OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

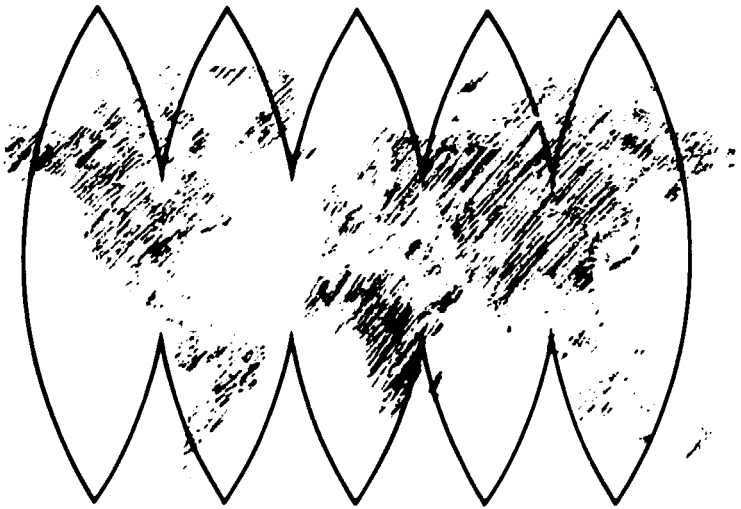
FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

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



BLACKWELL PUBLISHERS OXFORD, UK AND CAMBRIDGE, USA

THE ECONOMIC ENVIRONMENT

STRUCTURE AND PERFORMANCE OF MANUFACTURING

INDUSTRY BRANCH PROFILES

INDUSTRIAL POLICIES, STRATEGIES AND INSTITUTIONS

RESOURCES FOR INDUSTRY

INVESTMENT OPPORTUNITIES

POLAND

POLAND

Managing the transition to a market economy

INDUSTRIAL DEVELOPMENT REVIEW SERIES

Published by Basil Blackwell Ltd for the

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

First published 1991

ISBN 0-631-18096-6 ISSN 0956-6686

Basil Blackwell Ltd
108 Cowley Road, Oxford, OX4 1JF, UK

Basil Blackwell Inc.
3 Cambridge Center,
Cambridge, MA 02142, USA

British Library Cataloguing in Publication Data
Poland: Sustaining the transition to a market economy. – Industrial development review series, 0956-6686; 4
1. Poland. Industries
I. United Nations *Industrial Development Organization*
338.0954

ISBN 0-631-18096-6

Acknowledgements

This Review has been prepared by the United Nations Industrial Development Organization under the general direction of Torben M. Roepstorff, Senior Industrial Development Officer, in collaboration with UNIDO consultants Geoffrey Renshaw of the University of Warwick and Zenon Marciniak of the Warsaw School of Economics, whose valuable contributions are gratefully acknowledged. Substantial contribution was also made by Jebamalai Vinanchiarachi, UNIDO Industrial Development Officer. Overall guidance was provided by Herman Muegge, Head of the Regional and Country Studies Branch of UNIDO.

Typeset from disc submission by Information Press, Oxford
Printed and Bound in Great Britain by The Alden Press, Oxford

CONTENTS

LIST OF TABLES AND FIGURES vii

PREFACE xi

EXPLANATORY NOTES xiii

BASIC INDICATORS xv

SUMMARY xix

POSTSCRIPT xxv

CHAPTER I: THE ECONOMIC ENVIRONMENT 1
A. A diagnosis of the Polish economy 1
B. A new beginning 4
C. The outlook 22

CHAPTER II: STRUCTURE AND PERFORMANCE OF INDUSTRY 27
A. The role of industry 27
B. Growth and structural change 30
C. Industrial employment 38
D. Labour productivity, wages and salaries 42
E. Industrial cost structure and profitability 46
F. Investment in fixed assets and capital productivity 49
G. Industrial exports and imports 55
H. Industrial concentration, ownership patterns, and location 65
I. Current constraints on industrial performance 67

CHAPTER III: INDUSTRIAL STRATEGY AND THE INVESTMENT ENVIRONMENT 73
A. Key issues 73
B. Foreign investment 74
C. Investment priorities 78
D. Restructuring needs and investment opportunities 81
E. Bilateral and multilateral assistance to industry 82

CHAPTER IV: INDUSTRY BRANCH PROFILES: RETROSPECTS AND PROSPECTS 85
A. Food industry: towards efficient resource use 85
B. Textiles, garments and leather: enhancing comparative advantage 93
C. Wood and paper: upgrading downstream processing 100
D. Chemicals: mixed prospects 105
E. Non-metallic minerals: good long-term prospects for building materials 113
F. Metallurgy: accent on ecologically sound technology 117
G. Engineering industry: survival of the fittest 125
H. Fuel and power: focus on conservation 136

ANNEXES
A. Industrial production statistics 147
B. Financial performance of enterprises 167
C. Industrial investment information and opportunities 197

INDUSTRIAL MAP OF POLAND 225

SELECTED REFERENCES 226

INDUSTRIAL DEVELOPMENT REVIEW SERIES ISSUED SINCE 1986 (Non-sales and Sales Publications) 227

INDEX 229

LIST OF TABLES AND FIGURES

TABLES

CHAPTER I

I.1. Growth of gross material product (GMP) by sector, 1979–1990 3

CHAPTER II

II.1 Inter-country comparison of structure of gross material product (GMP) and gross domestic product (GDP) by sector, 1985 28
II.2. Sectoral distribution of employment, 1985 29
II.3. Structure of industrial sales, 1950–1990, selected years 31
II.4 Average annual growth rates of sales and value added by industry branch, 1970–1988 32
II.5. Population and employment, 1950–1988 39
II.6. Structure of employment in socialized industry, 1960–1990 selected years 40
II.7. Indices of employment in socialized industry, 1988 41
II.8. Indices (1970=100) and average annual growth rate (in constant 1984 prices) of sales per worker and labour productivity, 1970–1988 43
II.9. Average annual growth rates of wages and labour productivity, 1980–1988 44
II.10. Industrial wages, 1986–1990 45
II.11. Structure of production costs by industry branch, 1988 47
II.12. Gross and net profits as percentage of sales, 1988 and 1989 48
II.13. Growth of investment in industry branches, 1970–1988 51
II.14. Index of fixed assets in socialized industry, 1988 52
II.15. Ratio of growth of sales to growth of fixed assets, 1970–1988 53
II.16. Average annual growth of total factor productivity, 1970–1988 54
II.17. Composition and direction of industrial exports, 1986–1990 56
II.18. Exports as percentage of industry sales, 1986–1990 58
II.19. Composition and origin of industrial imports, 1986–1990 59
II.20. Imports as percentage of industry sales, 1986–1990 59
II.21. Nominal and real exchange rates, 1985–1989 62
II.22. Sales concentration in socialized industry, 1988 65
II.23. Changing industrial ownership pattern, 1989 66

CHAPTER III

III.1. Foreign investment in manufacturing by industry branch, as of 1 October 1989 76

CHAPTER IV

IV.1. Agricultural resource base for food processing, 1980-1989 86
IV.2. Exports of selected food products, 1970, 1980 and 1988 89
IV.3. Imports of selected food products, 1970, 1980 and 1988 89
IV.4. Potential investment proposals in food industry seeking external contribution, May 1990 90
IV.5. Domestic supplies of hides and skins, 1975-1987, selected years 93
IV.6. Exports and imports of selected textiles and footwear, 1970, 1980 and 1988 95
IV.7 Potential investment proposals in textile, wearing apparel and leather seeking external contribution, May 1990 98
IV.8. Production of selected forest products, 1977, 1980 and 1988 100
IV.9. Exports and imports of selected wood and paper products, 1970, 1980 and 1988 101
IV.10. Potential investment proposals in wood and paper products seeking external contribution, May 1990 103
IV.11. Output of selected chemical raw materials, 1988 and 1989 106
IV.12. Exports of selected chemicals, 1970, 1980 and 1988 108
IV.13. Imports of selected chemicals, 1970, 1980 and 1988 109
IV.14. Potential investment proposals in the chemical industry seeking external contribution, May 1990 109

IV.15. Physical output of selected raw material for building materials, glass, and pottery, 1970 and 1988 114
IV.16. Potential investment proposals in glass and ceramic products seeking external contribution, May 1990 116
IV.17. Production of selected ferrous and non-ferrous ore, 1988 and 1989 117
IV.18. Exports of selected metallurgical products, 1970, 1980 and 1988 119
IV.19. Imports of selected metallurgical products, 1970, 1980 and 1988 119
IV.20. Potential investment proposals in basic metal and fabricated metal products seeking external contribution, May 1990 120
IV.21. Exports of selected engineering goods, 1970, 1980 and 1988 128
IV.22. Imports of selected engineering goods, 1970, 1980 and 1988 129
IV.23. Potential investment proposals in engineering industry seeking external contribution, May 1990 131
IV.24. Exports and imports of coal, selected fuels and power, 1970, 1980 and 1988 138
IV.25. Comparison between Polish energy intensity and world energy intensity for selected industrial products, 1987 139

FIGURES

CHAPTER I

I.A. Indices of gross material product (GMP) and industrial output, 1978–1990 6
I.B. Distribution of gross material product (GMP) by sector, 1978–1990 6
I.C. Demand components of gross national income, 1978–1990 7
I.D. Consumer price index and national income deflator, 1978–1990 7
I.E. Official exchange rates, 1978–1990 8
I.F. Employment in five main socialized sectors, 1988–1990 8
I.G. Trade with transferable ruble area, 1978–1990 9
I.H. Trade with hard currency area, 1978–1990 9
I.I. Indices of wages and prices, August 1989–December 1990 14
I.J. Indices of real wages and household income, August 1989–December 1990 14
I.K. Real wages and household income, August 1988–December 1990 15
I.L. Unemployment in 1990 15

CHAPTER II

II.A. Indices of industrial production by subsector, 1978–1990 33
II.B. Structure of industrial sales, 1970 37
II.C. Structure of industrial sales, 1990 37
II.D. Structure of industrial employment, 1970 and 1990 41
II.E. Labour productivity, 1978–1989 42
II.F. Structure of industrial investment, 1970 50
II.G. Structure of industrial investment, 1990 50
II.H. Structure of industrial exports, 1990 57
II.I. Structure of industrial imports, 1990 57
II.J. Destination of industrial exports, 1990 60
II.K. Origin of industrial imports, 1990 60

CHAPTER IV

IV.A. Growth of food products, 1970–1980 and 1980–1988 (Average annual physical output growth) 88
IV.B. Growth of textiles, 1970–1980 and 1980–1988 (Average annual physical output growth) 95
IV.C. Growth of clothing, 1970–1980 and 1980–1988 (Average annual physical output growth) 96
IV.D. Growth of leather products, 1970–1980 and 1980–1988 (Average annual physical output growth) 96
IV.E. Growth of wood products, 1970–1980 and 1980–1988 (Average annual physical output growth) 102
IV.F. Growth of paper products, 1970–1980 and 1980–1988 (Average annual physical output growth) 102

IV.G. Growth of chemical products, 1970–1980 and 1980–1988 (Average annual physical output growth) 107
IV.H. Growth of non-metallic mineral products, 1970–1980 and 1980–1988 (Average annual physical output growth) 115
IV.I. Growth of metallurgical products, 1970–1980 and 1980–1988 (Average annual physical output growth) 123
IV.J. Growth of metal products, 1970–1980 and 1980–1988 (Average annual physical output growth) 124
IV.K. Growth of machinery products, 1970–1980 and 1980–1988 (Average annual physical output growth) 126
IV.L. Growth of transport equipment, 1970–1980 and 1980–1988 (Average annual physical output growth) 126
IV.M. Growth of electrical and electronics products, 1970–1980 and 1980–1988 (Average annual physical output growth) 127
IV.N. Growth of coal, fuel and power, 1970–1980 and 1980–1988 (Average annual physical output growth) 138

PREFACE

This Industrial Development Review of Poland is part of a sales series aimed at strengthening the 'country focus' of UNIDO activities. Within the framework of the work programme of the Regional and Country Studies Branch of UNIDO which monitors the industrialization process, the Reviews provide a general survey and brief analysis of each country's industrial development process. The Reviews are intended to provide a service to those within UNIDO and other international agencies concerned with industrial policy, planning, project development and implementation, and to be a ready source of information for governments, investors, industrialists, entrepreneurs, policy-makers, international organizations, aid agencies, academics, and research institutes.

The Reviews have two separate but interrelated objectives: they are designed to facilitate and promote the activities of UNIDO, as well as to serve as an informative and analytical document for the international industrial community. It is known from experience that readily available reference material on the industrial sector is eagerly sought. The favourable responses received from regular readers both inside and outside UNIDO have facilitated extension of the scope of the Reviews in successive issues.

The scope and dimensions of the sales series are designed to accommodate the needs of a wide readership in the international industrial community associated with industry, finance, trade, business, research and government. The Reviews aim at providing a basis for undertaking in-depth analyses of specific aspects of industrial policies, strategies and programmes and at providing a basis for informed discussion of industrial development trends and policies.

The Reviews are also intended to strengthen the Organization's relationship with the private sector. By acquiring a wide readership for this series, UNIDO hopes to provide new and pertinent information on the role of industry: information that is essential to understanding and accelerating the process of industrialization.

This Review comprises four Chapters. Chapter I presents a diagnosis of the Polish economy and analyses the economic environment with a focus on the outlook for the 1990s. The structure and performance of the manufacturing sector are examined in Chapter II, with particular reference to productivity, wages and salaries, investment and financing patterns, manufacturing trade, and regional disparity in industrial development. Emerging policy signals and the investment environment are described in Chapter III, followed by analyses of the retrospects and prospects of key industry branches in Chapter IV. Industrial production data and selected financial performance indicators of enterprises in each subsector are presented in Annex A and Annex B, respectively. Annex C furnishes information on the legal framework governing industrial investment, procedures, incentives, important contact points and other information pertinent to industrial investment. The Review is based on information available as at early-June 1991.

EXPLANATORY NOTES

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

Dates divided by a hyphen (1988-1989) indicate the full period, including the beginning and the end years.

In this publication, references to the Federal Republic of Germany and the German Democratic Republic indicate the period prior to unification of the two German States, on 3 October 1990. As of that date, the designation 'Germany' is used. In Tables and listings, the former component States are listed under 'G': Germany, Federal Republic of; German Democratic Republic.

In Tables:
Total may not add precisely because of rounding.
Two dots (..) indicate that data are not available or not separately reported.
A dash (-) indicates that data are not applicable.

The following *abbreviations* are used in this publication:

b/d	Barrels a day
CMEA	Council for Mutual Economic Assistance
EBRD	European Bank for Reconstruction and Development
EC	European Community
ECU	European Currency Unit
DMEs	Developed Market Economies
FAO	Food and Agricultural Organization
GDP	Gross domestic product
GMP	Gross material product
GNP	Gross national product
IFC	International Financial Corporations
IMF	International Monetary Fund
MPS	Material product system
MVA	Manufacturing value added
NBP	National Bank of Poland
NMP	Net material product
OECD	Organization for Economic Co-operation and Development
TR	Transferable rubles
UNIDO	United Nations Industrial Development Organization
Zl	Zloty (s)

BASIC INDICATORS

BASIC INDICATORS I: THE ECONOMY

Population (1990) : 38.2 million

Total employment (1990) : 16.6 million

Gross material product (GMP) (1990) : Zl 93,267 billion[a/]

Gross domestic product (GDP) (1990) : $62 billion[b/]

GDP per capita (1990) : $1,633[b/]

Growth of GMP (Percentage) :

1979-1982	1983-1986	1987	1988	1989	1990
-5.4	4.9	2.1	4.7	0.2	-13.0

Structure of GMP (Percentage) :

	1978	1980	1989
Industry	52.2	52.1	50.1
Construction	12.0	10.0	9.5
Agriculture	15.2	14.8	13.3
Forestry	0.8	1.2	1.2
Transport	6.6	6.9	4.5
Communications	1.1	1.3	0.6
Trade	9.7	11.6	18.4
Other	2.4	2.1	2.4

Trade with transferable ruble area (Rubles million) :

	1976	1985	1990
Exports	5,782	9,329	11,356
Imports	5,819	10,044	6,569

Trade with convertible currency area ($ million) :

	1976	1985	1990
Exports	5,998	6,137	11,892
Imports	7,922	5,077	8,094

Current account balance with transferable ruble area (TR million) :

1989	1990
1,104	7,121

Current account balance with convertible currency area ($ million) :

1989	1990
-1,586	668

Main trading partners (1989) (Percentage) :

	Exports	Imports
USSR	24.8	18.1
German Democratic Republic	14.2	15.7
Czechoslovakia	5.5	5.7
Austria	3.5	6.0

External debt (February 1991) : >45 billion (of which governments $34 billion, banks $11 billion)

Debt service paid as percentage of exports (1989) : 9.4 per cent

Interest arrears (1989) : $7,330 million

Total reserves minus gold ($ million) :

1989	1990
2,314.3	4,492.1

Official exchange rate :

	1985	1986	1987	1988	1989	1990
Zloty equivalents to Ruble 1	84.2	92.5	119.3	201.0	540.9	2,024.1
Zloty equivalents to $1	147.5	178.3	272.7	434.6	1,508.1	9,378.3
Consumer price index (1978 = 100)	474.2	554.4	693.8	1,125.9	4,074.7	..
Real wage index (1978 = 100)	76.7	80.2	79.6	81.7	80.8	..

a/ In current prices.
b/ Estimate.

BASIC INDICATORS II: KEY INDUSTRIAL INDICATORS

Industrial production (1990) : Zl 46,726 billion[a/]

Industrial employment (1990) : 3.6 million[b/]

Growth of industrial production (Percentage) :

1979-1982	1983-1986	1987	1988	1989	1990
-5.1	4.8	3.3	4.7	-2.1	-19.9

Structure of industrial sales (Percentage) :

	1986	1990
Food industry	19.7	18.1
Textile, garments and leather	11.0	7.0
Wood and paper	4.2	4.1
Non-metallic minerals	3.6	3.6
Metallurgy	10.0	14.4
Engineering	25.2	23.5
Fuel and power	15.5	16.0

Sales of industrial products[c/] (Zl billion) :

Dec. 1988	Dec. 1989	Dec. 1990
916.3	881.0	670.0

Private sector's share of industrial output (Percentage) :

1988[a/]	1990[a/]
3.9	11.0

Structure of industrial exports (1990): (Percentage) Engineering (33.4), metallurgy (16.8), chemicals (13.6), fuel and power (11.9) food (10.8), textile, garments and leather (6.7), wood and paper (4.1), non-metallic minerals (1.9)

Structure of industrial imports (1990): (Percentage) Engineering (41.3), fuel and power (22.4), chemicals (11.9), metallurgy (7.9), food (6.9), textile, garments and leather (5.3), wood and paper (1.4), non-metallic minerals (1.2)

Producer price index of socialized industry (Previous year = 100) :

1986	1987	1988	1989
117.8	126.6	159.8	312.8

a/ Estimate in current prices.
b/ Employment in socialized industry.
c/ Products sold by socialized enterprises in constant prices.

XVII/XVIII

BASIC INDICATORS III: INTER-COUNTRY COMPARISON OF SELECTED INDICATORS[a/]

Indicator	Unit	Poland	Austria	Hungary	Italy	Federal Republic of Germany
Population (1988)	Million	37.9	7.6	10.6	57.4	61.3
Area	'000 sq km	313	84	93	301	249
GNP per capita (1988)	$	1,860	15,470	2,460	13,330	18,480
Average annual rate of inflation (1980-1988)	Per cent	30.5	4.0	6.4	11.0	2.8
Private consumption (1988)	Per cent of GDP	56	56	61	62	55
Gross domestic investment (1988)	Per cent of GDP	33	27	25	23	21
Gross domestic savings (1988)	Per cent of GDP	35	27	28	23	26
Exports of goods and services (1988)	Per cent of GDP	23	37	38	18	33
Energy consumption per capita (1988)	kg of oil equivalent	3,453	2,060	3,068	2,608	4,421
Food industry (1987)	Per cent of MVA	14	17	7	8	10
Textile and clothing (1987)	Per cent of MVA	16	8	10	14	4
Machinery and transport equipment (1987)	Per cent of MVA	31	25	35	32	40
Chemicals (1987)	Per cent of MVA	6	6	12	10	13
Other industries (1987)	Per cent of MVA	34	43	37	36	33
Manufactured exports to OECD countries (1988)	$ million	2,637	21,553	2,310	87,765	227,674
Balance of payments[b/] (1988)	$ million	-107	-642	-389	-5,363	48,499
Gross international reserves (1988)	$ million	2,249	16,043	2,521	62,067	97,576
External debt (1988)	$ million	42,137	..	17,561	..	—
Debt service ratio[c/] (1988)	Per cent	10.0	..	30.3	..	—

Source: World Bank, *World Development Report 1990* (Washington D.C. 1990).

a/ Data comparability and coverage are constrained by unavailability of comparable data for Albania, Bulgaria, Czechoslovakia, and the German Democratic Republic (until 3.10.1989), which are non-reporting economies to the World Bank.

b/ Current account balance after official transfers.

c/ Total interest payments on long-term debt as percentage of exports of goods and services.

SUMMARY

A new era of policy reforms commenced in Poland when the Solidarity-led Government implemented a radical programme immediately after assuming office in August 1989. The reform attempts of the previous regime during the 1980s failed because of an inherent contradiction in its attempts to reform itself. As a result, the new government inherited a hybrid of a planned and a market economy, with many of the worst characteristics of each. The need for a 'shock therapy' became more apparent in 1989, when the economy was strangled in stagflation, distorted incentives and a huge debt burden, with debt service absorbing about 65 per cent of the country's export earnings.

Stabilization imperatives took the form of 'shock therapy' in order to reduce inflation to 3–5 per cent per month by end of 1990, and to correct macroeconomic imbalances. The longer term structural adjustment component was aimed at transforming the supply side of the economy which was riddled with microeconomic inefficiencies. The immediate results of the stabilization programme were successful beyond all expectations in reducing inflation, which declined from a monthly rate of almost 80 per cent in January 1990 to 1.8 per cent in August 1990. Although the annual rate remained unacceptably high, the trend suggested that inflation was under control. However, the price paid for this success on the inflation front was a substantial reduction in real wages and a severe recession characterized by falling output and rising unemployment.

The current recession resulting from the stabilization programme is also a constraint on industrial performance in some respects, although in other important ways it is therapeutic. Most obvious among the benefits is the fact that inflation is now under control – though not yet conquered – and thereby a major source of uncertainty for industry removed. The recession itself is a stimulus to industrial efficiency since it means that enterprises can no longer rely on being able to sell whatever quantity and, more important perhaps, whatever quality of output they produce. The ending of subsidies means that enterprises for the first time face the discipline of 'hard' budget constraints. The establishment of positive real interest rates forces enterprises for the first time to consider seriously the real productivity of existing and new investments.

The negative effects of the stabilization programme stem largely from its interaction with the absence of competitive markets. For this reason, some observers doubt whether stabilization can truly succeed without structural adjustment. Although the stabilization measures were intended to exert downward pressure on prices and wages, with the object both of stopping inflation and stimulating increased productivity, in practice the outcome has mainly been reduced production and profits. Enterprises have not declared workers redundant to any significant degree – most of the reduction in employment in the socialized sector has been voluntary – and the reduction in inflation comes not from any modification in wage and price-setting behaviour but from the interaction of cost-plus pricing with the very restrictive wage indexation coefficients. This problem is not unique to Poland, and reflects the shortcomings inherent in the use of demand management tools to achieve what are essentially supply-side objectives. The dilemma is that any relaxation of policy stance may cause inflation to accelerate again. The alternative, of tightening policy still further in the hope that a sufficiently deep recession will enforce the necessary behavioural changes, is difficult to contemplate.

Along with the short-term stabilization measures, the structural adjustment programme moved into full operation from January 1990. The main components of the structural adjustment programme were privatization, tax and banking reforms, and other measures to promote

competition in product and labour markets. The essence of the government's strategy has been to withdraw from the supply side of the economy. It is too early to expect to observe clear signs yet of their effects in terms of economic behaviour and the performance of the economy. However, in the area of fiscal and financial reform the changes which have been made are clear and will undoubtedly prove to be of fundamental importance. The deregulation of prices and quantitative controls have enabled market-clearing prices to be established. The almost complete elimination of subsidies, the convertibility of the zloty and the steps taken to liberalize trade seem to ensure that these prices reflect real costs. The dissolution of the State monopolies in retailing has been achieved and in coal and energy is well advanced, while a start has been made in communications.

In the promotion of competition between enterprises, transforming the behaviour of State enterprises is clearly fundamental, and remains the area of greatest uncertainty. Most branches of industry are dominated by a small number of large producers and the legacy of the past has accustomed enterprises to co-operation and rent-seeking rather than competition. For the most part the sanctions on poor performance by enterprises remain weak. Effective competition will develop only when the largest enterprises have been broken up and an effective capital market created. The importance of the latter lies not only in its role in allocating investment funds efficiently, but also as a 'market for corporate control' via mergers and take-overs – the most effective stimulus to management performance. To these ends the importance of privatization and the development of an efficient and unified capital market can scarcely be understated.

Industry now occupies a dominant position in the economy, contributing 49 per cent of Net Material Product and about 89 per cent of the country's export earnings. A rough estimate suggests that industry accounts for about 40–42 per cent of Poland's GDP, placing the country among the most heavily industrialized countries. The socialized sector, comprising mainly state-owned enterprises but also co-operatives, contributed 94 per cent of industrial sales in 1988. Engineering is the largest branch of industry accounting for 23.5 per cent of industrial sales in 1990, followed by food (18.1 per cent), fuel and power (18.0 per cent), metallurgy (14.4 per cent), chemicals (9.6 per cent), textiles, garments and leather (7.0 per cent), wood and paper (4.1 per cent), and non-metallic minerals (3.6 per cent).

In the 1980s, the fastest growing branches were precision instruments (8.5 per cent per annum), pottery and china (5.4 per cent), electrical engineering and electronics (5.2 per cent), machinery and equipment (5.0 per cent), and the power industry (4.8 per cent). Some branches recorded declines: basic metals (2.1 per cent), building materials (0.5 per cent) and textiles (0.3 per cent). A notable feature of the 1980s was the poor quality of most finished industrial products due both to the substitution of domestic raw materials for imports and to persistent excess domestic demand which reduced the incentive to achieve quality.

International trade has been growing faster than domestic production and intra-industry rather than inter-industry trade has predominated. The major industrial exports are engineering goods, which accounted for 33.4 per cent of the country's industrial exports in 1990, compared with 43.2 per cent in 1989. Metallurgical and chemical products had equal shares of 11.8 per cent in industrial exports in 1989, while fuel and power exports accounted for 10.8 per cent. In 1990, the share of metallurgical products in industrial exports surpassed that of chemicals. Sulphur and pharmaceuticals account for about 36 per cent of chemical exports, and coal represents around 70 per cent of fuel and power exports. Industrial exports to hard currency markets are more diversified, and the structure based more heavily on natural resources. In 1990, Poland's import profile was dominated by engineering goods (41.3 per cent), followed by fuels and power (22.4 per cent), chemicals (11.9 per cent) and food (6.9 per cent).

The good export performance to hard currency markets in 1985-1989 may be explained by favourable movements in the exchange rate relative to domestic inflation. The rapid growth

of import volume in the same period must be explained by structural and institutional changes: the liberalization of foreign exchange procurement regulations in the latter 1980s, and the qualitative and quantitative inadequacies of alternative suppliers located within Poland or in the CMEA area. In the first half of 1990 Poland's trade balance moved strongly into surplus. However most of the improvement resulted from a dramatic fall in imports consequent upon the decline in domestic economic activity. Forecasting Poland's trade balance is rendered even more difficult by a major structural change which is imminent. From 1991, trade with the CMEA area will be conducted in convertible currency within the framework of bilateral clearing agreements currently under negotiation.

Two industries – fuel and power, and food – experienced above-average employment growth in the period 1970–1988. This is particularly remarkable when it is recalled that the sales and more especially the value added performance of these two industries over the same period was abysmal. This should be seen as an extreme example of a general feature of the Polish economy: the almost complete lack of responsiveness of employment to changes in output, a feature which has persisted in the crisis situation of 1990.

The central deficiency of Poland's industry is the very low productivity of both labour and capital, which results in low physical levels of output in relation to input levels as well as in poor output quality. Although these problems are in part the result of insufficient and poorly directed investment in the past, it would be a mistake to conclude that, for industry as a whole, a huge investment in modern technology is either necessary or sufficient to deal with these problems. The radical reforms recently achieved have almost completely swept away the complex apparatus of price controls, subsidies, administrative direction of enterprises and allocation of materials, but Poland's industrial performance remains heavily constrained by the absence of a competitive market-driven industrial system which would promote technical and economic efficiency. This is likely to persist until there develops an effective market in financial assets and hence a market in corporate control. Privatization is still in its infancy and it seems to be relevant to only a minority of enterprises.

Food manufacturers now face an entirely different economic environment, although the necessary complementary expansion of agricultural production remains problematic. The recent movement towards liberalization of markets had an earlier and greater impact on the food industry than on any other. Reflecting the 'marketization' of food prices from 1 August 1989, prices of food increased by 291 per cent in 1989, the highest increase of any branch of industry, with most of this increase occurring between August and October. In the first quarter of 1990, price increases in food were among the lowest as the market appears to have stabilized somewhat, but the repercussion of such a massive shift in relative prices will doubtless be felt for a long time in the industry. It remains to be seen how the food industry will respond to this challenge. The food industry has been identified as a priority area by the government and the World Bank. A number of technical assistance missions have visited Poland and considerable funding is in the offing. There is the potential for the highly sophisticated food processing companies in the developed market economies to participate in the sorely needed transformation. The tax concessions to investment in food processing make this a particularly attractive prospect. There has been a shift in emphasis from meat processing to grain and dairy products processing. The industry needs to develop greater forward and backward linkages with other sectors and with industries such as agricultural machinery and processing equipment branches, refrigeration and packaging, and distribution. Poland is a leading producer of certain fruits, including currants, raspberries, strawberries and apples, and has considerable experience in orchards and the production of vegetable crops. Poland is also successful in the production of rapeseed. Up-to-date strategic marketing studies are needed in order to assess the market potential and the long-term comparative advantage of Polish food products.

For clothing and footwear, domestic market opportunities are closely tied to the living standards of households which in turn will be determined by the performance of the economy as a

whole. Regarding export potential, this sector has the advantages of low wage rates and a relatively sophisticated labour force. At the same time any exporter faces fierce competition from many industrialized and newly industrializing and developing countries as well as import restrictions in many major markets. The European Community has recently granted improved access for Polish products but it remains to be seen whether Polish textile and garment exporters will be able to out-compete other suppliers to this highly competitive market. In this branch, close links between wholesale customers and producers are highly important, links which can extend to joint ventures in design and manufacture. A particular attraction is that small scale is not necessarily a disadvantage, in garment production at least. In textiles, higher productivity could be achieved by fuller utilization of modern equipment and more advanced techniques.

Footwear is the largest sub-branch of the leather industry, accounting for nearly 60 per cent of branch sales in 1988. Production is highly concentrated; fifteen enterprises produce over 80 per cent of Poland's footwear. In the 1980s, Poland produced about 160 million pairs of shoes yearly, but in 1989 the output dropped to 144 million pairs, a little above the 1970 level. As with garments, sales growth has been achieved by shifting to higher-value products. The major markets for Polish footwear in 1988 were the USSR (8.6 million pairs), the United Kingdom (3.5 million pairs), and Germany, Federal Republic of (2.2 million pairs). The competitiveness of the Polish leather industry is constrained by obsolete equipment and scarcity of hides. In the face of rapid changes in the world leather industry even leading enterprises have to strive hard to survive. Many firms face the erosion of much of their domestic markets, with rising costs and legislations on environmental pollution. The leather industry's boom in Asia and South America also threatens firms in Europe. In Poland, a shift in market focus from footwear to upholstery and leather garments could significantly enhance the industry's export earnings.

Endowed with extensive indigenous supplies of timber, Poland is a proven reliable trading partner in sawn softwood trading in Europe. In the short run, Poland stands to gain from Germany's dependence on traditional supplies of sawn softwood. Producers already have considerable production and export experience in wood panels and the way forward to expansion is via improved technology and equipment as a means to higher quality, and higher value products. The same is true of furniture. Although exports of furniture remain small, prospects for expansion are good as quality and reputation in the convertible currency markets are improving. With an improved trading position with the EC, Poland could develop integrated woodworking plants, which combine sawmilling, wood-based panel manufacture and even fully finished products for export. These avenues could be explored with Hungary, which has a weak resource base, but strong demand for wood products.

The paper industry experienced one of the sharpest falls in investment in the 1980s. In paper production there is a lack of capacity, and in particular technology, to produce paper of medium to high quality. New investment and an injection of technological know-how is clearly required. There is considerable scope for joint ventures in this branch and some are already under way. When new capacity comes on stream the incremental supply is expected to be large because of the large scale of the operations. The mechanical wood industry in Poland creates a large volume of residues that could be efficiently utilized for further enhancing pulp production.

The current depression in the world chemical industry does not seem to apply so readily to Polish chemicals. Much of the crisis in the world chemical industry is in petrochemicals and plastics as a result of weak demand and rising costs. Poland has limited capacity in the production of oil-based derivatives, insufficient to meet the domestic demand. In the production of pharmaceuticals and cosmetics, trends remain healthy and modern technologies are available. Poland has licensed pharmaceutical technology to India and set up joint venture plants in Indonesia and Nigeria. One of the niches of the chemical industry in Poland lies in coal

chemicals. Currently there is very little production of high value added fine chemicals, which are buoyant on the world market. Potential areas in this field that befit the country's raw material base could be examined for implementing possible ventures. For example, cellulose fibre based on wood pulp (a raw material for rayon) is a prosperous niche. Research and experience have given a significant competitive edge to the Polish sulphur industry over other competitors. Plants operating on Polish sulphur processing technology are located in Asia, Austria, Canada, Eastern Europe, Germany, Italy and Spain. Of the 3.8 million tons of sulphur exports in 1990, 2.5 million tons was expected to earn the country much needed hard currency. Of immediate concern to Poland's sulphur exports is the increased production capacity of the USSR.

Prospects for fertilizers in the export markets are questionable due, among other factors, to declining levels of agricultural subsidies and to practices in the developed market economies. Domestically, the prospects are potentially good. Although fertilizer usage in Polish agriculture is low by international standards, the relationship between input and output prices for farmers has discouraged increased use. This problem has intensified recently and the government has felt obliged to reintroduce the fertilizer subsidy which had been abolished at the beginning of 1990. This remains a problem area which the government has yet to tackle successfully, but the importance for the successful restructuring of the economy of raising agricultural incentives and productivity is generally recognized.

Provided that shortages of housing, buildings, roads and infrastructure of all kinds will be made good in the longer run, the prospects for the building materials branch are clearly very good. However, the short-term prospects seem extremely gloomy in the wake of falling investment during the current recession. The decline in real wages and the significant rise in interest rates and rising prices have adversely affected the demand for houses. A recent rise in fuel prices also had a major adverse impact on building materials and non-metallic mineral products.

The fundamental problem for the basic metals branch is one of over-capacity in relation to domestic and foreign demand from the main users – shipbuilding, building construction, heavy machinery and transport equipment. Steel products for the most part are not of high quality or value and production capacity was expanded primarily to serve demand expected from the USSR for ships, building and civil engineering construction, heavy lifting equipment, etc. Freed of past constraints, it would appear that Poland could be competitive in the metallurgy branch and a large increase in exports to the CMEA could become a possibility. However with trade conducted in convertible currencies, Poland would find itself in direct competition with suppliers from developed market economies in these markets. Upgrading of the quality of this branch's products would be a lengthy and expensive task. Such a task offers abundant opportunities for profitable investments to replace out-dated equipment. The recent large increase in prices helps to provide domestic producers with the necessary resources to finance such investment. In addition, some World Bank funding has recently been approved, and neighbouring countries such as Finland have also offered assistance.

Poland is currently the largest source of copper ore in Europe, and the seventh largest producer in the world, producing 390,000 tons of refined copper in 1989. Over the period 1970–1988, copper was probably the fastest growing export sector, with an annual growth rate of 13.2 per cent per annum. After copper, silver is the second most important non-ferrous metal. Poland is the seventh largest silver producer in the world, with a share in world production of 6 per cent and exports of 691 tons in 1988. The market situation of non-ferrous metals is strong. This sector is technologically efficient, financially sound and competitive in world markets. It does not require restructuring or foreign financial assistance as it generates most of its investment funds internally. However environmental pollution, principally in the form of lead emissions, is a major problem in non-ferrous metals. This is a major opportunity for foreign suppliers of pollution equipment and technological know-how.

The efficiency of the engineering industry has been handicapped by excessive product diversification. In the 1980s its output was frequently constrained by shortages of essential inputs, including imported inputs, and its outputs have been in some cases poorly matched to market needs. These problems can be traced to a lack of market orientation. The new foreign trade and foreign exchange regimes introduced by the new government should help solve supply problems for producers. It remains to be seen whether competitive behaviour will develop rapidly. There are many new opportunities opening up, such as the increased investment in new agricultural and food processing equipment resulting from government incentives and World Bank funding. If producers in this branch respond dynamically to the new economic environment in the 1990s, this would have a major impact on the economic performance in view of the branch's large weight in industrial production. This would not however be entirely cost-free since the required adjustment would involve the contraction and in some cases liquidation of those enterprises unable to compete.

Although coal resources are very large, increased coal output will require heavy investment in modernization and exploitation of new resources. It calls for investment in processing equipment, which although costly results in a much higher quality coal with potential for export in addition to environmental benefits. Low labour costs continue to give the hard coal branch a significant advantage over its neighbouring coal producing countries in Europe. The assessment of investment opportunities in the coal industry needs to take into account various factors. These include the importance of coal for the Polish economy and for export revenues, environmental issues, changes in coal prices, interdependencies between coal and other potential energy sources and uses, and the financial strength of alternative forms of organization for mines.

The main constraint on petroleum refining in 1989-1990 has been supplies of crude oil from the USSR. This together with higher prices has resulted in a large fall in refinery throughput. In the current heavily depressed state of the economy energy supplies are adequate. Any recovery would bring energy imbalances. An increase of some 20 per cent in prices would make investment in electricity generation and transmission a very attractive proposition to foreign investors. Such an increase would not be unreasonable given that energy prices are still very low by international standards.

The energy intensity of the Polish national income is estimated at 2-3 times higher than that of developed market economies. Comparison of Polish unit energy consumption indices with world indices shows excessive energy intensity in the production of pig iron, ammonia, cement, steel, sinters and flat glass. Rational use of energy calls for equipment modernization, production improvements and a structural approach to wind up energy-inefficient enterprises. Energy conservation with clean technology, which also reduces pollution, requires substantial investment in technologically advanced and ecologically sound equipment. These areas could constitute opportunities for profitable investment.

Poland has the honour of being the vanguard of economic reforms in Eastern Europe. A great leap towards a market environment is under way as a new three-year (1991-1993) agreement with the IMF for a $1.6 billion loan pledges free market policies and speedy privatization. External support in general, and debt relief in particular, are likely to be linked to progress towards stabilization and structural change. The country's huge foreign debt is an unsustainable burden, and inimical to the process of rapid structural change. Poland's requests for an 80 per cent reduction in debt have been partially met; in March 1991, the Paris Club agreed to write off half of Poland's $33 billion official debt, implying a 70-80 per cent drop in debt interest payments. This most generous debt relief is a mark of support for Poland's decisive attempts to manage the economic transition to a market economy.

POSTSCRIPT

The bulk of this report was written in the autumn of 1990, although new data and developments in the economy were, as far as possible, incorporated into the report at subsequent editing stages. In view of the rapid pace of events in Poland it appeared even more important than usual that this Review should be as up to date as possible. This postscript therefore updates the report with additional information, to early-June 1991, which was not available when the main body of the text was finalized.

Foreign trade and economic relations

Perhaps the most encouraging development in 1990 was Poland's performance in trade with the convertible currency area (Area II). Export volume rose by 33 per cent, and import volume fell by 18 per cent, resulting in a surplus in dollar earnings of $2.2 billion and an increase in official reserves to just under $5 billion. Consequently there has been no difficulty in holding the exchange rate at approximately Zl 9.500 to the dollar until mid-May 1991, maintaining the principal 'nominal anchor' of the stabilization programme. The sixteen-month exchange rate stability ended on 17th May 1991 when Poland devalued its currency by 14.4 per cent against the US dollar. A flexible exchange rate for the zloty, measured against a trade weighted basket of currencies, was also introduced.

In trade with the transferable ruble area (Area I) in 1990, economic difficulties in the USSR contributed to a fall in Poland's import volume of no less than 37 per cent, and a fall in export volume of 17 per cent. In 1991 the additional disruption resulting from the winding up of the CMEA and the switch to trading in convertible currencies resulted in an almost complete cessation of trade with the USSR in the first two months. This is currently the subject of urgent discussions between the former CMEA partners. Also under discussion is the possibility of a free trade zone between Poland, Czechoslovakia and Hungary.

In Poland's external economic relations the most important development has been the remission of $17 billion (approximately half) of Poland's debt to western governments, which is noted in the body of this report. Additional remission of a further 20 per cent of Poland's debt to the United States, to the value of about $0.5 billion, has been agreed and a similar arrangement with France, worth perhaps $1 billion, is reported to be in prospect. With regard to Poland's debt of about $10 billion to Western banks, Western Governments have indicated their support for remission, and there are indications that Poland will clear the way for this by paying up to $1 billion of interest arrears later in 1991. Poland did not pay any interest on its bank debt since early-1990. In June 1991 it offered a $100 million interest payment and agreed to deposit 20 per cent of interest into a special account with the Bank for International Settlements. The offer has paved the way for progress in negotiation with international banks. Poland seeks around $5.5 billion debt relief from Western creditors. It is hoped that agreement with western banks will open the door to renewed lending, which is urgently needed. In addition to the possible free trade zone with Czechoslovakia and Hungary noted above, Poland is also energetically pursuing the idea of some form of association with the European Community, hopefully from the beginning of 1992.

The stabilization programme

In the domestic economy the most worrying feature has been continued high inflation. From a low of 1.8 per cent in August 1990, inflation increased to an average of about 5 per cent per month for the remainder of the year, and in December 1990 the consumer price index was 250 per cent higher than a year earlier. The acceleration in inflation is attributable in part to the deregulation of coal prices, but more importantly to a surge in money wages. Having grown very moderately in the first nine months, money wages grew at an average of 14 per cent per month in the last quarter of 1990. Such increases in excess of inflation

inevitably call into question the effectiveness of the wage indexation rules. However, at the end of 1990, it was difficult to argue that the level of real wages was excessive since they remained scarcely above the level of January 1988. In January 1991 there was a surge in inflation to 12.7 per cent following increases in administered prices of energy (imports now being priced entirely in hard currency), rail transport, and housing. This was followed by a fall to 6.7 per cent in February and 4.0 per cent in March, but further increases in administered prices are in prospect and the outlook for inflation must be considered gloomy.

At the same time the recession has persisted and unemployment continued to rise. In 1990 gross material product fell by 13 per cent, the combined effect of a 21 per cent decline in the socialized economy and a 17 per cent expansion of the private sector. Sales by socialized industry fell by a further 3.4 per cent in January 1991. Unemployment passed the 1 million mark (5.5 per cent of the labour force) in October 1990; by March 1991 it had reached 1.5 million, and is expected to reach 2 million by the end of the year.

The wage indexation rules have become increasingly controversial politically. There have been a number of strikes and public demonstrations, focusing particularly on the exemptions from the rules which have been granted to enterprises which are partly or wholly privately owned. In February 1991 a team of advisers to the president recommended that the rules be abolished, but the government has not wavered in its belief that the stabilization programme must be adhered to and that it will eventually bear fruit.

The increase in wage and price inflation in the last quarter of 1990 pointed to a need to tighten monetary and fiscal policy, and this was the subject of lengthy discussions between the government and the IMF at the beginning of 1991. Interest rates, which had been reduced to 34 per cent per annum from June to October 1990, had been increased to 43 per cent in October and to 55 per cent in November. With the agreement of the IMF, from February 1991 a further increase to 72 per cent per annum was imposed in order to strengthen the pursuit of a positive real interest rate. The wage indexation rules will continue, and the government's fiscal objective is budgetary balance in 1991. (This compares with a budget surplus of about 5 per cent of revenue in the first eleven months of 1990.) However, the plans to introduce a personal income tax and value added tax from the beginning of 1991 have been postponed for one year. On this basis, an extended fund facility of $1.6 billion over three years has been agreed with the IMF, superseding the $725 million stand-by loan which expired in March 1991.

The structural adjustment programme

Five of 'the magnificent seven' enterprises earmarked for early privatization were successfully launched in December 1990, and more than 100,000 people became shareholders. One of the newly privatized companies, Krosno Glass, announced redundancies for one-fifth of its 7,000 workers in March 1991. The company exports 40 per cent of its output to the West, and its competitiveness has been hit by rapid domestic inflation, as well as by the rise in energy costs resulting from the fact that energy imported from the USSR must now be paid in hard currency. The privatization of Orbis, the hotel and travel agency chain, has been delayed; its 20,000 workers are demanding greater participation in the privatization. In preparation for privatization, scheduled within the next three years, the Polish Airline, Lot, is offering its entire fleet of Soviet-built aircraft for sale at a nominal price and is looking for a reduction of up to 25 per cent in its 8,000 workforce.

The procedure for privatizing used so far, which was modelled on that used in the United Kingdom, has proved excessively slow and cumbersome. It is now proposed to simplify and speed up procedures greatly. In the next tranche of privatization, up to 100 enterprises will be processed in one operation. The enterprises will be valued for sale by means of a simple profit-related formula, and their shares will be taken up in the first instance by a unit trust

of mutual fund set up with advice and assistance from the European Bank for Reconstruction and Development (EBRD) and the bankers S.G. Warburg. The liabilities of the fund will comprise the share vouchers which will be issued to every citizen, as provided for in the Privatization Law of July 1990. These vouchers could be worth up to $1,000 per person, and are seen as an important element in rallying support for the stabilization and adjustment programme. However, public opinion has not reacted entirely favourably to the government's proposal to use share vouchers to compensate those whose property was confiscated by the previous regime: the compensation involved could be as much as $12 billion. For the smaller companies, worker/management buyouts are proceeding rapidly, notwithstanding the inevitable consequence that the former nomenklatura (previous regime's privileged persons occupying coveted positions) will in many cases be the chief beneficiaries.

Regarding foreign investment, the proposed new foreign investment law discussed in the report is expected to become law in mid-1991. Two important new developments involve the car industry. Fiat has offered to take an equity stake in both FSO and FSM, the two State car makers. FSM is to introduce a new small Fiat-derived car in July 1991, while the FSO works has stopped production in order to prepare for new models developed in collaboration with General Motors and Fiat. A new mini car (Fiat 500) is to be launched in early 1992, the first Western car to be produced from scratch in Eastern Europe rather than derived from an existing Italian model. Fiat is reported to have suggested radical plans to modernize and rationalize the Polish motor industry. General Motors is also aspiring to inject $100 million of investment into an assembly operation for 30,000-50,000 cars a year at the existing FSO facility.

The Polish Government has invited a second round of tenders for a cellular telephone network, which is worth $250 billion and envisages the installation of 100,000 telephones over five years. The winner will own 49 per cent of the network and the Polish Government 51 per cent. Three leading telecommunication groups – Crowley Cellular Telecommunications of the United States, Baltic Mobile Telephone System, and a joint bid by France Telecom and the United States group Ameritech emerged as front-runners in the race. The World Bank has approved a $120 million loan for improving the country's telecommunications system. The cost of Poland's telephone modernization programme in the 1990s is estimated at $1.5 billion.

With a view to facilitating the re-opening of credit lines to Poland, the government has agreed to guarantee short- and medium-term loans from the United States Export Import Bank to private sector for a year. Similar guarantees for a trial year will be given to loans for private sector imports of consumer and capital goods from the Canadian Export Development Corporation.

Industrial sales in Poland fell by 4.3 per cent in the first quarter of 1991 compared with the same period in 1990. In the first quarter of 1991 Poland had $299 million trade deficit. Amidst the gloomy outlook for inflation, the IMF Board of Management has accepted a letter of intent which commits Poland to tight monetary controls in order to reduce the monthly inflation rate to 1 per cent by December 1991.

One of the encouraging developments in March 1991 was the resumption of the sorely needed Polish stock market after a fifty-three year suspension imposed by the previous governments. A Securities Commission is in the process of being established in order to oversee the development of the capital market whose absence has inhibited large-scale privatization of the State enterprises. It is anticipated that the list of quoted companies will increase from five to 100 by September 1992. In the medium term the capital market is likely to be driven by foreigners of Polish origin. It would reflect the general confidence bestowed on the Polish economy and strengthen the emerging signs of acceleration in the process of privatization, the lynch-pin of the government's supply-side strategy.

