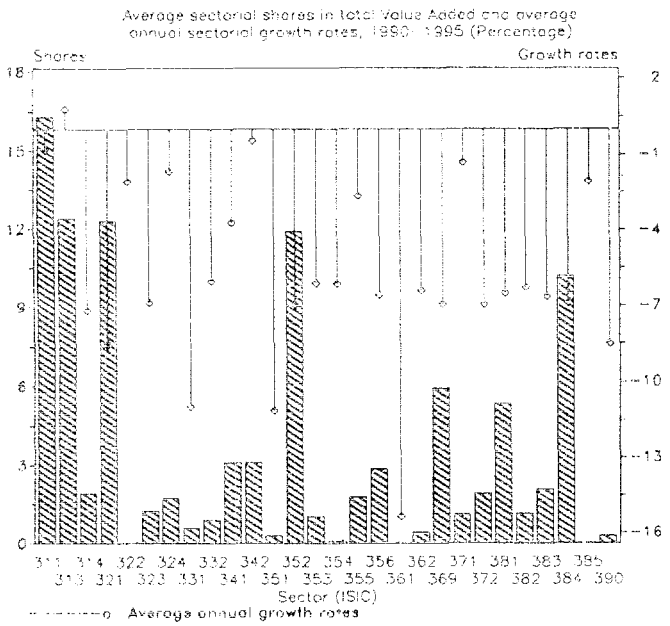
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

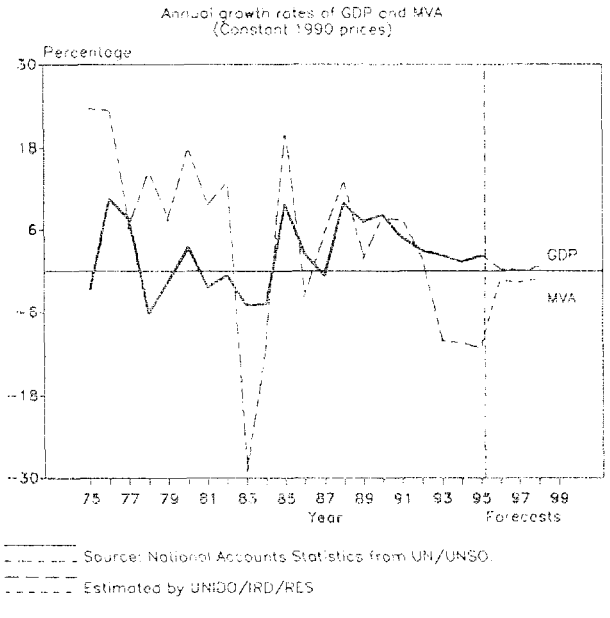


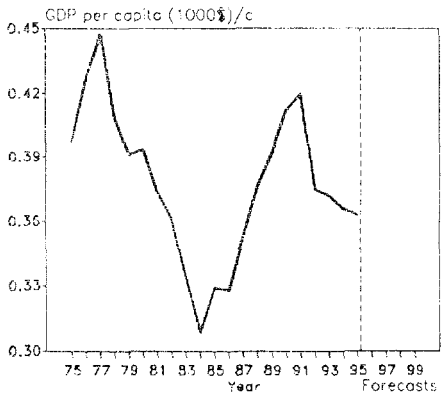
**NIGERIA**

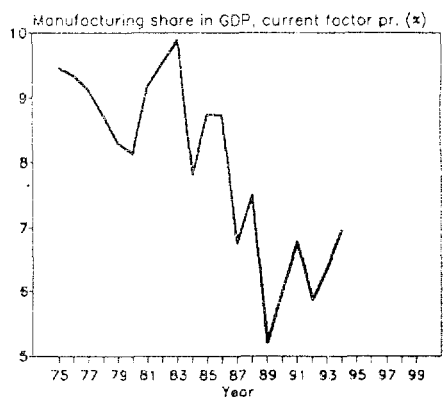


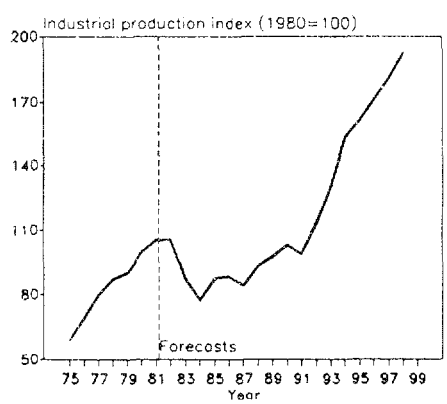




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 28 357 | 27 329 | 35 462 | 39 666 |
| Per capita [na] (1990-dollars) | 394 | 329 | *412* | 366 |
| Manufacturing share [na] (%) (current factor prices) | 8.1 | 8.7 | 6.0 | *7.0* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 1 537 | 1 427 | 1 779 | 1 559 |
| Industrial production index (1980=100) | 100 | 88 | *103* | *153* |
| Value added (millions of dollars) | 2 422 | 1 726 | *3 682* | *3 165* |
| Gross output (millions of dollars) | 4 740 | 3 534 | *6 148* | *5 516* |
| Employment (thousands) | 432 | 336 | *416* | *459* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 49 | 51 | *40* | *43* |
| Wages and salaries including supplements | *11* | *10* | *10* | *10* |
| Gross operating surplus and net taxes (%) | *40* | *39* | *50* | *48* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 10 273 | 9 947 | *14 130* | *11 495* |
| Value added per worker | 5 260 | 4 872 | *8 697* | *6 800* |
| Average wage (including supplements) | *1 226* | *1 043* | *1 440* | *1 144* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 26.96 | 27.44 | *13.05* | *11.77* |
| as a percentage of 1970-1975 structural change | 100 | 102 | *48* | *44* |
| MVA growth rate per structural change (%) | 2.94 | 1.57 | 0.87 | 3.02 |
| Degree of specialization | 18.6 | 18.5 | 20.0 | 21.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 149 | 251 | *560* | *535* |
| 313 Beverages | 267 | 205 | *424* | *484* |
| 314 Tobacco products | 96 | *52* | *78* | *58* |
| 321 Textiles | 231 | 233 | *490* | *353* |
| 322 Wearing apparel | 3 | 1 | *1* | *1* |
| 323 Leather and fur products | 12 | 23 | *47* | *37* |
| 324 Footwear | 12 | 28 | *60* | *55* |
| 331 Wood and wood products | 88 | 14 | *25* | *16* |
| 332 Furniture and fixtures | 56 | 14 | *33* | *27* |
| 341 Paper and paper products | 38 | 51 | *118* | *108* |
| 342 Printing and publishing | 75 | 45 | *105* | *103* |
| 351 Industrial chemicals | 30 | 9 | *13* | *8* |
| 352 Other chemical products | 265 | 213 | *452* | *354* |
| 353 Petroleum refineries | 72 | -7 | *36* | *31* |
| 354 Miscellaneous petroleum and coal products | *6* | *-1* | *3* | *3* |
| 355 Rubber products | 26 | 31 | *64* | *57* |
| 356 Plastic products | 98 | 49 | *106* | *85* |
| 361 Pottery, china and earthenware | - | 2 | *2* | *1* |
| 362 Glass and glass products | 24 | 7 | *15* | *13* |
| 369 Other non-metal mineral products | 87 | 106 | *225* | *176* |
| 371 Iron and steel | 3 | 17 | *37* | *35* |
| 372 Non-ferrous metals | 33 | *34* | *72* | *56* |
| 381 Metal products | 140 | 92 | *199* | *160* |
| 382 Non-electrical machinery | 23 | 19 | *42* | *34* |
| 383 Electrical machinery | 46 | 36 | *78* | *62* |
| 384 Transport equipment | 526 | 193 | *383* | *303* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 13 | 6 | *11* | *8* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

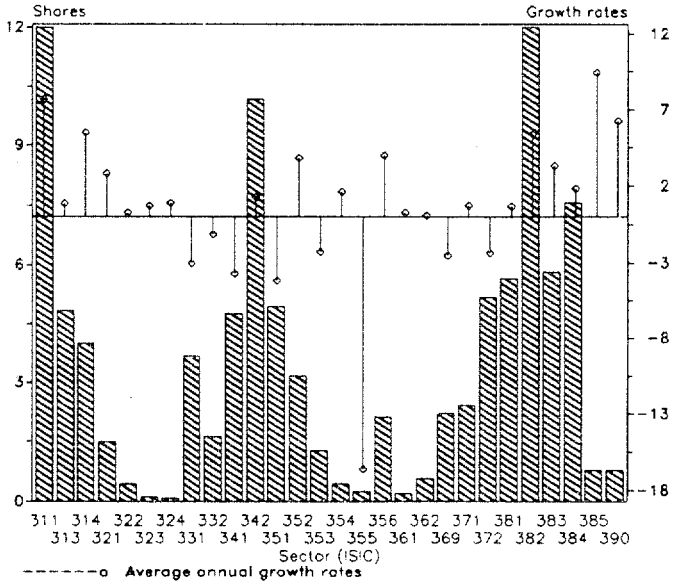


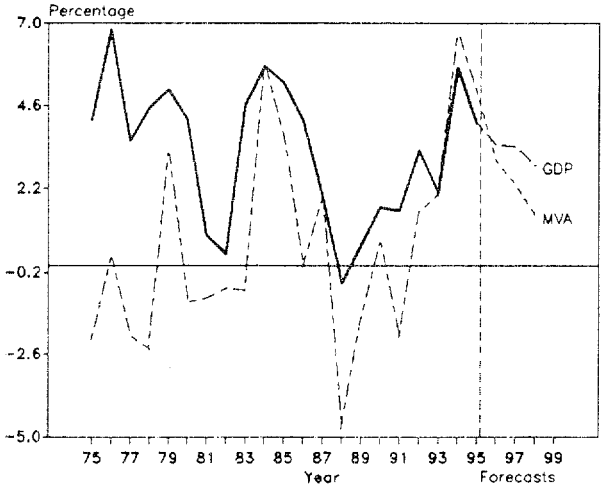



**NORWAY**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

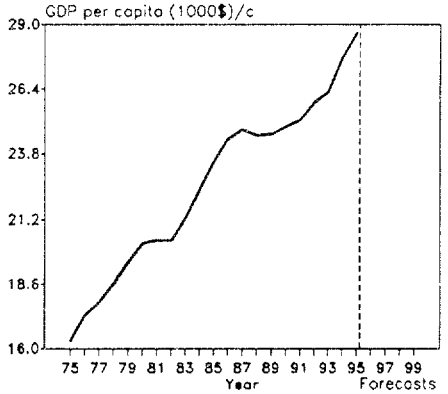



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

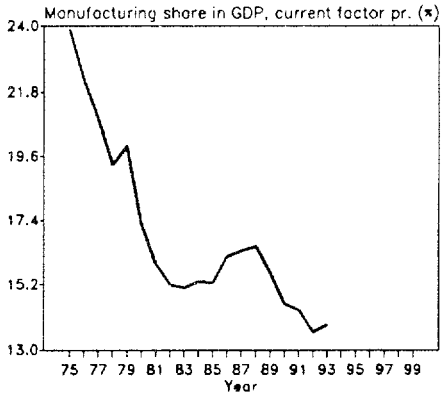
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 82 790 | 97 604 | 105 524 | 119 468 |
| Per capita [na] (1990-dollars) | 20 262 | 23 502 | 24 882 | 27 667 |
| Manufacturing share [na] (%) (current factor prices) | 17.3 | 15.3 | 14.6 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 14 041 | 15 028 | 14 437 | 15 609 |
| Industrial production index (1980=100) | 100 | 109 | 113 | 123 |
| Value added (millions of dollars) | 9 339 | 7 660 | 13 504 | *13 714* |
| Gross output (millions of dollars) | 31 936 | 28 186 | 50 107 | 49 140 |
| Employment (thousands) | 354 | 312 | 271 | *251* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 71 | 73 | 73 | *72* |
| Wages and salaries including supplements | 21 | 20 | 19 | *23* |
| Gross operating surplus and net taxes (%) | 8 | 7 | 8 | *4* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 89 656 | 89 751 | 184 292 | *187 896* |
| Value added per worker | 26 217 | 24 391 | 49 684 | *54 540* |
| Average wage (including supplements) | 19 129 | 17 852 | 35 540 | *45 828* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 9.19 | 8.90 | 8.92 | *7.66* |
| as a percentage of 1970-1975 structural change | 100 | 97 | 97 | *83* |
| MVA growth rate per structural change (%) | 0.29 | -0.70 | -0.70 | -0.21 |
| Degree of specialization | 12.2 | 13.2 | 12.9 | 14.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 908 | 633 | 1 307 | *1 798* |
| 313 Beverages | 292 | 296 | 660 | *635* |
| 314 Tobacco products | 168 | 220 | 478 | *572* |
| 321 Textiles | 213 | 126 | 191 | *210* |
| 322 Wearing apparel | 101 | 59 | 58 | *58* |
| 323 Leather and fur products | 18 | 9 | 16 | *16* |
| 324 Footwear | 24 | 10 | 11 | *12* |
| 331 Wood and wood products | 587 | 366 | 619 | *466* |
| 332 Furniture and fixtures | 196 | 165 | 236 | *211* |
| 341 Paper and paper products | 452 | 400 | 787 | *610* |
| 342 Printing and publishing | 668 | 717 | 1 381 | *1 381* |
| 351 Industrial chemicals | 452 | 422 | 811 | *615* |
| 352 Other chemical products | 227 | 183 | 393 | *452* |
| 353 Petroleum refineries | 103 | 24 | 195 | *155* |
| 354 Miscellaneous petroleum and coal products | 53 | 59 | 63 | *61* |
| 355 Rubber products | 51 | 39 | 58 | *23* |
| 356 Plastic products | 170 | 147 | 278 | *303* |
| 361 Pottery, china and earthenware | 26 | 18 | 27 | *26* |
| 362 Glass and glass products | 55 | 50 | 77 | *74* |
| 369 Other non-metal mineral products | 281 | 215 | 361 | *283* |
| 371 Iron and steel | 385 | 276 | 347 | *330* |
| 372 Non-ferrous metals | 743 | 550 | 826 | *683* |
| 381 Metal products | 595 | 465 | 784 | *762* |
| 382 Non-electrical machinery | 933 | 1 079 | 1 590 | *1 902* |
| 383 Electrical machinery | 547 | 498 | 751 | *814* |
| 384 Transport equipment | 1 000 | 555 | 1 028 | *1 035* |
| 385 Professional and scientific equipment | 32 | 39 | 82 | *116* |
| 390 Other manufacturing industries | 59 | 42 | 89 | *114* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

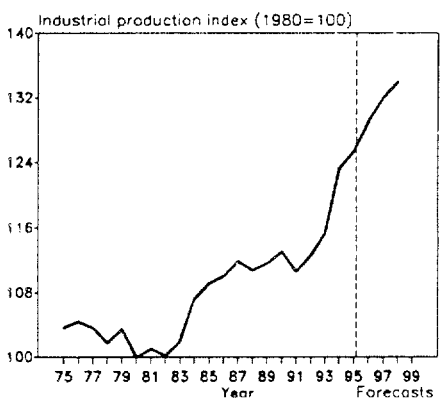
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

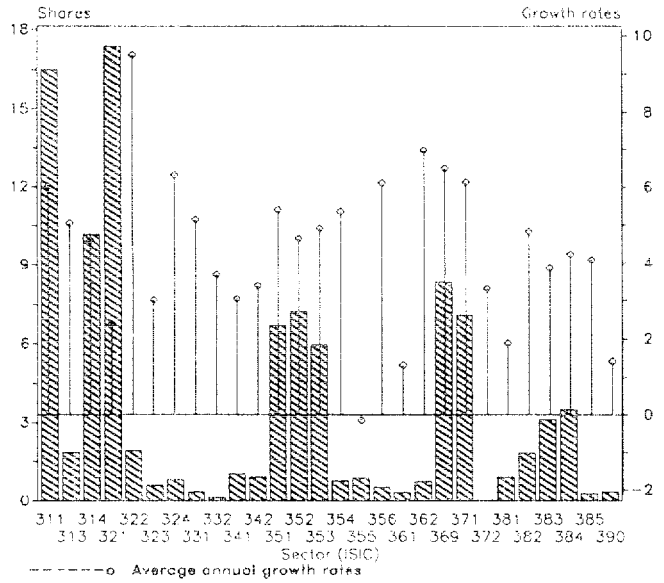



Industrial production index (1980=100)

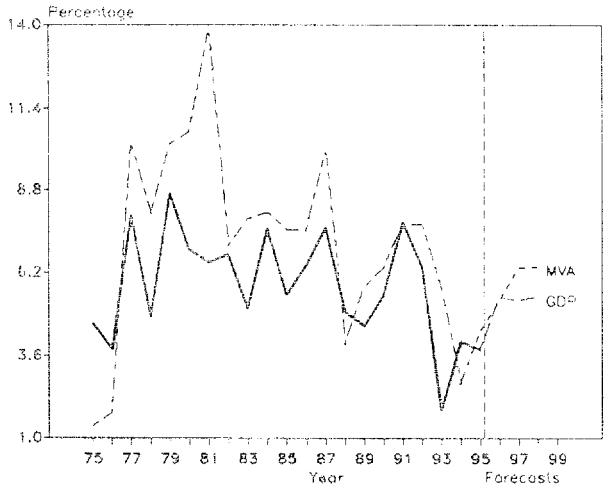


**PAKISTAN**

Average sectorial shares in total Value Added and average annual sector al growth rates, 1990–1995 (Percentage)



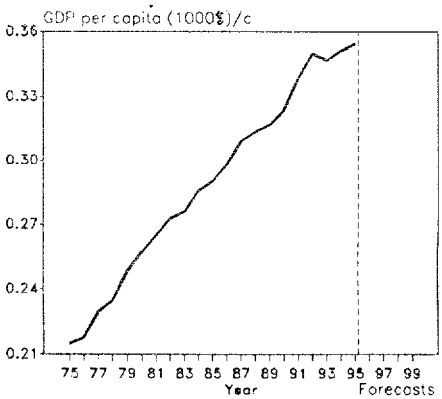

Annual growth rates of GDP and MVA (Constant 1990 prices)



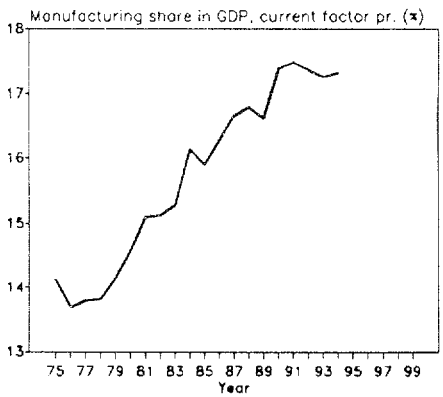

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 21 941 | 29 767 | 39 464 | 47 984 |
| Per capita [na] (1990-dollars) | 257 | 290 | 324 | 351 |
| Manufacturing share [na] (%) (current factor prices) | 14.6 | 15.9 | 17.4 | *17.5* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 2 889 | 4 411 | 6 096 | 7 671 |
| Industrial production index (1980=100) | 100 | 132 | 152 | 194 |
| Value added (millions of dollars) | 2 423 | 3 236 | *4 394* | *5 719* |
| Gross output (millions of dollars) | 7 144 | 10 132 | *13 354* | *17 193* |
| Employment (thousands) | 452 | 493 | *539* | *582* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 66 | 68 | *67* | *67* |
| Wages and salaries including supplements | 7 | 6 | *7* | *7* |
| Gross operating surplus and net taxes (%) | 27 | 26 | *26* | *26* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 14 606 | 20 484 | *24 677* | *29 441* |
| Value added per worker | 4 953 | 6 545 | *8 121* | *9 804* |
| Average wage (including supplements) | 1 122 | 1 323 | *1 754* | *2 139* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *13.13* | 13.10 | *12.10* | *7.45* |
| as a percentage of 1970-1975 structural change | *100* | 100 | *92* | *57* |
| MVA growth rate per structural change (%) | 2.04 | 2.42 | 3.31 | 4.22 |
| Degree of specialization | 23.2 | 23.5 | 20.9 | 20.8 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 431 | 580 | *697* | *954* |
| 313 Beverages | 45 | 74 | *80* | *106* |
| 314 Tobacco products | 300 | 372 | *447* | *579* |
| 321 Textiles | 483 | 562 | *816* | *963* |
| 322 Wearing apparel | 7 | 18 | *75* | *116* |
| 323 Leather and fur products | 41 | 35 | *27* | *33* |
| 324 Footwear | 4 | 3 | *34* | *47* |
| 331 Wood and wood products | 4 | 9 | *15* | *20* |
| 332 Furniture and fixtures | 3 | 6 | *5* | *6* |
| 341 Paper and paper products | 29 | 33 | *47* | *57* |
| 342 Printing and publishing | 24 | 36 | *41* | *50* |
| 351 Industrial chemicals | 127 | 281 | *300* | *397* |
| 352 Other chemical products | 156 | 230 | *318* | *412* |
| 353 Petroleum refineries | 158 | 45 | *260* | *340* |
| 354 Miscellaneous petroleum and coal products | 9 | 17 | *33* | *43* |
| 355 Rubber products | 28 | 41 | *41* | *46* |
| 356 Plastic products | 12 | 21 | *21* | *29* |
| 361 Pottery, china and earthenware | 5 | 8 | *15* | *16* |
| 362 Glass and glass products | 11 | 17 | *31* | *43* |
| 369 Other non-metal mineral products | 171 | 199 | *347* | *489* |
| 371 Iron and steel | 99 | 342 | *296* | *409* |
| 372 Non-ferrous metals | 1 | 1 | *1* | *1* |
| 381 Metal products | 38 | 33 | *42* | *49* |
| 382 Non-electrical machinery | 43 | 80 | *79* | *104* |
| 383 Electrical machinery | 78 | 98 | *140* | *176* |
| 384 Transport equipment | 97 | 83 | *156* | *199* |
| 385 Professional and scientific equipment | 6 | 6 | *12* | *15* |
| 390 Other manufacturing industries | 11 | 11 | *17* | *19* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

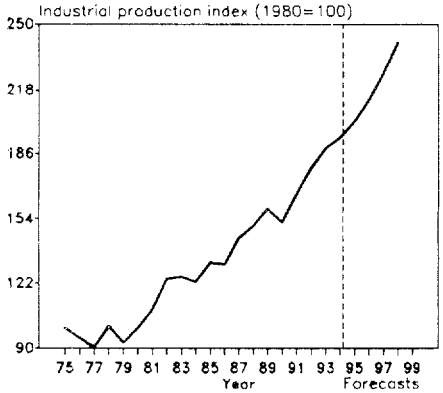
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

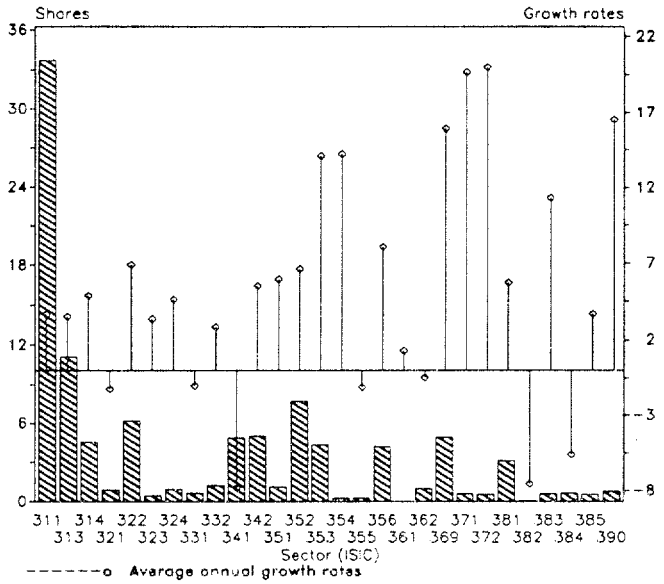



Industrial production index (1980=100)

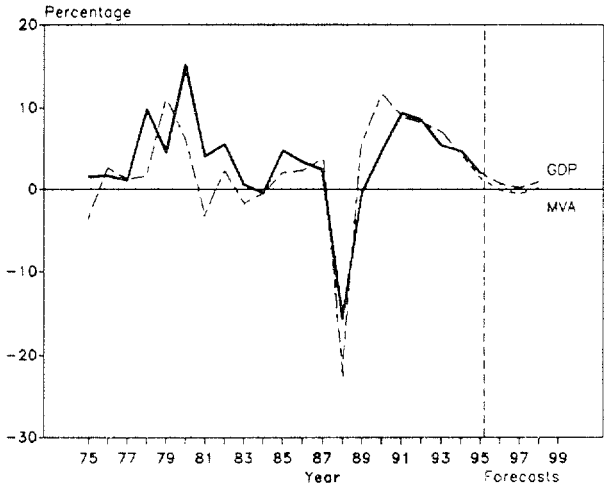


**PANAMA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

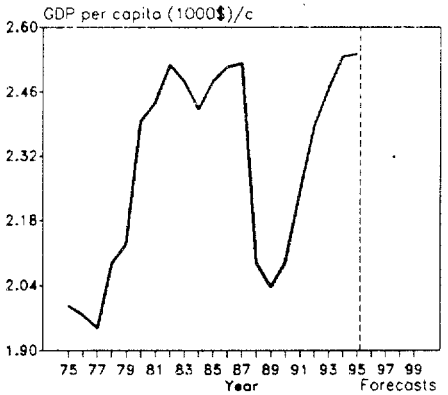



Source: National Accounts Statistics from UN/UNSO
Estimated by UNIDO/IRD/RES

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 4 672 | 5 383 | 5 009 | 6 559 |
| Per capita [na] (1990-dollars) | 2 396 | 2 484 | 2 089 | 2 537 |
| Manufacturing share [na] (%) (current factor prices) | 9.7 | 8.2 | 7.8 | *8.1* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 428 | 421 | 407 | *534* |
| Industrial production index (1980=100) | 100 | 108 | 102 | *133* |
| Value added (millions of dollars) | 477 | 551 | 591 | *767* |
| Gross output (millions of dollars) | *1 473* | 1 765 | 1 703 | *2 217* |
| Employment (thousands) | *31* | 36 | 37 | *44* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *68* | 69 | 65 | *65* |
| Wages and salaries including supplements | *9* | *13* | *13* | *14* |
| Gross operating surplus and net taxes (%) | *23* | *18* | *21* | *21* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *46 753* | 48 651 | 45 211 | *49 762* |
| Value added per worker | *15 159* | 15 183 | 16 311 | *17 427* |
| Average wage (including supplements) | *4 241* | *6 270* | *6 133* | *6 959* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 13.92 | 10.23 | 10.11 | *10.54* |
| as a percentage of 1970-1975 structural change | 100 | 73 | 73 | *76* |
| MVA growth rate per structural change (%) | 2.11 | 0.95 | 0.17 | 1.52 |
| Degree of specialization | 24.3 | 23.3 | 27.7 | 26.1 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 155 | 171 | 205 | *254* |
| 313 Beverages | 52 | 53 | 69 | *84* |
| 314 Tobacco products | 26 | 30 | 27 | *35* |
| 321 Textiles | 4 | 3 | 6 | *6* |
| 322 Wearing apparel | 31 | 26 | 34 | *48* |
| 323 Leather and fur products | 4 | 1 | 3 | *3* |
| 324 Footwear | 7 | 9 | 5 | *7* |
| 331 Wood and wood products | 8 | 7 | 4 | *5* |
| 332 Furniture and fixtures | 8 | 11 | 7 | *9* |
| 341 Paper and paper products | 20 | 33 | 48 | *33* |
| 342 Printing and publishing | 22 | 29 | 29 | *39* |
| 351 Industrial chemicals | 4 | 9 | 6 | *9* |
| 352 Other chemical products | 26 | 42 | 42 | *60* |
| 353 Petroleum refineries | *28* | *23* | *16* | *34* |
| 354 Miscellaneous petroleum and coal products | - | - | *1* | *2* |
| 355 Rubber products | 2 | 2 | 2 | *2* |
| 356 Plastic products | 12 | 21 | 23 | *34* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | *1* | 7 | 7 | *7* |
| 369 Other non-metal mineral products | 31 | 26 | 19 | *41* |
| 371 Iron and steel | 5 | *4* | 2 | *5* |
| 372 Non-ferrous metals | 2 | *3* | 2 | *4* |
| 381 Metal products | 19 | 20 | 17 | *24* |
| 382 Non-electrical machinery | 1 | 1 | 1 | - |
| 383 Electrical machinery | 3 | 4 | 3 | *5* |
| 384 Transport equipment | 4 | 13 | 6 | *5* |
| 385 Professional and scientific equipment | 1 | 2 | 3 | *4* |
| 390 Other manufacturing industries | *2* | *3* | *3* | *7* |

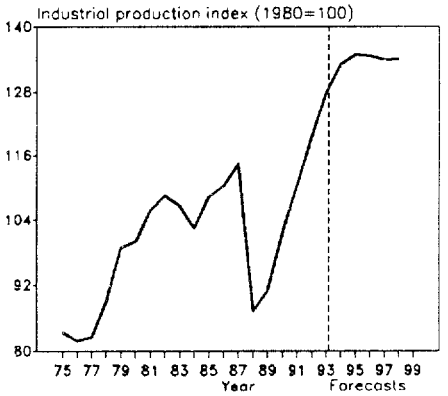
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c

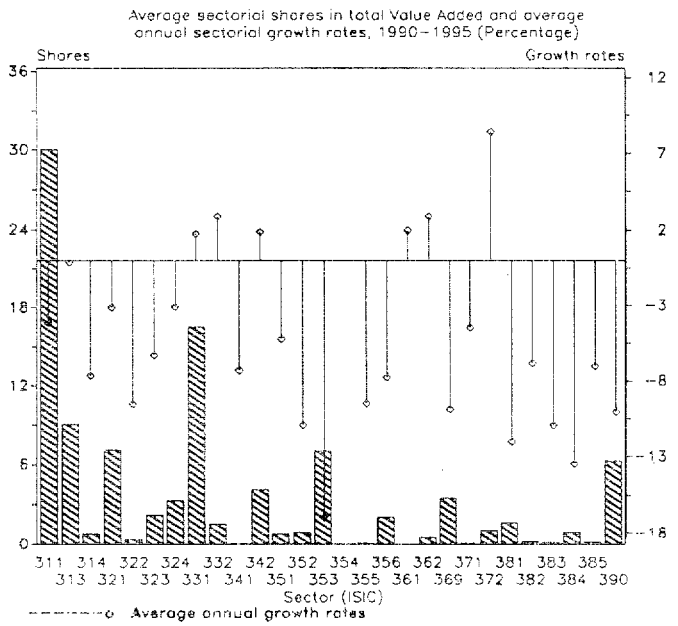


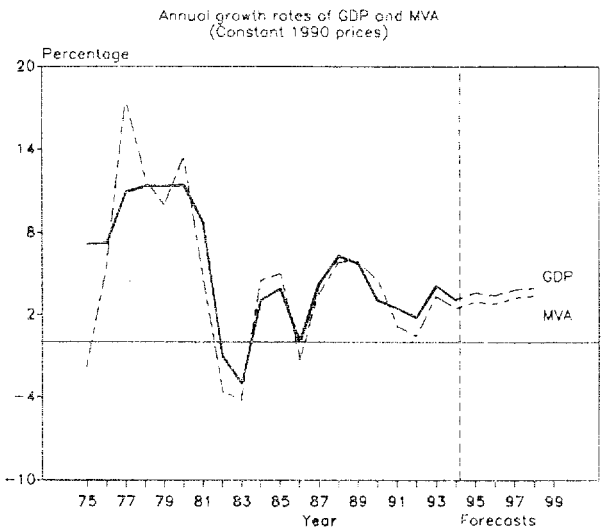

Manufacturing share in GDP, current factor pr. (%)


Industrial production index (1980=100)



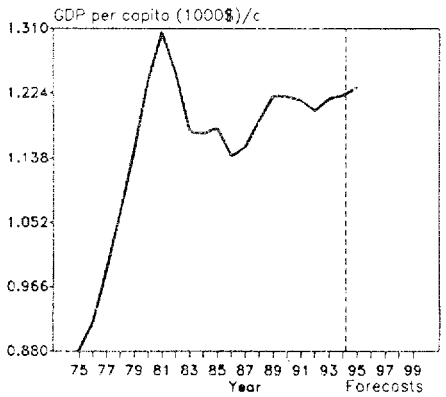
**PARAGUAY**

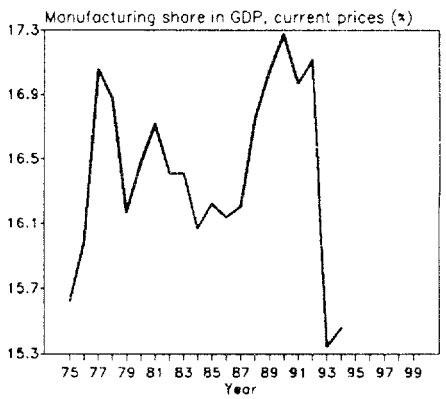


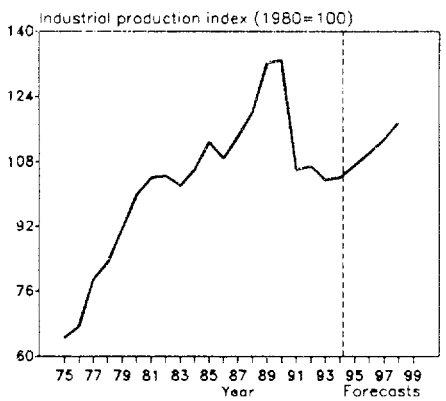




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 3 889 | 4 352 | 5 265 | 5 896 |
| Per capita [na] (1990-dollars) | 1 240 | 1 178 | 1 220 | 1 221 |
| Manufacturing share [na] (%) (current factor prices) | 16.5 | 16.2 | 17.3 | *15.5* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 721 | 761 | 910 | *977* |
| Industrial production index (1980=100) | 100 | 113 | 133 | 104 |
| Value added (millions of dollars) | 575 | *659* | *769* | *782* |
| Gross output (millions of dollars) | 1 312 | 1 395 | 1 408 | *1 743* |
| Employment (thousands) | *143* | *129* | *156* | *159* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | .. | .. | .. | .. |
| Wages and salaries including supplements | .. | .. | .. | .. |
| Gross operating surplus and net taxes (%) | .. | .. | .. | .. |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *9 131* | *10 794* | *8 915* | *10 718* |
| Value added per worker | *4 132* | *5 119* | *4 991* | *4 872* |
| Average wage (including supplements) | .. | .. | .. | .. |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 14.45 | *14.28* | *10.51* | *10.60* |
| as a percentage of 1970-1975 structural change | 100 | *99* | *73* | *73* |
| MVA growth rate per structural change (%) | 3.00 | 2.33 | 2.48 | 1.52 |
| Degree of specialization | 31.7 | 28.6 | 27.6 | 29.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 170 | *219* | *235* | *242* |
| 313 Beverages | 43 | *56* | *62* | *76* |
| 314 Tobacco products | 6 | *7* | *7* | *6* |
| 321 Textiles | 44 | *42* | *54* | *57* |
| 322 Wearing apparel | 2 | *3* | *3* | *2* |
| 323 Leather and fur products | 7 | *14* | *16* | *16* |
| 324 Footwear | 18 | *20* | *25* | *27* |
| 331 Wood and wood products | 95 | *96* | *106* | *142* |
| 332 Furniture and fixtures | 6 | *8* | *9* | *13* |
| 341 Paper and paper products | - | *1* | *1* | - |
| 342 Printing and publishing | 24 | *36* | *26* | *34* |
| 351 Industrial chemicals | 4 | *6* | *6* | *6* |
| 352 Other chemical products | 10 | *10* | *8* | *6* |
| 353 Petroleum refineries | 94 | *51* | *68* | *41* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | - | - |
| 356 Plastic products | 6 | *16* | *18* | *14* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | 1 | *2* | *3* | *4* |
| 369 Other non-metal mineral products | 26 | *23* | *31* | *23* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | 1 | *4* | *6* | *10* |
| 381 Metal products | 9 | *15* | *15* | *10* |
| 382 Non-electrical machinery | 1 | *1* | *2* | *2* |
| 383 Electrical machinery | - | *1* | *1* | *1* |
| 384 Transport equipment | 5 | *10* | *8* | *5* |
| 385 Professional and scientific equipment | 1 | *1* | *1* | *1* |
| 390 Other manufacturing industries | 2 | *17* | *58* | *43* |

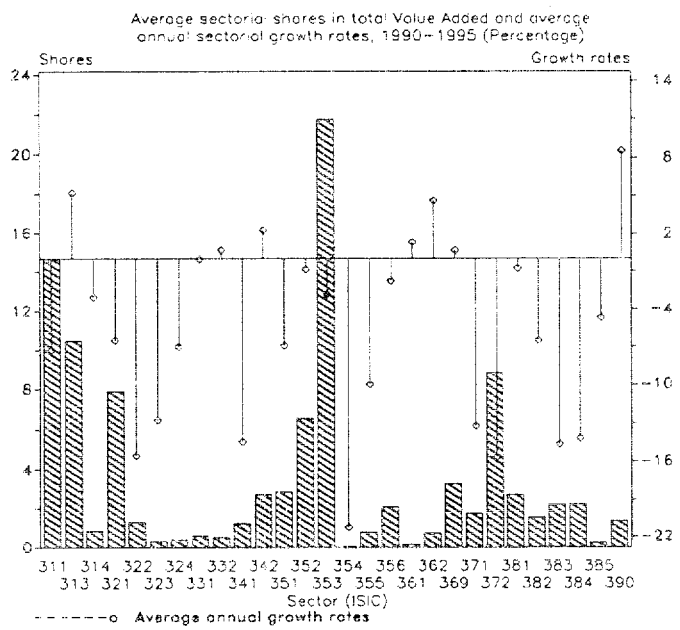
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

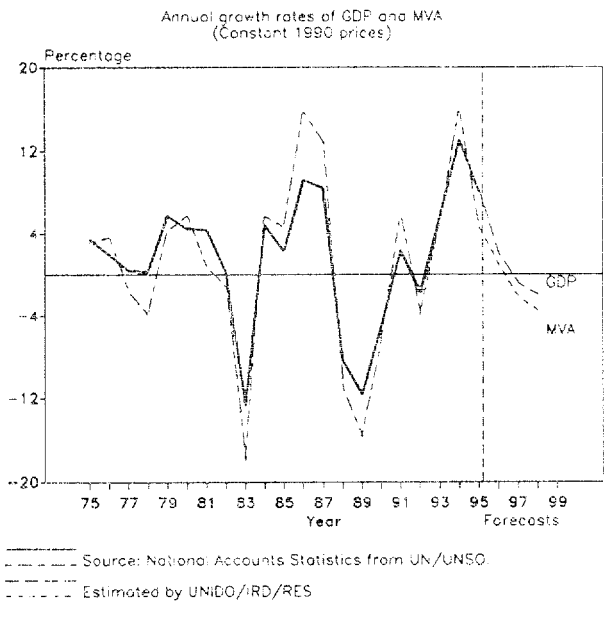


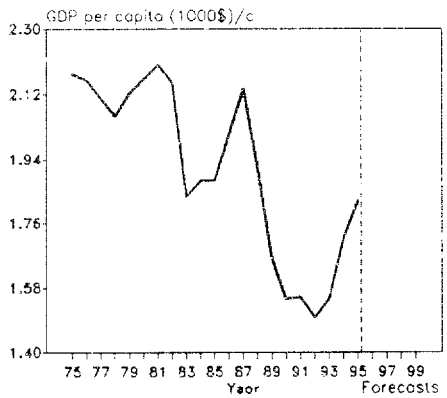
**PERU**

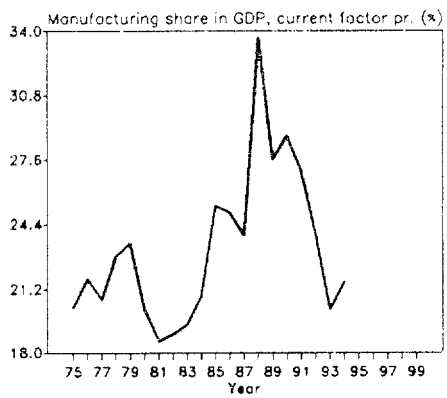


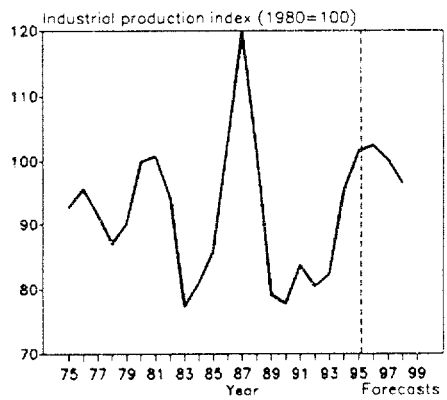




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 37 452 | 36 703 | 33 427 | 40 093 |
| Per capita [na] (1990-dollars) | 2 162 | 1 880 | 1 548 | 1 718 |
| Manufacturing share [na] (%) (current factor prices) | 20.2 | 25.3 | 28.8 | *21.6* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 11 917 | 10 721 | 9 745 | 12 005 |
| Industrial production index (1980=100) | 100 | 86 | 78 | 95 |
| Value added (millions of dollars) | 4 985 | 3 918 | 7 366 | *6 895* |
| Gross output (millions of dollars) | 12 977 | 9 573 | 14 186 | *16 751* |
| Employment (thousands) | 273 | 263 | 285 | *260* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 62 | 59 | 48 | *59* |
| Wages and salaries including supplements | *7* | 6 | *10* | *11* |
| Gross operating surplus and net taxes (%) | *32* | 35 | *42* | *31* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 47 484 | 36 350 | 49 727 | *63 981* |
| Value added per worker | 18 242 | 14 877 | 25 821 | *26 374* |
| Average wage (including supplements) | *3 150* | 2 154 | *4 941* | *6 865* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 14.06 | 20.68 | 20.91 | *17.19* |
| as a percentage of 1970-1975 structural change | 100 | 147 | 149 | *122* |
| MVA growth rate per structural change (%) | 1.99 | 0.13 | -1.52 | -1.95 |
| Degree of specialization | 12.7 | 21.3 | 19.5 | 20.8 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 767 | 402 | 1 077 | *1 026* |
| 313 Beverages | 379 | 303 | 545 | *831* |
| 314 Tobacco products | 84 | 61 | 59 | *60* |
| 321 Textiles | 466 | 352 | 647 | *543* |
| 322 Wearing apparel | 65 | 52 | 133 | *75* |
| 323 Leather and fur products | 56 | 20 | 32 | *19* |
| 324 Footwear | 41 | 20 | 26 | *26* |
| 331 Wood and wood products | 81 | 32 | 39 | *45* |
| 332 Furniture and fixtures | 42 | 19 | 30 | *38* |
| 341 Paper and paper products | 156 | 77 | 135 | *73* |
| 342 Printing and publishing | 100 | 80 | 151 | *200* |
| 351 Industrial chemicals | 215 | 158 | 237 | *192* |
| 352 Other chemical products | 289 | 193 | 427 | *484* |
| 353 Petroleum refineries | 192 | 1 154 | 1 409 | *1 444* |
| 354 Miscellaneous petroleum and coal products | 6 | 1 | 5 | *2* |
| 355 Rubber products | 62 | 52 | 74 | *51* |
| 356 Plastic products | 89 | 90 | 144 | *152* |
| 361 Pottery, china and earthenware | 15 | 8 | 10 | *13* |
| 362 Glass and glass products | 47 | 15 | 37 | *55* |
| 369 Other non-metal mineral products | 129 | 113 | 204 | *254* |
| 371 Iron and steel | 192 | 123 | 177 | *101* |
| 372 Non-ferrous metals | 604 | 172 | 930 | *528* |
| 381 Metal products | 188 | 113 | 180 | *202* |
| 382 Non-electrical machinery | 156 | 58 | 116 | *97* |
| 383 Electrical machinery | 211 | 111 | 235 | *124* |
| 384 Transport equipment | 278 | 106 | 219 | *127* |
| 385 Professional and scientific equipment | 14 | 10 | 21 | *19* |
| 390 Other manufacturing industries | 58 | 25 | 66 | *115* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

