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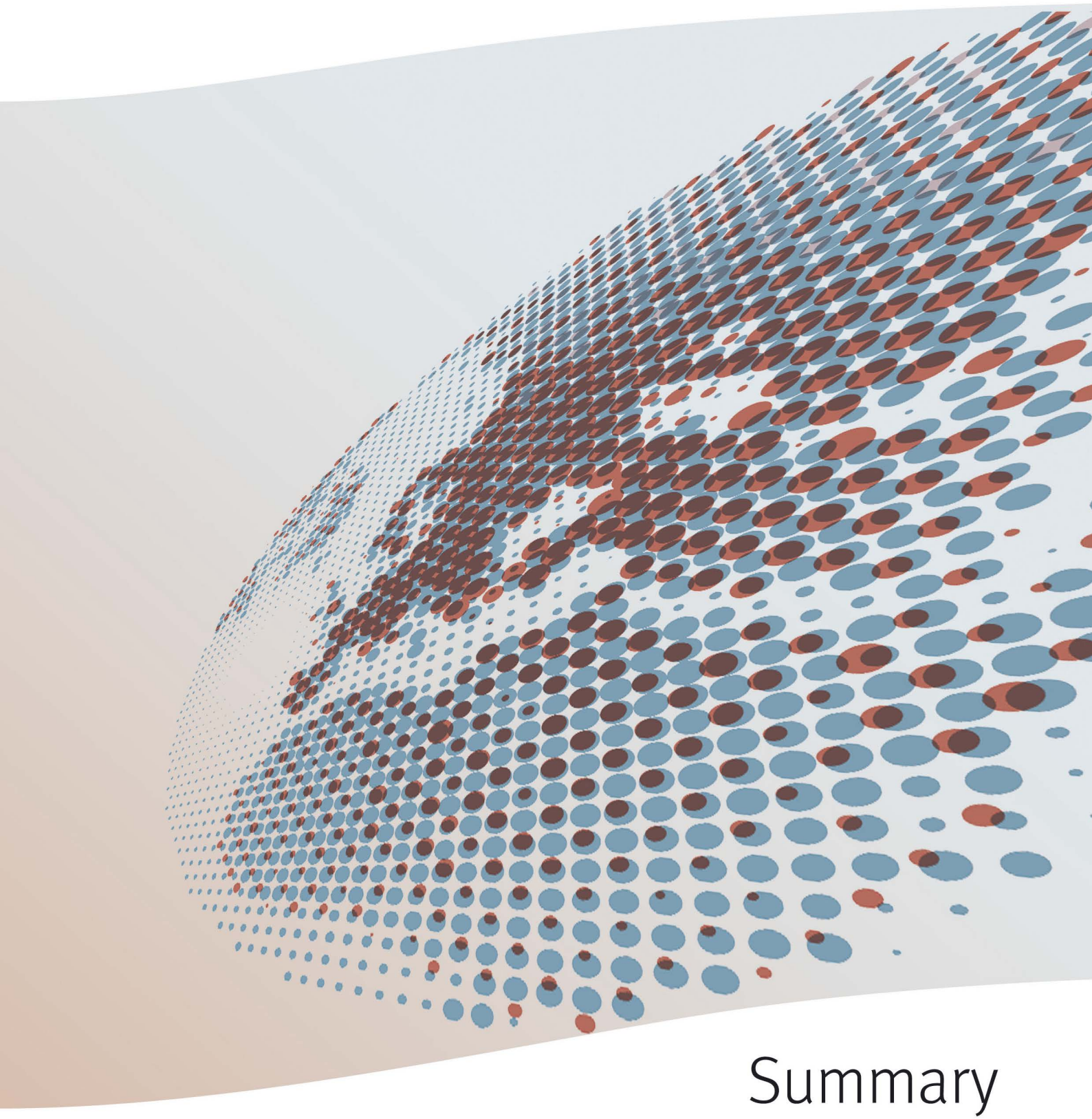
UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

Industrial Development Report 2009

Breaking In and Moving Up: New Industrial Challenges for the Bottom Billion and the Middle-Income Countries



Summary

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Summary

Contents

Foreword

The publication of the *Industrial Development Report 2009* comes at a time when developing countries are facing a number of severe challenges – continued high levels of poverty, volatile commodity and food prices, global economic slowdown triggered by the worst turbulences seen in international financial markets for more than a generation, and the threat of climate change with potentially irreversible consequences. Meanwhile, the trend towards globalization has caused dramatic shifts in the world economy, while the emergence of new industrial powers is redefining traditional patterns of production and trade.

One of the outstanding features of the process of globalization has been the rapid diffusion of industrial production from the developed to the developing countries, based on such developments as specialization in production by transnational corporations, the development of international supply chains and the liberalization of trade flows. This has allowed the production process to be disaggregated and the production of individual components and services to be outsourced, often to developing countries that enjoy competitive advantages in their production. Where this process has been successful, the resulting so-called "trade in tasks" has had a dramatic impact in promoting industrial and economic growth, reducing poverty and generating social progress.

Industrial development thus has a tremendous transformative potential. Yet the pattern of industrial development in developing countries has been highly uneven. The spectacular rise of the emerging economies, especially in East and South Asia, contrasts sharply with the industrial stagnation experienced by many middle-income countries and the continued industrial marginalization of Africa and least developed countries elsewhere in the world. The focus of this report is therefore on the potential developmental impact that industrial development could have on the low-income countries that have been left outside the expanding web of production and trade linkages brought about by globalization and on the slow-growing middle-income countries.

The arguments presented in this report rest on the hypothesis, derived from the experience of the globalization process, that successful industrial development depends on an evolving pattern of specialization: What you make matters! The dramatic shift in international trade and production from final products to tasks enables industrial stakeholders in developed and developing countries to share the manufacture of sophisticated products across all segments of manufacturing, from low- to high-technology products. It allows them to integrate into global markets through new niches that are created in the trade flows of tasks or components.

While previous reports in this series have emphasized technological differences between products, the present report broadens the concept of technology from "hard" to "soft" technologies, such as design and marketing. Contrary to some prevailing fears, the report finds that task-based production does not confine low-income countries to technologically less sophisticated products, but rather provides new exciting opportunities for the "bottom billion". Whether they take advantage of these new opportunities depends on policy choices. In this context, the report attempts to capture the implications of such policy choices and actions in a country-specific context and thereby to stimulate an informed debate on how to strengthen the role of manufacturing as a dynamic force of economic transformation. In doing so, it draws on an in-depth analysis of long-term time-series data as well as case study evidence.

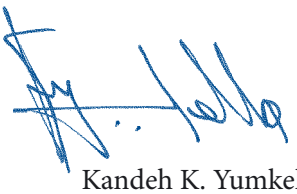
The report recommends the consideration of a new United Nations category of "least developed manufacturing countries" that could be used by the World Trade Organization with respect to preferences for manufactures. These countries could also be offered special support for the investments in infrastructure and institutions that they would need to reach the threshold of industrial competitiveness and achieve their effective integration into the globalized world economy.

No report on the current global industrial landscape can escape mention of the huge challenges of

climate change. Even though this is not the main focus of the present report, reference is made to how countries can help address the environmental consequences of industrial growth. At its core, the global climate change debate is about technological solutions for mitigation and adaptation, and about how to ensure "carbon justice".

I am pleased to see that the report captures new and original insights from global surveys of pertinent issues and adds novelty to the interpretation of facts. It paints an optimistic picture about the "room at the bottom", unveiling practical avenues of advancement for low-income countries. The report also stresses the "pressure in the middle", highlighting the challenges facing slow-growing middle-income countries and recommending measures to escape that pressure. Thus, the twin challenges addressed here are to break in at the bottom and to move up in the middle.

It is my sincere belief that the information, analysis, inferences and policy implications contained in this report will whet the appetite of researchers, policy-makers and industrial stakeholders alike who look for evidence-based policy advocacy. For countries of the bottom billion and the slow-growing middle-income countries, it provides practical insights. It shows them how they can significantly enhance their economic growth prospects, and thereby raise the standard of living and human welfare of their populations, through the powerful mechanism of sustainable industrial development.



Kandeh K. Yumkella
Director-General, UNIDO

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Paul Collier, Oxford University, and John Page, the Brookings Institution, served as the main authors of the report.