I

THE ECONOMIC ENVIRONMENT

A. A DIAGNOSIS OF THE POLISH ECONOMY

The economy of Poland is passing through a new era of policy reforms with decisive attempts to correct macroeconomic imbalances and microeconomic inefficiencies. The Solidarity-led Government inherited in August 1989 an economy strangled in stagflation, distorted incentives, and a huge debt burden of $40 billion with debt service obligations absorbing around 65 per cent of Poland's export earnings. As the country's current economic malaise is rooted in this legacy, a diagnosis of the Polish economy calls for an examination of the deep-rooted causes built over decades of central planning.

In the period 1950–1978, Poland pursued a strategy of very rapid industrialization in which a high rate of investment was directed towards expanding the capital and energy-intensive producer-goods sectors at the expense of consumer goods and agricultural production. These imbalances led to recession in 1979, deepening into the crisis of 1980–1982 during which national income fell by over 20 per cent and investment by 44 per cent. The crisis triggered strikes and civil unrest which gave birth to the Solidarity movement and the imposition of martial law. After 1982 the Polish economy staged a slow recovery which was sustained until 1988 with the growth of gross material product (GMP)[1] averaging 4.3 per cent (see Table I.1). By 1988 private consumption was only around 10 per cent above its 1978 level, and supplies of consumer goods and food remained short. Moreover growth continued to be structurally unbalanced, and the economy was burdened with accumulated foreign debt.

As early as in the beginning of the 1980s the government, recognizing that the crisis in the Polish economy was due to systemic deficiencies deriving from the system of central planning, announced an ambitious and far-reaching programme of reform. This aimed to reduce the role of central planning and direction of the economy, giving greater autonomy to individual enterprises on the basis of workers' self-management, and to enhance the role of market forces in the determination of prices, employment and wages. In practice progress towards these objectives was limited and by the late 1980s the Polish economic system was a hybrid of a planned and a market economy, with many of the worst characteristics of each. It lacked both the co-ordinating capability of the planned economy and the flexibility of the market economy.

In February 1988 the government imposed very large increases in food and energy prices. This led to a wave of strikes across the country and the re-birth of the Solidarity movement. In December 1988 the government conceded Solidarity's demand for round-table talks in exchange for calling off the strikes. Alongside the round-table talks in February–March 1989

and the elections in June, the economic situation in Poland deteriorated. Having begun the year well, industrial production in the socialized sector began to falter drastically. The chief cause was acute shortage of basic materials and labour problems. Workers were leaving the socialized sector in large numbers, and strikes prevailed, particularly in June and August. Inevitably, industrial discipline and morale were undermined by accelerating inflation and political uncertainties. The private non-agricultural sector grew rapidly, but the socialized sector suffered a sharp downturn. Overall industrial production fell by 2.1 per cent in 1989, and GMP grew by less than 0.5 per cent.[2]

The situation in agriculture was unstable. Farmers had been squeezed for some time between rising input prices and relatively slow-growing output prices, and this led to a spontaneous wave of protests in March. A severe shortage of meat (despite rationing) developed in June 1989 as farmers withheld livestock from the market. Other foodstuffs were not in short supply but precautionary buying by consumers emptied the shelves. The outgoing government responded by seeking food aid from the European Community (some supplies arrived in September) and in July froze all food and consumer goods prices for one month, which had no measurable impact on inflation but aggravated supply shortages.

The outgoing government, just before leaving office, decided to implement its plan to 'marketize' the economy from 1 August 1989, adding enormously to inflation. Consumer price inflation, which had averaged 9 per cent per month in the first seven months of 1989, leapt to 39 per cent in August. This triggered off a wage-price spiral, with monthly inflation rates of 34 per cent in September and 55 per cent in October. Thereafter inflation began to decline as the new government tightened the wage indexation rules. The monthly inflation rates were 22 per cent in November and 18 per cent in December. Consumer price inflation for the twelve months ending December 1989 was 740 per cent.

Excessive wage increases (in March and August in particular), together with the marketization policy, played a decisive role in the inflation of 1989.[3] The question whether the level of real wages at the end of 1989 was unsustainably high, and therefore whether the further tightening of the wage indexation rules from January 1st 1990 was justified, is more debatable. A decline in real income was generally evidenced by the decline in real wage index, which was computed by comparing increases in the average monthly industrial wage with increases in the cost of living index. In the wake of price increases far surpassing wage increases the real wage index dropped significantly. It is however contended by some observers that a fall in real wages did not necessarily reflect changes in purchasing power in Poland, which experienced widespread shortages of goods. It was argued that increased purchasing power led to excess demand which emptied shop shelves. When the prices were decontrolled, the excess demand fuelled the inflationary pressure.

Another inflationary factor in 1989 was the yawning budgetary deficit. As inflation accelerated, tax receipts lagged and the government wage costs and subsidy bill rose rapidly, leading to a massive budgetary deficit in the first half of 1989. The deficit in the central State budget in the first half of 1989 was about 80 per cent of revenue, compared with 6.2 per cent in 1988. Budget tightening began in July when the President of the National Bank of Poland (NBP) independently decided that automatic credit to the government would no longer be granted, but serious efforts began only with the installation of the new government. For 1989 as a whole the central government's deficit was 24 per cent of revenue and the combined central and local government budget deficit (excluding extra-budgetary operations) was about 12 per cent of total budget revenues.

In addition to inflation and stagnating output, a third factor in the mounting crisis of 1989 was the sharp deterioration in the balance of payments in convertible currencies. Influenced largely by excessive domestic demand and reluctance to devalue the zloty in line with domestic inflation, imports rose by $1 billion in 1989. The loss of exchange rate competitiveness had

Table I.1. Growth of gross material product (GMP)[a/] by sector, 1979-1990
(Percentage)

Sector	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Gross material product (GMP)	-1.0	-4.3	-11.2	-4.7	5.9	5.5	3.2	4.9	2.1	4.7	0.2	-13.0
Socialized sector	-0.9	-2.9	-14.5	-5.9	5.6	5.7	3.8	4.5	3.4	4.4	-2.7	-21.1
Non-socialized sector	-1.7	11.9	7.5	0.0	8.4	4.2	1.3	6.4	-3.2	6.1	12.0	16.9
Industry	-0.4	-2.6	-13.6	-3.7	5.7	5.2	4.0	4.3	3.3	4.7	-2.1	-19.9
Construction	-6.5	-19.0	24.3	-8.4	7.2	7.8	4.1	4.1	2.3	6.1	0.0	-12.1
Agriculture	-3.6	-11.8	1.6	5.7	5.5	5.3	0.3	5.8	-6.7	1.2	1.8	2.9
Forestry	-5.8	4.5	5.9	9.7	12.7	7.8	1.6	5.4	2.2	2.8	-4.6	..
Transport	-3.0	7.4	-8.7	14.8	6.8	8.4	3.5	4.2	4.6	3.9	1.2	..
Communications	7.5	7.3	-0.9	7.4	24.0	6.5	4.4	7.4	10.7	6.5	5.4	..
Trade	3.0	0.1	-7.2	-12.9	4.4	3.4	4.2	5.3	5.7	7.0	4.5	..

Source: Central Statistical Office.

a/ GMP is identical to gross national income produced. Computation of growth rates is based on sectoral production indices (1978 = 100).

also taken its toll on the country's exports, which increased only marginally in value terms. Moreover exporting enterprises were postponing the inflow of export revenues in expectation that the zloty would be devalued. Thus the trade surplus, which had averaged around $1 billion a year since 1983, fell to only $0.25 billion in 1989. Private inward transfers also fell, while interest obligations rose. The overall effect of these changes was a current account deficit of $1.8 billion, the highest deficit since 1983. In the capital account, debt due for repayment in 1989 was $2.8 billion, giving an overall balance of payments deficit of almost $5 billion, financed mostly by increased arrears. Most of the debt service obligation (interest plus principal) was due to Paris Club creditors, i.e. the main 17 Western creditor governments. In contrast, in 1989 Poland's trade surplus with CMEA countries increased, reflecting better terms of trade and falling imports.

The reform attempts of the previous government failed because of an inherent contradiction in the attempts to reform itself. The regime was arguably an integral part of the problem, and therefore could not participate in the solution. Nonetheless, the ending of the previous regime by no means guarantees the smooth passage of economic reform. Indeed many of the obstacles to reform in the 1980s are still present in the 1990s.

The prescription to cure the economic malaise was clear: to decentralize decision-taking and strengthen the role of market forces. There was general agreement on the main steps to achieving this: eliminating subsidies and price controls, liberalizing external economic relations, establishing independent and competing enterprises with financial accountability, imposing disciplines on the government budget, developing financial and capital markets, and so on. It was at the crucial stage of implementation that conflicts and hence policy dilemmas immediately emerged.

One such conflict concerns enterprise autonomy, particularly the role of worker participation in a market-driven economy. This complex issue of workers' participation and control has re-emerged in the 1990s. A second conflict concerns living standards. In the situation in which Poland found itself the balance of payments could not be improved in the short run by increasing output and using it for exports or import substitution. Therefore the external imbalance had to be resolved by reducing domestic absorption – private or public consumption or investment. Further, the existence of open and repressed inflation suggested that aggregate demand already exceeded the domestic economy's capacity to meet it. Both pointed almost inescapably to the conclusion that a reduction in the real wage was necessary for stabilization, at least in the short run.

A third conflict concerns structural adjustment. The essence of the problem (familiar in the 1980s to industrialized countries) is that labour and capital cannot be redeployed quickly, especially since enterprises for the most part respond slowly and only under the pressure of necessity. Unemployment and bankruptcies are therefore inevitable. For Poland these problems are particularly acute because of the lack of experience in dealing with adjustment problems of this kind and the lack of any mechanism – whether the State or the market – to steer it.

B. A NEW BEGINNING

A new era of policy reforms commenced in August 1989 when the new Solidarity-led government quickly produced a radical programme which was outlined at the IMF meeting in Washington in September and published on 9 October. This became known as the Balcerowicz programme. It had two components. The short-term stabilization component, beginning immediately, aimed to reduce inflation to 3-5 per cent per month by the end of 1990. The longer-term structural adjustment component aimed to transform the supply side of the economy.

The programme contained many elements familiar from earlier reform proposals. What was new was the government's evident determination to pursue reform quickly and radically and the existence of a popular mandate to sustain it. Privatization was prominent on the agenda. Although this idea was not new[4] an important feature of the reform programme was its recognition that success would depend critically on the availability of large-scale external financial and technical support.

Stabilization imperatives

The stabilization component took the form of a 'shock therapy', and a number of emergency measures were introduced in the last quarter of 1989:

- major price adjustments including the further dismantling of price controls;
- accelerated tax payments and cuts in subsidies and expenditure, which helped reduce the budgetary deficit sharply in the second half of 1989;
- tighter enforcement of the allowable norm for wage increases. The norm was set at 80 per cent of the previous year's wage fund, with a tax of 100-200 per cent on increases in excess of the norm in order to curb wage inflation;[5]
- intensified credit restraint, with the effect that credit to the non-government sector (which had declined by 15 per cent in real terms in the first half of 1989) fell in the second half of the year by almost two-thirds; and
- accelerated depreciation of the official exchange rate to better reflect inflation.[6]

Following these fire-fighting measures in the last quarter of 1989, the stabilization programme – prepared with the advice of the IMF – moved into full operation from 1 January 1990. A package of measures comprising some 20 individual bills was presented to Parliament on 17 December and became law by the end of the year. The immediate priorities were to continue the deregulation of prices, eliminate subsidies, and restrain wages. The main measures were:

Prices

From 1 January 1990 almost all prices were to be based on the market mechanism. Government influence over these was to be limited to information gathering only. Official prices remained for only 13 groups of goods, accounting for 3–5 per cent of sales of consumer goods and services (the latter including public transport and housing for the elderly).

To reduce subsidies and to align domestic and world prices following devaluation, coal, gas and electricity prices were raised sharply; coal by 600 per cent, gas and electricity by 400 per cent. There was a large increase in petrol prices and a sharp rise in public transport fares. From July 1st 1990 a further increase of 100 per cent in the administrative prices of electricity, heat and gas occurred. Of even greater importance, from the same date administrative pricing of coal was ended; every coal mine became free to set its own price.

Wages

One of the most difficult but important tasks facing the government was to assess the extent to which real wage reductions were required to achieve stabilization. The government's assessment was that although real wages had fallen in the fourth quarter of 1989, the increase for the year was about 10 per cent, following an increase of about 15 per cent in 1988. This level of real wages was considered untenable. Until supply capacity and distribution of consumer goods improved, such real wage levels could only result in excess demand and continued inflation. Moreover, even in the absence of excess demand, inflation would continue as long as money wages were closely indexed to prices. Thus, irrespective of whether the inflation was driven by 'cost push' or 'demand pull', there was a need to restrain money wage growth below the rate of price increases.

Fig. 1.A. Indices of gross material product (GMP) and industrial output, 1978–1990 (1978 = 100)

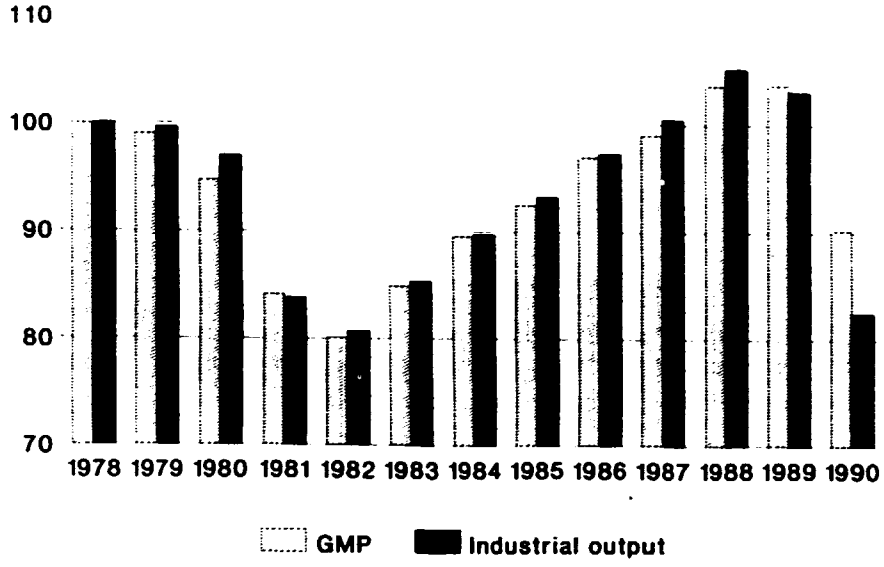


Fig. I.B. Distribution of gross material product (GMP) by sector, 1978–1990

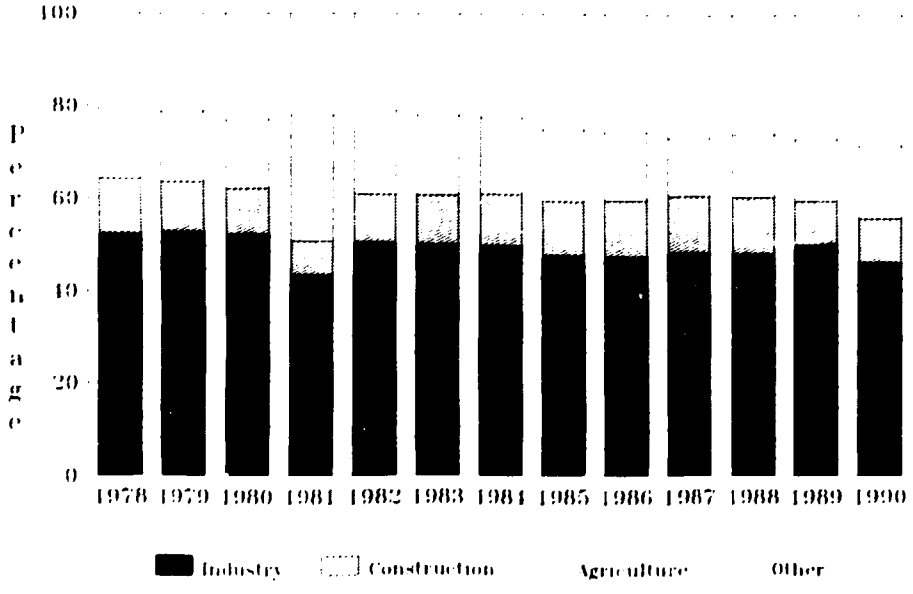


Fig. I.C Demand components of gross national income, 1978–1990

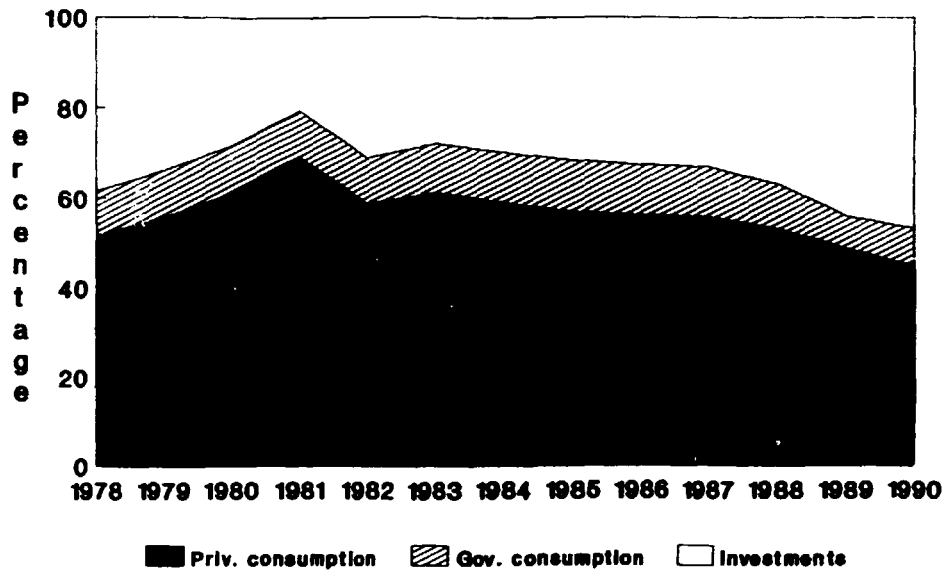


Fig. I.D. Consumer price index and national income deflator, 1978–1990
(previous year = 100)

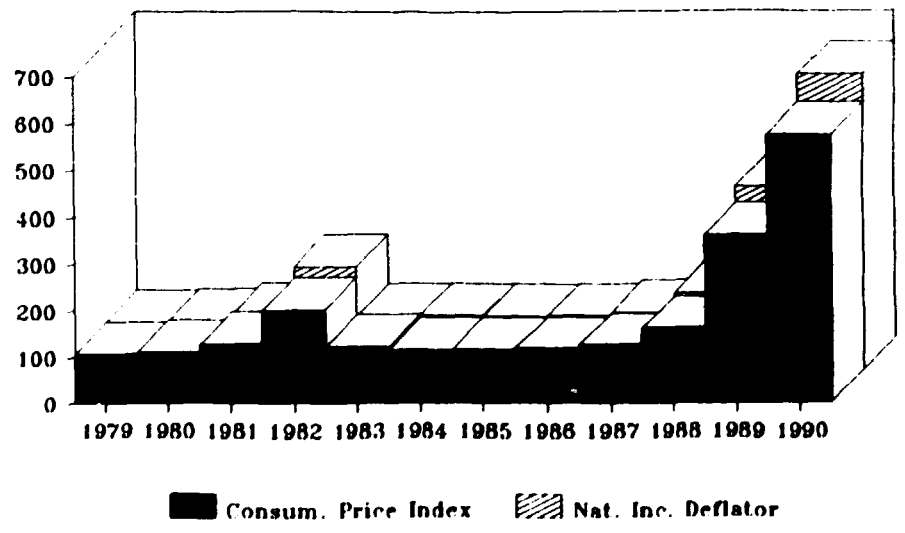


Fig. I.E. Official exchange rates, 1978–1990 (in thousands zlotys)

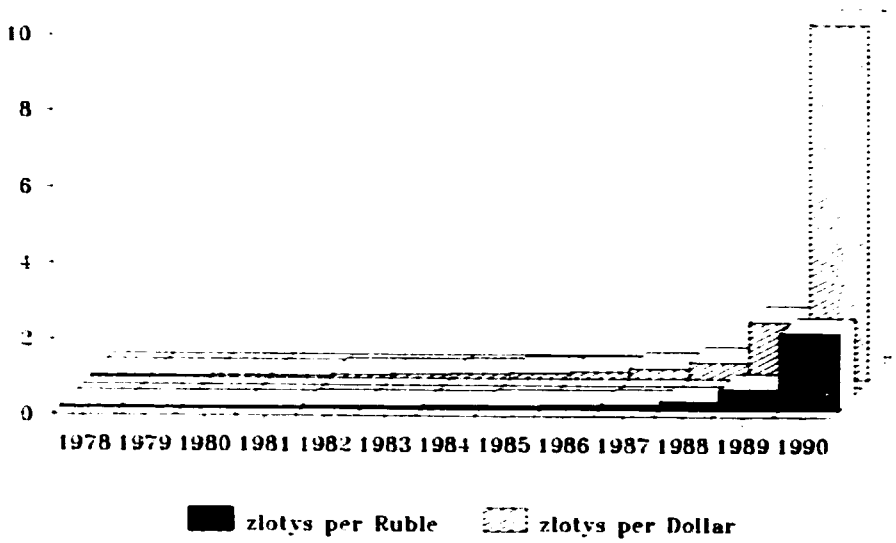
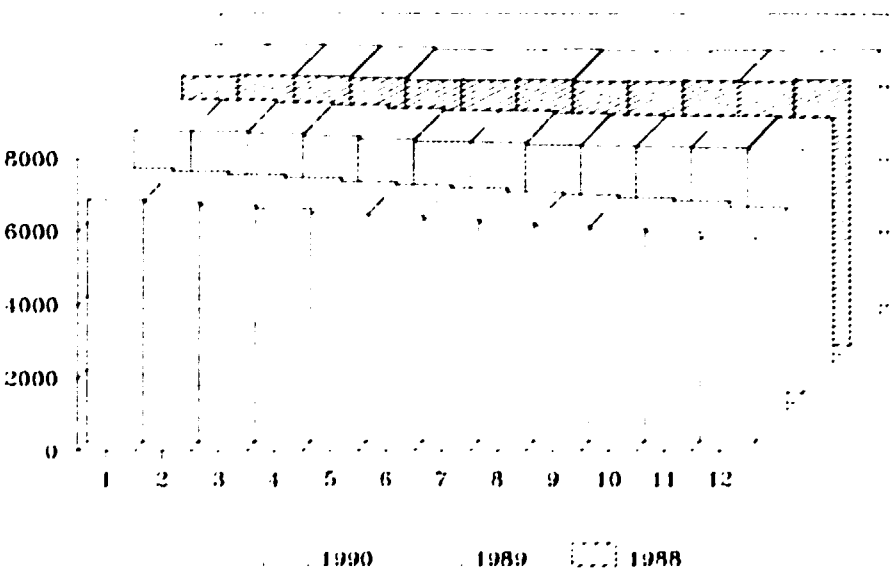


Fig. I.F. Employment in five main socialized sectors, 1988–1990 (thousands)



Note: Five main sectors include industry, construction, transport, communication and trade

Fig. I.G. Trade with transferable ruble area, 1978–1990

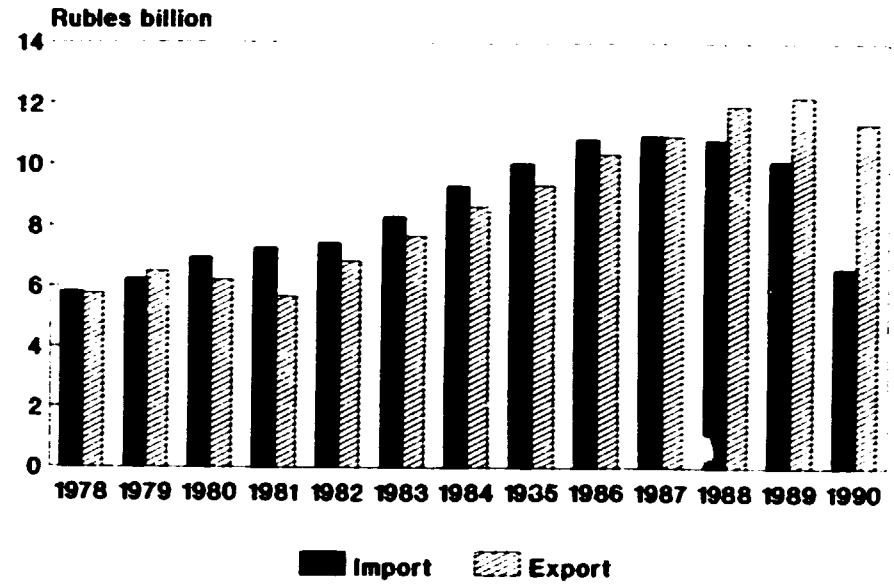
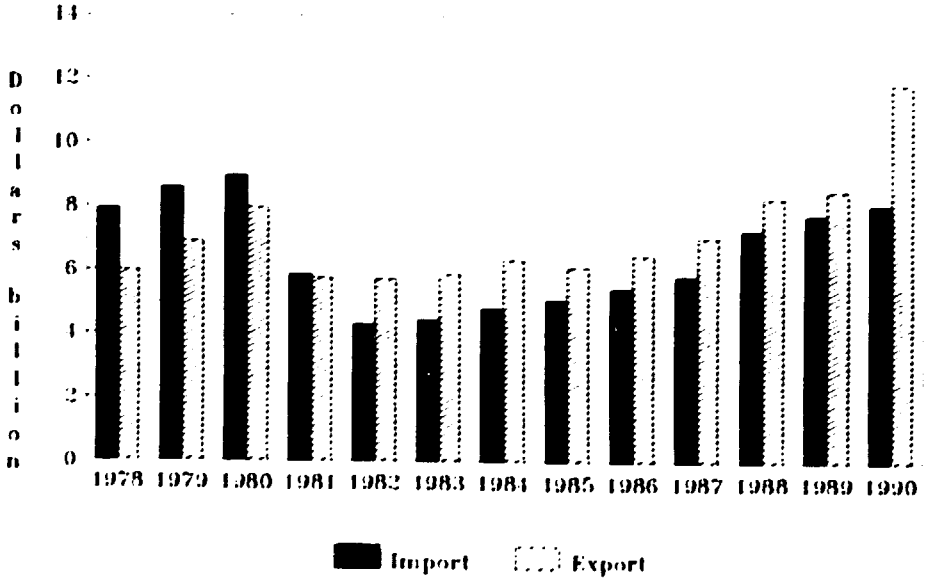


Fig. I.H. Trade with hard currency area, 1978–1990



The government therefore decided on a determined effort to conquer inflation quickly by greatly reducing the allowable norm for wage increases from the level of 80 per cent which had been set from 1 September 1989. It anticipated, however, that falling demand would also serve to constrain wage and price growth as the year progressed. After the initial downward shift in real wages, and as inflation fell, it would be possible to relax the norm somewhat.

Implementing this strategy, from 1 January 1990 the norms for wage increases were set at 30 per cent of the previous month's inflation for January, 20 per cent for February, March and April, and 60 per cent for May. Wage increases of 2 per cent above the norm attracted a 200 per cent tax and increases of 3 or more per cent above the norm were taxed on a progressive scale of 300–500 per cent. The norm for profit bonuses was 8.5 per cent of wage costs in 1989. Expenditure on excess profit bonuses was taxed at 500 per cent of the excess amount. The squeeze on wages was further increased by the decision that wage bonuses from 1989 profits were to be postponed until February and moreover could not be paid by enterprises which were in arrears in tax payments. Further tightening resulted from the decision that the wage level to which the indexation norm[7] would apply in January would be that of the previous September, not December.

The government's expectation was that the outcome of its wage and price policies would be an inflation rate of 45 per cent in January, 23 per cent in February, and 11 per cent in March, falling to 1 per cent by the end of the year and averaging less than 95 per cent for 1990 as a whole.

Exchange rates and trade

The government's objective was to open the economy to international competition so that prices of tradable goods would reflect their foreign opportunity costs. The first step was to set a realistic exchange rate which would close the gap between the official and unofficial exchange rates. At the beginning of 1990 a new official exchange rate of Zl 9,500 = $1 was established. For enterprises the administrative rationing of convertible currency and the currency retention quotas were abolished. Henceforth, enterprises were required to surrender convertible currency receipts to the National Bank of Poland, but could freely buy convertible currencies from the Bank for most current transactions. Households continue to have free access to the separate unofficial foreign exchange market and to dollar bank deposits.

At the same time trade with convertible currency countries was liberalized. All quantitative restrictions on imports were abolished and a new unified customs tariff for personal and commercial importers (with temporary surcharges for certain consumer goods) was introduced. The number of export commodities subject to quota was halved and restrictions on engaging in foreign trade eased considerably. Several bilateral payments agreements were to be phased out in 1990. Regarding trade with the CMEA countries, it was later decided by the Soviet Union that its trade with CMEA members would be conducted in convertible currencies from 1 January 1991.[8]

Given these changes in policy and the uncertainties in the economy, at the beginning of the year the outlook for the balance of payments in 1990 was very uncertain. It was unclear how domestic recession would affect exports, while imports could rise due to domestic supply difficulties and liberalization of trade and exchange rate arrangements. Thus it was expected that the current account deficit in convertible currencies might widen, possibly to as much as $3 billion (equivalent to 7 per cent of GMP). In any event, it was clear that Poland's debt servicing capability in 1990 would be minimal. Debt servicing obligations (interest plus principal) in 1990 totalled about $6.5 billion.

Government budget

The target for 1990 was the achievement of broad budgetary balance, to be achieved as follows:

- subsidies would be cut from an estimated 31 per cent of the budget in 1989 to a maximum of 15 per cent in 1990. This target was subsequently embodied in the budget for 1990. These cuts would affect coal, energy, fertilizers, transport and some dairy products. Subsidies to food and agricultural inputs would be virtually eliminated and the coal subsidy drastically curtailed.[9]
- further real savings would result from cutting government employees' real wages broadly in line with reductions anticipated in the non-government sector, and by squeezing defence expenditure.
- additional revenue equivalent to about 4 per cent of GDP would result from the virtual elimination of tax relief to enterprises. The phasing out of a range of tax concessions related to exports, investment etc., would raise the effective rate of profit tax from 30 per cent to about 37 per cent (the nominal rate being 40 per cent).

Offsetting these gains to the budget there would be increased expenditure comprising:

- modest growth of real spending on health and education;
- new funds for structural change and retraining; and
- a new 'social safety net' to protect the poorest and the unemployed.[10]

To enforce the achievement of its budgetary objectives, financial controls within government were to be strengthened and the government set itself (in agreement with the IMF) specific quarterly targets for the budgetary deficit in 1990. A further check was that government spending would be constrained by specified limits on borrowing from the NBP in the first half of 1990. Long-term treasury bonds would be issued from April 1990, having first been issued in September 1989.

Monetary policy

Monetary policy had previously been virtually non-existent in Poland. The government envisaged that credit restrictions on both government and enterprises, together with interest rate policy, would play an essential role in enforcing financial discipline on both enterprises and government. This would restrain aggregate demand and reduce inflation expectations. The latter in turn would increase the public's willingness to hold zlotys and arrest the progressive 'dollarization' of the economy which had occurred in 1989.

As noted above, ceilings were set for government borrowing from the National Bank of Poland. In addition there were credit restrictions on enterprises, in the form of quarterly targets for money creation via loans to enterprises. These targets allowed for some growth in real net credit to the non-government sector in order to allow for a supply-side response to new market incentives, but until inflation fell enterprises would be severely restricted in cash terms.

In order to promote flexibility and competition in credit markets, loan ceilings for individual banks were to be progressively abolished, with interest rates becoming the instrument for determining the volume and distribution of credit. To this end, all preferential interest rates (relating to agricultural credit, exports, and some investment) were abolished from the beginning of 1990. The interest rate for housing credit was also unified with other rates but cushioned with a budget subsidy, as were agricultural interest rates.

Interest rates, which had previously been negligible, were raised dramatically. The January 1990 interest rate was 36 per cent per month. As inflation declined, the rate was reduced

subsequently to 20 per cent in February, 10 per cent in March, and 8 per cent in April. This last figure exceeded the inflation rate by 5.7 per cent, and the objective of establishing positive real interest rates was thus achieved.

Immediate results of the stabilization programme

In terms of its immediate objectives the programme has been successful beyond all expectations. Inflation declined very rapidly in the first half of 1990. Consumer price inflation in January was 79.6 per cent, in February 23.9 per cent, and in March 4.3 per cent. It was 7.5 per cent in April, 4.6 per cent in May, 3.4 per cent in June, 3.6 per cent in July and 1.8 per cent in August. Although the annual rate remains unacceptably high, the trend suggests that inflation is now under control. Whether inflation will fall still further remains problematic.

The price paid for this success on the inflation front has been a substantial reduction in real wages. In January and February 1990 real wages in the 5 main sectors (industry, construction, transport, communication and trade) were 20 per cent lower than a year earlier and less than half of their August 1989 level. However, as the delayed bonuses were paid and the partial compensation for January's inflation fed through, real wages rose in March but were still lower than at any time in the previous two years. In the next three months they continued to fall. In April, real wages were about 40 per cent lower than in December, in May 44 per cent lower, in June 45 per cent lower, in July 42 per cent lower and in August 40 per cent lower.

The decline in real wages reflected the fact that money wage increases were very moderate. The average nominal wage in the socialized material sector increased by 2.5 per cent in January 1990, 15.4 per cent in February and 40 per cent in March. The increases in February and March incorporated delayed profit bonuses. Excluding profit bonuses, wages increased by 2 per cent in January, 5.4 per cent in February and 10.5 per cent in March. In the next two months nominal wages actually declined. In April they dropped by 9 per cent, in May by 4 per cent, and they increased by 1 per cent in June.

The second price paid for the reduction in inflation was a dramatic fall in sales, at least in the socialized sector of industry. There, sales fell by 19.3 per cent in January and 14.2 per cent in February. In March there was a recovery, with sales rising 10.5 per cent, but there was a further fall of 8.5 per cent in April. In May sales increased by 4.1 per cent, but in June they declined by 0.2 per cent, and in July they fell by 4.8 per cent. A rise of 7.7 per cent in August was followed by a fall of 0.4 per cent in September. Sales in 1990 have been consistently about 30 per cent below their levels of a year earlier.

Corresponding to this fall in sales, employment in the five main socialized sectors was 11.5 per cent lower in June than a year earlier, representing a fall of 727,700 in absolute numbers. Registered unemployment in March was 266,000, in April was 360,000, in June was 568,000, in September was 820,000 (4.5 per cent) and by December was 1,125,000 (6.1 per cent) – well above the figure of 300,000 reported as the government's estimated effect of its programme. Employment in the non-agricultural private sector, however, increased by nearly 200,000 in 1990.

Exchange rate policy has been very successful in unifying the market for foreign exchange. The official exchange rate fixed in January (9,500 zlotys/dollar) has been successfully maintained and other rates have stayed close to it; for example,the rate prevailing in the exchange shops has not exceeded 10,000 zlotys per dollar. The use of dollars for internal transactions has declined markedly. The removal of anti-export bias resulted in a significant rise in exports from $5.8 billion in 1989 to $11.4 billion in 1990. A fall in imports was partly due to State enterprises economizing on the use of raw materials in order to comply with belt-tightening measures.

It is equally important to note that with a realistic exchange rate the results on the trade balance are encouraging. The cumulative surplus after six months was 2,486 billion rubles in trade with CMEA countries and $2,076 million in trade with the convertible currency area. The latter figure is almost twice as large as the best yearly trade surplus achieved in last 3 years (in 1987 – $1,235 million). The surplus with convertible currency countries did not merely result from falling imports due to the decline in domestic economic activity. Although import volume in the first half of the year was indeed almost 30 per cent lower than a year earlier, the volume of exports rose by 13.7 per cent. It is also noteworthy that within a declining volume of total imports from the convertible currency area, there was a rise of about 8 per cent in the volume of imports of investment goods, an encouraging sign from the point of view of economic growth.

This excellent trade performance, unexpected by most observers, has made it largely unnecessary to draw on the IMF stand-by facility of $723 million and the other funds made available for supporting the exchange rate. Of course, a recovery of domestic production may change this picture radically through its effect on imports.

The government budget has also been much better than expected. A surplus in the budget appeared in 1990 for the first time in the last 10 years. Central budget revenues for the five months were Zl 52,224 billion, while expenditures reached Zl 44,970 billion. The net surplus was Zl 7,254 billion. This contrasts sharply with forecasts made in December when the programme was under discussion with the IMF, when it was believed that a deficit of Zl 4,000 billion was planned for the first quarter and a deficit of Zl 3,500 for the first half of the year was anticipated. Most of the first five months' budget expenditures were devoted to financing the non-material sector (about 40 per cent), subsidies (about 20 per cent), social insurance (about 17 per cent), and the Foreign Debt Service Fund (about 7.5 per cent).

Borrowing by the government from the National Bank of Poland decreased by Zl 4,196 billion in the first three months of 1990. This is again in sharp contrast to forecasts made in December suggesting a deficit of up to Zl 3,000 billion. As noted earlier, interest rate policy has also worked well. From the initially very high monthly rate of 36 per cent in January, the rate was reduced to 20 per cent in February, 10 per cent in March, 8 per cent in April, 5.5 per cent in May, 4.0 per cent in June, and 2.5 per cent in July. In August and September the rate was 36 per cent per year, and from October 43 per cent per year. From March the objective of achieving a positive real rate of interest was achieved. A credit market has begun to develop; banks are competing by lowering their interest rates to attract clients.

Finally, domestic credit expansion in the first quarter of 1990 was Zl 12,957 billion, considerably less than the target of Zl 17,400 billion. It is also worth stressing the rapidly growing currency turnover (Zl 1,226 billion in January, Zl 3,645 billion in February and Zl 4,358 billion in March).

In conclusion, it is clear that the stabilization programme has been successful so far, though many difficulties lie ahead. But more important perhaps than the performance indicators discussed have been the benefits flowing from the realignment of relative prices resulting from the reduction in price controls and subsidies, restored confidence in the zloty, and the clear signals sent by the government regarding the enhanced role of market forces.

Framework for long-term structural change

Privatization

Rapid and large-scale privatization of socialized enterprises has from the outset been a central pivot of the new government's programme for transforming the supply side of the economy. Inevitably this policy, as in other countries in Eastern Europe, raises many issues of both principle and practice.[1]

Fig. I.I. Indices of wages and prices Aug. 1989 – Dec. 1990 (Jan. 1988 = 100)

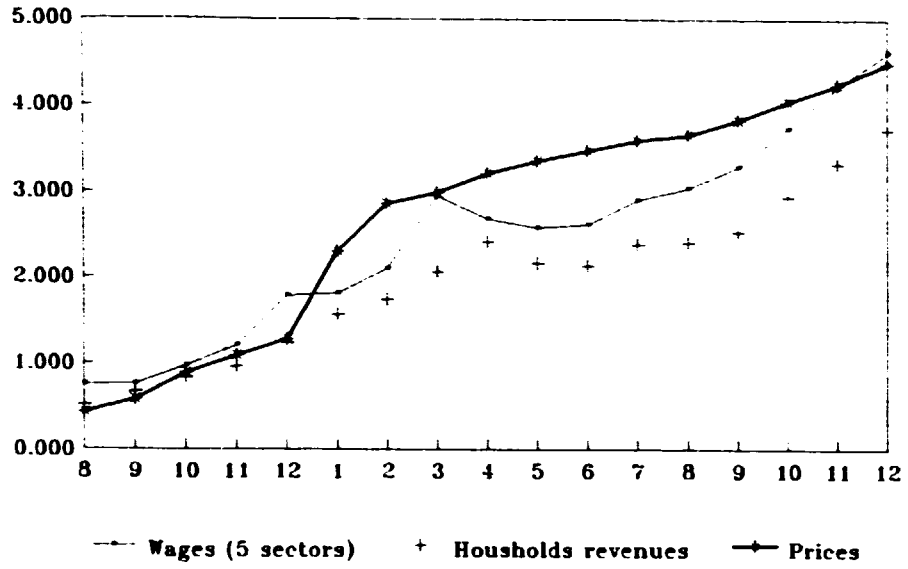


Fig. I.J. Indices of wages and household income, Aug. 1989 – Dec. 1990 (Jan. 1988 = 100)

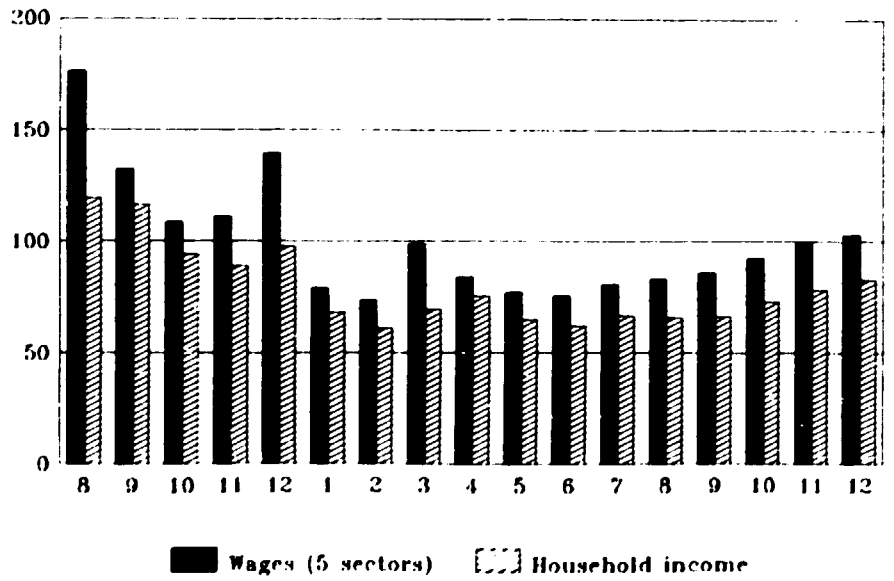


Fig. I.K. Real wages and household income, Aug. 1988 – Dec. 1990 (monthly percentage changes)

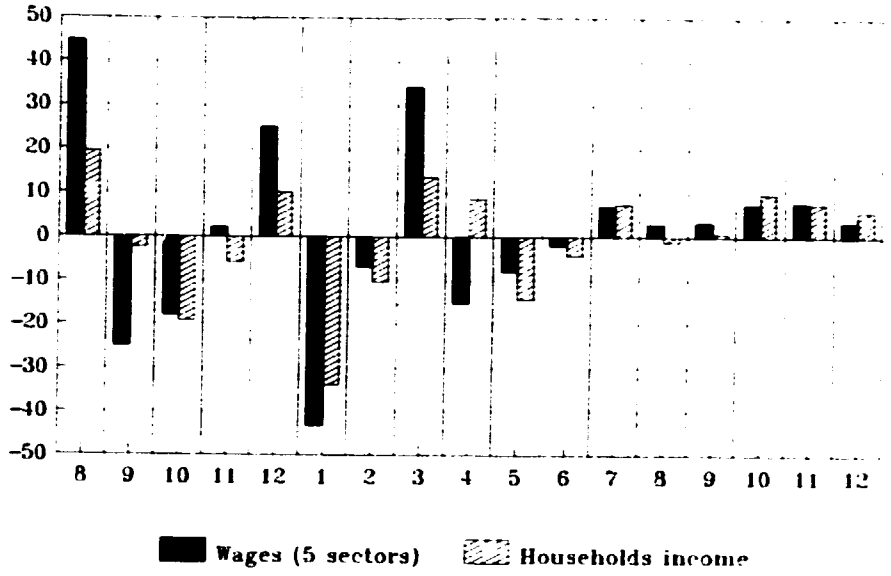
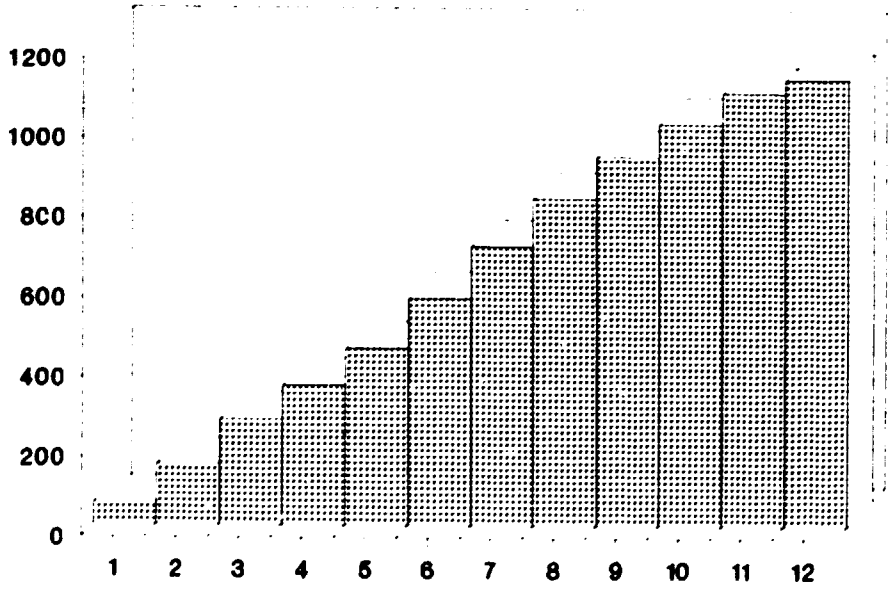


Fig. I.L. Unemployment in 1990 (thousands)



Several competing proposals regarding the form of privatization have emerged in order to address issues pertaining to the valuation of assets and the question of workers' and citizens' rights in corporate equity. One proposal was that workers should be allowed to buy a proportion of shares directly from the enterprise while the State, However, retaining a majority shareholding. Another was that the State should set up worker and community trust funds to buy shares. A third possibility was that shares might be given away to the general public. These views are reflected in the final form of the Privatization Law.

The Privatization Law

The Privatization Law was approved by Parliament on 13 July 1990. The first feature of the Law is that in the interests of speed, and in order to depoliticize individual privatization, Parliament has delegated the implementation to the Council of Ministers. Parliament will be asked to approve only the total value of assets to be sold each year and the use to which the proceeds are to be put. The second feature is the pivotal role of the Ministry for Ownership Changes. While the Council of Ministers will make proposals regarding the privatization of the most important enterprises (the 400 or so controlled by the Ministry for Industry), the remainder will be subject only to the approval of the Ministry.

It should be noted that privatization relates only to State enterprises and does not include co-operatives, where the main drag on efficiency is lack of competition, which is being tackled by other government initiatives. It is also noteworthy that a large number of small-scale privatizations have already occurred in retailing as an independent process. The Law states that privatization may take a number of forms and may be initiated in a number of ways. One route is via liquidation, on the initiative of the 'founding organ' and with the consent of the Ministry for Ownership Changes. Following liquidation, the enterprise may be sold as a single entity or broken up and sold in parts. Liquidation may also be approved by the Ministry on application by the Workers' Council and Assembly, in which case the enterprise may be sold to them or given to them.

Privatization may further be initiated by an application to the Ministry from the Director and Workers' Council, or by the founding organ with the approval of the Workers' Council. Such applications must be accompanied by a feasibility study, a proposal for the formation of a joint stock company, and a statement of the preferences to be granted to workers in the buying of shares. Thus privatization may be initiated either by the enterprise Director or by the founding organ (the State), but in both cases the consent of the Workers' Council is required. In any event, the Ministry for Ownership Changes has the last word since it may refuse an application if it judges the economic or financial situation of the enterprise to be unfavourable or judges the proposal to be against the interests of the State or of future shareholders.

Privatization may also be initiated by the Ministry for Ownership Changes itself on application to the Council of Ministers. As noted above, the Council of Ministers will itself retain the initiative in ordering the privatization of the most important enterprises.

Although the procedures described above are designed to encourage enterprises to take the initiative in privatization, the Ministry for Ownership Changes will closely regulate the process of offering shares for sale with the intention of foreclosing the repeating possibility of the undesirable effects of the previous government's 'ownership experiments'. Shares may not be given away and sales must be by way of open, well publicized invitations to subscribe.

Employees' rights have been recognized by giving them the right to buy up to 20 per cent of the shares on preferential terms within one year of the public offer, the preferences taking the form of a lower price, bonus shares, or (subject to Ministry approval) payment by instalments. The value of these preferences must not exceed the wage fund of the previous twelve months. At the same time, the rights of the public at large have also been recognized.

in two ways. First, in order to promote the widest possible share ownership, the government has indicated a desire to encourage small bids for shares from the public. But at the same time it also wishes to promote shareholder control over management, which would be weakened if shareholdings were to be widely dispersed. Second, the Privatization Law introduces capital bonds which will be distributed to the public free of charge, and which may be used to purchase shares in a privatization issue. This feature of the Law was the result of an amendment by Parliament of the original Bill. It is not yet clear what form these bonds will take or how they will be distributed.

One of the main issues was related to the extent of foreign participation in privatization. The outcome in the Law is that foreigners are to be free to purchase up to 10 per cent of a share issue. They may also hold more with the permission of the Foreign Investment Agency. It remains to be seen how readily this permission will be granted.