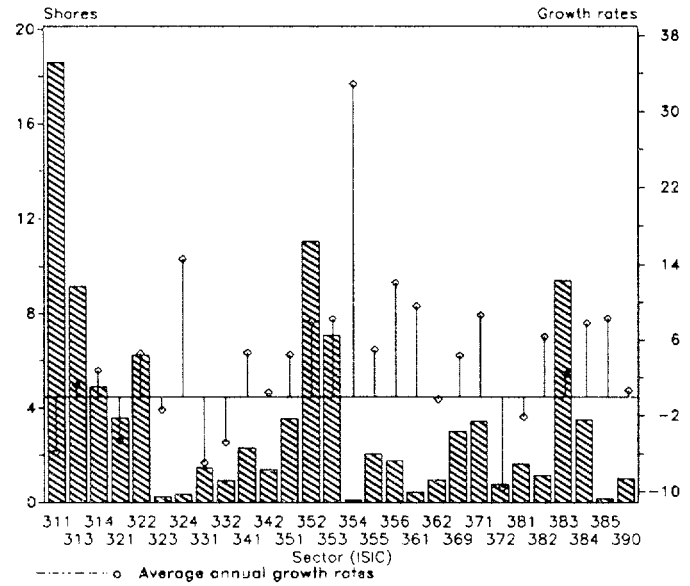


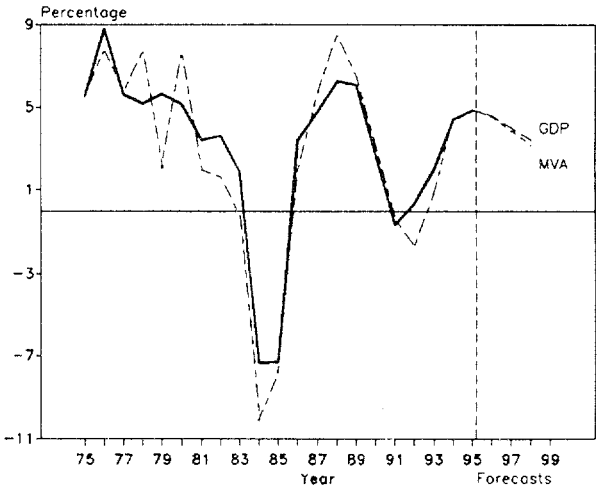



**PHILIPPINES**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

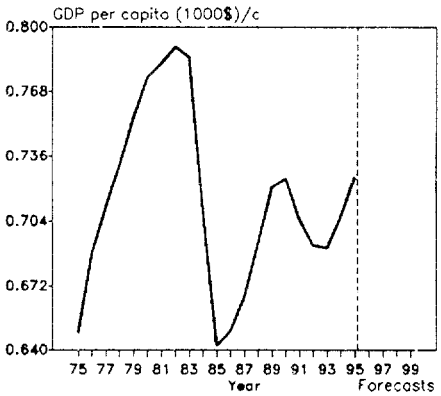



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 37 449 | 35 122 | 44 050 | 46 755 |
| Per capita [na] (1990-dollars) | 775 | 642 | 725 | 706 |
| Manufacturing share [na] (%) (current factor prices) | 25.7 | 25.2 | 25.0 | *23.3* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 10 067 | 8 605 | 11 003 | *11 311* |
| Industrial production index (1980=100) | 100 | 74 | 168 | *175* |
| Value added (millions of dollars) | 4 861 | 3 448 | 8 852 | *12 694* |
| Gross output (millions of dollars) | 17 369 | 12 081 | 24 321 | *34 753* |
| Employment (thousands) | 949 | 619 | 1 109 | *1 029* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 72 | 71 | 64 | *63* |
| Wages and salaries including supplements | 6 | 6 | 8 | *8* |
| Gross operating surplus and net taxes (%) | 22 | 22 | 28 | *28* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 16 263 | 19 369 | 19 805 | *33 592* |
| Value added per worker | 4 552 | 5 528 | 7 209 | *12 334* |
| Average wage (including supplements) | 1 127 | 1 257 | 1 802 | *2 857* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 15.56 | 22.56 | 24.48 | *13.52* |
| as a percentage of 1970-1975 structural change | 100 | 145 | 157 | *87* |
| MVA growth rate per structural change (%) | 2.00 | -0.31 | 2.08 | 3.32 |
| Degree of specialization | 14.4 | 22.0 | 18.3 | 15.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 969 | 658 | 2 206 | *2 178* |
| 313 Beverages | 195 | 423 | 815 | *1 124* |
| 314 Tobacco products | 309 | 209 | 420 | *637* |
| 321 Textiles | 395 | 109 | 393 | *408* |
| 322 Wearing apparel | 205 | 105 | 509 | *815* |
| 323 Leather and fur products | 8 | 3 | 25 | *30* |
| 324 Footwear | 13 | 9 | 18 | *48* |
| 331 Wood and wood products | 229 | 86 | 164 | *153* |
| 332 Furniture and fixtures | 75 | 22 | 103 | *103* |
| 341 Paper and paper products | 128 | 97 | 184 | *305* |
| 342 Printing and publishing | 89 | 46 | 125 | *173* |
| 351 Industrial chemicals | 296 | 101 | 277 | *455* |
| 352 Other chemical products | 389 | 205 | 767 | *1 502* |
| 353 Petroleum refineries | 328 | 715 | 489 | *948* |
| 354 Miscellaneous petroleum and coal products | 2 | 3 | 3 | *16* |
| 355 Rubber products | 103 | 34 | 158 | *273* |
| 356 Plastic products | 85 | 32 | 111 | *244* |
| 361 Pottery, china and earthenware | 33 | 9 | 29 | *59* |
| 362 Glass and glass products | 42 | 28 | 86 | *115* |
| 369 Other non-metal mineral products | 63 | 60 | 240 | *402* |
| 371 Iron and steel | 98 | 164 | 236 | *466* |
| 372 Non-ferrous metals | 35 | 28 | 117 | *92* |
| 381 Metal products | 127 | 49 | 156 | *190* |
| 382 Non-electrical machinery | 98 | 31 | 84 | *150* |
| 383 Electrical machinery | 260 | 156 | 775 | *1 154* |
| 384 Transport equipment | 234 | 35 | 258 | *504* |
| 385 Professional and scientific equipment | 5 | 5 | 11 | *22* |
| 390 Other manufacturing industries | 49 | 28 | 93 | *127* |

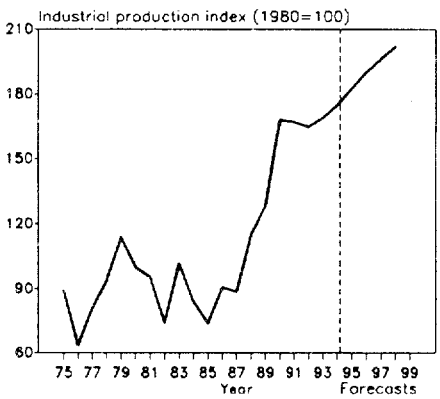
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c



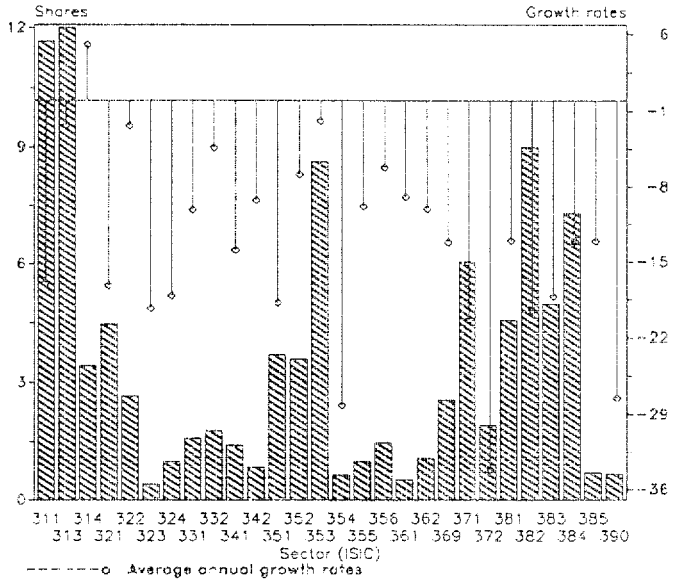

Manufacturing share in GDP, current prices (%)


Industrial production index (1980=100)

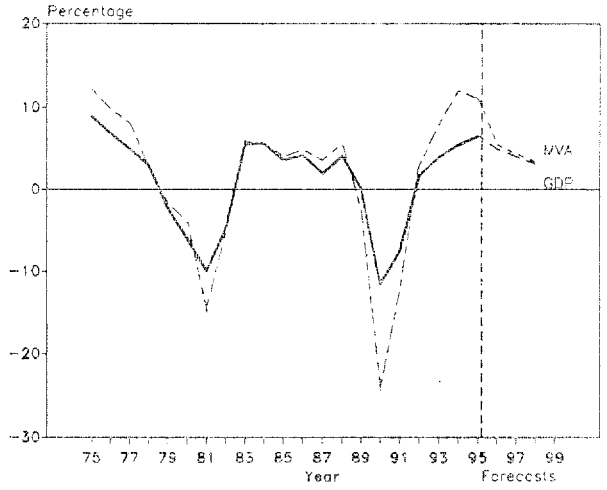


**POLAND**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

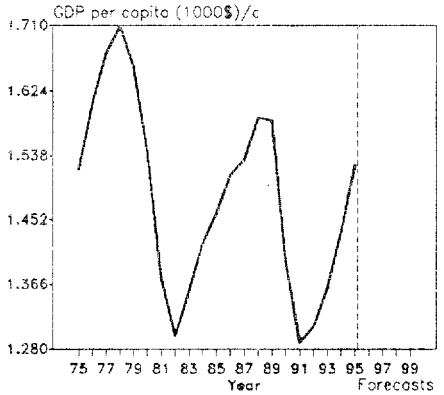



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 54 856 | 54 357 | 53 290 | 54 989 |
| Per capita [na] (1990-dollars) | 1 542 | 1 461 | 1 398 | 1 434 |
| Manufacturing share [na] (%) (current factor prices) | 44.0 | 41.2 | 47.0 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 31 971 | 29 768 | 25 072 | 27 119 |
| Industrial production index (1980=100) | 100 | 98 | 84 | 91 |
| Value added (millions of dollars) | 22 833 | 24 432 | 23 017 | *20 994* |
| Gross output (millions of dollars) | *55 609* | *54 448* | 46 092 | *55 584* |
| Employment (thousands) | 4 063 | 3 578 | 3 014 | *2 173* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *59* | *55* | 50 | *62* |
| Wages and salaries including supplements | *12* | *11* | 8 | *11* |
| Gross operating surplus and net taxes (%) | *30* | *34* | 42 | *27* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *12 960* | *13 487* | 15 293 | *25 494* |
| Value added per worker | 5 321 | 6 052 | 7 637 | *9 630* |
| Average wage (including supplements) | 1 575 | 1 627 | 1 258 | *2 775* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 11.27 | 12.88 | 16.77 | *16.79* |
| as a percentage of 1970-1975 structural change | 100 | 114 | 149 | *149* |
| MVA growth rate per structural change (%) | 3.15 | -1.21 | -0.12 | 0.51 |
| Degree of specialization | 11.7 | 14.4 | 11.3 | 12.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | - 889 | 144 | 2 595 | *2 268* |
| 313 Beverages | 3 062 | 3 582 | 1 838 | *2 864* |
| 314 Tobacco products | 636 | 74 | 379 | *934* |
| 321 Textiles | 2 795 | 2 444 | 1 222 | *837* |
| 322 Wearing apparel | 572 | 801 | 432 | *676* |
| 323 Leather and fur products | 122 | 221 | 120 | *71* |
| 324 Footwear | 403 | 430 | 263 | *169* |
| 331 Wood and wood products | 423 | 434 | 325 | *350* |
| 332 Furniture and fixtures | 491 | 500 | 307 | *430* |
| 341 Paper and paper products | 224 | 269 | 348 | *291* |
| 342 Printing and publishing | 154 | 208 | 166 | *179* |
| 351 Industrial chemicals | 837 | 734 | 1 056 | *677* |
| 352 Other chemical products | 961 | 644 | 649 | *827* |
| 353 Petroleum refineries | 1 058 | 1 239 | 1 419 | *2 306* |
| 354 Miscellaneous petroleum and coal products | 54 | 60 | 249 | *84* |
| 355 Rubber products | 317 | 341 | 209 | *229* |
| 356 Plastic products | 360 | 296 | 274 | *346* |
| 361 Pottery, china and earthenware | 97 | 146 | 107 | *118* |
| 362 Glass and glass products | 269 | 282 | 227 | *233* |
| 369 Other non-metal mineral products | 335 | 634 | 602 | *524* |
| 371 Iron and steel | 868 | 1 161 | 1 887 | *1 066* |
| 372 Non-ferrous metals | 602 | 336 | 951 | *201* |
| 381 Metal products | 1 343 | 1 347 | 1 081 | *942* |
| 382 Non-electrical machinery | 3 263 | 3 360 | 2 604 | *1 563* |
| 383 Electrical machinery | 1 558 | 1 801 | 1 420 | *947* |
| 384 Transport equipment | 2 436 | 2 255 | 1 855 | *1 624* |
| 385 Professional and scientific equipment | 244 | 251 | 173 | *148* |
| 390 Other manufacturing industries | 237 | 438 | 258 | *89* |

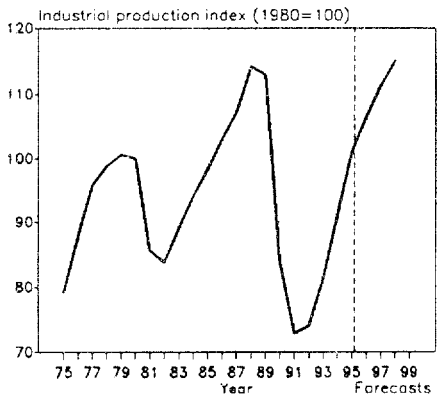
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c



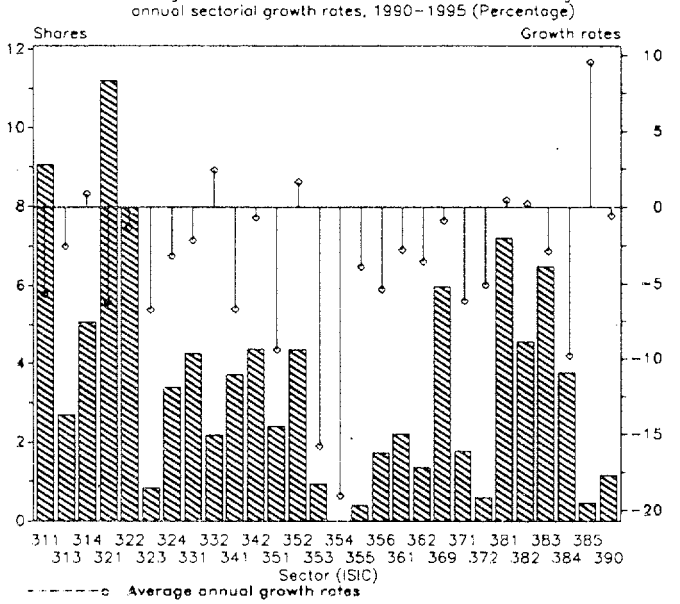

Manufacturing share in GDP, current prices (%)


Industrial production index (1980=100)

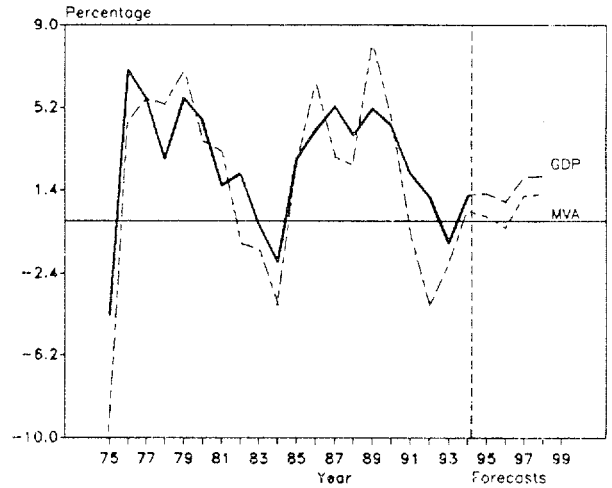


**PORTUGAL**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990-1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

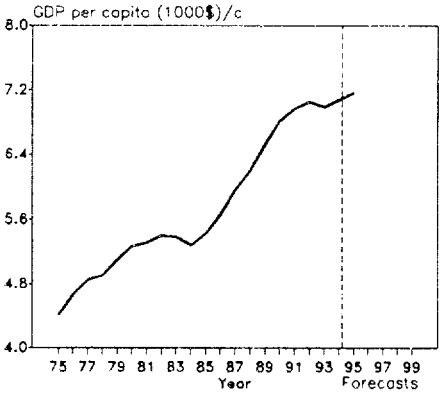



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 51 485 | 53 809 | 67 271 | 69 550 |
| Per capita [na] (1990-dollars) | 5 272 | 5 433 | 6 817 | 7 075 |
| Manufacturing share [na] (%) (current factor prices) | 32.5 | 32.5 | 32.3 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 14 935 | 14 817 | 18 765 | 17 607 |
| Industrial production index (1980=100) | 100 | 103 | 125 | 117 |
| Value added (millions of dollars) | 5 602 | 4 113 | 13 182 | *13 384* |
| Gross output (millions of dollars) | 17 932 | 15 534 | 51 224 | 54 783 |
| Employment (thousands) | 680 | 622 | 489 | *443* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 69 | 74 | 74 | *76* |
| Wages and salaries including supplements | 17 | 14 | *10* | *10* |
| Gross operating surplus and net taxes (%) | 14 | 13 | *16* | *15* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 25 887 | 24 567 | 50 379 | *60 926* |
| Value added per worker | 8 087 | 6 505 | 12 965 | *14 917* |
| Average wage (including supplements) | 4 541 | 3 490 | *10 129* | *12 082* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 8.83 | 10.12 | 13.31 | *10.33* |
| as a percentage of 1970-1975 structural change | 100 | 115 | 151 | *117* |
| MVA growth rate per structural change (%) | 4.23 | 1.82 | 1.16 | 0.58 |
| Degree of specialization | 11.2 | 10.3 | 9.4 | 9.3 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 544 | 475 | 1 305 | *1 164* |
| 313 Beverages | 135 | 133 | 344 | *362* |
| 314 Tobacco products | 64 | 93 | 592 | *716* |
| 321 Textiles | 905 | 679 | 1 654 | *1 438* |
| 322 Wearing apparel | 186 | 182 | 985 | *1 091* |
| 323 Leather and fur products | 41 | 41 | 126 | *105* |
| 324 Footwear | 86 | 86 | 452 | *454* |
| 331 Wood and wood products | 325 | 150 | 532 | *572* |
| 332 Furniture and fixtures | 106 | 30 | 233 | *305* |
| 341 Paper and paper products | 274 | 276 | 577 | *485* |
| 342 Printing and publishing | 180 | 140 | 523 | *599* |
| 351 Industrial chemicals | 147 | 215 | 432 | *315* |
| 352 Other chemical products | 224 | 190 | 481 | *630* |
| 353 Petroleum refineries | *219* | *-18* | *167* | *99* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 58 | *45* | 54 | *55* |
| 356 Plastic products | 128 | *92* | 237 | *221* |
| 361 Pottery, china and earthenware | 80 | 67 | 291 | *299* |
| 362 Glass and glass products | 87 | 53 | 173 | *177* |
| 369 Other non-metal mineral products | 295 | 200 | 724 | *818* |
| 371 Iron and steel | 207 | 98 | 273 | *239* |
| 372 Non-ferrous metals | 33 | 26 | 81 | *74* |
| 381 Metal products | 323 | 219 | 826 | *998* |
| 382 Non-electrical machinery | 170 | 143 | 528 | *631* |
| 383 Electrical machinery | 319 | 247 | 834 | *858* |
| 384 Transport equipment | 428 | 222 | 583 | *452* |
| 385 Professional and scientific equipment | 15 | 16 | 36 | *66* |
| 390 Other manufacturing industries | 20 | 11 | 141 | *159* |

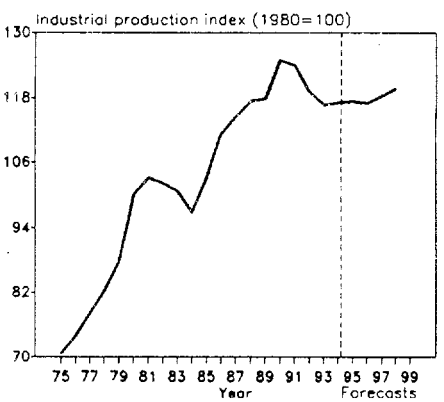
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c



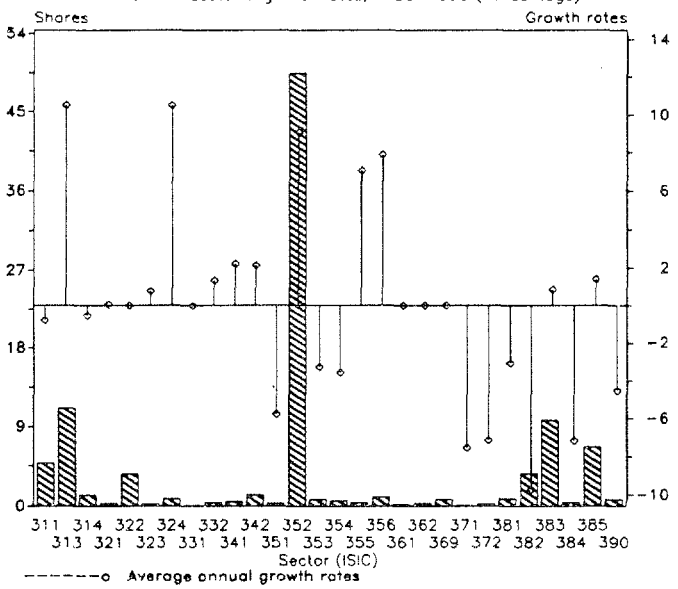

Manufacturing share in GDP, current factor pr. (%)


Industrial production index (1980=100)

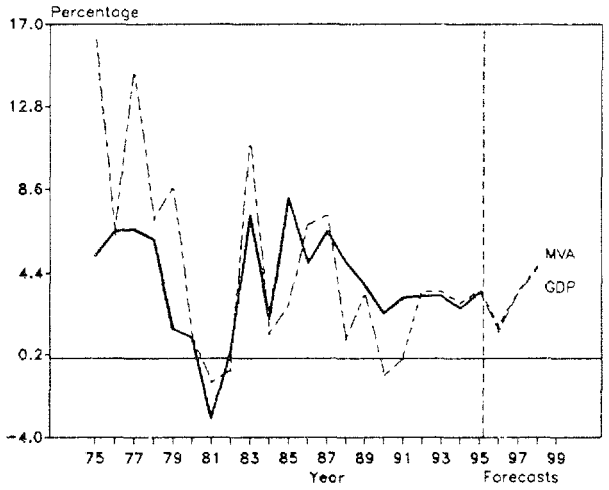


**PUERTO RICO**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

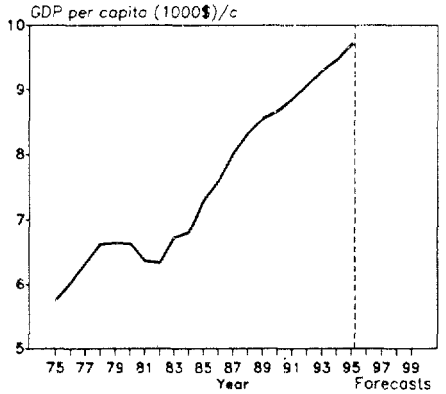



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

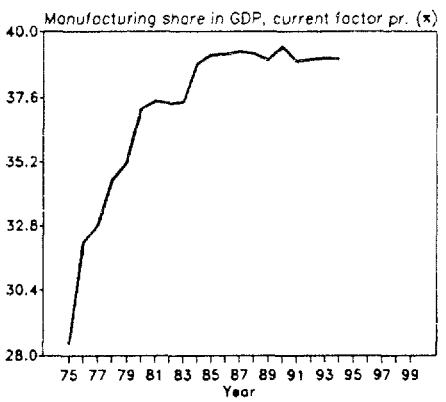
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 21 294 | 24 575 | 30 604 | 34 511 |
| Per capita [na] (1990-dollars) | 6 642 | 7 301 | 8 667 | 9 466 |
| Manufacturing share [na] (%) (current factor prices) | 37.2 | 39.2 | 39.5 | *39.0* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 9 068 | 10 255 | 12 126 | *13 335* |
| Industrial production index (1980=100) | 100 | 113 | 134 | *147* |
| Value added (millions of dollars) | *5 910* | 7 968 | 12 126 | 16 309 |
| Gross output (millions of dollars) | *24 225* | *27 379* | 29 777 | 23 657 |
| Employment (thousands) | 155 | 149 | 162 | 149 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *76* | *71* | 59 | 31 |
| Wages and salaries including supplements | *6* | *7* | *10* | *14* |
| *Gross operating surplus and net taxes (%)* | *19* | *22* | *31* | *55* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *156 636* | *184 027* | 184 210 | 158 631 |
| Value added per worker | *38 213* | 53 554 | 75 013 | 109 359 |
| Average wage (including supplements) | *8 875* | 13 637 | *18 666* | *23 088* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *8.80* | *8.56* | 8.59 | 11.84 |
| as a percentage of 1970-1975 structural change | *100* | *97* | 98 | 135 |
| MVA growth rate per structural change (%) | 1.74 | 1.85 | 2.71 | 2.47 |
| Degree of specialization | 29.3 | 32.2 | 37.0 | 44.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *401* | 485 | 673 | 694 |
| 313 Beverages | *429* | 714 | 1 117 | 1 894 |
| 314 Tobacco products | *128* | 143 | 171 | 192 |
| 321 Textiles | *31* | 34 | 42 | 47 |
| 322 Wearing apparel | *394* | 437 | 486 | 524 |
| 323 Leather and fur products | *24* | *27* | *26* | *30* |
| 324 Footwear | *48* | *61* | *88* | *143* |
| 331 Wood and wood products | *7* | *7* | *8* | *9* |
| 332 Furniture and fixtures | *34* | *37* | *51* | *58* |
| 341 Paper and paper products | *39* | 56 | 66 | 78 |
| 342 Printing and publishing | *56* | 86 | 164 | 190 |
| 351 Industrial chemicals | *56* | 58 | 39 | 35 |
| 352 Other chemical products | *1 791* | 2 849 | 5 334 | 8 436 |
| 353 Petroleum refineries | *63* | *84* | *117* | *97* |
| 354 Miscellaneous petroleum and coal products | *80* | *81* | *88* | *84* |
| 355 Rubber products | *21* | *31* | *43* | *64* |
| 356 Plastic products | *42* | *82* | *120* | *180* |
| 361 Pottery, china and earthenware | *18* | *21* | *33* | *36* |
| 362 Glass and glass products | *25* | *28* | *44* | *48* |
| 369 Other non-metal mineral products | *57* | *65* | *101* | *111* |
| 371 Iron and steel | *3* | *10* | *17* | *13* |
| 372 Non-ferrous metals | *6* | *21* | *38* | *30* |
| 381 Metal products | *82* | 93 | 116 | 112 |
| 382 Non-electrical machinery | *529* | 502 | 668 | 456 |
| 383 Electrical machinery | *1 013* | 1 246 | 1 409 | 1 598 |
| 384 Transport equipment | *23* | 29 | 68 | 50 |
| 385 Professional and scientific equipment | *420* | 582 | 889 | 1 000 |
| 390 Other manufacturing industries | *89* | 98 | 113 | 99 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

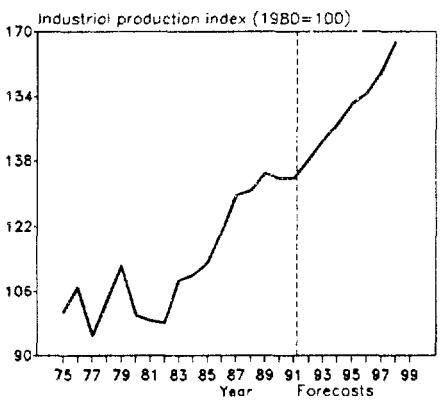
GDP per capita (1000$)/c



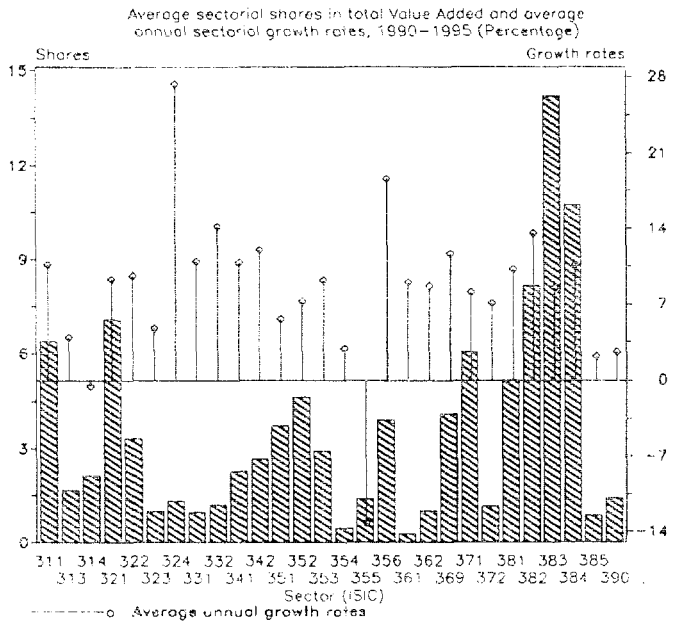

Manufacturing share in GDP, current factor pr. (%)

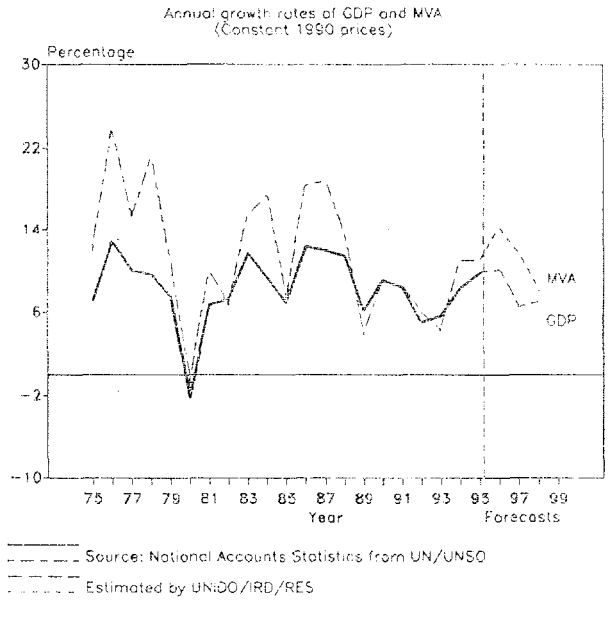



Industrial production index (1980=100)



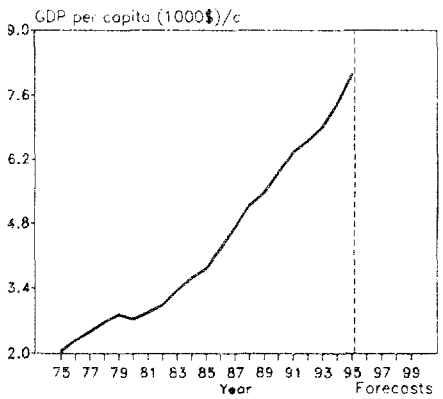
**REPUBLIC OF KOREA**



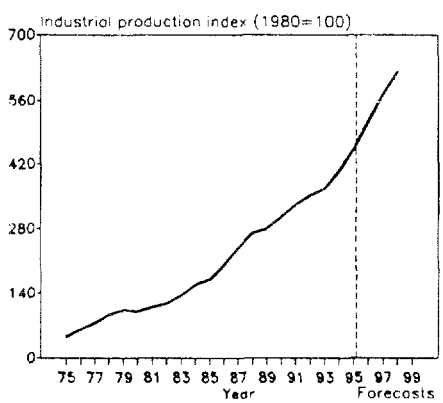




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 104 146 | 155 956 | 253 672 | 330 530 |
| Per capita [na] (1990-dollars) | 2 732 | 3 822 | 5 917 | 7 417 |
| Manufacturing share [na] (%) (current factor prices) | 28.6 | 29.7 | 29.2 | *29.4* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 23 000 | 39 109 | 70 494 | 93 654 |
| Industrial production index (1980=100) | 100 | 170 | 306 | 407 |
| Value added (millions of dollars) | 19 520 | 30 731 | 100 209 | *159 172* |
| Gross output (millions of dollars) | 59 725 | 88 541 | 250 519 | *372 467* |
| Employment (thousands) | 2 015 | 2 395 | 2 958 | *2 936* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 67 | 65 | 60 | *57* |
| Wages and salaries including supplements | 10 | 9 | 11 | *11* |
| Gross operating surplus and net taxes (%) | 23 | 25 | 29 | *31* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 29 206 | 36 314 | 82 959 | *123 460* |
| Value added per worker | 9 545 | 12 604 | 33 184 | *52 760* |
| Average wage (including supplements) | 2 837 | 3 476 | 9 353 | *14 295* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 12.58 | 11.30 | 10.04 | *9.28* |
| as a percentage of 1970-1975 structural change | 100 | 90 | 80 | *74* |
| MVA growth rate per structural change (%) | 7.34 | 5.94 | 8.41 | 7.87 |
| Degree of specialization | 9.1 | 9.5 | 10.4 | 11.2 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 1 526 | 2 048 | 6 047 | *10 276* |
| 313 Beverages | 571 | 764 | 1 889 | *2 448* |
| 314 Tobacco products | 1 143 | 1 442 | 2 794 | *2 753* |
| 321 Textiles | 2 649 | 3 295 | 6 833 | *11 152* |
| 322 Wearing apparel | 905 | 1 293 | 3 401 | *5 504* |
| 323 Leather and fur products | 138 | 270 | 1 144 | *1 471* |
| 324 Footwear | 112 | 211 | 594 | *2 001* |
| 331 Wood and wood products | 239 | 262 | 876 | *1 526* |
| 332 Furniture and fixtures | 100 | 203 | 972 | *1 923* |
| 341 Paper and paper products | 426 | 682 | 2 123 | *3 617* |
| 342 Printing and publishing | 440 | 732 | 2 531 | *4 542* |
| 351 Industrial chemicals | 998 | 1 275 | 4 181 | *5 990* |
| 352 Other chemical products | 1 016 | 1 422 | 4 926 | *7 539* |
| 353 Petroleum refineries | 757 | 1 079 | 2 865 | *4 557* |
| 354 Miscellaneous petroleum and coal products | 211 | 291 | 517 | *677* |
| 355 Rubber products | 657 | 910 | 3 063 | *1 747* |
| 356 Plastic products | 359 | 709 | 2 734 | *6 784* |
| 361 Pottery, china and earthenware | 89 | 107 | 275 | *433* |
| 362 Glass and glass products | 198 | 307 | 991 | *1 534* |
| 369 Other non-metal mineral products | 838 | 1 065 | 3 697 | *6 517* |
| 371 Iron and steel | 1 256 | 2 040 | 6 187 | *9 305* |
| 372 Non-ferrous metals | 265 | 335 | 1 201 | *1 722* |
| 381 Metal products | 635 | 1 237 | 5 145 | *8 456* |
| 382 Non-electrical machinery | 672 | 1 453 | 7 004 | *13 311* |
| 383 Electrical machinery | 1 587 | 3 621 | 15 066 | *22 937* |
| 384 Transport equipment | 1 152 | 2 790 | 10 242 | *17 089* |
| 385 Professional and scientific equipment | 214 | 290 | 1 144 | *1 297* |
| 390 Other manufacturing industries | 367 | 598 | 1 769 | *2 067* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

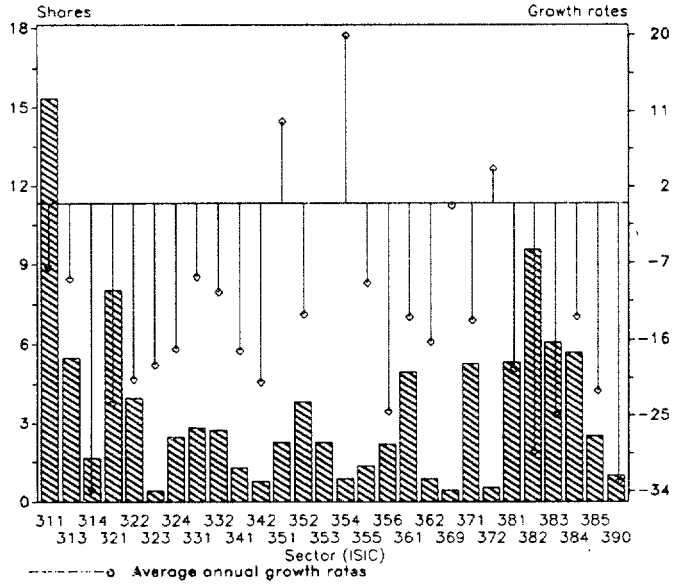




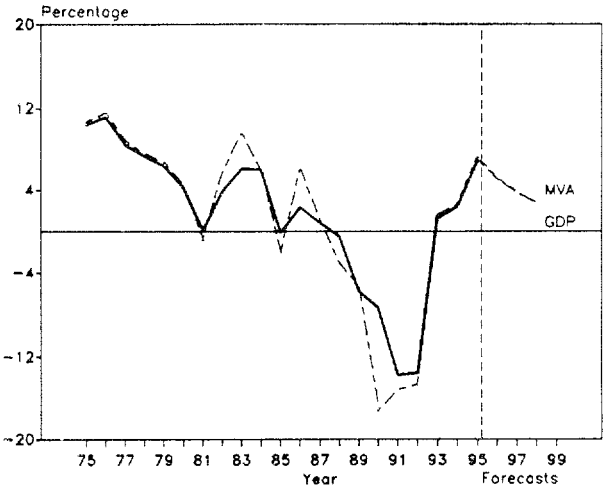


**ROMANIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

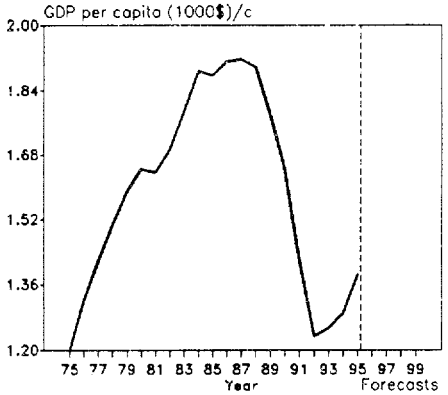



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

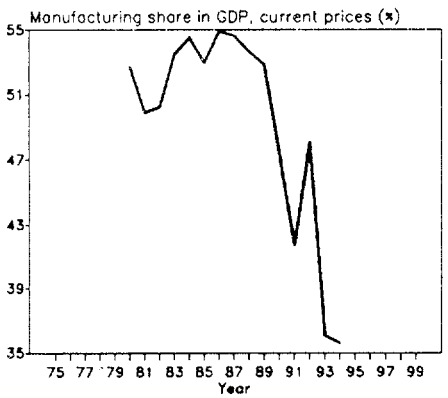
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 36 527 | 42 674 | 38 244 | 29 580 |
| Per capita [na] (1990-dollars) | 1 645 | 1 878 | 1 648 | 1 290 |
| Manufacturing share [na] (%) (current factor prices) | 52.7 | 53.0 | 47.4 | *35.6* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 18 912 | 22 369 | 18 135 | *13 662* |
| Industrial production index (1980=100) | 100 | *120* | *115* | *71* |
| Value added (millions of dollars) | *8 910* | *16 862* | 14 047 | *7 385* |
| Gross output (millions of dollars) | *45 225* | 59 157 | 47 936 | *21 380* |
| Employment (thousands) | 2 877 | 3 051 | 3 451 | 2 426 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *80* | *71* | 71 | *65* |
| Wages and salaries including supplements | *8* | *9* | *12* | *11* |
| Gross operating surplus and net taxes (%) | *11* | *19* | *17* | *24* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *15 719* | 19 389 | 13 219 | *8 434* |
| Value added per worker | *3 097* | *5 527* | 3 874 | *2 914* |
| Average wage (including supplements) | *1 316* | *1 796* | *1 725* | *958* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *11.39* | *9.89* | *15.84* | *22.96* |
| as a percentage of 1970-1975 structural change | *100* | *87* | *139* | *202* |
| MVA growth rate per structural change (%) | 5.90 | 3.80 | 1.27 | -1.55 |
| Degree of specialization | 10.1 | 10.5 | 12.0 | 11.3 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *1 043* | *1 729* | 1 649 | *1 415* |
| 313 Beverages | *418* | *760* | 642 | *499* |
| 314 Tobacco products | *15* | *27* | 410 | *70* |
| 321 Textiles | *527* | *1 339* | 1 449 | *472* |
| 322 Wearing apparel | *323* | *802* | 691 | *269* |
| 323 Leather and fur products | *149* | *271* | 67 | *29* |
| 324 Footwear | *186* | *346* | 366 | *179* |
| 331 Wood and wood products | *311* | *601* | 312 | *251* |
| 332 Furniture and fixtures | *278* | *455* | 321 | *231* |
| 341 Paper and paper products | *115* | *222* | 169 | *81* |
| 342 Printing and publishing | *14* | *41* | 143 | *55* |
| 351 Industrial chemicals | *383* | *538* | 111 | *224* |
| 352 Other chemical products | *261* | *480* | 441 | *273* |
| 353 Petroleum refineries | *354* | *515* | - 134 | *286* |
| 354 Miscellaneous petroleum and coal products | *44* | *62* | 36 | *123* |
| 355 Rubber products | *188* | *282* | 129 | *121* |
| 356 Plastic products | *50* | *144* | 397 | *120* |
| 361 Pottery, china and earthenware | *55* | *99* | 571 | *370* |
| 362 Glass and glass products | *76* | *155* | 120 | *61* |
| 369 Other non-metal mineral products | *32* | *52* | 40 | *50* |
| 371 Iron and steel | *597* | *978* | 651 | *387* |
| 372 Non-ferrous metals | *278* | *358* | 22 | *33* |
| 381 Metal products | *294* | *766* | 869 | *366* |
| 382 Non-electrical machinery | *657* | *1 793* | *2 004* | *443* |
| 383 Electrical machinery | *641* | *932* | 1 208 | *358* |
| 384 Transport equipment | *737* | *1 371* | 704 | *427* |
| 385 Professional and scientific equipment | *164* | *404* | *430* | *153* |
| 390 Other manufacturing industries | *721* | *1 340* | 227 | *39* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