The in-house UNIDO team was led by Jebamalai Vinanchiarachi, Principal Adviser to the Director-General of UNIDO, and comprised Ludovico Alcorta, Director of the Research and Statistics Branch, as well as Manuel Albaladejo, Michele Clara, Müge Dolun, Sarwar Hobohm and Anders Isaksson. Part B on the global manufacturing scene was written by Manuel Albaladejo, with substantive comments provided by Shyam Upadhyaya. Penelope Pacheco served as a UNIDO consultant for the preparation of part B. Relevant parts of the report were reviewed and amended by the respective technical branches of UNIDO. George Assaf contributed to the vetting process of the report.

International consultants involved in the preparation of background papers included Arne Bigsten, Mauro Caselli, Markus Eberhardt, Mulu Gebreeyesus, Adeel Malik, Rajah Rasiah, Justin Sandefur, Bilal Siddiqi, Måns Söderbom, Francis Teal and Jean-Louis Warnholz. The survey of dynamic industrial locations was coordinated by Rajah Rasiah with the assistance of national consultants: Boladale Abiola Adebowale (Nigeria), Abdusy Syakur Amin (Indonesia), Gonzalo Bernat (Argentina), Paulo Figueiredo (Brazil), Chandran Govindaraju (Malaysia), Kum Kim (Cambodia), Vadakkepat Padmanand (India), Sitthiroth Rashpone (Lao People's Democratic Republic), Lidia Vidal (Chile) and Xinxin Kong (China).

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Part A
Industrial structural change and new challenges: The policy space for breaking in and moving up

Section I
Structural changes in industry and the global economy

Chapter 1
Introduction

Over the past 30 years, industry has expanded rapidly in developing countries, driven by the explosive growth of manufacturing trade. Yet a substantial part of the developing world remains at risk of failing to establish a vibrant, competitive industrial economy. The present report is about the countries that have been left behind. Specifically, it is about the opportunities and constraints faced by two groups of countries: the countries of the "bottom billion"[1] trying to break into global markets in manufactured goods, and those middle-income countries that are striving to move up to more sophisticated manufacturing.

It is also a report about structural change. Unprecedented changes in the global economy are redefining industrial development, opening some avenues and closing off others. The focus here is on three aspects of structural change in industry. As industrialization proceeds, what does it produce, where does it locate, and where is its output sold? The report focuses predominantly on manufacturing industry, but also discusses mineral resource extraction, which is the other major type of industrial activity in developing countries.

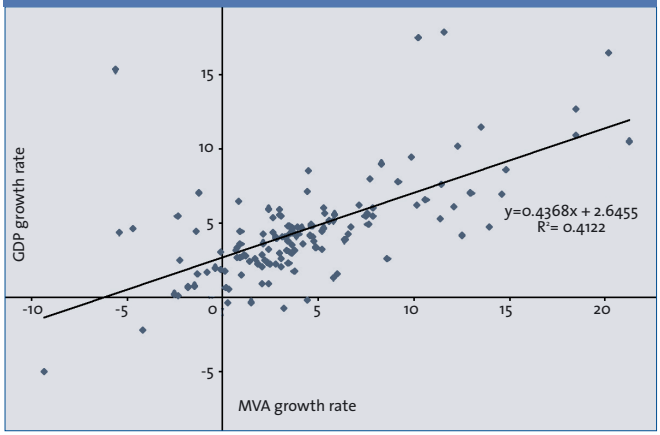
Of course, the main reason why it is important to understand industrialization is so that economic policy responses can be appropriate. Because countries differ in their structural characteristics, appropriate strategies must likewise differ and also evolve. Before the report begins its analysis of structural change and appropriate policy responses, it addresses an essential prior question: why bother with industrial development at all?

1 The bottom billion is a group of some 60 countries with a total population of some one billion people that have diverged economically from the rest of the world at a rate of 5 per cent annually over the past 20 years. These countries have failed to grow. (P. Collier, *The Bottom Billion*, Oxford: Oxford University Press, 2007.)

Industrialization and growth

Scarcely any country has grown without industrializing. Fast-growing countries have rapidly growing manufacturing sectors (Figure 1.1) and, given the significance of trade in manufactures, the direction of change most likely runs from manufacturing growth to economy-wide growth, and not the other way around. This is because structural change—the shift of resources from low-productivity to higher-productivity sectors—is a key driver of economic growth. Industry is most often the leading high-productivity sector. Research by the United Nations Industrial Development Organization (UNIDO) shows that differences in levels of total factor productivity are the principal determinants of differences in levels of development. Growth has lagged where countries have failed to shift capital and labour from low- to high-productivity sectors. In short, what countries make matters for growth.

Figure 1.1 Association between growth in manufacturing value added (MVA) and growth in gross domestic product, 2000-2005 (Percentage)



Source: UNIDO database.

Is industrialization development-friendly?

Does industrialization contribute to the Millennium Development Goals and, in particular, to the overarching goal of poverty reduction? Unambiguously, sustained rapid growth normally leads to major poverty reduction and, conversely, poverty reduction is extraordinarily difficult in the context of stagnation.

As labour-intensive manufacturing-based development proceeds, it creates jobs, and in countries with strongly growing manufacturing sectors the expansion of manufacturing jobs can be spectacular. In such cases, ordinary people benefit both through opportunities for formal wage employment and through rising wages. Moreover, labour-intensive manufacturing in poor countries is usually gender neutral, with large numbers of women also being employed. The effect may be particularly important for gender equity.

Awareness of climate change is shifting attitudes to industrialization. This can easily turn into a misplaced hostility to continued industrialization in developing countries. While it is true that the world cannot afford to repeat its mistakes of the past, this does not imply that continued industrialization is undesirable. On the contrary, not only has industrialization a vital role to play in development, but climate change sometimes makes it even more essential.

As some developing countries are already major industrial powers, mitigation is also important. There are strong reasons for building incentives and financing mechanisms that have global reach, involving developing countries as well as the countries of the Organization for Economic Co-operation and Development (OECD). Climate change is a global threat, and a condition for a globally efficient response is that the cost of reducing carbon emissions should be broadly equalized around the world. The shift of industry to developing countries could potentially reduce emissions, as it is also much easier for low-carbon technologies to be introduced when a plant is established, rather than retrofitting it. However, without proper incentives, this shift could increase emissions, especially if firms relocate in order to escape regulation.

Box 1.1 Climate change, industrialization and the bottom billion

Industrial development can make a major contribution to adaptation to climate change that will inevitably occur due to past emissions of carbon. Adaptation is imperative for countries of the bottom billion: without it, climate change will have major adverse economic effects. The most pressing need for adaptation is in Africa, where climate change is already under way. Africa's share of global carbon emissions is insignificant. But global warming will tend to benefit agriculture in the North, while seriously damaging African agriculture. Rain-fed African agriculture is considerably more climate-sensitive than agriculture elsewhere.

Climate change will reduce productivity in African agriculture. Hence, part of the African adaptation agenda will be agricultural. It is important to try to offset productivity losses by encouraging farmers to switch to crops that are better suited to new climatic conditions and by developing crop varieties that are more resistant to climatic stress. However, a major implication of the anticipated deterioration in African agricultural productivity is that Africa's comparative advantage is shifting away from agriculture. Because agriculture is much more important in Africa than in other regions, an appropriate African adaptation to climate change is to accelerate industrialization. Also, Africa will be safer from the consequences of climatic deterioration if the share of its economy generated by activities that are less climate-sensitive increases. The policies that will help Africa industrialize are also a key part of Africa's appropriate response to the challenge of climate change.

Source: P. Collier, G. Conway and A. J. Venables, "Climate Change and Africa", *Oxford Review of Economic Policy*, 2008.

Industrial development and the bottom billion

Would it matter if development through manufacturing was not feasible for the group of countries comprising the bottom billion? Can other sectors offer the same promises? One important characteristic of such countries is that they are small, and because of their small economic size, a viable strategy for integration into the global economy is essential. Of the various export possibilities, manufacturing appears to offer the surest route to development.

Manufacturing exports are likely to offer more scope for long-term productivity growth than either agriculture or natural resources. A basic physical difference between agriculture and manufacturing limits agriculture's scope for scale economies. Land is an essential input for agriculture but not for manufacturing. For a growing number of countries in the bottom billion, the main alternative to agricultural exports is natural resource extraction. However, this has proved to be a highly problematic route to development. An increase in the price of commodity exports triggers a brief phase of output growth, but this is usually followed by a long period of decline with output ending up below its initial level. While the resource-extraction sector itself generates income, it has the potential of undermining the rest of the economy.

Section II
Global structural change: Implications for industrial development

Chapter 2
Understanding structural change: Products, tasks and natural resources

New research suggests that more diverse industrial economies generate higher incomes up to quite high levels of development, and the economies that export more sophisticated products—measured in terms of the per capita incomes of countries that intensively produce them—grow faster. This report offers new empirical support for each of these ideas.