It is also clear that the privatization process will itself provide opportunities for restructuring over and above whatever is triggered by the change of ownership. Following the feasibility study, the Ministry for Ownership Changes can hold up the sale and order changes in the enterprise. Before shares are sold, the Treasury may take over part of the enterprise's debt (with the approval of the Minister of Finance) and creditors will then have first claim on the assets. The Minister of Finance may grant tax holidays to privatized companies.

Most importantly, restructuring opportunities are created by the possibility that a controlling interest in a newly privatized enterprise may be acquired by another enterprise or alternatively that the privatized company may participate with another to form a new joint venture. In other words, privatization provides a means to merger, acquisition, and the formation of new companies. In all cases, foreigners are able to participate on the same basis as domestic actors and their contribution to joint ventures with newly privatized companies may be in cash or in kind. In the latter case, contributions are exempt from customs duties.

Budgetary reforms

As noted earlier, reform of the system of enterprise taxation to achieve greater transparency was introduced from January 1st 1990. In addition, two major structural reforms of the tax system were planned to be introduced on 1 January 1991:[12]

- replacement of the turnover tax by a value-added tax,
- introduction of a personal income tax.

Banking reforms

By the National Bank of Poland Law of 28 December 1989, the NBP took important steps in evolving towards a true central bank. The conduct of monetary policy was made its explicit responsibility. The other banks were required to hold their cash reserves (both in zlotys and foreign currency) with the NBP, and the NBP was given the authority to fix reserve asset ratios and to influence banks' lending policies. It became independent of the government and is under the control of Parliament. Its obligation to finance the government by way of bills was limited to 2 per cent of budget expenditures. It was charged with determining and defending the exchange rate and to this end given the authority to fix interest rates.

The Banking Law of the same date gave the NBP the power to issue licences for the establishment of new banks with foreign participation. Such banks have the right to transfer 15 per cent of their dividends abroad. State and co-operative banks may be transformed into joint stock companies. The NBP will regulate the other banks, and can instruct them to take steps to improve their financial standing, increase their reserves, issue new shares, and change the structure of their assets. It can also monitor and control their advertising.

The Law on Banking Settlements, also of 28 December 1989, abolished, for new borrowing, all privileges in access to loans, interest rates and other terms. For existing preferential loans, the interest concession was added to the principal from 1 January 1990.

The same Law strengthened the discipline on the government budget. The government's central budget debt to the NBP at the end of 1989 was to be converted into Treasury Bonds, to be redeemed within 20 years from 1995.

More generally, systemic reform would pursue banking system modernization, aimed at developing an integrated money market, improving the efficiency of banks' operations, and strengthening regulatory and accounting standards. The IMF, World Bank and other foreign sources are providing technical assistance in this area. Competition in banking could be promoted by simplifying procedures for bank start-up and foreign participation. By September 1990 permission for 27 new banks had been granted, of which 7 had commenced operations. This brought the total number of banks authorized to 45, of which 26 were in operation.

The government will also promote the establishment of a securities exchange and other institutional and legal changes in order to promote the development of a capital market. A draft bill to establish Securities Exchange was published on 4th September 1990 and enactment on 1st January 1991 is envisaged.

Competition policy

The following reforms were introduced from 1 January 1990 or shortly after:

- in the field of domestic distribution and retailing, government regulation and State monopolies were immediately abolished. A very visible and welcome consequence of this was the appearance of street traders, mainly in food;
- liquidation of State monopolies in food, coal, energy. This related to the co-operative monopolies in food processing and distribution, and to the administrative 'communities' (cartels) in coal and energy, and was implemented in April 1990;
- abolition of the category of enterprises 'of special significance to the economy' of which there had been over 400, enjoying many preferences;
- sanctions on monopolistic and collusive behaviour. This was given effect by the Law to Counteract Monopolistic Practices, of 24 February 1990. This defined a wide range of anti-competitive practices. First, collusion between economic agents over prices, quantities, conditions of sale and other matters. Second, practices by individual agents designed or likely to hinder competition, such as the purchase of shares in other companies, interlocking directorships, or impeding market access of new sources of competition, for example by dumping or refusal to supply. An Anti-Monopoly Agency was established with powers to monitor business behaviour (including rights of access to company documents), powers to impose penalties on companies and their directors, to order prices to be reduced, and other powers. The Anti-Monopoly Agency must also be notified of mergers and acquisitions and has powers to prohibit them. Appeal against the Agency's decisions is made to the Anti-Monopoly Court. It is understood that the government is particularly concerned about price collusion and interlocking directorships; and
- abolition of constraints on the sale of agricultural land (for example, that land could be sold to relatives only).

New employment law

The Employment Law issued on 29 December 1989 spells out an institutional framework to deal with unemployment. Regional and local Employment Offices will be set up to search for new jobs, organize training for the unemployed (especially for the disabled), as well as

to process applications for jobs abroad and license foreign employees. The Offices will register the unemployed, organize training, help to create new jobs, and finance job creation programmes. They will also pay the unemployment benefits described earlier. These benefits will be financed from the new Labour Fund, a special fund administered by the Minister of Labour and Social Policy. Revenues consist of obligatory tax (now 2 per cent of wage funds in enterprises), other obligatory payments from enterprises, budget subsidies and other sources. Expenditures include training costs, unemployment benefits and costs of unemployment offices.

Another important piece of legislation was the Group Employment Reduction Law of 28 December 1989. For the first time this provided the possibility for an employer to discharge redundant workers. An enterprise director is now free to declare redundant groups of workers (comprising a minimum of 10 per cent of the workforce or 100 workers, whichever is the smaller) on economic, organizational, technological or production grounds. The director is required to consult with the relevant trade unions and if possible to reach agreement with them over planned redundancies. A separation payment related to length of service must be made to workers with at least ten years' service. The worker will also receive an equalization payment for a maximum of six months if the worker's new job pays less than the former job.

An appraisal of the structural adjustment programme

The speed with which the government has created the legal and institutional framework for structural change lends credence to the government's determination to correct structural imbalances. However, given the long-term nature of these reforms it is unrealistic to expect to observe clear signs yet of their effects in terms of economic behaviour and the performance of the economy. Still, it is possible to pick out areas in which important and effective reforms have clearly been carried through, and others where a verdict at this stage would be premature.

In the area of fiscal and financial reform the changes which have been made are clear and will undoubtedly prove to be of fundamental importance. This refers particularly to the independence of the NBP, which now assumes its appropriate role as a central bank in a developed market economy; to the control of the monetary and credit systems deriving from borrowing constraints on the government and the commercial and household sectors; and to the successful achievement of the internal convertibility of the zloty. The establishment of positive real interest rates will promote rational investment and savings decisions from which benefits to the economy may be expected in time. Competition between existing banks has begun to develop and about twenty applications for the establishment of new banks are under consideration.

In the elimination of distortions in prices of goods and services too the steps taken are clearly of great importance. The deregulation of prices and quantitative controls have enabled market-clearing prices to be established. The almost complete elimination of subsidies, the convertibility of the zloty and the trade liberalization steps will ensure that these prices reflect real costs. The dissolution of the State monopolies in retailing has been achieved and in coal and energy is well advanced, while a start has been made on communications.

In the promotion of competition between enterprises, transforming the behaviour of State enterprises is clearly fundamental, and remains the area of greatest uncertainty. Nominally, these enterprises are now independent of the State. This in itself should lead to efficiency gains, since inefficient enterprises can no longer rely on bail-outs from the 'deep pocket' of the State budget, while the more efficient enterprises will no longer have to contend with State interference. State enterprises are henceforth to look to the banks for their external funding, and the banks in turn are now expected to lend solely on commercial criteria. However, it is unrealistic to expect an overnight transformation in behaviour. Most branches of industry

are dominated by a small number of large producers (see Chapter II) and the legacy of the past has accustomed enterprises to co-operation rather than competition. In this connection, the Anti-Monopoly Law is a radical step in its principles but the real test will be its working in practice, which remains to be seen. Another important question is whether, when the crunch comes, the government will indeed be willing to allow a loss-making socialized enterprise to close down, or whether employment and other social considerations will induce the government to bail out the enterprise.

For the most part the sanctions on poor performance by enterprise directors and their senior management remain weak. The government is taking steps to make new appointments to improve the calibre of enterprise directors but improvement here will inevitably be slow. Effective competition will develop only when the largest enterprises have been broken up and an effective capital market created. The importance of the latter lies not only in its role in allocating investment funds efficiently, but also as a 'market for corporate control' via mergers and take-overs – the most effective stimulus to management performance. Thus it is not sufficient that enterprises become independent of the State: their assets must also become marketable.

To these ends the importance of privatization can scarcely be understated. Experience of privatization in the developed market economies shows that not only may this be expected to transform the behaviour of the enterprises which are privatized but also, by competition and standard-setting, the behaviour of enterprises which remain unprivatized. However, the achievement of these gains requires that enterprise managers be selected for their competence in pursuing profit on behalf of the shareholders who employ them, and that investment be channelled towards enterprises with the greatest profit potential. This can only be achieved if there develops an efficient and unified capital market in which shares are traded freely at prices which accurately reflect the prospective profitability of the underlying assets.

Until such a market develops in Poland, capital market sanctions on poor company performance will inevitably be weak. Developing such a market requires not merely establishing an institutional framework but developing all the necessary technical skills in trading and analysis of shares. While inevitably share issues cannot wait upon these developments, they will necessarily take time.

As noted earlier, workers in a privatized enterprise are to be allowed to buy up to 20 per cent of the shares issued on concessionary terms: the general public are in effect to be given free shares via the proposed capital bonds which will be distributed free of charge: and foreign participation is to be limited to 10 per cent of the share issue. It is necessary to consider whether these arrangements may undermine the efficiency objectives of privatization.

The complex issue of equity participation by workers cannot be fully explored here. Depending on how diffused is the ownership of the remaining shares, it seems possible and even likely that a 20 per cent stake will suffice to give workers (collectively) effective control of the enterprise.

There is then the question of whether this control is exercised, and to what end – in particular, whether control is exercised to promote or to resist structural change at the enterprise level. Experience in the developed market economies both with worker and management 'buy-outs' and with worker co-operatives gives grounds for optimism, but on this question as with others the experience of the developed market economies may not be readily applicable to Poland.

As to the participation of the general public in equity, the capital bonds have the merit of promoting a sense of participation by the general public in the privatization adventure. From the efficiency point of view the significance of this provision is that the resulting dispersion of share ownership among mainly uninformed individuals may weaken shareholder influence over enterprise managers. Even this is not very certain because it depends on the ownership

distribution of the remaining shares. In general, both the capital bonds and the workers' concessionary shares may impede the development of a unified capital market, but this effect is not certain and, amidst all the other uncertainties, should not be given great importance.

The third feature, the restriction of foreign participation to 10 per cent, is potentially the most serious in its implications. If there were a fully functioning capital market in Poland, one could imagine that foreigners would be willing to acquire a portfolio of shares in Polish enterprises without wishing to exercise any influence on any particular enterprise. In the present context, however, where no market in shares exists, foreigners are unlikely to be willing to buy into Polish industry unless this gives them a stake large enough to ensure effective control, or at the very least a significant degree of influence. There is thus a danger that the government's objective of encouraging foreign investment will be frustrated. However, it is notable that the Privatization Law states that, with permission, a foreign bidder may take up more than 10 per cent of a privatization issue. It seems possible that this permission will be readily granted, especially since the permission is to be given by the Foreign Investment Agency. A recently proposed amendment introduced fresh concessions and attractive incentives to foreign investors. Except in strategic sectors such as energy and defence, foreign companies will be allowed to create joint ventures without seeking permission from the Foreign Investment Agency.

Two other issues should be mentioned because of their prominence in the public discussion of structural adjustment in Poland. The first concerns the trade-off between efficiency and equality. It is clear that the establishment of a market-driven, predominantly private enterprise economy carries with it the need to encourage risk-bearing and to create incentives. This will inevitably entail the development of a new managerial and entrepreneurial group which will be rewarded for its successes, and penalized for its failures, and a new share-owning group which will be willing to invest in risky ventures for rich rewards. These requirements, essential for promoting efficiency and growth, will inevitably create inequalities. The Polish Government's unenviable task is to achieve an appropriate balance between these conflicting considerations.

The second issue concerns the initial valuation of the assets of enterprises to be privatized. Conventional valuation practices are of little help here, and two valuations of an enterprise could easily vary by a factor of ten. To attract buyers it seems inevitable that initial offer prices will have to be pitched at a level which in many cases will turn out to have been very low. This will result in capital gains for those lucky enough to have made the right guesses.

At the time of writing, seven enterprises (referred to in Poland as 'the magnificent seven'), all flourishing and successful, were identified as candidates for the first round of sales expected in late 1990. A further 200 applications have been received, of which 150 are being considered as promising candidates.

In addition there have been two other candidates, both somewhat special cases. One was the former Lenin Shipyard in Gdansk. It had been planned to offer 400,000 shares for sale at a price of Zl 1 million ($100) each, and a potential buyer from abroad had been identified. However, a price could not be agreed upon and the plans have been suspended. The second special case was Universal, a foreign trade company specializing in 'white goods'. This enterprise has issued shares which were purchased mainly by its employees and clients, but the majority of the equity still belongs to the State.

The contribution which privatization may be expected to make to the structural transformation of Polish industry should perhaps not be over-stated. It is difficult to imagine that more than one-tenth of socialized enterprises at most will be privatized in the near future. Although this will doubtless have demonstration effects on the remaining nine-tenths, these effects will be somewhat indirect. It is therefore to be hoped that the government will experiment with

the other forms of ownership and control – workers' co-operatives, management buy-outs, State and local authority holding companies, etc. – which have been proposed by various groups.

Concerning structural policies more generally, a noteworthy point is that the government's intention is to smooth the process by means of the Agency for Restructuring and the Bank for Restructuring, though their roles remain to be seen. In financial terms the envisaged scale of operation appears modest: the government budget for 1990 allocated funds of Zl 3,200 billion (1.6 per cent of expenditures) to restructuring. The government also has some priorities for the allocation of investment: there are tax concessions for investment in construction for environmental protection, for purchases of equipment and machinery for agricultural production, building materials for housing construction, and scientific and research purposes.

Finally, the new Labour Law, and the emergence for the first time in more than 40 years of unemployment in Poland, are very important for the establishment of a labour market. Both may be expected to contribute to increased labour productivity which is central to solving Poland's economic problem. The Labour Law makes redundancies possible, but until enterprises are subject to tighter economic constraints the pressure to raise labour productivity will be weak and its seems likely that they will continue to 'hoard' labour as is borne out by the experience in 1990, when a 30 per cent reduction in sales was associated with a decline of only 10.3 per cent in employment in the socialized sector.

C. THE OUTLOOK

A great leap towards a market environment is under way. A new three-year (1991 – 1993) agreement with the IMF for a $1.6 billion loan pledges free market policies and speedy privatization. Continued IMF support is deemed indispensable in order to persuade creditors to write off at least part of the country's $45.2 billion foreign debt. An agreed moratorium on debt payments to the Paris Club ran out in March 1991. The country's huge foreign debt is an unsustainable burden, and inimical to the process of rapid structural change. Poland pleads for 'debt forgiveness', arguing that the new democratic government should not have to pay the price of the inept economic policies of the previous regime. Poland seeks an 80 per cent reduction in debt. Partial 'debt forgiveness' would imply a net capital flow from Poland over the next 10 years.

In March 1991, the Paris Club agreed to write off half of Poland's debt. This implies a 70 – 80 per cent drop in interest payments. Debt relief, in whichever form it comes, is likely to be linked to progress towards stabilization and structural change. The government has drafted a major amendment to the Promotion of Investment Act, offering a host of attractive incentives in order to attract foreign investors and enhance the scale of external support.

Depending on the scale of external support it is possible to draw two hypotheses[13] as to NMP growth. Both assume the growth of demand and development of economic activities requiring a strong increase in imports. They also take into account considerable decrease in exports in 1991 due to the transition to hard currencies and the economic situation prevailing in the CMEA region. In consequence, the two hypotheses assume that in 1991 the foreign trade surplus will decline considerably and that the growth rate of NMP, used for consumption and fixed capital formation, will thus increase. These hypotheses are examined in the period up to 1995.

The first hypothesis assumes that annual inflow of foreign capital (investment credits and direct investment) will be below $0.5 billion. Total imports are expected to grow at average annual rates of 7 per cent and exports, following a fall of over 11 per cent in 1991, to resume growth at a rising rate of 4.6 – 7.7 per cent annually. The trade surplus, which in 1991 is

expected to decline to Zl 700 billion (at 1988 prices), i.e.,[14] approximately to the level attained in 1988, will then remain constant. The investment outlays will grow at average annual rates of 6.5 per cent; the highest rate – over 9 per cent – is expected to appear in 1991. In spite of that, the pre-recession level of fixed capital formation will not be exceeded before 1994. The rate of growth of NMP produced will increase gradually from under 3 per cent in 1991 to nearly 6 per cent in 1995, but by that time its pre-recession level will not be restored. Neither the NMP used nor consumption will attain the 1989 level before 1995.

In the second hypothesis it is assumed that the inflow of foreign investment capital will amount to $1.5–2 billion annually. Total imports will be rising at an average annual rate of nearly 11 per cent and exports, after a sharp decline of over 14 per cent in 1991, will resume growth at the rising rate of 8.1–13.9 per cent annually. The foreign trade surplus which in the years 1991 and 1992 will decrease to Zl 300 billion (at 1988 prices) is to attain the level of Zl 400 billion in 1993, Zl 500 billion in 1994 and Zl 700 billion in 1995. The investment outlays will increase by over 16 per cent in 1991 and then will be rising by about 8–10 per cent annually, exceeding their pre-recession level already in 1992. The growth rate of NMP produced will rise gradually from over 3 per cent in 1991 to about 7 per cent in 1993 and nearly 10 per cent in 1995. Thus, the pre-recession level of NMP would be restored in 1994 and that of consumption in 1995.

The two hypotheses assume a considerable increase in the imports of capital goods as from 1991. Under the first, they are expected to grow by 37.5 per cent in 1991 and then by 10 per cent yearly. Under the second hypothesis, imports of capital goods are expected to grow by 50 per cent in 1991 and afterwards by 15 per cent annually. The ratio of capital goods imports to gross investment outlays would thus increase from about 12 per cent in 1990 (9.5 per cent in 1988) to over 17 per cent in 1995 under the first hypothesis, and to over 19 per cent under the second one. In both cases the investment ratio (gross investment to gross material product used) rises to above 29 per cent in 1995.

Both of the hypotheses assume internal recovery and considerable foreign support in 1991. The policies of economic revival and structural transformation will require an increase in intermediate imports to maintain input-output balance in spite of the shut-down of some enterprises. On the other hand, the adjustments of the enterprises to competition on an open market will require investments and a strong increase in capital goods imports. However, following the sharp fall of real income and consumer demand in 1990, it is no longer possible to increase investment outlays at the cost of consumption. Thus, in 1991 the NMP used grows by 9 per cent under the first hypothesis and by over 11 per cent under the second one. This makes it possible to increase the consumption at similar rates despite high growth in investments. In the following years, the consumption grows at much slower rate, similar to that of NMP produced. Because of the restructuring measures, the NMP produced and exports will grow at slower rates than imports. After 1993, the economy will enter the path of balanced growth, and after 1995 the conditions will emerge for a considerable rise in the foreign trade surplus.

The two hypotheses, though differing in the pace of recovery from recession and in the scale of external support, assume active transformation of the economy accompanied by foreign capital inflow as early as 1991–1992. However, it is necessary to take into consideration also a third hypothesis assuming a slower inflow of capital and greater inertia of the economy.

Under the third hypothesis it is assumed that total imports will grow at an average annual rate of 7 per cent, but that in 1991 their growth rate will be only slightly above 4 per cent. Exports will decline by over 17 per cent in 1991 and afterwards will grow much slower than imports. The trade surplus will fall to Zl 500 billion in 1991, decreasing further to the level of Zl 200 billion in 1995. Imports of capital goods will grow on average by 20 per cent annually, from over 17 per cent in 1991 to 22.5 per cent in 1995. The investments will rise at an average

annual rate of above 8 per cent; in 1995 the investment ratio will be around 31 per cent. The growth rate of NMP produced will increase gradually from 1.5 per cent in 1991 to around 4 per cent in 1993 and 7 per cent in 1995. Thus, the pre-recession levels of NMP produced and used for consumption and fixed capital formation would be regained probably by 1996, but that of consumption not before 1998, because of the rising share of fixed capital formation in the NMP.

Although the situation according to the third hypothesis is much worse than in the first two, it cannot be refuted. Changes in the economic system, and in particular ownership transformation, may delay real adjustments until new decision-making centres are finally established in the enterprises. Also the inflow of foreign capital may be checked if the Polish economy has difficulties in absorbing it and if the legal conditions are unstable.

In the current situation of great uncertainty it would be unreliable to adopt anyone of the three hypotheses. Therefore, for macroeconomic analyses an averaged hypothesis was formulated which is to be tested against the developments in 1991.

According to this, imports will grow by 9 per cent in 1991 and in the whole period of 1991 – 1995 at an average annual rate of over 8 per cent. Exports, after declining by over 14 per cent in 1991, will rise at rates of from 5 per cent in 1992 to around 10 per cent in 1995. Foreign trade surplus is expected to contract to Zl 500 billion in 1991 and then to remain at approximately the same level. NMP produced is expected to increase from about 3 per cent in 1991 to around 8 per cent in 1995, reaching by then its pre-recession level. The NMP used will rise by over 9 per cent in 1991, and next will grow at rates slightly higher than the NMP produced. Its pre-recession level is expected to be recovered in 1995. Consumption will grow somewhat slower than the overall growth rate of NMP used and will not reach its pre-recession level before 1997, while investments will rise faster approaching their pre-recession level as soon as in 1992.

In 1995 the investment ratio will be nearly 20 per cent. Imports of capital goods will grow on average by 19 per cent annually, with the greatest increase (35 per cent) in 1991, and by 14 – 16 per cent in the following years. The share of capital goods in total imports will increase from about 15 per cent in 1990 to 18.5 per cent in 1991 and some 24 per cent in 1995. In 1995 the relation of capital goods imports to gross investments is expected to be around 19 per cent.

The characteristic feature of the three hypotheses is the assumption that in 1991 imports, in particular imports of capital goods, will grow despite export decline. This implies the reversal of 1990 trends. Each of the three hypotheses assumes that macroeconomic policies will generate a climate furthering the recovery of output and investments and that consumption, following stronger growth in 1991, will then rise more slowly than investments. These assumptions are reflected in the estimates of the averaged hypothesis. The consequences of these assumptions are growing rates of NMP and consumption in 1991 – 1995 and good prospects for further growth. Also, average assumptions of the levels of investments lead to the desired development of the situation, i.e., fast growth at the beginning and then stabilization of the investment ratio, of the share of capital goods in total imports, and of the relation of capital goods imports to gross investments. Regarding the foreign trade balance, the moderate level of trade surplus during the whole recovery period makes it possible to accelerate growth of NMP to over 8 per cent annually after 1995, and then gradually increase the surplus without negative effects for the development of production capacities.

NOTES TO CHAPTER I

1. Poland's National Accounts are constructed according to the material product system (MPS) used throughout Eastern Europe and in the Soviet Union. In the MPS system gross material product is identical to gross national income produced. The main difference between gross material product in the MPS system and the Western concept of gross national product lies in the treatment of the service sector. Gross material product (GMP) excludes the final outputs of the so-called 'non-material services' – education and science, health, culture and sport, public administration, and national defence. (Among other differences, gross material product excludes private housing services, and includes inputs of non-material services into the material sector, but these differences are relatively minor.) While gross material product is identical to gross national income produced, gross national income distributed is defined as gross national income produced minus net exports. Thus, gross national income distributed is equal to the sum of private and government consumption, plus total investment. As with gross national product, the transition from gross to net material product is made by deducting depreciation.

2. Based on index of GMP (1978 = 100).

3. The role of wage increases in the inflation of 1989 is of particular interest in view of the policy of tight wage restraint which the Solidarity-led government introduced shortly after it took office, and intensified from 1 January 1990. The wage data are difficult to interpret because there are two published wage indices, which in this period differ markedly both in their levels and their direction of change. Both indices relate to the socialized economy, which accounts for about 70 per cent of total employment. One index relates to the socialized material sector and includes profit-related bonuses, while the other covers all wages in the socialized economy, thereby including employees in education, health, etc. who constitute about 20 per cent of socialized employment.

4. In 1987 the Reform Commission had proposed share ownership by employees of socialized enterprises, and there had been some instances of this. In 1988 – 1989 the previous regime had allowed some 'spontaneous' privatization in which State enterprises had transformed themselves into joint stock companies. The stock had been taken up by the enterprises' nomenklatura managers and their favourites, with the assets typically grossly undervalued. This gave privatization a bad reputation in Poland and the new government has learned this lesson well.

5. From 1 September payment of interim bonuses was suspended and the bonuses due to be paid in December were postponed until January (and subsequently until February). This was very successful in reducing inflation in the last quarter of 1989, although the associated fall in output was a negative feature.

6. In September 1989 the official rate was devalued by 61 per cent (from Zl 1,100 to Zl 1,800 to the dollar), with a further devaluation to Zl 2,400 at the end of October. However, this still left a large gap between the official and unofficial rates. The 'grey' market rate offered by the banking system to individuals (which also effectively set the black market rate) was Zl 7,000 = $1 at the end of October, about the same as the rate set in the open auctions organized by the Bank for Export Promotion. This gap was closed on January 1st 1990.

7. Official wage statistics are ambiguous. Some observers argued that real wage levels were not excessive, a view corroborated by the 'demand barrier' apparently encountered at the end of 1989 and by reference to the Real Wage Fund index.

8. This will have a major impact on Poland's trade balance and is discussed in Chapter II.

9. Milk now remains the only subsidized food. However, the administered pricing of milk ceased on 1st July 1990. The subsidy to fertilizers was eliminated but is likely to be reinstated. The administered pricing of coal also ceased on the 1st July, but enterprises were not permitted to raise their prices by more than 15 per cent. Coal subsidies were restricted until the end of 1990.

10. A Labour Fund was established to assist workers made redundant, financed by a 2 per cent tax on wages. Unemployment compensation is 70 per cent of the worker's last wage for 3 months, then 50 per cent for the next 6 months, then 40 per cent, but never less than the minimum wage nor more than the average wage. Living standards of other disadvantaged groups such as the elderly were to be closely monitored. A figure of 400,000 (3.3 per cent) was widely reported as the level of unemployment anticipated by the government in 1990, but this may merely have reflected the level of unemployment allowed for in the budget. The Finance Minister also suggested to the Sejm (the Polish Parliament) the possibility of 5 per cent unemployment.

11. The privatization dilemma is discussed in Chapter III.

12. See *Rzeczpospolita*, 29 March 1990.

13. Details pertaining to hypotheses explained in this section draw on information contained in a preliminary draft entitled *Economic Strategy and Macroeconomic Policies in 1991 – 1993* prepared by the Central Office of Planning (Warsaw, December 1990), pp. 6–9.

14. The trade surplus of 1988 converted to forecast 1991 dollar prices (in view of expected transition to dollar terms in trade with the CMEA countries) becomes a trade deficit. However, the foreign trade balance in dollar terms in 1990–1995 remains positive due to forecast changes in trade structure.

II

STRUCTURE AND PERFORMANCE OF INDUSTRY

A. THE ROLE OF INDUSTRY

In view of the possible transition of the Polish economy to the pattern of development in developed market economies (DMEs) over the next decade or two, a comparison of the role of industry in economic structure as expressed in Polish economic terms with that of DMEs merits attention. Poland's transformation from a largely agrarian into an industrial economy was due to a vigorous industrialization drive pursued over more than three decades. In 1950, industry generated about 24 per cent of Net Material Product. This share increased to 34.5 per cent in 1960, 44 per cent in 1970 and peaked at 50.2 per cent in 1980. In the 1980s the share declined slightly due to the recession, with a low point of 48.4 per cent in 1986, but then began to increase again, reaching 49 per cent in 1989.[1]

Thus, industry clearly occupies a dominant position in the Polish economy. However, before making comparisons with industrialized market economies, adjustment must be made to reflect the fact that Poland's Net Material Product is substantially less than the country's gross domestic product (GDP) as this latter concept is defined in DMEs. The main reason for this difference is that the Polish National Income and Product concepts exclude a large part of the service sector – the so-called 'non-material services'. Available estimates are scarce and possibly out-dated, but suggest that GDP in Poland may be about 20–25 per cent larger than Net Material Product. A rough but probably reasonably accurate estimate would suggest that, in DMEs' terms, industry accounts for about 40–42 per cent of Poland's GDP.

The share of industry in GDP places Poland well above such DMEs as Japan, where the corresponding figure in 1985 was 33.5 per cent, the European Community (12 members), average of 35.1 per cent, and considerably higher than the United States figure of 30.9 per cent (see Table II.1). However, the stability, since 1980, of the share of industry in economic activity in Poland is perhaps more significant than its size. In the DMEs, two patterns have been observed; an increasing share of industry in the early stages of industrialization, and a declining share in the more mature high-income countries. Until 1980 Poland conformed to the first of these patterns, but since then the share has stabilized rather than entering into the declining phase observed in DMEs.

As well as having a relatively large industrial sector, Poland's economic structure differs from those of DMEs in other important respects. As Table II.1 shows, the shares of both agriculture and construction in gross national income produced, i.e., gross material product

(GMP), are relatively large, while the service sector appears, in DMEs' terms, as microscopic. However, as noted above this comparison is misleading because of the omission of a large part of the service sector – the 'non-material services' – in the measurement of gross national income produced. Table II.1 estimates the shares in terms of GDP, on the assumption previously made regarding the relationship between net material product (NMP) and GDP.[2]

It will be seen from Table II.1 that the inclusion of 'non-material services' in GDP naturally has the effect of increasing the relative size of the service sector, to about 35 per cent of GDP. But it remains true that not only industry but also construction and agriculture are relatively larger than in industrialized market economies. The greatest proportionate difference is in agriculture, which in relative size is more than four times as large as in the EC. Correspondingly, the service sector contributes only about 35 per cent of GDP in Poland, compared with 56–67 per cent in Japan, the EC, and the United States. If the evolution of the Polish economy over the next decade or two follows broadly the pattern of development in DMEs, it may be expected that a large relative contraction of agriculture and construction will occur, together with some relative contraction of industry and a very large expansion in the service sector.

Table II.1. Inter-country comparison of structure of gross material product (GMP) and gross domestic product (GDP) by sector, 1985
(Percentage)

	(1) Poland	(2) Poland	(3) EC (12)[a/]	(4) United States	(5) Japan
Sector	GMP	GDP	GDP	GDP	GDP
Industry	47.7	40.6	35.1	30.9	33.5
Construction	11.3	10.0	5.5	4.1	7.3
Agriculture	16.6	14.1	3.3	2.1	3.2
Transport	21.5	18.3	56.1	62.9	56.0
Other material services	2.6	2.0	-	-	-
Non-material services	[b/]	15.0	-	-	-
Total	100	100	100	100	100

Sources: Column (1): Central Statistical Office, *Statistical Yearbook 1988* (Warsaw 1989).
Column (2): Estimates by UNIDO Regional and Country Studies Branch.
Column (3) and Column (4): Eurostat, Industry.
Column (5): Economic Planning Agency, Japan.

a/ Twelve members of the European Community.
b/ Omitted.

The sectoral distribution of employment in Poland is markedly different from the distribution of output. Table II.2 presents the distribution of employment in the material sector (where gross national income is produced), together with the distribution of gross national income itself, both in 1985. It will be seen that industry and agriculture had virtually identical employment levels, each accounting for about 36 per cent of employment in the material sector. However, while industry contributed 47.7 per cent of gross national income, agriculture contributed only 16.6 per cent – an almost three-fold labour productivity differential. It is also notable that, as in industry, in both the construction and transport branch, the shares in gross national income were larger than their shares in employment in the material sector.

Table II.2. Sectoral distribution of employment, 1985
(Percentage)

Sector	(1) Material sector employment	(2) GMP	(3) Total employment	(4) GDP
Industry	35.4	47.7	28.5	40.6
Construction	9.3	11.8	7.5	10.0
Agriculture	35.9	16.6	28.9	14.1
Transport	17.4	21.5	14.0	18.3
Other material services	2.0	2.4	1.6	2.0
Total material sector	100.0 a/	100.0 a/	80.5	85.0
Non-material services			19.5	15.0
Total			100	100

Sources: Column (1): Calculated from Column (3).
Column (2) and Column (3): Central Statistical Office, Warsaw. In Column (3), share of other material services is estimated and share of non-material services is then obtained as a residual.
Column (4): Sectoral contributions to GDP are assumed proportions of contribution to GMP.

a/ Excluded.

These differences may be explained in part by the influence of price distortions on relative output values. In particular it is well-known that agricultural output prices have been controlled at extremely low levels. But price distortions were present in industrial products too (in food processing, fuel, and power in particular) and also in transport. It seems unlikely therefore that this factor could explain all of the apparently huge difference between agricultural and industrial labour productivity. Such a difference is commonly found in semi-industrialized countries, and is explained there partly by the fact that the industrial sector is typically more 'modern' in the sense of having experienced recent rapid growth in investment which embodies modern technology, and partly by the fact that in its early stages at least, industrialization takes the form of expansion of the more capital-intensive branches of industry. It is certainly true that Poland's industrial sector is biased towards capital-intensive branches, but it remains puzzling that the apparent labour productivity differential between industry and the rest of the economy should be so strongly evident. Industrialization, after all, is not a new development in Poland, but has been a continuous feature of the country's post-war economic history. Indeed, the period of rapid industrialization was largely completed by the mid-1970s. The fact that these differences in sectoral labour productivity remain so strongly evident suggests that very little structural evolution or maturing of the economy has occurred since then.

The Polish statistical definition of industry differs only marginally from DMEs' definitions. The main difference is that water and sewerage is classified in Poland among 'other material services' rather than as an industrial activity. Apart from this difference, industry consists of the whole economy except for: agriculture, forestry and fishing; building construction and civil engineering; and services. It therefore includes all forms of mining as well as oil and gas extraction. These are sometimes classified separately in Polish data, as 'extractive industry', with the remainder classified as 'processing industry'. The Polish classification divides industry into eight sectors: fuel and power, metallurgy, engineering, chemicals, minerals, wood and paper, light industry, and food processing. Although the Polish classification has no definition of 'manufacturing' in Western terms, this can be readily obtained by subtracting fuel and power from the Polish definition of industry. The result then corresponds

almost exactly (both in aggregate and at the branch level) with the definition of manufacturing used by the EC. The only difference is that mineral oil refining is included with fuel and power in the Polish classification but is treated as part of manufacturing by the EC.

As noted above, in 1989 the industrial sector contributed 49 per cent of Net Material Product. It also accounted for about 89 per cent of the country's export earnings. Industrial output is produced predominantly in the socialized sector. In 1988, the socialized sector contributed 94 per cent of industrial sales. The socialized sector comprises State-owned enterprises and co-operatives, which accounted for 86.6 per cent and 7.3 per cent of industrial sales respectively, while artisanal and other small private firms accounted for the remaining 6 per cent.

One feature of Polish economic statistics is that industrial production (sales) data are much more readily available than value added data. It is therefore important to bear in mind the wide variations between industries in the relationship between the two. Annex Table A-1 shows, in the form of a matrix, all the production linkages between industries and other sectors of the economy in 1987. The diagonal elements of this square matrix show the extent to which industries absorb their own total production.[3] For metallurgy this share is the highest, at 38.3 per cent. In light industry the share was 26.5 per cent (textiles are used in clothes production). For fuel and power production, engineering, and chemicals the shares were about 18 per cent.

Annex Table A-2 displays the distribution of total production among intermediate and final uses – consumption, investment and exports. From this Table it will be seen that minerals, metallurgy, and fuel and power are 'upstream' industries, producing mainly to satisfy the intermediate needs of other industries and sectors of the economy, while food processing, light industry and engineering are 'downstream', producing mainly for consumption, investment and export. The industries most heavily dependent on export sales in 1987 were metallurgy (13.5 per cent of total production); engineering (23.3 per cent); chemicals (18.5 per cent); and light industry (12 per cent).

Of the total fuel and power production 16.5 per cent was supplied for consumption (6.8 per cent for private and 9.7 for public consumption). Consumption accounted for 13.6 per cent and gross investment accounted for 17.4 per cent of global engineering production. At the same time about 23 per cent of global engineering production was exported. The export to global production ratio was 18.5 per cent for chemicals, 13.5 per cent for metallurgy and 12 per cent for light industry.

B. GROWTH AND STRUCTURAL CHANGE

Over the period 1950–1970 the structure of industrial production (sales) changed enormously (see Table II.3). In 1950, the biggest industries were food processing (34 per cent of industrial sales) and coal, fuel and power (18 per cent). By 1970 their respective shares had fallen to 21 per cent and 10 per cent. The engineering industry was overwhelmingly the fastest growing in this period, its share in total industrial sales rising from 6.2 per cent in 1950 to 24 per cent in 1970. The chemical industry also showed significant growth, from 3.4 to 8.8 per cent of industrial sales.

Although rapid economic growth was achieved in the period 1950–1970, there were many shortcomings which became increasingly apparent. To a large degree growth became an end in itself, and investment allocation was determined generally to fulfil the government's criterion of maximizing total production. Production and investment decisions were the outcome of bargaining processes which were unduly influenced by factors other than productive or allocative efficiency. The quantity and quality of final consumer products was neglected and the export performance of industry was unsatisfactory.

In 1971, a new development strategy based on heavy foreign borrowing was adopted. It involved increased imports of foreign advanced technology, machinery and equipment in an effort to increase product sophistication, quality and reliability. Fuelled by massive inflows of foreign capital and technology, growth was exceptionally rapid in the period 1970–1975. However, although in theory the economy was planned, in practice resource allocation was chaotic, spontaneous and based on a bargaining process in which the biggest enterprises and large economic organizations had priority in access to all resources. The anticipated large export expansion of high quality industrial products did not materialize, and this led to the first big crisis in 1980–1982, which was triggered by a balance-of-payments crisis as the supply of foreign lending dried up, resulting in severe curtailment of imports and hence supply constraints on industry. Industrial sales decreased by 11.5 per cent over the period 1978–1982, while industrial value added declined by 24.2 per cent. The industries initially most affected by the crisis were those which were largely dependent on imported inputs of raw materials, but as investment plans were drastically curtailed and real wages fell the recession spread to the producer and consumer goods industries more generally.

After 1983 a slow recovery began, but the economy was constrained by limitations on oil imports from the Soviet Union and by financial restrictions imposed by the United States and other DMEs (following the imposition of martial law). However, over the period 1986–1988, the average growth rate increased to 4.3 per cent per annum. This relatively good performance partly reflected the low base value from which growth was measured, but also the effect of the economic reform launched in 1982.

Table II.3. Structure of industrial sales, 1950-1990, selected years
(Percentage)

	1950	1970	1980	1989	1990
Food	34.1	21.5	20.6	21.0	18.1
Fuel and power	18.0	10.3	9.1	12.1	18.0
Light industry (textile, clothing and leather)	15.3	14.7	13.8	11.8	7.0
Metallurgy	13.4	10.3	9.1	10.9	14.4
Wood and paper	5.6	4.9	4.4	4.4	4.1
Engineering	6.2	23.6	28.2	25.1	23.5
Chemicals	3.4	8.8	9.1	8.9	9.6
Minerals	3.2	3.6	3.2	3.6	3.6
Other	0.8	2.3	2.5	2.1	1.7
Total	100	100	100	100	100

Source: Central Statistical Office, *Poland in 1918-1988* (Warsaw 1989), and . *istical Yearbook of Industry 1990*.

Aggregate industrial sales grew by only 10 per cent in 1978–1988. Changes in the composition of output at the industry level were minor. Engineering, the dominant growth industry in 1950–1980, saw its share of industrial sales decline from 28.2 per cent in 1980 to 23.5 per cent in 1990. Light industry declined from 13.8 per cent to 7.0 per cent, and the share of chemicals also declined marginally to 8.9 per cent in 1989, but rose to 9.6 per cent in 1990. The fuel and power industry was the main gainer, increasing its share from 9.1 per cent in 1980 to 18.0 per cent in 1990.

Structural change at the branch level has been more significant. In the 1980s, the fastest growing branches were precision instruments (8.5 per cent per annum), pottery and china (5.4 per cent), electrical engineering and electronics (5.2 per cent), mac[illegible]ry and equipment (5.0 per cent), and the power industry (4.8 per cent). Some branc[illegible]orded declines: basic

metals (2.1 per cent per annum), building materials (0.5 per cent) and textiles (0.3 per cent). A notable feature of the 1980s was the poor quality of most finished industrial products due both to the substitution of domestic raw materials for imports and to permanent excess domestic demand which reduced the incentive to achieve quality.

Perhaps the most striking feature of Polish industrial performance 1970–1988 was the negative growth of value added in food and in fuel and power (see Table II.4). At the branch level the decline in value added in fuel and power was due to the very poor performance of coal, where value added in 1988 was barely one-third of its 1970 level. Also noteworthy is the negligible growth of value added in basic metals, and building materials. To a large extent this is explained by government policy throughout this period of controlling the prices of these branches' products at very low levels and covering producers' losses with subsidies. In the face of large financial losses which were met by subsidies it was very difficult for enterprises in these branches to obtain finance for expansion and furthermore they had little incentive to strive for productive efficiency.

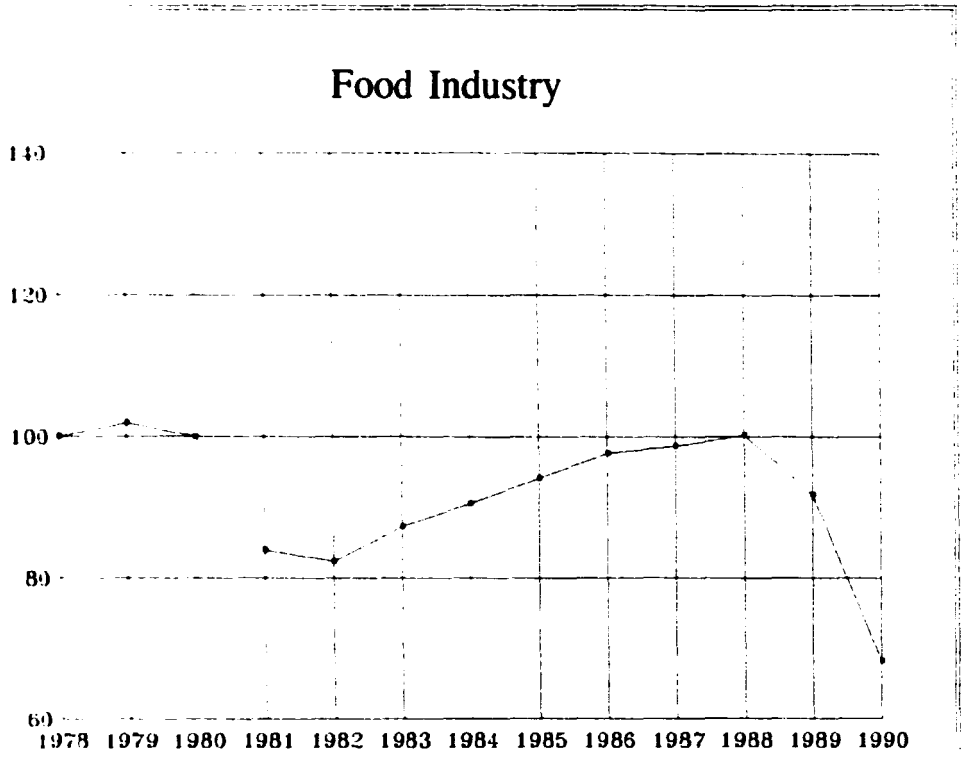
The second big crisis in the Polish economy began in 1989, and by the middle of 1990 the economy had plunged into a far deeper recession than that of the first crisis of 1980–1982. The volume of industrial sales fell by 19 per cent between December 1989 and June 1990. For the year 1990 as a whole industrial sales fell by almost 20 per cent. In 1989 and 1990 there were also very substantial changes in absolute and relative prices, reflecting decontrol of prices and phasing out of subsidies.

Table II.4. Average annual growth rates of sales and value added by industry branch, 1970-1988
(Percentage at constant 1984 prices)

	Sales	Value added
Total industry	4.5	3.8
Industries:		
Engineering	7.2	8.3
Chemicals	5.6	7.0
Wood and paper	5.3	5.0
Light industry	4.2	4.5
Minerals	3.5	2.6
Metallurgy	3.3	1.8
Food industry	3.2	-1.0
Fuel and power	3.1	-2.1
Branches:		
Precision instruments	12.5	13.1
Electrical engineering and electronics	9.2	9.7
Pottery and china	9.1	9.7
Machinery and equipment	8.4	9.5
Glass and glass products	6.4	6.5
Power	6.4	1.4
Wood	5.8	5.7
Chemicals	5.6	7.0
Transport equipment	5.5	6.1
Metal products	5.4	6.2
Garments	5.3	5.0
Non-ferrous metals	5.1	4.1
Leather	4.5	4.0
Paper	4.0	3.1
Textile	3.7	4.4
Food industry	3.2	-1.0
Fuel	2.6	0.8
Building materials	2.6	0.2
Basic metals	2.3	0.5
Coal	2.0	-5.4

Source: Computed using *Statistical Yearbook of Industry 1989* (Warsaw 1990), Central Statistical Office.