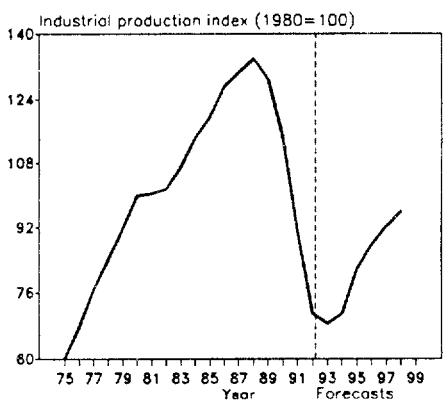
GDP per capita (1000$)/c



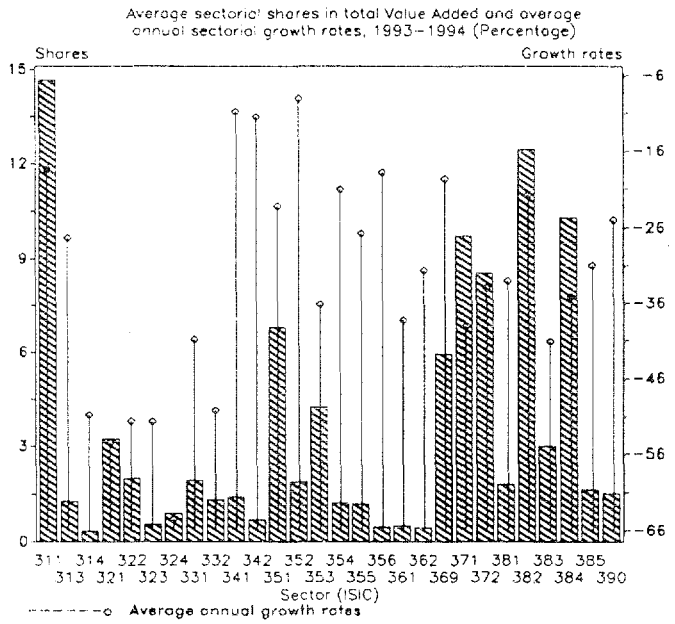

Manufacturing share in GDP, current prices (%)

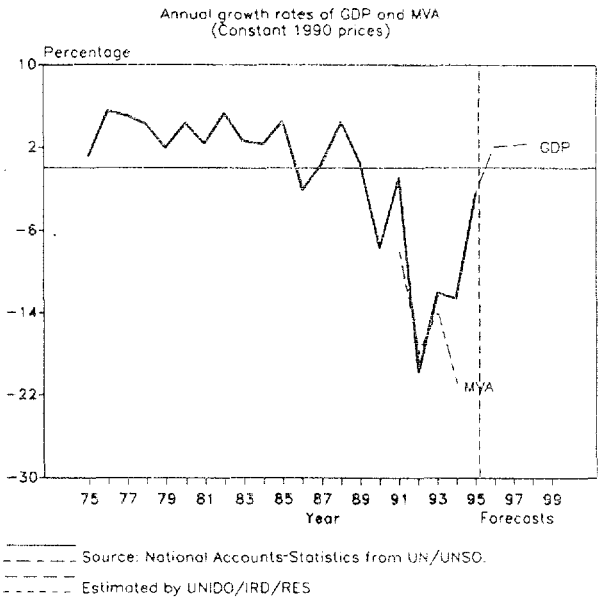



Industrial production index (1980=100)



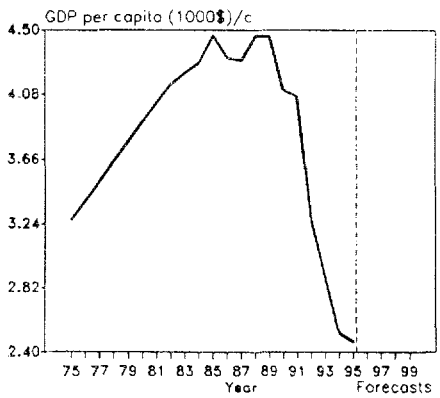
**RUSSIAN FEDERATION**

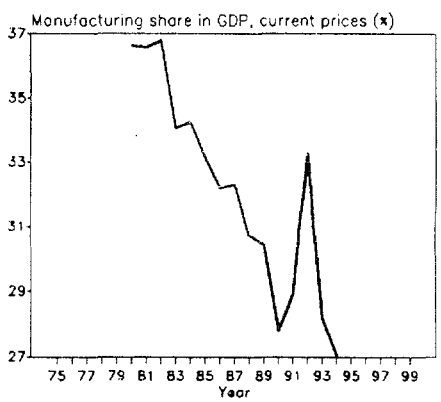


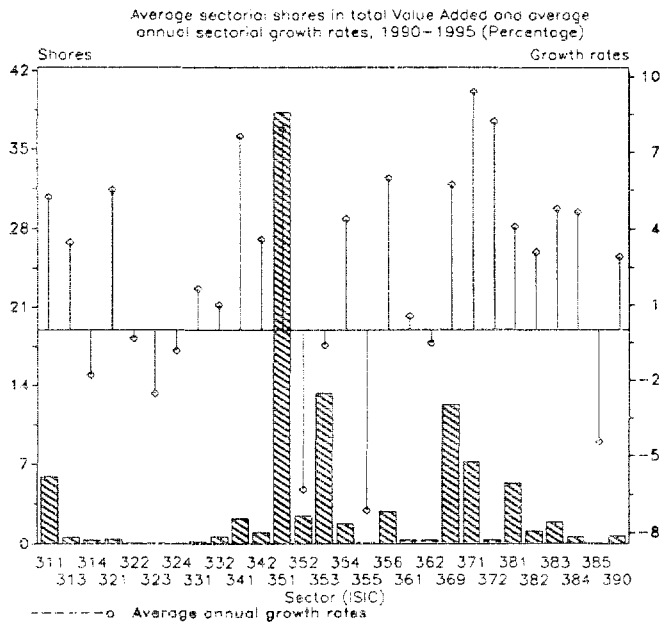

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 540 061 | 638 631 | 608 121 | 371 895 |
| Per capita [na] (1990-dollars) | 3 900 | 4 465 | 4 111 | 2 524 |
| Manufacturing share [na] (%) (current factor prices) | 36.6 | 33.2 | *27.8* | *27.1* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | .. | .. | *169 135* | *86 698* |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | .. | .. | .. | 54 150 |
| Gross output (millions of dollars) | .. | .. | *537 070* | 116 955 |
| Employment (thousands) | .. | .. | .. | 12 533 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | .. | .. | .. | 54 |
| Wages and salaries including supplements | .. | .. | .. | 13 |
| Gross operating surplus and net taxes (%) | .. | .. | .. | 34 |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | .. | .. | .. | 9 332 |
| Value added per worker | .. | .. | .. | 4 321 |
| Average wage (including supplements) | .. | .. | .. | 1 185 |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | .. | .. | .. | .. |
| as a percentage of 1970-1975 structural change | .. | .. | .. | .. |
| MVA growth rate per structural change (%) | .. | .. | .. | .. |
| Degree of specialization | .. | .. | .. | .. |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | .. | .. | .. | 8 697 |
| 313 Beverages | .. | .. | .. | 715 |
| 314 Tobacco products | .. | .. | .. | 150 |
| 321 Textiles | .. | .. | .. | 1 342 |
| 322 Wearing apparel | .. | .. | .. | 853 |
| 323 Leather and fur products | .. | .. | .. | 235 |
| 324 Footwear | .. | .. | .. | 307 |
| 331 Wood and wood products | .. | .. | .. | 949 |
| 332 Furniture and fixtures | .. | .. | .. | 583 |
| 341 Paper and paper products | .. | .. | .. | 889 |
| 342 Printing and publishing | .. | .. | .. | 428 |
| 351 Industrial chemicals | .. | .. | .. | 3 902 |
| 352 Other chemical products | .. | .. | .. | 1 189 |
| 353 Petroleum refineries | .. | .. | .. | 2 186 |
| 354 Miscellaneous petroleum and coal products | .. | .. | .. | 713 |
| 355 Rubber products | .. | .. | .. | 669 |
| 356 Plastic products | .. | .. | .. | 279 |
| 361 Pottery, china and earthenware | .. | .. | .. | 255 |
| 362 Glass and glass products | .. | .. | .. | 243 |
| 369 Other non-metal mineral products | .. | .. | .. | 3 489 |
| 371 Iron and steel | .. | .. | .. | 4 861 |
| 372 Non-ferrous metals | .. | .. | .. | 4 486 |
| 381 Metal products | .. | .. | .. | 951 |
| 382 Non-electrical machinery | .. | .. | .. | 7 218 |
| 383 Electrical machinery | .. | .. | .. | 1 470 |
| 384 Transport equipment | .. | .. | .. | 5 355 |
| 385 Professional and scientific equipment | .. | .. | .. | 881 |
| 390 Other manufacturing industries | .. | .. | .. | 856 |

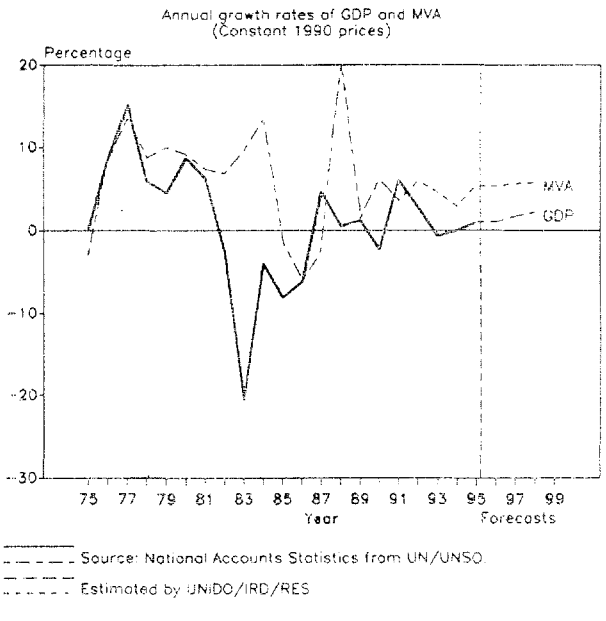
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.



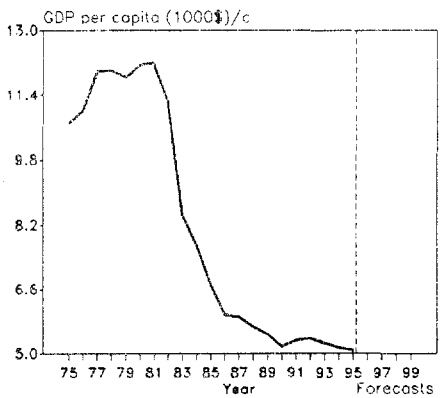
**SAUDI ARABIA**



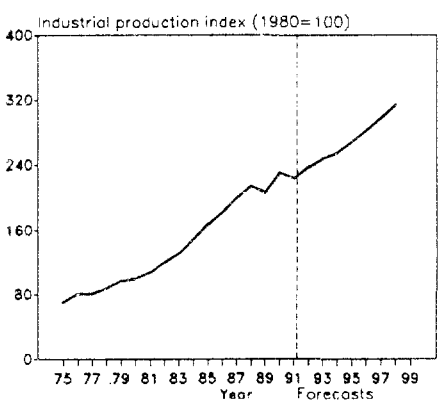




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 116 723 | 84 895 | 82 997 | 89 857 |
| Per capita [na] (1990-dollars) | 12 154 | 6 712 | 5 172 | 5 149 |
| Manufacturing share [na] (%) (current factor prices) | 5.0 | 7.8 | 8.2 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 4 085 | 5 715 | 6 736 | *7 929* |
| Industrial production index (1980=100) | 100 | 168 | 230 | *254* |
| Value added (millions of dollars) | *5 283* | *4 518* | *5 261* | *6 780* |
| Gross output (millions of dollars) | *9 586* | *13 213* | *17 468* | *25 813* |
| Employment (thousands) | *80* | *132* | *122* | *183* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | .. | .. | .. | .. |
| Wages and salaries including supplements | .. | .. | .. | .. |
| Gross operating surplus and net taxes (%) | .. | .. | .. | .. |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *119 681* | *96 701* | *143 509* | *139 927* |
| Value added per worker | *75 727* | *33 164* | *43 793* | *37 029* |
| Average wage (including supplements) | .. | .. | .. | .. |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *14.10* | *17.90* | *22.91* | *16.64* |
| as a percentage of 1970-1975 structural change | *100* | *127* | *163* | *118* |
| MVA growth rate per structural change (%) | 4.10 | 1.62 | 0.33 | 1.04 |
| Degree of specialization | 46.5 | 36.3 | 33.2 | 35.2 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *267* | *290* | *300* | *398* |
| 313 Beverages | *54* | *38* | *30* | *37* |
| 314 Tobacco products | *40* | *28* | *23* | *22* |
| 321 Textiles | *23* | *22* | *20* | *28* |
| 322 Wearing apparel | *7* | *5* | *5* | *5* |
| 323 Leather and fur products | *6* | *5* | *5* | *4* |
| 324 Footwear | *2* | *1* | *1* | *1* |
| 331 Wood and wood products | *11* | *9* | *9* | *11* |
| 332 Furniture and fixtures | *45* | *35* | *35* | *39* |
| 341 Paper and paper products | *68* | *79* | *110* | *157* |
| 342 Printing and publishing | *48* | *52* | *56* | *69* |
| 351 Industrial chemicals | 447 | *904* | 1 868 | *2 663* |
| 352 Other chemical products | *159* | *101* | *158* | *131* |
| 353 Petroleum refineries | 2 964 | *1 649* | 844 | *818* |
| 354 Miscellaneous petroleum and coal products | 156 | *112* | *96* | *124* |
| 355 Rubber products | *9* | *5* | *7* | *6* |
| 356 Plastic products | *170* | *162* | *148* | *206* |
| 361 Pottery, china and earthenware | *17* | *17* | *20* | *21* |
| 362 Glass and glass products | *18* | *18* | *21* | *21* |
| 369 Other non-metal mineral products | 505 | *578* | 619 | *833* |
| 371 Iron and steel | *17* | *64* | *342* | *516* |
| 372 Non-ferrous metals | *1* | *5* | *17* | *24* |
| 381 Metal products | *128* | *181* | *289* | *358* |
| 382 Non-electrical machinery | *30* | *40* | *63* | *71* |
| 383 Electrical machinery | *47* | *68* | *105* | *132* |
| 384 Transport equipment | *14* | *20* | *31* | *39* |
| 385 Professional and scientific equipment | *1* | *2* | *2* | *2* |
| 390 Other manufacturing industries | 29 | *29* | *38* | *44* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

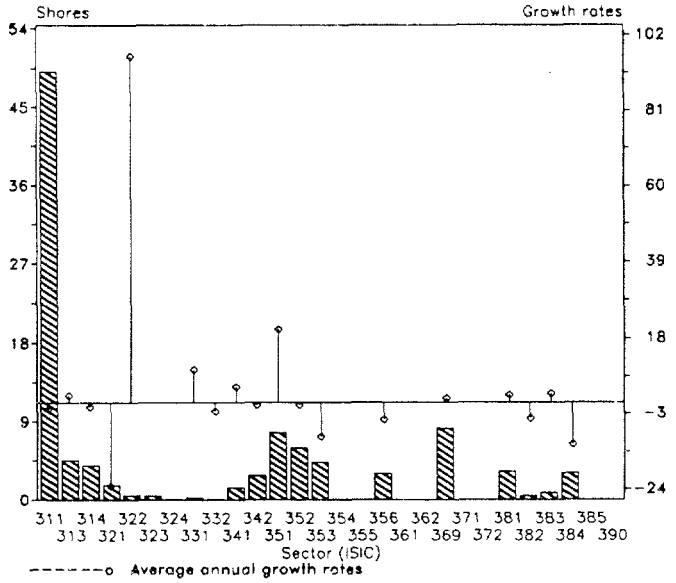




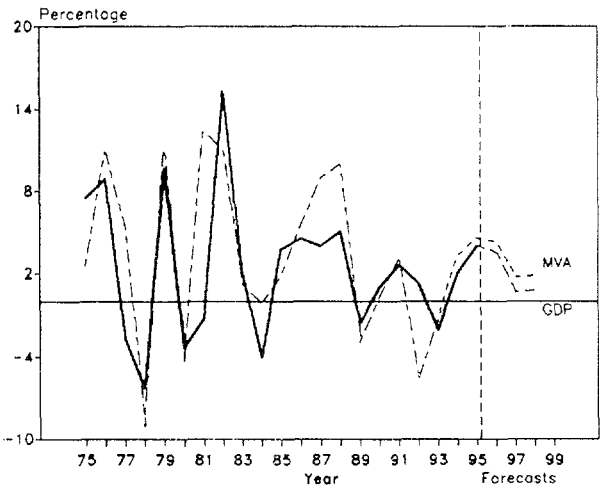


**SENEGAL**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

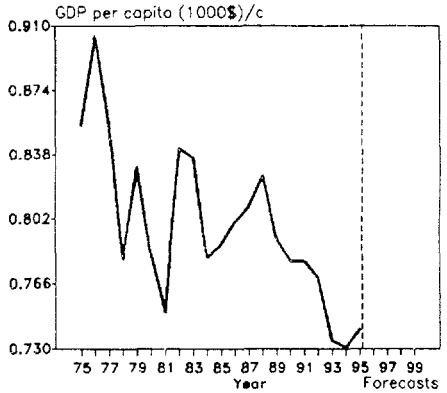



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

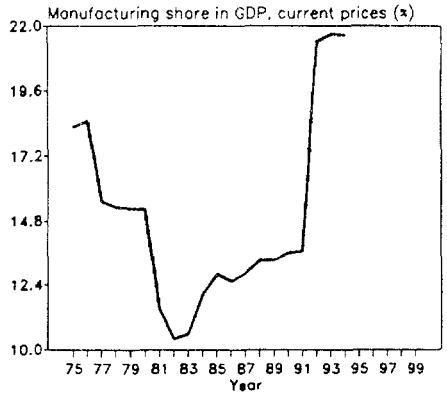
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 4 326 | 5 019 | 5 703 | 5 922 |
| Per capita [na] (1990-dollars) | 781 | 787 | 778 | 731 |
| Manufacturing share [na] (%) (current factor prices) | 15.3 | 12.8 | 13.6 | *21.7* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 493 | 631 | 775 | *766* |
| Industrial production index (1980=100) | 100 | 101 | 118 | 121 |
| Value added (millions of dollars) | 266 | 268 | 421 | *234* |
| Gross output (millions of dollars) | 1 070 | 926 | 1 583 | *976* |
| Employment (thousands) | 32 | 30 | 32 | *23* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 75 | 71 | 73 | *74* |
| Wages and salaries including supplements | *10* | *11* | 10 | *9* |
| Gross operating surplus and net taxes (%) | *14* | *18* | 16 | *16* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 33 812 | 18 250 | 48 738 | *42 416* |
| Value added per worker | 8 400 | 3 695 | 12 956 | *10 869* |
| Average wage (including supplements) | *3 508* | *3 240* | 5 056 | *4 053* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 12.32 | *13.24* | *19.67* | *20.46* |
| as a percentage of 1970-1975 structural change | 100 | *107* | *160* | *166* |
| MVA growth rate per structural change (%) | 0.52 | 0.26 | 0.63 | 0.13 |
| Degree of specialization | 26.8 | 24.5 | 36.5 | 35.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 113 | *100* | 221 | *124* |
| 313 Beverages | 12 | *9* | 17 | *11* |
| 314 Tobacco products | 7 | *7* | 16 | *10* |
| 321 Textiles | 33 | *23* | 13 | *2* |
| 322 Wearing apparel | 10 | *7* | - | *3* |
| 323 Leather and fur products | 5 | *4* | - | *3* |
| 324 Footwear | 2 | *1* | - | *1* |
| 331 Wood and wood products | 2 | *7* | 1 | *1* |
| 332 Furniture and fixtures | 2 | - | - | - |
| 341 Paper and paper products | 4 | *2* | 5 | *4* |
| 342 Printing and publishing | 6 | *7* | 10 | *6* |
| 351 Industrial chemicals | 16 | *12* | 13 | *21* |
| 352 Other chemical products | 5 | *15* | 24 | *13* |
| 353 Petroleum refineries | 18 | *11* | 27 | *10* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | - | - |
| 356 Plastic products | - | *4* | 11 | *6* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | 12 | *21* | 31 | *20* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 10 | *21* | 11 | *8* |
| 382 Non-electrical machinery | 3 | *7* | 2 | *1* |
| 383 Electrical machinery | 1 | *1* | 3 | *2* |
| 384 Transport equipment | 5 | *7* | 17 | *6* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | - | - | - | - |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

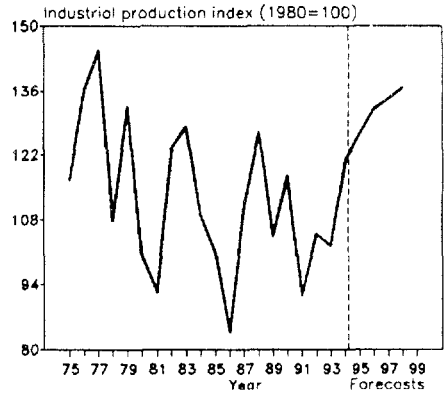
GDP per capita (1000$)/c



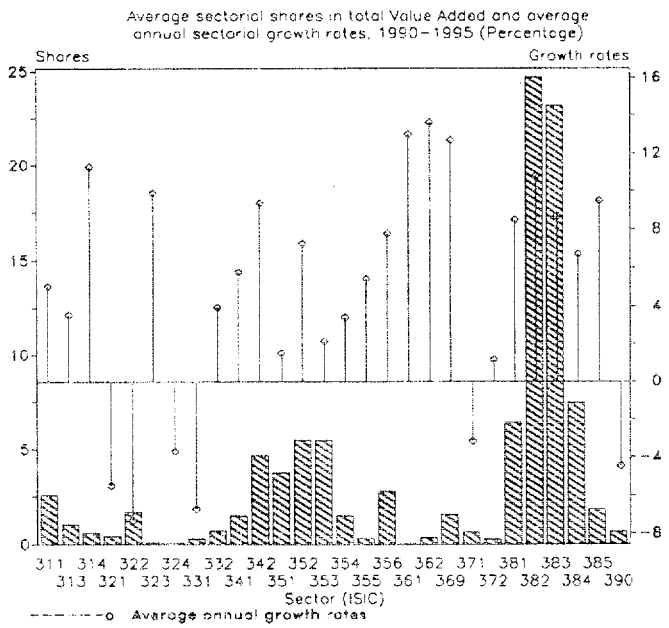

Manufacturing share in GDP, current prices (%)

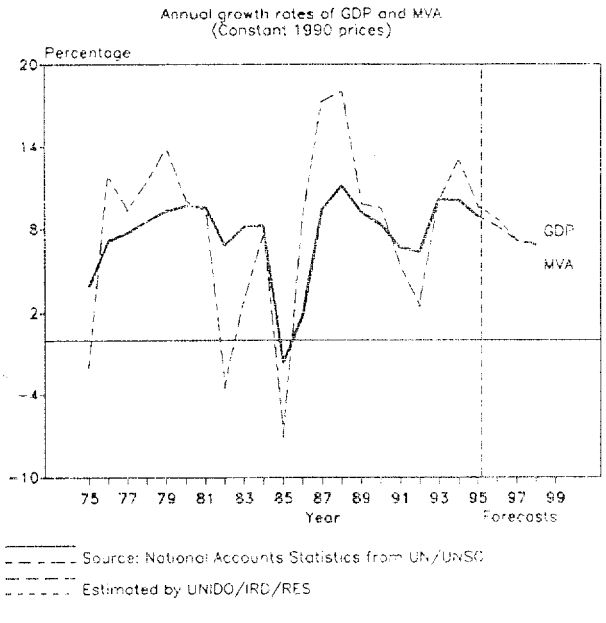



Industrial production index (1980=100)



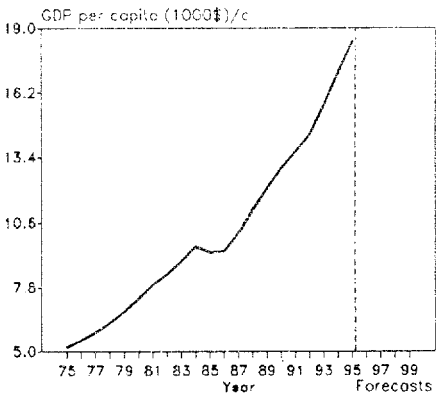
**SINGAPORE**

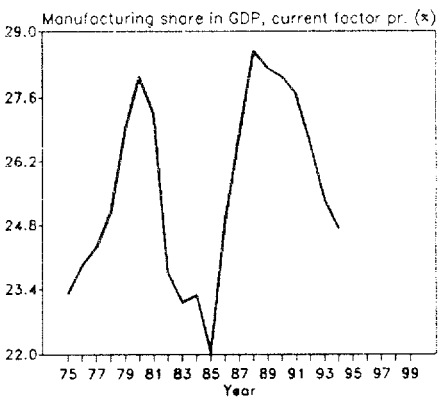


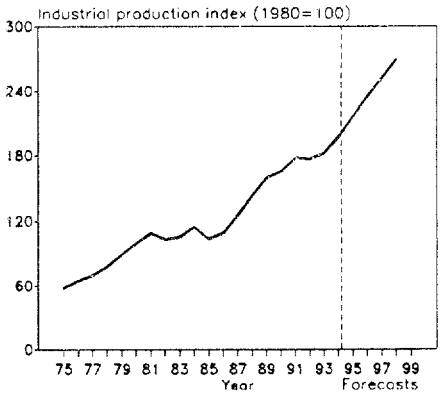




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 17 677 | 23 864 | 34 991 | 48 175 |
| Per capita [na] (1990-dollars) | 7 320 | 9 329 | 12 936 | 17 077 |
| Manufacturing share [na] (%) (current factor prices) | 28.0 | 22.0 | 28.0 | *24.6* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 5 309 | 5 736 | 10 343 | 13 842 |
| Industrial production index (1980=100) | 100 | 104 | 165 | 197 |
| Value added (millions of dollars) | 4 004 | 4 861 | 11 918 | 20 593 |
| Gross output (millions of dollars) | 15 278 | 17 575 | 39 345 | 65 878 |
| Employment (thousands) | 287 | 254 | 352 | 366 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 75 | 73 | 70 | 69 |
| Wages and salaries including supplements | 8 | 10 | 10 | 10 |
| Gross operating surplus (%) | 17 | 17 | 20 | 21 |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 53 564 | 69 711 | 112 432 | 181 199 |
| Value added per worker | 13 942 | 19 137 | 33 888 | 56 329 |
| Average wage (including supplements) | 4 168 | 7 290 | 10 839 | 17 794 |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 14.71 | 14.21 | 17.52 | 12.59 |
| as a percentage of 1970-1975 structural change | 100 | 97 | 119 | 86 |
| MVA growth rate per structural change (%) | 6.90 | 4.01 | 2.55 | 4.12 |
| Degree of specialization | 19.9 | 23.2 | 24.7 | 28.2 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 121 | 180 | 322 | 512 |
| 313 Beverages | 52 | 76 | 139 | 200 |
| 314 Tobacco products | 25 | 35 | 64 | 138 |
| 321 Textiles | 70 | 28 | 72 | 72 |
| 322 Wearing apparel | 127 | 157 | 294 | 241 |
| 323 Leather and fur products | 7 | 5 | 11 | 22 |
| 324 Footwear | 9 | 5 | 9 | 10 |
| 331 Wood and wood products | 84 | 43 | 55 | 52 |
| 332 Furniture and fixtures | 40 | 61 | 89 | 134 |
| 341 Paper and paper products | 45 | 82 | 189 | 303 |
| 342 Printing and publishing | 128 | 229 | 514 | 974 |
| 351 Industrial chemicals | 52 | 138 | 584 | 754 |
| 352 Other chemical products | 143 | 267 | 600 | 1 028 |
| 353 Petroleum refineries | *513* | *315* | *725* | *987* |
| 354 Miscellaneous petroleum and coal products | *173* | *82* | *192* | *274* |
| 355 Rubber products | 44 | 21 | 35 | 61 |
| 356 Plastic products | 84 | 102 | 327 | 574 |
| 361 Pottery, china and earthenware | *1* | - | *2* | *6* |
| 362 Glass and glass products | *10* | *5* | *31* | *74* |
| 369 Other non-metal mineral products | 82 | 140 | 149 | 332 |
| 371 Iron and steel | 62 | 48 | 97 | 99 |
| 372 Non-ferrous metals | 9 | 17 | 41 | 52 |
| 381 Metal products | 206 | 298 | 730 | 1 331 |
| 382 Non-electrical machinery | 319 | 370 | 2 737 | 5 417 |
| 383 Electrical machinery | 950 | 1 538 | 2 707 | 4 962 |
| 384 Transport equipment | 500 | 470 | 890 | 1 492 |
| 385 Professional and scientific equipment | 80 | 89 | 200 | 381 |
| 390 Other manufacturing industries | 69 | 58 | 114 | 111 |

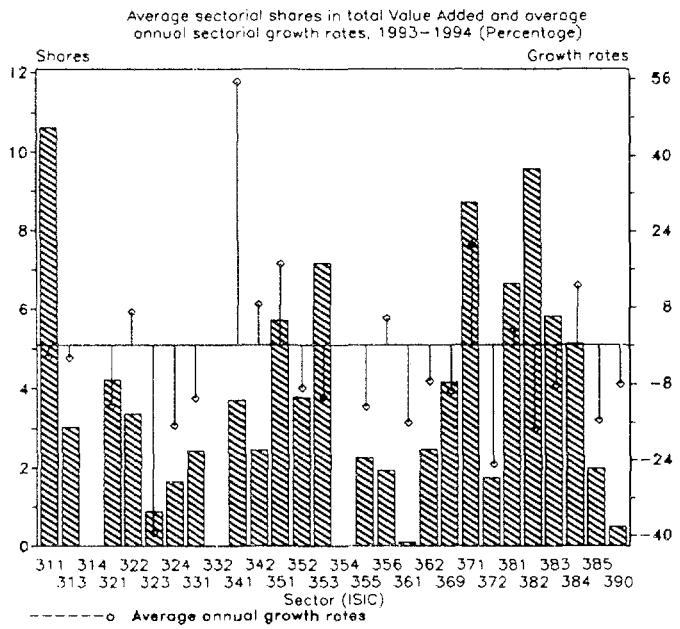
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

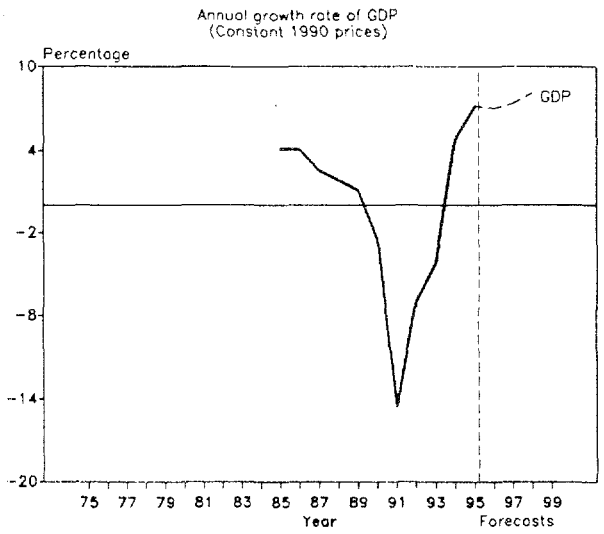


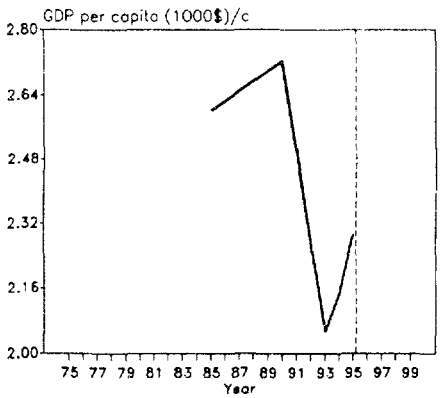



## SLOVAKIA



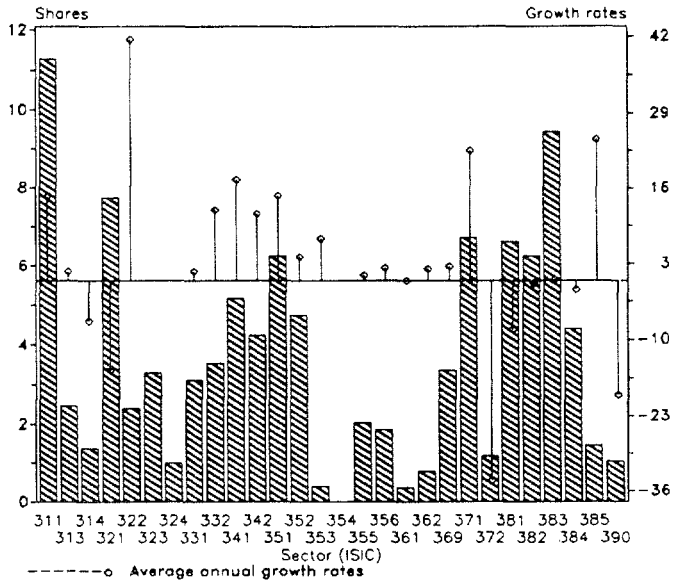




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | .. | 13 370 | 14 323 | 11 441 |
| Per capita [na] (1990-dollars) | .. | 2 601 | 2 725 | 2 145 |
| Manufacturing share [na] (%) (current factor prices) | .. | .. | .. | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | .. | .. | .. | .. |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | .. | .. | .. | 2 690 |
| Gross output (millions of dollars) | .. | *10 608* | *12 472* | 9 139 |
| Employment (thousands) | .. | *588* | *617* | 445 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | .. | .. | .. | 71 |
| Wages and salaries including supplements | .. | .. | .. | 11 |
| Gross operating surplus and net taxes (%) | .. | .. | .. | 18 |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | .. | *18 043* | *20 219* | 20 541 |
| Value added per worker | .. | .. | .. | 6 047 |
| Average wage (including supplements) | .. | *1 534* | *1 677* | 2 327 |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | .. | .. | .. | .. |
| as a percentage of 1970-1975 structural change | .. | .. | .. | .. |
| MVA growth rate per structural change (%) | .. | .. | .. | .. |
| Degree of specialization | .. | .. | .. | .. |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | .. | .. | .. | 285 |
| 313 Beverages | .. | .. | .. | 81 |
| 314 Tobacco products | .. | .. | .. | .. |
| 321 Textiles | .. | .. | .. | 107 |
| 322 Wearing apparel | .. | .. | .. | 94 |
| 323 Leather and fur products | .. | .. | .. | 18 |
| 324 Footwear | .. | .. | .. | 41 |
| 331 Wood and wood products | .. | .. | .. | 62 |
| 332 Furniture and fixtures | .. | .. | .. | .. |
| 341 Paper and paper products | .. | .. | .. | 123 |
| 342 Printing and publishing | .. | .. | .. | 69 |
| 351 Industrial chemicals | .. | .. | .. | 167 |
| 352 Other chemical products | .. | .. | .. | 98 |
| 353 Petroleum refineries | .. | .. | .. | 183 |
| 354 Miscellaneous petroleum and coal products | .. | .. | .. | .. |
| 355 Rubber products | .. | .. | .. | 57 |
| 356 Plastic products | .. | .. | .. | 54 |
| 361 Pottery, china and earthenware | .. | .. | .. | 2 |
| 362 Glass and glass products | .. | .. | .. | 64 |
| 369 Other non-metal mineral products | .. | .. | .. | 107 |
| 371 Iron and steel | .. | .. | .. | 259 |
| 372 Non-ferrous metals | .. | .. | .. | 40 |
| 381 Metal products | .. | .. | .. | 183 |
| 382 Non-electrical machinery | .. | .. | .. | 235 |
| 383 Electrical machinery | .. | .. | .. | 151 |
| 384 Transport equipment | .. | .. | .. | 147 |
| 385 Professional and scientific equipment | .. | .. | .. | 49 |
| 390 Other manufacturing industries | .. | .. | .. | 13 |

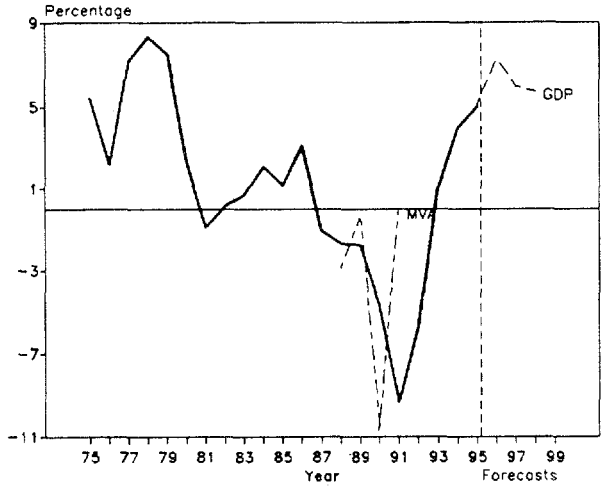
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

**SLOVENIA**

*Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)*




*Annual growth rates of GDP and MVA (Constant 1990 prices)*

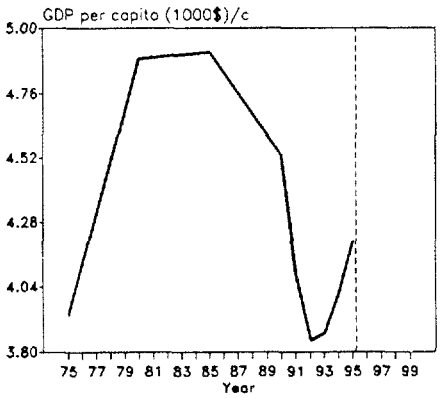



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

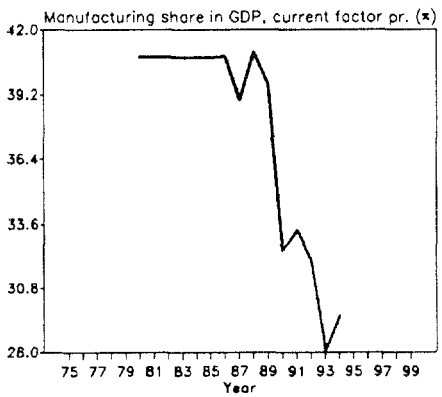
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 8 957 | 9 240 | 8 679 | 7 796 |
| Per capita [na] (1990-dollars) | 4 889 | 4 913 | 4 525 | 4 014 |
| Manufacturing share [na] (%) (current factor prices) | 40.8 | 40.8 | 32.5 | *29.6* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | .. | .. | 2 582 | .. |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | *3 390* | *2 219* | 2 509 | 4 837 |
| Gross output (millions of dollars) | *17 050* | *9 380* | 7 900 | 13 913 |
| Employment (thousands) | *506* | *399* | 356 | 265 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *80* | *76* | 66 | 65 |
| Wages and salaries including supplements | *18* | *18* | *22* | *15* |
| Gross operating surplus and net taxes (%) | *2* | *6* | *12* | *20* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *31 827* | *21 926* | 21 226 | 48 679 |
| Value added per worker | *6 649* | *5 386* | 7 239 | 16 924 |
| Average wage (including supplements) | *6 049* | *4 102* | *4 788* | *7 919* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *8.97* | *10.84* | *13.18* | *20.48* |
| as a percentage of 1970-1975 structural change | *100* | *121* | *147* | *228* |
| MVA growth rate per structural change (%) | -0.93 | 0.11 | -0.44 | 0.18 |
| Degree of specialization | 18.7 | 14.4 | 9.6 | 10.3 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *45* | *82* | *214* | 608 |
| 313 Beverages | *53* | *39* | *64* | 102 |
| 314 Tobacco products | *1* | *3* | *26* | 25 |
| 321 Textiles | *668* | *379* | *291* | 176 |
| 322 Wearing apparel | *2* | *4* | *24* | 194 |
| 323 Leather and fur products | .. | .. | 153 [d] | 121 |
| 324 Footwear | .. | .. | [d] | 65 |
| 331 Wood and wood products | *87* | *93* | 97 | 147 |
| 332 Furniture and fixtures | *112* | *79* | *78* | 246 |
| 341 Paper and paper products | *52* | *68* | *86* | 299 |
| 342 Printing and publishing | *31* | *45* | *80* | 190 |
| 351 Industrial chemicals | *103* | *80* | *117* | 389 |
| 352 Other chemical products | *95* | *72* | *126* | 216 |
| 353 Petroleum refineries | *9* | *5* | 5 [g] | 10 [g] |
| 354 Miscellaneous petroleum and coal products | .. | .. | [g] | [g] |
| 355 Rubber products | *71* | *46* | *55* | 79 |
| 356 Plastic products | *85* | *50* | *50* | 80 |
| 361 Pottery, china and earthenware | *7* | *6* | *11* | *15* |
| 362 Glass and glass products | *29* | *18* | *22* | *34* |
| 369 Other non-metal mineral products | *126* | *79* | *92* | *147* |
| 371 Iron and steel | *204* | *119* | *98* | 469 |
| 372 Non-ferrous metals | *135* | *44* | *66* | 14 |
| 381 Metal products | *247* | *209* | *253* | 230 |
| 382 Non-electrical machinery | *542* | *263* | *175* | 290 |
| 383 Electrical machinery | *460* | *272* | 273 | 397 |
| 384 Transport equipment | *134* | *103* | 144 | 187 |
| 385 Professional and scientific equipment | *3* | *7* | *20* | 85 |
| 390 *Other manufacturing industries* | *90* | *54* | *43* | *20* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