What you make matters

This report provides new evidence on the relationship between industrial sophistication, structural change and growth.[2] UNIDO research findings confirm that diversifying and moving up the product sophistication ladder in industry are important drivers of development. Fast-growing low-income countries diversified their manufacturing base and raised their level of product sophistication, while fast-growing middle-income countries shifted strongly in the direction of more sophisticated products, exiting low-sophistication sectors and entering higher-sophistication ones. The slow-growing low- and middle-income countries, in contrast, moved in the opposite direction. Production intensities narrowed towards the mid-range of product sophistication. In addition, slow-growing middle-income countries experienced a decline in the intensity of high-sophistication manufacturing.

Why should industrial diversity and sophistication matter for development? One reason is that more diverse economies may be better able to take advantage of opportunities in global markets as they emerge. Industrial diversification leads to export diversification, as economies build industrial competence in new activities and enter global markets. Another reason may be that diverse industrial structures facilitate the growth of globally competitive firms in an economy. A wide range of industrial activities helps the entry and exit of firms, supporting the creation or expansion of more productive firms and easing the exit of less productive ones.

From products to tasks

In some manufacturing activities, a production process can be decomposed into a series of steps, or tasks. Many countries may be manufacturing the same product, but each working on a different step in the process. For countries that have failed to industrialize, task-based production and trade are a potential lifeline. It is considerably more feasible to specialize in a single task than in the entire range of tasks needed to produce a product.

A common concern with trade in tasks is that it may reinforce the specialization of poor countries in unsophisticated industrial processes. To test whether task-based production is less sophisticated than other manufacturing activities in developing countries, UNIDO compared the sophistication of countries' total manufacturing production with the sophistication of their task-based production, and there is no indication that trade in tasks contributes to greater specialization by poor countries in less sophisticated activities. It is possible for low- and medium-income countries to move up the sophistication gradient in tasks, just as in products.

Resource extraction and industrialization

Commodity booms have repeatedly offered huge opportunities for countries that possess valuable natural resources. Many of these countries are currently very poor, and revenues from such booms are their best chance for transformative development. However, such opportunities have often not been seized in the past. Resource-rich economies, in general, have had little success in converting resource-based rents into productive assets. After two decades, a typical resource-extracting economy actually produces less than it would have in the absence of a commodity boom. How well resource-rich economies succeed in transforming rents into productive assets depends on three important links between resource extraction and the economy.

"Dutch disease"

Growing natural resource exports arising from new discoveries or international price increases raise the demand for non-tradable goods, driving up their domestic price relative to all other goods. In response to this change in relative prices, the economy tends to shift to the production of non-tradable goods. Productive resources are taken away from manufacturing industry

2 This approach is the same as that first used by Hausmann, Hwang and Rodrik to measure the sophistication of exports. (R. Hausmann, J. Hwang and D. Rodrik, "What You Export Matters", *Journal of Economic Growth*, vol. 12, No. 1, 2007.)

into both resource extraction and non-tradables, while its inputs become more expensive, reducing its potential for growth and diversification. The resulting decline in manufacturing capacity and exports may diminish the prospects for long-run economic growth. This feature is known as the "Dutch disease".

Construction booms

Using resource revenues for domestic investment typically gives rise to a construction boom. If costs rise drastically in the construction sector, although expenditure on investment goes up, the actual amount of investment in physical terms, such as kilometres of roads built, does not. Further, if the number of structures cannot be increased, this tends to reduce the productivity of investment in equipment. Potentially, the construction sector becomes a bottleneck that can frustrate the conversion of savings from resource revenues into productive investment.

Links to industry

Because commodity outputs are highly standardized, downstream integration from commodity extraction is often likely to fail. Yet, to date, such downstream activities have often been the main focus of government attempts to broaden the economy from its extractive base. On the other hand, the extractive production processes themselves can never be fully standardized internationally. Hence, they are likely to require goods and services that are context-specific as inputs. Besides, locally based suppliers will have an advantage over global suppliers because their costs of local knowledge are bound to be lower.

Chapter 3
Understanding structural change: The location of manufacturing production

Manufacturing and service industries tend to cluster in concentrated geographical areas, often in cities. This is because of agglomeration economies that are external to the firm but internal to a group of firms concentrated in a specific geographical location. Among the advantages are access to a pool of specialized workers, quick access to supplies of inputs and access to knowledge relevant for the firm.

There is strong evidence of the impact of geographical concentration on manufacturing performance in more advanced economies. The econometric literature on high- and middle-income countries provides persuasive evidence of the existence of agglomeration economies. However, it is more difficult to say what and how much of this evidence carries over to lower-income settings. One econometric study—of Ethiopia—and ten surveys of dynamic industrial locations were commissioned for this report in order to fill that knowledge gap. They show that industrial agglomerations are also important for developing countries. Productivity is higher if manufacturing firms cluster together.

A truly dramatic illustration of this gain in efficiency comes from the case study of the cluster of button producers in Qiaotou, China. Over two decades this cluster has grown to account for around two thirds of global production of this niche product. The economies of scale in buttons are, to a large extent, not a matter of hard technology, but of product sophistication, including design and marketing. Buttons are only one small input into the consumer product of garments, but they have provided a sufficient niche for Qiaotou to prosper.

Chapter 4
Understanding structural change: The growing role of manufactured exports

World markets are changing the opportunities for industrialization in low- and middle-income countries, opening some paths to industrialization and closing off others. Trade in manufactures has boomed in the past several decades, and developing countries are catching up with high-income countries in all categories of manufactured exports. Exports of manufactures by developing countries reached nearly US $2.5 trillion in 2005, up from $1.4 trillion in 2000.

Sources of export dynamism

The evolving pattern of global trade in manufactures reflects three important trends. Firstly, trade in manufactures has continued to grow much more rapidly than manufacturing output. Secondly, developing countries are capturing an increasing share of the global market for manufactured exports and, thirdly, East Asia dominates the success story in developing country manufactured exports. A simple shift-share decomposition, using data on manufacturing production and exports, throws some light on the drivers of these changes.

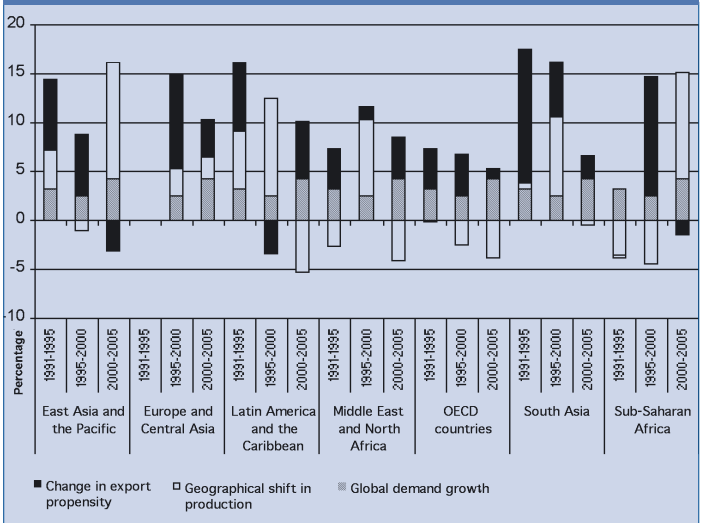
For a country or a region, the growth of exports can be decomposed into three parts:

Growth in exports = *Growth in global demand*
+ *Geographic shift in production*
+ *Change in export propensity*

The most important structural change in manufactured exports is the significant rise in the propensity to export across regions and products (Figure 4.1). This is, of course, the counterpart to the much faster growth of manufactured exports than manufacturing output worldwide. There was also an important shift in global manufacturing capacity away from the countries of the

OECD and Latin America towards East Asia. Between 2000 and 2005, sub-Saharan Africa recorded one of the highest rates of manufactured export growth in the world, driven by a large geographical shift in production towards the region. The production shift, however, was the consequence of the industrial recovery mainly in South Africa.

Figure 4.1 Sources of growth in manufactured exports, by region, 1991-2005 (Percentage)



Source: UN COMTRADE; UNIDO database.

Export sophistication, structural change and growth

Successful developing country exporters have taken multiple paths in terms of the sophistication of their exports.[3] China had an export structure that, as early as the mid-1970s, was quite sophisticated for its level of income, and it increased in relative sophistication as per capita income grew. The Republic of Korea, on the other hand, began with an export structure that was close to that predicted by its income level, but by 1995 it had upgraded its export structure to a high level of sophistication. Argentina and Brazil—two middle-income countries at approximately the same level of income—have strikingly different levels of export sophistication. Among low-income countries, Bangladesh is notable for its very low level of export sophistication, reflecting its heavy concentration in the exports of garments.