Fig. II.A. Indices of industrial production by subsector. 1978–1990 (1978 = 100)



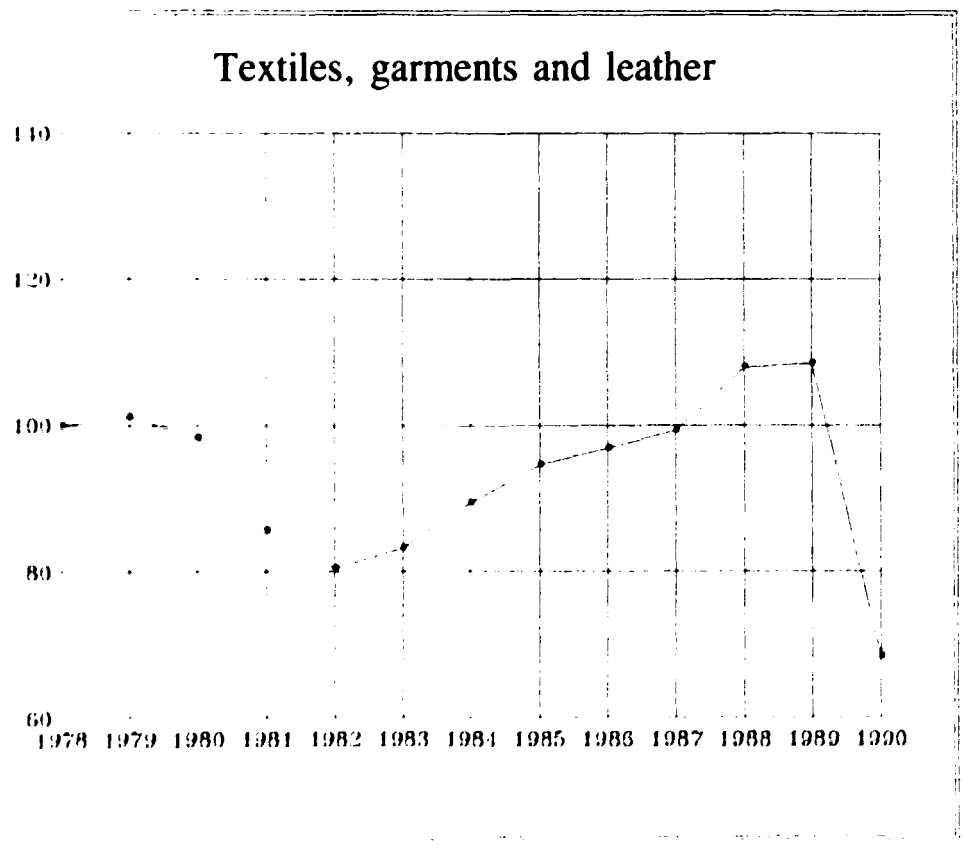
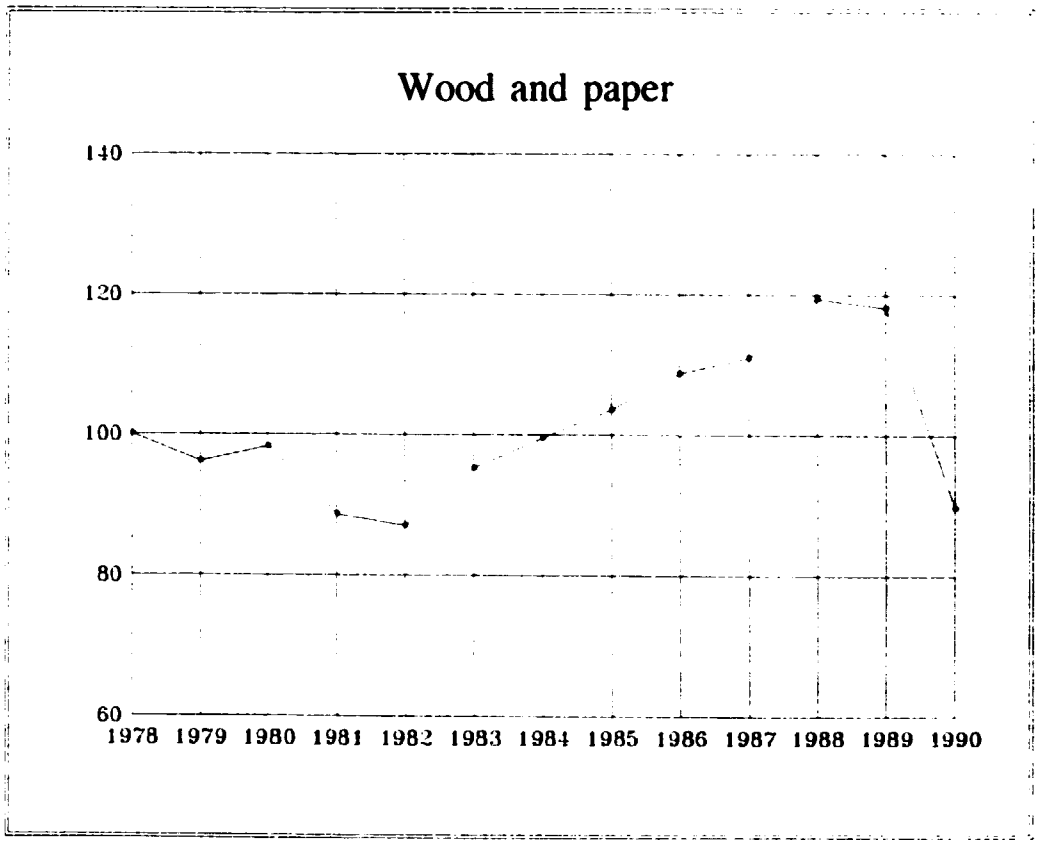


Fig. II.A. (*continued*)



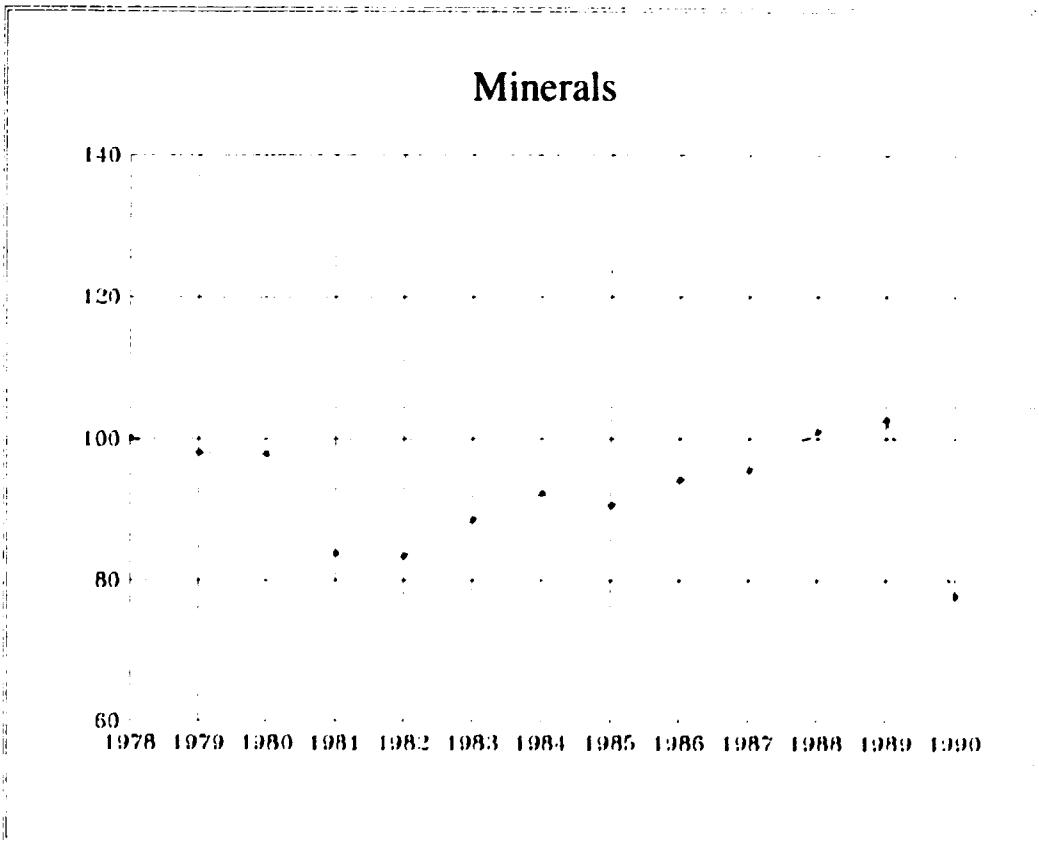


Fig. II.A. (*continued*)

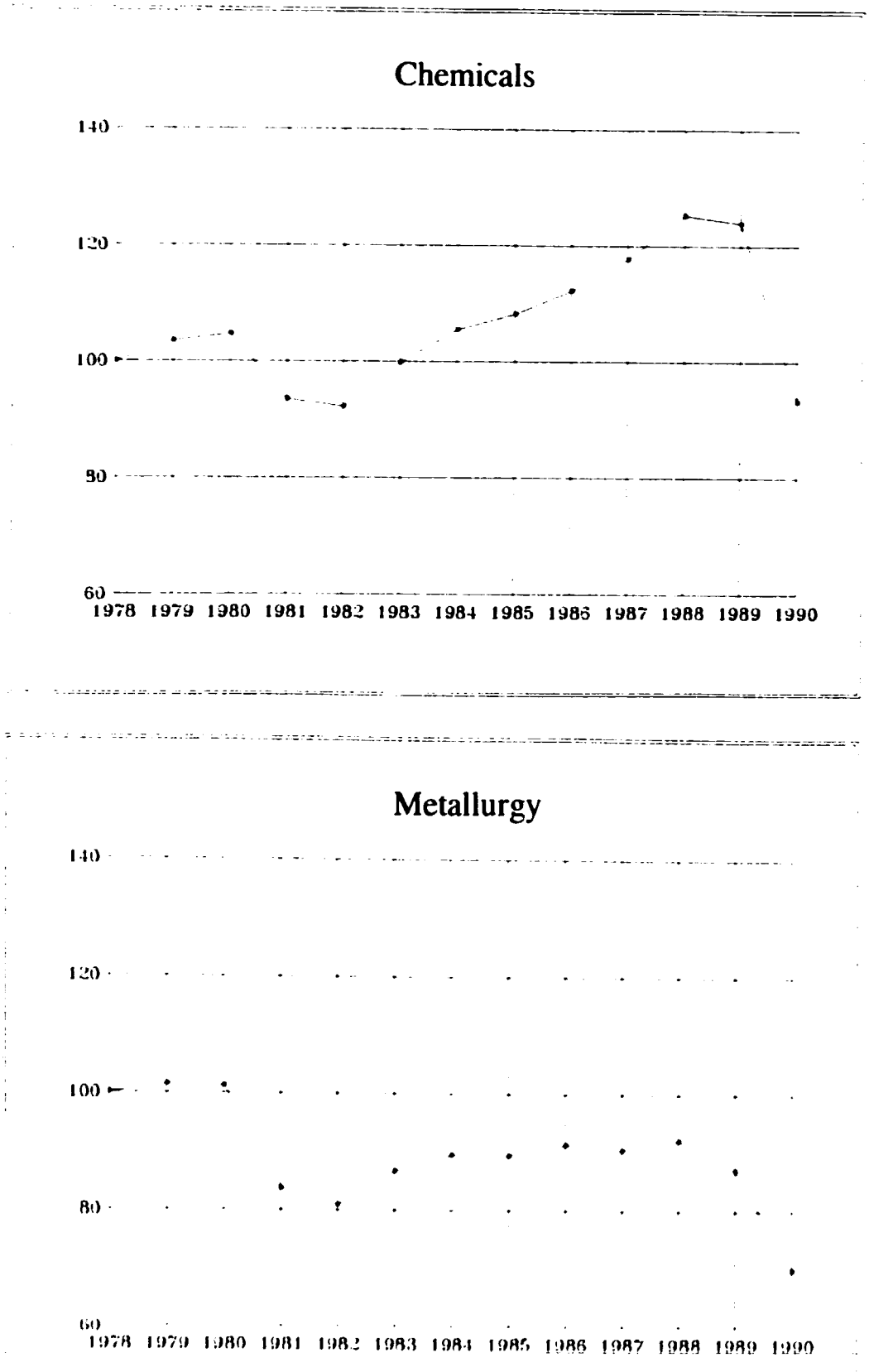
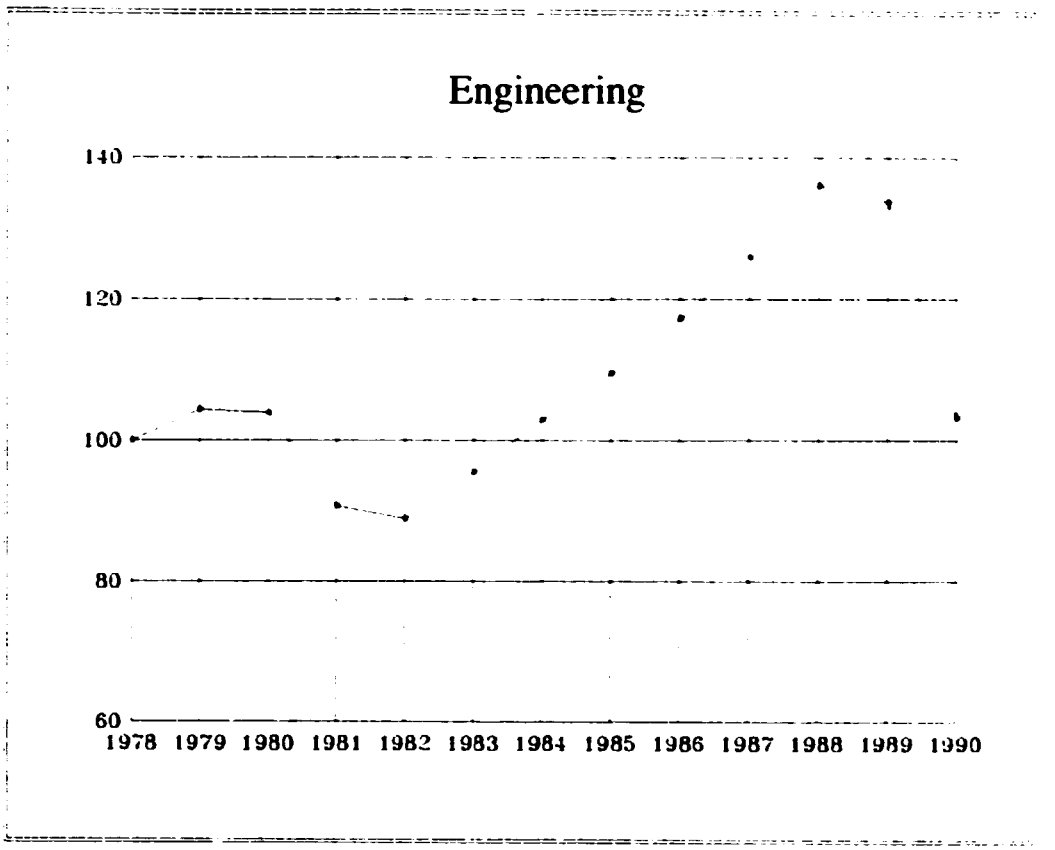


Fig. II.A. (*continued*)



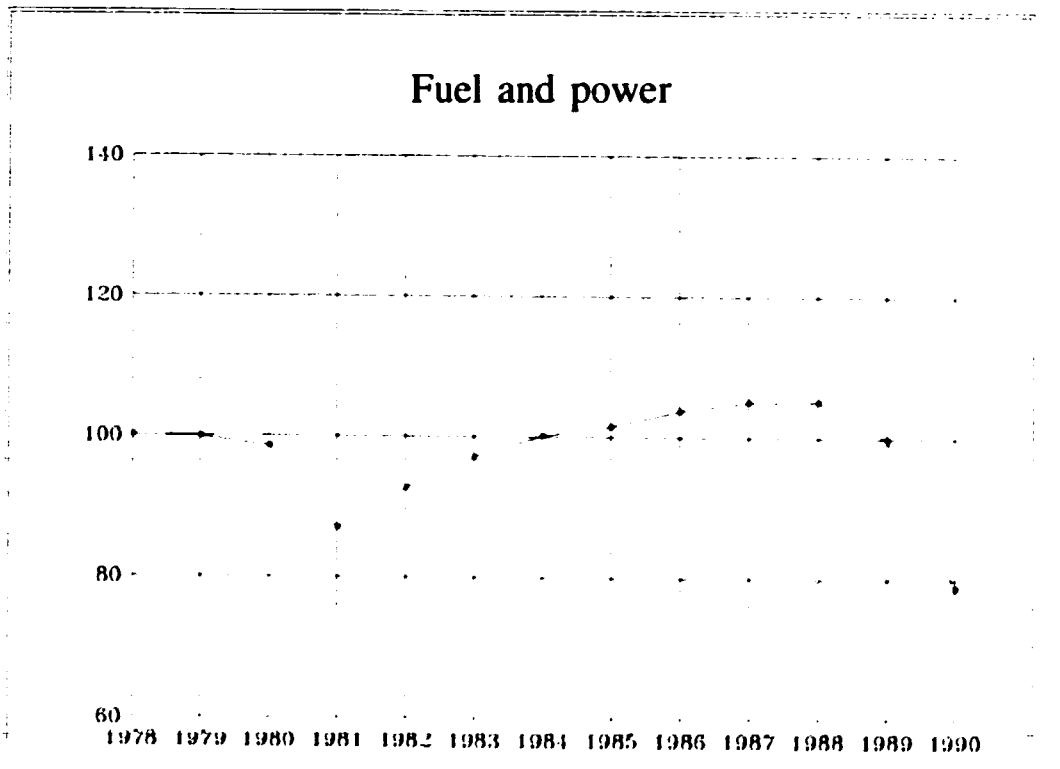


Fig. II.B. Structure of industrial sales, 1970 (Percentage)

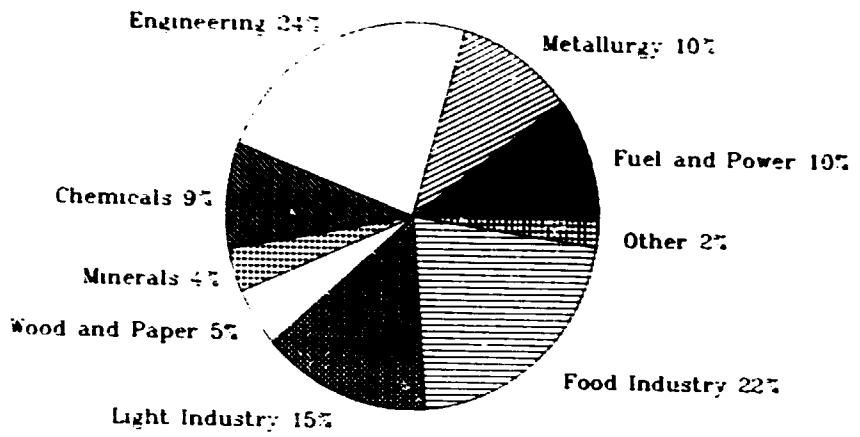
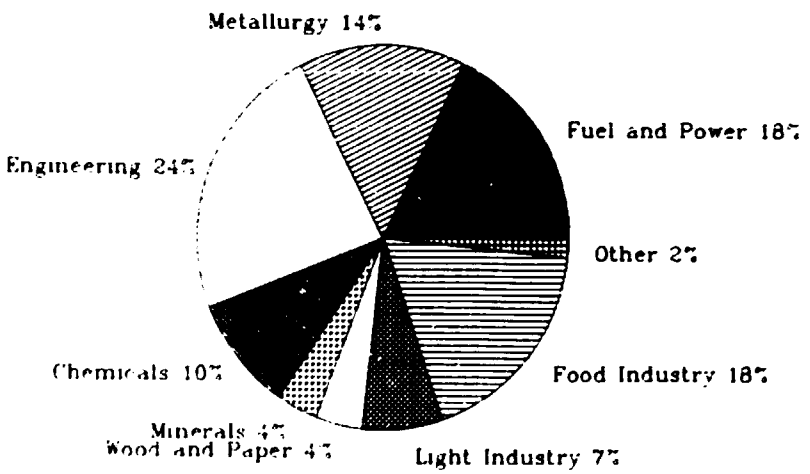


Fig. II.C. Structure of industrial sales, 1990 (Percentage)



C. INDUSTRIAL EMPLOYMENT

Rapid expansion of industrial output in 1950–1970 was achieved largely by increasing the quantity of labour and capital inputs rather than by increasing their productivity. The switch in growth strategy in the 1970s, which depended heavily on technology and capital equipment imported from the developed market economies, reflected the recognition that the period of rapid growth in the labour force had by then come to an end. Future growth would depend mainly on raising labour productivity and thus would be 'intensive' rather than 'extensive' in its character.

Table II.5 summarizes the main changes in population and employment since 1950. It may be seen that between 1950 and 1970 the total population increased by 31 per cent, the population of working age by 37 per cent, and the economically active population by no less than 49 per cent, or 5 million workers in absolute terms. Employment in industry more than doubled, from 2.1 million to 4.5 million, while employment in agriculture declined by about 10 per cent, from 6.1 million to 5.4 million. Thus, declining agricultural employment was the main source of new workers in industry. It is interesting to note, however, that the largest area of employment expansion in 1950–1970 was in the service sector, where employment more than tripled, from 1.1 million to 4.3 million. Expressing the same data in terms of shares in total employment, between 1950 and 1970 the share of industry increased from 21 per cent to 29 per cent, and the share of agriculture declined from 60 per cent to 35 per cent, while the share of services expanded from 11 to 28 per cent.

From this Table it may also be seen that since 1970 both growth and structural change in employment have slowed down. Between 1970 and 1988 the total population grew by 16 per cent, but the population of working age grew by only 11 per cent, reflecting a changing age structure. The participation rate has also stabilized since 1970 (at around 77 per cent), and the economically active population grew by only about 12 per cent over the 18 years. In absolute terms the economically active population grew by only 2 million in 1970–1988, compared with 5 million in 1950–1970 as noted above.

The share of industry in total employment reached a peak of 31.5 per cent in 1977 and in terms of absolute numbers reached a peak of 5.25 million in 1980. Thereafter it fell to 4.8 million (28 per cent) in 1988. Agricultural employment has declined slowly but continuously in both absolute and relative terms, from 5.4 million (35 per cent) in 1970 to 4.8 million (28 per cent) in 1988. The rapid growth of employment in services in 1950–1970 continued in 1970–1988: in the latter period employment in services expanded by almost 2 million (equal to the growth of total employment) and by 1988 the service sector accounted for 36 per cent of total employment.

The period of rapid growth in industrial employment ended in the mid-1970s. Between 1970 and 1975 industrial employment grew at an average annual rate of 2.7 per cent. This growth slowed down to 0.4 per cent per annum in 1976–1980. Over the period 1981–1985 industrial employment declined by 0.8 per cent per annum, expanding again at 0.3 per cent per annum between 1986 and 1988.

The share of private firms in industrial employment has been continuously increasing from 1 per cent in 1950, rising to 8.5 per cent in 1970, and to 14.5 per cent in 1988. Employment in the socialized sector of industry reached a peak of 4.8 million in 1977, declining to 4.2 million by 1988. More recently the decline has accelerated sharply; between January 1989 and January 1990 it dropped from 4,058,000 to 3,899,000. In June 1990 it was only 3,647,000. The choice between employment in the socialized and private sectors has always involved balancing the security and welfare benefits of the former against the higher wages of the latter. The recent accelerated decline in socialized sector employment is the result of higher wages in small private firms and the privatization of some small socialized enterprises in recent months.

Table II.5. Population and employment, 1950-1988

	1950		1970		Increase 1950-1970	1986		1988		Increase 1970-1988
	Million	Percentage	Million	Percentage	Percentage	Million	Percentage	Million	Percentage	Percentage
Population	25		32.7		30.8	37.6		37.9		15.9
Population of working age	14.5	100	19.8	100	36.6	22.6	100	21.9[a/]	100	10.6
Economically active population	10.2	70.0	15.2	77.0	49.0	17.2	76.0	17.1	78.0	12.5
of which employed in:										
Industry	2.11	20.7	4.43	29.3	111.1	4.82	28.0	4.89	28.6	..
Construction	0.82	8.0	1.08	7.0	31.1	1.38	8.0	1.35	7.9	..
Agriculture	6.12	60.0	5.4	35.5	-12.1	4.82	28.0	4.72	27.6	..
Services	1.15	11.3	4.28	28.0	172.2	6.19	36.0	6.14	35.9	..
of which:										
Transport, communication and trade	1.02	10.0	1.98	13.0	..	2.41	14.0	..		..

Source: Central Statistical Office, *Statistical Yearbook* (various issues).

a/ Population at working age is average of 1987 and 1988 figures.

The proportion of females in industrial employment increased from 35.4 per cent in 1970 to a peak of 39.4 per cent in 1975, falling to 37.1 per cent in 1988. In 1988, the branches of industry with the largest proportions of females were garments (79.1 per cent), leather (64.3 per cent), textiles (64.1 per cent), printing (54.6 per cent), pottery and china (51.9 per cent), electrical engineering and electronics (45.2 per cent), glass and glass products (45.1 per cent), and precision instruments (40.2 per cent).

Within industry there were significant changes in employment distribution between 1960 and 1970. As may be seen from Table II.6, engineering increased its share substantially, from 23.6 per cent in 1960 to 29.5 per cent in 1970. Chemicals also marginally increased its share in the total industrial workforce from 6.3 per cent to 7.0 per cent. The shares of the other industries all fell: fuel and power from 14.2 per cent to 11.8 per cent, metallurgy from 6.2 per cent to 6.0 per cent, minerals from 7.7 per cent to 6.9 per cent, wood and paper from 6.9 per cent to 6.4 per cent, light industry from 21.9 per cent to 19.7 per cent, and food from 11.1 per cent to 10.3 per cent.

Table II.6. Structure of employment in socialized industry, 1960-1990, selected years
(Percentage)

	1960	1970	1989	1990
Total socialized sector	100	100	100	100
Fuel and power	14.2	11.8	16.6	16.6
Metallurgy	6.2	6.0	5.1	5.4
Engineering	23.6	29.5	31.9	31.7
Chemicals	6.3	7.0	6.6	6.8
Minerals	7.7	6.9	5.1	5.3
Wood and paper	6.9	6.4	5.0	5.0
Light industry	21.9	19.7	15.7	15.3
Food	11.1	10.3	10.2	11.0
Other	2.1	2.4	3.6	2.9

Source: Central Statistical Office, *Statistical Yearbook* (various issues).

Between 1970 and 1989, engineering continued to increase its share, reaching 31.9 per cent in 1989. There was also a significant increase in fuel and power, to 16.6 per cent. All other industries lost their employment share, particularly minerals and light industry. The fuel and power industry recorded a significant growth in employment after 1978 due to the government's efforts to increase coal production. The most rapid growth of employment was in power, which was due to the opening of a number of new relatively small and labour-intensive power plants.

Summarizing the current structure of industrial employment, the engineering industry is the largest employer of the country's industrial labour. In 1990, it accounted for 31.7 per cent of industrial employment, followed by fuel and power (16.6 per cent), textiles, garments and leather (15.3 per cent) and the food industry (11.0 per cent).

Indices of the growth of employment in socialized industry ranked in descending order over the period 1970–1988 are presented in Table II.7. It will be seen that two industries – fuel and power, and food – experienced above average employment growth in the period 1970–1988. This is particularly remarkable when it is recalled from the previous section that the sales, and more especially the value added performance of these two industries over the same period was abysmal.

Fig. II.D. Structure of industrial employment, 1970 and 1990 (Percentage)

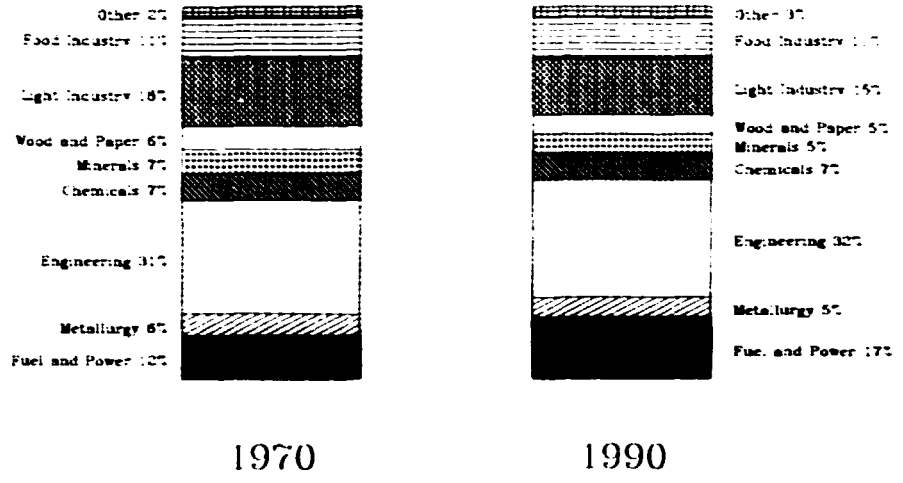


Table II.7. Indices of employment in socialized industry, 1988 (1970 = 100)

Total industry	113.3
Industries	
Fuel and power	137.3
Food industry	118.0
Engineering	105.8
Metallurgy	97.5
Chemicals	94.7
Light industry	88.6
Wood and paper	85.6
Minerals	81.1
Branches	
Power	169.0
Coal	133.5
Precision instruments	132.1
Electrical engineering and electronics	122.3
Pottery and china	120.7
Non-ferrous metals	120.1
Food industry	118.0
Fuel	118.0
Machinery and equipment	114.7
Garments	107.6
Leather	101.8
Glass and glass products	97.5
Transport equipment	93.3
Chemicals	94.7
Metal products	91.1
Basic metals	90.9
Wood	86.6
Paper	83.1
Textile	77.0
Building materials	72.5

Source: Computed using *Statistical Yearbook of Industry 1989* (Warsaw 1990), Central Statistical Office.

However, this should be seen as an extreme example of a general feature of the Polish economy. Changes in employment in response to changes in output in Polish industry have, over a long period, been insignificant. There are a number of reasons for this. Because of the housing shortage, and heavily subsidized rents, workers have been extremely reluctant to change jobs if this necessitated relocation. Further, workers do not expect to have to travel long distances to work. These factors have made recruitment difficult. At the same time, the legal framework has given a very high degree of employment security, making lay-offs or discharges in the socialized sector almost impossible. This was reinforced by social convention which gave priority to maintaining full employment, and by the absence of market incentives to minimize costs. For these and other reasons employment, whether at the enterprise, branch or industry level, has shown little change in response to either cyclical or longer term changes in output.

This feature has persisted in the crisis situation of 1990. Although the Labour Law of December 1989 makes discharges easier, enterprises have hoarded labour as the recession has deepened. In the first half of 1990, sales of the socialized sector decreased by about 30 per cent below their levels of a year earlier, but employment dropped by only 11.5 per cent. Moreover, the employment reduction was in large degree the result of workers leaving the socialized sector voluntarily and of the privatization of many small enterprises, notably in retailing; and the growth of many small business activities such as street trading.

D. LABOUR PRODUCTIVITY, WAGES AND SALARIES

Labour productivity over the period 1970–1988, measured both as value added per worker and sales per worker, is shown in Table II.8. An enormous variation in industry and branch growth rates is apparent. For industry as a whole, value added per employee increased by 88.3 per cent over the period 1970–1988. Among industries, labour productivity growth ranged from an increase of nearly 300 per cent in engineering to a decrease of nearly 50 per cent in fuel and power. Among branches the range was even greater; from an increase of nearly 600 per cent in precision instruments to a decrease of over 70 per cent in coal mining.

Fig. II.E. Labour productivity, 1978–1989 (1988 const. prices, thousands zlotys)

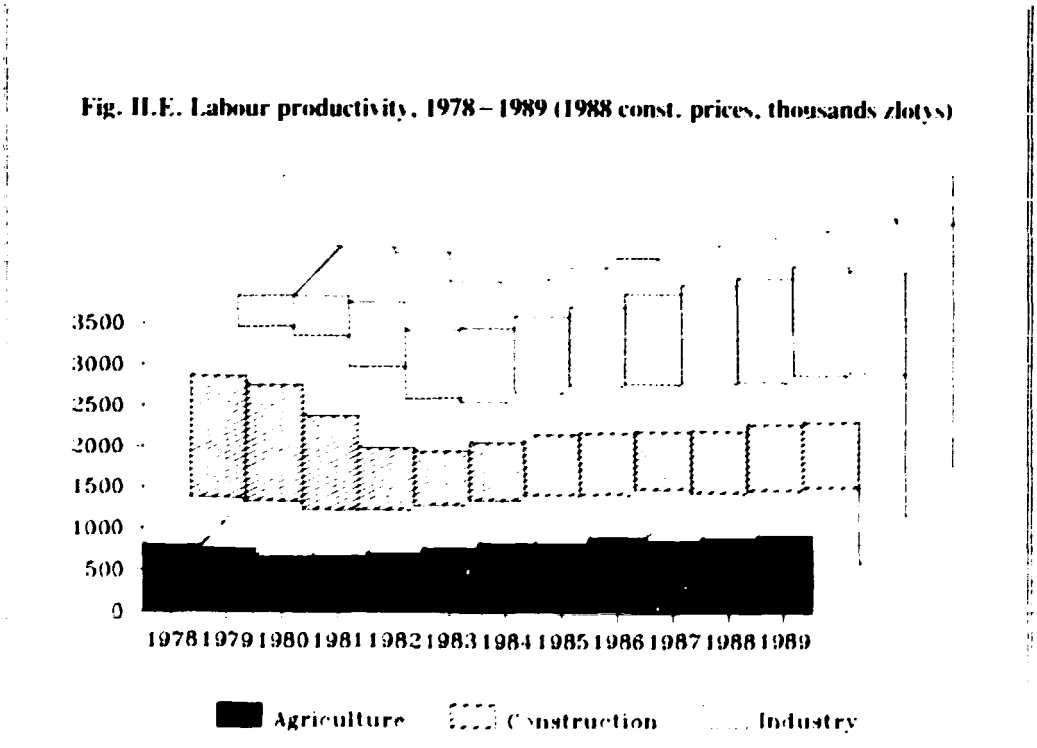


Table II.8. Indices (1970=100) and average annual growth rate (in constant 1984 prices) of sales per worker and labour productivity, 1970-1988

Industry	Sales per worker				Value added per worker			
		Average annual growth rate				Average annual growth rate		
	Index 1988	1970-1980	1980-1988	1970-1988	Index 1988	1970-1980	1980-1988	1970-1988
		(Percentage)				(Percentage)		
Fuel and power	125.4	3.5	-1.4	1.3	49.8	0.5	-9.0	-3.8
Coal	107.9	1.7	-1.2	0.4	27.4	-2.6	-12.1	-6.9
Fuel	134.2	4.9	-2.3	1.6	97.8	4.4	-5.6	-0.1
Power	179.9	5.6	0.6	3.3	76.4	3.6	-7.5	-1.5
Metallurgy	183.7	5.1	1.3	3.4	140.9	4.2	-0.8	1.9
Basic metals	167.0	4.9	0.5	2.9	119.4	3.5	-2.0	1.0
Non-ferrous metals	205.4	5.1	2.8	4.1	172.7	4.8	1.0	3.1
Engineering	331.5	7.8	5.7	6.9	397.1	8.5	7.3	8.0
Metal products	282.8	7.5	4.1	5.9	326.1	7.7	5.7	6.8
Machinery and equipment	373.3	8.2	6.8	7.6	446.6	8.9	8.4	8.7
Precision instruments	630.2	11.4	9.9	10.8	699.4	11.5	11.3	11.4
Transport equipment	282.6	7.3	4.3	5.9	311.0	7.7	5.0	6.5
Electrical engineering and electronics	399.0	8.8	6.9	8.0	435.5	8.6	8.4	8.5
Chemicals	281.7	7.2	4.3	5.9	357.4	7.7	6.9	7.3
Minerals	230.5	6.1	3.1	4.7	195.8	5.3	1.9	3.8
Building materials	218.5	6.0	2.5	4.4	141.8	3.3	0.3	2.0
Glass and glass products	314.9	8.0	4.8	6.6	321.0	7.8	5.3	6.7
Pottery and china	394.8	9.1	6.5	7.9	436.0	9.2	7.7	8.5
Wood and paper	294.4	7.2	4.9	6.2	283.5	5.8	6.2	6.0
Wood	319.1	8.0	5.0	6.7	314.0	6.4	6.8	6.6
Paper	242.2	5.6	4.3	5.0	209.0	4.1	4.3	4.2
Light industry	237.2	6.0	3.6	4.9	247.7	5.2	5.1	5.2
Textile	250.1	6.9	3.2	5.2	281.0	5.9	5.9	5.9
Garments	234.6	5.0	4.6	4.9	225.2	4.7	4.5	4.6
Leather	217.0	4.4	4.4	4.4	199.6	3.9	3.9	3.9
Food industry	149.2	4.2	-0.2	2.2	71.2	0.0	-4.1	-1.9

Source: Computed using *Statistical Yearbook of Industry 1989* (Warsaw 1990), Central Statistical Office.

Direct comparison between industries and branches is potentially misleading, as both value added and sales were influenced by huge price distortions. However, it is apparent from the Table that branches which were heavily subsidized and where prices were administered at an artificially low level (food and coal) recorded huge declines in productivity. On the other hand precision instruments, electrical engineering and electronics, machinery and equipment, pottery and china and chemicals, where administrative and regulated prices were relatively unimportant, were able to achieve large increases in their labour productivity. The explanation of this is probably that branches which were heavily subsidized and subject to price control lacked both the incentive and the financial resources to increase labour productivity.

The implications for labour productivity of high immobility between industries, branches and even enterprises in Polish industry growth may be tested statistically. If workers were totally immobile (i.e. if the labour force of each industry were a given constant) then labour productivity would be perfectly correlated with output. However, in carrying out a statistical test of this relationship one would also wish to allow for the influence of other factors on labour productivity; in particular, for increasing capital per worker resulting from net investment. Therefore the hypothesis, which was tested by multiple regression methods, was that changes in labour productivity are explained by changes in output and by changes in capital per worker.[4] For the period under discussion it was found that differences between industries in labour productivity growth were explained almost entirely by differences in the

growth of output. Differences in the growth of capital per worker had little explanatory power, and furthermore the relationship was negative, i.e., those industries with above average growth of capital per worker experienced below average labour productivity growth. The statistical analysis therefore supports the view that there was effectively no labour market in Polish industry in this period, and further that the allocation and utilization of capital investment was sub-optimal, to say the least.

Average annual growth of wages in socialized industry over the period 1980–1988 in descending rank order, together with labour productivity growth, are presented in Table II.9. It is obvious from a comparison of the two columns of this Table that the behaviour of the two series is quite different. The growth of wages and salaries is unrelated to the growth of industrial productivity. Despite huge differences between industries and branches in productivity growth, the differences in the growth of nominal wages over the period 1980–1988 were small. While average annual labour productivity growth during 1981–1988 ranged from 11.3 per cent in precision instruments to minus 12.1 per cent in coal, the average annual growth of wages ranged only from 25.6 per cent in precision instruments to 23.2 per cent in basic metals. It is also notable that the two industries with the lowest productivity growth – fuel and power, and food – ranked second and third respectively in the growth of wages. Similarly at the branch level precision instruments enjoyed the highest wage growth and also the highest productivity growth (11.3 per cent), while coal had the second highest wage growth but the lowest productivity growth (minus 12.1 per cent).

Table II.9. Average annual growth rates of wages and labour productivity, 1980-1988

	Wages	Labour productivity
Total industry	25.0	
Industries		
Chemicals	25.3	6.9
Fuel and power	25.2	-9.0
Food industry	25.0	-4.1
Wood and paper	24.7	6.2
Engineering	24.7	7.3
Light industry	24.5	5.1
Metallurgy	23.9	-0.8
Minerals	23.8	1.9
Branches		
Precision instruments	25.6	11.3
Coal	25.5	-12.1
Paper	25.5	4.3
Electrical engineering and electronics	25.4	8.4
Chemicals	25.3	6.9
Non-ferrous metals	25.3	1.0
Food industry	25.0	-4.1
Fuel	24.9	-5.5
Machinery and equipment	24.8	8.4
Garments	24.7	4.5
Power	24.6	-7.4
Textile	24.5	5.9
Wood	24.5	6.8
Glass and glass products	24.4	5.3
Leather	24.4	3.9
Transport equipment	24.3	5.0
Metal products	24.0	5.7
Pottery and china	23.9	7.7
Building materials	23.6	0.3
Basic metals	23.2	-2.0

Source: Computed using *Statistical Yearbook of Industry 1989* (Warsaw 1990), Central Statistical Office.

The main factor determining the growth of wages was the wage policy in the 1980s. When productivity and financial performance of an enterprise were good, justifiable wage increases were punished with wage indexation coefficients and wage taxes. Society also became accustomed to a certain structure of wages, reflecting an egalitarian tradition established by the wage policies of the 1950s and 1960s. The low dispersion in both the level and growth of wages may be also explained by pressure from workers, exemplified by the often repeated slogan, 'each worker has the same stomach'.

From Table II.10 some clear patterns in wage levels emerge. Taking the data for 1990 to exemplify this, the first notable feature is that the overall range of wages is quite large: wages in non-ferrous metals (the highest-wage branch) were 2.2 times wages in garments (the lowest-wage branch). A second striking feature is that wage levels in fuel and power, and metallurgy, are substantially higher than in the rest of industry. Third, there are several branches – textiles, garments, leather, pottery and china – where wages are substantially below the average. These are branches with a high proportion of female workers.

Table II.10. Industrial wages[a/], 1986-1990
(In thousand zlotys)

	1986	1987	1988	1989	1990
Total socialized industry	27.5	33.4	61.4	233.1	1092.6
Of which:					
Extractive industry	..	..	..	357.0	1638.5
Processing industry	..	..	..	212.5	1004.3
Fuel and power	46.2	54.1	95.1	341.5	1574.9
Coal	52.3	61.7	107.5	368.1	1670.2
Fuel	27.1	32.4	62.8	291.2	1577.5
Power	29.7	33.6	60.6	253.9	1231.9
Metallurgy	34.4	40.6	72.6	282.7	1476.5
Basic metals	32.7	38.3	67.0	263.0	1385.9
Non-ferrous metals	38.6	46.2	86.1	330.1	1687.6
Engineering	25.0	30.6	56.9	210.5	999.3
Metal products	22.5	27.9	50.4	198.6	944.1
Machines and equipment	26.6	32.2	59.8	215.0	1031.3
Precision instruments	25.2	31.3	59.3	205.4	948.0
Transport equipment	25.4	31.2	57.8	215.9	1037.8
Electrical engineering and electronics	23.8	29.3	56.1	207.9	960.0
Chemicals	24.0	29.7	58.1	223.8	1072.0
Minerals	23.5	28.0	50.6	197.3	936.4
Building materials	23.9	28.1	50.4	196.3	937.8
Glass and glass products	23.0	28.0	53.2	202.1	950.9
Pottery and china	22.5	27.3	47.2	193.8	901.6
Wood and paper	21.8	26.6	49.6	195.7	917.7
Wood	21.7	26.4	48.7	192.7	896.1
Paper	22.2	27.3	52.7	206.1	989.9
Light industry	21.7	26.9	49.6	192.7	832.9
Textile	22.5	27.9	51.0	200.3	872.0
Garments	20.3	25.6	47.5	180.2	782.2
Leather	21.6	26.3	49.2	190.7	803.4
Food industry	22.3	27.0	52.6	214.5	1006.4
Other industry branches	25.6	31.0	55.4	211.3	973.2
Nutritive fodder	20.3	24.9	47.6	186.6	898.7
Printing	26.5	31.8	55.1	194.7	915.0
Others	25.7	31.1	56.2	220.6	1017.0

Source: Central Statistical Office, *Statistical Information on Economic Situation of Poland* (Warsaw 1990).

a/ Average industrial wages.

E. INDUSTRIAL COST STRUCTURE AND PROFITABILITY

The structure of production cost in Polish industry is presented in Table II.11. It is very difficult to compare the cost structure between branches, since the structure is influenced not only by technology but also by price distortion, subsidies, and varying practice regarding provision for depreciation and the valuation of fixed assets. Subject to these limitations, it is perhaps worth noting that the share of raw materials in production costs ranged from 18.3 per cent in coal to 77.8 per cent in the food industry in 1988. (The average for all industry was 61.2 per cent.) The share of depreciation was naturally very high in capital intensive production; its highest value was 8.2 per cent, in power generation.

Energy costs averaged 2.7 per cent of total production costs. The proportion was very high in the power industry (8.2 per cent) and in the paper industry (5.3 per cent). Wages averaged 10.9 per cent of total costs but ranged from 2.9 per cent in fuel production to 27.3 per cent in coal mining.

A feature of particular interest is the profitability of Polish industry. A jump in profitability occurred between 1988 and 1989 (see Table II.12), following the 'marketization' of the economy, which reduced price controls on many industrial products, including notably food (but excluding coal and energy). Changes in subsidies occurred too, and are discussed later in this section.

Between 1988 and 1989 the ratio of gross profits to sales for total socialized industry increased from 16.7 per cent to 34.4 per cent, and the ratio of net profit to sales from 8.4 per cent to 21.3 per cent. The highest net profit to sales ratios were achieved by precision instruments (34.5 per cent), machines and equipment (30.5 per cent), non-ferrous metals (29.8 per cent), and electrical engineering and electronics (25.9 per cent).

It is necessary to explain the use to which profits are put in the socialized sector of the Polish economy, and hence the incentives which exist for enterprises to maximize their profits. In the Polish system gross profit is first used to pay the obligatory dividend, corporate income tax and the excess wage tax (if any). Net profit was (and is) then divided between profit bonuses for workers and retained profit which may finance investment. Thus workers, the government, and enterprise managers who wish to invest all have an interest in increasing profits. Although workers of course will not wish to see profits increased at the expense of wages, they will be happy to see the profit margins of their enterprise increase even if this reduces sales, since a fall in sales will not threaten their jobs due to the high degree of job security which has existed, at least until 1990. On the whole the absence of product market competition and of incentives to cost-minimization, together with the profit incentives just noted, tend to promote high profit mark-ups in Polish industry.

The behaviour of producer prices and their effects on profitability are worth mentioning. For the first five months of 1990, the profit/sales ratio was 25.7 per cent compared with 20.4 per cent for the same period in 1989. This increase to a large degree offset the effect on profits of the fall in sales volume in 1990. In the first five months of 1990 retained profit was mainly used to finance increased inventories (and to redeem debt in response to very high interest rates). This helps explain why the fall in employment has been much less than the fall in sales. More recently, profits have also been used to pay the excess wage tax. Since May 1990, however, profit margins have been falling.

The changes in price policy altered the structure of subsidies. In 1988, 66.9 per cent of total industrial subsidies went to the food industry and 17.4 per cent to the coal industry. Relatively small subsidies were also received by transport equipment (ships), some other machinery and equipment, and chemicals. The other industries had negligible subsidies. The marketization of food prices, introduced from August 1989, led to a marked shift in the distribution of subsidies. The share of total industrial subsidies absorbed by food fell to 39.9 per cent, while

Table II.11. Structure of production costs by industry branch, 1988
(Percentage)

Item	Total	Raw materials	Energy	Depre-ciation	Other factory costs	Wages	Taxes on wages	Other levies	Other costs
Total	100.0	61.5	2.3	2.7	10.5	10.9	6.3	2.4	3.4
Fuel and power	100.0	42.4	3.4	4.5	18.6	15.7	8.8	4.1	2.5
Coal	100.0	18.3	3.6	4.1	24.7	27.3	15.2	4.4	2.3
Fuel	100.0	74.7	1.0	2.5	10.1	2.9	1.7	5.5	1.5
Power	100.0	50.4	6.1	8.2	17.0	7.9	4.7	1.6	4.2
Metallurgy	100.0	70.1	3.1	2.9	9.0	5.9	3.6	2.0	3.4
Basic metals	100.0	67.8	3.1	3.3	9.9	6.4	3.9	1.9	3.7
Non-ferrous metals	100.0	73.9	3.1	2.1	7.5	5.1	3.1	2.3	2.9
Engineering	100.0	57.5	2.1	2.7	8.9	13.5	7.9	2.9	4.5
Metal products	100.0	57.8	2.7	3.1	8.1	14.1	8.1	2.1	4.1
Machines and equipment	100.0	52.7	2.2	3.1	10.8	15.1	8.9	2.4	4.9
Precision instruments	100.0	49.9	1.4	1.9	11.0	17.0	10.0	3.3	5.5
Transport equipment	100.0	60.2	2.1	2.6	8.4	11.5	6.8	3.7	4.7
Electrical engineering and electronics	100.0	62.5	1.7	2.2	7.1	12.7	7.2	2.9	3.6
Chemicals	100.0	65.9	3.8	2.9	9.0	7.5	4.4	2.4	4.1
Minerals	100.0	46.1	4.0	3.5	17.3	13.7	8.0	2.4	5.0
Building materials	100.0	46.3	4.2	3.6	19.1	12.1	7.0	2.5	5.2
Glass and glass products	100.0	47.1	3.5	2.5	13.2	17.3	10.2	2.1	4.2
Pottery and china	100.0	41.3	3.0	4.3	9.1	21.7	12.9	2.7	5.0
Wood and paper	100.0	57.8	2.5	3.0	12.4	11.6	6.9	1.6	4.3
Wood	100.0	57.7	1.9	1.9	11.9	13.3	7.9	1.7	3.7
Paper	100.0	57.9	3.7	5.3	13.2	8.0	4.7	1.5	5.5
Light industry	100.0	66.1	1.5	1.6	3.5	14.4	8.6	1.7	2.4
Textile	100.0	65.8	2.3	2.3	3.8	13.2	8.1	1.9	2.6
Garments	100.0	53.2	0.6	0.7	2.9	18.3	10.3	1.5	2.4
Leather	100.0	69.7	0.7	0.8	3.4	13.5	8.0	1.7	2.2
Food industry	100.0	77.8	0.9	1.1	8.9	4.9	2.8	1.1	2.4
Other industry branches	100.0	60.4	1.2	2.1	7.8	14.7	8.3	1.5	3.8

Source: Calculated using Central Statistical Office data.

Table II.12. Gross and net profits as percentage of sales, 1988 and 1989

Item	1988		1989	
	Gross profits as percentage of sales	Net profits as percentage of sales	Gross profits as percentage of sales	Net profits as percentage of sales
Total socialized sector	16.7	8.4	34.4	21.3
Of which:				
Industry	15.3	7.9	32.0	20.3
Extractive industry	14.0	7.9	28.4	18.5
Processing industry	15.4	7.9	32.3	20.4
Of which co-operatives of total industry:				
Fuel and power	6.6	4.5	19.0	12.0
Coal	5.6	5.1	17.1	14.0
Fuel	8.6	4.2	23.5	10.8
Power	5.0	3.9	14.1	11.4
Metallurgy	17.2	7.6	38.7	22.9
Basic metals	11.2	5.3	34.6	19.2
Non-ferrous metals	27.5	11.4	46.3	29.8
Engineering	21.1	11.1	39.3	26.7
Metal products	17.7	9.0	38.1	23,5
Machines and equipment	23.9	12.0	44.0	30.2
Precision instruments	30.6	17.6	45.8	34.5
Transport equipment	18.3	9.6	35.3	24.1
Electrical engineering and electronics	20.4	11.7	37.6	25.9
Chemicals	19.1	9.4	38.5	25.0
Minerals	13.9	6.5	30.8	15.9
Building materials	13.5	6.0	26.4	11.8
Glass and glass products	14.7	7.8	38.9	24.0
Pottery and china	15.7	8.4	41.8	24.5
Wood and paper	15.0	7.5	36.9	21.5
Wood	13.5	6.9	36.2	21.7
Paper	18.2	8.9	38.7	21.2
Light industry	17.6	8.4	36.9	21.9
Textile	17.0	7.4	38.0	21.5
Garments	20.2	11.5	39.4	26.5
Leather	16.4	7.8	31.6	28.7
Food industry	10.7	5.8	22.1	14.1
Other industry branches	14.9	8.8	24.7	15.9

Source: Calculated using Central Statistical Office data.

coal (where prices were controlled at levels which lagged far behind inflation) absorbed 44.1 per cent of total subsidies. As a proportion of sales revenue, subsidies to the coal industry rose from 21.6 in 1988 to no less than 85.5 per cent in 1989. In the food industry the subsidies/sales ratio declined from 29.7 per cent in 1988 to 15.5 per cent in 1989. The system of administered prices for coal was abandoned from June 1990, and as a result of this the price of coal (and more particularly of fuel) rose considerably faster than other prices in the autumn of 1990.