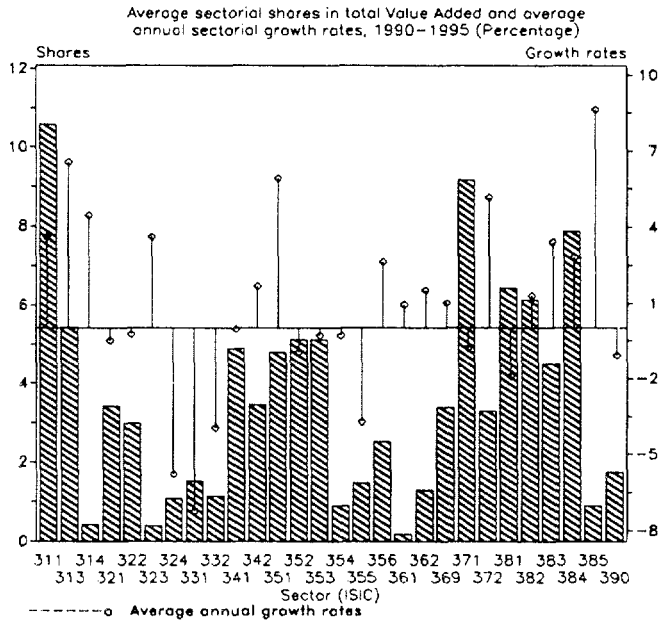
GDP per capita (1000$)/c

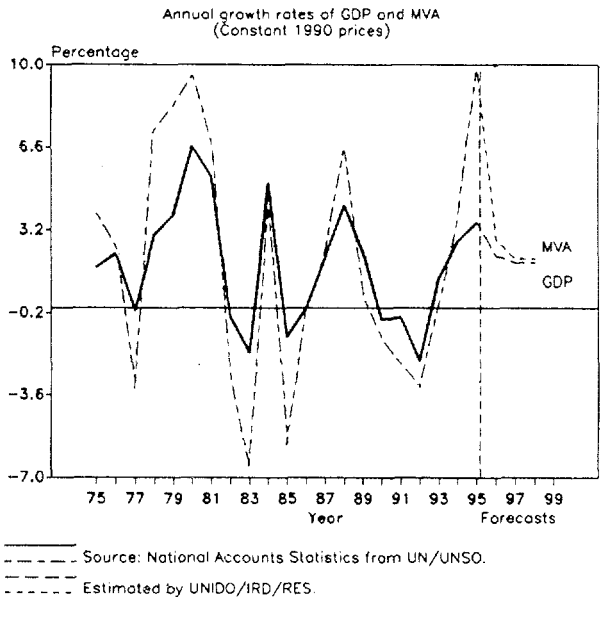



Manufacturing share in GDP, current factor pr. (%)



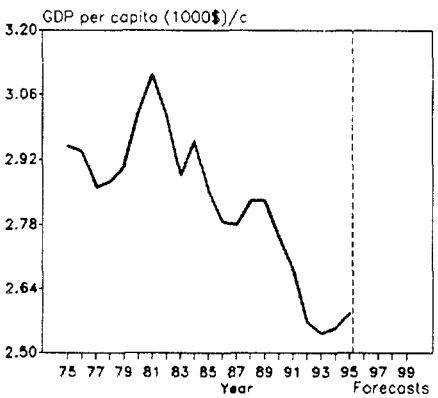
## SOUTH AFRICA

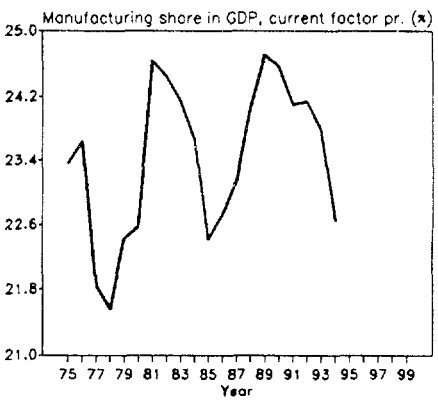


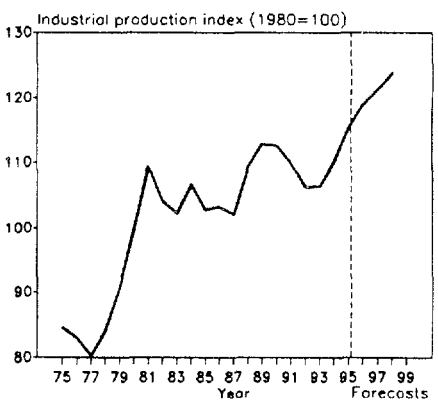




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 88 156 | 94 292 | 102 167 | 103 592 |
| Per capita [na] (1990-dollars) | 3 022 | 2 854 | 2 756 | 2 554 |
| Manufacturing share [na] (%) (current factor prices) | 22.6 | 22.4 | 24.6 | *22.8* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 22 709 | 21 534 | 23 181 | 22 657 |
| Industrial production index (1980=100) | 100 | 103 | 113 | 110 |
| Value added (millions of dollars) | 17 866 | 12 409 | 23 181 | *25 669* |
| Gross output (millions of dollars) | *53 686* | 36 059 | 68 770 | *69 343* |
| Employment (thousands) | 1 392 | 1 422 | 1 525 | *1 431* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *67* | 66 | 66 | *63* |
| Wages and salaries including supplements | *16* | 18 | *17* | *19* |
| Gross operating surplus (%) | *17* | 17 | *17* | *18* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *38 568* | 24 982 | 45 095 | *48 462* |
| Value added per worker | 12 835 | 8 633 | 15 201 | *17 979* |
| Average wage (including supplements) | *6 120* | 4 466 | *7 708* | *9 348* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 7.44 | 11.56 | 13.10 | *8.73* |
| as a percentage of 1970-1975 structural change | 100 | 155 | 176 | *117* |
| MVA growth rate per structural change (%) | 1.99 | 1.41 | 0.75 | 0.20 |
| Degree of specialization | 10.7 | 9.2 | 8.4 | 8.7 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 1 626 | 1 277 | 2 220 | *2 734* |
| 313 Beverages | 458 | 418 | 1 055 | *1 531* |
| 314 Tobacco products | 111 | 108 | 83 | *113* |
| 321 Textiles | 886 | 408 | 851 | *868* |
| 322 Wearing apparel | 477 | 334 | 701 | *757* |
| 323 Leather and fur products | 40 | 44 | 75 | *99* |
| 324 Footwear | 152 | 113 | 316 | *248* |
| 331 Wood and wood products | 213 | 190 | 469 | *353* |
| 332 Furniture and fixtures | 219 | 138 | 307 | *276* |
| 341 Paper and paper products | 591 | 471 | 1 208 | *1 237* |
| 342 Printing and publishing | 549 | 392 | 763 | *894* |
| 351 Industrial chemicals | 1 006 | 717 | 932 | *1 268* |
| 352 Other chemical products | 639 | 1 047 | 1 255 | *1 272* |
| 353 Petroleum refineries | 634 | 1 038 | 1 244 | *1 281* |
| 354 Miscellaneous petroleum and coal products | 111 | 182 | 217 | *224* |
| 355 Rubber products | 297 | 157 | 401 | *351* |
| 356 Plastic products | 355 | 225 | 560 | *657* |
| 361 Pottery, china and earthenware | 28 | 24 | 42 | *45* |
| 362 Glass and glass products | 154 | 102 | 292 | *337* |
| 369 Other non-metal mineral products | 754 | 481 | 794 | *862* |
| 371 Iron and steel | 2 135 | 986 | 2 343 | *2 303* |
| 372 Non-ferrous metals | 555 | 418 | 642 | *867* |
| 381 Metal products | 1 576 | 860 | 1 697 | *1 588* |
| 382 Non-electrical machinery | 1 351 | 805 | 1 432 | *1 566* |
| 383 Electrical machinery | 1 229 | 607 | 970 | *1 174* |
| 384 Transport equipment | 1 258 | 566 | 1 705 | *2 082* |
| 385 Professional and scientific equipment | 49 | 54 | 160 | *248* |
| 390 Other manufacturing industries | 415 | 246 | 448 | *434* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

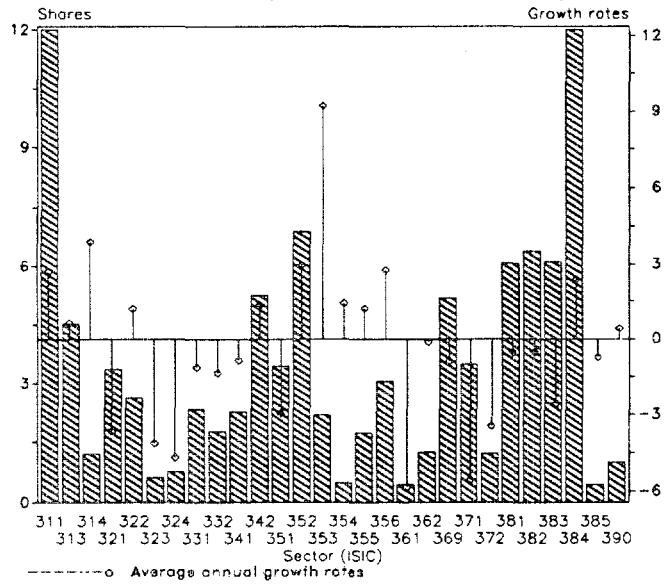


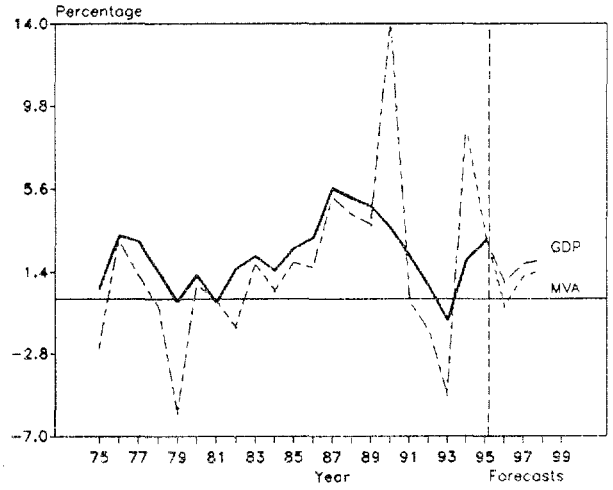



**SPAIN**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

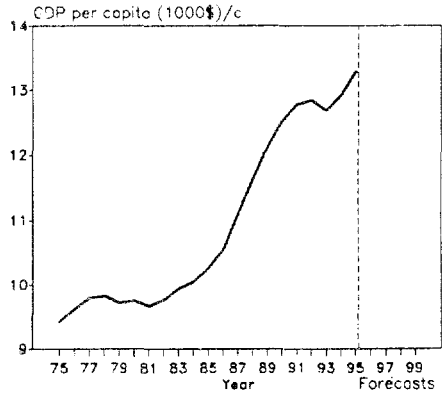



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

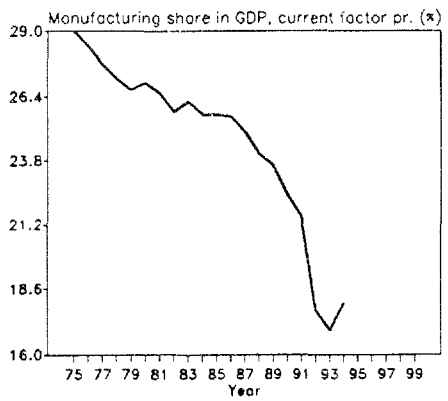
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 366 141 | 395 083 | 491 957 | 511 046 |
| Per capita [na] (1990-dollars) | 9 753 | 10 269 | 12 527 | 12 916 |
| Manufacturing share [na] (%) (current factor prices) | 27.0 | 25.7 | 22.4 | *18.0* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 82 605 | 84 529 | 111 315 | 112 604 |
| Industrial production index (1980=100) | 100 | 102 | 135 | 124 |
| Value added (millions of dollars) | 51 944 | 33 139 | 87 679 | *81 196* |
| Gross output (millions of dollars) | 149 786 | 104 594 | 259 945 | 228 118 |
| Employment (thousands) | 2 383 | 1 793 | 1 907 | *1 758* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 65 | 68 | 66 | *64* |
| Wages and salaries including supplements | 20 | 17 | 18 | *19* |
| Gross operating surplus (%) | 14 | 15 | 16 | *17* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 59 041 | 53 985 | 127 029 | *121 263* |
| Value added per worker | 20 475 | 17 112 | 42 847 | *43 162* |
| Average wage (including supplements) | 12 852 | 9 694 | 24 205 | *24 413* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 9.37 | 9.59 | 7.52 | *6.60* |
| as a percentage of 1970-1975 structural change | 100 | 102 | 80 | *70* |
| MVA growth rate per structural change (%) | 4.74 | 2.01 | -0.03 | 0.73 |
| Degree of specialization | 8.4 | 8.5 | 10.1 | 11.1 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 5 665 | 4 193 | 10 773 | *11 072* |
| 313 Beverages | 1 932 | 1 576 | 4 014 | *3 720* |
| 314 Tobacco products | 649 | 471 | 912 | *1 012* |
| 321 Textiles | 3 289 | 1 613 | 3 314 | *2 650* |
| 322 Wearing apparel | 1 502 | 753 | 2 242 | *2 149* |
| 323 Leather and fur products | 375 | 268 | 614 | *465* |
| 324 Footwear | 810 | 415 | 781 | *568* |
| 331 Wood and wood products | 1 258 | 707 | 2 164 | *1 850* |
| 332 Furniture and fixtures | 1 262 | 617 | 1 534 | *1 358* |
| 341 Paper and paper products | 1 278 | 947 | 2 101 | *1 806* |
| 342 Printing and publishing | 1 506 | 1 198 | 4 403 | *4 276* |
| 351 Industrial chemicals | 2 006 | 1 737 | 3 427 | *2 658* |
| 352 Other chemical products | 2 506 | 1 923 | 5 609 | *5 960* |
| 353 Petroleum refineries | 1 409 | 969 | 1 348 | *1 886* |
| 354 Miscellaneous petroleum and coal products | 229 | 191 | 383 | *385* |
| 355 Rubber products | 955 | 597 | 1 490 | *1 429* |
| 356 Plastic products | 1 098 | 814 | 2 452 | *2 562* |
| 361 Pottery, china and earthenware | 346 | 174 | 432 | *312* |
| 362 Glass and glass products | 640 | 442 | 1 128 | *1 029* |
| 369 Other non-metal mineral products | 2 522 | 1 617 | 4 797 | *4 168* |
| 371 Iron and steel | 3 255 | 1 756 | 3 762 | *2 652* |
| 372 Non-ferrous metals | 948 | 616 | 1 275 | *980* |
| 381 Metal products | 3 720 | 2 044 | 5 437 | *4 792* |
| 382 Non-electrical machinery | 3 595 | 2 226 | 5 745 | *5 041* |
| 383 Electrical machinery | 3 669 | 2 064 | 5 978 | *4 736* |
| 384 Transport equipment | 4 743 | 2 776 | 10 320 | *10 545* |
| 385 Professional and scientific equipment | 205 | 122 | 375 | *336* |
| 390 Other manufacturing industries | 573 | 316 | 870 | *801* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

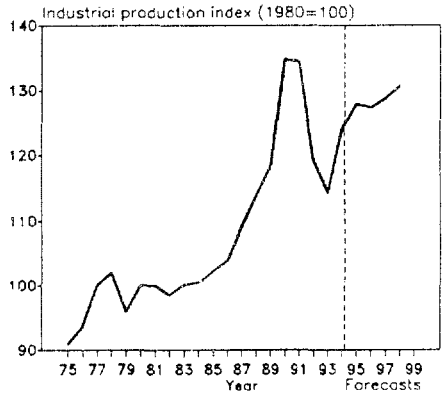
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

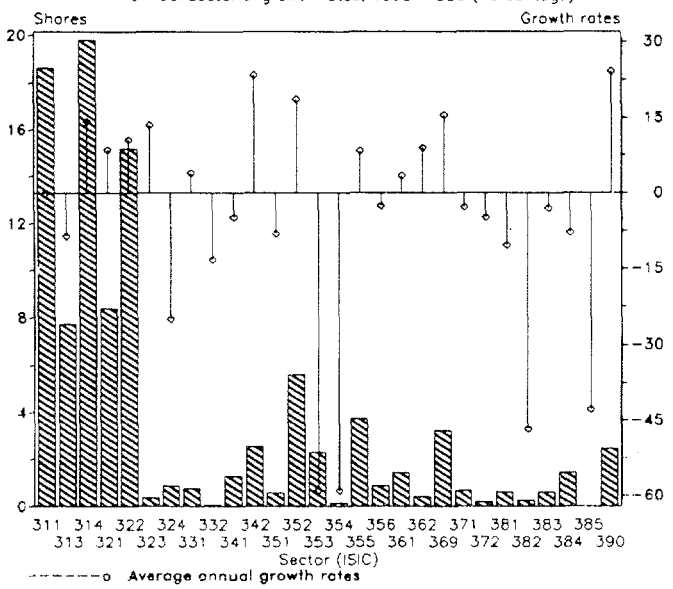



Industrial production index (1980=100)

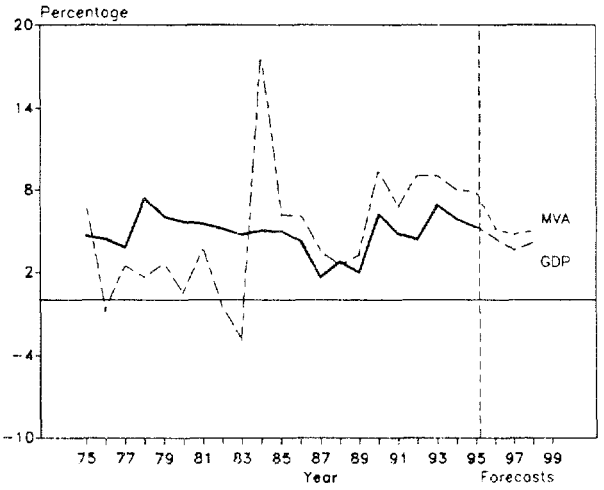


**SRI LANKA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

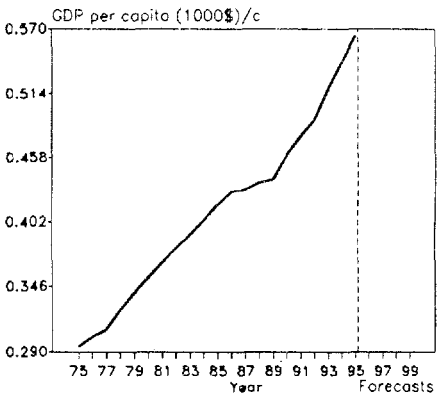



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 5 242 | 6 725 | 7 935 | 9 829 |
| Per capita [na] (1990-dollars) | 354 | 417 | 461 | 542 |
| Manufacturing share [na] (%) (current factor prices) | 19.0 | 17.5 | 18.3 | *14.8* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 868 | 1 081 | 1 371 | 1 878 |
| Industrial production index (1980=100) | 100 | *118* | 253 | 693 |
| Value added (millions of dollars) | *376* | *635* | 1 112 | *1 563* |
| Gross output (millions of dollars) | 1 279 | 1 815 | 2 519 | *2 783* |
| Employment (thousands) | *195* | 211 | 283 | *266* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *71* | *65* | 56 | *44* |
| Wages and salaries including supplements | 6 | 6 | 7 | *8* |
| Gross operating surplus and net taxes (%) | *23* | *29* | 37 | *48* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *6 572* | 8 599 | 8 910 | *10 443* |
| Value added per worker | *1 931* | *3 001* | 3 934 | *5 928* |
| Average wage (including supplements) | *407* | 529 | 606 | *837* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *21.79* | *21.57* | *21.26* | *18.99* |
| as a percentage of 1970-1975 structural change | *100* | *99* | *98* | *87* |
| MVA growth rate per structural change (%) | 3.75 | 3.66 | 2.38 | 1.73 |
| Degree of specialization | 23.4 | 30.2 | 23.5 | 28.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *90* | *181* | 240 | *282* |
| 313 Beverages | 8 | *34* | 118 | *102* |
| 314 Tobacco products | 63 | *151* | 156 | *347* |
| 321 Textiles | 27 | *49* | 82 | *138* |
| 322 Wearing apparel | 12 | *39* | 142 | *251* |
| 323 Leather and fur products | 1 | *2* | 3 | *6* |
| 324 Footwear | 2 | *4* | 20 | *6* |
| 331 Wood and wood products | 5 | *8* | 9 | *12* |
| 332 Furniture and fixtures | 2 | *2* | 1 | - |
| 341 Paper and paper products | 8 | *10* | 19 | *18* |
| 342 Printing and publishing | *8* | *8* | 15 | *49* |
| 351 Industrial chemicals | 6 | *4* | 10 | *8* |
| 352 Other chemical products | 12 | *13* | 33 | *107* |
| 353 Petroleum refineries | 55 | *30* | *100* | *2* |
| 354 Miscellaneous petroleum and coal products | *1* | *1* | *6* | - |
| 355 Rubber products | 14 | *30* | 35 | *60* |
| 356 Plastic products | 4 | *3* | 9 | *11* |
| 361 Pottery, china and earthenware | 4 | *6* | 17 | *22* |
| 362 Glass and glass products | 2 | *2* | 4 | *7* |
| 369 Other non-metal mineral products | 21 | *28* | 23 | *54* |
| 371 Iron and steel | 3 | *2* | 8 | *9* |
| 372 Non-ferrous metals | 2 | *1* | 3 | *3* |
| 381 Metal products | 7 | *9* | 10 | *6* |
| 382 Non-electrical machinery | 4 | *5* | 9 | *1* |
| 383 Electrical machinery | 10 | *4* | 7 | *7* |
| 384 Transport equipment | 4 | *2* | 25 | *18* |
| 385 Professional and scientific equipment | 1 | - | - | - |
| 390 Other manufacturing industries | 1 | *5* | 10 | *34* |

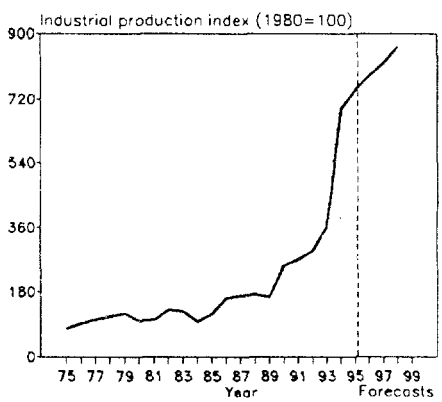
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c



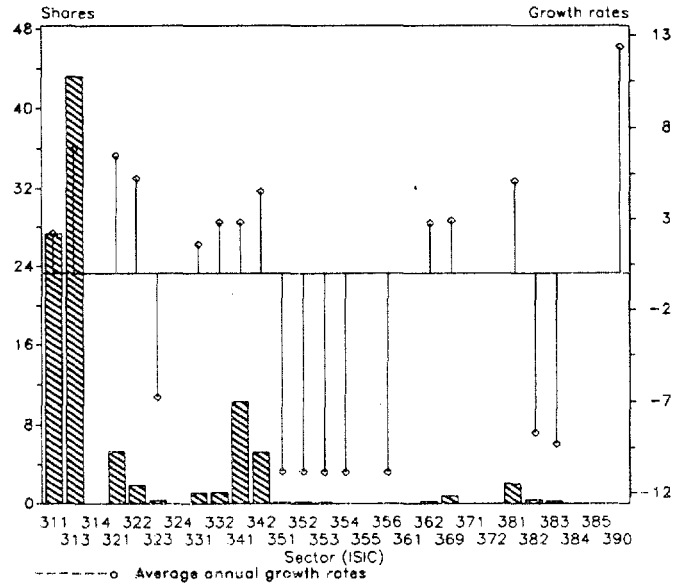

Manufacturing share in GDP, current factor pr. (%)


Industrial production index (1980=100)

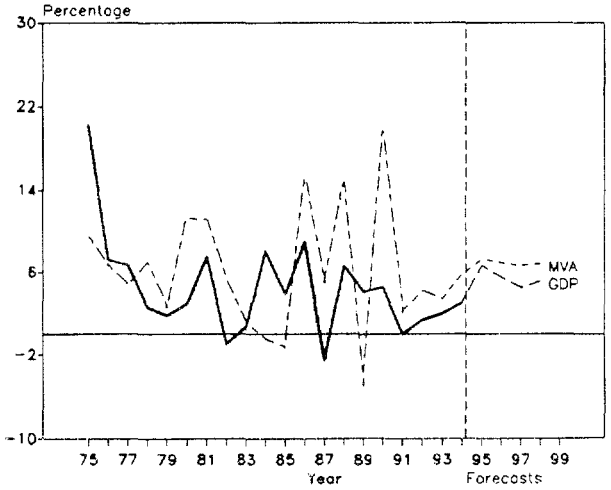


**SWAZILAND**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

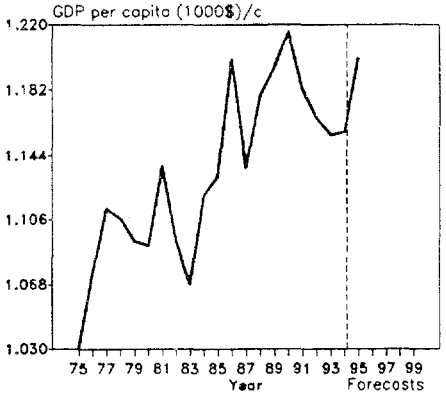



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 611 | 735 | 905 | 963 |
| Per capita [na] (1990-dollars) | 1 091 | 1 132 | 1 216 | 1 158 |
| Manufacturing share [na] (%) (current factor prices) | 19.7 | 14.1 | 28.0 | *29.0* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 138 | 161 | 254 | *295* |
| Industrial production index (1980=100) | 100 | 118 | 131 | *153* |
| Value added (millions of dollars) | 104 | 49 | 252 | *344* |
| Gross output (millions of dollars) | 394 | 195 | 615 | *798* |
| Employment (thousands) | 11 | 12 | 20 | *22* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 74 | 75 | 59 | *57* |
| Wages and salaries including supplements | *11* | *12* | *11* | *11* |
| Gross operating surplus (%) | *16* | *13* | *30* | *33* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 36 595 | 16 708 | 30 711 | *35 882* |
| Value added per worker | 9 645 | 4 165 | 12 559 | *15 514* |
| Average wage (including supplements) | *3 907* | *2 002* | *3 409* | *3 895* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *14.97* | *14.43* | *29.44* | *21.49* |
| as a percentage of 1970-1975 structural change | *100* | *96* | *197* | *144* |
| MVA growth rate per structural change (%) | 4.41 | -2.05 | 3.67 | 4.16 |
| Degree of specialization | 31.1 | 45.2 | 43.0 | 45.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 39 | 26 | 74 | *91* |
| 313 Beverages | 4 | 3 | 101 | *153* |
| 314 Tobacco products | - | - | - | - |
| 321 Textiles | *2* | *1* | *13* | *19* |
| 322 Wearing apparel | *1* | - | *5* | *7* |
| 323 Leather and fur products | - | - | *1* | *1* |
| 324 Footwear | - | - | - | - |
| 331 Wood and wood products | *6* | *1* | *3* | *4* |
| 332 Furniture and fixtures | *2* | *1* | *3* | *4* |
| 341 Paper and paper products | *24* | *8* | *27* | *35* |
| 342 Printing and publishing | *7* | *3* | *13* | *18* |
| 351 Industrial chemicals | *2* | - | - | - |
| 352 Other chemical products | *4* | - | *1* | *1* |
| 353 Petroleum refineries | *3* | - | *1* | - |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | - | - | - | - |
| 356 Plastic products | *1* | - | - | - |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | *1* | *1* |
| 369 Other non-metal mineral products | *1* | - | *2* | *3* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 4 | 3 | 5 | *7* |
| 382 Non-electrical machinery | *1* | - | *1* | *1* |
| 383 Electrical machinery | *1* | - | *1* | *1* |
| 384 Transport equipment | - | - | - | - |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | - | - | - | - |

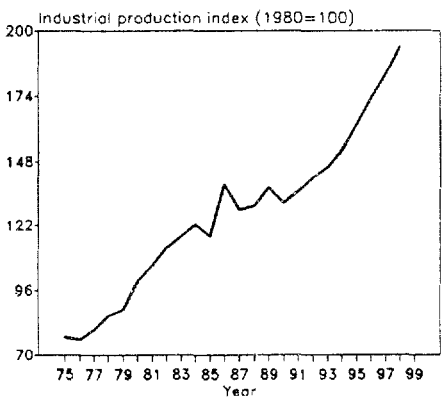
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

GDP per capita (1000$)/c



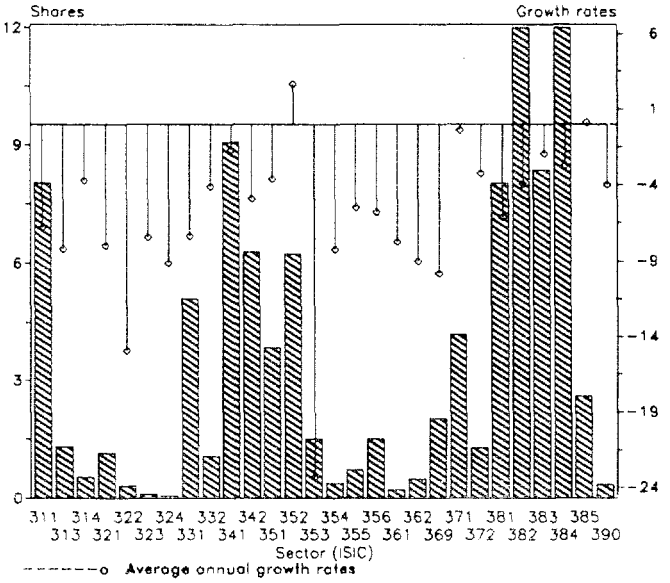

Manufacturing share in GDP, current factor pr. (%)


Industrial production index (1980=100)

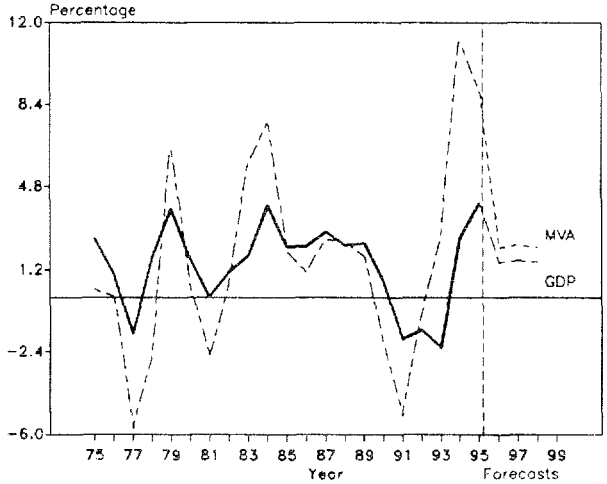


**SWEDEN**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

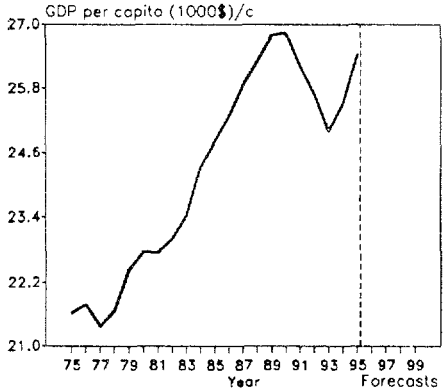



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

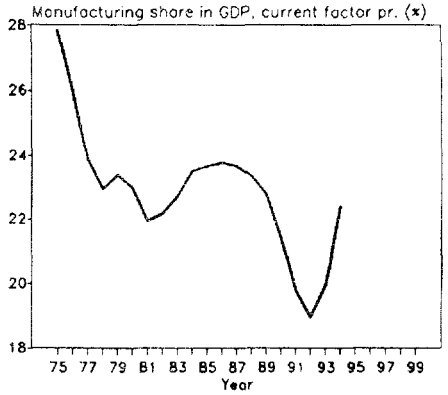
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 189 312 | 207 212 | 229 748 | 222 994 |
| Per capita [na] (1990-dollars) | 22 781 | 24 816 | 26 843 | 25 520 |
| Manufacturing share [na] (%) (current factor prices) | 23.0 | 23.7 | 21.4 | 22.4 |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 37 770 | 42 805 | 45 202 | 48 470 |
| Industrial production index (1980=100) | 100 | 109 | 119 | 125 |
| Value added (millions of dollars) | 30 905 | 24 486 | 51 429 | 35 125 |
| Gross output (millions of dollars) | 73 194 | 60 328 | 115 467 | 101 975 |
| Employment (thousands) | 853 | 768 | 719 | 594 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 58 | 59 | 55 | 66 |
| Wages and salaries including supplements | 18 | 15 | 16 | 15 |
| Gross operating surplus (%) | 24 | 26 | 29 | 20 |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 85 747 | 78 429 | 160 549 | 170 132 |
| Value added per worker | 36 206 | 31 833 | 71 509 | 58 602 |
| Average wage (including supplements) | 15 835 | 11 689 | 24 892 | 25 235 |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 6.15 | 4.92 | 4.68 | 5.69 |
| as a percentage of 1970-1975 structural change | 100 | 80 | 76 | 93 |
| MVA growth rate per structural change (%) | 0.87 | -0.15 | 1.11 | -1.62 |
| Degree of specialization | 15.4 | 16.1 | 15.5 | 17.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 2 719 | 2 107 | 4 249 | 2 541 |
| 313 Beverages | 338 | 250 | 743 | 424 |
| 314 Tobacco products | 104 | 108 | 257 | 187 |
| 321 Textiles | 534 | 378 | 620 | 367 |
| 322 Wearing apparel | 274 | 157 | 199 | 83 |
| 323 Leather and fur products | 54 | 40 | 52 | 33 |
| 324 Footwear | 61 | 24 | 27 | 16 |
| 331 Wood and wood products | 2 102 | 1 154 | 3 046 | 1 723 |
| 332 Furniture and fixtures | 452 | 285 | 551 | 373 |
| 341 Paper and paper products | 2 596 | 2 230 | 4 524 | 3 441 |
| 342 Printing and publishing | 1 842 | 1 517 | 3 158 | 2 033 |
| 351 Industrial chemicals | 986 | 840 | 1 983 | 1 369 |
| 352 Other chemical products | 1 246 | 1 091 | 2 544 | 2 525 |
| 353 Petroleum refineries | 359 | 396 | 1 325 | 289 |
| 354 Miscellaneous petroleum and coal products | 137 | 122 | 218 | 119 |
| 355 Rubber products | 314 | 225 | 387 | 251 |
| 356 Plastic products | 402 | 334 | 786 | 504 |
| 361 Pottery, china and earthenware | 87 | 71 | 123 | 72 |
| 362 Glass and glass products | 175 | 124 | 294 | 160 |
| 369 Other non-metal mineral products | 801 | 510 | 1 129 | 579 |
| 371 Iron and steel | 1 650 | 1 185 | 2 097 | 1 702 |
| 372 Non-ferrous metals | 390 | 331 | 640 | 451 |
| 381 Metal products | 2 598 | 2 049 | 4 448 | 2 688 |
| 382 Non-electrical machinery | 3 936 | 3 185 | 6 226 | 4 454 |
| 383 Electrical machinery | 2 570 | 2 132 | 4 021 | 3 023 |
| 384 Transport equipment | 3 652 | 3 153 | 6 459 | 4 628 |
| 385 Professional and scientific equipment | 371 | 401 | 1 166 | 978 |
| 390 Other manufacturing industries | 154 | 86 | 157 | 111 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

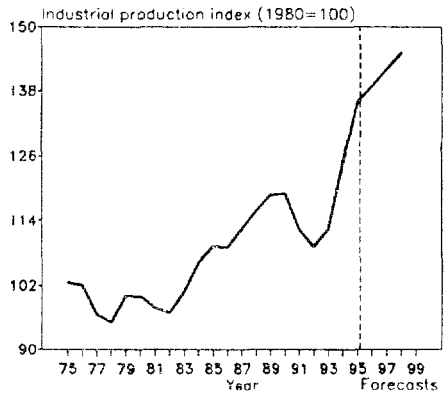
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

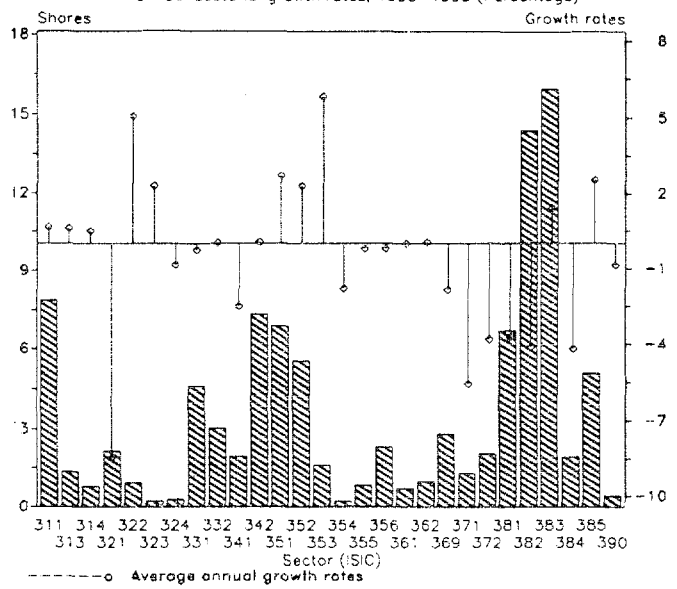



Industrial production index (1980=100)

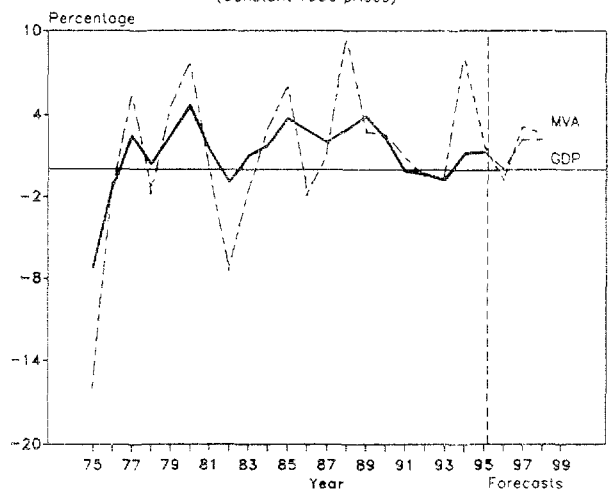


**SWITZERLAND**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

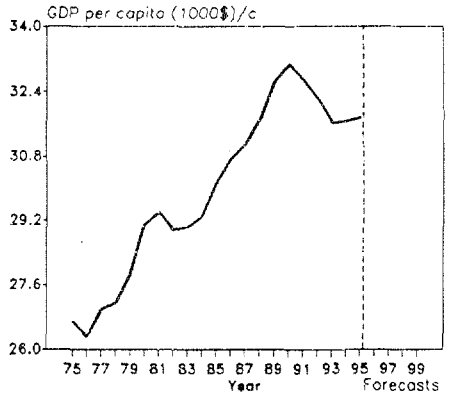



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

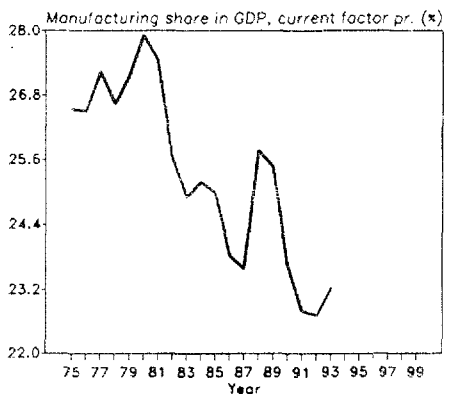
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 183 882 | 197 004 | 226 055 | 226 028 |
| Per capita [na] (1990-dollars) | 29 100 | 30 141 | 33 078 | 31 696 |
| Manufacturing share [na] (%) (current factor prices) | 27.9 | 25.0 | 23.7 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 49 120 | 48 482 | 55 235 | 59 409 |
| Industrial production index (1980=100) | 100 | 99 | 112 | 121 |
| Value added (millions of dollars) | 27 438 | *23 264* | 53 557 | *60 111* |
| *Gross output (millions of dollars)* | *73 054* | *60 784* | 141 237 | 174 154 |
| Employment (thousands) | *927* | *864* | 880 | *776* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | .. | .. | .. | .. |
| Wages and salaries including supplements | .. | .. | .. | .. |
| Gross operating surplus and net taxes (%) | .. | .. | .. | .. |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *75 310* | *68 141* | 151 677 | *185 637* |
| Value added per worker | 40 009 | *35 442* | 60 826 | *66 570* |
| Average wage (including supplements) | .. | .. | .. | .. |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 12.46 | *8.47* | *6.45* | *4.66* |
| as a percentage of 1970-1975 structural change | 100 | *68* | *52* | *37* |
| MVA growth rate per structural change (%) | -0.38 | 1.16 | 0.76 | 0.48 |
| Degree of specialization | 11.6 | 14.2 | 15.2 | *15.0* |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 2 905 | *1 880* | *4 004* | *4 846* |
| 313 Beverages | 499 | *323* | *688* | *832* |
| 314 Tobacco products | 292 | *189* | *402* | *487* |
| 321 Textiles | 972 | *775* | 1 410 | *1 115* |
| 322 Wearing apparel | 864 | *299* | *406* | *604* |
| 323 Leather and fur products | 124 | *52* | *104* | *144* |
| 324 Footwear | 324 | *114* | *140* | *164* |
| 331 Wood and wood products | 1 078 | *1 015* | *2 419* | *2 747* |
| 332 Furniture and fixtures | 707 | *656* | *1 586* | *1 826* |
| 341 Paper and paper products | 624 | *506* | 1 081 | *1 133* |
| 342 Printing and publishing | 1 471 | *1 633* | 3 893 | *4 422* |
| 351 Industrial chemicals | 1 529 | *1 339* | *3 387* | *4 451* |
| 352 Other chemical products | 1 331 | *1 133* | *2 766* | *3 529* |
| 353 Petroleum refineries | 584 | *487* | *700* | *1 056* |
| 354 Miscellaneous petroleum and coal products | 96 | *68* | *115* | *126* |
| 355 Rubber products | 225 | *170* | *449* | *506* |
| 356 Plastic products | 625 | *472* | *1 245* | *1 404* |
| 361 Pottery, china and earthenware | 136 | *135* | *365* | *419* |
| 362 Glass and glass products | 187 | *185* | *502* | *576* |
| 369 Other non-metal mineral products | 651 | *596* | *1 529* | *1 607* |
| 371 Iron and steel | 454 | *359* | *789* | *720* |
| 372 Non-ferrous metals | 583 | *499* | *1 179* | *1 163* |
| 381 Metal products | 1 921 | *1 644* | *3 885* | *3 837* |
| 382 Non-electrical machinery | 3 775 | *3 489* | *8 248* | *7 725* |
| 383 Electrical machinery | 2 859 | *3 565* | 8 488 | *10 153* |
| 384 Transport equipment | 508 | *469* | *1 109* | *1 038* |
| 385 Professional and scientific equipment | 1 976 | *1 111* | 2 446 | *3 234* |
| 390 Other manufacturing industries | 138 | *103* | *222* | *246* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