In the middle-income countries, greater export sophistication boosted growth. Fast growers exited traditional, low-sophistication export sectors and entered more highly sophisticated ones. Slow growers moved in the opposite direction, towards specialization in low-sophistication exports. Both fast- and slow-growing low-income countries had roughly similar patterns of structural change in their exports, increasing the intensity of their exports of low-sophistication manufactures. A striking difference between fast and slow growers was that in both low- and middle-income countries, production and export structures moved in the same direction in fast growers; in the slow growers, they did not.

Trade in tasks

Data on trade in tasks are limited. For this report, an effort has been made to account for the importance of intermediate goods in several types of manufacturing production and trade. By the measures used in the report, the growth of trade in tasks has been impressive. During the period 1986-1990, imported intermediates constituted 12 per cent of total global manufacturing output and 26 per cent of total intermediate inputs. By 2000, these figures had risen to 18 per cent and 44 per cent, respectively. The report also finds that exports use a substantially higher share of imported intermediate inputs than production for the domestic market, a ratio of about 2:1.

The report captures empirically the evolution of trade in tasks. The pattern of OECD countries confirms the much discussed move towards outsourcing in advanced economies. Imported intermediate inputs increased both as a share of total output and, more sharply, as a share of intermediate inputs, especially in the 1990s. Moreover, despite the popular picture of trade in tasks, as mainly rich-country firms outsourcing intermediate inputs to developing country suppliers, reliance on imported intermediate inputs has grown across all regions.

3 This approach is the same as the use of revealed comparative advantage by Hausmann, Hwang and Rodrik (op. cit.).

Chapter 5
Implications for industrial development

The structural changes taking place in industrial products, production locations and markets are shaping the opportunities and challenges faced by two groups of countries: the countries of the bottom billion and the slow-growing middle-income countries. Both groups are increasingly coming under pressure in global markets. The former faces the challenge of breaking in at the bottom of the global economy, the latter the challenge of restoring industrial dynamism.

Breaking in at the bottom?

New entrants to manufacturing are no longer merely competing with high-wage OECD countries, as China was when it broke into the market. They are indeed competing with China, which has the economies of scale that make it competitive against new entrants. One prospect is that there may be no room for new entrants into global manufacturing because East Asia is firmly established and is also able to reap economies of scale from its clusters while still maintaining low wages.

There are three reasons to think that the future is less bleak than this suggests:

- **Rising costs in China.** The Chinese economy has been growing so rapidly that it is likely to encounter rising costs in manufacturing production. One source of rising costs will be higher real wages, either through currency appreciation or through a rapid increase in nominal wage rates. China can play a major role in facilitating the participation of low-income countries in the shift from products to tasks in a mutually beneficial South-South cooperation framework.
- **Trade in tasks.** For countries of the bottom billion, trade in tasks is a potential lifeline. It is considerably more feasible to specialize in a single task rather than in the entire range of tasks needed to produce a product. The extremely limited industrialization of the bottom billion to date demonstrates that establishing vertically integrated industries has not been viable. In particular, the low-income countries of sub-Saharan Africa have been losing their already tiny share in global manufacturing.
- **Supportive policies in developed countries.** There is scope for developed countries to support late industrializers through trade and aid policies. Even if used to the best advantage, these policies are not sufficiently potent to conjure up competitive advantage where none exists, but they do have the potential to push countries over the threshold of competitiveness.

Moving up in the middle

The rapid growth of manufactured exports from low-income countries, the explosion of trade in tasks, and the very rapid upgrading of the manufacturing sophistication of the fast-growing middle-income countries, are also putting intense pressure on the slow-growing middle-income countries. During the past 30 years, these countries lost their employment shares and production intensity in global manufacturing industries that ranged from decidedly unsophisticated products to relatively sophisticated ones.

The slow-growing middle-income countries stand out for how little their production and export structures have changed over the past 30 years. Rather than broadening, the production base in the slow-growing middle-income countries has been narrowing towards a specialization in middle-sophistication goods and, since 1990, there has been virtually no change in their export intensity. The contrast with the fast-growing middle-income countries is striking. The fast-growing middle-income countries have both diversified their production and export base and moved up the scale in terms of product sophistication.

Can the slow-growing middle-income countries escape the pressure in the middle? Possibly, but it will not be easy. These countries have industrial competencies and industrial agglomerations that, with appropriate policies, can perhaps be tapped to support the growth of dynamic new export sectors. This capacity to adapt was illustrated quite well by the case study of the performance of the Buenos Aires automotive cluster. When national policies and the corporate strategies of the cluster's multinational investors shifted from serving a limited and slow-growing local market to export orientation, the skills and technological capacities of firms in the cluster were already well developed, spurring a rapid expansion of exports and employment in the sector.

Changes in task-based production may help as well. Time is emerging as a critical factor shaping the global distribution of trade in tasks. In industries subject to short cycle times or uncertain demand—such as fashion and consumer electronics—time is an important determinant of industrial location. With short cycle times, shorter transport times may outweigh higher wage costs, leading to "reverse outsourcing", as industries locate closer to customers. Middle-income countries located close to major markets for short cycle products may be able to use this time-wage trade off to break into export markets in tasks that were formerly closed to them owing to their relatively high industrial wage levels.

Section III
What policies are appropriate?

Chapter 6
Industrial and trade policies for manufacturing in developing countries

Turning from description and analysis to policy, the report is mainly concerned with how the two groups of countries identified as being most at risk of marginalization in global manufacturing—the countries of the bottom billion and the slow-growing middle-income countries—can accelerate their industrial growth.

There is a mass of literature on the investment climate in developing countries and the need for reductions in the cost of doing business.[4] This is, of course, central to the success of any industrialization strategy. Many of the countries that have failed to industrialize, and many of those under increasing pressure, have an unfinished agenda of economy-wide reforms that will need to be pursued if they are to gain ground in attracting both domestic and foreign investors. While an improved business climate is necessary to spark dynamic industrial growth, it is not sufficient. Therefore, the report focuses mainly on public policy towards industry arising from the preceding structural analysis.

Closing the infrastructure gap and trade logistics

Industry depends on infrastructure. The countries of the bottom billion lag far behind other countries in terms of the quality and the coverage of their basic infrastructure. Three closely related policy initiatives are needed to close the infrastructure gap: changing public expenditure priorities to increase the share of the budget devoted to infrastructure investments; improving the quality of investment and service delivery, inter alia, by encouraging private investment and operation; and reaching new understanding with development partners on the relevance of basic infrastructure to growth and poverty reduction.

Trade logistics matter a great deal for export performance, and trade logistics reforms need to move beyond the traditional "trade facilitation" agenda focused on trade-related infrastructure and information technology in customs to reforms of institutions and markets. In the countries of the bottom billion, infrastructure deficiencies interact with poor public institutions and lack of competition and competence among service providers to create a vicious circle of constraints. Breaking this circle may be easier in a limited physical environment, such as a special economic zone (SEZ), than attempting to do it for the economy as a whole.

Policies to support industrial clusters

Industrial clusters are the outcome of decisions by individual firms to locate close to each other. This suggests that policymakers need to be very careful; they should work with the market, not against it, when designing spatial policies to promote industrial development. One instrument to promote clustering that may be useful for the countries of the bottom billion may be the development of SEZs, to be set up either as "greenfield" ventures, as in the case of many export processing zones (EPZs), or to coincide with existing clusters. The main benefit of such SEZs is that they provide a clear focus for government investments and institutional reforms designed to encourage the location of firms in a specific area and, in the case of export-oriented SEZs, they are subject to an efficiency test—firms located in the cluster must be able to export. It should, however, be kept in mind that many greenfield projects have proved dysfunctional. They fail to attract a sufficient number of firms to realize cluster economies and, in many cases, they offer excessive subsidies to the few firms they succeed in attracting. The effectiveness of an SEZ depends on adequate investment, good management, active engagement of the private sector and well-functioning institutions.

In the slow-growing middle-income countries, two policy innovations linked to geography may be relevant. Firstly, the government should partner with the private sector and invest heavily in generating industry-relevant knowledge and in technical and university education in areas where existing outward-oriented agglomerations exist. Secondly, to encourage the entry and exit of firms, enterprises in designated clusters should be subject to a substantially liberalized regulatory framework. This spatially concentrated approach to reform might gain sufficient support to overcome incumbent opposition and, if successful, would also help to spur the growth of an export-oriented agglomeration.