The structure of costs is strongly influenced by enterprise taxation. Taxes on enterprises constitute about 95 per cent of budget revenues. Taxes levied on the food industry (including the turnover tax on spirit and alcohol) accounted for 50.5 per cent of total taxes in 1988 and 47.5 per cent in 1989. The other branches heavily taxed include fuel (15.5 per cent of total taxes in 1989), textiles (7.2 per cent) and transport equipment (6 per cent). In 1989, the highest shares of taxes in branch sales were in fuel (26 per cent), food (19.6 per cent), pottery and china (13.9 per cent), textiles (9.1 per cent) and leather (8.7).

F. INVESTMENT IN FIXED ASSETS AND CAPITAL PRODUCTIVITY

Over the period 1950 – 1960 total industrial investment increased at 10.4 per cent per annum, and thereby rose by 2.7 times in the decade. In the next decade, 1960 – 1970, the rate of growth of industrial investment slowed to 7.7 per cent per annum, with the effect that the level rose by 2.1 times. Acceleration of investment growth began in the 1970s following the strategy of large-scale import of machinery and technology from developed market economy countries. Between 1970 and 1975 total industrial investment increased nearly 2.7 times, growing at an average rate of 21 per cent per annum. Thus, over the whole period 1950 – 1975 there was a fifteen-fold increase in industrial investment, albeit from a very low base.

The astonishingly high investment rates of the first half of the 1970s (when imports of Western machinery grew at an average rate of about 53 per cent per annum) proved to be beyond the absorptive capacity of the economy. Investment tended to be regarded as an end in itself, and the absence of market disciplines meant that allocation decisions were to a large degree the outcome of bargaining between interest groups, in which the benefits were frequently exaggerated and costs usually underestimated.

In 1975 the share of total fixed investment in national income reached a peak of 40.1 per cent, and industrial investment a peak of 17.7 per cent of national income (44 per cent of total fixed investment). Thereafter the shares of both total investment and industrial investment in national income declined. The lowest point for total fixed investment was 20.8 per cent of national income in 1981, and the lowest point for industrial investment was 6.5 per cent of national income in 1982. The total fixed investment share recovered slowly to 25.7 per cent of national income in 1988, and the industrial investment share to 9.1 per cent.[5] It may be noted that 85 – 90 per cent of total investment in recent years has been in the socialized sector of the economy.

In absolute magnitude industrial investment declined continuously between 1975 and 1982, falling by 55 per cent over this period. After 1982 and 1988 it increased slowly but continuously and by 988 had recovered to its 1975 level. The decline in both national income and investment was most dramatic between 1978 and 1982, the period of the first great crisis. In this period national income fell by nearly 25 per cent, total fixed investment by 44 per cent, fixed investment in the material sector by 50 per cent, and industrial investment by 51 per cent. Since then all magnitudes have risen steadily but even by 1988 national income was still 2 per cent below, total fixed investment 27 per cent below, and industrial investment 28.4 per cent below their 1978 levels.

In view of this very large fall in industrial investment in both relative and absolute terms over the past 15 years, there naturally arises the question whether this is to be viewed as the cause or rather the consequence of Poland's poor economic performance in the 1980s. In turn, the answer to this question influences the question of what priority should be given to increasing industrial investment in the 1990s. A preliminary assessment of this question may be made at this stage. There is a general recognition that the high level of investment achieved in the first half of the 1970s proved disastrous. It over-stretched the absorptive powers of the economy, resulted in a long-lasting misallocation of resources and distortion of Poland's industrial structure, and was sustainable only at the cost of incurring an enormous foreign debt, a debt which casts its shadow over Poland now and for the foreseeable future. At 25.7 per cent of national income in 1988 the share of fixed investment is not unreasonably low by international standards. There is no reason to suppose that increasing this share would, in itself, increase economic growth. It appears much more important to improve the quality and direction of individual investments. Such an improvement would lead to considerable increases in investment by some enterprises and branches of industry, and considerable reductions in others. However, it is of secondary importance whether the net effect of these changes would be to increase or reduce total investment, whether in absolute or relative terms.

Fig. II.F. Structure of industrial investment, 1970 (Percentage)

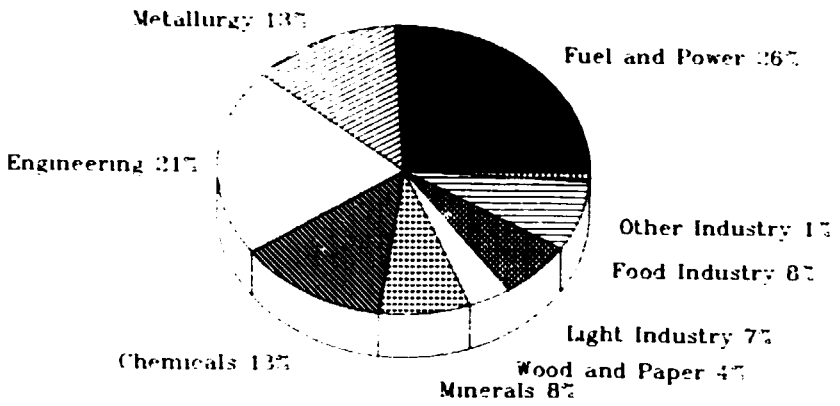
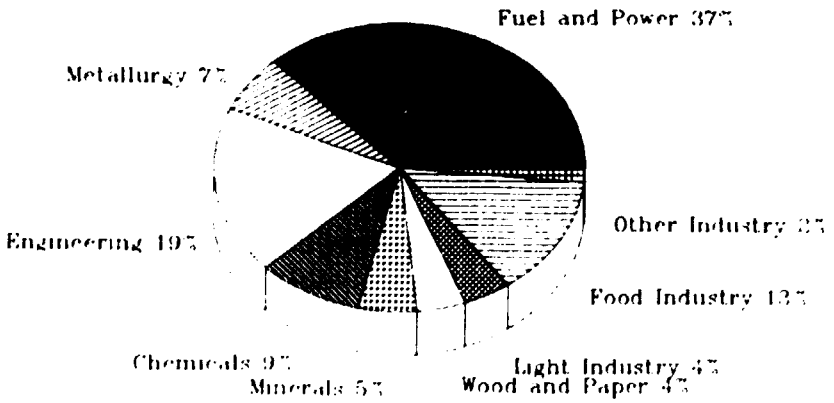


Fig. II.G. Structure of industrial investment, 1990 (Percentage)



Structure of industrial investment

In analyzing structural change in Polish industry the hypotheses to be addressed must first be identified. It has been argued above that the fundamental mistake of the period up to 1975 was that not only was aggregate investment excessive but investment was excessively biased towards industries and branches which were very capital- and energy-intensive, and which produced outputs which were relatively unsophisticated and had low income-elasticities of demand. The first question therefore is whether this view is confirmed by the data, and the second is whether this bias has been corrected in the 1980s.

Some light may be shed on these questions by comparing the growth rates of investment 1970–1980 and 1980–1988, given in Table II.13. There is clearly a tendency for branches with high growth of investment in 1970–1980 to have low growth in 1980–1988, and vice versa. At branch level, switches from high to low or negative growth of investment occurred in coal, power, basic metals, chemicals, pottery and china, and paper – supporting the view that a shift away from heavy, energy- and capital-intensive industry occurred, although not necessarily as the result of conscious policy. Conversely, investment grew faster in textiles, garments, leather and food. Within the engineering industry the evidence is more ambiguous.

Table II.13. Growth of investment in industry branches, 1970-1988
(Constant prices, 1970 = 100)

	Index (1970=100)		Average annual growth rate (Percentage)		
	1980	1988	1970-1980	1980-1988	1970-1988
Fuel and power	242.6	190.7	9.3	-3.0	3.6
Coal	365.8	225.3	13.8	-5.9	4.6
Fuel	79.4	131.9	-2.3	6.5	1.5
Power	229.6	192.0	8.7	-2.2	3.7
Metallurgy	153.0	77.6	4.3	-8.1	-1.4
Basic metals	227.1	82.1	8.5	-11.9	-1.1
Non-ferrous metals	78.2	73.3	-2.4	-0.8	-1.7
Engineering	201.8	222.5	7.3	1.2	4.5
Metal products	188.0	141.6	6.5	-3.5	2.0
Machines and equipment	199.9	204.8	7.2	0.3	4.1
Precision instruments	174.9	391.9	5.7	10.6	7.9
Transport equipment	217.8	240.2	8.1	1.2	5.0
Electrical engineering and electronics	203.1	322.3	7.3	5.9	6.7
Chemicals	142.1	121.1	3.6	-2.0	1.1
Minerals	84.4	83.5	-1.7	-0.1	-1.0
Building materials	74.5	75.2	-2.9	0.1	-1.6
Glass and glass products	87.9	89.1	-1.3	0.2	-0.6
Pottery and china	311.8	259.6	12.0	-2.3	5.4
Wood and paper	175.2	181.4	5.8	0.4	3.4
Wood	151.9	232.0	4.3	5.4	4..
Paper	194.7	137.7	6.9	-4.2	1.8
Light industry	101.2	197.9	0.1	8.7	3.9
Textile	94.5	166.4	-0.6	7.3	2.9
Garments	173.6	359.8	5.7	9.5	7.4
Leather	96.3	274.1	-0.4	14.0	5.8
Food industry	182.7	326.0	6.2	7.5	6.8

Source: Central Statistical Office.

Investment in precision instruments grew faster in the second period, and electrical engineering almost as fast. On the other hand investment in transport equipment, and in machinery and equipment, grew very little, while investment in metal products actually declined. While there is some evidence here of a switch in the direction of investment towards more sophisticated products and processes, the picture is not entirely clear. Many of these branches' products are investment goods, so that slower growth in investment in these branches may simply reflect the slower growth in their output which is itself the consequence of the slower growth in aggregate investment in the second period. In addition, the picture is blurred by the diversity of outputs within branches: for example metal products comprise castings, bearings, chains and nails but also washing machines and vacuum cleaners.[6]

In the 1970s, industrial investment was concentrated in fuel and power (coal and electricity), engineering (transport equipment, electrical engineering and electronics) and metallurgy.

Much of the investment was in large-scale production units ranging from coal, iron, steel, and copper to transportation equipment, electronics and others.

In 1988, investment in fuel and power industry accounted for 28.2 per cent of total industrial investment, engineering industries for 29.2 per cent, the food industry for 11.0 per cent and chemicals for 7.2 per cent. The large share of investment directed to fuel and power may be justified by the need to overcome energy shortages and by the rising marginal cost of coal because of the exhaustion of the more easily accessible coal deposits.

Table II.14. Index of fixed assets in socialized industry, 1988
(1970 = 100)

Total industry	307.0
Industries	
Engineering	414.3
Metallurgy	312.1
Food industry	286.4
Fuel and power	286.2
Light industry	284.7
Wood and paper	276.9
Chemicals	274.6
Minerals	230.8
Branches	
Precision instruments	538.3
Electrical engineering and electronics	472.2
Metal products	445.2
Machinery and equipment	420.1
Garments	404.7
Transport equipment	359.0
Non-ferrous metals	358.7
Wood	332.1
Power	308.2
Leather	303.2
Basic metals	295.5
Fuel	292.6
Food industry	286.4
Pottery and china	280.5
Chemicals	274.6
Textiles	271.8
Glass and glass products	266.0
Coal	256.8
Paper	229.2
Building materials	223.2

Source: Computed using *Statistical Yearbook of Industry 1989* (Warsaw 1990), Central Statistical Office.

Assets

The object of fixed investment is to create fixed assets in order to increase output and labour productivity. It is, therefore, instructive to look at the fixed assets growth in 1970–1988 (see Table II.14) of industries and branches (though this exercise is subject to the usual hazards concerning asset valuation and is obviously highly sensitive to the base year values).

It will be seen that total industrial fixed assets increased from 1970 to 1988 by 207 per cent. At the industry level, the growth of engineering assets far outstripped that of any other industry. This is seen also at the branch level, with the more sophisticated engineering branches showing very rapid asset growth.

The average rate of growth of industrial fixed assets was 10 per cent in 1970–1975, 8.6 per cent in 1975–1980 and about 3 per cent over the period 1980–1988. Over the period 1970–1988, fixed assets grew at an average rate of 8.3 per cent in the engineering industry (9.8 per cent in precision instruments), 6.5 per cent in metallurgy, and 6 per cent in the food industry, light industry and the fuel and power industries.

Capital productivity

The growth of fixed assets in 1970–1988 may be compared with the growth of output to give a measure of incremental capital productivity. Table II.15 presents the data for all industries and branches in descending rank order. It is notable that there are only two industries – chemicals and engineering – in which production grew faster than fixed assets over the period 1970–1988. Similarly at the branch level there are only five (three of them in engineering) out of 19 branches where this is true. (Chemicals is treated as both a branch and an industry.)

Table II.15. Ratio of growth of sales to growth of fixed assets, 1970-1988

Total industry	64.0
Industries	
Chemicals	123.3
Engineering	101.4
Wood and paper	87.6
Light industry	77.1
Minerals	68.8
Metallurgy	44.0
Food industry	29.3
Fuel and power	23.9
Branches	
Pottery and china	187.6
Precision instruments	171.6
Chemicals	123.3
Machinery and equipment	121.9
Glass and glass products	117.7
Electrical engineering and electronics	112.8
Wood	81.9
Transport equipment	80.8
Textile	79.6
Paper	75.8
Leather	67.0
Metal products	66.7
Garments	59.9
Non-ferrous metals	57.8
Building materials	46.1
Power	41.9
Fuel	39.4
Basic metals	36.7
Food industry	29.2
Coal	14.3

Source: Computed using *Statistical Yearbook of Industry 1989* (Warsaw 1990), Central Statistical Office.

Table II.15 indicates that in most industries and branches capital input grew faster than output, and therefore that capital productivity declined over the period. However, caution is required in interpreting these data. First, cyclical variations in output can cause sharp variations in the productivity of capital measured in this way. While the length of the period 1970–1988 helps to dampen out this effect, it remains true that in 1988 Polish industry had still not fully recovered from the recession of the 1980s. Therefore it appears likely that the 1988 capacity utilization levels were lower than those of 1970, depressing capital productivity below its potential value. A second source of bias in the data presented in Table II.15 derives from the price distortions, discussed earlier, which influence the valuation of industry and branch outputs.

However, the most important reservations relate to the valuation of assets. As in other countries, valuation methods used by accountants and statisticians do not always adequately capture the true value of an asset, which relates to that asset's potential for generating marketable, profitable output. In addition, depreciation allowances are notoriously conservative, as is indicated by the small difference (around 6 per cent in recent years) between gross and net national income. It seems likely that the valuation placed on many assets in Polish industry greatly exceeds their true value, but it is impossible to assess the extent of this or the extent to which it varies between industries.

In addition to these two practical problems of measurement, there are also conceptual difficulties to be considered. In assessing capital productivity it is necessary to take account of changes in labour input. Economic theory suggests that an increase in capital per worker will result in a less than proportionate increase in output per worker, due to the phenomenon of diminishing

Table II.16. Average annual growth of total factor productivity, 1970-1988
(Percentage)

Industries	
Engineering	3.8
Light industry	2.7
Wood and paper	2.7
Chemicals	2.6
Food industry	1.6
Minerals	0.1
Metallurgy	-0.2
Fuel and power	-2.4
Branches	
Precision instruments	9.7
Electrical engineering and electronics	6.3
Pottery and china	4.9
Machinery and equipment	4.6
Garments	4.2
Glass and glass products	4.0
Leather	3.6
Wood	3.5
Chemicals	2.6
Non-ferrous metals	2.6
Transport equipment	2.4
Textile	1.9
Food industry	1.6
Metal products	1.4
Paper	0.6
Fuel	0.3
Building materials	-1.1
Basic metals	-1.8
Coal	-2.6
Power	-6.6

Source: Computed using *Statistical Yearbook of Industry 1989* (Warsaw 1990), Central Statistical Office.

marginal productivity, unless the forces of technical progress or economies of scale are sufficiently powerful to compensate for this. Thus a decline in capital productivity is not necessarily a sign of inefficiency in any simple sense, but could reflect any combination of three factors: relatively slow growth of the labour force, diminished scope for technical progress due to Poland having reached the technological frontier, and exhaustion of opportunities to achieve economies of scale.

To correct for changes in labour input, a calculation of changes in total factor productivity has been performed. In broad terms the growth of total factor productivity measures the extent to which output growth is greater than can be attributed to the growth of capital and labour inputs. The values of total factor productivity growth encompass all factors other than the growth of capital and labour inputs which affect output: organizational factors, technological progress, scale economies, qualitative changes in inputs and outputs, and many other factors. Table II.16 shows the average growth of total factor productivity in branches of industry ranked in descending order over the period 1971–1988.

G. INDUSTRIAL EXPORTS AND IMPORTS

Rapid growth of exports caused Poland to climb in the ranking of countries by total exports from 26th place in 1950 to 15th place in 1978. In the 1980s, trade and financial restrictions and poor supply performance caused Poland to slip back to 19th place. In 1988 Poland's ratio of merchandise exports to GNP (18.7 per cent) was comparable with that of the United Kingdom (19.8 per cent).[7]

Throughout the past 40 years, industrial products have contributed 90–95 per cent of Poland's exports. In 1950, the major exports were fuels and coal (41.3 per cent), food (16.8 per cent) and textiles, garments and leather (10.6 per cent). However, this structure has changed radically over the years, reflecting the changes in industrial output. Engineering and chemicals have greatly increased their shares while fuel and power, light industry and food have lost their dominating positions.

In recent years the major industrial exports have been engineering goods, which accounted for 43.2 per cent of the country's industrial exports in 1989 but fell to 33.4 per cent in 1990 (see Table II.17). Metallurgical and chemical products had equal shares of 11.8 per cent, while fuel and power exports accounted for 10.8 per cent in 1989. In 1990 the share of metallurgical products in industrial exports surpassed that of chemicals. Exports of fuel, power and chemicals are concentrated on a small number of products; coal exports represent about 70 per cent of fuel and power exports, while sulphur and pharmaceuticals account for about 36 per cent of chemical exports. Engineering exports are much more diversified, comprising metal products, tools, machinery, transport equipment, precision instruments, laboratory equipment, medical equipment, etc.

There have been marked shifts in the relative importance of Areas I (non-convertible currency area) and II (convertible currency area) as markets for Poland's exports.[8] In 1950, 57 per cent of exports went to socialist countries. This share increased to 63 per cent in 1960 and 64 per cent in 1970. Subsequently, as a result of opening the economy to hard currency markets, exports to socialist countries declined to 56 per cent in 1980 and 46.5 per cent in 1988. Export to the non-convertible currency area accounted for only 33.9 per cent in 1989.

The structure of industrial exports to Area I is very different from that to Area II (see Table II.17). Exports to Area I are predominantly engineering products (72 per cent in 1990), followed by chemicals (12.1 per cent) and fuel and power (8.3 per cent). This structure reflects the traditional role of Poland in the CMEA's division of labour.

Table II.17. Composition and direction of industrial exports, 1986-1990
(Percentage)

	1986	1987	1988	1989	1990
Total industry	100.0	100.0	100.0	100.0	100.0
Fuel and power	14.5	12.4	11.3	10.8	11.9
Metallurgy	8.4	9.4	11.0	11.8	16.8
Engineering	46.1	43.9	43.4	43.2	33.4
Chemicals	11.5	11.6	12.1	11.8	13.6
Minerals	1.1	1.3	1.4	1.5	1.9
Wood and paper	2.5	3.3	3.7	3.3	4.1
Light industry	7.1	7.7	7.3	6.2	6.7
Food industry	8.2	9.8	9.3	10.8	10.8
Total Area I[a/]					
Industry	100.0	100.0	100.0	100.0	100.0
Fuel and power	8.9	8.0	8.7	6.7	8.3
Metallurgy	4.2	4.0	3.4	3.3	2.1
Engineering	66.5	67.2	67.9	72.5	71.9
Chemicals	10.1	10.6	10.6	10.3	12.1
Minerals	0.6	0.6	0.5	0.5	0.5
Wood and paper	0.9	1.0	0.9	0.6	0.6
Light industry	5.8	6.0	5.3	3.8	2.2
Food industry	2.3	2.0	1.9	1.6	1.5
Total Area II[b/]					
Industry	100.0	100.0	100.0	100.0	100.0
Fuel and power	19.3	15.3	13.0	12.9	12.6
Metallurgy	11.9	13.1	16.1	16.0	19.8
Engineering	28.8	28.1	27.2	28.4	25.7
Chemicals	12.7	12.3	13.0	12.6	13.9
Minerals	1.6	1.8	1.9	1.9	2.2
Wood and paper	3.9	4.9	5.4	4.7	4.9
Light industry	8.2	8.8	8.6	7.4	7.7
Food industry	13.1	15.1	14.1	15.4	12.7

Source: Calculated using Central Statistical Office data.

a/ Area I refers to trade conducted in transferable rubles.
b/ Area II refers to trade conducted in hard currencies and with currency clearing arrangements.

In contrast, industrial exports to Area II are much more diversified, and the structure based more heavily on natural resources rather than engineering products. In 1970 the major exports included food (25.9 per cent), fuel and power (16.8 per cent), while engineering products accounted for only 16.7 per cent. By 1989, engineering products had grown to 28 per cent of the total, while food had declined to 15 per cent. Their respective shares fell in 1990. The sharp decline in the share of food was due to the policy of protecting domestic consumption. On the other hand the export performance of engineering products was frequently frustrating in the 1980s due to the suspension of licensing agreements with partners from DMEs, declining product quality, discontinued and uncertain supply, and enforced substitution of domestic for imported raw materials and other inputs. This resulted in a loss of convertible currency markets for many products, and products were redirected in many cases to CMEA countries.

Metallurgical products (19.8 per cent in 1990) figured much more prominently than in trade with Area I. Fuel and power (12.6 per cent) and chemicals (13.9 per cent) also constitute major exports, together with light industrial products such as textiles, garments and leather (7.7 per cent of exports to hard currency countries in 1990). The dependence on natural resource-based exports is reflected in the fact that coal and coke exports represent over 9 per cent of exports to the convertible currency area, while exports of coal, coke, copper,

Fig. II.H. Structure of industrial exports, 1990 (Percentage)

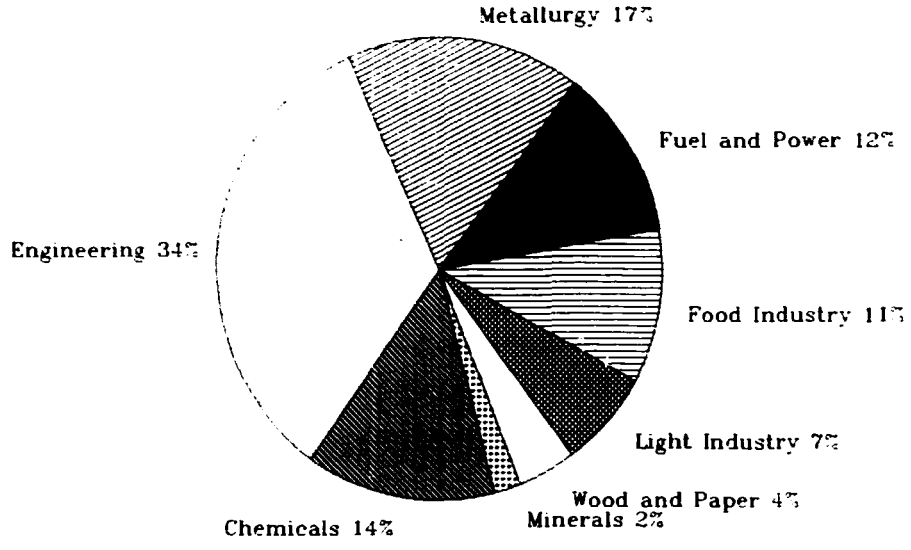
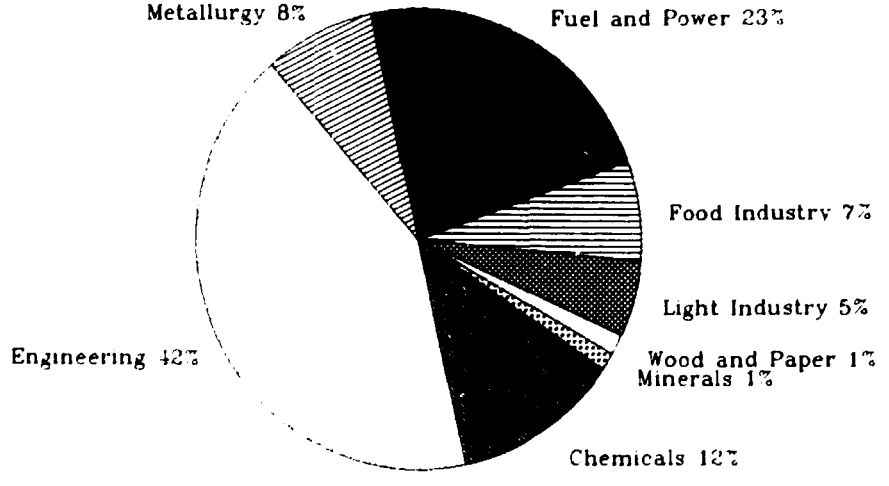


Fig. II.I. Structure of industrial imports, 1990 (Percentage)



zinc, silver, and sulphur account for 18 per cent of convertible currency revenues. In terms of product lines, exports to convertible currency area are much more specialized than exports to non-convertible currency countries.

The growth of export volume to both Areas in recent years has been quite strong. Between 1985 and 1989 the overall volume of industrial exports expanded by 20.1 per cent, the average of 18.8 per cent growth in exports to Area I and 21.5 per cent growth in exports to Area II. The growth to 1988 was even stronger, since in 1989 exports of most industrial branches to both Areas declined. The decline in exports to Area I in 1989 was particularly pronounced.

As in most industrial countries, international trade has been growing faster than domestic production and intra-industry rather than inter-industry trade has predominated. The ratio of average export to industrial sales was 18.7 per cent in 1989, rising to 22.8 per cent in 1990, compared with 13.5 per cent in 1986 (Table II.18). For engineering this ratio reached 32.4 per cent in 1990, for chemicals 32.1 per cent, metallurgy 26.5 per cent, and for fuel and power 15.0 per cent. The ratio is very high for several products, for example frozen fruits (84.5 per cent in 1989), canned ham (83.6), sulphur (77.5 per cent), silver (65 per cent), copper (41.5 per cent), slaughterhouses (58.8 per cent), passenger cars (38.4 per cent) and refrigerators (34.3 per cent).

Table II.18. Exports as percentage of industry sales, 1986-1990

	1986	1987	1988	1989	1990
Industry	13.5	15.9	17.6	18.7	22.8
Fuel and power	12.7	12.5	12.4	16.7	15.0
Metallurgy	11.4	14.3	18.3	20.1	26.5
Engineering	24.7	27.2	29.7	32.1	32.4
Chemicals	18.0	20.4	22.8	24.8	32.1
Minerals	4.2	5.9	6.9	7.6	12.0
Wood and paper	8.1	12.3	15.8	14.0	23.1
Light industry	8.8	11.4	11.7	9.8	22.1
Food industry	5.6	8.4	9.2	9.6	13.6

Source: Calculated using Central Statistical Office data.

Industrial imports

In 1950, engineering goods contributed 33.4 per cent, light industrial products 22.6 per cent, chemicals 10.1 per cent, and metallurgy 9.7 per cent of total imports. Over the decades, the main structural shift has been the decline of light industry imports and the emergence of significant imports of fuels and food. In 1990, Poland's imports were dominated by engineering goods (41.3 per cent), followed by chemicals (11.9 per cent), fuels and power (22.4 per cent) and food (6.9 per cent) (see Table II.19).

Imports from CMEA countries comprise mainly engineering products (51.9 per cent in 1990) and fuels (25.4 per cent). Crude oil accounted for 15 per cent of imports from CMEA countries, natural gas for 7.9 per cent, and petroleum and gasoline products for 5.9 per cent in 1989. Imports from CMEA are much less diversified than imports from the convertible currency area.

In the structure of imports originating from the convertible currency area, engineering products accounted for 39.1 per cent in 1990, while chemicals and food products accounted for 13.0 per cent and 7.9 per cent, respectively, in 1990. The growth in imports of capital and equipment from hard currency areas is increasingly influenced by the changing pattern of industrial modernization. As with the exports/sales ratio, the ratio of imports to total sales by domestic producers has been rising in recent years (Table II.20). The average ratio for all industry was 15.2 per cent in 1989, falling to 14.7 per cent in 1990. Among the branches of industry the highest ratio in 1990 was for engineering products (25.9 per cent).

Table II.19. Composition and origin of industrial imports, 1986-1990
(Percentage)

	1986	1987	1988	1989	1990
Total industry	100.0	100.0	100.0	100.0	100.0
Fuel and power	21.5	18.1	15.8	13.3	22.4
Metallurgy	8.4	8.6	8.5	9.2	7.9
Engineering	37.0	37.4	37.8	39.0	41.3
Chemicals	14.3	16.8	16.8	15.8	11.9
Minerals	1.5	1.4	1.3	1.3	1.2
Wood and paper	1.8	2.0	2.1	2.0	1.4
Light industry	6.2	5.8	6.6	8.0	5.3
Food industry	7.9	8.4	9.4	9.6	6.9
Total Area I[a/]					
Industry	100.0	100.0	100.0	100.0	100.0
Fuel and power	34.8	31.8	29.4	28.6	25.4
Metallurgy	7.5	7.8	7.3	7.7	6.7
Engineering	42.0	43.6	46.4	45.3	51.9
Chemicals	6.6	7.5	7.3	7.2	6.6
Minerals	1.3	1.4	1.3	1.7	1.7
Wood and paper	2.0	1.8	1.8	2.1	1.2
Light industry	2.7	2.6	3.1	4.1	3.2
Food industry	2.0	2.4	2.2	2.3	2.0
Total Area II[b/]					
Industry	100.0	100.0	100.0	100.0	100.0
Fuel and power	6.7	6.1	5.9	5.8	21.8
Metallurgy	9.4	9.4	9.4	9.9	8.1
Engineering	31.4	32.0	31.5	35.9	39.1
Chemicals	22.9	24.9	23.8	20.1	13.0
Minerals	1.7	1.4	1.2	1.1	1.1
Wood and paper	1.6	2.2	2.3	2.0	1.5
Light industry	10.0	8.5	9.1	9.9	5.7
Food industry	14.4	13.7	14.6	13.1	7.9

Source: Calculated using Central Statistical Office data.

a/ Area I refers to trade conducted in transferable rubles.
b/ Area II refers to trade conducted in hard currencies and with currency clearing arrangements.

Table II.20. Imports as percentage of industry sales, 1986-1990

	1986	1987	1988	1989	1990
Industry	13.3	14.8	15.0	15.2	14.7
Fuel and power	18.5	17.0	15.8	16.7	18.3
Metallurgy	11.3	12.3	12.9	12.8	8.1
Engineering	19.6	21.6	23.6	23.7	25.9
Chemicals	22.2	27.7	29.0	27.1	18.3
Minerals	5.5	5.8	5.8	5.5	5.0
Wood and paper	5.8	7.1	8.4	7.0	5.1
Light industry	7.5	8.0	9.6	10.3	11.1
Food industry	5.3	6.8	8.5	6.9	5.6

Source: Calculated using Central Statistical Office data.

Fig. II.J. Destination of industrial exports, 1990 (Percentage)

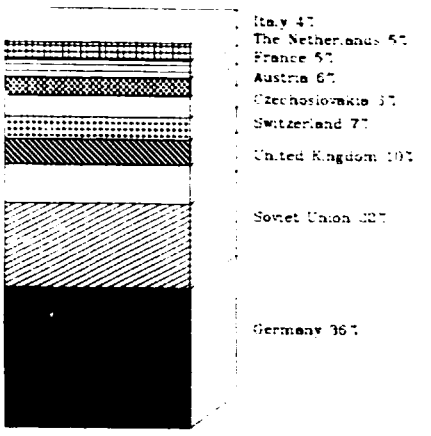
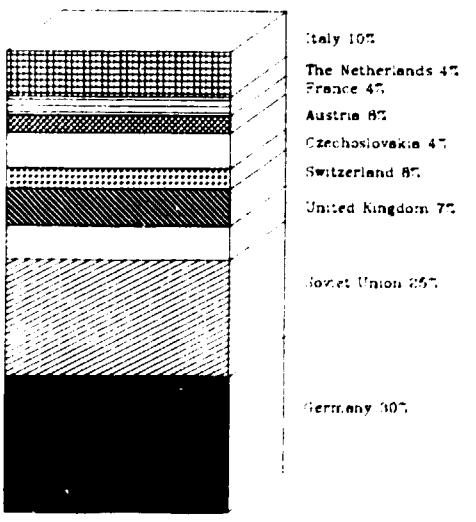


Fig. II.K. Origin of industrial imports, 1990 (Percentage)



While the volume of imports from the convertible currency area has been growing rapidly in recent years, import volumes from the non-convertible currency area have been relatively stagnant. The former rose by 35 per cent during 1985–1989 while the latter rose only 9 per cent. This clear shift of the sourcing of imports from the non-convertible to the convertible currency area was not the conscious result of trade policy, but reflected supply difficulties in the Soviet Union and the increasing autonomy of Polish enterprises.

Trade balance

Poland experienced large trade deficits in the 1970s due largely to the policy of rapid industrialization based on imported machinery and technology. Trade with Area I was broadly balanced in the 1970s, but the trade deficit with the convertible currency Area II was $2,101 million in 1974, $2,540 million in 1975, $2,884 million in 1976, and $2,143 million in 1977. Thereafter the deficit with Area II declined and from 1982 Poland has had trade surpluses with the convertible currency area. In contrast, the balance with Area I moved heavily into deficit in 1980–1986 but since then has shown an increasing surplus.

Although a trend downward in the trade surplus in the 1980s is apparent, it should be recalled that the early 1980s were years of acute recession which depressed import demand, and further that foreign exchange restrictions were progressively eased in the second half of the decade. Moreover the surplus with Area II remains substantial; it was equivalent to 13 per cent of exports in 1988 and 9 per cent in 1989.

Changes in the trade balance measured in dollars may be explained by reference to changes in the dollar prices of exports and imports and changes in export and import volumes. Poland's overall terms of trade with Area II were almost unchanged during 1985–1989. Thus, changes in the trade balance are explained almost entirely by changes in the overall volumes of exports and imports rather than by changes in their relative prices. As noted above, the growth in the volume of industrial imports from Area II in 1985–1989 was 35 per cent, while the corresponding figure for industrial exports was only 21 per cent. This may be compared with a growth of 24.2 per cent in the volume of OECD exports over the same period. Among industrial branches, the export volume performance by engineering was the most impressive, with a volume increase of 48 per cent during 1985–1989. At the other extreme, the volume of fuel and power exports declined by nearly 20 per cent.

It is also instructive to examine how price incentives for exports and imports in trade with Area II changed in the period 1985–1989. For exporters, a highly relevant question is whether the depreciation of the zloty keeps pace with the rise in domestic production costs which results from domestic inflation. Changes in the zloty/dollar exchange rate are given in Table II.21, together with the production costs of socialized industry. Also shown is the ratio of the former to the latter, which measures the dollar price of domestic output. This serves as an approximate measure of the real exchange rate.

It may be seen from Table II.21 that in 1985–1989 domestic production prices increased roughly seven-fold (strictly, by a factor of 7.455) while the zloty depreciated against the dollar by roughly ten-fold (strictly, by a factor of 10.217). In terms of domestic purchasing power, therefore, a dollar's worth of exports increased in value by 37 per cent in this period. This clearly made exporting a much more attractive proposition and helps to explain the relatively good performance of exports to the convertible currency area.

By the same reasoning, however, the cost in terms of domestic production of a dollar's worth of imports rose by 18.7 per cent, giving a strong price disincentive to import from the convertible currency area. The fact that, as already noted, import volume nevertheless rose by 35 per cent in the relevant period must be explained by structural and institutional changes:

Table II.21. Nominal and real exchange rates, 1985-1989

Indices, 1985 = 100	1985	1986	1987	1988	1989
Nominal exchange rates:					
Trade in rubles (zlotys per ruble):					
Exports	100.0	109.8	141.6	238.7	642.3
Imports	100.0	109.7	140.2	233.6	551.0
Trade in dollars (zlotys per dollar):					
Exports	100.0	120.8	184.8	294.4	1,021.7
Imports	100.0	120.0	183.6	291.0	884.7
Domestic production price index (socialized industry):	100.0	117.8	149.1	238.3	745.5
Real exchange rates:					
Trade in rubles:					
Exports (= real value of 1 ruble's worth of exports)	100.0	93.2	95.0	100.2	86.2
Imports (= real cost of 1 ruble's worth of imports)	100.0	93.1	94.0	98.0	73.9
Trade in dollars:					
Exports (= real value of 1 dollar's worth of exports)	100.0	102.5	123.9	123.5	137.0
Imports (= real cost of 1 dollar's worth of imports)	100.0	101.9	123.1	122.1	118.7

Source: Nominal exchange rates, *Foreign Trade 1989*, Central Statistical Office (Warsaw 1990).
Real exchange rates, calculated by deflating nominal exchanges rates by production price index.

the liberalization of foreign exchange procurement regulations in the latter 1980s, and the qualitative and quantitative inadequacies of alternative suppliers located within Poland or in the non-convertible currency area. In trade with this area, Poland has also enjoyed a surplus which has grown very rapidly in recent years.

Trade performance in 1990

The behaviour of foreign trade in the first half of 1990 was impressive. At the beginning of the year, the government had anticipated a huge trade deficit, yet the cumulative surplus after six months was 2,486 billion rubles in trade with Area I and $2,076 million in trade with Area II. The first figure was better than the surplus for the whole of 1989. The second figure was almost twice as large as the best annual trade surplus achieved in the previous three years ($1,235 million in 1987).

In explaining the dramatic improvement in the balance with the convertible currency area, reference must be made to exchange rate policy. As noted in Chapter I, from 1 January 1990 the official exchange rate was devalued to Zl 9,500 = $1, compared with an average of Zl 1,300–1,500 to the dollar in 1989. At the same time, foreign exchange transactions were liberalized and the various foreign exchange markets largely unified. This corresponded to a nominal devaluation of the zloty of more than 600 per cent, and this rate was maintained throughout 1990. As before, the change in the real exchange rate can be approximated by comparing this with the movement of producer prices in 1990. In January, producer prices doubled, but thereafter they grew slowly up to May (see Annex Table II.8). In broad terms therefore, between December 1989 and May 1990 there was a three-fold increase in the real value of a dollar's worth of exports (and by the same token a three-fold increase in the real cost of imports).

This enormous shift in relative prices may be expected to have large incentive effects on both exporters and importers, although experience of other countries teaches that there are considerable lags before the full behavioural response is reflected in trade volumes. The annualized value of exports to Area II in the first half of 1990, unadjusted for seasonal or cyclical factors, was 9.5 per cent above the level of 1989, while the corresponding figure for imports was 33 per cent lower. The corresponding volume changes were minus 8 per cent for exports and minus 36 per cent for imports. It is clear therefore that most of the improvement in the trade balance comes from a dramatic fall in imports. This in turn may be attributed largely to the decline in domestic economic activity: in the first half of 1990 average monthly sales of the socialized sector were 17.1 per cent lower than in December 1989 and about 30 per cent lower than the first half of 1989.

As noted above, the improvement in the trade balance with Area I has been almost equally dramatic. In explaining this, there is obviously a smaller role for the effects of price incentives. In current rubles, both exports to and imports from Area I declined in the first half of 1990. At an annual rate, without seasonal or cyclical adjustment, the value of exports was 10.4 per cent below its 1989 level and the value of imports no less than 41 per cent down on 1989. The corresponding volume figures were a 14 per cent increase in export volume and a fall of 30 per cent in imports. Once again, the improvement in the trade balance is predominantly due to a fall in import volume associated with the recession in Poland.

Terms of trade and international competitiveness

Year to year changes in the values of exports and imports are attributable partly to changes in prices and partly to changes in quantities. Changes in the prices of exports relative to imports (the terms of trade) serve as a measure of international competitiveness. Net foreign and transaction price effects and changes in the purchasing power of exports will be discussed. By comparing trade value indices with volume of trade indices, tables with transaction price indices (implicit price indices) are obtained. These serve together with statistical average foreign exchange rates to calculate foreign price indices. Price effects are then calculated using trade values and price indices.

The results of this exercise show that, in general, foreign price changes in trade with the non-convertible currency area were advantageous for Poland in 1986–1989. Yearly benefits in transferable rubles (TR) were TR 455.6 million in 1988 and TR 576.1 million in 1989. For industrial exports and imports, price effects were TR 409.2 million and TR 436.9 million respectively. In 1989, this effect was achieved mainly thanks to engineering goods (TR 678.2 million), food processing (TR 79.2 million) and fuel and power (TR 59.3 million). The price changes of other groups of products were disadvantageous.

Foreign price changes in trade with the convertible currency area were also beneficial. Net export revenue was increased, due to positive price changes, by $82.5 million in 1986, $111.2 million in 1987, $57.8 million in 1988 and $128.9 million in 1989. Positive price changes were achieved in the trade of food ($164 million) and light industry ($83.3 million). Negative price changes in the engineering trade resulted in a deficit of $320.3 million. Terms of trade changes have been positive for Poland in the past four years. There was one industrial group – engineering goods – with positive terms of trade over the whole period 1986–1889, but only in trade with the non-convertible currency area.

Prospects

Clearly the depth and duration of the current recession constitutes one of the most important yet most imponderable influences on Poland's trade balance. Of equal importance, however, are the responses of traders to the price incentives resulting from the devaluation of January 1990. So far, these incentives have not been significantly eroded by domestic inflation, and

the credibility which the government's economic strategy enjoys suggests that economic agents will regard the newly prevailing domestic/foreign price structure as likely to last. If so, they may be expected to adjust their behaviour with consequent improvement to the underlying trade balance, which would mean that the balance would remain in surplus despite a recovery in the domestic economy.

Forecasting Poland's trade balance is rendered even more difficult by a major structural change which is imminent. From 1991, trade with Area I will be conducted in convertible currency within the framework of bilateral clearing agreements currently under negotiation. This together with the change of the economic strategy in the Soviet Union means a major challenge for Polish industry which has hitherto enjoyed secure markets in Area I, particularly for engineering products. These exports are likely to face considerable competition from developed market economies in Europe and from Asian producers. This will cause major pressures for adjustment in the segments of industry concerned.

Estimating the overall effects of this on Poland's trade balance is complex and controversial. In general, under the previous system of trade, prices and exchange rates within the CMEA, Poland benefited from cheap imports from socialist countries (especially the Soviet Union). On the other hand, it had to subsidize exports to CMEA countries. An attempt was made to estimate the benefits and losses from the pending policy shift, using data for trade with Area I in 1989. Benefits in imports were computed as the differences between their value in hypothetical DMEs prices and their actual value in ruble prices. Losses in exports were computed using the same formula, but with a minus sign. For the 48 exported and 40 imported products examined the estimated net loss was about $2.6 billion. However, this result depends on the strong and indefensible assumption that no quality differences exist between products exported to the two areas.

The overall effect on the trade balance can be computed by making a further strong assumption, namely that the distribution of benefits and losses is the same for total exports and imports as it is for the groups of products for which the above estimate was made. The net loss is then only about $1.8 billion. But this calculation assumes that the total value and the structure of trade is not modified. It cannot be accepted as a prediction for 1991, because enormous changes of exports and imports structure have already occurred in 1990 and further shifts are inevitable in 1991 and the subsequent years. It is very difficult to forecast the behaviour of prices in trade with CMEA countries. The Soviet market is so huge that even under new currency settlement arrangements there will probably be deviations from the current structure of world prices. For Poland, this means that many previously subsidized products will be sold with higher prices and profits. But certainly, adjustment in engineering production will be necessary. For fuel and coal products, the calculations are more firmly based because the products are relatively homogeneous. Here the computed net loss is about $0.6 billion ($1.1 billion loss in imports of crude oil, petroleum and gasoline products and $0.5 billion in benefits from the rise of coal and coke prices).[9]

Prospective changes in trade with Area I go beyond the decision to conduct such trade in convertible currencies. Of equal, if not greater importance, is the decision by the Soviet Union to allow all Soviet trade and industrial enterprises and organizations to make free trade contacts. In the past most trade with the Soviet Union and other CMEA countries was determined by yearly protocols signed bilaterally by governments. This will have far-reaching effects. All in all, the absence of a clear financial and institutional framework in the Soviet Union is likely to discourage trade with Soviet enterprises.

H. INDUSTRIAL CONCENTRATION, OWNERSHIP PATTERNS, AND LOCATION

Industrial concentration, i.e., the concentration of assets and/or product market shares in the hands of a small number of enterprises, has concerned economic analysts of Poland in recent years.[10] It has important implications for the success of privatization, because the transfer of ownership of enterprises into private hands will do little to promote competition and efficiency if assets and market shares remain concentrated among a relatively small number of enterprises.

In 1988 the 500 largest enterprises accounted for 56.9 per cent of total industrial sales (excluding coal mining). The 300 largest accounted for almost 50 per cent and the 100 largest enterprises for 33.7 per cent of sales. Data presented in Table II.22 reveal a very high degree of sales concentration by the 500 largest enterprises at the branch and sub-branch level. This producer concentration has important implications for the new government's policy of promoting competition.

The new government which took office in 1989 has consciously set aside its powers over individual enterprises and is resolved, subject to some exceptions discussed below, that henceforth the growth or decline of enterprises will be determined by their performance in the market-place.

Table II.22. Sales concentration in socialized industry, 1988

Industry	All socialized enterprises	Enterprises in Top 500	
	Number	Number	Share of branch or sub-branch sales (Percentage)
Fuel and power			
Coal	95	a/	
Fuel	35	14	73.28
Power	90	0	0
Metallurgy			
Basic metals	41		
Iron and steel	27	22	102.8
Non-ferrous metals	32	7	64.9
Engineering			
Metal forming	861	30	51.56
Machinery and equipment	665	43	57.35
Precision instruments	155	9	49.15
Transport equipment	327	35	71.72
Electrical engineering and electronics	350	37	60.36
Chemicals	406	72	72.95
Minerals			
Building materials	313	13	23.93
Glass and glass products	84	3	23.05
Pottery and china	34	1	23.62
Wood and paper			
Wood	526	14	23.94
Paper	57	12	69.06
Light industry			
Textiles	393	56	50.11
Clothing	507	7	14.53
Leather	242	19	51.72
Food industry	887	97	69.05

Source: *Zarzadzanie* (various issues.)

a/ Excluded.

Now that enterprises are free to set their own prices and look to the market for their survival, the question is whether they will compete vigorously with one another over prices, costs, profit margins and market shares or whether on the contrary they will collude (explicitly or implicitly) in order to maximize their combined profits, stabilize market share and discourage new competition. In Poland, the likelihood of collusive behaviour is increased by several additional features of the present industrial environment: the absence of a capital market, or 'market in corporate control'; the low degree of product diversification of enterprises; and the role of workers' councils, which are likely to use such influences as they retain in the new environment to serve the producer rather than the consumer interest.

The consequences of all these factors may be seen in the response of enterprises to the recession of 1990. At the time of writing (and as discussed earlier) they have undertaken very little adjustment to the fall in sales. The priority of the typical enterprise is to protect employment and the wage fund, raising prices as far as the market will bear in order to maintain profits in the face of declining sales. Although profits have nevertheless fallen, the main impact of this is likely to fall upon investment, since in the absence of competition the incentive to invest (or to undertake any other form of risky and painful adjustment) is rather weak.

These problems are well recognized by government and the more enlightened and dynamic managers. To promote greater competition many policy measures have already been implemented or are under discussion. Probably the most important steps already taken are the liberalization of international trade and the encouragement of foreign investment. Privatization remains as yet no more than an objective. One may conclude therefore that the performance of industry is likely to continue to be disappointingly sluggish for some time yet.

However, the dynamism of at least a minority of Poland's industrial managers should not be under-rated. A notable feature of the industrial scene since the beginning of 1989 has been an accelerating change in the ownership pattern. Although nearly 93 per cent of the industrial output was still accounted for by the socialized sector (State enterprises and co-operatives) in 1989, a proliferation of private enterprises, mostly small units, has started to occur in Poland. As shown in Table II.23, no fewer than 2,552 new private companies were established in 1989 and by the end of the year there were 2,767 private companies in existence compared with 222 in January 1989. The number of persons engaged in industrial activity increased by 103,703 and reached 302,324 by the end of 1989. Such a spurt in the emergence of private firms should be interpreted with caution. They emerged from a low base and most of them were small companies. However, they are an important reflection of the extent to which the new government's reforms have rekindled private initiative and investment.

Table II.23. Changing industrial ownership pattern, 1989

	State enterprises and other socialized	Socialized public companies	Joint ventures	Private enterprises
Number of companies in January 1989	7,000	251	38	215
Newly established enterprises		551 a/	190	2,552
Number of enterprises in December 1989	5,046	802	228	2,767

Source: Central Statistical Office.

a/ Transformed from State enterprises, co-operatives and other socialized sector into public companies.