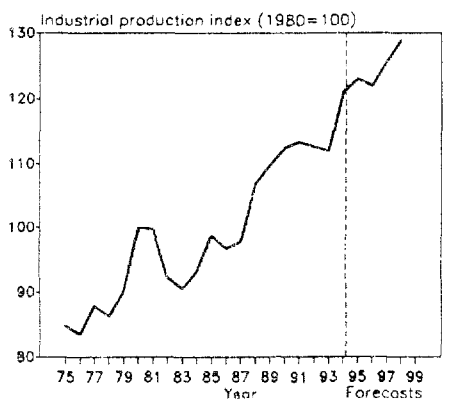
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

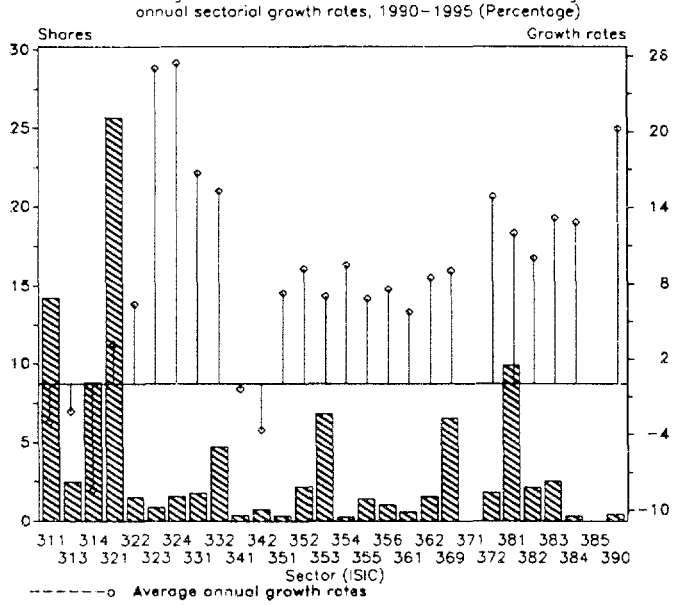



Industrial production index (1980=100)

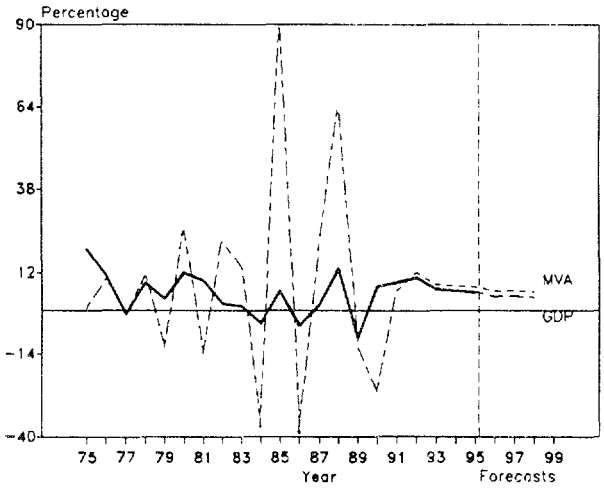


## SYRIAN ARAB REPUBLIC

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

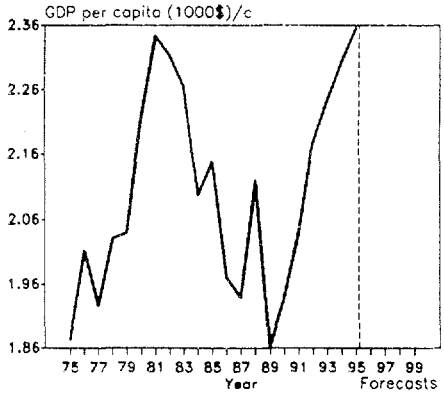



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

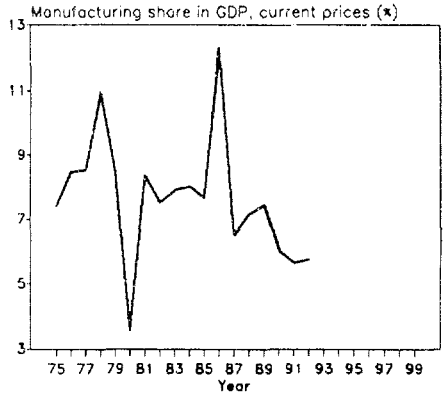
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 19 254 | 22 232 | 23 904 | 32 636 |
| Per capita [na] (1990-dollars) | 2 212 | 2 148 | 1 936 | 2 303 |
| Manufacturing share [na] (%) (current factor prices) | 3.6 | 7.7 | 6.0 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 1 343 | 1 883 | 1 441 | *1 991* |
| Industrial production index (1980=100) | 100 | 136 | 113 | *159* |
| Value added (millions of dollars) | 522 | 966 | 1 743 | *2 990* |
| Gross output (millions of dollars) | 3 259 | *6 892* | *10 563* | *15 648* |
| Employment (thousands) | 195 | 104 | 100 | *175* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 84 | *86* | *84* | *81* |
| Wages and salaries including supplements | *9* | *6* | *4* | *6* |
| Gross operating surplus (%) | *6* | *7* | *12* | *13* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 16 827 | *66 400* | *105 942* | *90 096* |
| Value added per worker | 2 691 | 9 185 | 17 472 | *26 118* |
| Average wage (including supplements) | *1 673* | *4 214* | *4 481* | *5 154* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *43.10* | *92.07* | *78.68* | *23.89* |
| as a percentage of 1970-1975 structural change | *100* | *214* | *183* | *55* |
| MVA growth rate per structural change (%) | 0.36 | 0.00 | 0.43 | 0.75 |
| Degree of specialization | 0.7 | 12.8 | 26.0 | 20.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *141* | *-15* | *330* | *393* |
| 313 Beverages | *24* | *-3* | *57* | *70* |
| 314 Tobacco products | *96* | *-10* | *223* | *222* |
| 321 Textiles | *255* | *157* | *461* | *761* |
| 322 Wearing apparel | *12* | *13* | *24* | *45* |
| 323 Leather and fur products | *32* | *14* | *6* | *27* |
| 324 Footwear | *57* | *25* | *11* | *50* |
| 331 Wood and wood products | *27* | *26* | *20* | *59* |
| 332 Furniture and fixtures | *76* | *71* | *56* | *158* |
| 341 Paper and paper products | *3* | *8* | *8* | *11* |
| 342 Printing and publishing | *5* | *16* | *18* | *21* |
| 351 Industrial chemicals | *-9* | *6* | *4* | *9* |
| 352 Other chemical products | *-93* | *56* | *30* | *61* |
| 353 Petroleum refineries | *- 179* | *119* | *93* | *203* |
| 354 Miscellaneous petroleum and coal products | *-6* | *4* | *3* | *6* |
| 355 Rubber products | *-34* | *23* | *19* | *40* |
| 356 Plastic products | *-29* | *19* | *14* | *29* |
| 361 Pottery, china and earthenware | *2* | *15* | *10* | *17* |
| 362 Glass and glass products | *5* | *30* | *24* | *47* |
| 369 Other non-metal mineral products | *22* | *126* | *98* | *203* |
| 371 Iron and steel | - | - | - | - |
| 372 Non-ferrous metals | *13* | *28* | *20* | *57* |
| 381 Metal products | *66* | *131* | *140* | *327* |
| 382 Non-electrical machinery | *13* | *31* | *31* | *68* |
| 383 Electrical machinery | *11* | *49* | *33* | *81* |
| 384 Transport equipment | *2* | *4* | *5* | *11* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 8 | 23 | 5 | *16* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

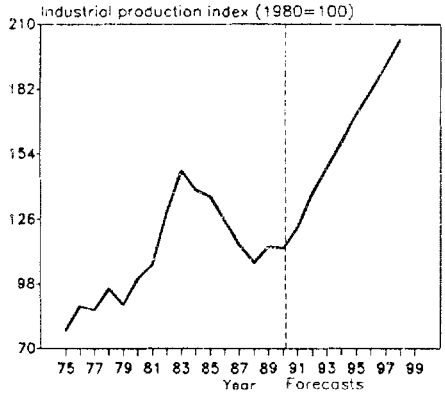
GDP per capita (1000$)/c




Manufacturing share in GDP, current prices (%)

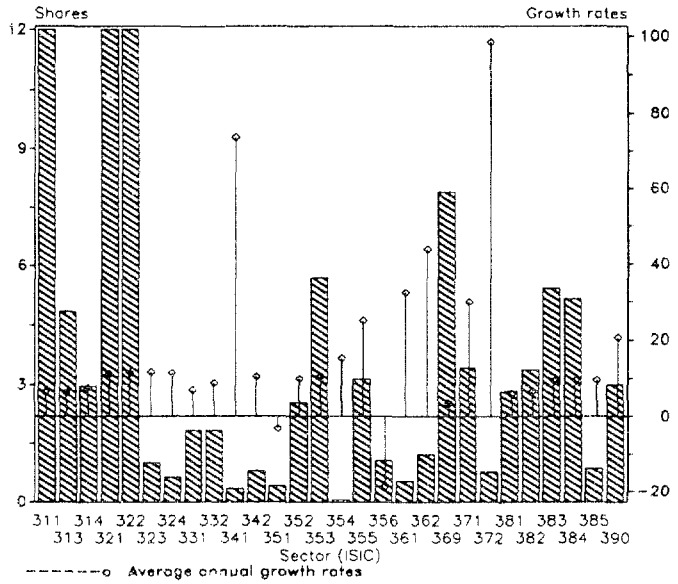



Industrial production index (1980=100)

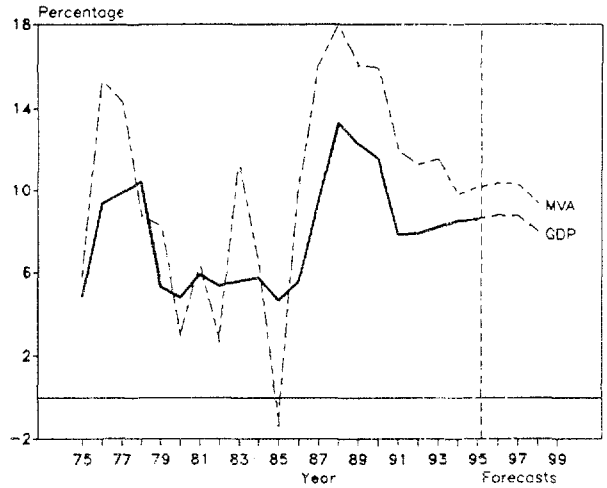


**THAILAND**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

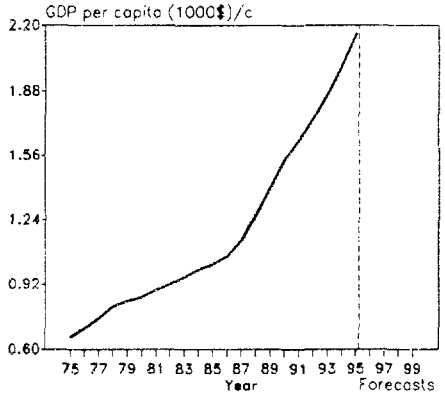



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

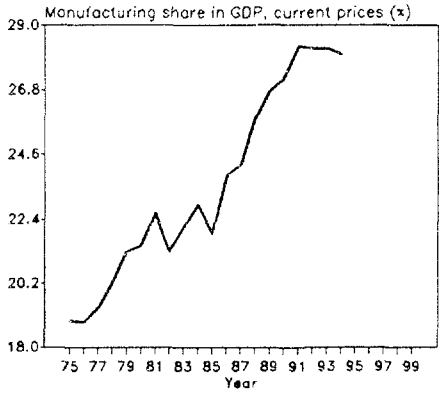
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 40 042 | 52 204 | 85 640 | 117 120 |
| Per capita [na] (1990-dollars) | 857 | 1 021 | 1 541 | 2 013 |
| Manufacturing share [na] (%) (current factor prices) | 21.5 | 21.9 | 27.2 | 28.0 |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 9 065 | 11 518 | 23 290 | 35 516 |
| Industrial production index (1980=100) | 100 | 112 | 189 | 248 |
| Value added (millions of dollars) | 9 028 | 10 078 | 26 658 | 47 461 |
| Gross output (millions of dollars) | 25 476 | 29 388 | 80 829 | 139 068 |
| Employment (thousands) | 742 | 1 097 | 1 720 | 1 946 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 65 | 66 | 67 | 66 |
| Wages and salaries including supplements | 7 | 9 | 7 | 7 |
| Gross operating surplus and net taxes (%) | 28 | 25 | 25 | 27 |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 15 678 | 15 117 | 40 373 | 53 524 |
| Value added per worker | 5 675 | 5 418 | 13 623 | 18 734 |
| Average wage (including supplements) | 2 497 | 2 392 | 3 522 | 4 917 |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 9.31 | 10.04 | 13.99 | 14.88 |
| as a percentage of 1970-1975 structural change | 100 | 108 | 150 | 160 |
| MVA growth rate per structural change (%) | 5.55 | 3.31 | 4.08 | 4.71 |
| Degree of specialization | 15.8 | 16.8 | 16.2 | 13.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 2 039 | 2 274 | 4 077 | 6 417 |
| 313 Beverages | 682 | 786 | 1 409 | 2 210 |
| 314 Tobacco products | 375 | 470 | 843 | 1 384 |
| 321 Textiles | 1 118 | 1 044 | 3 099 | 5 921 |
| 322 Wearing apparel | 591 | 1 025 | 3 043 | 5 863 |
| 323 Leather and fur products | 38 | 85 | 252 | 489 |
| 324 Footwear | 47 | 54 | 160 | 308 |
| 331 Wood and wood products | 244 | 180 | 528 | 848 |
| 332 Furniture and fixtures | 132 | 173 | 508 | 868 |
| 341 Paper and paper products | 213 | 120 | 8 | 158 |
| 342 Printing and publishing | 110 | 161 | 203 | 378 |
| 351 Industrial chemicals | 94 | 63 | 154 | 161 |
| 352 Other chemical products | 245 | 238 | 664 | 1 209 |
| 353 Petroleum refineries | 537 | 683 | 1 466 | 2 741 |
| 354 Miscellaneous petroleum and coal products | 27 | 21 | 10 | 22 |
| 355 Rubber products | 221 | 147 | 473 | 1 611 |
| 356 Plastic products | 102 | 103 | 892 | 348 |
| 361 Pottery, china and earthenware | 35 | 48 | 59 | 276 |
| 362 Glass and glass products | 64 | 54 | 92 | 640 |
| 369 Other non-metal mineral products | 267 | 424 | 2 769 | 3 633 |
| 371 Iron and steel | 316 | 236 | 430 | 1 774 |
| 372 Non-ferrous metals | 118 | 74 | 11 | 391 |
| 381 Metal products | 226 | 208 | 868 | 1 301 |
| 382 Non-electrical machinery | 168 | 243 | 1 014 | 1 554 |
| 383 Electrical machinery | 340 | 355 | 1 484 | 2 587 |
| 384 Transport equipment | 338 | 337 | 1 409 | 2 470 |
| 385 Professional and scientific equipment | 26 | 56 | 235 | 413 |
| 390 Other manufacturing industries | 314 | 414 | 498 | 1 487 |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

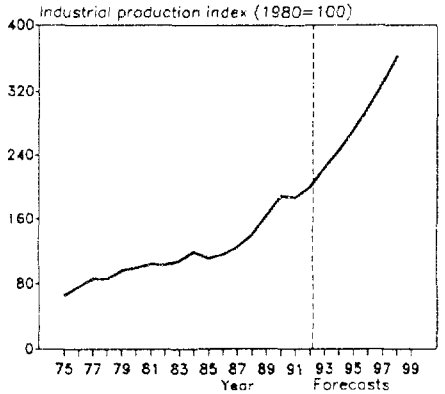
GDP per capita (1000$)/c



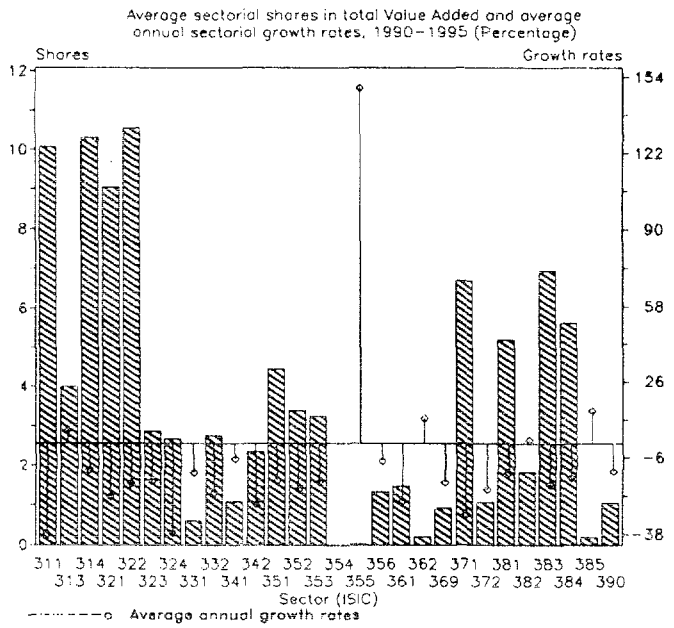

Manufacturing share in GDP, current prices (%)

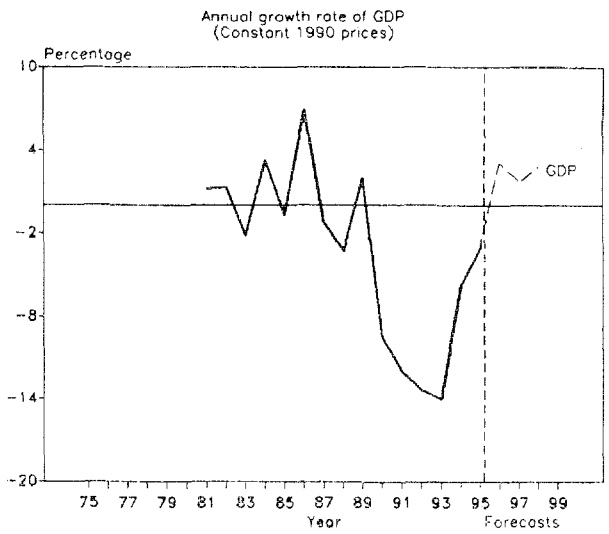


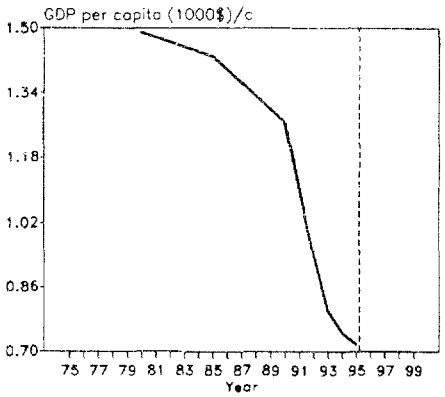

Industrial production index (1980=100)



## THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA



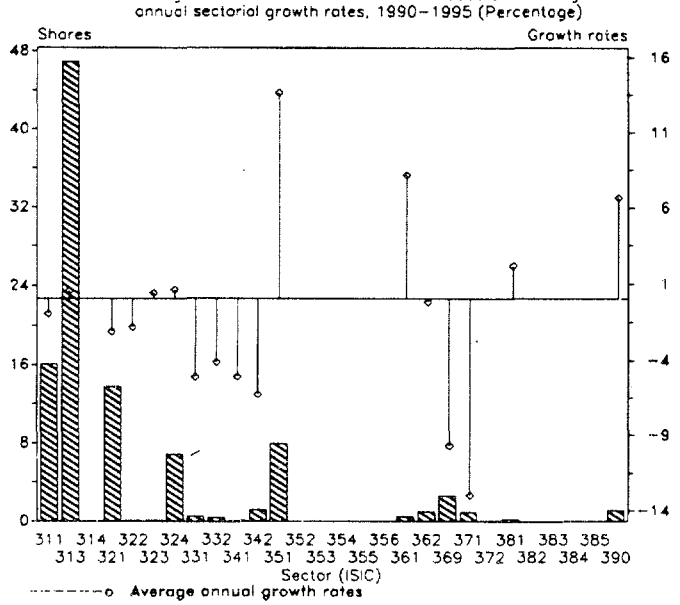




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 2 673 | 2 748 | 2 590 | 1 598 |
| Per capita [na] (1990-dollars) | 1 489 | 1 429 | 1 266 | 746 |
| Manufacturing share [na] (%) (current factor prices) | .. | .. | .. | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | .. | .. | .. | .. |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | *1 732* | *983* | 929 | 664 |
| Gross output (millions of dollars) | *5 900* | *2 915* | 2 206 | 1 630 |
| Employment (thousands) | *200* | *190* | 185 | 145 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *71* | *66* | 58 | 59 |
| Wages and salaries including supplements | *6* | *9* | *20* | *20* |
| Gross operating surplus and net taxes (%) | *23* | *25* | *22* | *21* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *29 229* | *15 266* | 11 911 | 11 224 |
| Value added per worker | *8 617* | *5 156* | 5 016 | 4 572 |
| Average wage (including supplements) | *1 800* | *1 397* | *2 389* | *2 216* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *44.70* | *26.62* | *11.11* | 22.03 |
| as a percentage of 1970-1975 structural change | *100* | *60* | *25* | 49 |
| MVA growth rate per structural change (%) | 9.67 | 17.66 | -1.77 | -1.11 |
| Degree of specialization | 72.9 | 13.8 | 12.4 | 12.0 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *128* | *80* | 80 | 15 |
| 313 Beverages | *39* | *23* | 24 | 58 |
| 314 Tobacco products | *136* | *83* | 82 | 85 |
| 321 Textiles | *173* | *109* | 82 | 45 |
| 322 Wearing apparel | *180* | *132* | 106 | 77 |
| 323 Leather and fur products | *34* | *21* | 20 | 16 |
| 324 Footwear | *43* | *27* | 37 | 7 |
| 331 Wood and wood products | *5* | *3* | 5 | 5 |
| 332 Furniture and fixtures | *37* | *23* | 31 | 19 |
| 341 Paper and paper products | *14* | *9* | 7 | 9 |
| 342 Printing and publishing | *23* | *15* | 22 | 10 |
| 351 Industrial chemicals | *90* | *55* | 46 | 39 |
| 352 Other chemical products | *17* | *12* | 37 | 25 |
| 353 Petroleum refineries | *62* | *37* | 42 | 31 |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | *3* | *2* | - | 1 |
| 356 Plastic products | *21* | *13* | 9 | 12 |
| 361 Pottery, china and earthenware | *45* | *16* | 16 | 8 |
| 362 Glass and glass products | *3* | *3* | 1 | 3 |
| 369 Other non-metal mineral products | *18* | *11* | 8 | 7 |
| 371 Iron and steel | *179* | *66* | 83 | 23 |
| 372 Non-ferrous metals | *5* | *3* | 8 | 5 |
| 381 Metal products | *95* | *59* | 45 | 45 |
| 382 Non-electrical machinery | *30* | *19* | 6 | 12 |
| 383 Electrical machinery | *80* | *61* | 69 | 49 |
| 384 Transport equipment | *253* | *89* | 52 | 47 |
| 385 Professional and scientific equipment | *1* | *1* | 1 | 2 |
| 390 Other manufacturing industries | *20* | *10* | 9 | 9 |

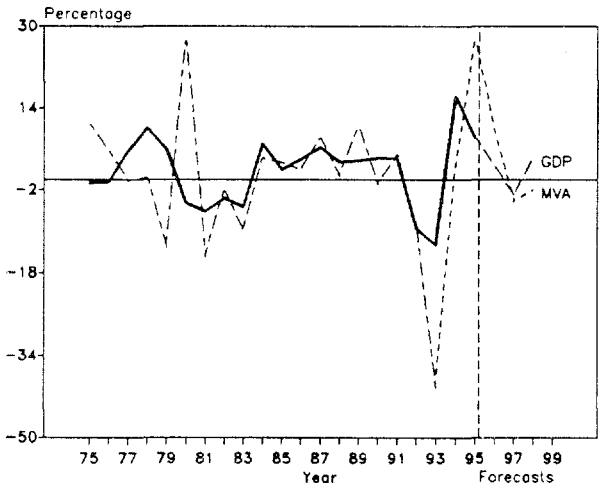
For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

**TOGO**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

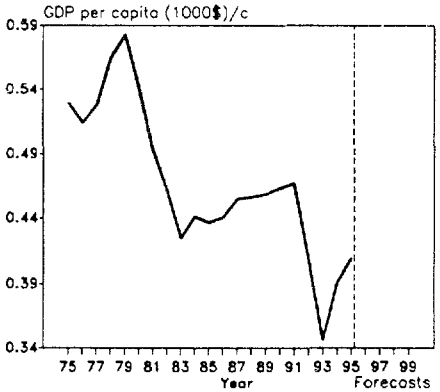



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

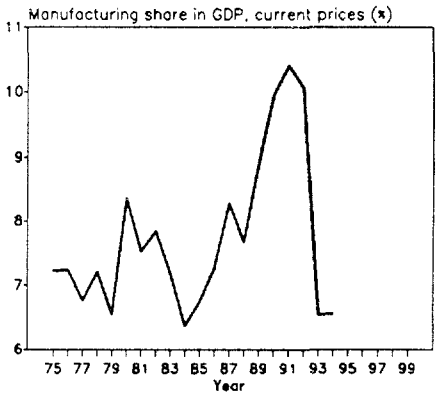
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 1 416 | 1 323 | 1 636 | 1 568 |
| Per capita [na] (1990-dollars) | 541 | 437 | 463 | 391 |
| Manufacturing share [na] (%) (current factor prices) | 8.4 | 6.7 | 9.9 | *6.6* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 156 | 126 | 152 | *87* |
| Industrial production index (1980=100) | 100 | 91 | 112 | *64* |
| Value added (millions of dollars) | *51* | *38* | *71* | *47* |
| Gross output (millions of dollars) | *148* | 94 | 226 | *178* |
| Employment (thousands) | *5* | *5* | *5* | *4* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *65* | *75* | *83* | *73* |
| Wages and salaries including supplements | *12* | *10* | *10* | *14* |
| Gross operating surplus and net taxes (%) | *23* | *16* | *6* | *13* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *27 363* | *21 742* | *53 786* | *39 782* |
| Value added per worker | *9 458* | *7 695* | *15 402* | *10 872* |
| Average wage (including supplements) | *3 198* | *2 872* | *8 122* | *5 972* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *33.51* | *25.13* | *21.71* | *27.16* |
| as a percentage of 1970-1975 structural change | *100* | *75* | *65* | *81* |
| MVA growth rate per structural change (%) | -0.32 | 0.68 | 0.00 | 0.81 |
| Degree of specialization | 25.3 | 38.4 | 40.5 | 40.3 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 4 | *11* | *12* | *8* |
| 313 Beverages | 16 | *14* | *34* | *22* |
| 314 Tobacco products | .. | .. | .. | .. |
| 321 Textiles | *8* | *5* | *10* | *6* |
| 322 Wearing apparel | - | - | - | - |
| 323 Leather and fur products | - | - | - | - |
| 324 Footwear | 6 | *2* | *5* | *3* |
| 331 Wood and wood products | 1 | - | - | - |
| 332 Furniture and fixtures | - | - | - | - |
| 341 Paper and paper products | - | - | - | - |
| 342 Printing and publishing | 3 | *1* | *1* | *1* |
| 351 Industrial chemicals | 3 | *1* | *4* | *5* |
| 352 Other chemical products | .. | .. | .. | .. |
| 353 Petroleum refineries | .. | .. | .. | .. |
| 354 Miscellaneous petroleum and coal products | .. | .. | .. | .. |
| 355 Rubber products | .. | .. | .. | .. |
| 356 Plastic products | .. | .. | .. | .. |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | *1* | - |
| 369 Other non-metal mineral products | 6 | *2* | *2* | *1* |
| 371 Iron and steel | 2 | *1* | *1* | - |
| 372 Non-ferrous metals | .. | .. | .. | .. |
| 381 Metal products | 1 | - | - | - |
| 382 Non-electrical machinery | .. | .. | .. | .. |
| 383 Electrical machinery | .. | .. | .. | .. |
| 384 Transport equipment | .. | .. | .. | .. |
| 385 Professional and scientific equipment | .. | .. | .. | .. |
| 390 Other manufacturing industries | - | - | *1* | *1* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

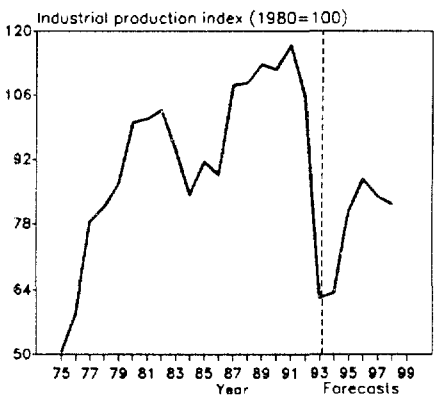
GDP per capita (1000$)/c




Manufacturing share in GDP, current prices (%)

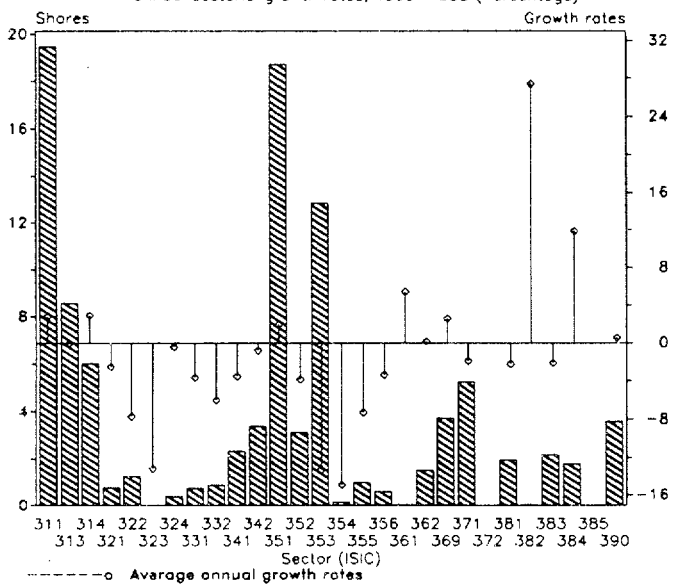



Industrial production index (1980=100)

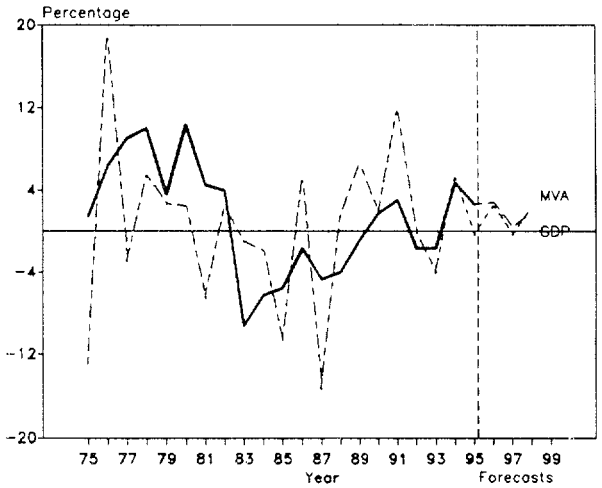


## TRINIDAD AND TOBAGO

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

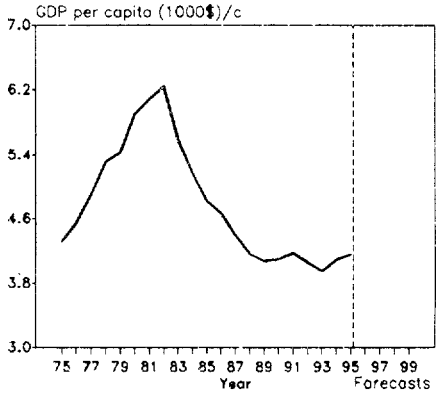



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

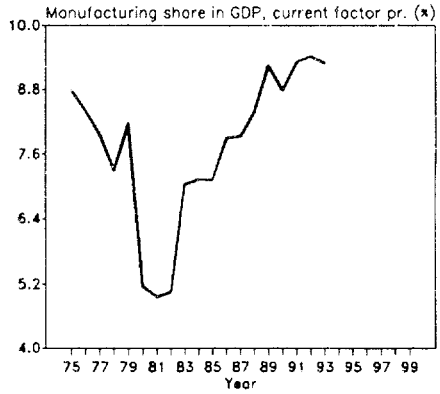
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 6 389 | 5 589 | 5 068 | 5 291 |
| Per capita [na] (1990-dollars) | 5 905 | 4 818 | 4 100 | 4 095 |
| Manufacturing share [na] (%) (current factor prices) | 5.2 | 7.1 | 8.8 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 543 | 448 | 438 | *492* |
| Industrial production index (1980=100) | 100 | 86 | 104 | 137 |
| Value added (millions of dollars) | 492 | 387 | 683 | *605* |
| Gross output (millions of dollars) | *1 518* | 1 765 | 2 344 | *2 059* |
| Employment (thousands) | 44 | 34 | 38 | *39* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *68* | 78 | 71 | *71* |
| Wages and salaries including supplements | *18* | *18* | *13* | *13* |
| Gross operating surplus and net taxes (%) | *15* | *4* | *16* | *16* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *34 268* | 52 667 | 61 801 | *52 199* |
| Value added per worker | 11 099 | 11 715 | 18 007 | *15 358* |
| Average wage (including supplements) | *5 999* | *9 488* | *8 184* | *6 989* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *8.07* | *24.74* | 39.18 | *22.22* |
| as a percentage of 1970-1975 structural change | *100* | *307* | 486 | *275* |
| MVA growth rate per structural change (%) | 1.32 | -0.72 | -0.09 | -0.05 |
| Degree of specialization | 28.3 | 18.0 | 21.6 | 21.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 67 | 95 | 114 | *121* |
| 313 Beverages | 27 | 34 | 58 | *53* |
| 314 Tobacco products | 14 | 35 | 36 | *39* |
| 321 Textiles | 1 | 2 | 5 | *4* |
| 322 Wearing apparel | 16 | 13 | 10 | *7* |
| 323 Leather and fur products | - | - | - | - |
| 324 Footwear | 4 | 5 | 3 | *2* |
| 331 Wood and wood products | 6 | 4 | *5* | *4* |
| 332 Furniture and fixtures | 9 | *7* | *7* | *5* |
| 341 Paper and paper products | 9 | 14 | 17 | *14* |
| 342 Printing and publishing | 13 | 19 | 21 | *20* |
| 351 Industrial chemicals | 5 | 6 | 109 | *116* |
| 352 Other chemical products | 12 | 10 | 23 | *19* |
| 353 Petroleum refineries | *190* | *17* | *131* | *68* |
| 354 Miscellaneous petroleum and coal products | *2* | - | *1* | *1* |
| 355 Rubber products | 9 | 10 | 8 | *5* |
| 356 Plastic products | 2 | 8 | 5 | *3* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | 3 | 4 | 10 | *9* |
| 369 Other non-metal mineral products | 23 | 31 | 23 | *24* |
| 371 Iron and steel | - | - | 37 | *32* |
| 372 Non-ferrous metals | - | - | - | - |
| 381 Metal products | 26 | 11 | 14 | *12* |
| 382 Non-electrical machinery | 13 | - | - | - |
| 383 Electrical machinery | 3 | 13 | 15 | *13* |
| 384 Transport equipment | 28 | 43 | 7 | *12* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 8 | *6* | 24 | *23* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

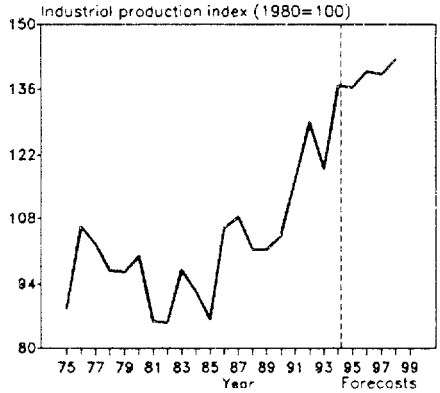
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

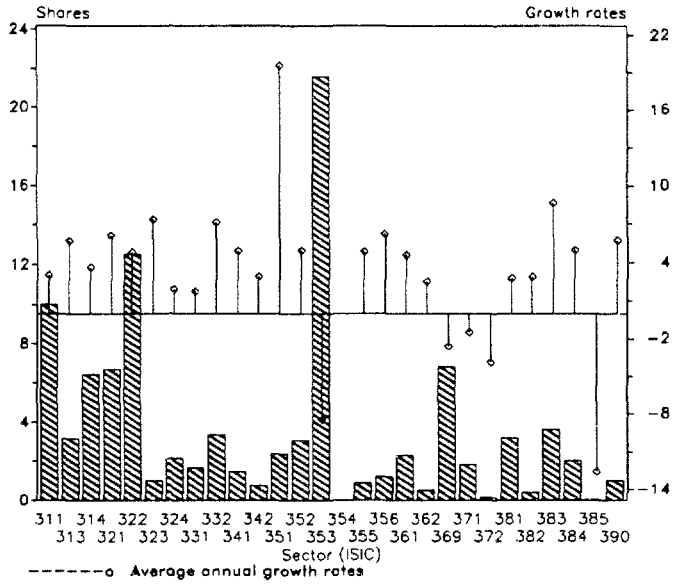



Industrial production index (1980=100)

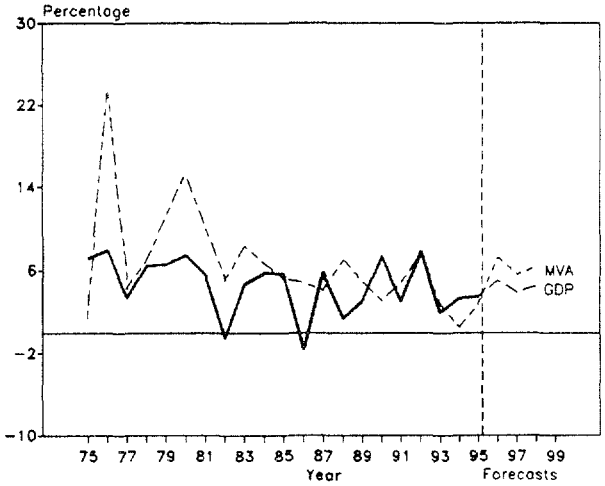


**TUNISIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



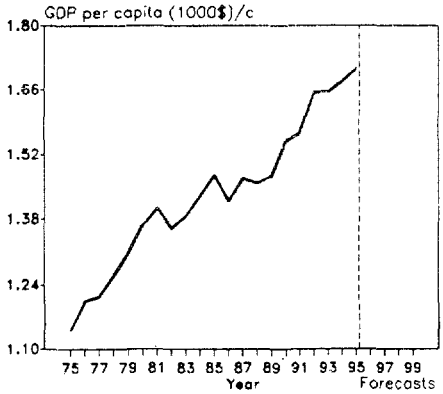

Annual growth rates of GDP and MVA (Constant 1990 prices)



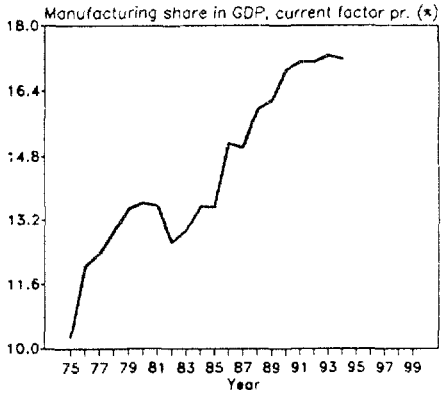

| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 8 720 | 10 709 | 12 513 | 14 658 |
| Per capita [na] (1990-dollars) | 1 366 | 1 475 | 1 549 | 1 678 |
| Manufacturing share [na] (%) (current factor prices) | 13.6 | 13.5 | 16.9 | *16.9* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 1 061 | 1 486 | 1 873 | 2 178 |
| Industrial production index (1980=100) | 100 | 133 | 157 | 167 |
| Value added (millions of dollars) | 939 | *1 147* | 3 305 | *3 818* |
| Gross output (millions of dollars) | 3 579 | *4 354* | 10 611 | *12 287* |
| Employment (thousands) | 125 | *166* | *217* | 259 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 74 | *74* | 69 | *69* |
| Wages and salaries including supplements | 12 | *11* | *9* | *11* |
| Gross operating surplus and net taxes (%) | 14 | *15* | *22* | *20* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 28 669 | *26 156* | *48 894* | *47 386* |
| Value added per worker | 7 525 | *7 106* | *16 463* | *14 723* |
| Average wage (including supplements) | 3 499 | *2 963* | *4 627* | *5 030* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *13.75* | *14.75* | *18.19* | *21.26* |
| as a percentage of 1970-1975 structural change | *100* | *107* | *132* | *155* |
| MVA growth rate per structural change (%) | 5.59 | 5.34 | 4.78 | 3.36 |
| Degree of specialization | 13.6 | 12.3 | 19.7 | *15.2* |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 96 | *101* | 315 | *395* |
| 313 Beverages | 49 | *55* | 92 | *129* |
| 314 Tobacco products | 22 | *40* | 207 | *257* |
| 321 Textiles | *55* | *77* | 196 | *278* |
| 322 Wearing apparel | 92 | *122* | 380 | *505* |
| 323 Leather and fur products | 6 | *9* | *29* | *42* |
| 324 Footwear | 21 | *24* | *65* | *82* |
| 331 Wood and wood products | 12 | *18* | *56* | *64* |
| 332 Furniture and fixtures | 13 | *22* | *97* | *140* |
| 341 Paper and paper products | 24 | *21* | *44* | *59* |
| 342 Printing and publishing | 17 | *15* | *24* | *29* |
| 351 Industrial chemicals | *57* | *55* | 39 | *104* |
| 352 Other chemical products | *81* | *57* | 95 | *126* |
| 353 Petroleum refineries | 13 | *99* | 872 [d] | *688* |
| 354 Miscellaneous petroleum and coal products | - | .. | [d] | .. |
| 355 Rubber products | 8 | *11* | 28 | *36* |
| 356 Plastic products | 18 | *21* | 35 | *50* |
| 361 Pottery, china and earthenware | 11 | *14* | *67* | *92* |
| 362 Glass and glass products | 7 | *6* | 16 | *19* |
| 369 Other non-metal mineral products | 156 | *161* | 263 | *236* |
| 371 Iron and steel | 45 | *60* | 69 | *66* |
| 372 Non-ferrous metals | 8 | *5* | *5* | *5* |
| 381 Metal products | 53 | *69* | *103* | *125* |
| 382 Non-electrical machinery | 2 | *3* | 13 | *16* |
| 383 Electrical machinery | 35 | *39* | 101 | *150* |
| 384 Transport equipment | 30 | *33* | 60 | *81* |
| 385 Professional and scientific equipment | 1 | *1* | *1* | *1* |
| 390 Other manufacturing industries | 5 | *8* | 31 | *43* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