4 See, for example, the *Doing Business* surveys of the World Bank or K. Schwab and M. E. Porter, *Global Competitiveness Report*, Geneva, World Economic Forum, 2008.

Regional integration

Regional integration matters for industrialization, especially in regions, such as Africa, that are divided into many small countries. Small low-income countries are at a huge disadvantage in industrialization. The problem is not primarily that the domestic market for the output of the industry is small. This can be overcome by focusing on the external market. The core problem is that small countries have small cities from which to purchase all the myriad of inputs and skills that a firm needs. Big cities generate powerful economies of scale. A firm operating in a city of 10 million people has unit costs some 40 per cent lower than if it operated in a city of only 100,000 people. To overcome this problem, a form of integration that allows the free movement of goods, capital and people across borders—allowing the formation of regional cities—will be needed.

If regional integration emphasizes cooperation in transport and power infrastructure rather than just providing trade privileges, there is a better possibility that the politics will work.

Chapter 7
Industrial and trade policies for resource-rich countries

Potentially, revenues from resource exports constitute an unparalleled opportunity for development. Policies towards industrialization are part of the process of harnessing that opportunity. Most directly, resource extraction is an industrial process, and one which can easily be mismanaged. However, beyond this, revenues from resource extraction can be used to finance other forms of industrialization.

Managing the resource-extraction industry

Resource extraction generates economic rents. Economic rents, which come from ownership of the entitlement to extract a natural resource, are the surplus beyond the payments needed to attract labour and capital to the enterprise. Typically, governments establish the rules by which private investors are given access and taxed. This requires institutions. Strong institutions curtail the ability of private actors to appropriate public rents. The stronger the institutions, the larger the contribution of a given amount of resource exports to the growth of the economy.

Box 7.1 highlights five key decision points where institutions are critical to the success of a resource-rich country.

Box 7.1 Five key decisions for transforming resource exports into sustained development

Whether resource exports are transformed into sustained development depends on five key decisions:

Decision 1. Negotiating the resource-extraction contract

The first critical decision is how the sale of resource-extraction rights should be conducted. Though the government is usually the monopoly seller of the country's resources, it has two major disadvantages: It has less information as to the likely value of extraction rights, and it has a more severe "agency" problem in determining the deals. Auctions are potentially the solution to the problem of information asymmetry as well as the agency problem. Auctions would need to meet certain specified standards, monitored through a process of international certification.

Decision 2. Design features of the contract

The second critical decision concerns the specification of the rights that the government proposes to sell. Extraction rights have three key dimensions: their duration, the tax regime that will be applied and, most importantly, the credibility of these commitments. The conventional solution to this problem has been to encourage governments to offer long-term contracts. The features of the contract could be designed to pave the way for the expansion of the sector.

Decision 3. Transparency in revenues

The third critical decision is the degree of scrutiny of revenues. Until the Extractive Industry Transparency Initiative, which started in 2002, revenues paid to governments by resource-extraction companies were usually confidential. This lack of disclosure has given rise to two abuses: companies can potentially make payments not fully compliant with tax regimes, while government officials can improperly divert those payments away from the budget. However, once payments are made public, companies are potentially exposed to a greater degree of scrutiny and are more likely to be voluntarily compliant. Likewise, the scrutiny of the government by citizens is also made possible by openness of information.

Decision 4. The aggregate savings decision

By far the most important decision concerns the proportion of resource revenues that should be saved. There are two distinct time frames that need to be taken into account in reaching this decision. The long-term time frame concerns depletion: to maintain the overall value of assets, some of the resource depletion should be offset by an accumulation of other assets. The medium-term time frame concerns the usually volatile price cycle of the commodity. There are good reasons why a government might try to smooth its expenditures rather than simply let expenditure track these extreme fluctuations in revenue.

Decision 5. The public investment decision

Having determined the proportion of resource revenues to be saved, the government must then decide which assets to acquire. Specifically, it must decide how much of the savings should be held abroad and, for the savings invested domestically, which investments should be chosen. The selection of public investment projects depends not just on macroeconomic considerations about absorptive capacity, but also on microeconomic concerns determined by national priorities and the quality of proposed investments to achieve them. For a project to be satisfactory it should meet two criteria: honesty and efficiency. Hence, these aspects of the project need to be assessed prior to approval. This was, in essence, the decision process that enabled Botswana to convert diamond revenues into world-beating growth.

Source: P. Collier, "Laws and codes for the resource curse", *Yale Human Rights and Development Law Journal*, vol. 11, 2008.

Policies for knowledge services and construction

Two key service industries are strongly related to extractive industries: knowledge and construction. Knowledge-based services offer considerable scope for diversification and development. Construction is the critical sector that determines the extent to which investment efforts in a resource-rich country are translated into investment outcomes. Both sectors can benefit from effective government policies.

Knowledge for extractive industries

Local firms with specialist knowledge have a comparative advantage. The key public input here is knowledge, and so the key government assistance is likely to be through geology and engineering departments of universities. It is efficient and feasible for each country to develop its own expertise in cooperation with other countries and centres of excellence. A promising strategy is therefore to develop a few region-wide centres of excellence in mining engineering and geology.

Supporting the construction sector

Construction requires land, material inputs, skills, organization and finance. Constraints in each of them can potentially prevent the expansion of output. If the construction sector cannot increase supply, then the surge in demand that usually accompanies a commodity boom will force up costs and prices. The first step is for the government to be aware of the bottlenecks that the construction sector is facing. It needs a rapid flow of information not only to ease emerging bottlenecks, but also to determine the composition of its budget. The speed with which the construction sector can be expanded without severely driving up prices determines the pace at which public investment expenditure can sensibly be increased.

Some supply constraints are readily addressed through government intervention. Depending on the distance of the construction site from a port, some material inputs may be internationally non-tradable. In this case, some combination of economizing on the use of the input and prioritizing an increase in their local production will be appropriate. Construction requires skills. Many of these skills are mundane, such as those of bricklayers, welders, electricians and plumbers. Again the issue is one of giving early priority to potential bottlenecks. If skills are likely to become a bottleneck, training colleges in these skills should be established.

Policies for supporting manufacturing

The export of natural resources tends to make the development of manufacturing more difficult because of the Dutch disease. One strategy for countering the effect of real exchange rate appreciation is to make public investments in activities that lower the costs of producing manufactured exports. UNIDO case study of the Malaysian EPZ in Penang, which has evolved into a major industrial cluster, shows how critical government policies are in achieving success in manufacturing in a resource-rich country. At the core of government intervention was the provision within the zone of excellent infrastructure, financed out of its resource revenues. However, government policies went well beyond this. Attention was also paid to social infrastructure in the locality of the zone so that it would be an attractive place for highly-skilled workers to live in, thereby easing the recruitment problem facing firms that chose to set up in the zone. The government also significantly improved the regulatory framework and customs regime. In effect, the cluster became a good governance zone. In combination, these policies succeeded in attracting a high inflow of foreign direct investment per capita, demonstrating that it is possible to offset the effects of exchange rate appreciation.

Chapter 8
Policy imperatives for developed countries

For the developed countries, promoting industrialization in developing countries offers an opportunity to merge ethical imperatives and self-interest in a single priority. In terms of ethical imperatives, the income gap between developed and developing countries, which widened during the past two centuries and which has at last begun to narrow, remains unacceptably wide, and industrial development is an indispensable driver of growth. In terms of self-interest, the influx of cheap manufactured products from developing countries has been the basis of an unprecedented period of prosperity in developed countries.

As industrialization is "lumpy" in space, in production and in time, once an economy crosses over the threshold of competitiveness, its industrial expansion can be explosive, as demonstrated by China. But below that threshold, the outcome is likely to be industrial stagnation. For countries below the threshold, marginal efforts made to improve competitiveness are likely to fail. A concerted and coordinated effort between developed and developing countries to raise the countries of the bottom billion above the threshold is needed.

Trade preferences

There is a reasonable case for a concerted OECD-wide approach to using trade preferences to pump-prime the "least developed manufacturing countries" into global markets. The end of the Multi-Fibre Arrangement need not mark the end of trade preferences for new entrants to manufacturing. At present, however, different OECD

countries have different schemes, most of which are not designed well enough to be effective. Indeed, the very multiplicity of schemes is a needless source of complexity. What is needed is a simple system of temporary preferences with liberal rules of origin for the poorest and least developed manufacturing countries. The most significant implication of lumpiness in time is that this effort need only be temporary. Once countries have established their ability to compete, preferences can be withdrawn.