Another important development recently has been the transformation of State enterprises into public companies. This may be considered as a form of privatization, though without any public issue of shares. The number of State enterprises, co-operatives and other socialized entities was 5,046 in December 1989. By the end of 1989 there were 802 socialized public companies, compared with 255 in January 1989. Thus the number of socialized enterprises declined by 547, or more than one-tenth, in 1989; though in terms of sales and employment the decline was of course proportionately much less. During the same year, 190 joint ventures came on stream, increasing the number of joint ventures to 228 by end-1989, compared with 39 joint ventures in January 1989.

Thus, the private industrial sector is rapidly growing, but it remains small. In 1989, it increased its sales by 26 per cent, but these sales accounted for only about 7 per cent of total industrial sales. The private sector thus comprises exclusively small firms; average employment was 2.5 persons per private firm (including employed family members). However, private sector sales information may be under-recorded since these firms usually do not provide formal statistical returns nor do they have any formal book-keeping requirements. The private sector also includes 'Polonia' firms owned by foreign companies and nationals, mostly Polish expatriates.[11]

Industrial location

Industry as a whole is highly concentrated in certain administrative areas known as *voivodships*: Katowickie (18.2 per cent), Warszawskie (7.7 per cent), Lodzkie (4.4 per cent), Gdanskie (4.0), Krakowskie (3.8 per cent), Plockie (3.5 per cent), Poznanskie (3.4 per cent), Wroclawskie (3.4 per cent), Bielskie (3.3 per cent), Legnickie (3.0 per cent) and Opolskie (3.0 per cent). These 11 voivodships of a total of 49 contributed 57.7 per cent of industrial sales in 1988 (see Annex Table A-3).

At the level of individual industries, fuel and power are produced mainly in Katowickie (45.8 per cent), Plockie (17.0 per cent) and Gdanskie (5.4 per cent). Basic metals and non-ferrous metals are produced by Katowickie (45.4 per cent), Legnickie (20.2 per cent) and Krakowskie (12.9 per cent). Engineering production is produced in Warszawskie (15.4 per cent), Katowickie (12.2 per cent), Bielskie (5.5 per cent), Gdanskie (5.3 per cent). The location of chemicals production was much more diversified. The biggest centres of chemicals production are Katowickie (9.2 per cent), Warszawskie (7.3 per cent), Tarnowskie (6.9 per cent), Opolskie (5.9 per cent), Bydgoskie (5.7 per cent) and Tarnobrzeskie (5.7 per cent). Important areas for minerals production are in Katowickie (11.8 per cent), Kieleckie (6.7 per cent), Opolskie (6.6 per cent) and Walbrzyskie (6.3 per cent). Wood and paper manufacture is located in Bydgoskie (9 per cent), Katowickie (5.2 per cent), Elblaskie (4.5 per cent), Warszawskie (4.5 per cent) and others. The most important centres of light industry are: Lodzkie (19.4 per cent), Bielskie (6.5 per cent) and Walbrzyskie (5.9 per cent). The biggest food production centres are Poznanskie (7.6 per cent), Warszawskie (7.3 per cent), Szczecinskie (5.8 per cent), Gdanskie (5.3 per cent) and Katowickie (5.2 per cent).

Engineering production dominates in the voivodships of Warszawskie (51.2 per cent of that voivodship's production) (see Annex Table A-4), Pilskie (48.8 per cent), Kieleckie (43.8 per cent), Bielskie (41.9 per cent), and Tarnobrzeskie (40 per cent). Fuel and power is the dominating industry in Plockie (77.9 per cent), Katowickie (40.2 per cent) and Kkoninskie (36.9 per cent).

I. CURRENT CONSTRAINTS ON INDUSTRIAL PERFORMANCE

The central deficiency of Poland's industry is the very low productivity of both labour and capital, which results in low physical levels of output in relation to input levels as well as in poor output quality. Associated problems are poor utilization of primary and intermediate inputs and high levels of environmental pollution. In addition, the structure of productive

capacity is poorly matched to demand, and many products and production processes are technologically outdated. The problems of technological backwardness and poor product quality are particularly serious in their implications for Poland's international competitiveness and the possibility of generating larger trade surplus.

Although these problems are in part the result of insufficient and poorly-directed investment in the past, it would be a mistake to conclude that, for industry as a whole, a huge investment in modern technology is either necessary or sufficient to deal with these problems. To draw such a conclusion would be to risk repeating the mistake made in the 1970s. While a considerable volume of investment will undoubtedly be needed, this should be seen as a means of correcting the low productivity of existing capital and labour inputs and not as a means of compensating for it.

The problem of low productivity is the legacy of the centrally planned economy. The reform measures of the 1980s, together with the much more radical reforms more recently achieved within the context of the Solidarity government's structural adjustment programme, have almost completely swept away the complex apparatus of price controls, subsidies, administrative direction of enterprises and allocation of materials. In this sense the first, necessary steps towards structural reform of Polish industry have been taken. However, Poland's industrial performance remains heavily constrained: first, by the absence of a competitive market-driven industrial system which would promote technical and economic efficiency; and second, by the additional difficulties deriving from the current recession, itself the result of the stabilization programme.

Concerning the first of these, the absence (as yet) of competitive market structures and competitive behaviour in the socialized sector is due partly to structural and institutional features and partly to the behavioural characteristics of the product markets, the capital market and the labour market.

The functioning of markets

Most branches of industry are dominated by a handful of very large enterprises. Habits of co-operation between enterprises in order to overcome shared problems were fostered and developed under the previous system. Enterprises are not accustomed to dealing with one another, or with final buyers, through market behaviour. Relations between enterprises continue to be heavily governed by custom and practice, and by bargaining power which is related to the enterprise's size and also its position in the production hierarchy, particularly in 'downstream' enterprises. Pricing behaviour is heavily influenced by the legacy of price controls. When prices were regulated, 'cost-plus' pricing prevailed, which not only imparted rigidity to relative prices but meant that there was little incentive to attempt to cut costs. Enterprises have not yet learned a different approach. Competition in product markets remains a novel concept and one which seems to offer many risks and uncertain rewards.

These problems are exacerbated by enterprises' newly acquired autonomy. Under the previous system the State performed, however imperfectly, a supervisory function as the owner (or 'founder', in Polish terminology) of socialized enterprises. Now that the State has largely ceased to exercise this function, the newly autonomous enterprises are not effectively accountable to anyone for any aspect of their behaviour or economic performance; most especially, not for the efficiency with which they use their existing capital, nor for the productivity of new investment, provided that profits are sufficient to service their loans.

This lack of accountability arises also from the absence of a capital market. As yet, there is no market in financial assets and no market in corporate control. Privatization is still in its infancy and in the foreseeable future will be relevant to only a minority of enterprises. The goal of a sophisticated and competitive financial sector is still remote, and hence the

ability of the financial sector to contribute to restructuring and increased efficiency by achieving an improved allocation of capital will remain very limited.

The most tangible reform in capital markets is the establishment of positive real interest rates, but the gains from this step in itself are likely to be limited. As long as cost-plus pricing remains the norm, interest charges will simply be passed on in higher prices, thereby adding to the impetus of inflation. Second, large enterprises are able to exploit their market power to achieve the profits necessary to service their loans. Further, in the absence of a minimum-profit constraint it is not necessary that loan-financed investment should be productive in real terms, provided the enterprise is generating sufficient gross profit overall to service its loans.

Finally, and of almost equal importance as a constraint on industrial performance, a labour market in Polish industry cannot be said to have even begun to develop. At present there are only weak incentives, but strong constraints, on measures to increase labour productivity within enterprises. As noted in Chapter I, the New Employment Law of 29 December 1989 makes it possible for the first time for enterprises to declare groups of workers redundant. But given the strength of workers' councils, the lack of product market and capital market pressures on managers already noted, and social constraints, it is natural that protection of employment should remain a primary objective of enterprise behaviour. This means that productivity-raising measures will not be undertaken except where output is growing rapidly enough to make redundancies unnecessary, or alternatively where the enterprise faces such a severe crisis that collective solidarity breaks down. If these conditions are not fulfilled, neither productivity increases within enterprises nor the necessary redeployment of workers between enterprises and branches will occur, at least not on the required scale.

The wage system is also an important constraint on industrial performance. While the indexation system has proved its value as a counter-inflationary instrument, its longer term effects in rigidifying wage differentials and decoupling them from productivity are undoubtedly pernicious. Rigidity in differentials, together with other social and institutional barriers to labour mobility (such as the allocation of housing) have produced the result, that labour is almost totally immobile between enterprises, branches and industries. Further, inter-branch wage differentials (and to a lesser degree, inter-enterprise differentials) are quite unrelated to labour productivity. This prevents market incentives from operating to promote the necessary redeployment of workers. Flexibility is also required in inter-occupational differentials.

In sum, although some enterprises will behave dynamically to strengthen their positions and enhance the status and salaries of their senior managers, and privatization will impart a new stimulus, on the whole the forces of inertia are likely to remain paramount and to constrain industrial performance heavily.

The impact of the recession

The current recession resulting from the stabilization programme is also a constraint on industrial performance in some respects, although in other important ways it is therapeutic. Most obvious among the benefits is the fact that inflation is now under control (though not yet conquered) and thereby a major source of uncertainty for industry removed. The recession itself is a stimulus to industrial efficiency since it means that enterprises can no longer rely on being able to sell whatever quantity (and, more important perhaps, whatever quality) of output they produce. The ending of subsidies means that enterprises for the first time face the discipline of 'hard' budget constraints. The establishment of positive real interest rates forces enterprises for the first time to consider seriously the real productivity of existing and new investments.

The negative effects of the stabilization programme stem largely from its interaction with the absence of competitive markets. (For this reason, some observers doubt whether stabilization can truly succeed without structural adjustment.) Although the stabilization measures were intended to exert downward pressure on prices and wages, with the object both of stopping inflation and stimulating increased productivity, in practice the outcome has been mainly reduced production and profits. Enterprises have not declared workers redundant to any significant degree (most of the reduction in employment in the socialized sector has been voluntary) and the reduction in inflation comes not from any modification in wage and price-setting behaviour but from the interaction of cost-plus pricing with the very restrictive wage indexation coefficients. This problem is not unique to Poland, and reflects the shortcomings inherent in the use of demand management tools to achieve what are essentially supply-side objectives. The dilemma for the authorities is that any relaxation of policy stance may cause inflation to accelerate again. The alternative, of tightening policy still further in the hope that a sufficiently deep recession will enforce the necessary behavioural changes, is painful to contemplate.

NOTES TO CHAPTER II

1. Central Statistical Office, *Statistical Yearbook 1989* (Warsaw 1990).

2. Column 2 of Table II.1 is calculated on the assumption that Poland's GDP is 25 per cent larger than Net National Income Produced and that depreciation is 6 per cent of gross national income produced, the latter figure being representative for the 1980s.

3. Total production, i.e., global production in Polish statistical terms, includes each industry's absorption of its own production, while sales of an industry do not.

4. The estimated equation was $Y/L = 2.69 + 1.47Y - 0.39\ K/L$, where

   Y = growth of value added,
   L = growth of employment,
   K = growth of capital stock.

   The coefficient of Y was highly significant but that of K/L was marginally insignificant. The data set was industry and branch growth rates, 1970–1988.

5. In examining the share of investment in national income, it should be noted that this is normally measured in current prices. Since the price index of fixed investment has risen less rapidly than the price index of national income distributed this implies that a constant share of investment in national income corresponds to an increasing share in real terms.

6. Econometrically, the hypothesis is also borne out to some extent. A regression of the 1981–1988 growth rate of investment (Y) on the 1971–1980 growth rate (X), with industries and branches pooled, gives $Y = 3.7 - 0.5X$. The negative coefficient on X indicates that high growth rates of investment in 1971–1980 tend to be associated with low growth rates in 1981–1988. Both coefficients are significant, but the overall explanatory power is low (coefficient of determination is 0.1569, and correlation coefficient is -0.429).

7. For comparison, the corresponding ratios for some other countries were: the United States 6.4 per cent, Japan 10.3 per cent, Germany, Federal Republic of 28.5 per cent, Republic of Korea 40.1 per cent. See World Bank, *World Development Report, 1990*.

8. In this discussion of trade and balance-of-payments data, the terminology used is that which was current when the transactions took place. Thus, 'Area I' refers to all trade conducted in transferable rubles, 'Area II' refers to all other trade (in hard currencies and currency clearing arrangements). 'Socialist countries' refers to Albania, Bulgaria, China, Cuba, Czechoslovakia, Democratic People's Republic of Korea, German Democratic Republic, Hungary, Laos, Mongolia, Romania, the Soviet Union, Viet Nam and Yugoslavia. 'CMEA' comprises Albania, Bulgaria, Cuba, Czechoslovakia, German Democratic Republic, Hungary, Mongolia, Romania, the Soviet Union and Viet Nam. 'EEC' comprises Belgium, Denmark, France, Germany, Federal Republic of, Greece, Italy, Luxembourg, the Netherlands, Portugal, Spain, and the United Kingdom.

9. These estimates were made before the rise in world oil prices in August 1990.

10. See for example World Bank, *Poland: Reform, Adjustment and Growth* (Washington, 1987).

11. The role of these firms and joint ventures is discussed in Chapter III.

III

INDUSTRIAL STRATEGY AND THE INVESTMENT ENVIRONMENT

A. KEY ISSUES

The essence of the government's industrial strategy has been to withdraw from the supply side of the economy by making socialized enterprises autonomous. There are two major sources of uncertainty in this strategy: the strength of competitive forces in product, capital, and labour markets; and the lacuna on the question of ownership and control of socialized enterprises. These two are linked in several ways. For example competition in product markets could be strengthened by breaking up some of the largest enterprises, and this would require developing new structures of ownership and control. Similarly capital market development requires that the assets of socialized enterprises be marketable, which again requires new forms of ownership. Finally, competition in labour markets requires that the rights and obligations of workers' councils be settled more clearly, which impinges upon ownership and control.

Privatization is the spearhead of the government's plans for restructuring the ownership of the socialized sector to achieve enterprise accountability. The government's initial emphasis on privatization by the method of public subscription possibly reflected the advice it had received from the DMEs. In the latter part of 1990 the emphasis began to shift towards 'spontaneous privatization' in the form of joint worker/management buy-outs and a number of these are under way. This route is expected to be faster and more effective in achieving true enterprise accountability.

The possible conflict between the principle of workers' control and economic efficiency is an issue which needs to be resolved. However, whatever their merits on equity grounds, proposals for privatization based on such principles are open to the objection that they would hinder the creation of a unified market for capital which is arguably essential to increased efficiency. Although worker and management 'buy-outs' have sometimes been spectacularly successful in the DMEs, they have taken place in the context of large and fully functioning capital markets.

A fundamental problem stems from the absence in Poland of any market in shares (or indeed in any financial instruments). Privatization is not an end in itself but a means to greater efficiency. This requires that enterprises be cut off from the 'deep pocket' of the State budget; that their managers be selected for their competence in pursuing objectives, mostly profit, on behalf of the shareholders who employ them; and that this pursuit be conducted in

competitive rather than monopolistic or collusive markets. For this, as mentioned in Chapter I, the important requirement is the development of an efficient and unified capital market in which shares are traded freely at prices which accurately reflect the prospective profitability of the underlying assets.

The lamentable state of Polish industry and the urgent need to increase efficiency dictates that privatization should proceed as rapidly as possible. Yet even if very low valuations are placed on the assets to be sold, only foreigners and a few comparatively wealthy Polish citizens have the resources to take up a large volume of sales in a short time. According to official sources, in one year only five State-owned companies were sold. Of course, much of the time was spent on creating a proper machinery that could pick up qualified State-owned companies, assess their value, and prepare stock offerings. According to a government estimate, the country has $80 billion worth of property to be privatized. The available capital to buy State-owned enterprises was estimated at $10 billion in February 1991.

The speed of the programme of privatization through public share subscription in any case was confined perhaps to 40 enterprises by mid-1990. This still leaves around 4,000 socialized enterprises in industry. Uncertainty regarding privatization may be inhibiting enterprises from embarking on investment programmes and structural changes, since it is the more successful enterprises which will be selected for privatization. Progress with worker/management buy-outs may help resolve this uncertainty and also provide a route to the breaking up of the giant firms whose market dominance is such an obstacle to achieving effective competition. Particularly in the retail sector, 'spontaneous privatization' is going ahead rapidly; there were about 12,000 privatizations of shops in the first half of 1990, about 10 per cent of the total.

There is an urgent need to encourage risk-bearing and to create incentives facilitating the emergence of a new entrepreneurial group imbued with managerial talent. The new share-owning group must be induced to invest in risky ventures, reaping rich rewards for prudent management, with accountability for its failure. As mentioned in Chapter I, these requirements are essential for promoting efficiency and growth, but inevitably create inequalities.

While the government has no target or forecast for the overall level of industrial investment, nevertheless in its macroeconomic policy formulation the government must inevitably assess and make provision for the demands on resources as a response to the new environment. In the process of industrial restructuring itself, the experience of DMEs and newly industrializing economies suggests that there is an interventionist role for government in steering this even where market processes are reasonably efficient. Excessive faith in privatization and marketization is tending to move the government away from a non-interventionist position in Poland. Government failure to correct 'market failure' could also lead to distortions. Creative intervention to monitor the privatization process in an increasing market environment could further strengthen the new course of reforms.

B. FOREIGN INVESTMENT

The Polish Government and the public at large welcome foreign capital and the entrepreneurial, managerial, and technological skills which come with it. Since 1976 firms owned by foreigners (mostly Polish expatriates, hence known as Polonia firms) have been allowed to operate mainly in small-scale industry and services for the domestic market. They enjoy tax and foreign exchange advantages, and in 1986 employed 61,000 people. Politically, the Polonia firms have been a useful safety valve but given their low quantitative significance their contribution to overall economic performance has necessarily been slight.

In the 1980s the technological and entrepreneurial backwardness of the Polish economy, and its growing decapitalization, became increasingly plain. At the same time prospects of obtaining new lending from abroad were limited, to say the least. The government therefore began to encourage inward equity investment, over and above that by Polonia firms. An important step was the 1986 Foreign Investment Law. This permitted Polish State institutions or co-operatives to establish, subject to permission from the Polish Foreign Investment Agency, joint stock companies with participation of up to 49 per cent of the equity by foreign companies or Polish expatriates. A criterion in the granting of permission was that the joint venture should produce certain types of benefit: the introduction of modern technology, upgrading of product quality, or the promotion of exports. Such ventures enjoyed a tax holiday followed by further tax concessions and the right to retain 75 per cent of their foreign currency earnings. These earnings could be used to purchase imports and to transfer abroad profits accruing to the foreign partner.

Joint ventures were further liberalized by the Law on Foreign Investment of December 1988 which permitted foreign ownership of up to 100 per cent, with unconstrained use of foreign currency earnings to repatriate the foreign partner's profits (within a ceiling set by net export earnings). On the Polish side, participation of private companies and individuals as well as State enterprises was allowed. Tax concessions became more generous, especially in preferred sectors such as environmental protection and advanced technology. These changes made Polish regulations in this area among the most generous in the world.

Following the enactment of the December 1988 Law on Foreign Investment, the Foreign Investment Agency authorized 816 foreign investments in 1989, compared with 40 in 1988 and 13 in 1987. Data pertaining to 515 foreign investments authorized as of 1 October 1989 show that cumulative foreign capital contributions increased from $12.6 million at the end of 1988 to $79.4 million by 1 October 1989.[1] Around 20 per cent of foreign investors choose Warsaw or its immediate vicinity as their location. In the origin of foreign investments, the developed market economies, particularly those of Western Europe, predominate. Although sectoral classification of investment flows is hampered by the ambiguous way in which some of these investments have been classified, it was rather clear that the majority of foreign investments were in the manufacturing sector, which attracted 375 foreign investments representing about 73 per cent of the total as of 1 October 1989. These enterprises accounted for 68.7 per cent of the statutory capital, and for around 69 per cent of its foreign components (see Table III.1). Wearing apparel and food products attracted as many as 63 and 60 foreign investments, respectively, out of 374 investments in manufacturing. A total of 134 foreign investments, representing 35.8 per cent of the total in manufacturing occurred in the food, textiles, wearing apparel and leather industries. These industries had a consolidated share in the statutory capital of 20.8 per cent, and accounted for 22.3 per cent of the inflow of foreign capital. There were 38 undertakings in the manufacture of wood and wood products, and 29 enterprises in chemicals and plastics. The share of paper and paper products in total manufacturing was relatively small, but they accounted for 12.1 per cent of foreign capital in manufacturing. Their share in statutory capital was the highest. The engineering industry, including transport equipment, absorbed over 70 foreign investments authorized in manufacturing until 1 October 1989.

In the Law on Economic Activity with the Participation of Foreign Parties of 28 December 1989, some changes were made in the regulations governing joint ventures in order to harmonize them with the newly liberalized foreign exchange regulations and to facilitate future privatization. Subject to approval by the Minister of Finance, the foreign partner's contribution may now be made in zlotys, especially in the context of conversion of foreign-held Polish debt into equity.

Dividend repatriation is no longer necessarily constrained by net foreign currency earnings. From 1 January 1991 the foreign partner has had the right to transfer abroad 15 per cent

Table III.1. Foreign investment in manufacturing by industry branch, as of 1 October 1989

ISIC rev.3 CODE	Industry	Statutory capital			Number
		Total (Million Zl)	of which: (Million Zl)	Foreign (Million $)	
15	Food	11,822.3	6,152.7	7.5	60
16	Tobacco	0.0	0.0	0.0	0
17	Textiles	931.3	594.0	0.7	10
18	Wearing apparel	7,036.9	3,702.2	4.0	63
19	Leather	50.0	45.0	0.1	1
20	Wood and wood products	5,588.7	3,716.9	5.1	38
21	Paper and paper products	17,289.0	8,658.7	6.6	5
22	Publishing and printing	472.5	292.4	0.5	6
23	Coke, refined petroleum, nuclear fuel	144.0	71.7	0.1	3
24	Chemicals	9.422.5	4,644.1	5.8	16
	Of which:				
241	Basic chemicals	68.0	33.3	0.1	1
241	Other chemicals	619.5	372.1	0.5	9
	Of which:				
2423	Pharmaceuticals	226.0	96.4	0.1	2
2424	Cosmetics	310.7	221.8	0.3	5
	Other[a]	8,735.0	4,238.7	5.3	6
25	Rubber and plastics	1,518.6	798.6	0.9	13
26	Non-metallic products	5,466.5	2,812.9	3.3	28
27	Basic metals	790.5	379.0	0.3	6
28	Metal products	6,133.4	2,242.4	3.5	25
29	Machinery and equipment n.e.c.	6,919.8	3,202.8	3.9	27
	Of which:				
291	General purpose machinery	3,206.8	1,696.4	2.0	9
292	Special purpose machinery	3,369.0	1,318.2	1.7	14
	Of which:				
2921	Agriculture and forestry machinery	897.9	329.8	0.6	5
2922	Machine-tools	1,112.5	262.6	0.3	1
2925	Food processing machines	100.0	44.0	0.1	1
2926	Textile machinery	48.0	25.0	0.0	1
	Other[a]	344.0	188.2	0.2	4
30	Office equipment and computers	897.8	486.9	0.6	6
	Of which:				
31	Electrical equipment	426.9	290.2	0.3	5
32	Communication equipment	865.2	442.6	0.6	10
	Of which:				
3220	Televisions, radio transmitters	96.4	36.6	0.1	1
	Other[a]	768.8	406.0	0.5	9
33	Precision instruments	678.3	493.1	0.6	10
34	Motor vehicles	2,582.0	1,630.0	1.5	4
35	Other transport equipment	4,989.2	1,375.4	1.7	10
36	Furniture and manufacturing n.e.c.	2,777.1	1,167.1	3.0	12
37	Recycling	2,400.4	1,044.3	2.3	8
	Other[b]	2,073.3	1,822.0	1.9	8
Total in manufacturing		**91,275.9**	**46,055.0**	**54.7**	**374**
Percentage of total		**68.6**	**66.4**	**68.9**	**72.6**

Source: United Nations Economic Commission for Europe, *East-West Joint Ventures* (April 1990), No.4, p.16.

a/ Including activities not classified in specific manufacturing ISIC Group.
b/ Including activities not classified among manufacturing.

of any excess of dividend over net foreign currency earnings in the previous fiscal year. The foreign partner now no longer needs permission to finance investment from foreign sources. Joint ventures are taxed on the same basis as Polish companies, except for a three-year waiver of corporate income tax (six years for investment in preferred sectors). Procedures for most small-scale investments have been simplified. The law relating to Polonia companies was also liberalized on the same date.

The changes in the law in 1988 and 1989, together with the new economic environment, have had a major impact on the number of joint ventures. Between 1986 and 1988 less than 40 joint ventures had been established, but by December 1989 there were about 800, and by March 1990 there were 1,231 registered. Of these, 506 had partners in Germany, Federal Republic of, followed by Sweden (112), Austria (81), the United States (81), the United Kingdom (60), France (58), and Japan (1). Quantitatively, their importance is very small – the average investment was only $162,000 – but their psychological and demonstration effects are probably disproportionate to this.

Among the larger and more eye-catching joint ventures established in 1989-1990 were:

- The American Bank in Poland, the first bank to be established in Poland with majority foreign ownership.
- Chase-Polish American Cable Television, in which Chase Enterprises (United States) has a 70 per cent stake, to supply cable television initially in Warsaw and Cracow.
- ABB-Zamech, involving Asea Brown Boveri, a Swedish-Swiss electrical engineering group, and Zamech, Poland's biggest manufacturer of steam turbines and power plant equipment.

However, the inflow of foreign investment into Poland in 1990 was far less than had initially been hoped. Only about 2 per cent of the 3,000 joint ventures registered hitherto have foreign participation exceeding $500,000 and only 1 per cent of joint ventures involve investment about $3 million. Seventy per cent have less than $70,000 of foreign capital investment against the minimum of $50,000 required.

In a bid to attract foreign investors the Polish Government has drafted a new law expected to be enacted in mid-1991. The proposed new law offers more attractive terms, including the right fully to repatriate profits, a demand most often made by foreign investors. The draft states that investing in Poland no longer requires prior permission of the Foreign Investment Agency, except in strategic sectors such as arms and utilities and in State-owned companies with assets exceeding $6.87 million. The new law sets no minimum for investment. The law also grants the right to liquidate unsuccessful ventures immediately instead of after 10 years. It appears to be a major breakthrough. However, the draft restricts income tax exemptions, which used to be for three years automatically. The draft states that only investors committing more than $2.75 million in areas other than commerce and services will qualify for income tax exemption. This is indeed aimed at attracting big investors.

There are signs of major transnational corporations starting to arrive. Coca-Cola registered a subsidiary in early 1991 for bottling plants to come on stream by end-1992 in Warsaw and Gdansk. A 140 million joint venture with the Sandomierz Glass works to produce glass used in car windows has been announced by Pilkington PLC, the United Kingdom's biggest glassmaking firm.

There are also an increasing number of co-operative agreements between Polish enterprises and foreign partners which do not involve a foreign stake. Perhaps the best known of these is the long-established co-operation between Fiat of Italy and FSO in car production, which is expected to be renewed in the near future. Among recent new agreements is that between French railways (SNCF) and Polish State Railways (PKP) for modernization of the network, financed by a World Bank loan of $153 million.

C. INVESTMENT PRIORITIES

The official priorities for investment were published in July 1990. Priority areas are:

- Increasing export capacities. Here, eligible projects are those extending over not more than 3 years, with an internal rate of return of at least 18 per cent, and where export revenues within 4 years will cover all foreign investment costs;
- Infrastructural projects. Considered as a prerequisite of further development of international economic relations. These include:
  - telecommunications and postal services;
  - banking system and financial services;
  - air and sea ports; and
  - over the border road and ferry traffic.
- Indirect pro-export projects, i.e., projects for alleviating export bottle-necks in other industries or enterprises. These include the packing industry and quality control, product standardization or the dissemination of standards.
- Petrochemical and gas processing projects. Essential for the modernization of the existing plants and equipment and for speeding the growth of production capacities, especially considering the necessity to restore the country's energy balance.
- Rationalization projects. While sector programmes are not available, preferences should be given to projects concerning the following sectors, provided that they are consistent with the criteria and characteristics of the remaining groups of projects:
  - fuel and energy sector, except petrochemical and gas processing projects;
  - metallurgy;
  - cement industry;
  - chemicals;
  - ships' equipment; and
  - railways, i.e., the railway network, including the production of railway equipment.

The above list of priorities is taken into consideration only when the Polish investor applies to the government for official support, i.e., the guarantee of the national Bank of Poland and/or the government. Such a situation may occur when Polish commercial banks are unable to guarantee or initiate big credit transactions by themselves. Besides, some creditors require Polish Government support either for the whole of the credited programme, for example the World Bank, or for individual big projects.

Companies with foreign capital participation involved in the production of the following priority products across the subsectors of manufacturing are eligible for extra exemption from the income tax.

Food processing industry

1. Machinery and equipment for food processing and fast food technologies (including cooling and deep freezing equipment).
2. Production of baby foods and special dietary products.
3. Production of protein concentrates, animal feed additives and mineral premixes.
4. Potato processing.
5. Fruit and vegetables processing.
6. Herb raising and processing.

Production of pharmaceuticals and medical equipment

1. Medical and laboratory products.
2. Rehabilitation equipment.

3. Wheelchairs (with electric or combustion engines).
4. Pharmaceutical and herbal products.
5. Laboratory reagents, tests, isotopes and radioactive products, etc.

Chemical and paper industry

1. Highly concentrated fertilizers.
2. Crop protection products.
3. Polyester, styrene, epoxy and polyurethane.
4. Paper and boards.

Construction materials

1. Finishing equipment for civil buildings.
2. Electric tools.
3. Metal plumbing.
4. Plastic products for the construction building industry.
5. Finishing and insulating products, high quality and sanitary ceramics.
6. Energy, water and gas measuring equipment.

Environment protection

1. Equipment for the protection of environment.
2. Waste treatment plants (biological and mechanical).

Modern technologies

1. Introduction of energy-, fuel- and raw material-saving technologies, based on original scientific research, including patents, know-how and licences and their application to the manufacture of products.
2. Manufacture of energy-, fuel- and raw material-saving machinery and equipment.

Telecommunications, electronics and electronic products

1. Modern telecommunication equipment.
2. Telecommunication cables.
3. Computer systems, electronic data processing equipment and equipment for their production.
4. Industrial robots.
5. Technological and measuring equipment.
6. Equipment for surface assembly.
7. Modern electronic components (passive and active).
8. Materials for the electronics industry.
9. Quartz pipes and derivatives for the electronics industry.
10. Laminates for integrated circuits.

Manufacture of scientific and measuring equipment

Printing and office automation equipment

1. Printing equipment (including small scale).
2. Modern office automation equipment.

Products of the power industry

Finished products

1. New generation household equipment, of higher standards and exploitation parameters.
2. New generation appliances, on the basis of technologies not previously applied in Poland.
3. Metal-cutting tools.

Packaging

1. Packaging and package-producing equipment.
2. Packaging and packaging materials.

Transport

1. Manufacture of servicing equipment for rail, road, air and water transport.
2. Manufacture of equipment for the mechanization of freight loading.

The government has set up a special committee (the so-called Committee of Five) comprising the Ministry of Finance, the National Bank of Poland, the Ministry of Foreign Co-operation, the Central Planning Office and the Economic Committee of the Council of Ministers. The Committee's task is to establish priorities of these loans and analyse applications from Polish enterprises. The government could exert influence on the flow of investments into priority product areas and on the direction of foreign credits through the following means:

1. Budgetary guarantees and/or guarantees given to the National Bank of Poland for big credit transactions, when Polish investors apply for them. The applications have to be directed to the Commission for the Co-ordination of Foreign Assistance and Credits, which sends them to the Economic Committee of the Council of Ministers for decision, together with the following documents: the second microeconomic feasibility study (the first one has to be provided by the commercial bank); a project evaluation prepared by the National Bank of Poland from the point of view of the balance-of-payments requirements; a macroeconomic evaluation prepared by the Central Office of Planning; and the long-range budgetary evaluation prepared by the Ministry of Finance. The Commission has also the right to evaluate other projects of special importance for the economy;

2. Negotiations with international organizations and individual governments offering Poland their financial support and preferential credit, during which the terms of credits must be agreed. It is important to acquaint the creditors with the list of Polish priorities and to persuade them to formulate credit programmes in conformity with these priorities;

3. Control over the funds granted by the technical assistance programme to finance, among other things, feasibility studies and sectoral restructuring studies;

4. Government sector programmes which, it is expected, will serve as a guideline for taking decisions regarding credit guarantees and institutional and property policies; and

5. Fiscal instruments such as tax and tariff deductions.

A major priority of the government is the control of industrial pollution, which constitutes a major health hazard in some regions. A shift away from heavy industry towards a more balanced industrial structure and modernization of out-dated plant will automatically help in this direction, as will energy conservation measures which the government is promoting in conjunction with the World Bank. In addition, and of particular interest to foreign investors, the government has recently introduced tax concessions: expenditure on purchase and installation of equipment to protect the environment is fully allowable as an expense against company income tax (the tax rate being 40 per cent). Targets for reduction in pollution have been published for 80 enterprises.[2]

The same tax concession applies to construction and modernization of buildings in all sectors, while a 50 per cent allowance against company income tax will be given for purchase and installation of equipment and machinery used in agriculture and food processing, manufacture of building materials, and expenditure involving application of new technologies.

The government's investment priorities are supported by the international community. As is detailed in Section E below, the loans committed or in prospect from the World Bank, European Investment Bank, European Communities and other Western countries have been estimated to amount to $6 billion over the next 3–4 years.

D. RESTRUCTURING NEEDS AND INVESTMENT OPPORTUNITIES

Industrial restructuring will require considerable rationalization at the enterprise, branch and industry levels. This will involve technological upgrading of some plant and closures of others which are obsolete. At industry and branch level, the following priority areas may be identified:

- In the fuel and power industry, there are major problems. Increased coal production is necessary both for the domestic market and for export, but marginal cost is increasing rapidly due to exhaustion of the more easily won reserves. Modern techniques of coal treatment are also required to reduce pollution, and this is also true for coke and other coal products in the fuel branch. In the fuel branch too it is essential to increase natural gas production and distribution capacity to compensate for reduced supplies of oil from the Soviet Union. For the same reason, investment in ports, handling and storage facilities for oil are necessary to accommodate the likely shift in sourcing of supply away from the Soviet Union.
- In the steel branch of the metallurgical industry, and in the engineering industry, a major problem is that obsolete capital equipment makes it difficult or impossible in many cases to achieve product standards and quality which are competitive in world markets. Investment could prove highly profitable since workforce skills are high and wages are very competitive internationally. Another restructuring problem for engineering is the necessity for it to switch from its traditional dependence on machinery and transport equipment for export to the Soviet Union, since prospects there now seem gloomy for the foreseeable future.
- A third priority area is the paper branch, where there are long-standing deficiencies in both quantity and quality of supplies. Finally, one may identify the food industry as a point of serious weakness in the Polish industrial structure. The problems here are both organizational and technological. Lack of packaging, conservation and distribution are the main problems. A general problem facing the whole industry and indeed the economy is the poor state of the infrastructure – transport and telecommunications.
- Another important area in which the government has from the outset recognized an important role for itself is that of management training and management systems. The importance of this can scarcely be exaggerated. The legacy of the previous system has left a management cadre which lacks many of the basic skills and systems necessary for an enterprise to function in a market economy. While their skills in the production and technology areas are not in question, in areas such as financial control and marketing, managers lack even the most rudimentary knowledge and skills. They also lack the technology necessary for modern management information systems – principally, micro-computers – and are supported instead by a large number of clerks and administrators, another legacy of the past. In the most concrete terms, socialized enterprises are currently holding huge inventories of output which they would like to dispose of at knockdown prices to ease their liquidity problems, but lack the foreign contacts and domestic distribution networks which could make this possible. The government recognizes the importance of management training, as do the World Bank and foreign governments.

E. BILATERAL AND MULTILATERAL ASSISTANCE TO INDUSTRY

External assistance to the stabilization and adjustment programme has come in a number of forms and from a number of sources. The most important external source of support was the agreement signed with the IMF, since many other sources of assistance were implicitly or explicitly conditional upon this. On the signing of the agreement in December 1989 a standby loan of $700 million was made available by the IMF. A further $1 billion stabilization loan from the main industrialized countries, to support the internal convertibility of the zloty, was in principle agreed. Of this, $200 million was promised by the United States. Help in supporting the new exchange rate and liberalized payments regime also came from a Bank for International Settlements (BIS) bridging loan of $215 million. The improvement in the trade balance in 1990 has made it unnecessary to draw on these funds.

A second form of support is related to debt servicing. Recognizing Poland's minimal capacity to service debt in 1990, the Paris Club of official creditors agreed in February 1990 to reschedule the $3.4 billion unpaid in 1989 and all interest and principal due in 1990 and the first quarter of 1991 – a grand total of $9.4 billion. In March 1991, Western governments agreed to write off half of Poland's $33 billion of official foreign debt. Western governments have also indicated that they expect a corresponding concession from Poland's commercial bank creditors, to whom Poland owes approximately $10 billion, but at the time of writing no agreement had been reached.

Third, a number of other forms of external assistance have been given or promised in response to Polish requests:

- Responding to the food shortages which developed in the summer of 1989, food aid to the value of $302 million was agreed at a meeting of the Group of Seven (G7) in July. Shipments of foodstuffs from Austria, the EC, and the United States had reached Poland by late October. In the last quarter of 1989 credits of up to $500 million for food, raw materials and some medicines were also granted.

- In late October the EC Commission proposed an emergency aid package of $600 million for Poland and Hungary, half to come from the EC Budget and members' budgets and half from other OECD countries, mainly for agricultural support (machinery and pesticides) but also for management training and environmental improvements. In addition, the EC opened the door to Polish borrowing from the European Investment Bank (EIB). The EIB is likely to fund infrastructure investment in Poland (and Hungary) to a total of $872 – 1,090 million over the next 3 years at rates 2 per cent below commercial banks' rates. EC countries have also removed quotas on Polish (and Hungarian) goods with effect from 1990. But tariffs, including some quite high tariffs on agricultural products, remain.

- Although many offers of assistance to Poland from individual countries were forthcoming in 1989 and early 1990, these were in need of co-ordination. Two major initiatives have been taken by the European Community to improve co-ordination and step up the volume of assistance to Eastern Europe. One is the 'PHARE' programme which involves co-ordinating the responses of the 24 OECD members. The second is the European Bank for Reconstruction and Development, which has 42 members (including the USSR) and an initial capital of $12 billion. This new organization was formally established in April 1991, and is located in London.

- The Polish Government also requested that World Bank funding be approved for projects already agreed. The Bank had completed at least two major studies on sectoral prospects. Up to $260 million is earmarked for increasing the export capacity of Polish industry, and $100 million for agro-industries export development. In April 1990 the Bank approved credits of $250 million for natural gas investment with the possibility of a further $350

million. Energy conservation is a major focus. The Bank also approved $153 million in May for modernization of the rail transport sector, to which the European Investment Bank has added a further ECU 20 million ($26 million). In August 1990 the Bank announced a further loan of $300 million to finance imports of essential goods and to fund benefits and training for the unemployed. A total of $2,500 million could be available from the Bank over the next 3 years. Help from the International Financial Corporation (IFC) (the World Bank's commercial affiliate) to support the privatization programme is also likely.

A grand total of $8,489 million in loans has been granted or promised by foreign governments and international organizations over the next 3–4 years. This amount includes the following loans:

Source	*$ million*
IMF stabilization fund	1,000
World Bank	2,500
Austria	255
Belgium	86
France	699
Spain	140
Japan	850
Canada	20
Republic of Korea	450
Norway	22
Germany	1,162
Switzerland	105
United States	600
Italy	500

The Second Investors Forum for the Promotion of Foreign Investment, 21–24 May 1990, jointly organized by the Government of Poland and UNIDO, was aimed at promoting project ideas and familiarizing foreign businessmen with the legal, financial and practical aspects of establishing and operating joint ventures in Poland. The investment programme also aims at facilitating direct contacts between foreign businessmen and Polish entrepreneurs and enterprises. Two data bases containing 4,000 Polish business opportunities are also available.[3]

Poland has the honour of being the vanguard of economic reforms in Eastern Europe. The country's decisive attempt to achieve a successful transition hinges on external support. It is anticipated that UNIDO could play an active role in conducting analyses of industrial trends and feasibility studies in order to suggest viable means of rejuvenating the industrial sector.

NOTES TO CHAPTER III

1. A review of 515 foreign investments draws largely on information presented in *East-West Joint Ventures*, No. 4, April 1990, pages 6 – 17.

2. See *Rzeczpospolita*, 5th September 1990.

3. Information can be obtained from the Foreign Investment Agency. Further information on industrial investment opportunities can be obtained from:

   UNIDO Investment Promotion Service
   Stawki 2
   PL-00950 Warsaw
   Poland

   Tel: (00482) 6357112
   Fax: (00482) 6351260

   or

   UNIDO
   Department for Industrial Promotion, Consultations and Technology
   Industrial Investment Division
   P.O. Box 300
   A-1400 Vienna
   Austria

   Tel: (0222) 21131-3730 1
   Fax: (0222) 232156

IV

INDUSTRY BRANCH PROFILES: RETROSPECTS AND PROSPECTS

A. FOOD INDUSTRY: TOWARDS EFFICIENT RESOURCE USE

1. The resource base

Poland, once known as the 'bread basket' of Europe, is endowed with the largest area of arable land of all the countries in Eastern Europe. With the exception of maize, Poland ranks first or second in the annual volume of output of all the major crops in Eastern Europe. In 1988, Poland ranked as the largest potato producer in the world with a 12.8 per cent share of world production, the second largest rye producer with a share of 20.1 per cent and the sixth largest producer of sugar beet, accounting for 4.8 per cent of world sugar beet production. However, even by Eastern European standards, agricultural productivity has been low. Declining output across several crops, vegetables, fruits and products of animal origin is evidenced by data presented in Table IV.1. Among the Eastern European countries Poland ranked third in land and labour productivity in the 1950s. By 1980, it had fallen to sixth in terms of output per worker and in land productivity. The reason for the relatively low yields is attributed partly to the generally light and sandy soils. There is substantial scope for enhancing agricultural productivity through a more efficient usage of inputs of industrial origin.

In the face of almost virtual abolition of agricultural subsidies, the ability of farmers to adapt to a free market environment is crucial. Even under the previous regime over 75 per cent of Polish farmers retained their land ownership, and thus gained decades of experience in private farming. Farmers are being forced to change the character of production in order to specialize and to increase productivity. The larger and more efficient farmers tend to buy more land from less efficient farmers with a view to reaping economies of scale. As the farming community in Poland begins to demonstrate its ability to adapt to the changing situation, a serious problem relates to post-harvest wastage. According to the Ministry of Agriculture and Food Economy, over 10 per cent of agricultural production is wasted in transportation alone.

In food processing, the emphasis in the late 1970s was on meat processing in the face of rising livestock output, aided by increasing imports of feed concentrates. Emphasis is now being shifted to grain and dairy products processing, and to the processing of oils and fats. In these spheres of manufacturing, raw material supplies exceed processing capacities. Fruit and vegetable processing is also gaining importance. With adequate capacity to freeze and

Table IV.1. Agricultural resource base for food processing, 1980-1989
(In thousand tons unless otherwise specified)

Agricultural resources	1981-1985[a/]	1986-1989[a/]	1989
Crops			
Wheat	5,263	7,872	8,462
Rye	8,089	6,402	6,216
Barley	3,618	4,115	3,909
Oats	2,600	2,330	2,185
Potatoes	36,594	36,097	34,390
Sugar beets	15,606	14,162	14,374
Vegetables	4,709	5,485	5,436
Of which:			
Cabbages	1,545	1,692	1,617
Onions	437	555	564
Carrots	632	743	756
Cucumbers	325	373	352
Tomatoes	384	449	451
Fruits	2,273	2,010	2,078
Of which:			
Apples	1,508	1,282	1,312
Pears	102	57	59
Plums	135	82	75
Cherries	61	65	88
Cherries, sweet	31	17	17
Strawberries	198	280	269
Major products of animal origin			
Slaughter in terms of meat including fats and offal (warm carcass weight)	3,148[b/]	2,803[c/]	3,139
Meat fats, offal from commercial and farm slaughter (cool weight)	3,032[b/]	2,696[c/]	2,972
Of which meat: beef and veal	626[b/]	645[c/]	567
pork	1,418[b/]	1,204[c/]	1,480
poultry	419[b/]	269[c/]	319
Cow milk (million litres)	16,000[b/]	15,955[c/]	15,925
Hen eggs (million units)	8,902[b/]	8,636[c/]	8,168
Sea fish	791	..	548
Fresh water fish catch	26.7[b/]	38.3[c/]	46.9

Source: Central Statistical Office, *Poland Statistical Data* (Warsaw 1990).

a/ Annual average.
b/ 1980.
c/ 1985.

store fruit and juice concentrates. Poland's ample supplies of fruit, especially currants and apples, could be processed into a variety of food products.

2. *Emerging trends*

The food industry, including beverages and tobacco, is the second largest industry in Poland accounting for 17.6 per cent of industrial sales and 10 per cent of employment in 1988. Among foodstuffs, the largest branches are meat (19 per cent of food sales in 1988) and dairy products (13 per cent). However, spirits also contributed nearly 25 per cent of food industry sales, and brewing and alcohol a further 8 per cent. The share of food in total industrial sales declined over the 1970 - 1988 period from 22 per cent to 18 per cent; its decline in industrial value added during the same period was more noticeable — from 16 per cent to 8 per cent. This

was due to the policy of maintaining very low administered food prices over the period 1970–1988. In the face of rising food prices, the industry's share of industrial sales reached 21 per cent in 1989.

The sales figures for tobacco and alcohol are biased upwards due to the heavy turnover taxes levied on these products. This same bias causes labour productivity to appear extremely high. Turnover and production taxes constituted about 20 per cent of costs in 1989. Other products, until 1 August 1989, were heavily subsidized and their prices controlled. Although they were reduced after this date, subsidies to the food industry constituted 24 per cent of all subsidies to industry in 1989. The value of the output of the food industry fell by 8.4 per cent in 1989 and in March 1990 was 14 per cent lower than the previous December. Employment declined by 3 per cent in 1989 and by a further 4 per cent between December and March 1990.

Every stage of the food chain in Poland, from farmer to food processing to food distribution and retailing, has hitherto suffered from fundamental problems. Faced with persistent excess demand for food, controlled prices and subsidies, there has been little incentive for food processing to be efficient. Although some additional investment is required in certain areas to increase efficiency, there is ample scope for greatly improved productivity and increased efficiency in existing resource use through better management and incentives.

Production trends, as presented in Annex Table A-5, suggest a marked contraction of physical output across several segments of the food industry during 1980–1988. Double digit negative growth of production was registered by few meat products. A large number of food products suffered declining or subdued growth trends. The highest positive growth of 6.9 per cent was recorded by tobacco production, followed by sugar (5.9 per cent), cottage cheese (5.5 per cent) and frozen fruits (5.2) per cent).

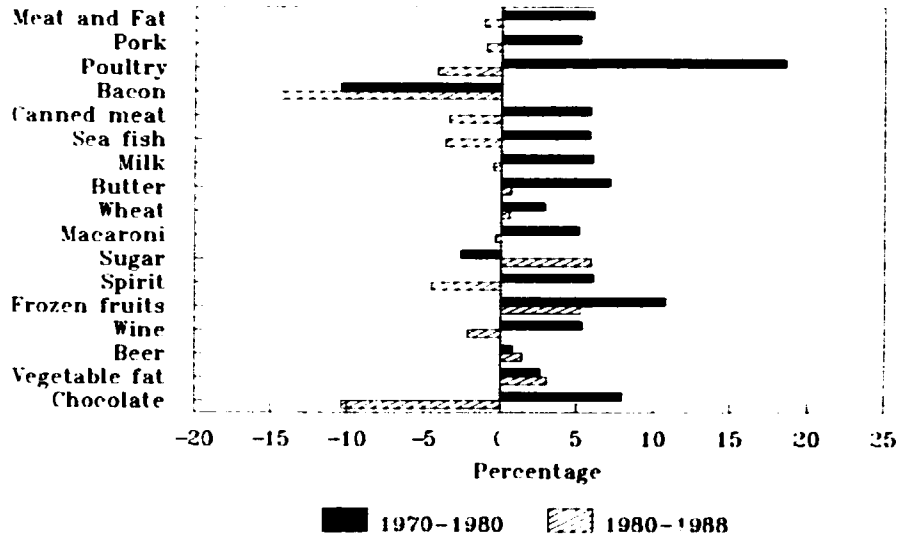
In 1988, Poland stood as the 12th largest meat producer in the world with a 1.8 per cent contribution to world meat production. Pork accounts for a major share in meat production, followed by beef and poultry. Meat and fat production fell by 1.1 per cent per annum in volume terms during 1980–1988, compared with a 6.0 per cent average annual increase during 1970–1980 (see Annex Table A-5). After the imposition of martial law in 1981, and trade restrictions imposed by the United States in 1982, meat production decreased sharply. Despite some recovery in the following years, in 1988 it was still 9 per cent lower than in 1980, and meat shortages have been a continuous feature of the Polish economy throughout the 1980s. Sea fishing is also an important source of protein, but production decreased from 791,000 tons in 1980 to 548,000 tons in 1989.