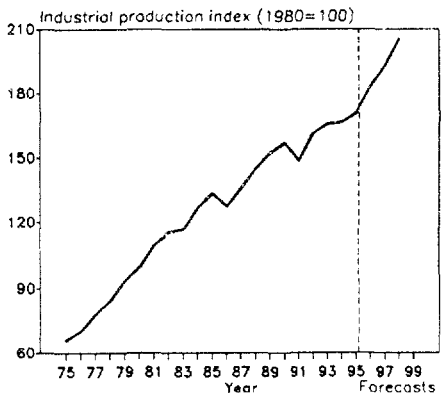
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

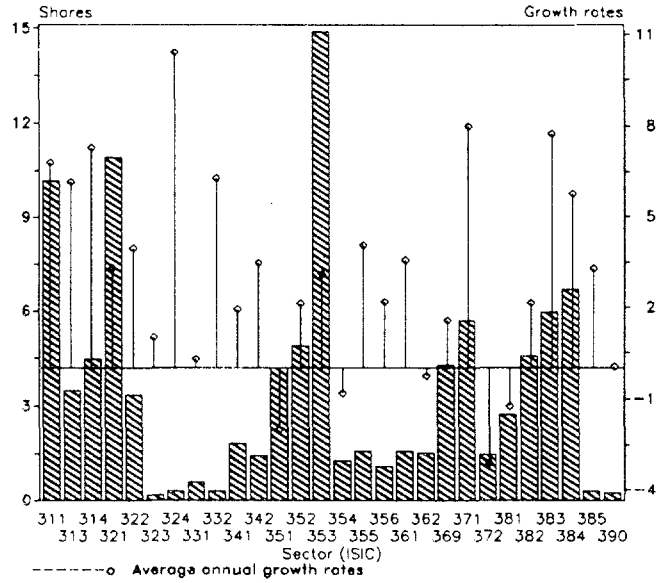



Industrial production index (1980=100)

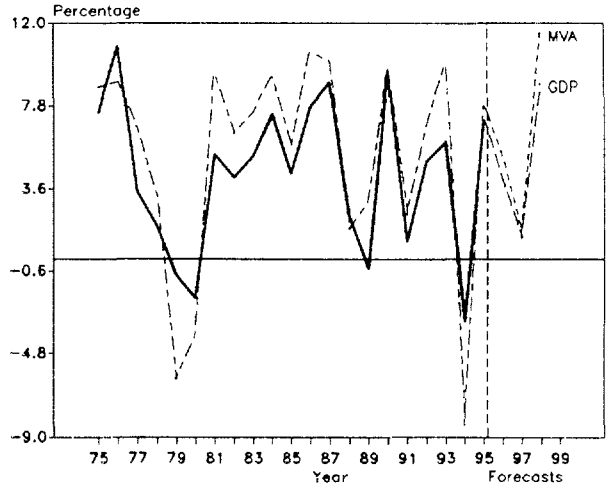


## TURKEY

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

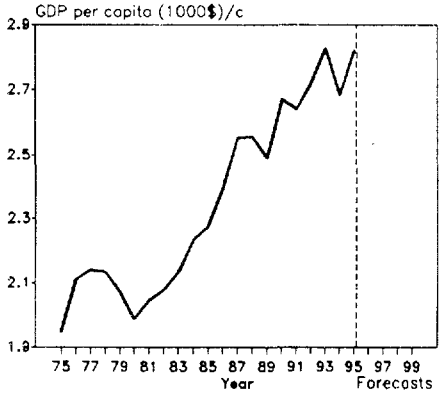



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

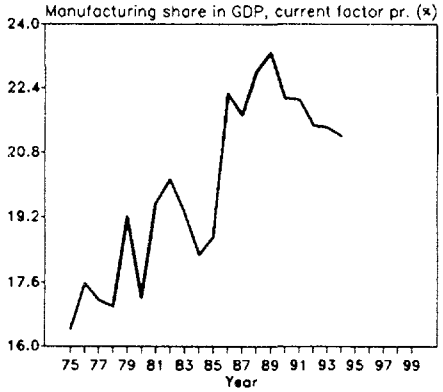
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 88 366 | 114 593 | 149 972 | 163 245 |
| Per capita [na] (1990-dollars) | 1 989 | 2 276 | 2 673 | 2 686 |
| Manufacturing share [na] (%) (current factor prices) | 17.2 | 18.7 | 22.2 | *21.2* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 16 423 | 23 735 | 33 086 | 36 385 |
| Industrial production index (1980=100) | 100 | 175 | 243 | 253 |
| Value added (millions of dollars) | 10 837 | 10 448 | 28 958 | *27 459* |
| Gross output (millions of dollars) | 29 413 | 32 470 | 73 064 | 64 237 |
| Employment (thousands) | 787 | 844 | 975 | *913* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 63 | 68 | 60 | *57* |
| Wages and salaries including supplements | 16 | 10 | 12 | *15* |
| Gross operating surplus and net taxes (%) | 20 | 23 | 28 | *28* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 36 960 | 38 378 | 74 819 | *60 394* |
| Value added per worker | 13 617 | 12 349 | 29 656 | *25 991* |
| Average wage (including supplements) | 6 142 | 3 717 | 9 029 | *10 227* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 10.26 | 9.75 | 9.93 | *8.80* |
| as a percentage of 1970-1975 structural change | 100 | 95 | 97 | *86* |
| MVA growth rate per structural change (%) | 3.87 | 3.13 | 4.74 | 4.85 |
| Degree of specialization | 14.3 | 13.8 | 12.4 | 13.3 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 1 185 | 973 | 2 541 | *2 824* |
| 313 Beverages | 335 | 330 | 893 | *959* |
| 314 Tobacco products | 467 | 877 | 1 168 | *1 333* |
| 321 Textiles | 1 535 | 1 289 | 3 222 | *3 002* |
| 322 Wearing apparel | 60 | 146 | 947 | *905* |
| 323 Leather and fur products | 25 | 37 | 60 | *49* |
| 324 Footwear | 33 | 22 | 69 | *88* |
| 331 Wood and wood products | 118 | 64 | 187 | *154* |
| 332 Furniture and fixtures | 16 | 55 | 81 | *85* |
| 341 Paper and paper products | 205 | 241 | 559 | *487* |
| 342 Printing and publishing | 97 | 133 | 434 | *400* |
| 351 Industrial chemicals | 719 | 457 | 1 517 | *1 064* |
| 352 Other chemical products | 387 | 394 | 1 449 | *1 294* |
| 353 Petroleum refineries | 1 352 | 1 514 | 4 525 | *4 177* |
| 354 Miscellaneous petroleum and coal products | 222 | 152 | 458 | *340* |
| 355 Rubber products | 201 | 151 | 452 | *436* |
| 356 Plastic products | 125 | 76 | 328 | *290* |
| 361 Pottery, china and earthenware | 93 | 102 | 466 | *427* |
| 362 Glass and glass products | 110 | 167 | 531 | *405* |
| 369 Other non-metal mineral products | 535 | 428 | 1 365 | *1 158* |
| 371 Iron and steel | 783 | 734 | 1 403 | *1 616* |
| 372 Non-ferrous metals | 292 | 181 | 580 | *387* |
| 381 Metal products | 395 | 344 | 904 | *685* |
| 382 Non-electrical machinery | 506 | 456 | 1 423 | *1 242* |
| 383 Electrical machinery | 463 | 531 | 1 482 | *1 661* |
| 384 Transport equipment | 541 | 534 | 1 743 | *1 843* |
| 385 Professional and scientific equipment | 8 | 9 | 87 | *81* |
| 390 Other manufacturing industries | 28 | 48 | 83 | *66* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

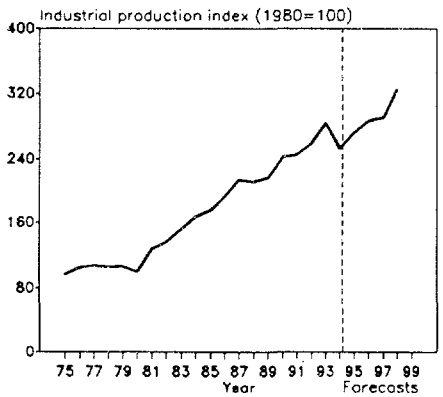
GDP per capita (1000$)/c



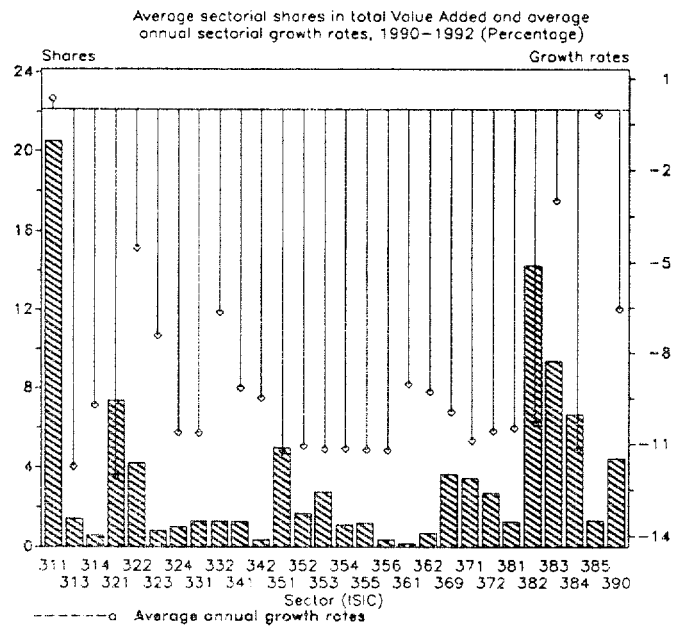

Manufacturing share in GDP, current factor pr. (%)

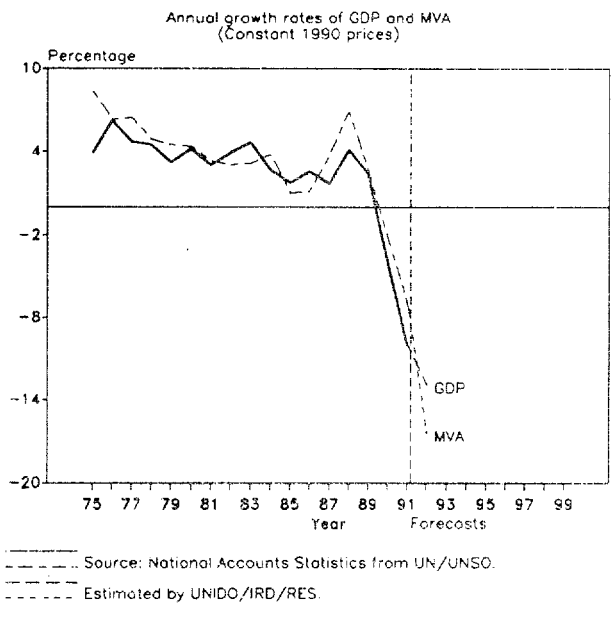



Industrial production index (1980=100)



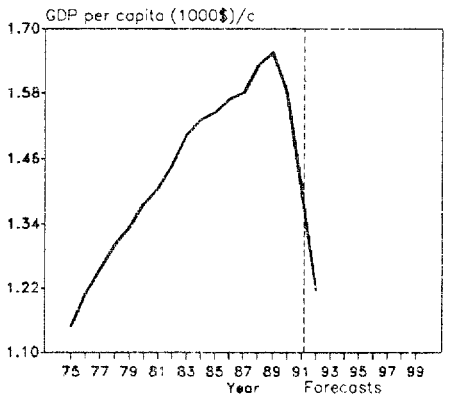
## UNION OF SOVIET SOCIALIST REPUBLICS, FORMER

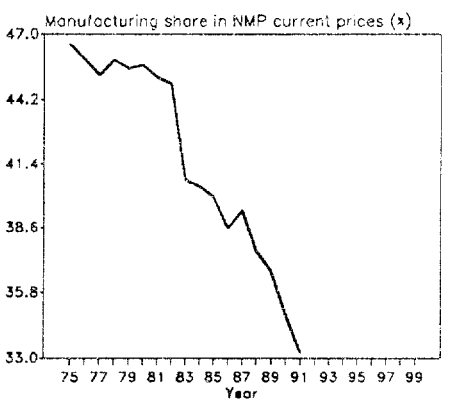


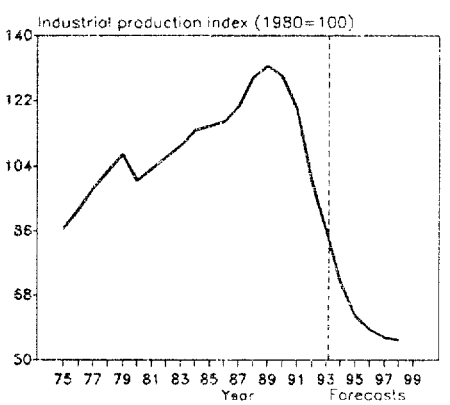




| | 1980 | 1985 | 1990 | 1992 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 365 168 | 427 267 | 456 500 | *357 755* |
| Per capita [na] (1990-dollars) | 1 378 | 1 544 | 1 583 | *1 216* |
| Manufacturing share [na] (%) (current factor prices) | 45.7 | 40.0 | 34.9 | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 123 710 | 142 065 | 159 239 | 123 744 |
| Industrial production index (1980=100) | 100 | 115 | 129 | 100 |
| Value added (millions of dollars) | 362 424 | 377 289 | 225 474 | *48 095* |
| Gross output (millions of dollars) | 834 089 | 867 602 | 517 936 | .. |
| Employment (thousands) | 31 464 | 32 794 | 30 352 | *28 072* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 57 | 57 | 56 | . |
| Wages and salaries including supplements | 12 | 11 | 13 | .. |
| Gross operating surplus and net taxes (%) | 31 | 32 | 31 | .. |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 26 509 | 26 456 | 17 064 | .. |
| Value added per worker | 11 519 | 11 505 | 7 429 | *1 710* |
| Average wage (including supplements) | 3 247 | 3 002 | 2 147 | *494* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 3.59 | 3.31 | 3.78 | *6.12* |
| as a percentage of 1970-1975 structural change | 100 | 92 | 105 | *170* |
| MVA growth rate per structural change (%) | 7.88 | 5.59 | 2.27 | -0.20 |
| Degree of specialization | 16.6 | 16.0 | 16.6 | 18.1 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 66 053 | 66 335 | 42 968 | *10 726* |
| 313 Beverages | 10 336 | 8 110 | 3 395 | *655* |
| 314 Tobacco products | 2 032 | 2 643 | 1 310 | *265* |
| 321 Textiles | 32 553 | 31 860 | 17 439 | *3 342* |
| 322 Wearing apparel | 19 633 | 17 956 | 9 107 | *2 058* |
| 323 Leather and fur products | 2 443 | 2 047 | 1 797 | *382* |
| 324 Footwear | 3 892 | 3 937 | 2 312 | *458* |
| 331 Wood and wood products | 4 628 | 5 252 | 3 054 | *604* |
| 332 Furniture and fixtures | 3 761 | 4 307 | 2 868 | *619* |
| 341 Paper and paper products | 4 330 | 4 988 | 2 902 | *594* |
| 342 Printing and publishing | 1 067 | 1 162 | 795 | *161* |
| 351 Industrial chemicals | 17 184 | 19 764 | 11 630 | *2 271* |
| 352 Other chemical products | 5 104 | 5 850 | 3 934 | *771* |
| 353 Petroleum refineries | 12 334 | 13 314 | 6 477 | *1 267* |
| 354 Miscellaneous petroleum and coal products | 4 159 | 4 669 | 2 616 | *512* |
| 355 Rubber products | 4 533 | 5 214 | 2 788 | *545* |
| 356 Plastic products | 1 167 | 1 318 | 818 | *160* |
| 361 Pottery, china and earthenware | 538 | 508 | 342 | *70* |
| 362 Glass and glass products | 2 680 | 2 625 | 1 541 | *314* |
| 369 Other non-metal mineral products | 13 768 | 14 867 | 8 408 | *1 690* |
| 371 Iron and steel | 13 331 | 14 680 | 8 017 | *1 578* |
| 372 Non-ferrous metals | 8 803 | 9 733 | 6 316 | *1 252* |
| 381 Metal products | 4 815 | 5 124 | 2 960 | *588* |
| 382 Non-electrical machinery | 54 571 | 57 101 | 33 137 | *6 606* |
| 383 Electrical machinery | 27 146 | 29 148 | 20 380 | *4 753* |
| 384 Transport equipment | 26 518 | 28 067 | 15 602 | *3 049* |
| 385 Professional and scientific equipment | 3 838 | 4 042 | 2 821 | *697* |
| 390 Other manufacturing industries | 11 210 | 12 671 | 9 739 | *2 108* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

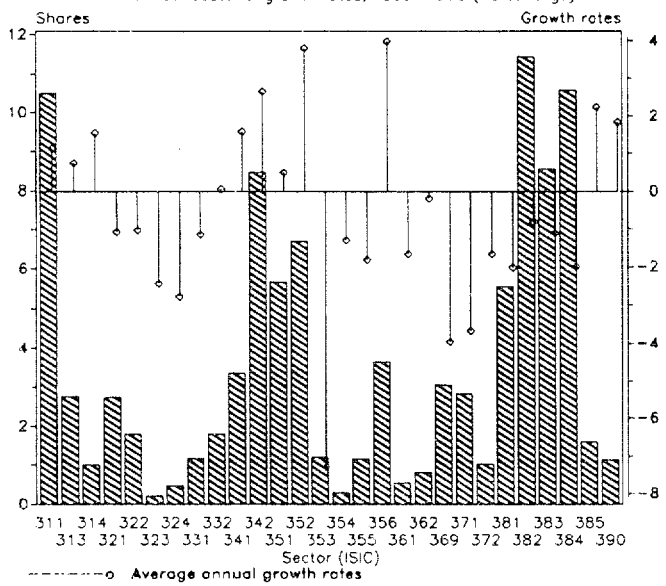


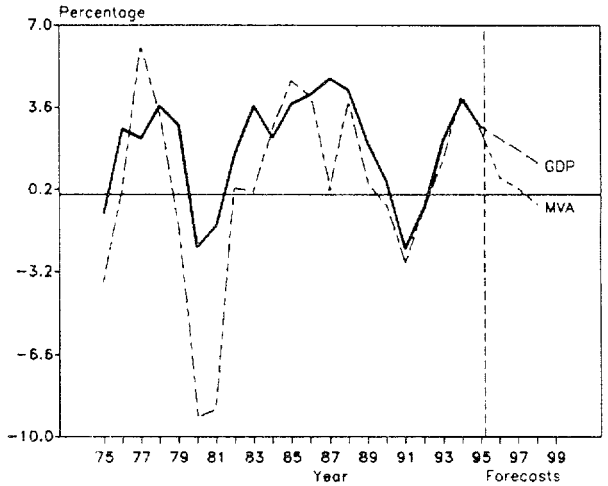



## UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

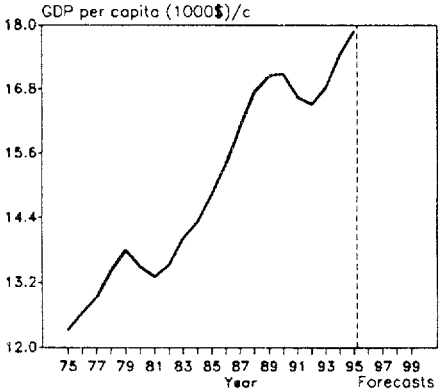



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

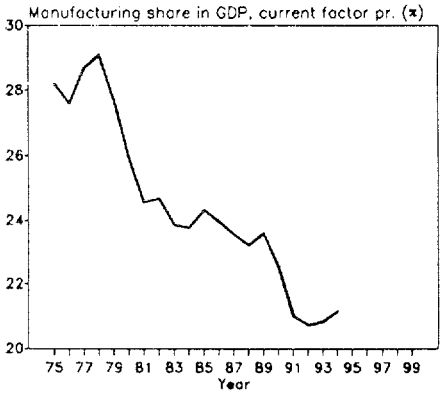
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 760 010 | 839 360 | 981 046 | 1 013 818 |
| Per capita [na] (1990-dollars) | 13 492 | 14 825 | 17 088 | 17 452 |
| Manufacturing share [na] (%) (current factor prices) | 25.9 | 24.3 | 22.5 | *21.2* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 190 836 | 187 499 | 202 486 | 206 105 |
| Industrial production index (1980=100) | 100 | 103 | 112 | 111 |
| Value added (millions of dollars) | 163 790 | 124 384 | 254 946 | *243 653* |
| Gross output (millions of dollars) | 400 930 | 306 225 | 579 854 | 569 891 |
| Employment (thousands) | 6 462 | 4 935 | 4 798 | *4 169* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 59 | 59 | 56 | *57* |
| Wages and salaries including supplements | 23 | 20 | 21 | *20* |
| Gross operating surplus (%) | 17 | 20 | 23 | *22* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 61 483 | 61 368 | 119 558 | *132 670* |
| Value added per worker | 25 117 | 24 927 | 52 653 | *57 635* |
| Average wage (including supplements) | 14 579 | 12 520 | 25 249 | *27 894* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 5.10 | 5.79 | 4.34 | *4.79* |
| as a percentage of 1970-1975 structural change | 100 | 113 | 85 | *94* |
| MVA growth rate per structural change (%) | 0.27 | -0.59 | 0.96 | 1.09 |
| Degree of specialization | 11.1 | 11.9 | 12.2 | 12.5 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 14 744 | 12 192 | 25 143 | *25 679* |
| 313 Beverages | 5 419 | 3 554 | 6 643 | *6 682* |
| 314 Tobacco products | 1 814 | 1 479 | 2 375 | *2 459* |
| 321 Textiles | 5 419 | 3 917 | 7 036 | *6 549* |
| 322 Wearing apparel | 3 395 | 2 633 | 4 679 | *4 341* |
| 323 Leather and fur products | 558 | 376 | 536 | *475* |
| 324 Footwear | 1 093 | 752 | 1 268 | *1 086* |
| 331 Wood and wood products | 2 349 | 1 556 | 3 214 | *2 865* |
| 332 Furniture and fixtures | 2 558 | 2 101 | 4 554 | *4 384* |
| 341 Paper and paper products | 4 860 | 3 813 | 8 036 | *8 299* |
| 342 Printing and publishing | 9 814 | 8 807 | 19 643 | *21 385* |
| 351 Industrial chemicals | 8 233 | 7 328 | 14 179 | *13 996* |
| 352 Other chemical products | 7 512 | 6 641 | 14 893 | *17 103* |
| 353 Petroleum refineries | 4 512 | 1 712 | 4 429 | *2 702* |
| 354 Miscellaneous petroleum and coal products | 721 | 428 | 750 | *685* |
| 355 Rubber products | 2 349 | 1 505 | 3 018 | *2 714* |
| 356 Plastic products | 3 698 | 3 087 | 8 250 | *9 449* |
| 361 Pottery, china and earthenware | 977 | 765 | 1 464 | *1 293* |
| 362 Glass and glass products | 1 442 | 960 | 2 089 | *1 988* |
| 369 Other non-metal mineral products | 5 698 | 4 202 | 9 036 | *7 076* |
| 371 Iron and steel | 5 860 | 4 345 | 8 089 | *6 641* |
| 372 Non-ferrous metals | 2 581 | 1 505 | 2 786 | *2 477* |
| 381 Metal products | 10 140 | 7 211 | 15 018 | *13 063* |
| 382 Non-electrical machinery | 21 326 | 15 097 | 30 071 | *27 593* |
| 383 Electrical machinery | 15 209 | 12 387 | 22 357 | *20 454* |
| 384 Transport equipment | 17 512 | 12 931 | 28 946 | *25 401* |
| 385 Professional and scientific equipment | 2 209 | 1 803 | 3 661 | *3 928* |
| 390 Other manufacturing industries | 1 791 | 1 297 | 2 786 | *2 884* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

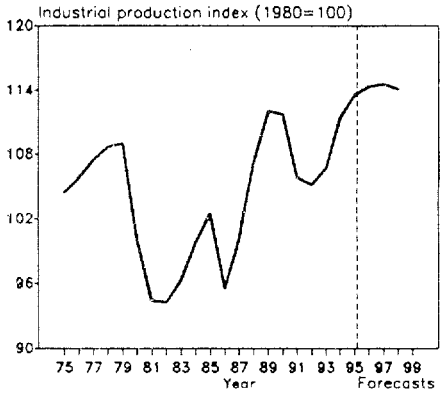
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

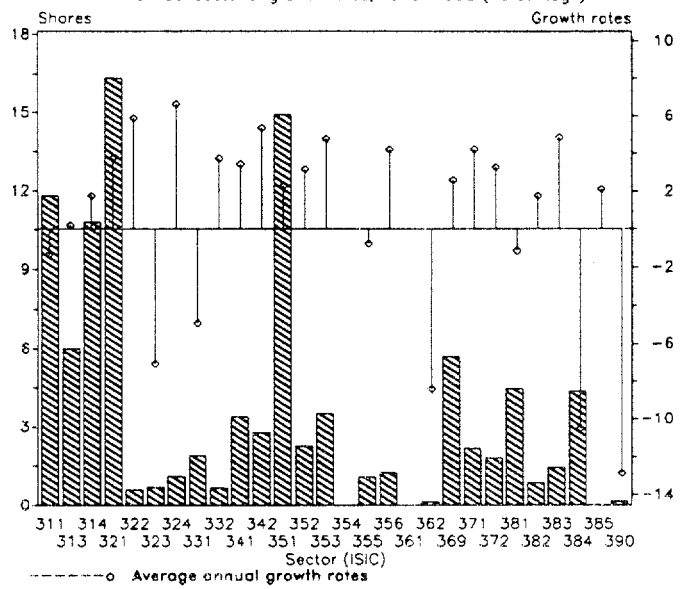



Industrial production index (1980=100)

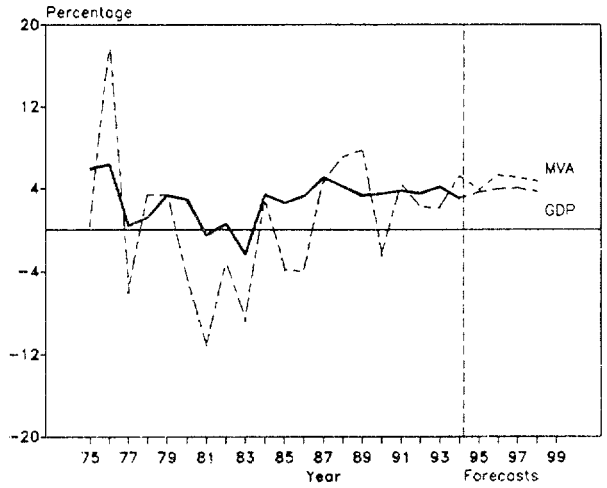


**UNITED REPUBLIC OF TANZANIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

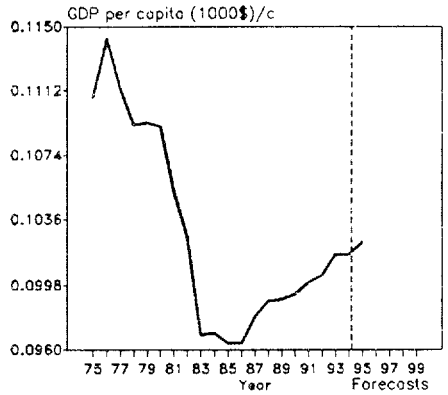



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

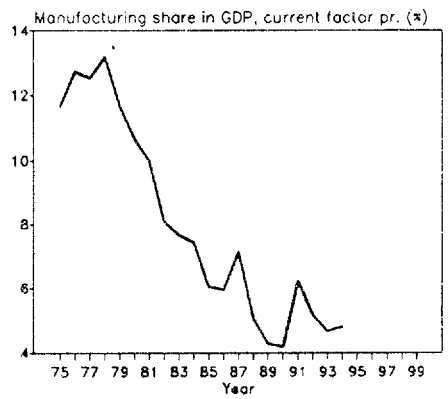
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 2 027 | 2 102 | 2 542 | 2 932 |
| Per capita [na] (1990-dollars) | 109 | 96 | 99 | 102 |
| Manufacturing share [na] (%) (current factor prices) | 10.7 | 6.1 | 4.2 | *4.8* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 108 | 83 | 94 | *107* |
| Industrial production index (1980=100) | 100 | 81 | 104 | *91* |
| Value added (millions of dollars) | 361 | 278 | *99* | *101* |
| Gross output (millions of dollars) | 1 266 | 1 145 | *458* | *463* |
| Employment (thousands) | 101 | 94 | *124* | *149* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 71 | 76 | *78* | *78* |
| Wages and salaries including supplements | 9 | 9 | *5* | *7* |
| Gross operating surplus (%) | 19 | 16 | *16* | *15* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 12 457 | 12 141 | *3 681* | *3 100* |
| Value added per worker | 3 555 | 2 952 | *797* | *688* |
| Average wage (including supplements) | 1 174 | 1 042 | *202* | *205* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *15.63* | 16.80 | *19.70* | *12.62* |
| as a percentage of 1970-1975 structural change | *100* | 107 | *126* | *81* |
| MVA growth rate per structural change (%) | 2.45 | -0.02 | -1.02 | -0.51 |
| Degree of specialization | 17.0 | 15.7 | 16.9 | 17.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 58 | 58 | *12* | *11* |
| 313 Beverages | 14 | 21 | *6* | *6* |
| 314 Tobacco products | 12 | 16 | *10* | *11* |
| 321 Textiles | 95 | 43 | *15* | *17* |
| 322 Wearing apparel | 10 | 4 | *1* | *1* |
| 323 Leather and fur products | 7 | 4 | *1* | *1* |
| 324 Footwear | 8 | 6 | *1* | *1* |
| 331 Wood and wood products | 7 | 6 | *2* | *2* |
| 332 Furniture and fixtures | 6 | 3 | *1* | *1* |
| 341 Paper and paper products | 8 | 7 | *3* | *4* |
| 342 Printing and publishing | 14 | 12 | *2* | *3* |
| 351 Industrial chemicals | 11 | 9 | *14* | *15* |
| 352 Other chemical products | 10 | 7 | *2* | *2* |
| 353 Petroleum refineries | 15 | 10 | *3* | *4* |
| 354 Miscellaneous petroleum and coal products | - | - | - | - |
| 355 Rubber products | 11 | 11 | *1* | *1* |
| 356 Plastic products | 8 | 2 | *1* | *1* |
| 361 Pottery, china and earthenware | - | - | - | - |
| 362 Glass and glass products | - | - | - | - |
| 369 Other non-metal mineral products | 11 | 4 | *5* | *6* |
| 371 Iron and steel | *2* | *6* | *2* | *2* |
| 372 Non-ferrous metals | *4* | *4* | *2* | *2* |
| 381 Metal products | 20 | 15 | *5* | *4* |
| 382 Non-electrical machinery | 3 | 4 | *1* | *1* |
| 383 Electrical machinery | 6 | 6 | *1* | *2* |
| 384 Transport equipment | 19 | 19 | *6* | *3* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 2 | 2 | - | - |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

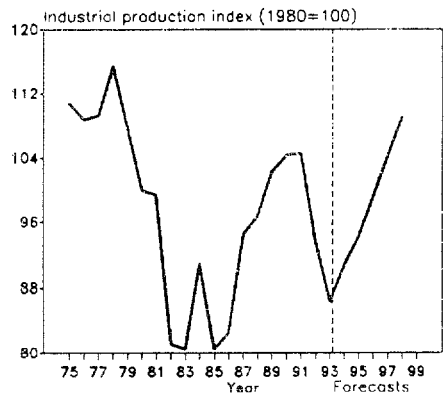
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

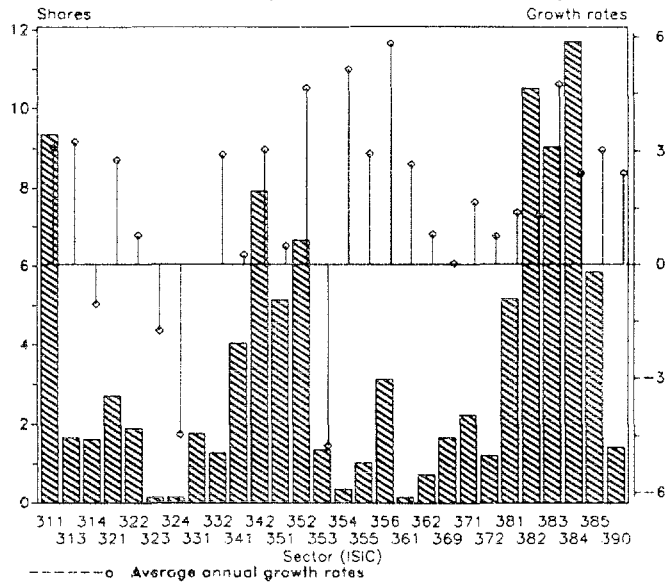



Industrial production index (1980=100)

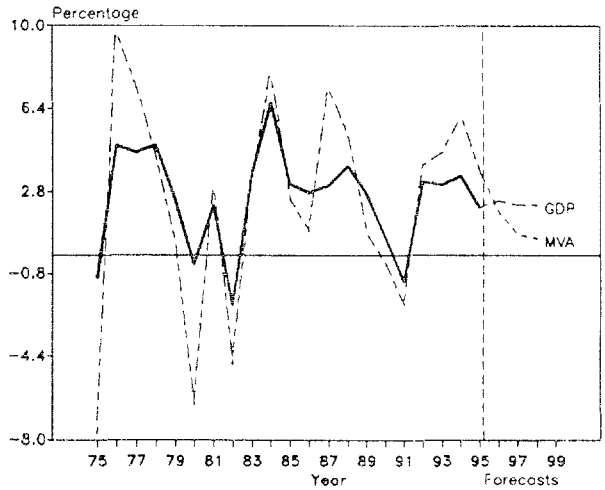


## UNITED STATES OF AMERICA

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

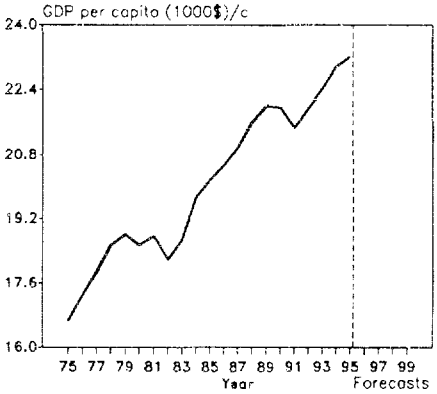



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES

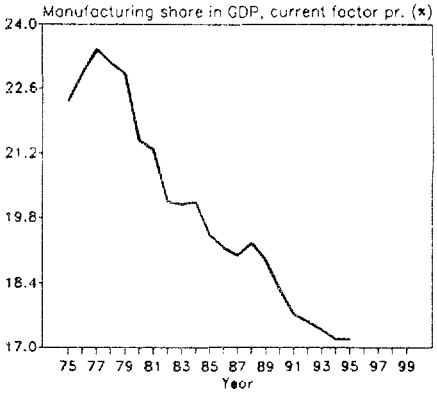
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 4 223 246 | 4 813 597 | 5 489 600 | 5 981 621 |
| Per capita [na] (1990-dollars) | 18 543 | 20 186 | 21 965 | 22 951 |
| Manufacturing share [na] (%) (current factor prices) | 21.5 | 19.4 | 18.3 | 17.2 |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 805 788 | 900 319 | 1 032 100 | 1 162 769 |
| Industrial production index (1980=100) | 100 | 113 | 128 | 148 |
| Value added (millions of dollars) | 769 899 | 996 439 | 1 322 110 | *1 611 763* |
| Gross output (millions of dollars) | 1 857 094 | 2 266 693 | 2 861 330 | 3 400 342 |
| Employment (thousands) | 19 210 | 17 424 | 17 502 | *17 312* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 59 | 56 | 54 | *53* |
| Wages and salaries including supplements | 21 | 21 | 21 | *20* |
| Gross operating surplus (%) | 21 | 22 | 26 | *27* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 96 673 | 130 090 | 163 486 | *194 601* |
| Value added per worker | 40 078 | 57 188 | 75 541 | *93 199* |
| Average wage (including supplements) | 20 044 | 27 953 | 33 565 | *39 396* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 4.61 | 6.75 | 7.35 | *4.99* |
| as a percentage of 1970-1975 structural change | 100 | 146 | 159 | *108* |
| MVA growth rate per structural change (%) | 3.20 | 1.72 | 0.86 | 1.97 |
| Degree of specialization | 11.9 | 13.5 | 12.3 | 12.8 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 63 460 | 87 970 | 119 830 | *150 961* |
| 313 Beverages | 11 810 | 16 170 | 21 140 | *26 835* |
| 314 Tobacco products | 6 160 | 11 890 | 22 560 | *22 853* |
| 321 Textiles | 23 030 | 26 910 | 34 960 | *43 311* |
| 322 Wearing apparel | 19 780 | 22 150 | 25 480 | *29 373* |
| 323 Leather and fur products | 1 850 | 1 580 | 2 210 | *2 219* |
| 324 Footwear | 2 950 | 2 470 | 2 320 | *2 088* |
| 331 Wood and wood products | 12 970 | 15 390 | 20 830 | *31 320* |
| 332 Furniture and fixtures | 9 840 | 13 250 | 16 910 | *21 079* |
| 341 Paper and paper products | 29 790 | 40 390 | 57 200 | *62 989* |
| 342 Printing and publishing | 44 390 | 73 050 | 103 180 | *128 215* |
| 351 Industrial chemicals | 38 920 | 43 370 | 73 480 | *80 023* |
| 352 Other chemical products | 35 530 | 54 290 | 81 770 | *108 814* |
| 353 Petroleum refineries | 23 010 | 13 890 | 22 820 | *18 910* |
| 354 Miscellaneous petroleum and coal products | 2 670 | 3 450 | 4 390 | *5 961* |
| 355 Rubber products | 8 030 | 10 970 | 13 430 | *16 908* |
| 356 Plastic products | 14 540 | 24 740 | 37 320 | *52 896* |
| 361 Pottery, china and earthenware | 1 210 | 1 300 | 1 840 | *2 254* |
| 362 Glass and glass products | 6 470 | 7 660 | 10 080 | *11 317* |
| 369 Other non-metal mineral products | 16 300 | 19 890 | 23 980 | *26 041* |
| 371 Iron and steel | 30 780 | 24 070 | 31 780 | *37 071* |
| 372 Non-ferrous metals | 14 340 | 11 440 | 17 510 | *19 448* |
| 381 Metal products | 53 180 | 61 810 | 70 360 | *83 136* |
| 382 Non-electrical machinery | 102 760 | 115 550 | 145 060 | *169 614* |
| 383 Electrical machinery | 74 850 | 111 230 | 112 400 | *153 975* |
| 384 Transport equipment | 81 280 | 128 220 | 154 030 | *187 297* |
| 385 Professional and scientific equipment | 27 940 | 40 280 | 76 520 | *94 102* |
| 390 Other manufacturing industries | 12 060 | 13 060 | 18 720 | *22 757* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

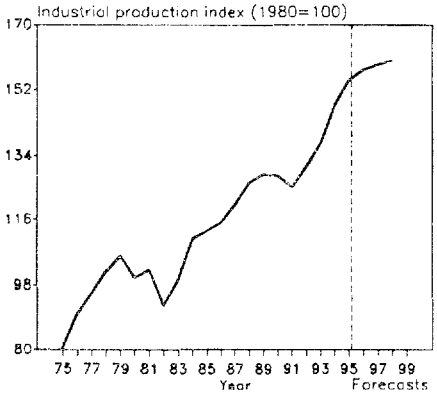
GDP per capita (1000$)/c



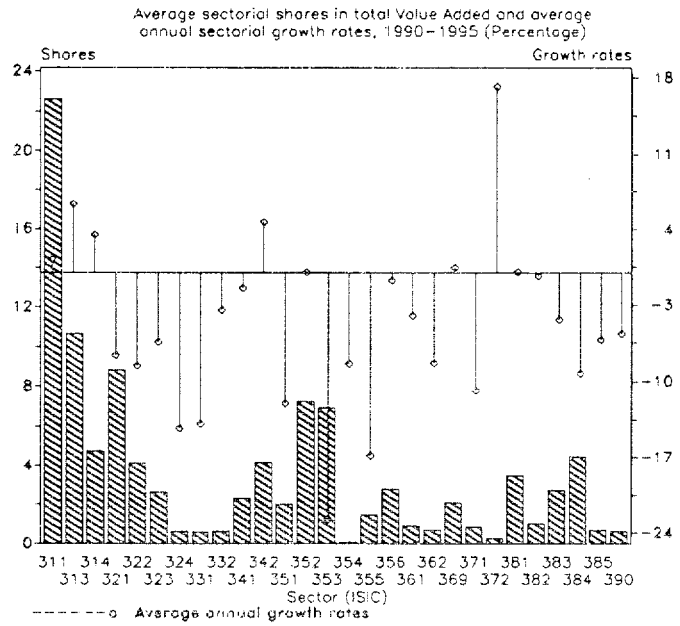

Manufacturing share in GDP, current factor pr. (%)