Capacity-building for trade

While the strategic use of trade preferences can provide the necessary push for those least developed manufacturing countries that are sufficiently close to the threshold, many poor countries remain ill-equipped to take advantage of the opportunities provided by trade preferences. They lack the capacity to produce goods that can compete, in terms of quality, standards and timely delivery, in export markets. International assistance can play an important role in removing impediments to trade by strengthening public sector capacities for improving productivity and technology, strengthening quality and standards, building skills and fostering cluster development. It can also help to lay the foundations for the support services that can eventually be provided profitably by private enterprise. One mechanism for mobilizing international support for trade capacity development is Aid for Trade.

Aid for Trade

Today, Aid for Trade is at a critical juncture. It has opened up space for a dialogue between developing countries—in particular, low-income countries—and donors on the need for development strategies that balance growth and social development objectives. By focusing on the supply side and incorporating standards and quality challenges, Aid for Trade can be seen as the first high-level donor commitment to the promotion and diversification of exports in poor countries.

To realize that commitment, Aid for Trade must transform itself into a more ambitious version of its sponsors' original vision. It should encompass a resource mobilization tool, a targeted programme to improve the international competitiveness of developing countries and a coordination mechanism. The success of Aid for Trade depends on the international community meeting its commitments to increase overall development assistance.

Part B
The global manufacturing scene: A review of trends in industry and trade performance

Chapter 9
Manufacturing value added and employment

The annual growth of global manufacturing value added (MVA) slowed from 4.3 per cent between 1995 and 2000 to 2.6 per cent between 2000 and 2005. But the overall slowdown masks an *accelerating shift* in the location of manufacturing from developed to developing countries.

Manufacturing and the developing economies: At a watershed?

Growth of MVA in industrialized economies decelerated to 1.1 per cent between 2000 and 2005. In contrast, MVA growth in developing economies accelerated to 7 per cent from an already rapid 6.6 per cent.

Developed economies accounted for 74.3 per cent of world MVA in 2000, but their share dropped by almost five percentage points between 2000 and 2005. Developing countries increased their share by almost five percentage points (Table 9.1). If this trend continues, it could signal a shift in the centre of gravity of global manufacturing from developed to developing countries. MVA growth among the five geographical regions of the developing world was very uneven. East Asia and the Pacific had the highest annual growth (almost 9.8 per cent), resulting mainly from the rapid MVA growth in China. The next best performing region was South Asia, with an annual growth rate of 7.9 per cent.

Table 9.1 Shares in world MVA, 2000 and 2005
(Percentage)[a]

Country group and region	2000	2005
Industrialized economies	74.3	69.4
Countries with economies in transition	1.4	1.7
Developing economies	24.3	29.0
Sub-Saharan Africa	0.7	0.7
excluding South Africa	0.3	0.3
South Asia	1.5	1.8
excluding India	0.3	0.4
Middle East and North Africa	1.9	2.2
excluding Turkey	1.4	1.7
Latin America and the Caribbean	6.6	6.4
excluding Mexico	4.7	4.7
East Asia and the Pacific	13.3	17.5
excluding China	6.7	7.7
Least developed countries	0.3	0.3
World	100.0	100.0

Source: UNIDO database.
[a] MVA is in constant 2000 dollars. Totals may not add precisely due to rounding.

China is, by far, the leading country among developing economies in MVA. Between 1995 and 2005, it increased its share of MVA produced by developing countries from 23 per cent in 1995 to 27 per cent in 2000 to 34 per cent in 2005. Six of the other leading developing country manufacturers were also in East Asia and the Pacific (in order, the Republic of Korea, Taiwan Province of China, Indonesia, Thailand, Malaysia and Singapore). Three were in Latin America and the Caribbean (in order, Brazil, Mexico, and Argentina). India alone accounts for nearly 80 per cent of South Asian MVA, and South Africa dominates the industrial picture in Africa.

Technological upgrading in developing country industry

Developing country manufacturing is becoming increasingly technologically sophisticated (Table 9.2). In line with previous UNIDO Industrial Development Reports, this report distinguishes between four categories of industry by the level of process technology: resource-based industries (RB), low-technology industries (LT) and medium-technology (MT) and high-technology (HT) industries.[5] In 1993, the share of complex (medium- and high-technology) products in industrial production for low- and middle-income countries was 38.1 per cent; by 2003 it had increased to 43.8 per cent.

5 The technology classifications are given in the statistical annex of the main report (annex II).

Table 9.2 Technology composition of MVA share, 1993-2003, selected years (Percentage)[a]

	1993			1998			2003		
	RB	LT	MHT	RB	LT	MHT	RB	LT	MHT
World	33.1	19.3	47.6	31.6	18.4	50.1	32.3	17.5	50.2
Industrialized countries	31.0	19.1	49.9	29.1	18.3	52.6	29.9	17.5	52.6
Countries with economies in transition	48.2	22.9	28.9	49.5	20.6	29.8	50.4	22.3	27.3
Developing countries	41.4	20.6	38.1	40.2	19.4	40.4	38.5	17.7	43.8

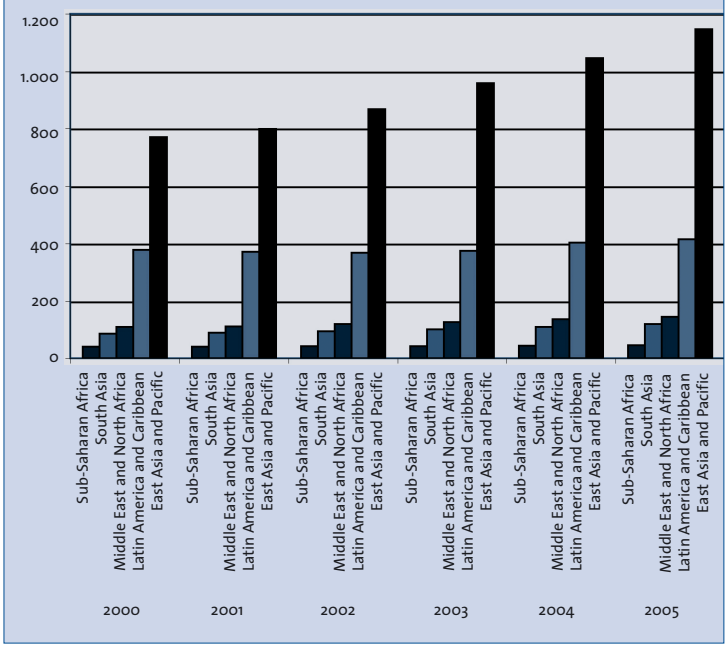
Source: UNIDO database.
[a] MVA is in constant 2000 dollars.

Most of the drive to greater technological sophistication in developing country manufacturing emanates from East Asia. This region (excluding China) has the most advanced industrial structure among developing regions. It is followed by China, and South Asia, driven mainly by India's relatively sophisticated technological structure.

Regional trends among developing countries

East Asia and the Pacific, especially China, dominates developing country manufacturing (Figure 9.1). In 2005, East Asia and the Pacific accounted for 61 per cent of MVA of developing countries, of which over half is accounted for by China. Growth of MVA in Latin America and the Caribbean, the developing world's second leading industrial region, was uneven, with MVA declining during 2000-2003 but recovering thereafter. South Asia's performance is driven by India, where electrical machinery and apparatus, iron and steel, processing of nuclear fuel, and chemicals grew very rapidly. The industrial performance of sub-Saharan Africa lags behind all other regions. MVA increased by only $6 billion over five years, and half of this was attributable to South Africa.

Figure 9.1 MVA, by region, 2000-2005[a] (Billions of dollars)



Source: UNIDO database.
[a] MVA is in constant 2000 dollars.

MVA in the least developed countries (LDCs) is dominated by Bangladesh, which accounts for more than 40 per cent of total LDC MVA. Two East Asian LDCs, the Lao People's Democratic Republic and Cambodia, have experienced a significant shift towards manufacturing, which currently accounts for some 20 per cent of GDP in both countries.

The changing structure of global manufacturing employment

Over the past three decades, fast-growing low-income countries increased their global share of employment in every manufacturing sector, sometimes dramatically. The employment share in apparel, for example, increased more than eight times. Successful low-income countries now employ between 19.1 per cent of all workers (in footwear manufacturing) and 74.4 per cent (in tobacco products) in global manufacturing industries.

Even if China is excluded, fast-growing low-income countries registered major increases in their shares of industrial employment across a wide range of activities. Where China looms largest is in the higher-technology sectors. Slow-growing low-income countries—many of them in Africa—on the other hand, remained at the margin of global manufacturing, employing less than 2 per cent of workers in any industry. Sixteen of the 28 manufacturing sectors in slow-growing low-income countries lost employment shares, mainly to their more dynamic low-income counterparts.