The production of milk increased rapidly in the 1970s. In 1988, milk output was slightly lower than in 1980. The production of fat cheese, cottage cheese and butter has shown steady growth since the early 1970s. Poland produced 290,000 tons of butter in 1989.

The dairy processing industry is in a precarious state. The fragmented milk collection system, with 1.4 million farmers each delivering on average 12 litres of milk per day to 10,000 milk assembly points, increases collection costs and impairs quality control. The relatively lower prices of Polish dairy production (40–60 per cent relative to United States and EC prices) on the world market largely reflects low quality. Farmers mostly use home-grown feeds, such as potatoes, barley and other cereals. Compound feeds are mostly used by the State farms and co-operatives. Against the total livestock feed requirement of about 20 million tons, 9 million tons is consumed in the form of compound feeds. Only 3 million tons of the 8.3 million tons of compound feed produced in 1988 was utilized by private farmers, who represented 70 per cent of pig and 90 per cent of dairy production in Poland.

Flour milling (wheat and rye) and bakery production was stable over the period 1980–1988. In 1988, the share in world wheat production was 1.5 per cent. The production of sugar increased from 1.1 million tons in 1980 to 1.7 million tons in 1988, representing an average

Fig. IV.A. Growth of food products, 1970–1980 and 1980–1988
(Average annual physical output growth)



growth of 5.9 per cent per annum. This subsector's growth is constrained by long processing periods resulting in deterioration of sugar content of the beets.

The available crushing and extraction equipment in the rapeseed industry is obsolete. The use of out-of-date technology in solvent extraction plants leads to huge solvent losses. The poor quality of the refined oil contributes to inferior margarine which fails to attract consumer preference for domestically produced products. Domestic products are sold in crude form at low prices.

Food products account for around 11 per cent of industrial exports and about 10 per cent of industrial imports. The period 1980–1988 witnessed significant increases in the exports of fresh and frozen fish, sugar and vegetable fat compared with the trends in 1970–1980. The growth of sugar exports was strikingly high, albeit from a low base, at 24.4 per cent per annum during 1980–1988 (see Table IV.2). The degree of intra-industry trade across several segments of the food industry can be gauged from a comparison of Poland's export profile with import data (see Table IV.2 and Table IV.3). Meat, fish, alcohol, tobacco and fruits appear on the country's import and export profiles. Other imports include rice, edible oil, tea, wheat, corn, coffee bean and cocoa seed.

A major feature of the food industry is the existence of a large number of small and medium-sized firms which produce mainly for the domestic market. The food processing industry consisted of 887 socialized enterprises in 1988. Of these, there were 88 in meat processing, 24 in eggs and poultry, 34 fish producers, 340 dairy producers, 36 in milling and macaroni, 10 bakery producers, 13 in sugar refining, 19 spirit and yeast manufacturers, 15 engaged in potato products, 67 in fruit and vegetables, 30 in wine, 21 in brewing, 9 in edible oils and fats, 54 in confectionery, 8 concentrated food producers, 2 firms dealing with beverages and soft drinks, 7 tobacco producers and 17 enterprises in the cooling branch. There were

Table IV.2. Exports of selected food products, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Meat	tons	54,655	80,433	86,694	3.9	0.9
Feathers and down	tons	1,565	1,375	955	-1.3	-4.5
Fresh and frozen milk	tons	42,962	75,800	144,200	5.8	8.4
Powder milk	tons	713	29,426	45,990	45.1	5.7
Sugar	tons	306,400	24,100	138,500	-22.4	24.4
Spirit	hl	114,100	283,000	131,900	9.5	-9.1
Frozen fruits	tons	19,132	58,527	103,253	11.7	7.3
Frozen vegetables	tons	5,100	38,881	85,295	22.5	10.3
Beer	million hl	114.1	352.9	291.3	12.0	-2.4
Vegetable fat	tons	37,600	6,746	21,148	-15.8	15.4
Tobacco	tons	9,636	8,894	10,325	-0.8	1.9

Source: Calculated using Central Statistical Office data.

Table IV.3. Imports of selected food products, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Meat	tons	39,788	45,974	48,706	1.5	0.7
Fresh fish	tons	3,402	18,312	155,823	18.3	30.7
Canned fish	tons	2,797	6,170	30,796	8.2	22.3
Rice	tons	60,214	92,988	64,373	4.4	-4.5
Alcohol	hl	34,581	109,246	137,774	12.2	2.9
Wine	'000 hl	328.8	561.9	973.7	5.5	7.1
Edible oil	tons	41,993	10.48	114.8	9.6	1.1
Tea	tons	8,097	23,770	33,608	11.4	4.4
Tobacco	tons	11,797	23,099	11,121	6.9	-8.7
Wheat	tons	1,699.5	3,465.4	3,217.1	7.4	-4.9
Corn	'000 tons	46.1	2,522.8	126.1	49.2	-31.2
Coffee bean	tons	34,478	37,007	34,440	0.7	-0.9
Cocoa seed	tons	14,310	30,508	26,923	7.9	-1.5
Citrus fruit	tons	80,448	163.9	148.2	7.4	-1.2

Source: Calculated using Central Statistical Office data.

also 15,848 small private firms which employed 70,217 workers, an average of about 5 workers per firm representing 17 per cent of food industry employment. The food industry encompasses around 9 per cent of industrial fixed assets. Average wages (including profit bonuses) in early 1990 were about 8 per cent below the average wage in the socialized sector. Selected financial performance indicators of food enterprises are presented in Annex Table B-1.

3. Investment opportunities

National investment outlay in agro-processing in the first half of the 1980s was to the tune of Zl 284 billion in 1984 constant prices, of which Zl 25 billion was invested in fruits and vegetable processing and Zl 18.0 billion in meat processing. The planned investment for 1986–1990 stood at Zl 460 billion, a significant increase reflecting a shift in priorities in

favour of food processing. This was due to the significant contribution that this industry branch was expected to make to foreign exchange earnings and savings. However, actual investment fell short of the planned outlay.

The food industry attracted 60 foreign investments by October 1989, accounting for 16 per cent of the total number of foreign investments in manufacturing in the same year. Table IV.4 furnishes a list of potential joint venture proposals submitted by selected Polish food enterprises to the Second Investors Forum in May 1990. The list indicates the forms of foreign contribution sought by potential investors in promising product areas of the Polish food industry.

Table IV.4. Potential investment proposals in food industry seeking external contribution, May 1990

Project number	Product	Capacity per year	Investment $ million		Forms of foreign contribution[a/]
			Total	Foreign	
POL/301/ W/90-05	Frozen food	4,000 t/y	2.7	not determined	jve, cai, eqy, eqs, lns, afm, mkx
POL/302/ W/90-05	Frozen fruits and vegetables	2,500 t/y	2.3	0.8	jve, cai, eqy
POL/303/ W/90-05	Frozen fruits	2,000 t/y	4.68	4.00	jve, eqs, afm, turnkey
POL/304/ W/90-05	Rapeseed oil	100 th t/y	12.90	6.00	jve, lns, afm, mkx
POL/305/ W/90-05	Meat products	16 t/16 h	1.93	0.40	jve, cai, eqs, mkx
POL/306/ W/90-05	Food freezing and processing	50,000 cu m 5,000 t/y	8.20	2.30	jve, cai, eqy
POL/307/ W/90-05	Herbal medicines and essential oils	2 billion pills 450 t/y	17.0	8.0	jve, eqy, eqs
POL/308/ W/90-05	Orchard	1,190 t/y	0.3	0.1	jve, eqy, eqs, lns
POL/309/ W/90-05	Raw spirit	780,300 l/y	5.19	1.0	jve, eqy, eqs, lns, afm
POL/310/ W/90-05	Noodles	5,000 t/y	5.7	2.5	cal, eqy, jve, eqs, afm, max, tex
POL/311/ W/90-05	Grain storage and processing	50 th t/y	16.5	not determined	jve,
POL/312/ W/90-05	Crisp ryebread	7,300 t/y	13.60	5.70	jve, eqy, eqs, afm

Table IV.4 (*continued*)

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/313/ W/90-05	Frozen fruits, vegetables, freezing services	50 th cu m/y	15.10	5.0	jve, cai, Ins, eqs, afm, max, mkx
POL/314/ W/90-05	Rapeseed oil High-protein feed concentrate Lecithin	1,500 t/y 45,000 t/y 375 t/y	5.00	2.0	eqy, Ins, afm,
POL/315/ W/90-05	Dutch cheese Cazeine	300 t/y 350 t/y	10.00	5.00	eqy, Ins, afm, mkx, jve
POL/316/ W/90-05	Meat processing: Young beef cattle Poultry	 1,000 heads/y 240 t/y	1.50	0.75	jve, cai, eqs, sot
POL/317/ W/90-05	Fruits and vegetables processing	1,500 t/y	1.0	0.6	jve, cai, eqs, afm,
POL/318/ W/90-05	Vegetable feed protein of high caloric content	1.6 th t/y	5.50	5.00	jve, eqy, sot, eqs
POL/319/ W/90-05	Food processing	1,200 t/y	0.6	0.19	jve, cai, eqy, lic sot, tex, trx
POL/320/ W/90-05	1. Frozen fruits and vegetables 2. Cold storage services	10 th t/y 15 th t/y	14.45	7.35	jve, cai, eqy, sot,

Source: UNIDO, *List of Projects, Second Investors Forum for the Promotion of Foreign Investment* (Warsaw, 21-24 May 1990).

a/ afm = Access to Foreign Markets; lic = Licensing; rmt = Supply of Components; cai = Cash Investment; Ins = Loans; sct = Subcontracting; ctr = Compensation Trade; max = Management Expertise; sot = Technology; eqs = Equipment Supply; mkx = Marketing Expertise; tex = Technical Expertise; eqy = Equity Participation; trx = Training Expertise; jve = Joint Venture; pcs = Pieces; y = Year; t = Ton; mn = Million; th = Thousand; sq m = Square meter; cu m = Cubic meter; km = Kilometer

Note: Additional information can be obtained from institutions and organizations listed in Annex C-5.

4. Prospects

Although the food processing industry has been released to a large extent from the clutches of a complex system of taxation, subsidies, price controls and other distortions, enterprise management is yet to be attuned to profit-consciousness in the context of the new market environment. This is perhaps due to inadequate financing and a poor institutional support mechanism. Many enterprises face the problem of lack of financial resources for investment. Up-to-date strategic marketing studies are needed to assess the market potential and the long-term comparative advantage of Polish food products.

There is considerable potential to enhance agricultural productivity through intensive rather than extensive cultivation. Although some crops, such as maize, can be grown, it seems it would be possible for Poland to increase the output of grains by 30 per cent in order to increase the supply response to any possible increase in milling capacity in the near future.

Poland is currently a marginal exporter of sugar, and beet yields are relatively low. The prospects for Poland becoming a significant exporter of sugar appear limited as Poland remains a high cost producer. The emergence of alternative sweeteners and the increasing demand for non-caloric sweeteners on the world market seem to make Polish sugar less competitive.

The Polish potato industry could well attract rapid expansion of processing given the possibility of developing export markets for potato products such as flour, protein and starch in line with the changing patterns of consumer diets. There is also scope for the production of protein for animal feed as a by-product of potato processing.

Poland is self-sufficient in dairy products. With a significant improvement in milk production and processing, dairy products could penetrate foreign markets. As the world market is flooded with an abundance of low cost supplies, Poland will have to strive hard to sharpen its competitive edge. Significant improvements in refrigerated transport and processing capacity are needed in this segment of the food industry. Meat products continue to constitute a major item on the export profile. These products could become more important in the future if efficiency in primary production and processing could be improved.

Poland is a world leader in the production of certain fruits, including currants, raspberries, strawberries and apples. The country has also considerable experience in the management of orchards and the production of vegetable crops. There is evidence of recent success in the production of rapeseed. The long-term global outlook for high protein products and vegetable oils is favourable for expanding processing capacities despite the volatility of prices for these products on the world market. It is considered to be more advantageous to export high value added products rather than semi-processed products.

There is a need to examine the viability of agro-processing investments. The current emphasis appears to be on dairy products, cereals, sugar, and oils and fats. New avenues in fruits and vegetables, meat processing (including fish) and edible oils warrant in-depth analysis of prospects. Compared to the developed market economies, the Polish food industry is in its infancy.

The 1980s have witnessed an international technological revolution in food processing and packaging. A variety of new entrants on the world food market have one common characteristic of convenience in ready-to-eat fast foods. Significant progress has been made in packaging, aseptic packing using hydrogen peroxide and ultra-violet radiation for sterilization, freeze-drying of beverages, multi-layer packing material and self-heating packs. Transnational corporations have invested heavily in large-scale automated processing plants to produce ready-to-eat fast food products, making many food items cheaper in processed form. These developments in the global food industry will need to be considered as a means of enhancing value added to the farm produce and livestock products of Poland.

The movement towards liberalization of markets by the new government has had a greater impact on the food industry than on any other industry. Following the 'marketization' of food prices from 1 August 1989, prices of food increased by 291 per cent in 1989, the highest increase recorded by any branch of industry, with most of this increase occurring between August and October. In the first quarter of 1990, however, price increases in food were among the lowest as the market appears to have stabilized somewhat, but the repercussion of such a massive shift in relative prices will doubtless be felt for a long time in the industry.

Food processing enterprises now face an entirely different economic environment. But the complementary expansion of agricultural production remains problematic. It remains to be seen how the food branch will respond to this challenge. The industry has been identified as a priority area by the government and the World Bank. The food industry has the potential of developing greater forward and backward linkages with other sectors and industries such as agriculture, machinery and processing equipment branches, refrigeration and packaging, and distribution. A number of technical assistance missions have visited Poland and considerable funding is in the offing. There is the potential for the highly sophisticated food processing companies in the OECD to participate in this sorely-needed transformation. Existing tax concessions to stimulate investment in food processing, as noted in Chapter III, make this a particularly attractive prospect.

B. TEXTILES, GARMENTS AND LEATHER: ENHANCING COMPARATIVE ADVANTAGE

1. The resource base

The lack of domestic natural raw material supplies, excepting wool, has not prevented the establishment of a large number of textile and clothing industries in Poland. These two segments of light industry in Poland have the comparative advantage of a relatively low-wage but sophisticated labour force. Brazil, China, India, the Soviet Union, Turkey, and the United States are the principal suppliers of cotton and cotton fabric. In the production of synthetic fibres Poland ranks among the world's top 20 producers.[1]

Non-exotic hides and skins, largely the by-products of the meat industry, constitute the raw material resource base for the country's leather industry. Concomitant with the scarcity of meat the domestic raw material supplies to the leather industry are also inadequate. The production of sheepskins and lambskins has recorded an increase in output over the years, while there has been a drastic shrinkage in the output of goatskins and kidskins (see Table IV.5).

Table IV.5. Domestic supplies of hides and skins, 1975-1987, selected years

Type	Unit of measure	1975	1980	1987[a/]
Bovine hides and skins	Million pieces	4.9	5.0	4.2
Bovine hides and skins (wet salted weight)	Thousand tons	77.8	79.4	67.2
Sheepskins and lambskins	Million pieces	0.8	1.0	1.5
Sheepskins and lambskins (dry weight)	Thousand tons	0.7	0.8	1.2
Goatskins and kidskins	Million pieces	0.1	0.0	0.0
Goatskins and kidskins (dry weight)	Thousand tons	0.1	0.0	0.0

Source: Food and Agricultural Organization (FAO) of the United Nations, *World Statistical Compendium for Raw Hides and Skins Leather and Leather Footwear* (Rome 1989).

a/ FAO estimate.

2. Emerging trends

Textiles accounted for nearly 60 per cent of light industry[2] sales[3] in 1988. The branch encompasses many specialized sub-branches: cotton, wool, bast fibre, silk, tapestry, haberdashery, knitting and hosiery products, felt and technical fibre and non-weaving products. There is a multiplicity of textile products: yarn (cotton, wool, flax and hemp, and jute), fabrics (cotton, wool, flax and hemp, jute and silk), carpets, hosiery and stockings.

Garments account for 20 per cent of light industry sales and 2.3 per cent of total industrial sales in 1988. The sub-branches of the garments branch are clothes, linen and other clothes. The garments branch manufactures every kind of garment from natural materials – cotton, wool, flax and hemp, silk – and from artificial and man-made fibres. Leather products accounted for 20 per cent of light industry sales in 1988. The industry produces hard leather, light leather, footwear, furriery and leather clothes. Textiles, garments and leather contributed 11.8 per cent to total industrial sales in 1989. Textiles continued to be the largest branch, representing 6.9 per cent of industrial sales. Garments and leather branches are much smaller, each accounting for just over 2 per cent of industrial sales.

Long-term growth trends presented in Annex Table A-6 shows declining production trends in textiles, clothing and leather products in the 1980s, with the exceptions of carpets and stockings. Concurrently the textile share of industrial employment declined from 11 per cent in 1970 to 8 per cent in 1988. In the 1970s the garments branch grew faster than textiles or leather, and faster than the average of all industry. Its sales growth averaged 6.9 per cent in the 1970s and 3.3 per cent in the period 1980–1988. For the whole period 1970–1988 growth was 5.3 per cent annually, compared with the all-industry average of 3.5 per cent. However, physical output data show a decline in almost all production volumes since 1980. Increased sales were achieved by upgrading average garment quality and value.

Leather sales grew at an average annual rate of 5.5 per cent over the period 1970–1980 and 3.2 per cent over the period 1980–1988, averaging 4.5 per cent for the whole period 1970–1988 – considerably faster than the industrial average of 3.5 per cent. In physical terms, hard leather production has been declining since 1970. Light leather output has been relatively stable, reaching about 30 sq km in recent years. In the 1980s, Poland produced about 160 million pairs of footwear yearly, but in 1989 the output dropped to 144 million pairs, marginally above the 1970 level. As with garments, sales growth has been achieved by shifting to higher value products.

Profits as a percentage of sales were almost exactly equal to the industrial average in both 1988 and 1989. Subsidies and taxes are not significantly distortionary. These branches of the Polish industry are known for their low wages and low productivity. The average wage in 1989 was 20 per cent below the industrial average and labour productivity was 25 per cent lower. Wage changes in 1990 have been broadly in line with the industrial average. These branches were among the most affected by the fall in consumer demand in 1990. In the first quarter there was a large excess supply, restraining price increases to well below the industrial average and resulting in inventory accumulation and lay-offs of workers. Sellers have attempted to attract customers by offering discounts.

Textiles accounted for 6.2 per cent of industrial exports and 8 per cent of industrial imports in 1989. Cotton fabric is predominant in the export profile of textiles and footwear (see Table IV.6). Exports of cotton yarn and wool fabric maintained positive growth rates in 1980–1988, while all other textile exports suffered declining trends. Imports of cotton fabric grew at an average annual growth rate of 8.9 per cent in the 1980s.

The garments branch exported about one-sixth of its output value in 1988. The largest importers of Polish garments, accounting for 61 per cent of total garments exports, were Germany, the Federal Republic of, the Soviet Union, and the United States. Poland imports garments from Austria, China, Germany, Federal Republic of, Switzerland and many other countries.

Table IV.6. Exports and imports of selected textiles and footwear, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Exports						
Cotton yarn	tons	250	6,970	8,628	39.5	2.7
Cotton fabric	kilometre	105,411	92,186	91,048	-1.3	-0.2
Wool fabric	kilometre	7,000	19,407	26,809	10.7	4.1
Flax and hemp fabric	kilometre	20,963	33,243	25,027	4.7	-3.5
Silk fabric	kilometre	19,993	20,546	16,829	0.3	-2.5
Footwear	million pairs	13.92	32.33	31.73	8.8	-0.2
Imports						
Cotton	'000 tons	151.3	172.9	189.6	1.3	1.2
Cotton yarn	tons	6,007	9,859	10,022	5.1	0.2
Cotton fabric	'000 kilometre	40,256	89,135	176,082	8.3	8.9
Wool yarn	'000 tons	21.0	10,209	6,626	85.6	-5.3
Footwear	'000 pairs	3,154	3,244	1,546	0.3	-8.8

Source: Calculated using Central Statistical Office data.

Fig. IV.8. Growth of textiles, 1970–1980 and 1980–1988
(Average annual physical output growth)

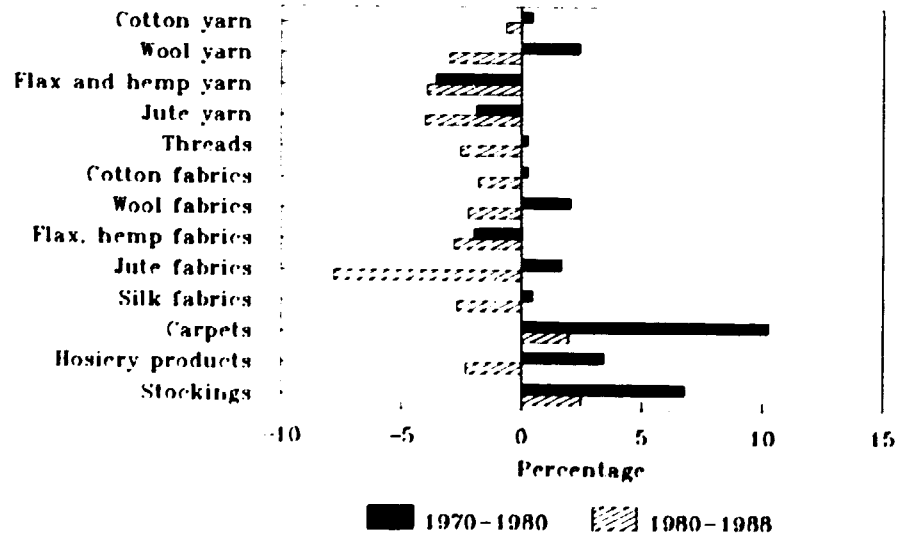


Fig. IV.C. Growth of clothing, 1970–1980 and 1980–1988
(Average annual physical output growth)

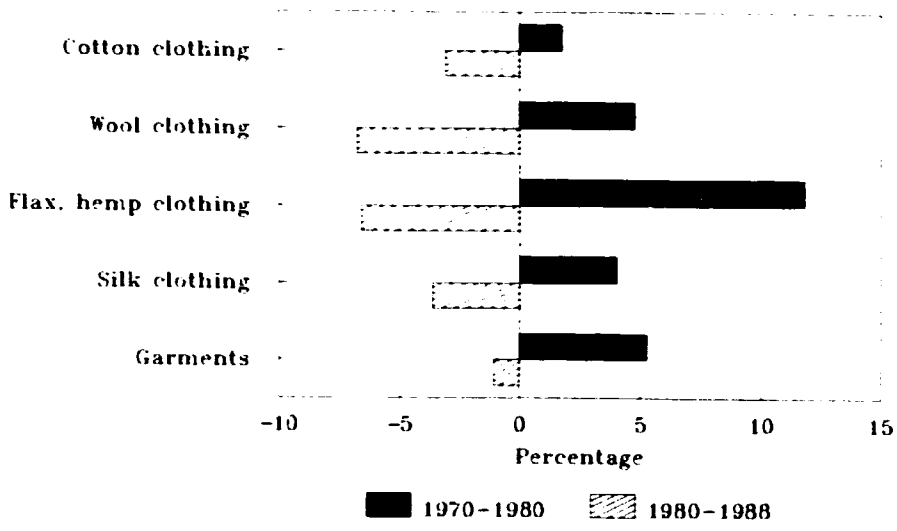
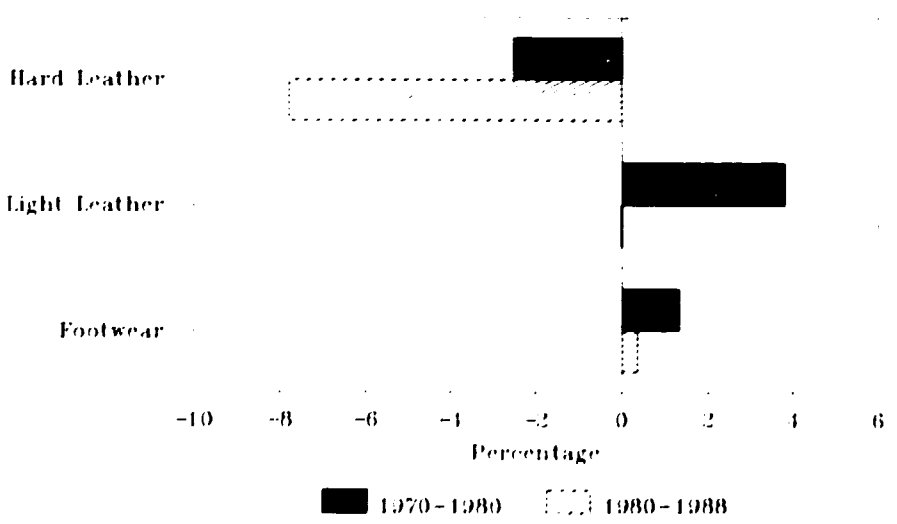


Fig. IV.D. Growth of leather products, 1970–1980 and 1980–1988
(Average annual physical output growth)



The major markets for Polish footwear in 1988 were the Soviet Union (8.6 million pairs), the United Kingdom (3.5 million pairs), Germany, Federal Republic of (2.2 million pairs), the United States and Australia. Leather clothes were exported to the United Kingdom, Germany, Federal Republic of, and Sweden. The largest importer of Polish light leather is Switzerland which bought 144 tons in 1988.

In 1988, there were 393 socialized enterprises in the textile branch, of which 43 were cotton producers, 62 wool producers, 27 enterprises producing bast fibre, 15 silk producers, 51 in tapestry, 5 in haberdashery, 156 in knitting and the hosiery industry, 15 producers of felt and technical fibre and 3 engaged in non-weaving products. The bulk of them were of medium size. This branch includes also 10,933 small private firms with 19,012 workers, an average of about 2 workers per firm. Selected financial performance indicators of textile, garment and leather enterprises are presented in Annex Table B-2.

3. Investment opportunities

The wearing apparel segment of the manufacturing sector was singularly fortunate to attract the largest number of foreign investments in Poland. By October 1990, of the 374 foreign investments in manufacturing, 63 ventures were in wearing apparel, compared with 10 in textiles and 1 in leather products. The list of projects in these manufacturing activities seeking different forms of external co-operation reveals the investment avenues open to foreign partners (see Table IV.7).

4. Prospects

Sourcing of raw materials from the hitherto important origins in the CMEA area, mainly the USSR, may pose a problem to the Polish light industries due to the keen interest of these countries in accelerating their export drive to hard currency markets. The scope for expanding raw material imports from developing countries depends on the success of Poland in increasing the degree of processing in textiles, garments and leather goods. This is largely due to the fact that the pattern of exports from developing countries is constantly shifting to semi-finished products and finished products. On the other hand, the endeavours of developing countries to export goods with a higher degree of processing may coincide with the industrial restructuring endeavours in Poland, facilitating efforts to develop the more efficient segments of the light industry. For example, imports of ordinary fabric in semi-processed form could help build up the production of blended colour fabrics in the weaving mills.

The comparative advantages of this subsector are low wage rates and a skilful labour force. A particular attraction is that small scale is not necessarily a disadvantage, at least in garment production. The relative importance in small-scale garment units of fashion and design as factors affecting competitiveness in export markets is being increasingly recognized. Notwithstanding the economies of scale in producing substantial volumes of an agreed specification, some of the most successful internationally competitive industries are based on a large number of decentralized production units engaged in the production of different patterns to suit fashion change. Foreign firms aspiring to have a considerable stake in the Polish garment industry will need to establish subcontracting links with small factories in view of the highly labour-intensive nature of sewing operations. International sourcing tends to set future trends in the world textile industry. Poland could endeavour to seize opportunities stemming from the global wearing apparel manufacturing trend using its relative comparative advantage of low labour cost.

The European Community has recently granted improved access for Polish products but it remains to be seen whether Polish textile and garment exporters will be able to out-compete other suppliers in this highly competitive market. Any exporter faces fierce competition from many industrialized and newly industrializing and developing countries as well as import restrictions in major markets.

Table IV.7. Potential investment proposals in textile, wearing apparel and leather seeking external contribution, May 1990

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/321/ W/90-05	Woollen yarn and synthetics	1,300 t/y	2.84	2.84	jve, eqy, eqs, afm, ctr,max,tex,trx,mkx
POL/322/ W/90-05	Needled cloth	780 t/y	0.80	0.37	jve, eqy. cai, Ins, eqs, afm, trx, mkx
POL/323/ W/90-05	Socks	17 mn pairs/y	9.83	8.0	eqy, eqs, Ins, mkx, mkx, tex, trx, jve
POL/324/ W/90-05	Dyed and finished fabrics	2,500 t/y	2.45	1.20	jve, cai, afm
POL/325/ W/90-05	Bonnell mattresses Furniture springsets	40 th pcs/y 20 th pcs/y	3.00	1.40	jve,cai,eqy,Ins,sot, eqs,hfm,ctr,tex,trx
POL/326/ W/90-05	Leather footwear Textile footwear	0.45 mn pairs/y 2.7 mn pairs/y	4.46	1.20	jve,cai,eqy,eqs,afm, ctr,max,trx,mkx
POL/327/ W/90-05	Children's cloths	2,000 th pcs/y	70.0	2.0	jve,eqy,sot,eqs,afm, ctr,max,mkx,trx
POL/328/ W/90-05	Cloth- knitted fabrics	7 mn m/y	23.10	5.70	jve,eqy,eqs,afm,ctr, max,trx,mkx
POL/329/ W/90-05	Cotton "non-spindle" yarn	2,081 t/y	18.50	5.00	jve, eqy, eqs, afm, max, trx, tkx
POL/330/ W/90-05	Cotton yarn	1,110 t/y	19.40	6.50	jve, eqy, eqs, afm, max, trx, mkx
POL/331/ W/90-05	Unwoven cloth	20 mn sq m/y	6.00	4.00	jve, eqy, eqs, tex, trx, afm, sot
POL/332/ W/90-05	Needled cloth	3 mn sq m/y	4.00	1.20	jve, eqy, eqs, tex, trx, afm, sot
POL/333/ W/90-05	Pullovers and cardigans	350 th pcs/y	3.00	1.50	cai, eqs, jve
POL/334/ W/90-05	Cotton and mixed fabrics	80 mn m/y	33.50	6.70	cai, eqs, jve
POL/335/ W/90-05	Linen and cotton fabrics	22 mn m/y	12.20	5.50	cai, eqy, jve
POL/336/ W/90 05	Cloths-knitted	4.5 mn pcs/y	6.15	3.00	cai, eqy, jve
POL/337/ W/90-05	Printed fabrics	2.7 mn m/y	7.54	1.50	jve, cai, eqy, eqs, afm, tex, trx, mkx

Table IV.7 (*continued*)

POL/338/ W/90-05	Knitted fabrics	3 mn m/y	8.47	4.15	jve, cai, eqy, mkx
POL/339/ W/90-05	Flax yarns Union fabrics	10 mn m/y 1,700 t/y	19.85	5.50	jve, cai, eqy, Ins, afm, ctr, mkx
POL/340/ W/90-05	Trousers	300 th pcs/y	1.54	0.73	jve, cai, eqs, afm, mkx
POL/341/ W/90-05	Poliacrylonitrile yarn tex 25x2 Knitted fabrics	1,300 t/y 1,910 km/y	24.70	11.67	jve, cai, eqy, sot eqs, ctr, tex
POL/342/ W/90-05	Cotton yarn	4,500 t/y	13.65	8.39	jve, eqy, eqs, max, trx
POL/343/ W/90-05	Knitted cotton wear	5,000 pcs/y	3.13	2.30	jve, cai, eqs, afm, max, trx, mkx
POL/344/ W/90-05	Clothes	7.5 th pcs/y	0.87	0.87	jve, cai, sot, afm, tex, trx, mkx
POL/345/ W/90-05	Knitted fabrics	2.8 mn m/y	0.47	0.47	jve, cai, afm, ctr, max, mkx
POL/346/ W/90-05	Worsted wool: 1. Yarn 2. Fabrics	 900 t/y 1.5 mn m/y	20.0	15.0	jve, afm, cai
POL/347/ W/90-05	Cotton garments	3.1 mn pcs/y	2.00	1.00	jve, cai, mkx
POL/348/ W/90-05	Artificial leather covering floor	3 mn sq m/y	10.40	5.10	jve, cai, eqs
POL/349/ W/90-05	Acrylic knitwear	2,500 th pcs/y	8.02	6.5	jve, cai, eqy, Ins, eqs, afm, ctr, mkx
POL/350/ W/90-05	Cotton fabrics	50 mn m/y 200 pcs/y	15.88	11.43	jve, eqy, Ins, eqs, afm, mkx
POL/351/ W/90-05	1. Clothes 2. Leather goods	25 th pcs/y 250 th pcs/y	3.3	1.5	jve, cai, eqy
POL/352/ W/90-05	Ready-made clothing	10 mn pcs/y	1.14	1.06	jve, cai, Ins, eqs afm, mkx

Source: UNIDO, *List of Projects, Second Investors Forum for the Promotion of Foreign Investment* (Warsaw, 21-24 May 1990).

a/ afm = Access to Foreign Markets; lic = Licensing; rmt = Supply of Components; cai = Cash Investment; Ins = Loans; sct = Subcontracting; ctr = Compensation Trade; max = Management Expertise; sot = Technology; eqs = Equipment Supply; mkx = Marketing Expertise; tex = Technical Expertise; eqy = Equity Participation; trx = Training Expertise; jve = Joint Venture; pcs = Pieces; y = Year; t = Ton; mn = Million; th = Thousand; sq m = Square meter; cu m = Cubic meter; km = Kilometer

Note: Additional information can be obtained from institutions and organizations listed in Annex C-5.

In textiles, higher productivity could be achieved by fuller utilization of more modern equipment and more advanced techniques in machine control. At one time it was decided within the framework of COMECON that Poland would specialize in man-made fibre production and machinery for processing wool-type fibres. The limitations imposed by the planned division of labour in textile modernization in Eastern European economies have clearly prevented the development of a total industry. However, decades of experience in specialization could be capitalized.

The competitiveness of the Polish leather industry is constrained by obsolete equipment and scarcity of hides. Some organizational changes and greater incentives to individuals could enhance productivity. Rapid changes in the world leather industry have challenged even leading enterprises. While leather and footwear production have boomed in Asia and South America, many firms in Europe have faced the erosion of much of their domestic markets, with rising costs and legislation on environmental pollution. These sensitive changes call for changes in the productive process and the organization of the industry. A shift in market focus from dependence on the footwear to more promising products, such as upholstery and leather garments, could contribute significantly to the growth of the industry.

C. WOOD AND PAPER: UPGRADING DOWNSTREAM PROCESSING

1. The resource base

Endowed with over 8 million hectares of forest area, Poland has a huge reservoir of forest resources. Exploitable forest encompasses around 29 per cent of the total land area. The resource base for the wood and paper industries can be gauged from the volume of output of selected forest products, such as roundwood, industrial roundwood, sawlogs, sawnwood and pulpwood (see Table IV.8). Output data for 1988 reveal that roundwood production rebounded from the marked decline in the 1970s. The production of pulpwood in 1988 was also significantly higher than the 1977 production level. Production data pertaining to industrial roundwood, sawlogs and sawnwood show a declining trend over the years.

Table IV.8. Production of selected forest products, 1977, 1980 and 1988
(In thousand cubic metre)

Forest product	1977	1980	1988
Roundwood	22,251	20,966	22,848
Industrial roundwood	20,473	19,061	19,725
Sawlogs	12,112	10,944	10,395
Sawnwood	8,259	7,386	6,013
Pulpwood	4,647	4,794	5,936

Source: FAO, *Yearbook Forest Products, 1977-1988* (Rome, 1988).

2. Emerging trends

Wood and paper accounted for 4.4 per cent of industrial output in 1989, and employed 5 per cent of the industrial labour force. Exports of these products represented 3.3 per cent of industrial exports while imports accounted for 2.0 per cent of industrial imports. The wood branch accounts for about 70 per cent of the output of the wood and paper industry. This branch represents 2.8 per cent of industrial sales, 2 per cent of industrial value added, and 3.2 per cent of exports. The sub-branches of wood are: sawmills, board and plywood,

woodworking, furniture, wood packaging and matches. Furniture accounts for about half of wood sales. This branch includes a wide range of products such as sawn timber, fibreboard, blockboard, scaleboard, woodwork, furniture and matches. Paper accounts for about one-third of the value of the output of the wood and paper industry. It contributed 1.3 per cent of total industrial sales in 1988 and exports less than 10 per cent of its output.

There was rapid development of the wood industry in the 1970s, with sales growth averaging 8.6 per cent per annum in the 1970s. In marked contrast sales fell to 2.4 per cent per annum in the 1980–1988 period. The average for the whole period 1970–1988 was 5.8 per cent, which compares favourably with the average of 3.4 per cent for all industry. In physical units, however, the outputs of all products of the wood industry declined steadily over 1980–1988, with the exception of chipboard (see Annex Table A-7). It is worth stressing that in such circumstances the production of furniture increased by 54 per cent during 1980–1988, and by 1985 furniture had emerged as a major wood industry export item.

The paper industry achieved moderate annual growth of 5.1 per cent per annum in the 1970s, falling to 2.6 per cent annually in the 1980–1988 period. Paper has experienced one of the sharpest falls in investment in the 1980s. The output of paper increased from 764,000 tons in 1970 to 1.2 million tons in 1989. While the average labour productivity in the wood branch was about 12 per cent below the industrial average in 1988, labour productivity in paper was higher by about 50 per cent than that in wood production, largely due to higher capital intensity in paper production.

Export and import volumes of selected wood products are given in Table IV.9. The wood branch exported about 20 per cent of its output in 1988, of which about two-thirds was furniture. The fastest growing exports during 1980–1988 were paper and cardboards. In 1988, the major markets for wood products included Austria, Germany, the Federal Republic of, the Soviet Union, Sweden, the United Kingdom, and the United States. There were many other small export markets. Of coniferous timber exports, 41 per cent went to the United Kingdom, 19 per cent to the Germany, Federal Republic of, and 16 per cent to France. Poland also exports many small wood items.

Table IV.9. Exports and imports of selected wood and paper products, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Exports						
Sawn timber	cu dam	806.9	689.4	539.9	-1.6	-3.0
Paper and cardboard	tons	14,308	33,791	140,958	9.0	19.5
Imports						
Cellulose	'000 tons	158.3	229.2	203.8	3.8	-1.5
Paper	'000 tons	140.7	184.1	140.0	2.7	-3.4

Source: Calculated using Central Statistical Office data.

In 1988, the wood branch comprised 526 socialized enterprises, of which 123 were sawmills, 24 were enterprises producing board and plywood, 39 were in woodworking, 288 were furniture producers, 10 were enterprises producing wood packages, and 5 were producers of matches. Total employment was 172,000 (4.1 per cent of industrial employment). Fixed

Fig. IV.E. Growth of wood products, 1970–1980 and 1980–1988
(Average annual physical output growth)

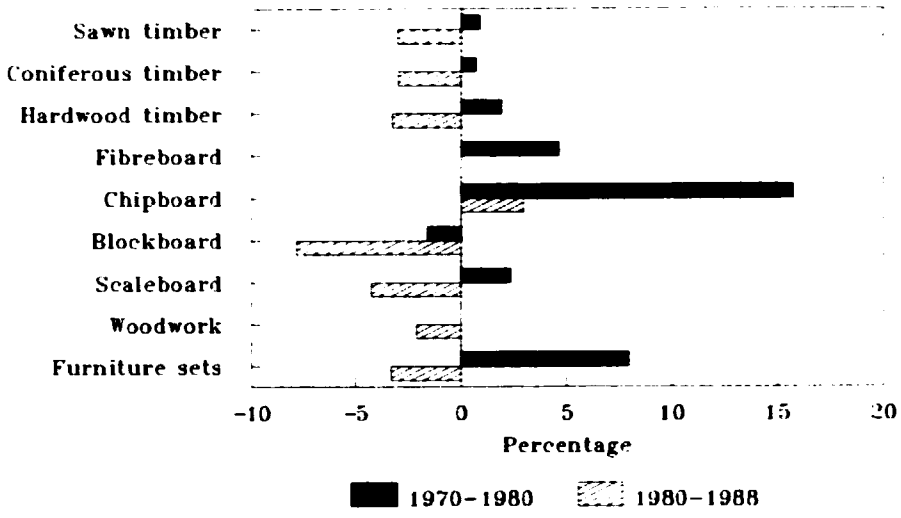
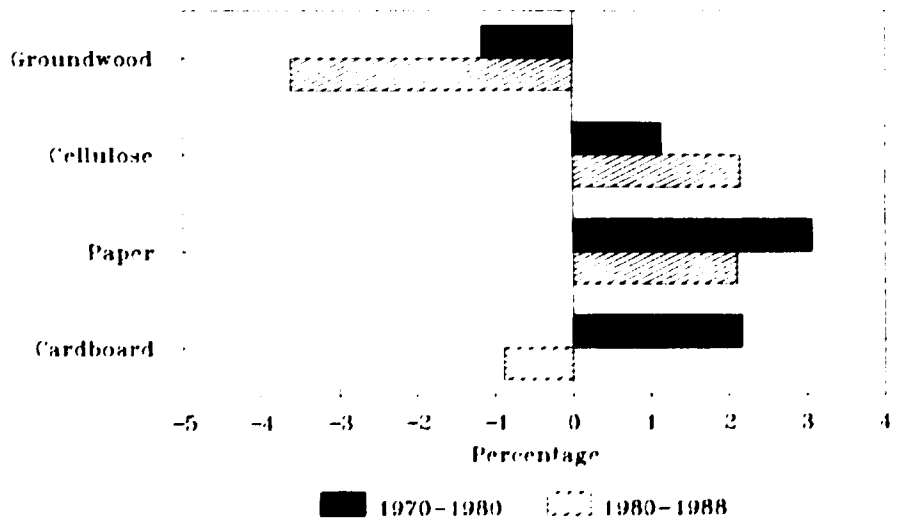


Fig. IV.F. Growth of paper products, 1970–1980 and 1980–1988
(Average annual physical output growth)



assets constituted 2.1 per cent of industrial assets. The branch also included 32,973 small private firms which employed 61,000 workers, an average of about 2 workers per firm. Overall, the branch is extremely labour intensive. Selected financial performance indicators of enterprises in the wood and paper industry are presented in Annex Table B-3.

3. Investment opportunities

Of the total number of 374 foreign investments in the manufacturing sector by October 1989, 38 investments were in wood and wood products, compared with 5 in paper and paper products. However, foreign statutory capital in the 5 capital-intensive paper industries ($6.6 million) far exceeded that of the 38 foreign investments ($5.1 million) in wood and wood products. Paper and paper products attracted 12 per cent of the total foreign capital inflow to the manufacturing sector. Potential investment proposals seeking external collaboration (see Table IV.10) show that the number of investment proposals in paper and paper products outnumber those in wood and wood products.

Table IV.10. Potential investment proposals in wood and paper products seeking external contribution, May 1990

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a]
POL/353/ W/90-05	Building woodworks	82.5 th cu m/y	26.30	9.70	jve,cai,Ins,sot,eqs, afm,max,tex,trx,mkx
POL/354/ W/90-05	Heat resistant asbestosless capboard	3,000 t/y	1.25	0.5	eqy, sot, sct, mkx, tex, afm
POL/355/ W/90-05	Flat pressed chipboard	80 th cu m/y	9.5	9.5	jve, cai, Ins, sot, afm, ctr, tex
POL/356/ W/90-05	Furniture and furniture elements	14 mn USD/y	1.0	1.0	jve, cai, eqy, Ins, eqs, afm
POL/357/ W/90-05	Floor mosaic, wooden articles	0.32 mn USD/y	0.92	0.5	jve, cai, eqy, Ins, eqs, afm
POL/358/ W/90-05	Wood and wicker products	2.1 mn USD/y	0.33	0.25	jve, cai, eqy, sot, afm, tex, mkx
POL/359/ W/90-05	Building woodworks Wainscot elements	40 th sq m/y 55 th sq m/y	2.10	0.84	jve, cai, eqs, afm, tex, trx, mkx
POL/360/ W/90-05	Sanitary towels	50 mn pcs/y	1.50	1.00	jve, cai, eqy, Ins, eqs, afm, mkx, trx
POL/361/ W/90-05	Chipboard and shaped flax elements	30 th mn pcs/y	0.80	0.30	jve, cai, eqy, lic, sot,eqs,afm,sct,tex
POL/362/ W/90-05	Maps and atlases	27.2 mn pcs/y	12.0	10.0	jve, cai, eqy, Ins, sot, ctr, trx
POL/363/ W/90-05	Toilet paper	24,000 t/y	28.50	11.40	jve, cai, eqy, Ins, eqs, trx

Table IV.10 (*continued*)

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/364/ W/90-05	Paper	75 th t/y	136.8	96.84	jve,cai,eqy,Ins,sot, eqs,afm,ctr,max,mkx, tex,trx
POL/365/ W/90-05	Chalk overlay paper	40 th t/y	22.61	10.17	jve, cai, eqy, Ins eqs, trx
POL/366/ W/90-05	Multi-layer cardboard packages	20 th t/y	17.30	7.80	jve, cai, eqy, Ins, eqs, trx
POL/367/ W/90-05	Chemical bleached sulphate woodpulp	85 th t/y	115.30	55.80	jve,cai,eqy,Ins,eqs, max,trx,tex,mkx

Source: UNIDO, *List of Projects, Second Investors Forum for the Promotion of Foreign Investment* (Warsaw, 21-24 May 1990).

a/ afm = Access to Foreign Markets; lic = Licensing; rmt = Supply of Components; cai = Cash Investment; Ins = Loans; sct = Subcontracting; ctr = Compensation Trade; max = Management Expertise; sot = Technology; eqs = Equipment Supply; mkx = Marketing Expertise; tex = Technical Expertise; eqy = Equity Participation; trx = Training Expertise; jve = Joint Venture; pcs = Pieces; y = Year; t = Ton; mn = Million; th = Thousand; sq m = Square meter; cu m = Cubic meter; km = Kilometer

Note: Additional information can be obtained from institutions and organizations listed in Annex C-5.

4. *Prospects*

Poland has extensive indigenous supplies of timber but exploitation rates cannot be greatly increased without risk of depleting the stock. Scope for expanding wood production therefore lies in reducing wastage and increasing the output of particle board and hard board as well as of pulp and paper. Producers already have considerable production and export experience in wood panels and the way forward to expansion is via high value products. The same is true of furniture. Exports of furniture remain small, but prospects for expansion are good as quality and reputation in the hard currency markets are improving.

Poland endeavours to develop value added products with high hard currency earning potential. The balance between this aspiration and the pressing need to earn hard currency through the availability of sawnwood for export has to be restored. Poland is a proven and a reliable trading partner in sawn softwood trading in Europe. During 1987 – 1989 Poland had a surplus of 370,000 cu m sawn softwood after having met the domestic requirement of 5.0 million cu m. The country stands second to Czechoslovakia in the export of sawn softwood from the CMEA countries to the EC, while Romania ranks third. Domestic production in Bulgaria, Hungary and the German Democratic Republic hardly met the domestic demand in the 1980s. In the German Democratic Republic domestic production was lagging far behind domestic requirements, leading to a revealing supply gap of 1.2 million cu m of sawn softwood in

1980 – 1989. Germany is increasingly becoming a powerful force in the production of wood products in Europe, heavily depending on supplies from Czechoslovakia, Poland and Romania. In the short run Poland stands to gain from Germany's dependence on traditional suppliers of sawn softwood. Compensatory trade agreements and participation in joint ventures would help Poland reach the standards of efficiency and productivity prevalent in the EC. With an improved trading position with the EC Poland could further develop integrated woodworking plants, which combine sawmilling, wood-based panel manufacture and even fully finished products for export. These avenues could be explored with Hungary which has a weak resource base and strong demand for wood products.

The average annual paper and board consumption in Eastern Europe is 51 kg per person, compared with 140 kg in the EC and 200 kg in Scandinavia. Paper consumption per capita in Poland currently stands at 37 kg, compared with 44 kg in 1977.[4] The demand for paper is likely to increase in the face of recent changes that tend to revitalize the newspaper and magazine industries. A change to market orientation implies more aggressive advertisement for sales promotion through newspapers and magazines. At present there is no production of newsprint and magazine paper in Eastern Europe. Poland appears to be an attractive location in view of the country's abundant supplies of pulp as a ready source of raw material and coal as a possible source of cheap energy. The mechanical wood industry in Poland creates a large volume of wood residuals that could be efficiently utilized for further enhancing pulp production. Through forward integration Poland could significantly increase mechanical pulp production.