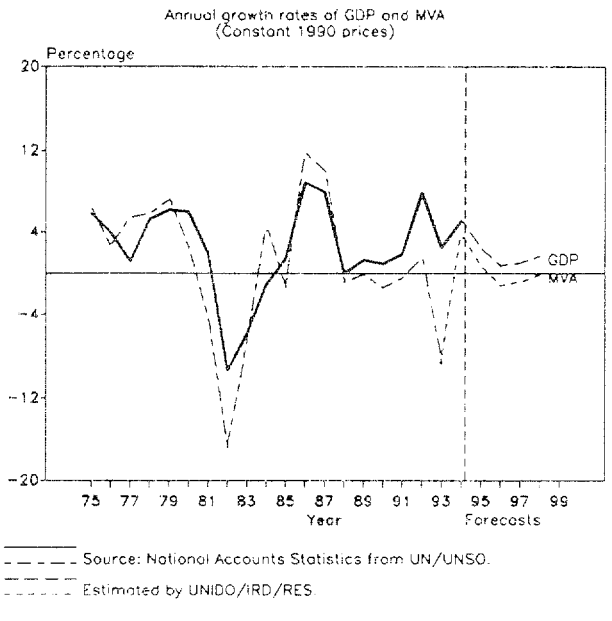



Industrial production index (1980=100)



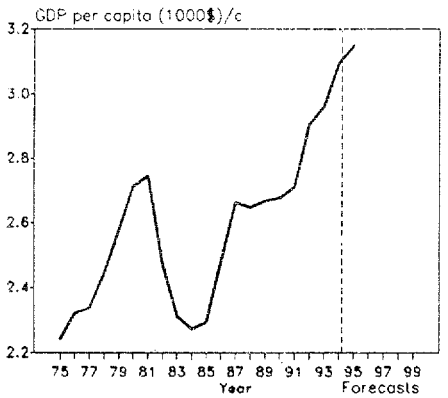
**URUGUAY**

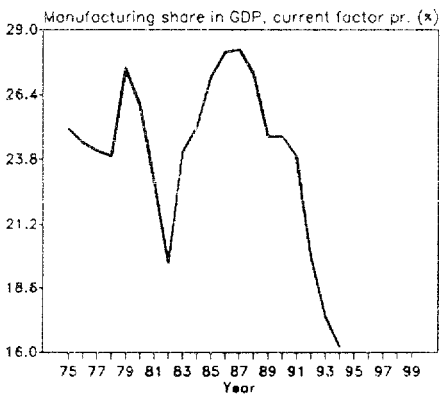


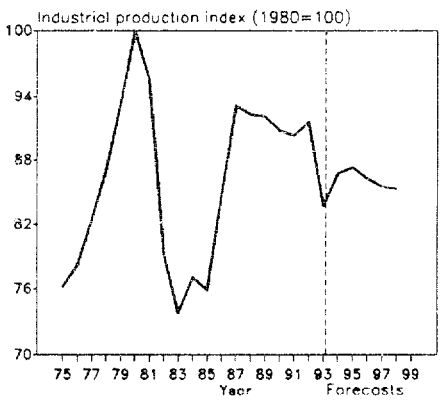




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 7 905 | 6 897 | 8 281 | 9 805 |
| Per capita [na] (1990-dollars) | 2 713 | 2 293 | 2 677 | 3 096 |
| Manufacturing share [na] (%) (current factor prices) | 26.0 | 27.1 | 24.7 | *16.1* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 2 393 | 1 815 | 2 173 | *2 076* |
| Industrial production index (1980=100) | 100 | 76 | 91 | *87* |
| Value added (millions of dollars) | 1 286 | 1 337 | 2 379 | *3 181* |
| Gross output (millions of dollars) | 3 302 | 3 174 | 5 778 | *6 738* |
| Employment (thousands) | 160 | 122 | 168 | *136* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 61 | 58 | 59 | *53* |
| Wages and salaries including supplements | *13* | 9 | 10 | *12* |
| Gross operating surplus and net taxes (%) | *26* | 33 | 32 | *36* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 20 456 | 26 023 | 34 428 | *49 487* |
| Value added per worker | 7 966 | 10 964 | 14 177 | *23 422* |
| Average wage (including supplements) | *2 635* | 2 442 | 3 280 | *5 781* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 13.82 | 15.46 | 14.56 | *15.30* |
| as a percentage of 1970-1975 structural change | 100 | 112 | 105 | *111* |
| MVA growth rate per structural change (%) | 0.28 | -0.15 | 0.75 | 0.26 |
| Degree of specialization | 13.9 | 18.8 | 15.2 | 18.8 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 165 | 266 | 473 | *792* |
| 313 Beverages | 104 | 92 | 181 | *393* |
| 314 Tobacco products | 90 | 68 | 90 | *170* |
| 321 Textiles | 109 | 137 | 235 | *253* |
| 322 Wearing apparel | 59 | 43 | 111 | *113* |
| 323 Leather and fur products | 31 | 76 | 67 | *74* |
| 324 Footwear | 18 | 8 | 19 | *14* |
| 331 Wood and wood products | *14* | 8 | 19 | *16* |
| 332 Furniture and fixtures | *7* | 2 | 13 | *18* |
| 341 Paper and paper products | 30 | 47 | 51 | *72* |
| 342 Printing and publishing | 37 | 27 | 81 | *159* |
| 351 Industrial chemicals | 20 | 26 | 68 | *57* |
| 352 Other chemical products | 75 | 112 | 162 | *256* |
| 353 Petroleum refineries | 192 | 194 | 239 | *99* |
| 354 Miscellaneous petroleum and coal products | 2 | 4 | 1 | *2* |
| 355 Rubber products | 40 | 34 | 58 | *37* |
| 356 Plastic products | 24 | 25 | 65 | *96* |
| 361 Pottery, china and earthenware | 13 | 7 | 20 | *26* |
| 362 Glass and glass products | 14 | 7 | 21 | *22* |
| 369 Other non-metal mineral products | 41 | 24 | 43 | *71* |
| 371 Iron and steel | 10 | 14 | 31 | *27* |
| 372 Non-ferrous metals | 3 | 3 | 3 | *11* |
| 381 Metal products | *53* | 32 | 73 | *116* |
| 382 Non-electrical machinery | *16* | 12 | 22 | *34* |
| 383 Electrical machinery | 33 | 31 | 69 | *88* |
| 384 Transport equipment | 78 | 32 | 129 | *121* |
| 385 Professional and scientific equipment | 1 | 1 | 19 | *21* |
| 390 Other manufacturing industries | 8 | 6 | 15 | *19* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

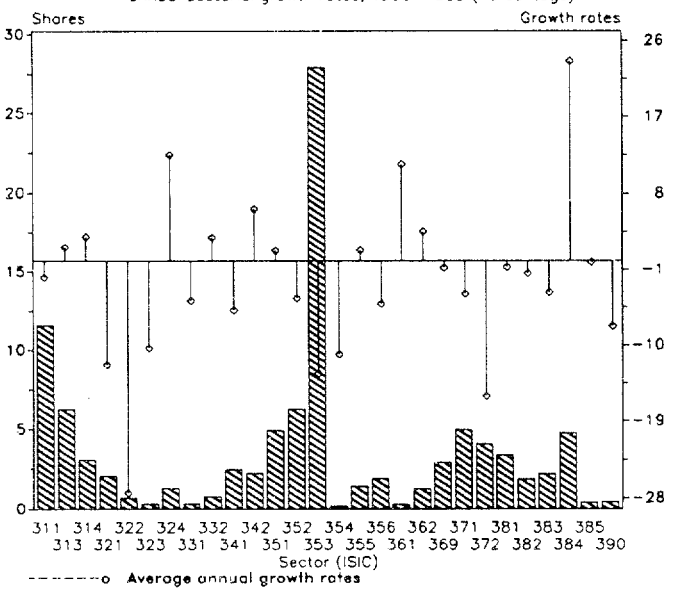


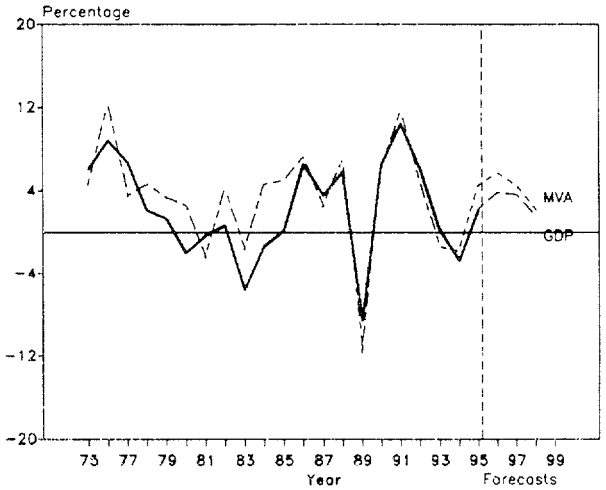



**VENEZUELA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

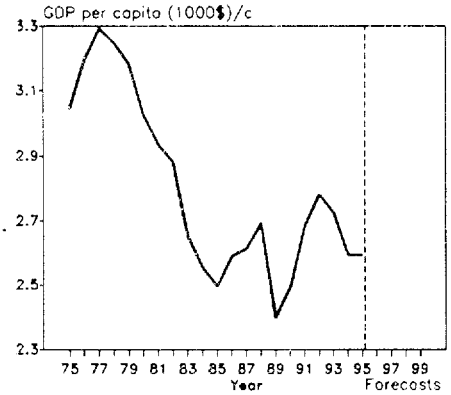



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

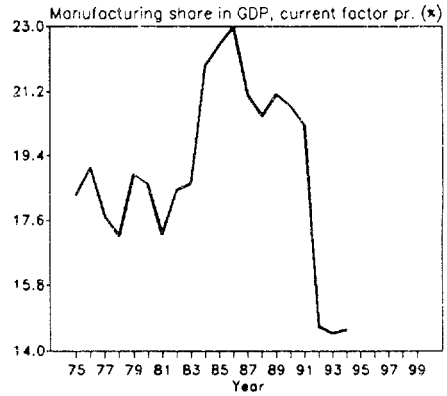
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 45 668 | 42 763 | 48 598 | 55 472 |
| Per capita [na] (1990-dollars) | 3 026 | 2 495 | 2 492 | 2 595 |
| Manufacturing share [na] (%) (current factor prices) | 18.6 | 22.5 | 20.8 | *14.6* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 8 300 | 9 087 | 9 974 | *11 239* |
| Industrial production index (1980=100) | 100 | 101 | 114 | *80* |
| Value added (millions of dollars) | *14 461* | 14 071 | 12 175 | *10 643* |
| Gross output (millions of dollars) | *30 213* | 30 305 | 24 128 | *25 881* |
| Employment (thousands) | *426* | 406 | 464 | *446* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | *52* | 54 | 50 | *59* |
| Wages and salaries including supplements | *15* | 13 | 9 | *9* |
| Gross operating surplus and net taxes (%) | *33* | 34 | 42 | *32* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | *67 966* | 71 154 | 51 776 | *57 886* |
| Value added per worker | *32 530* | 33 038 | 26 127 | *23 863* |
| Average wage (including supplements) | *10 358* | 9 495 | 4 651 | *5 367* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | *13.35* | *9.99* | 12.63 | *9.02* |
| as a percentage of 1970-1975 structural change | *100* | *75* | 95 | *68* |
| MVA growth rate per structural change (%) | 6.16 | 2.59 | 0.55 | -1.05 |
| Degree of specialization | 18.5 | 17.3 | 27.0 | 17.6 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | *1 425* | 1 597 | 1 210 | *1 282* |
| 313 Beverages | *953* | 836 | 583 | *760* |
| 314 Tobacco products | *409* | 597 | 273 | *368* |
| 321 Textiles | *430* | 505 | 291 | *179* |
| 322 Wearing apparel | *348* | 359 | 160 | *-40* |
| 323 Leather and fur products | *57* | 58 | 40 | *27* |
| 324 Footwear | *197* | 158 | 90 | *194* |
| 331 Wood and wood products | *106* | 80 | 36 | *33* |
| 332 Furniture and fixtures | *188* | 142 | 65 | *89* |
| 341 Paper and paper products | *395* | 357 | 277 | *243* |
| 342 Printing and publishing | *376* | 299 | 182 | *294* |
| 351 Industrial chemicals | *325* | 498 | 443 | *542* |
| 352 Other chemical products | *858* | 890 | 662 | *621* |
| 353 Petroleum refineries | *4 222* | 3 634 | 4 734 | *2 718* |
| 354 Miscellaneous petroleum and coal products | *25* | 30 | 19 | *13* |
| 355 Rubber products | *151* | 188 | 139 | *176* |
| 356 Plastic products | *394* | 348 | 215 | *190* |
| 361 Pottery, china and earthenware | *60* | 39 | 18 | *37* |
| 362 Glass and glass products | *137* | 132 | 109 | *156* |
| 369 Other non-metal mineral products | *489* | 378 | 290 | *331* |
| 371 Iron and steel | *651* | 855 | 498 | *458* |
| 372 Non-ferrous metals | *256* | 447 | 788 | *386* |
| 381 Metal products | *652* | 503 | 336 | *382* |
| 382 Non-electrical machinery | *287* | 241 | 180 | *195* |
| 383 Electrical machinery | *345* | 307 | 245 | *234* |
| 384 Transport equipment | *605* | 486 | 198 | *691* |
| 385 Professional and scientific equipment | *38* | 26 | 37 | *42* |
| 390 Other manufacturing industries | *82* | 81 | 56 | *44* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

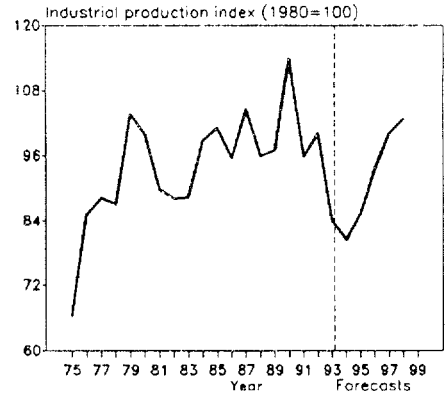
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)

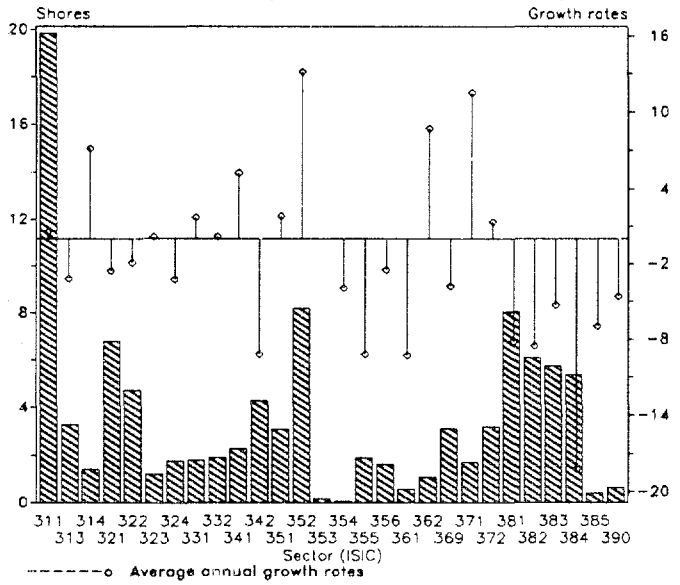



Industrial production index (1980=100)

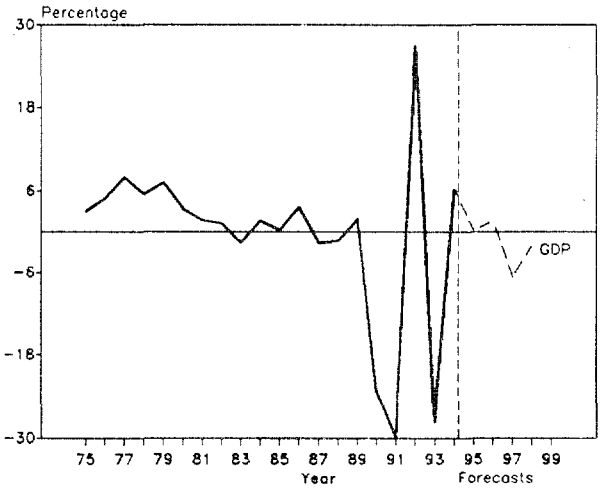


**YUGOSLAVIA**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)



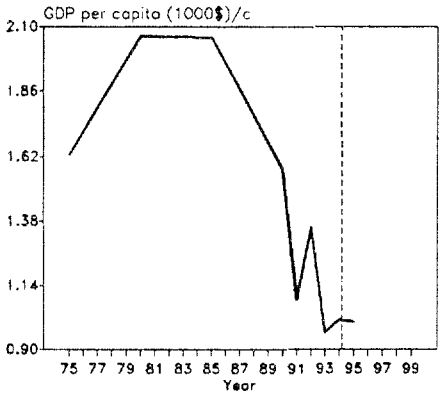

Annual growth rate of GDP (Constant 1990 prices)




Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

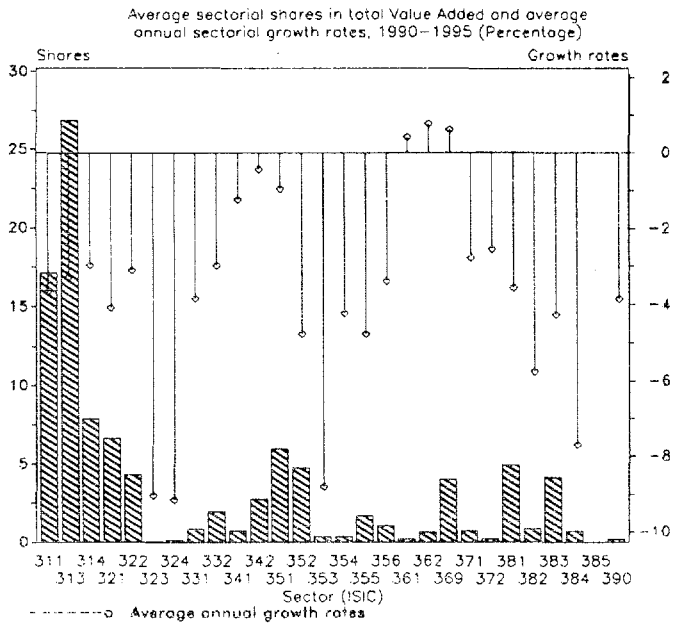
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 19 655 | 20 283 | 15 976 | 10 916 |
| Per capita [na] (1990-dollars) | 2 064 | 2 060 | 1 573 | 1 014 |
| Manufacturing share [na] (%) (current factor prices) | .. | .. | .. | .. |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | .. | .. | .. | .. |
| Industrial production index (1980=100) | .. | .. | .. | .. |
| Value added (millions of dollars) | .. | .. | 5 417 | .. |
| Gross output (millions of dollars) | .. | .. | 13 533 | .. |
| Employment (thousands) | .. | .. | .. | 821 |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | .. | .. | .. | .. |
| Wages and salaries including supplements | .. | .. | .. | .. |
| Gross operating surplus and net taxes (%) | .. | .. | .. | .. |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | .. | .. | .. | .. |
| Value added per worker | .. | .. | .. | .. |
| Average wage (including supplements) | .. | .. | .. | .. |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 4.14 | 2.07 | 4.68 | 7.78 |
| as a percentage of 1970-1975 structural change | 100 | 50 | 113 | 188 |
| MVA growth rate per structural change (%) | 7.83 | 8.65 | -5.08 | -3.62 |
| Degree of specialization | 13.4 | 13.4 | 12.7 | 12.4 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | .. | .. | 931 | .. |
| 313 Beverages | .. | .. | 176 | .. |
| 314 Tobacco products | .. | .. | 51 | .. |
| 321 Textiles | .. | .. | 365 | .. |
| 322 Wearing apparel | .. | .. | 242 | .. |
| 323 Leather and fur products | .. | .. | 58 | .. |
| 324 Footwear | .. | .. | 99 | .. |
| 331 Wood and wood products | .. | .. | 81 | .. |
| 332 Furniture and fixtures | .. | .. | 91 | .. |
| 341 Paper and paper products | .. | .. | 84 | .. |
| 342 Printing and publishing | .. | .. | 283 | .. |
| 351 Industrial chemicals | .. | .. | 136 | .. |
| 352 Other chemical products | .. | .. | 241 | .. |
| 353 Petroleum refineries | .. | .. | 121 | .. |
| 354 Miscellaneous petroleum and coal products | .. | .. | 3 | .. |
| 355 Rubber products | .. | .. | 128 | .. |
| 356 Plastic products | .. | .. | 83 | .. |
| 361 Pottery, china and earthenware | .. | .. | 38 | .. |
| 362 Glass and glass products | .. | .. | 37 | .. |
| 369 Other non-metal mineral products | .. | .. | 171 | .. |
| 371 Iron and steel | .. | .. | 60 | .. |
| 372 Non-ferrous metals | .. | .. | 144 | .. |
| 381 Metal products | .. | .. | 515 | .. |
| 382 Non-electrical machinery | .. | .. | 406 | .. |
| 383 Electrical machinery | .. | .. | 335 | .. |
| 384 Transport equipment | .. | .. | 477 | .. |
| 385 Professional and scientific equipment | .. | .. | 26 | .. |
| 390 Other manufacturing industries | .. | .. | 35 | .. |

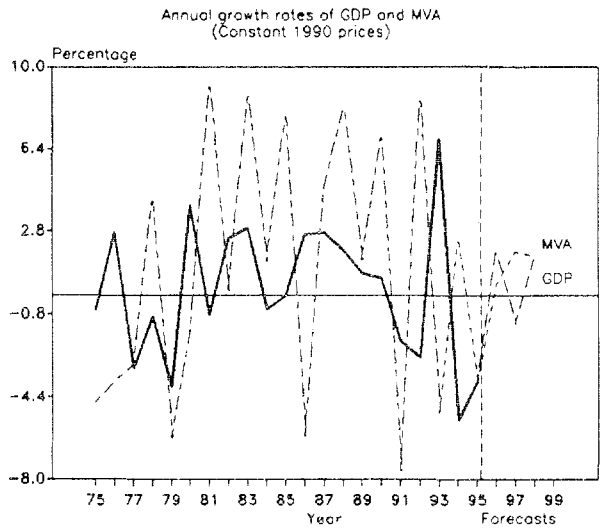
GDP per capita (1000$)/c




For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

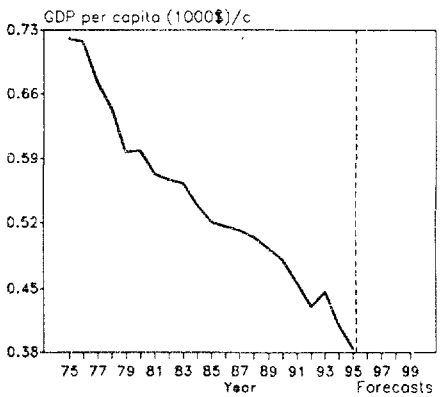
**ZAMBIA**

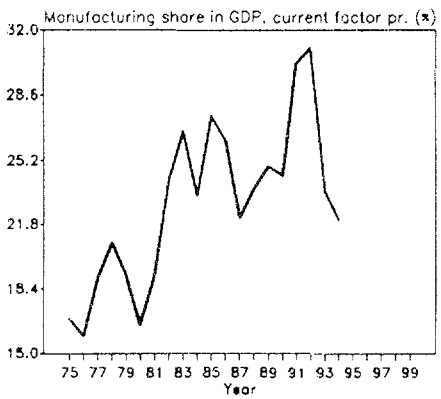


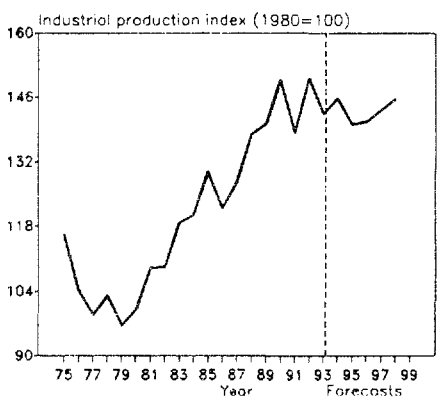




| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 3 438 | 3 575 | 3 910 | 3 771 |
| Per capita [na] (1990-dollars) | 599 | 521 | 480 | 410 |
| Manufacturing share [na] (%) (current factor prices) | 16.5 | 27.5 | 24.4 | *22.0* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 588 | 763 | 880 | *856* |
| Industrial production index (1980=100) | 100 | 130 | 150 | *146* |
| Value added (millions of dollars) | 780 | *555* | *917* | *813* |
| Gross output (millions of dollars) | 1 671 | *1 249* | 1 304 | *1 101* |
| Employment (thousands) | 59 | *64* | 67 | *61* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 53 | *56* | *30* | *26* |
| Wages and salaries including supplements | 11 | *12* | *9* | *9* |
| Gross operating surplus and net taxes (%) | 35 | *33* | *62* | *65* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 28 231 | *19 518* | *19 439* | *17 910* |
| Value added per worker | 13 173 | *8 794* | *13 676* | *13 352* |
| Average wage (including supplements) | 3 245 | *2 324* | *1 692* | *1 660* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 10.66 | *7.93* | *9.87* | *7.46* |
| as a percentage of 1970-1975 structural change | 100 | *74* | *93* | *70* |
| MVA growth rate per structural change (%) | 5.04 | 0.69 | 0.13 | -0.83 |
| Degree of specialization | 17.9 | 20.0 | 24.1 | 24.9 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 92 | *71* | 157 | *134* |
| 313 Beverages | 193 | *138* | *244* | *219* |
| 314 Tobacco products | 58 | *36* | *71* | *64* |
| 321 Textiles | 51 | *29* | 64 | *53* |
| 322 Wearing apparel | 34 | *23* | *39* | *35* |
| 323 Leather and fur products | 4 | *2* | - | - |
| 324 Footwear | 15 | *8* | *1* | *1* |
| 331 Wood and wood products | 8 | *8* | 8 | *7* |
| 332 Furniture and fixtures | 12 | *9* | *18* | *16* |
| 341 Paper and paper products | 15 | *7* | 6 | *6* |
| 342 Printing and publishing | 17 | *13* | *24* | *24* |
| 351 Industrial chemicals | 22 | *26* | 53 | *51* |
| 352 Other chemical products | 47 | *42* | 45 | *38* |
| 353 Petroleum refineries | 9 | *4* | *4* | *3* |
| 354 Miscellaneous petroleum and coal products | 3 | *2* | *4* | *3* |
| 355 Rubber products | 20 | *14* | 16 | *14* |
| 356 Plastic products | 7 | *5* | *9* | *9* |
| 361 Pottery, china and earthenware | 1 | *1* | *2* | *2* |
| 362 Glass and glass products | 3 | *3* | *6* | *6* |
| 369 Other non-metal mineral products | 33 | *35* | 36 | *35* |
| 371 Iron and steel | 10 | *6* | *7* | *6* |
| 372 Non-ferrous metals | 2 | *1* | *2* | *2* |
| 381 Metal products | 50 | *31* | 45 | *40* |
| 382 Non-electrical machinery | 18 | *8* | 8 | *7* |
| 383 Electrical machinery | 26 | *17* | 38 | *32* |
| 384 Transport equipment | 28 | *18* | 7 | *6* |
| 385 Professional and scientific equipment | - | - | - | - |
| 390 Other manufacturing industries | 2 | *1* | 2 | *2* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

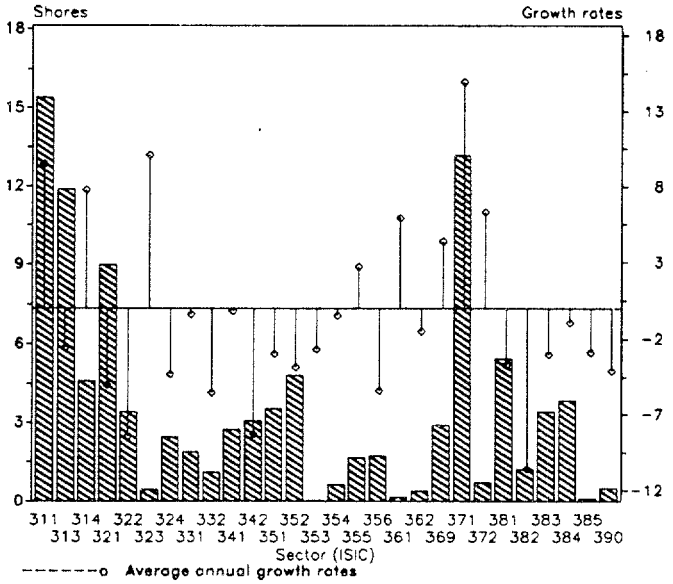


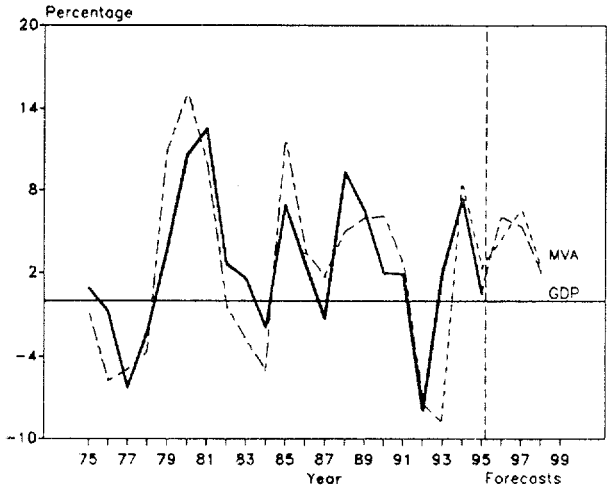



**ZIMBABWE**

Average sectorial shares in total Value Added and average annual sectorial growth rates, 1990–1995 (Percentage)




Annual growth rates of GDP and MVA (Constant 1990 prices)

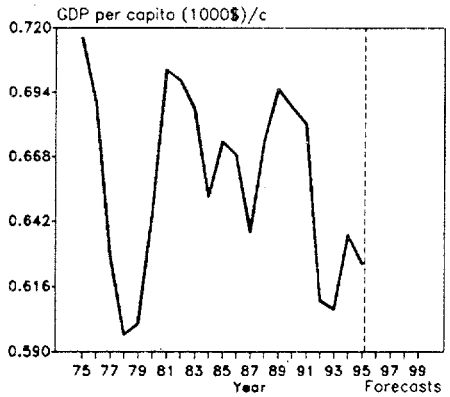



Source: National Accounts Statistics from UN/UNSO.
Estimated by UNIDO/IRD/RES.

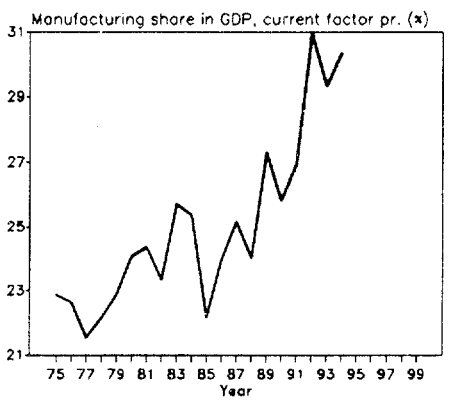
| | 1980 | 1985 | 1990 | 1994 |
|---|---|---|---|---|
| **GDP:** [na] (millions of 1990-dollars) | 4 596 | 5 656 | 6 811 | 7 001 |
| Per capita [na] (1990-dollars) | 645 | 674 | 688 | 636 |
| Manufacturing share [na] (%) (current factor prices) | 24.1 | 22.2 | 25.8 | *30.4* |
| **MANUFACTURING:** | | | | |
| Value added [na] (millions of 1990-dollars) | 1 006 | 1 131 | 1 404 | *1 313* |
| Industrial production index (1980=100) | 100 | 112 | 140 | *131* |
| Value added (millions of dollars) | 1 480 | 1 278 | 2 232 | *1 867* |
| Gross output (millions of dollars) | 3 579 | 3 020 | 4 749 | *3 855* |
| Employment (thousands) | 161 | 163 | 186 | *224* |
| **-PROFITABILITY:** (in percent of gross output) | | | | |
| Intermediate input | 59 | 58 | 53 | *52* |
| Wages and salaries including supplements | 17 | 18 | 15 | *13* |
| Gross operating surplus (%) | 24 | 25 | 32 | *35* |
| **-PRODUCTIVITY:** (dollars) | | | | |
| Gross output per worker | 22 265 | 18 452 | 25 557 | *17 154* |
| Value added per worker | 9 205 | 7 816 | 12 014 | *8 363* |
| Average wage (including supplements) | 3 848 | 3 241 | 3 939 | *2 239* |
| **-STRUCTURAL INDICES:** | | | | |
| Structural change indicator (5-year period, %) | 8.14 | 12.49 | 11.86 | *10.41* |
| as a percentage of 1970-1975 structural change | 100 | 153 | 146 | *128* |
| MVA growth rate per structural change (%) | 4.79 | 0.79 | 2.22 | 2.44 |
| Degree of specialization | 13.4 | 13.3 | 13.5 | 16.8 |
| **-VALUE ADDED:** (millions of dollars) | | | | |
| 311/2 Food products | 193 | 130 | 241 | *306* |
| 313 Beverages | 92 | 189 | 302 | *215* |
| 314 Tobacco products | 55 | 72 | 76 | *88* |
| 321 Textiles | 147 | 114 | 255 | *157* |
| 322 Wearing apparel | 70 | 55 | 102 | *52* |
| 323 Leather and fur products | 4 | 4 | 7 | *10* |
| 324 Footwear | 34 | 42 | 66 | *43* |
| 331 Wood and wood products | 38 | 17 | 43 | *34* |
| 332 Furniture and fixtures | 26 | 15 | 32 | *18* |
| 341 Paper and paper products | 30 | 37 | 64 | *52* |
| 342 Printing and publishing | 59 | 45 | 94 | *49* |
| 351 Industrial chemicals | 58 | 67 | *98* | *68* |
| 352 Other chemical products | 80 | 78 | 127 | *85* |
| 353 Petroleum refineries | - | 1 | *1* | - |
| 354 Miscellaneous petroleum and coal products | 7 | 8 | *16* | *13* |
| 355 Rubber products | 30 | 24 | 37 | *34* |
| 356 Plastic products | 25 | 37 | 47 | *28* |
| 361 Pottery, china and earthenware | 3 | 2 | 3 | *3* |
| 362 Glass and glass products | 9 | 5 | 9 | *7* |
| 369 Other non-metal mineral products | 44 | 28 | 54 | *55* |
| 371 Iron and steel | 194 | 105 | 184 | *291* |
| 372 Non-ferrous metals | 10 | 9 | 13 | *14* |
| 381 Metal products | 132 | 78 | 135 | *93* |
| 382 Non-electrical machinery | 39 | 22 | 43 | *20* |
| 383 Electrical machinery | 44 | 36 | 88 | *61* |
| 384 Transport equipment | 38 | 48 | 81 | *63* |
| 385 Professional and scientific equipment | 2 | 1 | 2 | *2* |
| 390 Other manufacturing industries | 17 | 9 | 13 | *8* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

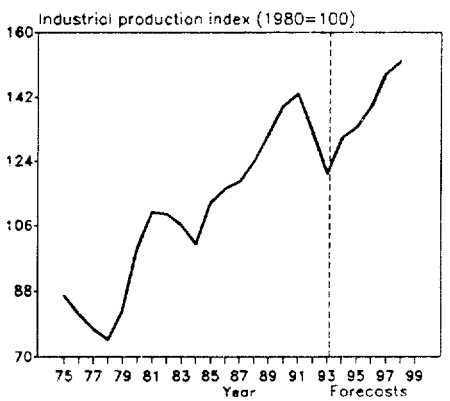
GDP per capita (1000$)/c




Manufacturing share in GDP, current factor pr. (%)




Industrial production index (1980=100)



| AFGHANISTAN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 255 | 1 402 | 1 070 | 1 174 | *1 186* | *1 198* |
| Growth rate (%)[na,c] | -3.72 | 0.27 | -3.12 | 2.00 | *1.00* | *1.00* |
| Per capita (in 1990-dollars)[na,c] | 78.2 | 96.5 | 71.1 | 70.6 | *67.0* | *63.4* |
| MVA:[na,c] (in million 1975-dollars) | 272 | 299 | 198 | 206 | *217* | *221* |
| Growth rate (%)[na,c] | -6.06 | 3.32 | -10.34 | 3.74 | *5.25* | *1.99* |
| Manufacturing share (%)[na] | .. | .. | .. | .. | .. | .. |

| AZERBAIJAN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 7 470 | 10 051 | 9 740 | 5 439 | 4 732 | 3 696 |
| Growth rate (%)[na,c] | 10.13 | 4.61 | -9.79 | -35.20 | -13.00 | -21.90 |
| Per capita (in 1990-dollars)[na,c] | 1 213.2 | 1 509.3 | 1 368.5 | 745.5 | 640.9 | 494.6 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | 1 657 | 1 750 | *1 356* | *1 017* |
| Growth rate (%)[na,c] | .. | .. | .. | -4.35 | *-22.50* | *-24.98* |
| Manufacturing share (%)[na] | 21.5 | 20.5 | *17.0* | *27.5* | *22.5* | *22.5* |

| BAHAMAS | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 603 | 2 075 | 3 134 | 3 068 | 3 130 | 3 139 |
| Growth rate (%)[na,c] | -3.56 | 13.51 | 0.97 | 0.11 | 2.00 | 0.30 |
| Per capita (in 1990-dollars)[na,c] | 7 631.1 | 8 869.1 | 12 242.2 | 11 622.4 | 11 677.7 | 11 540.5 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | .. | .. | .. | .. |
| Growth rate (%)[na,c] | .. | .. | .. | .. | .. | .. |
| Manufacturing share (%)[na] | 7.5 | .. | 3.2 | 4.0 | *3.4* | .. |

| BAHRAIN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 3 748 | 3 607 | 4 032 | 4 699 | 5 087 | 5 202 |
| Growth rate (%)[na,c] | 2.58 | -2.04 | 1.23 | 7.80 | 8.25 | 2.27 |
| Per capita (in 1990-dollars)[na,c] | 10 801.3 | 8 713.6 | 8 229.5 | 9 036.5 | 9 507.9 | 9 475.7 |
| MVA:[na,c] (in million 1990-dollars) | 509 | 559 | 672 | 852 | *914* | *947* |
| Growth rate (%)[na,c] | 26.25 | -10.51 | 5.23 | 22.17 | *7.26* | *3.57* |
| Manufacturing share (%)[na] | 14.8 | 8.5 | 15.4 | 14.2 | 16.5 | *16.5* |

| BELARUS | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 22 472 | 29 438 | 34 188 | 30 313 | 27 434 | 21 535 |
| Growth rate (%)[na,c] | 4.17 | 3.97 | -1.40 | -8.59 | -9.50 | -21.50 |
| Per capita (in 1990-dollars)[na,c] | 2 334.2 | 2 956.2 | 3 347.8 | 2 969.0 | 2 692.7 | 2 119.0 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | 8 902 | 8 801 | *8 881* | *7 167* |
| Growth rate (%)[na,c] | .. | .. | .. | -1.83 | *0.91* | *-19.30* |
| Manufacturing share (%)[na] | 30.2 | 24.7 | *35.6* | *28.0* | *28.3* | *32.1* |

| BELIZE | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 249 | 253 | 396 | 456 | 475 | 483 |
| Growth rate (%)[na,c] | 4.37 | 1.02 | 8.49 | 9.15 | 4.22 | 1.60 |
| Per capita (in 1990-dollars)[na,c] | 1 705.6 | 1 525.9 | 2 097.6 | 2 291.9 | 2 330.0 | 2 299.6 |
| MVA:[na,c] (in million 1990-dollars) | 44 | 41 | 53 | 60 | 59 | *60* |
| Growth rate (%)[na,c] | 14.91 | 0.96 | 4.89 | 12.79 | -1.29 | *2.03* |
| Manufacturing share (%)[na] | 23.1 | 16.3 | 15.0 | 13.9 | 13.4 | *11.4* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

| BENIN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 336 | 1 735 | 1 845 | 1 961 | 2 026 | 2 123 |
| Growth rate (%)[na,c] | 9.42 | 7.53 | 3.29 | 4.16 | 3.31 | 4.80 |
| Per capita (in 1990-dollars)[na,c] | 386.2 | 435.1 | 398.2 | 397.8 | 398.4 | 404.8 |
| MVA:[na,c] (in million 1990-dollars) | 127 | 115 | 145 | 170 | 174 | *180* |
| Growth rate (%)[na,c] | -4.38 | 11.85 | 0.85 | 11.56 | 2.39 | *3.79* |
| Manufacturing share (%)[na] | 12.9 | 8.2 | 8.2 | 8.2 | 8.2 | *7.8* |

| BERMUDA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 541 | 1 548 | 1 635 | 1 528 | 1 574 | 1 613 |
| Growth rate (%)[na,c] | 2.51 | 6.69 | -2.50 | -1.70 | 3.00 | 2.50 |
| Per capita (in 1990-dollars)[na,c] | 28 544.2 | 27 645.6 | 26 801.6 | 24 648.2 | 25 387.6 | 25 609.3 |
| MVA:[na,c] (in million 1980-dollars) | 101 | 98 | 103 | 100 | 103 | *105* |
| Growth rate (%)[na,c] | 4.52 | 2.80 | -3.79 | -1.38 | 2.60 | *2.24* |
| Manufacturing share (%)[na] | .. | .. | .. | .. | .. | .. |

| BHUTAN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 142 | 197 | 283 | 311 | 327 | 344 |
| Growth rate (%)[na,c] | 17.63 | 3.69 | 4.90 | 4.50 | 5.20 | 5.10 |
| Per capita (in 1990-dollars)[na,c] | 114.6 | 143.0 | 183.6 | 196.6 | 205.0 | 213.1 |
| MVA:[na,c] (in million 1990-dollars) | 5 | 11 | 23 | 27 | 30 | *32* |
| Growth rate (%)[na,c] | 35.27 | 12.20 | 15.55 | 11.84 | 10.06 | *8.46* |
| Manufacturing share (%)[na] | 3.2 | 5.3 | 8.1 | 10.4 | 11.3 | .. |