Between 1975 and 2000, rich countries were losing their global share of employment in manufacturing; 24 of the 28 manufacturing sectors in the OECD countries registered sharp declines in their global share of employment. Fast-growing middle-income countries also lost significant employment shares in such mass manufacturing industries as textiles, while slow-growing middle-income countries lost ground more extensively, with significantly declining global employment shares in 17 sectors.

Chapter 10
Manufactured exports and the developing countries

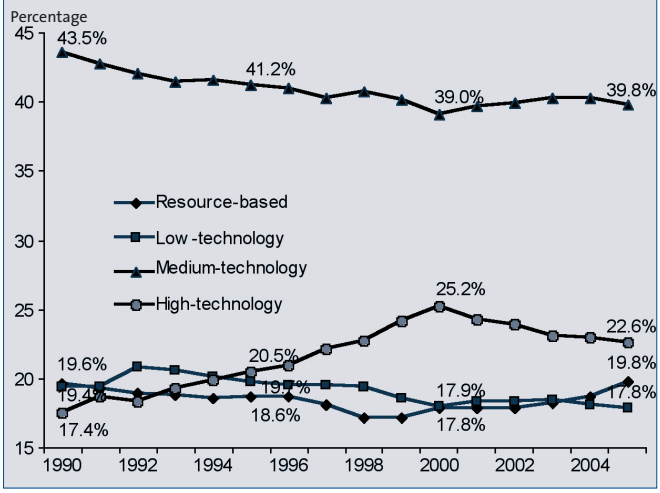
Manufactured goods constitute the vast bulk of world trade. Despite the commodity boom of recent years, manufactured exports accounted for 81 per cent of total world exports in 2005, a share that has been remarkably stable over the past 15 years.

Manufactured export growth, 1990-2005

Global manufactured exports continue to grow faster than industrial production. Between 2000 and 2005, exports of manufactures grew annually at 9.7 per cent, compared with only 2.6 per cent for MVA.

Since 1990, the share of complex (medium- and high-technology) exports in total manufactured exports has hovered around 60 per cent and accounted for 62.4 per cent in 2005 (Figure 10.1). Between 1990 and 2005, the rate of growth of high-technology exports exceeded that for all other categories of manufactured products, 10 per cent per annum.

Figure 10.1 Share of resource-based, low-, medium- and high-technology exports in total manufactured exports, 1990-2005 (Percentage)



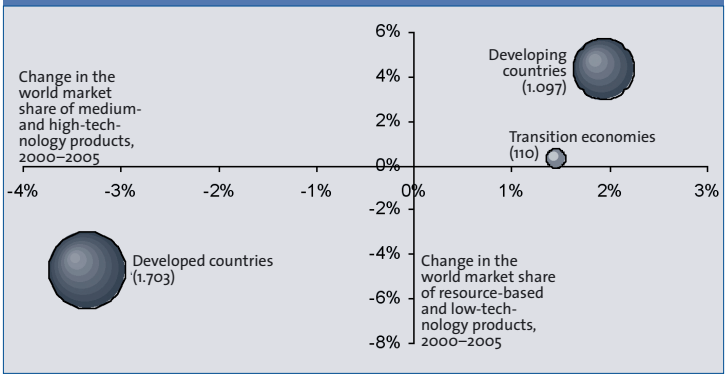
Source: UN COMTRADE.

The period 2000-2005 saw a shift towards technologically somewhat less sophisticated goods due to the strong demand from China for construction materials. Thus iron and steel-related manufactures in their different forms and levels of processing dominate the rankings of the world's 20 most dynamic manufactured exports between 2000 and 2005. In 1995-2000, eight of the most dynamic sectors were high-technology and 14 were complex. By 2000-2005, the number of high-technology dynamic exports had fallen to five, and that of complex exports had fallen to ten. Resource-based dynamic exports increased from three to five.

Manufactured exports and the developing countries

Between 2000 and 2005, developing countries gained a world market share in both simple (resource-based and low-technology) and complex (medium- and high-technology) manufactures (Figure 10.2). Manufactured exports from all developing regions, except Latin America, grew faster than the world average and faster than exports from developed countries. South Asia was the fastest-growing region, reflecting India's rapid export growth, followed by the Middle East and North Africa, where performance was dominated by Turkey. Manufactured exports from sub-Saharan Africa grew quite rapidly, at around 13 per cent, albeit from a very small base.

Figure 10.2 The market share of developing countries in all categories of manufactured exports, 2000-2005 (Percentage)[a]



Source: UN COMTRADE.

[a] Bubble size (number in parenthesis) indicates the increase in the value of total manufactured exports between 2000 and 2005 in billions of dollars.

The regional distribution of gains in manufacturing trade among developing countries remains very uneven. East Asia alone accounted for 74 per cent of developing countries' increase in the value of manufactured exports between 2000 and 2005. As a result, it has widened its trade gap with the rest of the developing world. Latin America underperformed, losing its world market share between 2000 and 2005, possibly owing to the overwhelming increase in Chinese exports to the United States of America, Latin America's main market. Sub-Saharan Africa improved its market share of complex manufactured exports slightly, while the Middle East and North Africa and South Asia gained a market share in equal proportions in low-technology and resource-based exports as well as complex exports.

The LDCs lost ground in manufactured goods trade between 2000 and 2005. Exports of manufactures from the LDCs reached $16 billion in 2004, up from $11 billion in 2000. In 2005, exports plummeted by 44 per cent to a level lower than at the turn of the century, reflecting the end of the Multi-Fibre Arrangement and consequent reductions in apparel exports from Bangladesh.

South-South trade is growing

The rapid growth of developing country exports of manufactures was driven primarily by the very rapid growth of trade between developing countries: South-South trade. Trade in manufactures within the developing world grew at 16 per cent per annum between 2000 and 2005, double the pace of manufactured trade between high-income countries. South-South trade currently accounts for 14.5 per cent of global trade. Intraregional trade in East Asia accounts for 77 per cent of manufactured trade within the developing world.

Low-technology and resource-based manufactures dominated South-South trade relations in the 1990s. Today, medium- and high-technology exports account for 60 per cent of total South-South manufactured trade. Trade in tasks and East Asia are responsible for this dramatic shift. The surge of integrated international production networks in electronics within East Asia resulted in a high-technology export boom of nearly $320 billion between 1995 and 2005.

Chapter 11

Benchmarking industrial performance at the country level: The UNIDO competitive industrial performance index

Over the past several years UNIDO has developed the competitive industrial performance (CIP) index to help assess national industrial performance in the global economy. This index aims to capture the ability of countries to produce and export manufactures competitively in a single measure. Box 11.1 provides a primer on the CIP.

Ranking countries by the competitive industrial performance index

The country ranking according to the CIP index reveals a by now familiar pattern. Developed countries congregate near the top; countries with economies in transition and East Asian countries around the upper middle; low-income dynamic countries in the lower middle range; and low-income countries and LDCs at the bottom. The CIP ranks changed little between 2000 and 2005. Singapore led the country rankings both in 2000 and 2005. Ireland and Japan followed, along with Switzerland, Sweden and Germany. The United States was the only mature industrial power that witnessed a deterioration in its relative position. This was the result of the improved performance of the Republic of Korea and Taiwan Province of China.

Box 11.1 How the competitive industrial performance (CIP) index is constructed

The CIP index combines four main dimensions of industrial competitiveness:

(a) **Industrial capacity.** The CIP uses MVA per capita as the basic indicator of a country's level of industrialization;

(b) **Manufactured export capacity.** In a globalizing world, the capacity to export is a key ingredient for economic growth and competitiveness. Manufactured exports per capita are used in the CIP as an indicator of export capacity;

(c)**Industrialization intensity.** The intensity of industrialization is measured by the simple average of two indicators, the share of manufacturing in GDP and the share of medium- and high-technology activities in MVA. The former captures the role of manufacturing in the economy and the latter is a measure of the technological complexity of manufacturing;

(d) **Export quality.** The quality of exports is measured by the simple average of two indicators, the share of manufactured exports in total exports and the share of medium- and high-technology products in total exports.

The four dimensions are given equal weight.

Source: UNIDO.

Among the top 60 countries, the largest improvements were registered by Qatar (23 places), Cyprus (18), Iceland (13) and Slovenia (10). Among the bottom 60, several African countries, including Mozambique, Senegal and Côte d'Ivoire, improved their ranking considerably—by 21, 18 and 13 places, respectively. Manufactured exports in those three countries grew much faster than MVA, while the share of primary exports in total exports declined sharply.