| BOSNIA AND HERZEGOVINA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 7 611 | 8 376 | 6 523 | 2 285 | *1 143* | *914* |
| Growth rate (%)[na,c] | 1.15 | 1.51 | -23.20 | -50.00 | *-50.00* | *-20.00* |
| Per capita (in 1990-dollars)[na,c] | 1 944.5 | 2 031.9 | 1 514.1 | 579.4 | 308.2 | 259.2 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | .. | .. | .. | .. |
| Growth rate (%)[na,c] | .. | .. | .. | .. | .. | .. |
| Manufacturing share (%)[na] | .. | .. | .. | .. | .. | .. |

| BRUNEI DARUSSALAM | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 4 248 | 3 526 | 3 596 | 3 690 | 3 542 | 3 648 |
| Growth rate (%)[na,c] | -7.00 | -1.49 | 2.74 | -1.00 | -4.00 | 3.00 |
| Per capita (in 1990-dollars)[na,c] | 22 011.1 | 15 603.1 | 13 991.9 | 13 716.0 | 12 927.1 | 13 029.6 |
| MVA:[na,c] (in million 1990-dollars) | 430 | 254 | 323 | 239 | *224* | *228* |
| Growth rate (%)[na,c] | -8.35 | -5.42 | 5.31 | -4.56 | *-6.30* | *1.93* |
| Manufacturing share (%)[na] | 11.7 | 10.0 | 8.8 | 7.7 | .. | .. |

| CAPE VERDE | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 209 | 283 | 368 | 401 | 417 | 436 |
| Growth rate (%)[na,c] | 3.32 | 8.54 | 3.70 | 3.37 | 4.02 | 4.60 |
| Per capita (in 1990-dollars)[na,c] | 723.5 | 912.8 | 1 079.8 | 1 112.8 | 1 126.3 | 1 144.1 |
| MVA:[na,c] (in million 1990-dollars) | 12 | 18 | 21 | 24 | *26* | *27* |
| Growth rate (%)[na,c] | 7.14 | 36.12 | 6.21 | 6.53 | *6.43* | *6.38* |
| Manufacturing share (%)[na] | 4.8 | 5.8 | 6.1 | 6.2 | *5.8* | .. |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

| CHAD | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 722 | 1 107 | 1 213 | 1 197 | 1 162 | 1 246 |
| Growth rate (%)[na,c] | -7.40 | 21.90 | -2.70 | 0.32 | -2 90 | 7.20 |
| Per capita (in 1990-dollars)[na,c] | 161.4 | 220.6 | 218.4 | 204.7 | 193.3 | 201.5 |
| MVA:[na,c] (in million 1990-dollars) | 125 | 239 | 174 | 161 | 156 | *166* |
| Growth rate (%)[na,c] | -12.00 | -6.65 | -38.84 | -6.59 | -3.04 | *6.40* |
| Manufacturing share (%)[na] | 22.9 | 11.1 | 15.4 | 11.1 | 14.1 | *13.4* |

| DEMOCRATIC PEOP. REP OF KOREA UBLIC | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 11 014 | 17 622 | 21 000 | 19 950 | 19 252 | 18 674 |
| Growth rate (%)[na,c] | 9.89 | 9.59 | -3.70 | -5.00 | -3.50 | -3.00 |
| Per capita (in 1990-dollars)[na,c] | 603.2 | 886.0 | 964.5 | 882.2 | 835.3 | 795.2 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | .. | .. | .. | .. |
| Growth rate (%)[na,c] | .. | .. | .. | .. | .. | .. |
| Manufacturing share (%)[na] | .. | .. | .. | .. | .. | .. |

| DJIBOUTI | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 353 | 367 | 418 | 424 | 426 | *428* |
| Growth rate (%)[na,c] | 4.72 | 0.57 | 8.91 | -1.00 | 0.30 | *0.50* |
| Per capita (in 1990-dollars)[na,c] | 1 256.8 | 937.6 | 807.6 | 777.1 | 764.1 | *755.7* |
| MVA:[na,c] (in million 1990-dollars) | 15 | 15 | 17 | 17 | *18* | *18* |
| Growth rate (%)[na,c] | 4.08 | 0.49 | 11.79 | 1.17 | *1.76* | *1.88* |
| Manufacturing share (%)[na] | 4.2 | 4.7 | 4.8 | 4.4 | 4.5 | .. |

| DOMINICAN REPUBLIC | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 5 946 | 6 419 | 7 080 | 7 603 | 7 830 | 8 170 |
| Growth rate (%)[na,c] | 6.05 | -2.59 | -5.41 | 8.03 | 2.99 | 4.34 |
| Per capita (in 1990-dollars)[na,c] | 1 043.7 | 1 006.8 | 995.8 | 1 027.4 | 1 038.1 | 1 063.2 |
| MVA:[na,c] (in million 1990-dollars) | 910 | 884 | 955 | 1 070 | 1 077 | *1 120* |
| Growth rate (%)[na,c] | 5.03 | -7.11 | -7.80 | 12.70 | 0.63 | *4.04* |
| Manufacturing share (%)[na] | 15.3 | 13.6 | 13.5 | 14.2 | *14.2* | .. |

| EQUATORIAL GUINEA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 117 | 131 | 145 | 171 | 183 | 199 |
| Growth rate (%)[na,c] | -9.94 | 6.55 | 4.74 | 13.72 | 7.35 | 8.90 |
| Per capita (in 1990-dollars)[na,c] | 541.1 | 419.4 | 412.2 | 462.5 | 483.4 | 512.8 |
| MVA:[na,c] (in million 1990-dollars) | 2 | 3 | 2 | 2 | 2 | *2* |
| Growth rate (%)[na,c] | -9.19 | 94.14 | 1.85 | -0.22 | 11.28 | *2.47* |
| Manufacturing share (%)[na] | 1.6 | 1.9 | 1.5 | 10.2 | 9 9 | .. |

| ESTONIA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 4 041 | 4 099 | 4 602 | 3 481 | 3 210 | 3 402 |
| Growth rate (%)[na,c] | .. | -8.70 | -6.47 | -12.43 | -7.79 | 6.00 |
| Per capita (in 1990-dollars)[na,c] | 2 730.3 | 2 668.9 | 2 921.8 | 2 227.0 | 2 068.1 | 2 207.9 |
| MVA:[na,c] (in million 1990-dollars) | 1 735 | 1 944 | 1 976 | .. | .. | .. |
| Growth rate (%)[na,c] | .. | 0.38 | -5.09 | .. | .. | .. |
| Manufacturing share (%)[na] | 45.1 | 42.2 | 42.9 | 32.6 | 24.0 | *22.5* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

| FRENCH GUIANA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 922 | 987 | 1 103 | 1 129 | *1 126* | *1 135* |
| Growth rate (%)[na,c] | 0.00 | 3.00 | 2.20 | 1.28 | *-0.26* | *0.82* |
| Per capita (in 1990-dollars)[na,c] | 13 565.7 | 10 845.5 | 9 427.3 | 8 821.0 | *8 404.4* | *8 110.1* |
| MVA:[na,c] (in million 1980-dollars) | 11 | 10 | 11 | 12 | 12 | *12* |
| Growth rate (%)[na,c] | 4.52 | 2.81 | 0.43 | 0.00 | 1.67 | *2.44* |
| Manufacturing share (%)[na] | .. | .. | .. | .. | .. | .. |

| FRENCH POLYNESIA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 684 | 2 361 | 3 007 | 3 250 | *3 431* | *3 614* |
| Growth rate (%)[na,c] | 0.48 | 5.35 | 3.97 | 4.00 | *5.57* | *5.33* |
| Per capita (in 1990-dollars)[na,c] | 11 151.2 | 13 570.9 | 15 266.3 | 15 778.0 | *16 262.4* | *16 810.4* |
| MVA:[na,c] (in million 1990-dollars) | 120 | 202 | 219 | 236 | *249* | *263* |
| Growth rate (%)[na,c] | 1.77 | 8.27 | 5.22 | 3.84 | *5.62* | *5.34* |
| Manufacturing share (%)[na] | 6.6 | 8.5 | 7.3 | .. | .. | .. |

| GEORGIA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 8 417 | 12 416 | 12 167 | 5 489 | 3 294 | 2 365 |
| Growth rate (%)[na,c] | 4.56 | 12.66 | -0.34 | -43.40 | -40.00 | -28.20 |
| Per capita (in 1990-dollars)[na,c] | 1 667.3 | 2 364.1 | 2 245.8 | 1 008.7 | 604.6 | 433.9 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | 2 330 | 1 193 | *713* | *463* |
| Growth rate (%)[na,c] | .. | .. | .. | -42.22 | *-40.22* | *-35.01* |
| Manufacturing share (%)[na] | 21.0 | 22.4 | *19.2* | *14.9* | *11.0* | *11.0* |

| GHANA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 4 988 | 4 881 | 6 226 | 6 713 | 7 046 | 7 313 |
| Growth rate (%)[na,c] | 0.46 | 5.08 | 2.66 | 3.88 | 4.95 | 3.80 |
| Per capita (in 1990-dollars)[na,c] | 464.6 | 380.2 | 414.5 | 420.7 | 428.4 | 431.6 |
| MVA:[na,c] (in million 1990-dollars) | 536 | 429 | 575 | 553 | 565 | *582* |
| Growth rate (%)[na,c] | -1.44 | 24.29 | -4.47 | 2.71 | 2.19 | *3.04* |
| Manufacturing share (%)[na] | 7.8 | 11.5 | 9.3 | 8.7 | 8.8 | *8.8* |

| GUADELOUPE | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 676 | 1 706 | 2 200 | 2 172 | *2 273* | *2 340* |
| Growth rate (%)[na,c] | -4.66 | -0.76 | 3.14 | 2.78 | *4.69* | *2.94* |
| Per capita (in 1990-dollars)[na,c] | 5 125.0 | 4 805.6 | 5 626.6 | 5 348.8 | *5 504.6* | *5 558.6* |
| MVA:[na,c] (in million 1990-dollars) | 113 | 89 | 129 | 126 | 131 | *134* |
| Growth rate (%)[na,c] | -5.16 | 11.54 | 3.22 | 1.84 | 3.83 | *2.45* |
| Manufacturing share (%)[na] | 6.3 | 4.9 | *5.4* | .. | .. | .. |

| GUINEA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 2 296 | 2 188 | 2 818 | 3 045 | 3 183 | 3 310 |
| Growth rate (%)[na,c] | 5.60 | 3.89 | 4.69 | 3.23 | 4.51 | 4.00 |
| Per capita (in 1990-dollars)[na,c] | 514.8 | 438.7 | 489.7 | 497.9 | 504.7 | 509.2 |
| MVA:[na,c] (in million 1990-dollars) | 61 | 62 | 100 | 110 | 116 | *122* |
| Growth rate (%)[na,c] | 2.70 | 3.33 | 5.07 | 3.83 | 5.03 | *5.90* |
| Manufacturing share (%)[na] | 1.5 | 1.1 | 3.6 | 4.6 | 4.7 | *4.6* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

| GUINEA-BISSAU | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 168 | 186 | 236 | 250 | 258 | 276 |
| Growth rate (%)[na,c] | -4.19 | -2.30 | 3.30 | 2.80 | 3.00 | 6.90 |
| Per capita (in 1990-dollars)[na,c] | 210.7 | 213.0 | 245.3 | 248.9 | 250.8 | 262.5 |
| **MVA:**[na,c] (in million 1990-dollars) | 25 | 24 | 17 | 16 | 16 | *16* |
| Growth rate (%)[na,c] | -5.09 | -5.95 | -1.54 | -1.40 | 1.21 | *-1.35* |
| Manufacturing share (%)[na] | 7.3 | 7.1 | 7.0 | 8.4 | 8.0 | *8.0* |

| GUYANA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 561 | 469 | 396 | 453 | 490 | 531 |
| Growth rate (%)[na,c] | 1.66 | 1.02 | -10.09 | 7.75 | 8.23 | 8.50 |
| Per capita (in 1990-dollars)[na,c] | 739.6 | 593.3 | 497.8 | 560.1 | 600.3 | 644.2 |
| **MVA:**[na,c] (in million 1990-dollars) | 40 | 28 | 18 | 24 | 25 | *27* |
| Growth rate (%)[na,c] | 0.76 | -3.13 | -16.67 | 19.32 | 3.07 | *12.06* |
| Manufacturing share (%)[na] | 12.1 | 9.8 | 5.2 | 4.4 | 3.8 | .. |

| HAITI | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 2 380 | 2 270 | 2 281 | 1 955 | 1 853 | 1 609 |
| Growth rate (%)[na,c] | 7.39 | 0.59 | -0.14 | -14.85 | -5.24 | -13.19 |
| Per capita (in 1990-dollars)[na,c] | 444.7 | 387.1 | 351.6 | 289.5 | 268.8 | 228.7 |
| **MVA:**[na,c] (in million 1990-dollars) | 506 | 429 | 417 | 271 | 269 | *217* |
| Growth rate (%)[na,c] | 14.81 | -0.84 | 2.41 | -21.42 | -0.77 | *-19.30* |
| Manufacturing share (%)[na] | 19.1 | 17.6 | 19.5 | 16.8 | 13.1 | *13.1* |

| KAZAKSTAN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 21 683 | 28 636 | 39 831 | 31 678 | 27 591 | 20 694 |
| Growth rate (%)[na,c] | 3.76 | 6.16 | 15.54 | -13.00 | -12.90 | -25.00 |
| Per capita (in 1990-dollars)[na,c] | 1 454.5 | 1 814.7 | 2 389.4 | 1 877.0 | 1 627.6 | 1 215.3 |
| **MVA:**[na,c] (in million 1990-dollars) | .. | .. | 5 497 | 7 290 | *6 210* | *4 472* |
| Growth rate (%)[na,c] | .. | .. | .. | -14.24 | *-14.80* | *-28.00* |
| Manufacturing share (%)[na] | 18.9 | 19.2 | *13.8* | *17.0* | *17.0* | .. |

| KYRGYZSTAN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 6 524 | 8 750 | 11 173 | 8 071 | 6 748 | 4 959 |
| Growth rate (%)[na,c] | 2.96 | -5.31 | 1.20 | -19.37 | -16.40 | -26.50 |
| Per capita (in 1990-dollars)[na,c] | 1 803.7 | 2 192.9 | 2 561.5 | 1 788.4 | 1 470.0 | 1 062.7 |
| **MVA:**[na,c] (in million 1990-dollars) | .. | .. | 2 588 | 2 061 | *1 540* | *1 155* |
| Growth rate (%)[na,c] | .. | .. | .. | -15.52 | *-25.29* | *-25.02* |
| Manufacturing share (%)[na] | .. | .. | *23.2* | *27.6* | 24.9 | .. |

| LAO PEOPLE'S DEMOCRATIC REPUBLIC | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 515 | 704 | 868 | 975 | 1 014 | 1 099 |
| Growth rate (%)[na,c] | 1.70 | 5.06 | 7.61 | 7.00 | 4.00 | 8.40 |
| Per capita (in 1990-dollars)[na,c] | 160.6 | 195.9 | 206.6 | 218.2 | 220.2 | 231.8 |
| **MVA:**[na,c] (in million 1975-dollars) | 23 | 31 | 38 | 46 | 50 | 54 |
| Growth rate (%)[na,c] | 7.94 | 3.84 | 10.87 | 8.00 | *8.10* | *8.50* |
| Manufacturing share (%)[na] | .. | .. | .. | 12.6 | 13.4 | .. |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

| LIBERIA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 915 | 841 | 805 | 725 | 725 | 725 |
| Growth rate (%)[na,c] | -6.29 | -2.02 | -10.00 | 0.00 | 0.00 | 0.00 |
| Per capita (in 1990-dollars)[na,c] | 487.5 | 382.6 | 312.6 | 263.4 | 254.7 | 246.4 |
| MVA:[na,c] (in million 1990-dollars) | 82 | 80 | 59 | 60 | *60* | *61* |
| Growth rate (%)[na,c] | -21.21 | -1.61 | -32.51 | 5.88 | *0.54* | *0.82* |
| Manufacturing share (%)[na] | 9.5 | 6.6 | 7.9 | .. | .. | .. |

| LITHUANIA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 7 419 | 10 698 | 12 757 | 6 696 | 4 664 | 4 710 |
| Growth rate (%)[na,c] | .. | 9.63 | -6.74 | -39.30 | -30.35 | 0.99 |
| Per capita (in 1990-dollars)[na,c] | 2 161.0 | 2 982.3 | 3 437.6 | 1 801.4 | 1 256.4 | 1 270.9 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | .. | .. | .. | .. |
| Growth rate (%)[na,c] | .. | .. | .. | .. | .. | .. |
| Manufacturing share (%)[na] | 37.8 | 35.2 | 35.4 | *50.9* | *46.8* | .. |

| MALI | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 748 | 2 006 | 2 510 | 2 583 | 2 781 | 2 848 |
| Growth rate (%)[na,c] | 4.01 | 8.50 | 2.41 | 3.11 | 7.67 | 2.40 |
| Per capita (in 1990-dollars)[na,c] | 254.6 | 253.4 | 272.4 | 263.1 | 274.4 | 272.2 |
| MVA:[na,c] (in million 1990-dollars) | 86 | 160 | 196 | 206 | 218 | *227* |
| Growth rate (%)[na,c] | 1.58 | 4.37 | -2.35 | 3.22 | 5.37 | *4.38* |
| Manufacturing share (%)[na] | 4.3 | 7.5 | 8.2 | 7.0 | *9.2* | *8.8* |

| MARTINIQUE | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 734 | 2 159 | 2 800 | 2 842 | *2 995* | *3 195* |
| Growth rate (%)[na,c] | 2.80 | 4.50 | 2.94 | 5.68 | *5.38* | *6.68* |
| Per capita (in 1990-dollars)[na,c] | 5 320.2 | 6 330.6 | 7 777.8 | 7 722.2 | *8 071.7* | *8 519.0* |
| MVA:[na,c] (in million 1980-dollars) | 72 | 101 | 162 | 92 | 97 | *106* |
| Growth rate (%)[na,c] | -9.91 | 26.89 | 2.95 | 2.22 | 5.43 | *8.98* |
| Manufacturing share (%)[na] | 5.1 | .. | .. | .. | .. | .. |

| MAURITANIA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 856 | 852 | 1 052 | 1 111 | 1 167 | 1 220 |
| Growth rate (%)[na,c] | 0.70 | 3.35 | 6.26 | 1.81 | 4.96 | 4.60 |
| Per capita (in 1990-dollars)[na,c] | 551.7 | 482.4 | 525.1 | 527.5 | 539.8 | 550.4 |
| MVA:[na,c] (in million 1990-dollars) | 62 | 100 | 119 | 142 | 149 | *160* |
| Growth rate (%)[na,c] | -1.43 | 22.44 | 22.15 | 11.07 | 5.50 | *6.95* |
| Manufacturing share (%)[na] | 5.6 | 12.8 | 12.9 | 9.7 | *11.1* | .. |

| MAURITIUS | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 409 | 1 769 | 2 559 | 2 839 | 2 992 | 3 142 |
| Growth rate (%)[na,c] | -10.06 | 6.88 | 7.15 | 6.21 | 5.38 | 5.00 |
| Per capita (in 1990-dollars)[na,c] | 1 458.8 | 1 741.6 | 2 421.0 | 2 631.5 | 2 742.6 | 2 845.8 |
| MVA:[na,c] (in million 1990-dollars) | 200 | 299 | 502 | 565 | 621 | *667* |
| Growth rate (%)[na,c] | -7.03 | 15.27 | 7.72 | 6.40 | 10.00 | *7.36* |
| Manufacturing share (%)[na] | 15.0 | 20.3 | 23.1 | 19.7 | 20.8 | *20.8* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

| MONGOLIA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 139 | 1 587 | 1 869 | 1 387 | 1 369 | 1 414 |
| Growth rate (%)[na,c] | 3.43 | 6.19 | -2.07 | -11.64 | -1.30 | 3.30 |
| Per capita (in 1990-dollars)[na,c] | 684.7 | 831.3 | 858.4 | 610.2 | 590.6 | 598.5 |
| MVA:[na,c] (in million 1990-dollars) | 288 | 428 | 521 | 387 | 369 | *379* |
| Growth rate (%)[na,c] | 8.03 | 3.07 | 2.43 | -14.93 | -4.61 | *2.81* |
| Manufacturing share (%)[na] | 24.2 | 26.6 | 27.9 | .. | .. | .. |

| MONTSERRAT | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 48 | 54 | 71 | 69 | 69 | *74* |
| Growth rate (%)[na,c] | 10.22 | 4.73 | -10.83 | 1.30 | -0.30 | *6.62* |
| Per capita (in 1990-dollars)[na,c] | 4 029.6 | 4 880.7 | 6 464.6 | 6 288.8 | 6 269.9 | *6 685.3* |
| MVA:[na,c] (in million 1990-dollars) | 3 | 3 | 4 | 4 | *4* | *4* |
| Growth rate (%)[na,c] | 10.71 | 0.00 | -10.42 | 2.79 | *1.37* | *7.51* |
| Manufacturing share (%)[na] | 5.7 | 5.5 | *4.6* | .. | .. | .. |

| MOZAMBIQUE | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 404 | 1 116 | 1 318 | 1 366 | 1 486 | 1 561 |
| Growth rate (%)[na,c] | 2.46 | -8.82 | 3.10 | -0.85 | 8.84 | 5.00 |
| Per capita (in 1990-dollars)[na,c] | 116.1 | 82.4 | 92.9 | 92.7 | 98.4 | 100.5 |
| MVA:[na,c] (in million 1990-dollars) | 568 | 260 | 325 | 377 | *414* | *477* |
| Growth rate (%)[na,c] | 3.25 | -13.87 | -1.04 | 3.74 | *9.70* | *15.25* |
| Manufacturing share (%)[na] | *33.1* | *14.9* | .. | .. | .. | .. |

| MYANMAR | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 21 171 | 26 720 | 23 969 | 27 183 | 28 793 | 30 754 |
| Growth rate (%)[na,c] | 7.91 | 2.85 | 2.75 | 11.90 | 5.92 | 6.81 |
| Per capita (in 1990-dollars)[na,c] | 626.0 | 711.7 | 573.2 | 622.7 | 645.6 | 675.1 |
| MVA:[na,c] (in million 1990-dollars) | 1 734 | 2 276 | 1 865 | 2 053 | 2 264 | *2 427* |
| Growth rate (%)[na,c] | 6.86 | 2.92 | 0.04 | 10.47 | 10.26 | *7.22* |
| Manufacturing share (%)[na] | 9.5 | 9.9 | 7.8 | 7.4 | 7.0 | *7.0* |

| NAMIBIA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 981 | 1 848 | 2 129 | 2 288 | 2 244 | 2 365 |
| Growth rate (%)[na,c] | 0.18 | 0.00 | 6.00 | 7.47 | -1.93 | 5.41 |
| Per capita (in 1990-dollars)[na,c] | 1 923.7 | 1 568.4 | 1 578.0 | 1 607.7 | 1 535.6 | 1 576.6 |
| MVA:[na,c] (in million 1990-dollars) | 117 | 126 | 113 | 127 | 139 | *142* |
| Growth rate (%)[na,c] | -14.65 | 1.70 | 5.88 | 18.39 | 10.19 | *2.10* |
| Manufacturing share (%)[na] | 4.6 | 4.6 | 6.1 | 6.1 | 8.9 | *8.9* |

| NEW CALEDONIA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 079 | 1 070 | 1 600 | 1 812 | *1 813* | *1 869* |
| Growth rate (%)[na,c] | -0.40 | 4.51 | -4.27 | 9.00 | *0.01* | *3.11* |
| Per capita (in 1990-dollars)[na,c] | 7 542.8 | 6 900.2 | 9 523.8 | 10 476.1 | *10 357.6* | *10 499.8* |
| MVA:[na,c] (in million 1990-dollars) | 98 | 78 | 112 | 123 | *121* | *123* |
| Growth rate (%)[na,c] | -4.64 | -1.05 | -4.27 | 6.02 | *-1.31* | *1.26* |
| Manufacturing share (%)[na] | 5.8 | 4.7 | .. | .. | .. | .. |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

| OMAN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 4 477 | 9 000 | 10 521 | 12 184 | 12 668 | 12 542 |
| Growth rate (%)[na,c] | 6.05 | 13.76 | 7.52 | 7.70 | 3.98 | -1.00 |
| Per capita (in 1990-dollars)[na,c] | 4 066.3 | 6 442.5 | 6 008.7 | 6 382.1 | 6 359.6 | 6 038.4 |
| MVA:[na,c] (in million 1990-dollars) | 49 | 265 | 396 | 414 | .. | .. |
| Growth rate (%)[na,c] | 19.05 | 20.39 | 14.58 | 4.23 | .. | .. |
| Manufacturing share (%)[na] | 0.8 | 2.4 | 3.7 | 4.3 | *4.3* | .. |

| PAPUA NEW GUINEA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 2 827 | 3 015 | 3 221 | 3 945 | 4 514 | 4 672 |
| Growth rate (%)[na,c] | -2.29 | 3.60 | -3.00 | 11.81 | 14.44 | 3.50 |
| Per capita (in 1990-dollars)[na,c] | 915.9 | 876.0 | 839.0 | 982.0 | 1 098.4 | 1 111.1 |
| MVA:[na,c] (in million 1990-dollars) | 411 | 458 | 388 | 486 | 531 | *589* |
| Growth rate (%)[na,c] | -0.42 | 3.01 | -22.77 | 8.04 | 9.34 | *10.95* |
| Manufacturing share (%)[na] | 10.5 | 11.0 | 12.4 | 9.4 | 8.8 | *8.8* |

| QATAR | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 7 767 | 6 285 | 7 360 | 7 655 | 7 755 | 7 716 |
| Growth rate (%)[na,c] | 7.10 | -3.91 | 7.85 | 5.60 | 1.30 | -0.50 |
| Per capita (in 1990-dollars)[na,c] | 33 919.1 | 17 556.4 | 15 176.2 | 14 807.4 | 14 659.7 | 14 289.2 |
| MVA:[na,c] (in million 1990-dollars) | 459 | 693 | 948 | 928 | *990* | *1 051* |
| Growth rate (%)[na,c] | -12.51 | 3.64 | 7.86 | 6.41 | *6.64* | *6.14* |
| Manufacturing share (%)[na] | 3.3 | 7.8 | 12.7 | 11.6 | 11.0 | *11.2* |

| REPUBLIC OF MOLDOVA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 4 769 | 5 630 | 7 926 | 5 196 | 4 468 | 3 481 |
| Growth rate (%)[na,c] | 1.48 | -9.76 | 8.17 | -25.00 | -14.00 | -22.10 |
| Per capita (in 1990-dollars)[na,c] | 1 189.0 | 1 336.0 | 1 817.0 | 1 182.2 | 1 013.7 | 787.5 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | 2 159 | 1 399 | *1 404* | *984* |
| Growth rate (%)[na,c] | .. | .. | .. | -27.09 | *0.31* | *-29.92* |
| Manufacturing share (%)[na] | .. | .. | *27.2* | *30.3* | *31.4* | *31.9* |

| REUNION | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 3 296 | 4 048 | 4 959 | 5 328 | *5 506* | *5 775* |
| Growth rate (%)[na,c] | 4.20 | 3.49 | 4.00 | 3.80 | *3.34* | *4.89* |
| Per capita (in 1990-dollars)[na,c] | 6 513.0 | 7 359.4 | 8 209.7 | 8 537.9 | *8 683.9* | *8 967.3* |
| MVA:[na,c] (in million 1980-dollars) | 190 | 236 | 300 | 289 | 300 | *313* |
| Growth rate (%)[na,c] | 13.91 | 11.41 | 12.79 | 3.96 | 3.81 | *4.32* |
| Manufacturing share (%)[na] | 10.2 | 8.8 | .. | .. | .. | .. |

| RWANDA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 905 | 2 206 | 2 337 | 2 420 | 2 499 | 1 249 |
| Growth rate (%)[na,c] | 6.01 | 4.41 | -2.00 | 2.49 | 3.25 | -50.00 |
| Per capita (in 1990-dollars)[na,c] | 368.9 | 364.2 | 334.5 | 328.7 | 330.6 | 161.2 |
| MVA:[na,c] (in million 1990-dollars) | 276 | 289 | 316 | 330 | 343 | *132* |
| Growth rate (%)[na,c] | 26.49 | 6.96 | 2.86 | 2.91 | 3.79 | *-61.53* |
| Manufacturing share (%)[na] | 15.8 | 14.2 | 13.9 | 11.0 | 14.8 | .. |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

| SAMOA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 183 | 179 | 176 | 167 | 177 | 165 |
| Growth rate (%)[na,c] | 3.00 | 5.96 | -4.47 | -3.26 | 6.00 | -7.10 |
| Per capita (in 1990-dollars)[na,c] | 1 149.8 | 1 119.2 | 1 085.1 | 1 014.2 | 1 062.1 | 975.0 |
| MVA:[na,c] (in million 1990-dollars) | 15 | 15 | 14 | 15 | *15* | *15* |
| Growth rate (%)[na,c] | 3.02 | 4.53 | -4.55 | 0.81 | *1.28* | *0.61* |
| Manufacturing share (%)[na] | 4.6 | 13.8 | 7.9 | .. | .. | .. |

| SAO TOME AND PRINCIPE | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 70 | 52 | 55 | 60 | 67 | 68 |
| Growth rate (%)[na,c] | 2.59 | -1.61 | 3.80 | 4.51 | 12.23 | 1.30 |
| Per capita (in 1990-dollars)[na,c] | 744.0 | 486.7 | 463.5 | 481.2 | 527.2 | 521.8 |
| MVA:[na,c] (in million 1990-dollars) | 4 | 3 | 3 | 3 | *3* | *3* |
| Growth rate (%)[na,c] | 0.00 | -8.68 | 5.18 | 4.34 | *11.46* | *1.38* |
| Manufacturing share (%)[na] | 9.1 | 9.3 | 6.2 | 7.4 | *6.7* | .. |

| SEYCHELLES | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 256 | 275 | 369 | 376 | 390 | 379 |
| Growth rate (%)[na,c] | -2.55 | 10.29 | 7.56 | 1.95 | 3.90 | -3.00 |
| Per capita (in 1990-dollars)[na,c] | 4 060.7 | 4 237.8 | 5 265.5 | 5 292.6 | 5 422.5 | 5 259.9 |
| MVA:[na,c] (in million 1990-dollars) | 19 | 20 | 34 | 35 | 39 | *41* |
| Growth rate (%)[na,c] | 18.21 | 8.44 | 14.91 | 2.39 | 12.37 | *5.60* |
| Manufacturing share (%)[na] | 8.0 | 10.6 | 9.9 | 10.4 | 11.7 | .. |

| SIERRA LEONE | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 426 | 494 | 547 | 460 | 432 | 432 |
| Growth rate (%)[na,c] | 2.91 | 7.46 | 2.50 | -13.62 | -6.15 | 0.15 |
| Per capita (in 1990-dollars)[na,c] | 131.8 | 137.9 | 136.8 | 109.7 | 100.5 | 98.2 |
| MVA:[na,c] (in million 1990-dollars) | 57 | 55 | 38 | 72 | *81* | *85* |
| Growth rate (%)[na,c] | -4.88 | -15.55 | -7.06 | 20.02 | *12.16* | *5.53* |
| Manufacturing share (%)[na] | 7.5 | 4.8 | 7.1 | *8.7* | .. | .. |

| SOMALIA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 927 | 1 012 | 1 062 | 1 078 | 1 099 | *1 129* |
| Growth rate (%)[na,c] | 1.79 | 9.53 | -2.70 | 2.50 | 2.00 | *2.68* |
| Per capita (in 1990-dollars)[na,c] | 138.1 | 128.5 | 122.4 | 121.6 | 122.8 | *124.3* |
| MVA:[na,c] (in million 1990-dollars) | 39 | 33 | 41 | 42 | *40* | *42* |
| Growth rate (%)[na,c] | 9.17 | 7.55 | -6.29 | -10.00 | *-5.00* | *4.80* |
| Manufacturing share (%)[na] | 4.7 | 4.9 | 3.8 | .. | .. | .. |

| SUDAN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 5 046 | 4 969 | 4 895 | 5 448 | 5 448 | 5 557 |
| Growth rate (%)[na,c] | -3.41 | -2.90 | -5.31 | 11.30 | 0.00 | 2.00 |
| Per capita (in 1990-dollars)[na,c] | 270.1 | 231.5 | 199.1 | 210.0 | 204.5 | 203.1 |
| MVA:[na,c] (in million 1990-dollars) | 519 | 473 | 438 | 445 | *446* | *453* |
| Growth rate (%)[na,c] | -4.09 | -0.26 | -11.44 | 8.37 | *0.13* | *1.59* |
| Manufacturing share (%)[na] | 8.9 | 8.8 | 9.2 | 9.3 | *9.1* | .. |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

| SURINAME | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 1 659 | 1 637 | 1 728 | 1 879 | 1 879 | 1 864 |
| Growth rate (%)[na,c] | -8.57 | 2.02 | -0.91 | 5.77 | 0.00 | -0.80 |
| Per capita (in 1990-dollars)[na,c] | 4 672.2 | 4 340.9 | 4 321.1 | 4 594.3 | 4 538.9 | 4 459.5 |
| MVA:[na,c] (in million 1990-dollars) | 298 | 239 | 208 | 191 | 180 | *181* |
| Growth rate (%)[na,c] | -10.52 | 6.45 | -6.85 | 0.96 | -5.66 | *0.50* |
| Manufacturing share (%)[na] | 17.6 | 12.5 | 12.3 | 10.1 | 14.2 | .. |

| TAJIKISTAN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 3 227 | 4 275 | 4 680 | 3 368 | 2 453 | 2 085 |
| Growth rate (%)[na,c] | 6.68 | 7.23 | 4.41 | -25.00 | -27.60 | -15.00 |
| Per capita (in 1990-dollars)[na,c] | 816.2 | 937.9 | 885.1 | 604.5 | 425.3 | 351.4 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | 694 | 507 | *468* | *324* |
| Growth rate (%)[na,c] | .. | .. | .. | -24.19 | *-7.79* | *-30.79* |
| Manufacturing share (%)[na] | .. | .. | *14.8* | *15.8* | *17.6* | .. |

| TONGA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 81 | 120 | 124 | 130 | 129 | 135 |
| Growth rate (%)[na,c] | 15.81 | 5.37 | -3.95 | 1.00 | -0.20 | 4.70 |
| Per capita (in 1990-dollars)[na,c] | 875.2 | 1 323.1 | 1 289.0 | 1 336.2 | 1 333.5 | 1 381.9 |
| MVA:[na,c] (in million 1990-dollars) | 8 | 8 | 9 | 9 | *9* | *9* |
| Growth rate (%)[na,c] | 21.43 | 6.26 | -7.30 | 2.51 | *1.62* | *2.46* |
| Manufacturing share (%)[na] | 6.1 | 8.2 | .. | .. | .. | .. |

| TURKMENISTAN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 3 411 | 4 453 | 5 558 | 5 199 | 5 069 | 4 056 |
| Growth rate (%)[na,c] | -2.31 | 1.33 | 5.39 | -5.40 | -2.50 | -20.00 |
| Per capita (in 1990-dollars)[na,c] | 1 190.8 | 1 380.9 | 1 519.9 | 1 356.5 | 1 292.9 | 1 011.3 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | 628 | 765 | *795* | *597* |
| Growth rate (%)[na,c] | .. | .. | .. | 20.30 | *4.03* | *-24.98* |
| Manufacturing share (%)[na] | .. | .. | *11.3* | *14.7* | .. | .. |

| TUVALU | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 9 | 7 | 8 | 9 | 10 | 10 |
| Growth rate (%)[na,c] | .. | -1.95 | 2.49 | 8.90 | 8.70 | 2.60 |
| Per capita (in 1990-dollars)[na,c] | 1 088.0 | 852.7 | 897.9 | 1 024.6 | 1 002.4 | 1 028.5 |
| MVA:[na,c] (in million 1990-dollars) | .. | .. | .. | .. | .. | .. |
| Growth rate (%)[na,c] | .. | .. | .. | .. | .. | .. |
| Manufacturing share (%)[na] | .. | .. | .. | .. | .. | .. |

| UGANDA | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| GDP:[na,c] (in million 1990-dollars) | 2 393 | 2 673 | 3 253 | 3 489 | 3 711 | 4 082 |
| Growth rate (%)[na,c] | -3.40 | 1.96 | -0.16 | 3.02 | 6.35 | 10.00 |
| Per capita (in 1990-dollars)[na,c] | 182.4 | 176.9 | 181.2 | 181.1 | 186.1 | 197.9 |
| MVA:[na,c] (in million 1990-dollars) | 98 | 99 | 164 | 221 | 222 | *259* |
| Growth rate (%)[na,c] | 6.10 | -9.80 | 4.20 | 18.08 | 0.30 | *16.97* |
| Manufacturing share (%)[na] | 4.2 | 2.9 | 5.0 | 6.4 | 5.0 | *5.0* |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

| UKRAINE | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 121 758 | 139 789 | 155 591 | 126 021 | 102 727 | 77 764 |
| Growth rate (%)[na,c] | 3.81 | 0.99 | 1.39 | -13.99 | -18.48 | -24.30 |
| Per capita (in 1990-dollars)[na,c] | 2 437.1 | 2 745.6 | 3 013.2 | 2 441.3 | 1 992.7 | 1 511.0 |
| **MVA:**[na,c] (in million 1990-dollars) | .. | .. | 53 966 | 40 415 | *33 141* | *23 861* |
| Growth rate (%)[na,c] | .. | .. | .. | -13.80 | *-18.00* | *-28.00* |
| Manufacturing share (%)[na] | 41.0 | 38.0 | 34.7 | *34.0* | *32.5* | *28.9* |

| UNITED ARAB EMIRATES | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 32 826 | 29 954 | 33 653 | 35 263 | 35 616 | 35 259 |
| Growth rate (%)[na,c] | 26.42 | -2.39 | 17.75 | 2.73 | 1.00 | -1.00 |
| Per capita (in 1990-dollars)[na,c] | 32 340.6 | 21 721.3 | 20 139.6 | 19 922.6 | 19 612.1 | 18 946.5 |
| **MVA:**[na,c] (in million 1990-dollars) | 1 186 | 2 672 | 2 518 | 2 736 | 2 777 | *3 000* |
| Growth rate (%)[na,c] | 64.87 | -2.20 | 5.38 | 1.57 | 1.50 | *8.04* |
| Manufacturing share (%)[na] | 3.7 | 9.0 | 7.3 | 7.5 | 8.4 | .. |

| UZBEKISTAN | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 15 329 | 19 717 | 22 615 | 18 045 | 17 612 | 16 819 |
| Growth rate (%)[na,c] | 7.45 | 4.05 | 4.74 | -11.13 | -2.40 | -4.50 |
| Per capita (in 1990-dollars)[na,c] | 961.9 | 1 088.6 | 1 107.5 | 844.2 | 805.7 | 752.6 |
| **MVA:**[na,c] (in million 1990-dollars) | .. | .. | 4 623 | 4 299 | *4 454* | *4 499* |
| Growth rate (%)[na,c] | .. | .. | .. | -8.20 | *3.60* | *1.00* |
| Manufacturing share (%)[na] | 26.9 | 29.4 | *20.2* | *18.9* | *19.4* | .. |

| VANUATU | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 94 | 143 | 154 | 163 | 169 | 172 |
| Growth rate (%)[na,c] | -11.46 | 1.11 | 4.11 | 0.77 | 3.83 | 2.00 |
| Per capita (in 1990-dollars)[na,c] | 806.8 | 1 080.2 | 1 030.5 | 1 035.8 | 1 048.8 | 1 043.8 |
| **MVA:**[na,c] (in million 1990-dollars) | 3 | 5 | 9 | 10 | *11* | *13* |
| Growth rate (%)[na,c] | -11.45 | 11.21 | 2.22 | 8.75 | *10.80* | *10.05* |
| Manufacturing share (%)[na] | 4.2 | 3.8 | 5.9 | .. | .. | .. |

| VIET NAM | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 3 599 | 4 980 | 6 360 | 7 319 | 7 912 | 8 606 |
| Growth rate (%)[na,c] | -4.81 | 6.20 | 5.05 | 8.60 | 8.10 | 8.80 |
| Per capita (in 1990-dollars)[na,c] | 67.0 | 83.1 | 95.4 | 104.9 | 110.9 | 118.0 |
| **MVA:**[na,c] (in million 1990-dollars) | .. | .. | .. | .. | .. | .. |
| Growth rate (%)[na,c] | .. | .. | .. | .. | .. | .. |
| Manufacturing share (%)[na] | .. | .. | 18.5 | 21.7 | 21.5 | *21.5* |

| ZAIRE | 1980 | 1985 | 1990 | 1992 | 1993 | 1994 |
|---|---|---|---|---|---|---|
| **GDP:**[na,c] (in million 1990-dollars) | 7 137 | 7 711 | 8 491 | 7 392 | 6 623 | 6 133 |
| Growth rate (%)[na,c] | 2.37 | 2.56 | 3.04 | -10.44 | -10.40 | -7.40 |
| Per capita (in 1990-dollars)[na,c] | 264.2 | 243.2 | 226.8 | 185.1 | 160.6 | 144.1 |
| **MVA:**[na,c] (in million 1990-dollars) | 1 085 | 980 | 955 | 788 | *677* | *606* |
| Growth rate (%)[na,c] | -1.43 | 4.77 | 4.49 | -14.12 | *-14.08* | *-10.52* |
| Manufacturing share (%)[na] | 14.5 | 9.9 | *11.2* | .. | .. | .. |

For sources, footnotes and comments see "Technical notes" at the beginning of this Annex.

# INDUSTRIAL DEVELOPMENT

# GLOBAL REPORT 1996

The central theme of *Industrial Development Global Report 1996* is "sustainable industrial development and competitiveness". The basic contention of the *Report* is that the globalization process is not a zero-sum game. It holds the potential to accelerate the industrialization process in developing countries and economies in transition, and to bring considerable benefit to industrialized countries as well. But in order to realize those potential gains, the process must be effectively managed at both the national and international levels, and the adjustment and social costs of policies aimed at closer integration into the world economy must be identified and alleviated.

Part one of *Global Report 1996* highlights the opportunities and challenges which globalization presents to developing countries and economies in transition as well as to the industrialized world, and identifies key issues confronting policy makers as they seek to ensure that their countries will be able to compete successfully and to achieve full integration into the global economy. In this context, the main chapters of the *Report* focus attention on the major constraints that beset disadvantaged countries, particularly in terms of human resource development, technological capabilities and innovation, sustainable industrial development and international cooperation. A special feature of the *Report* is the identification of appropriate measures that policy makers and their counterparts, in pursuing international technical and investment cooperation, may wish to consider in their efforts to overcome constraints to full participation in the global economy.

Part two of the *Report* presents a statistical annex on industrial development indicators for 178 countries and territories around the world.

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