Competitive industrial performance by region

The regional distribution of CIP rankings presents a few surprises. As expected, East Asia leads the developing world in the CIP index. The four mature tigers continue to dominate the rankings in East Asia, although Hong Kong, Special Administrative Region of China, has dropped in industrial competitiveness. China continues its impressive performance and is in twenty-sixth position in the 2005 ranking. Also, as expected, sub-Saharan Africa lagged behind all other regions. Most of the region's countries cluster at the bottom of the CIP index and performance is dominated by countries slipping back in rank.

Latin America continued to lose ground to East Asia. The best three performers in the region, Mexico, Costa Rica and Brazil, lost several positions in the rankings. South Asia does not perform well on the CIP measure. India leads the CIP in the region but lost three positions in the global rankings, despite its strong information technology and electronics sectors. In the Middle East and North Africa, Tunisia and Morocco continued to improve in industrial competitiveness. They have emerged as small dynamic economies and are able to compete in global markets not only in basic manufactures but also in sophisticated products.

Table 11.1 Ranking of countries by the competitive industrial performance (CIP) index, 2000 and 2005

Rank 2005	Rank 2000	Country or territory	CIP index value 2005	CIP index value 2000
1	1	Singapore	0.890	0.887
2	2	Ireland	0.689	0.778
3	3	Japan	0.678	0.694
4	4	Switzerland	0.659	0.653
5	5	Sweden	0.603	0.593
6	6	Germany	0.602	0.586
7	7	Finland	0.594	0.583
8	8	Belgium	0.581	0.563
9	12	Republic of Korea	0.575	0.528
10	10	Taiwan Province of China	0.555	0.552
11	9	United States of America	0.533	0.558
12	14	Austria	0.528	0.504
13	11	Hong Kong Special Administrative Region of China	0.500	0.532
14	24	Slovenia	0.486	0.448
15	16	United Kingdom of Great Britain and Northern Ireland	0.474	0.491
16	13	Malaysia	0.474	0.509
17	19	France	0.472	0.477
18	21	Netherlands	0.455	0.466
19	18	Luxembourg	0.453	0.481
20	15	Canada	0.453	0.500
21	20	Italy	0.447	0.471
22	29	Czech Republic	0.439	0.398
23	23	Denmark	0.437	0.456
24	25	Hungary	0.436	0.415
25	26	Thailand	0.423	0.408
26	31	China	0.418	0.387
27	17	Malta	0.414	0.483
28	32	Slovakia	0.402	0.364
29	27	Spain	0.392	0.407
30	30	Philippines	0.391	0.388
31	22	Israel	0.386	0.457
32	28	Mexico	0.379	0.404
33	37	Poland	0.332	0.310
34	35	Norway	0.328	0.326
35	33	Costa Rica	0.326	0.345
36	34	Portugal	0.320	0.344
37	39	Estonia	0.319	0.297
38	36	Brazil	0.308	0.323
39	40	Romania	0.308	0.286
40	53	Iceland	0.291	0.254
41	59	Cyprus	0.284	0.241
42	38	Indonesia	0.282	0.301
43	43	Turkey	0.280	0.268
44	41	New Zealand	0.277	0.281
45	46	El Salvador	0.270	0.261
46	48	South Africa	0.269	0.260
47	70	Qatar	0.268	0.215
48	54	Greece	0.266	0.252
49	52	Tunisia	0.263	0.254
50	49	Bulgaria	0.262	0.260
51	44	Jordan	0.257	0.267
52	45	Argentina	0.256	0.266
53	42	Australia	0.255	0.281
54	51	India	0.252	0.256
55	55	Mauritius	0.246	0.247
56	57	Georgia	0.245	0.245
57	61	Morocco	0.242	0.238
58	58	Swaziland	0.240	0.243
59	47	Bahamas	0.238	0.261
60	63	The former Yugoslav Republic of Macedonia	0.234	0.230
61	71	Lebanon	0.232	0.215
62	68	Latvia	0.231	0.217
63	81	Senegal	0.231	0.188
64	66	Pakistan	0.229	0.222
65	64	Bosnia and Herzegovina	0.221	0.224
66	75	Saudi Arabia	0.221	0.206
67	60	Barbados	0.219	0.238
68	72	Guatemala	0.219	0.212
69	79	Viet Nam	0.212	0.191
70	73	Colombia	0.212	0.212
71	84	Côte d'Ivoire	0.212	0.182
72	67	Lesotho	0.211	0.218
73	76	Bangladesh	0.208	0.205
74	78	Chile	0.206	0.200
75	50	Egypt	0.206	0.259
76	56	Macao Special Administrative Region of China	0.203	0.245
77	74	Jamaica	0.202	0.209
78	69	Trinidad and Tobago	0.202	0.217
79	65	Uruguay	0.201	0.222
80	82	Venezuela (Bolivarian Republic of)	0.200	0.186
81	62	Russian Federation	0.199	0.232
82	77	Zimbabwe	0.197	0.200
83	85	Cambodia	0.191	0.179
84	83	Botswana	0.181	0.182
85	98	Iran (Islamic Republic of)	0.180	0.144
86	90	Fiji	0.176	0.165
87	88	Republic of Moldova	0.176	0.170
88	94	Nigeria	0.176	0.152
89	91	Peru	0.175	0.162
90	111	Mozambique	0.173	0.115
91	86	Albania	0.172	0.172
92	80	Sri Lanka	0.172	0.189
93	93	Honduras	0.170	0.157
94	87	Niger	0.168	0.170
95	97	Nepal	0.166	0.149
96	92	Kuwait	0.164	0.161
97	103	Saint Lucia	0.162	0.133
98	95	Namibia	0.159	0.151
99	99	Central African Republic	0.146	0.144
100	108	Nicaragua	0.144	0.127
101	102	Kenya	0.140	0.135
102	101	Ghana	0.137	0.136
103	113	Syrian Arab Republic	0.137	0.110
104	100	Sudan	0.135	0.139
105	104	Madagascar	0.130	0.133
106	105	Eritrea	0.128	0.129
107	107	Malawi	0.125	0.127
108	115	Mongolia	0.119	0.095
109	116	Uganda	0.117	0.094
110	106	Paraguay	0.117	0.129
111	114	Rwanda	0.116	0.101
112	112	Ecuador	0.114	0.114
113	96	Oman	0.113	0.150
114	109	Zambia	0.111	0.121
115	117	United Republic of Tanzania	0.108	0.087
116	89	Bolivia	0.107	0.170
117	119	Benin	0.093	0.078
118	120	Cameroon	0.087	0.069
119	110	Panama	0.085	0.117
120	118	Algeria	0.063	0.083
121	121	Gabon	0.052	0.045
122	122	Ethiopia	0.035	0.044

Sources: Computed from the UNIDO database and UN COMTRADE.

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The series of Industrial Development Reports
is intended to provide new insights into the benefits and challenges of
modern industrial development and the evidence for policy advocacy.

Over the past 30 years, industry has expanded rapidly in developing countries, driven by the explosive growth of manufacturing trade. Yet a substantial part of the developing world remains at risk of failing to establish a vibrant, competitive industrial economy. The *Industrial Development Report 2009* is about the countries that have been left behind. It is also about the opportunities and constraints faced by two groups of countries: The countries of the "bottom billion" trying to break into global markets for manufactured goods, and the middle-income countries that are striving to move up to more sophisticated manufacturing. The report focuses predominantly on manufacturing, but it also discusses resource extraction, which is the other major type of industrialization in developing countries.

Unprecedented changes in the global economy are redefining industrial development, opening some avenues and closing off others. Because countries differ in their structural characteristics, appropriate industrialization strategies must differ and evolve. The focus here is on three aspects of structural change in industry. As industrialization proceeds, what does it produce, where does it locate, and where is its output sold? The report seeks to improve our understanding of these processes of structural change, and sets out some economic policy responses to support breaking in and moving up in the global industrial economy.

Following the tradition of previous Industrial Development Reports, the present report also reviews industrial activity worldwide, including measures of technological advance, and highlights significant structural differences between and within regions. The competitive industrial performance (CIP) index, which sets out to capture the ability of countries to produce and export manufactures competitively, was first introduced in the UNIDO *Industrial Development Report 2002-2003*, ranking 87 countries. In this report, the coverage is increased to 122 countries.

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UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, A-1400 Vienna, Austria
Telephone: (+43-1) 26026-5031
E-mail: e.mayer@unido.org, Internet: http://www.unido.org