Poland has a distinct record of producing its own paper machinery in Eastern Europe. The fact that Polish paper machinery never managed to penetrate the Eastern European markets to any significant extent, and that most of the paper machines built in Eastern Europe originated from manufacturers in developed market economies, lends credence to the superiority of the latter. Despite a stable energy and raw material productivity and rising labour productivity, paper production in Poland has suffered a drastic fall in capital productivity as a result of worn out equipment and obsolete machinery. Upgrading of existing mills represents an important investment opportunity. But the small size of the old mills may pose a problem to rejuvenation initiatives. Thus, the potential for new growth has to stem from a fresh inflow of machinery, capital and management know-how that could easily facilitate the establishment of large-scale ventures.

Several segments of the paper industry, cellulose and paper production in particular, have not lost ground despite a general deterioration in industrial production in the 1980s. However, there is a lack of capacity and in particular of the technology to produce paper of medium to high quality. New investment and an injection of technological know-how is clearly required. There is considerable scope for joint ventures in this branch and some are already under way. When new capacity comes on stream the incremental supply is expected to be significant in view of the large scale of the operations.

D. CHEMICALS: MIXED PROSPECTS

1. The resource base

With about 25 per cent of the world's sulphur reserves, Poland ranks as the fourth largest producer of sulphur in the world and as the first in Europe. Sulphur deposits were discovered in 1953 in Tarnobrzeg and are extracted from open pits operated in Piaseczno (active in 1958 – 1971) and Machow (from 1970). The two other sulphur mines in Grzybow (from 1966) and Jeziorko (from 1968) are operating using the original Polish method of underground sulphur melting. Production is about 5 million tons per year of which about three-quarters is exported. In 1987, domestic production of sulphuric acid and carbon disulphide consumed 820,000

tons and 110,000 tons of sulphur respectively. Domestic consumption has been increasing since 1982. Production at the Jeziorko mine is rising, but output from Grzybow is declining rather rapidly. The Machow mine cannot be worked out indefinitely as an open-pit mine. One of the stumbling obstacles to the development of new sulphur mine in Osiek is related to waste water disposal problems.

Coal constitutes an important raw material to the Polish chemical industry. It is sourced from 71 underground mines concentrated in three basins: the Upper Silesian Basin, the Lower Silesian Basin and the Lublin Coal Basin. Around 20 mines are either new or under development, 43 are maintaining or limiting output while 19 mines are on the verge of being closed down. Proven recoverable reserves of hard coal are estimated at over 31,000 million tons. There was a fall in the production of hard coal in 1989 (see Table IV.11). A further fall by around 10 per cent was estimated for 1990. Brown coal extraction in 1989 amounted to 71.8 million tons. Proven reserves are estimated at over 13,000 million tons. Around 95 per cent of brown coal is used for power generation.

Given the resource potential, chemicals based on coal are strategically important for Poland. More than 1 million metric tons of coal tar and benzol are processed annually into aromatic chemicals, accounting for 53 per cent of Poland's toluene production, 40 per cent of benzene production, and 7 per cent of phenol production. Acetylene is still an important input to the production of a variety of other chemicals, including synthetic fibres.[5]

For the production of oil and gas derivatives Poland depends heavily on imports, due to its limited oil and gas resources. Only 3,000 barrels a day (b/d) of the feedstock required for the country's 385,000 b/d refining capacity comes from domestic resources. Poland imports more than 98 per cent of its oil and 52 per cent of its gas, largely from the Soviet Union. As can be seen from Table IV.11 oil and gas production is on the decline. Geological surveys do not seem to justify an optimistic outlook for oil, but gas exploration in Poland may not be a futile exercise.

Table IV.11. Output of selected chemical raw materials, 1988 and 1989

Raw material	Unit	1988	1989
Sulphur	'000 tons	5,004	4,865
Salt	'000 tons	6,179	4,670
Rock salt	'000 tons	1,242	1,200
Hard coal	'000 tons	193,000	178,000
Brown coal	'000 tons	73,500	71,800
Coke[a/]	'000 tons	17,100	16,550
Crude oil	'000 tons	163	159
Natural gas	Million cubic metre	5,714	5,377

Source: *Mining Annual Review 1990*, p. 170.

a/ Excluding formed coke.

2. *Emerging trends*

In 1989, chemicals accounted for 8.9 per cent of industrial sales. Their importance in foreign trade is greater than their importance in production; they accounted for 11.8 per cent of industrial exports and for 15.8 per cent of industrial imports in 1989. The chemical industry is classified into 16 branches: sulphur mining; chemical raw materials mining; inorganic products; fertilizers; organic products; plastics; synthetic fibres; auxiliary chemical agents;

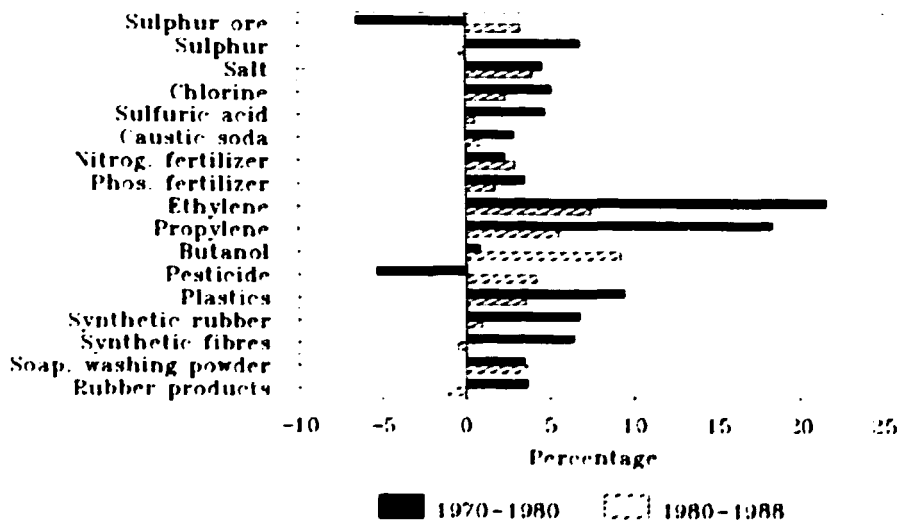
coke-based chemicals; paints and varnish; fats; household chemicals, perfumes and cosmetics; other chemical agents; pharmaceuticals; herbalist industry; plastic products; and rubber. In 1988, the largest branch was fertilizers, which accounted for 16.6 per cent of the branch sales, followed by organic products (11 per cent) and plastic products (10.9 per cent).

The share of chemicals in industrial output was stable, at 8–9 per cent, but the share in value added increased from 4 per cent in 1970 to 9 per cent in 1988. The branch encompasses 10–11 per cent of industrial fixed assets and employs 7 per cent of industrial labour. Due to a high capital intensity, labour productivity was 34 per cent higher than the industrial average in 1989, while the average wage rate was slightly below the industrial average.

The chemical industry in Poland was no exception to the general wave of industrial stagnation and decline in the 1980s. However, a few segments of the chemical industry show a welcome contrast to the sombre production trend. A glance at Annex Table A-8 reveals that during 1980–1988 the production of sulphur ore rebounded well at an average annual rate of 3.2 per cent compared to a negative growth rate of 6.6 per cent during 1970–1988. Other chemical products recording exceptional positive growth rates include the production of salt from brine, ammonia, chlorides, ethylene, propylene, butanol, carbon disulphide, pesticides, plastics, and soap and washing powder. Production of sulphur remained fairly stable in the 1980s in the region of 4.8–5.0 million tons, with a peak output of 5.6 million tons in 1980. Sales of sulphur virtually match production levels and are reliant largely upon the export market.

Fertilizers recorded the most rapid growth in the 1980s. However, Polish fertilizer producers have recently been forced to curtail production following a sharp fall in domestic demand in the wake of the recent removal of long-standing fertilizer subsidies. Local plants are currently running at only 60–70 per cent of capacity. Following a three to fourfold increase in fertilizer prices, demand has contracted, affecting the production of phosphate fertilizer the most. Having been able to step up exports, nitrogen producers have been less severely hit. The government seems to have conceded a limited reinstatement of some of the subsidies.

Fig. IV.G. Growth of chemical products, 1970–1980 and 1980–1988
(Average annual physical output growth)



Lower production efficiency is also noticed in oil-based derivatives such as PVC and polystyrene. This segment of the Polish chemical industry has only limited production capacity, lagging far behind the local demand. The erection of production units dates back to the 1970s, and has suffered from the lack of additional investment. Lack of investment in inorganic chemistry and rubber has also meant a lack of modern technologies. However, pharmaceuticals and cosmetics stand as exceptions to this trend which experienced the most dynamic growth in recent years.

Production of plastics rose significantly at 10 per cent per annum in the first half of the 1980s, but the delay in commissioning the Wloclawek PVC complex prevented a much higher growth. Engineering plastics received high priority during 1986–1990. Production of synthetic rubber in Poland meets only a part of domestic needs. The country imports substantial quantities of synthetic and natural rubbers which have made deep inroads into the production of each other due to the increasing complementarity in the production process. Production of man-made fibres has fallen sharply over the years. Cellulosic fibre accounts for over 20 per cent of man-made fibre production in Poland. Plants are in need of modernization. In this context a project to revitalize the chemical fibres sector over a ten-year period was approved by the government in the mid-1980s. It envisaged a significant rise in the production of man-made fibres by 17 per cent to reach 281,000 tons by 1990, meeting 83 per cent of the country's needs. An output of 370,000 tons was targeted for the year 1995 in order to meet 95 per cent of the country's needs.[6]

In 1988 Poland exported 3.8 million tons of sulphur (see Table IV.12). The most significant importers were Brazil, Czechoslovakia, France, Morocco, and the Soviet Union. Varnish products were exported, mainly to Austria, Germany, Federal Republic of, the Soviet Union (80 per cent), and Yugoslavia. The Soviet Union was also the market for 77 per cent of cosmetics exports and 80 per cent of pharmaceuticals exports. Table IV.13 depicts the import profile of chemical products. Phosphate rock, the main component of phosphatic fertilizers, was imported from Morocco (1.1 million tons), Jordan (683,000 tons), Germany, Federal Republic of (543,000 tons) and Togo (339,000 tons). Apatite was imported from the Soviet Union. Concomitant with the falling demand and output, Poland's imports of phosphate rock temporarily ceased in 1990. Imports of pesticides grew significantly at an average annual rate of 11.7 per cent during 1980–1988. Only 40 per cent of the pesticides registered for use are produced in Poland. Domestic production comprises mainly of old generation products. The country's use of agrochemicals is among the lowest in Europe, and lower than that of any of the CMEA member countries.[7]

Table IV.12. Exports of selected chemicals, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Sulphur	'000 tons	1,771.8	3,902.7	3,877.6	8.2	-0.1
Soda ash	'000 tons	156.4	141.5	239.0	-1.0	6.8
Caustic soda	'000 tons	21,598	43,017	48,718	7.1	1.6
Calcium carbide	tons	71,913	40,330		-5.6	2.9
Nitrogenous fertilizers	'000 tons	454.2	271.0	239.2	-5.0	-1.5
Benzol	tons	0	4,504	28,629		26.0
Ethylene	tons	0	14,522	26,555		7.8
Synthetic rubber	tons	2,293	30,782	33,572	29.7	1.1
Synthetic fibres	tons	3,072	13,787	18,681	16.2	3.9
Varnish products	tons	40,969	58,038	63,266	3.5	1.1

Source: Calculated using Central Statistical Office data.

Table IV.13. Imports of selected chemicals, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Phosphate and apatite	'000 tons	2,018.0	3,242.2	3,400.9	4.9	0.6
Potassic fertilizers	'000 tons	2,197.1	2,428.2	2,532.2	1.0	0.5
Plastics	tons	129	12,677	8,398	58.2	-3.7
Polivinyl chloride	tons	20,978	53,592	18,784	9.8	-12.3
Polyurethanes	tons	0	16,394	13,228		-2.6
Synthetic dye	tons	1,943	2,488	3,505	2.5	4.4
Pesticide	tons	6,091	12,006	29,084	7.0	11.7
Natural rubber	tons	55,253	52,535	35,141	-0.5	-4.9
Synthetic rubber	tons	33,168	58,475	52,956	5.8	-1.2
Synthetic fibres	tons	40,672	63,453	55,080	4.5	-1.7
Varnish products	tons	24,730	33,520	25,926	3.1	-3.2
Glues	tons	2,789	10,533	15,706	14.2	5.1
Asbestos	tons	64,385	83,272	63,366	2.6	-3.4

Source: Calculated using Central Statistical Office data.

In 1988, there were 406 State enterprises, accounting for 9.3 per cent of total industrial sales, 12.8 per cent of industrial exports, 6.7 per cent of employment and 9.9 per cent of industrial fixed assets. There were also 11,736 private firms, employing 44,586 workers, an average of less than 4 workers per firm. Selected financial performance indicators of chemical enterprises are given in Annex Table B-4.

3. Investment opportunities

There are opportunities for foreign investors to take advantage of a wide range of production processes. A list of potential investment proposals presented to the Second Investors Forum held in May 1990 under the joint auspices of UNIDO, the Ministry of Foreign Economic Relations and the Foreign Investment Agency, covers a large spectrum of chemical processing (see Table IV.14). This diversified profile of investment proposals presents 39 avenues open to foreign investors for different forms of co-operation. As many as 36 out of 374 foreign investments in manufacturing were in chemicals by October 1989. This excludes foreign investments in coke, refined petroleum and nuclear fuel which attracted 16 investments from abroad. Of the 36 foreign investments in chemicals, 13 were in rubber and plastics, 2 in pharmaceuticals and 5 in cosmetics.

Table IV.14. Potential investment proposals in the chemical industry seeking external contribution, May 1990

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a]
POL/368/ W/90-05	Oriented foil (OPS)	8,000 t/y	3.20	3.20	jve, eqy, lic, lns, sct, eqs, afm
POL/369/ W/90-05	Cellular concrete	326.6 th cu m/y	15.0	0.978	jve, eqy, eqs, lns, sot, max, tex, trx
POL/370/ W/90-05	Low-rise buildings	45 th sq m/y	1.15	0.8	jve, cai, lns, max, mkx

Table IV.14 (*continued*)

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a]
POL/371/ W/90-05	Fine grained rubber and rubber powder	2,500 t/y	1.05	0.60	jve, cai, eqy, eqs, afm, ctr, trx, mkx
POL/372/ W/90-05	Plastics' grindings	1,000 t/y	1.0	0.7	jve, eqy, sot, ctr, trx, mkx
POL/373/ W/90-05	Organic solvent recuperation	4,500 t/y	1.5	1.2	jve, eqy, sct, sot, afm, tex, trx
POL/374/ W/90-05	Membrane modules	100 pcs/y a 2 th sq m/y	2.64	1.85	jve,cai,eqy,eqs,afm, mkx,tx,trx,ctr
POL/375/ W/90-05	PVC floor linings	6 mn sq m/y	15.40	7.70	jve,cai,eqy,Ins,eqs, afm,ctr,tex,trx
POL/376/ W/90-05	PVC rain-pipes	5 th t/y	5.70	1.60	jve,cai,eqy,eqs,afm, max,mkx,tex,trx
POL/377/ W/90-05	Heavy-duty floor linings	4 mn sq m/y	9.00	2.60	jve,cai,eqy,Ins,eqs, afm,ctr,tex
POL/378/ W/90-05	Cosmetics	78 mn pcs/y	5.30	1.00	jve, cai, eqy, Ins, eqs, max, mkx
POL/379/ W/90-05	Plastic cosmetic packages	78 mn pcs/y	2.74	1.00	jve, cai, eqy, Ins, tex, trx
POL/380/ W/90-05	Truck tyres - steel reinforced	50 h pcs/y	41.05	20.50	jve,eqy,Ins,eqs,afm, ctr,max,trx,mkx
POL/381/ W/90-05	Powdered and fluid detergents	45 th/y	8.04	3.94	jve,cai,eqy,eqs,afm, max,trx,mkx
POL/382/ W/90-05	Polyvinyl chloride floor coverings	6 mn sq m/y	7.65	2.85	jve, cai, eqy, Ins, act, eqs, afm, mkx
POL/383/ W/90-05	Inoculants,coating and refining slags for alloys	2,000 t/y	0.32	0.15	jve, cai, eqy, eqs, afm, mkx
POL/384/ W/90-05	Melamine and urea resins and adhesives	76 th t/y	32.9	32.9	jve, Ins, sot, afm
POL/385/ W-90-05	Nylon-6 compounds (engineering plastics)	4,800 t/y	5.25	5.25	jve, Ins, sot, afm
POL/386/ W/90-05	Saturated fatty alcohols from rape oil	25 th t/y	26.00	10.00	jve, cai, egy, Ins, lic, sot, afm, mkx
POL/387/ W/90-05	Caprolactam	200 th t/y	265.87	67.47	jve, eqy, Ins, eqs, afm, trx, mkx

Table IV.14 *(continued)*

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/388/ W/90-05	Polypropylene fibres: Filament yarn Carpet yarn	2,500 t/y 2,500 t/y	15.35	6.15	jve, eqy, Ins, eqs, afm, trx, mkx
POL/389/ W/90-05	Methanole	200 th t/y	99.0	24.6	jve,cai,eqy,Ins,eqs, afm,tx,trx,mkx
POL/390/ W/90-05	Potassium nitrate	25 th t/y	15.40	3.70	jve,cai,eqy,Ins,sot, eqs,afm,tex,trx,mkx
POL/391/ W/90-05	Sulphate pulp	163 th y/y	240.0	105.40	jve,cai,eqy,Ins,eqs, afm,max,mkx,tex,trx
POL/392/ W/90-05	Liquid sulphur	8 th t/y	6.10	2.40	jve,cai,eqy,Ins,lic, sot,eqs,afm,trx
POL/393/ W/90-05	Steel-lined rubber conveyor belts Rubberized fabric conveyor belts	70 th m/y 70 th m/y	1.2	0.6	jve, cai, eqs, sot, afm, max, mkx
POL/394/ W/90-05	Liquid sulphur, crystalline sulphur	760 th t/y	61.0	18.0	cai, eqs, Ins, jve, eqy, afm, mkx
POL/395/ W/90-05	Polyester-glass laminate, sailing equipment	720 pcs/y	1.0	0.8	jve,cai,eqy,lic,sot, eqs,afm,tex,trx,mkx
POL/396/ W/90-05	Propylene rayon	80-100 t/y	5.57	3.85	jve, cai, eqy, sot, eqs, tex, trx, mkx
POL/397/ W/90-05	Carbon mass for electrodes	35 th y/y	19.00	9.00	jve, eqs, lic, afm, tex, trx
POL/398/ W/90-05	Hydrate lime Agricultural lime Limestone	275 th t/y 65 th t/y 815 th t/y	40.00	8.70	jve, cai, eqy, Ins, eqs, ctr
POL/399/ W/90-05	Disposable syringes	300 mn pcs/y	17.20	8.50	jve, cai, afm, ctr, trx
POL/400/ W/90-05	Medicaments in tablets	4,500 mn pcs/y	26.70	11.00	jve, eqy, Ins, sot, trx
POL/401/ W/90-05	Suppositories	20 mn pcs/y	2.53	1.10	jve, cai, eqy, lic, sot, eqs
POL/402/ W/90-05	Therapeutic drops	50 mn bottles/y	4.89	2.00	jve, cai, eqy, lic, sot, eqs, afm
POL/403/ W/90-05	Dry forms (tablets, dragees)	5,000 mn pcs/y	8.69	3.50	jve, cai. eqy, lic, sot, eqs, afm

Table IV.14 (*continued*)

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/404/ W/90-05	Ointments	5 mn pcs/y	2.41	1.00	jve, cai. eqy, lic, sot, eqs, afm
POL/405/ W/90-05	Pharmaceutical calcium gluconate	800 t/y	3.96	2.02	jve, cai, eqs, afm tex, trx, mkx

Source: UNIDO, *List of Projects, Second Investors Forum for the Promotion of Foreign Investment* (Warsaw, 21-24 May 1990).

a/ afm = Access to Foreign Markets; lic = Licensing; rmt = Supply of Components; cai = Cash Investment; lns = Loans; sct = Subcontracting; ctr = Compensation Trade; maA = Management Expertise; sot = Technology; eqs = Equipment Supply; mkx = Marketing Expertise; tex = Technical Expertise; eqy = Equity Participation; trx = Training Expertise; jve = Joint Venture; pcs = Pieces; y = Year; t = Ton; mn = Million; th = Thousand; sq m = Square meter; cu m = Cubic meter; km = Kilometer

Note: Additional information can be obtained from institutions and organizations listed in Annex C-5.

4. *Prospects*

Following a three-year boom in the late 1980s, the world-wide chemicals industry has been strangled in the clutches of soaring raw material costs, depressed demand and overcapacity. The Gulf crisis in late 1990 and early 1991 aggravated the severe squeeze on the manufacturers of oil and gas-based derivatives. Given the weak demand in the world market, the extra cost are unlikely to be passed on to the consumers. These generalizations do not seem to apply so readily to the Polish chemical industry. In the wake of rising cost and depressed world demand petrochemicals and plastics have suffered the worst. Poland has only limited capacity in the production of oil-based derivatives such as PVC and polystyrene, insufficient to meet even the domestic demand. Generalizations of the prospects for world-wide chemical industries are also related to environmental improvements through clean technology.

Lack of investment for rejuvenation has been the principal cause of production inefficiency. According to a recent feasibility study[x] of the petrochemical industry in Poland, the revamping and expansion of existing refineries at Gdansk and Plock as well as setting up a new complex of refineries in Silesia would cost $2.6 billion. In the absence of such a huge financial commitment, these segments of the chemical industries will have limited scope for the expansion of production. One of the niches of the chemical industry in Poland lies in coal chemicals. There are several operations based on coal. New avenues could be explored in order to use coal as an important raw material for the production of chemicals.

In the production of pharmaceuticals and cosmetics, business continues to remain healthy and modern technologies are available. Poland has licensed pharmaceutical technology to India and set up joint venture plants in Indonesia and Nigeria. Recently an inefficient soda-ash plant in Cracow was converted into the manufacture of pharmaceuticals. In order to thrive through the 1990s, pharmaceutical firms could spend an increasing proportion of resources on research and development and maintain a flow of innovative products. Poland could also

endeavour to benefit from the new wave of mergers, acquisitions and restructuring. There is strong export demand from CMEA countries for Polish pharmaceuticals and cosmetics. This is unlikely to change even when trade within the CMEA is conducted in convertible currencies.

Fertilizers remains a problem area which the government has yet to tackle successfully, but the importance for the successful restructuring of the economy of raising agricultural incentives and productivity is generally recognized. It seems reasonable to presume that this problem will be tackled in the near future, leading to an expansion of domestic demand for fertilizers (and also for farm machinery, with implications for the engineering branch). Although fertilizer usage in Polish agriculture is low by international standards, the relationship between input and output prices for farmers has discouraged increased use. This problem has intensified recently and the government has felt itself obliged to reintroduce a fertilizer subsidy. Prospects for fertilizers in the export markets are questionable due, among other factors, to declining levels of agricultural subsidies.

Of the 3.8 million tons of sulphur exports in 1990, 2.5 million tons was expected to earn the country much needed hard currency. Of immediate concern to Poland's sulphur exports is the increased production capacity of the Soviet Union. But it is believed that due to geographical proximity, the Soviet Union will continue to import sulphur from Poland. This may enhance total supply (increasing domestic production plus imports) in the Soviet Union, with a surplus of Soviet sulphur available for export possibly into North Africa and the Mediterranean.[9] One of the significant developments in world-wide sulphur trade in the 1980s has been the emergence of Africa as the most important market for traded sulphur. Much of the growing demand has stemmed from Morocco and Tunisia. Research and experience have given a significant competitive edge to the Polish sulphur industry over other competitors. Plants operating on Polish sulphur processing technology are located in Asia, Austria, Canada, Eastern Europe, Germany, Italy and Spain. However, a significant expansion of sulphur production is constrained by the depressed demand on the world market.

Currently there is very little production of high value added chemical products in Poland. These fine chemicals continue to be buoyant on the world market. Potential areas in this field that befit the country's raw material base could be examined for implementing possible ventures. For example, cellulose fibre based on wood pulp (a raw material for rayon) is a promising niche.

As with the metallurgy and fuel and power industries, pollution and its control is a problem hanging over the chemical industry. Tackling this is a priority area for the government, in which the World Bank is on the verge of an agreement to give assistance. This could lead to a substantial increase in investment in cleaner, modern technologies.

E. NON-METALLIC MINERALS: GOOD LONG-TERM PROSPECTS FOR BUILDING MATERIALS

1. The resource base

Industrial rock minerals such as cement minerals, dolomites, limestone, foundry and glass sands are distributed in large amounts and extraction capacity could be easily increased to ensure a positive supply response to demand. Data pertaining to the production of selected raw materials for building materials and glass and pottery making industry are presented in Table IV.15. The production of limestone, chalk, moulding sand and cement clinker maintained positive production trends during 1970–1988.

2. *Emerging trends*

The minerals industry contributed 3.6 per cent of total industrial sales and accounted for 5 per cent of employment in 1989. The role of this subsector in industrial trade is insignificant, accounting for 1.4 per cent of industrial exports and 1.3 per cent of industrial imports. This subsector is dominated by the building materials branch, which produced over 70 per cent of the output in 1988. The glass branch produced 20 per cent, and pottery and china 8 per cent of the minerals industry's output. This is a low-wage, low-productivity industry. The average wage in 1989 in non-metallic minerals was 11 per cent below the all-industry average and labour productivity was 30 per cent below the average. Building materials enjoyed a small net subsidy in 1989 while the other two sub-branches received no subsidies and paid moderate taxes. The price increases in 1989 have raised profits relative to sales.

Table IV.15. Physical output of selected raw material for building materials, glass and pottery, 1970 and 1988

Product	Unit of measure	1970	1988
Gypsum stone	'000 tons	1,476	1,097
Limestone	'000 tons	8,544	13,263
Chalk	'000 tons	219	246
Filler sand	hundred cu m	47.9	21
Glass-making sand	'000 tons	938	854
Moulding sand	'000 tons	1,675	1,849
Quartz	'000 tons	58.6	46.7
Fire-clay	'000 tons	1,316	1,032
Magnesite	'000 tons	38.7	23.9
Cement clinker	'000 tons	9,041	13,337

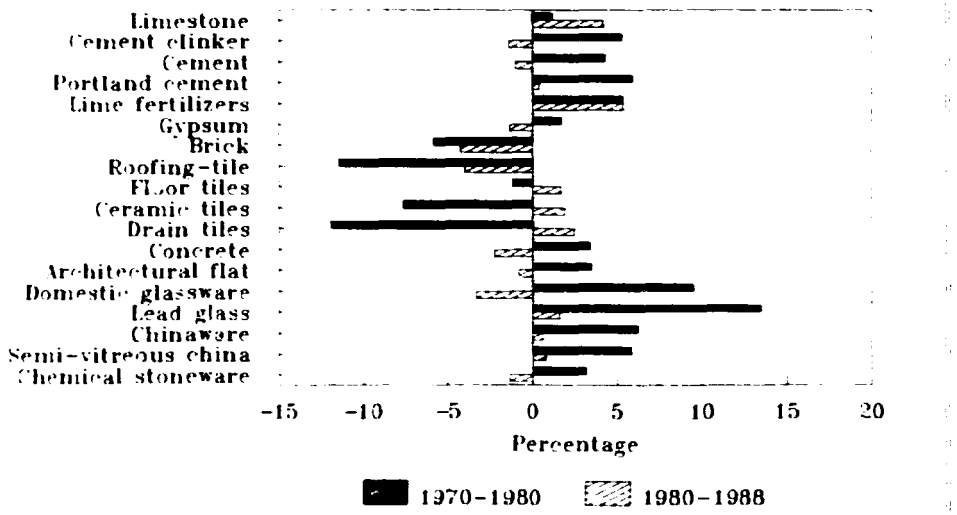
Source: Central Statistical Office.

With a share of 1.8 per cent in world cement production in 1988, Poland remained one of the major producers, despite a negative growth rate of 2 per cent during 1980–1988 (see Annex Table A-9). The production of Portland cement grew significantly at an average rate of almost 6 per cent per annum during 1970–1980, but remained subdued with a growth rate of 0.4 per cent in 1980–1988. Concrete was the product most affected by the construction crisis in the 1980s. Its output decreased from 34 million tons in 1980 to 28 million tons in 1988. This marked decline was attributed to the change in the strategy of housing construction, following strong criticism of the emphasis on concrete. More important perhaps was the decline in housing construction in the 1980s; the scale of housing construction of the 1970s (300,000 flats per year) was never achieved again in the following years.

Pottery and china production grew very rapidly in the 1970s, at a rate averaging 12.1 per cent per annum. Growth declined to 5.4 per cent per annum in the 1980s, but the average growth for both periods was still impressive at 9.1 per cent per annum. Chinaware and semi-vitreous chinaware production was larger in 1988 than in 1980, while the other major product groups of this branch declined. The branch ranked third among branches of industry for sales growth during 1970–1988, but of course remains small.

In 1988, Poland exported 692,000 tons of cement. Poland's export of glass and various types of glass products is diversified. Germany and the United Kingdom are the main importers of window glass. The main markets for Polish flat glass are Germany and Middle Eastern countries. Architectural glass is exported mainly to the United Kingdom. Laboratory glassware and optical glass are sent to Bulgaria, Czechoslovakia, and Hungary. Domestic glassware

Fig. IV.H. Growth of non-metallic mineral products, 1970–1980 and 1980–1988
(Average annual physical output growth)



is exported to Denmark, Germany, the United Kingdom, the United States, and other countries. The major importers of Polish lead glass are Canada and the United States. Polish chinaware products are well known throughout the world. Some of them may be compared with British, German and Japanese products. The other significant products of this branch are: electrical porcelain, semi-vitreous chinaware, chemical stoneware and faience. The main foreign markets for Polish pottery and china articles are Australia, Canada, Czechoslovakia, Denmark, Sweden, the Soviet Union, the United States, and Yugoslavia.

Among the 313 socialized enterprises in the building materials industry in 1988 there were 81 producing mineral raw materials, 19 in cement, 9 producing limestone and gypsum, 44 in ceramics, 111 in concrete, 23 in insulation products, and 14 in refractory materials. There were also 12,751 private firms engaged in building materials production with 40,000 workers – an average of about 3 workers per firm. Selected financial performance indicators of major enterprises making non-metallic mineral products are presented in Annex Table B 5.

3. Investment opportunities

Of the total number of 374 foreign investments in manufacturing by October 1989, as many as 28 were in non-metallic minerals (mostly construction materials). A list of potential investment proposals seeking external contributions also depicts the overwhelming importance of building materials (see Table IV.16).

4. Prospects

A serious housing shortage and shortages of buildings, roads and infrastructure of all kinds are basic features of the legacy of excessive concentration on industrial investment in the past. Assuming that in the longer term these shortages will be made good, the prospects for

Table IV.16. Potential investment proposals in glass and ceramic products seeking external contribution, May 1990

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/406/ W/90-05	Glazed ceramic tiles	600 th sq m/y	1.40	1.0	jve, cai, eqy, Ins, eqs, afm, trx
POL/407/ W/90-05	Ceramic tiles	12 mn sq m/y	22.0	18.0	jve, cai, eqy, Ins, eqs, afm, trx
POL/408/ W/90-05	Ceramic clay strip mine	80 th t/y	3.7	n.d.	jve, Ins
POL/409/ W/90-05	Clinker bricks	15 mn pcs/y	4.40	1.0	jve, cai, eqs, afm, max, mkx
POL/410/ W/90-05	Concrete roof tiles	15 mn pcs/y	3.10	1.50	jve, eqs, max
POL/411/ W/90-05	Ceramic carrier bodies for electronics	1,800 mn pcs/y	9.30	4.60	jve, cai, sot, eqs, afm, max, trx,mkx
POL/412/ W/90-05	Ceramic tiles and construction elements	51 mn pcs/y	6.31	2.00	jve, cai, mkx
POL/413/ W/90-05	Resin-coated quartz sand	120 th t/y	4.70	0.90	jve, cai, eqy, eqs, ctr
POL/414/ W/90-05	Non-ceramic roofing tiles	5 mn pcs/y	1.20	0.60	jve, cai, mkx
POL/415/ W/90-05	Sanitary ceramics	147 th pcs/y	1.64	1.30	jve, cai, eqs, afm, ctr, trx, mkx

Source: UNIDO, *List of Projects, Second Investors Forum for the Promotion of Foreign Investment* (Warsaw, 21-24 May 1990).

a/ afm = Access to Foreign Markets; lic = Licensing; rmt = Supply of Components; cai = Cash Investment; Ins = Loans; sct = Subcontracting; ctr = Compensation Trade; max = Management Expertise; sot = Technology; eqs = Equipment Supply; mkx = Marketing Expertise; tex = Technical Expertise; eqy = Equity Participation; trx = Training Expertise; jve = Joint Venture; pcs = Pieces; y = Year; t = Ton; mn = Million; th = Thousand; sq m = Square meter; cu m = Cubic meter; km = Kilometer

Note: Additional information can be obtained from institutions and organizations listed in Annex C-5.

the building materials branch are clearly very good. Further grounds for optimism regarding derived demand from the need to improve the insulation of buildings for energy conservation purposes.

However, the short-term prospects seem extremely gloomy, since investment in building for commercial and industrial use has collapsed in the current recession. In private housing construction, the decline in real wages and the enormous rise in nominal interest rates since the beginning of 1990 has meant that although the waiting list remains as long as ever, many of those waiting can no longer afford to take up accommodation when it is offered. In 1989 the number of housing completions, 149,800, was 21 per cent down on 1988 and the lowest figure for 26 years.

The energy intensity of this sector means that the recent large increases in fuel prices will have had a major impact on unit costs, particularly in building materials, and low-value pottery and glass products. The fine glassware for which Poland is renowned will be less affected.

F. METALLURGY: ACCENT ON ECOLOGICALLY SOUND TECHNOLOGY

1. The resource base

The exhaustion of iron ore deposits has virtually terminated domestic ore production (see Table IV.17). In 1988, it was only 6.3 thousand tons compared to 2.3 million tons in 1970. Virtually all iron ore is now imported. Poland is currently the largest source of copper ore in Europe, and the seventh largest producer in the world, producing 390,000 tons of refined copper in 1989 (401,000 tons in 1988). The large copper ore deposits were discovered in the Lubin-Glogow Copper Basin in 1957. The copper mines are located in Lubin (established in 1968), Rudna, and Polkowice (1974). A fourth mine at Sieroszowice has been under development. Copper deposits are estimated at around 3,100 million tons with a metal content up to 50 million tons. There are three smelters, each with an electrolytic refinery; one at Legnica and two at Glogow. About 40–60 per cent of production is exported.

After copper, silver is the second most important non-ferrous metal. Production has grown rapidly from 231,000 tons in 1970 to 1.1 million tons in 1988. Poland is the seventh largest silver producer in the world, with a share in world production of 6 per cent. Zinc and lead are produced mainly from domestic concentrates. Aluminium production is partly based on local raw materials, but some raw material for aluminium production (bauxite) is imported from Hungary and Albania. Output of zinc-lead ore was estimated at 4.5 million tons in 1989, representing a 13 per cent fall over the previous year.

Table IV.17. Production of selected ferrous and non-ferrous ore, 1988 and 1989
(In thousand tons)

Commodity	1988	1989
Iron ore	6.3	..[b]
Zinc-lead ore[a]	5,399	4,500[b]
Copper ore	29,986	26,528

Source: *Mining Annual Review 1990*, p. 170.

a/ Excluding ore obtained through processing of waste stock-piles.
b/ Estimate.

2. *Emerging trends*

Metallurgical products accounted for 10.9 per cent of industrial output in 1989; comprising basic metals (6.7 per cent) and non-ferrous metals (4.2 per cent). The branch accounted for 11.8 per cent of industrial exports in 1989 and 9.2 per cent of industrial imports in the some year. The basic metal branch produces a variety of metal products including steel pipes, steel sheets, zinc-coated sheets, tinned sheets, cold-rolled strip, etc. Of the various metallurgical products, sheet-metal section and zinc-coated sheets are the fastest growing areas (see Annex Table A-10). The inherent capital intensity of this branch results in very high sales per worker: Zl 65 million in non-ferrous metals and Zl 43 million in basic metals, compared with an industrial average of Zl 23 million in 1989. This comparison is the stronger because sales values for other branches include turnover and other input taxes, which are not levied on metallurgy. Taxes levied on inputs are insignificant, there is no turnover tax on primary materials, and subsidies are also negligible.

Prices in this branch have been rising faster than the all-industry average: the producer price index rose 233 per cent in 1989 in metallurgy, compared with an all-industry average of 213 per cent. This has raised the net profit rate from 7.6 per cent of sales in 1988 to 22.9 per cent in 1989.

In 1989 average wages in basic metals were only 13 per cent higher than the average for all socialized industry, but wages in non-ferrous metals were 42 per cent higher. The increase in prices noted above has been associated with an even larger increase in wages. In metallurgy, wages increased by 290 per cent in 1989, while in the whole socialized industry the average increase was 275 per cent.

During the 1970s the average growth of basic metals was 6.0 per cent per annum. This relatively high pace of output growth reflected the emphasis on heavy industry and the huge market for steel products in the Soviet Union. In the 1980s, basic metal output fell at a rate of 2.1 per cent per annum, leading to a decline of its relative importance in the economy. Its share in industrial sales decreased from 9 per cent in 1970 to 6 per cent in 1988, and its share in industrial value added from 6 per cent to 4 per cent. This branch of industry consistently uses around 10 per cent of total industrial assets and accounts for 4 per cent of industrial employment.

The non-ferrous segment of the metallurgical industry recorded a significantly high rate of growth of 9.1 per cent per annum during 1970–1980. In marked contrast its expansion remained subdued at 0.4 per cent in the 1980s. Non-ferrous metals account for around 5 per cent of industrial sales and 3–5 per cent of value added. Its contribution to employment stands at around 2 per cent, and it encompasses 3 per cent of the industrial fixed assets of Poland.

Poland is a net exporter of hot-rolled steel products. Exports of cold-rolled steel grew by 6.6 per cent per annum during 1980–1988 (see Table IV.18). There was a marked decline in the export of steel pipes over the years. In 1988, imports of steel pipes were 210,000 metric tons and exports amounted to only 35,000 metric tons. The major suppliers were Germany, the Federal Republic of and Romania. Steel pipes were also imported from the German Democratic Republic, Czechoslovakia, Yugoslavia, and Japan. Poland is a net importer of pig iron and ferro-alloys. In 1988 the volume of pig iron imports was 1.3 million tons, of which 99 per cent was supplied by the Soviet Union.

There was a significant increase in imports of iron ore over the period 1970–1980, from 11.8 million tons to 20.1 million tons, representing an average annual growth rate of 5.5 per cent (see Table IV.19). In 1988, imports of iron ore dropped to 16 million tons. The main suppliers were the Soviet Union (13.0 million tons) and Brazil (3.2 million tons).

Table IV.18. Exports of selected metallurgical products, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Basic metals						
Hot-rolled steel	'000 tons	1,257.7	1,778.6	2,099.9	3.5	2.1
Cold-rolled steel	'000 tons	..	100.5	167.5	..	6.6
Steel pipes	'000 tons	81.0	44.5	34.6	-5.8	-3.1
Non-ferrous metals						
Copper	'000 tons	17.9	144.7	166.5	23.2	1.8
Zinc	'000 tons	100.7	44.0	26.8	-7.9	-6.0
Silver	'000 tons	92.0	516.0	691.2	18.8	3.7
Copper rolled products	tons	..	27,246	48,885	..	7.6
Copper other products	tons	..	24,174	27,825	..	1.8

Source: Central Statistical Office.

Table IV.19. Imports of selected metallurgical products, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Basic metals						
Iron ore	'000 tons	11,842.7	20,149.7	16,643.2	5.5	-2.4
Pig iron	'000 tons	1,488.5	1,434.6	1,370.0	-0.4	-0.6
Rolled steel	'000 tons	1,217.8	963.9	615.1	-2.3	-5.5
Steel pipes	'000 tons	148.2	240.6	209.8	5.0	-1.7
Non-ferrous metals						
Manganese ore	'000 tons	394.0	664.2	693.2	5.4	0.5
Chromium ore	'000 tons	141.5	198.0	168.1	3.4	-2.0
Aluminium oxide	'000 tons	213.0	287.2	193.5	3.0	-4.8
Tin	tons	3,537	3,317	3,520	-0.6	0.7

Source: Central Statistical Office.

Copper is the most important product in non-ferrous metals exports. Over the period 1970–1988, copper was probably the fastest growing export item. The annual growth rate was 13.2 per cent per annum. The major markets for copper were Germany, the Federal Republic of, which accounted for 54.8 per cent of export volume, the United Kingdom (29 per cent), and Belgium (9.7 per cent). Copper products were exported to Czechoslovakia, Germany, Federal Republic of, Romania, Saudi Arabia, the Soviet Union, the United Kingdom and other countries. Poland exports silver and zinc. The most significant imported non-ferrous metal is aluminium.

Many existing steel mills were established in the nineteenth century. In 1988, there were 41 State enterprises, accounting for 6.2 per cent of total industrial sales, 4.73 per cent of total exports, 3.6 per cent of employment and 8.7 per cent of fixed assets. There was also one small private enterprise in this branch employing 11 workers. There were 32 State enterprises in the non-ferrous metals industry in 1988. Selected financial performance indicators of enterprises in metallurgy industry are presented in Annex Table B-6.

3. Investment opportunities

Table IV.20 presents a list of potential investment proposals seeking different forms of external contribution. With a few exceptions, the investment proposals in basic metal industries and fabricated metal products seek equity participation and joint ventures.

Table IV.20. Potential investment proposals in basic metal and fabricated metal products seeking external contribution, May 1990

Project number	Product	Capacity per year	Investment $ million		Forms of foreign contribution[a/]
			Total	Foreign	
POL/416/ W/90-05	Aluminium	77,800 t/y	46.8	25.0	jve, eqy, eqs, Ins, lic, tex
POL/417/ W/90-05	Copper and copper alloy tubes and fittings	15 th t/y	33.95	31.80	jve,cai,Ins,eqs,afm, sot,mkx,tex,trx
POL/418/ W/90-05	Coke and coal-derivatives	coke 2.7 mn t/y benzole 37 th t/y ammon.sulf. 1.4 th t/y	65.0	13.0	jve,cai,Ins,eqs,afm eqy,mkx,tex,trx
POL/419/ W/90-05	Iron castings	27,5 th t/y	10.00	6.00	jve, cai, eqy, sot, eqs, afm, ctr, max
POL/420/ W/90-05	Grey cast iron castings	32 th t/y	10.48	5.14	jve, Ins, eqs, afm, ctr, tex, mkx
POL/421/ W/90-05	Bars and profiles	300 th t/y	35.02	23.0	jve, cai, Ins, eqs, ctr, tex, trx
POL/422/ W/90-05	Iron and steel castings	15 th t/y	2.5	2.5	jve, cai, eqs, afm ctr. mkx
POL/423/ W/90-05	Iron castings	1,000 t/y	0.90	0.90	eqy, eqs, afm
POL/424/ W/90-05	Extruded products from aluminium alloys Aluminium foil Aluminium alloy heaters	24 th t/y 6,700 t/y 600 th pcs/y	60.00	24.50	jve, eqy, afm, eqs
POL/425/ W/90-05	High quality steel Sheet metals Smith forgings	80 th t/y 41 th t/y 6 th t/y	20.70	13.00	jve, eqs, cai
POL/426/ W/90-05	Steel bars	93 th t/y	21.30	12.00	jve, eqy, eqs
POL/427/ W/90-05	Welded tubes	20 th km/y	6.8	5.0	jve, eqy, Ins
POL/428/ W/90-05	Stainless steel tubes	6 th t/y	12.55	10.0	jve, cai, eqy, Ins
POL/429/ W/90-05	Die-forged products	8.5 th t/y	6.2	6.0	jve, cai, eqs

Table IV.20 (*continued*)

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/430/ M/90-05	Open die-forged products	20 th t/y	9.65	9.00	jve, cai
POL/431/ M/90-05	Liquid steel	550 th t/y	47.5	40.0	jve, cai, eqy, Ins, sot, eqs, tex, trx
POL/432/ M/90-05	Bars, hollow bars	34 th t/y	12.0	9.0	jve, cai, Ins, eqs
POL/433/ M/90-05	Steel pipes	400 th t/y	350.0	320.0	jve, cai, eqs, afm, mkx, trx, tex
POL/434/ M/90-05	Rails, needle and raw sections	250 th t/y	30.02	20.0	jve, cai, eqy, Ins, eqs, ctr, trx, tex
POL/435/ M/90-05	Air tanks, fuel tanks, air compressors	632 th pcs/y	5.3	0.4	cai, Ins, mkx, tex
POL/436/ M/90-05	Spare parts and constructions for coke engineering	2,000 t/y	1.07	0.35	jve, cai, eqy, eqs, afm, mkx
POL/437/ M/90-05	Rolling bearings	rolling 500 th pcs/y forgings 3.5 t/y	19.00	11.00	jve, cai, eqy, Ins, sot, eqs, afm, ctr, mkx, tex, trx
POL/438/ M/90-05	Heavy-duty bearings Casts Chassis frames	6,000 pcs/y 400 t/y 1,000 t/y	12.3	3.5	jve, eqy, sct, ctr, mkx
POL/439/ M/90-05	Layered panels	150 th sq m/y	1.30	0.50	jve,cai,eqy,lic,sot, eqs,max,tex,trx
POL/440/ M/90-05	Drilling, boring and milling machines	40 pcs/y	12.00	6.00	jve, cai, eqy, Ins, sot, afm, mkx
POL/441/ M/90-05	Wheelrims for tubeless tyres	30 th pcs/y	9.30	3.00	jve, cai, eqy, eqs, afm, mkx
POL/442/ M/90-05	Mining wires-rubber coated	4,260 km/y	18.26	9.06	jve, cai, Ins, eqs, afm, max, mkx
POL/443/ M/90-05	Rectangular copper wires	3,000 t/y	1.71	1.60	jve, cai, Ins, eqs, afm, max, mkx
POL/444/ M/90-05	Bearings	500 th pcs/y	3.00	1.50	jve, cai, sot, eqs, afm, mkx, trx
POL/445/ M/90-05	Sewage pipes	52 th pcs/y	0.6	0.6	jve, eqy, eqs, afm, tex, trx
POL/446/ M/90-05	Consumer goods made of metal wire	1.3 mn pcs/y	2.00	0.98	jve,cai,sot,eqs,afm, max,tex,trx,mkx

Table IV.20 (*continued*)

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/447/ W/90-05	Hydraulic servo-elements	260 th pcs/y	5.0	4.5	jve,cai,eqy,eqs,afm, ctr,mkx,tex,trx
POL/448/ W/90-05	Cables with rubber insulation	9,470 km/y	18.47	7.50	jve, cai, eqy, sot, eqs, mkx
POL/449/ W/90-05	Pump castings and fittings	6 th t/y	10.0	5.0	jve, cai
POL/450/ W/90-05	Car engines piston rings	15 mn pcs/y	13.27	12.00	jve, cai, sot, eqs, max, tex, trx, mkx
POL/451/ W/90-05	Tapes and naps for textiles and furniture	6 mn sets - 72 mn pcs/y	0.90	0.90	jve, cai, eqy, eqs, afm
POL/452/ W/90-05	Complete wheels 4.5" x 13"	1.5 mn pcs/y	25.00	15.00	jve, eqy, Ins, eqs
POL/453/ W/90-05	Toothed wheels for axes of buses and trucks	4,500 gears/y	4.34	2.20	jve, cai, eqs, afm
POL/454/ W/90-05	Cast steel Industrial pumps	16 th t/y 2 th pcs/y	20.00	7.40	jve,cai,Ins,sot,eqs, afm,tex,trx,mkx
POL/455/ W/90-05	Insulated telephone cables XTKMX and XTKMSn	cables 12 th km/y wires 1.2 th km/y	24.04	18.1	jve, cai, Ins, eqs, max, tex, trx
POL/456/ W/90-05	PVC coated insulated conductors	50 th km/y	12.17	8.2	jve, cai, eqy, Ins, eqs, afm, max, mkx
POL/457/ W/90-05	Axes for engines and carriages	60 th pcs/y	12.09	9.2	jve,cai,eqy,Ins,eqs, afm,ctr,tex,trx
POL/458/ W/90-05	Mono-block railway wheels	130 th pcs/y	13.8	7.8	jve, cai, eqy, eqs, ctr. tex, trx

Source: UNIDO, *List of Projects, Second Investors Forum for the Promotion of Foreign Investment* (Warsaw, 21-24 May 1990).

a/ afm = Access to Foreign Markets; lic = Licensing; rmt = Supply of Components; cai = Cash Investment; Ins = Loans; sct = Subcontracting; ctr = Compensation Trade; max = Management Expertise; sot = Technology; eqs = Equipment Supply; mkx = Marketing Expertise; tex = Technical Expertise; eqy = Equity Participation; trx = Training Expertise; jve = Joint Venture; pcs = Pieces; y = Year; t = Ton; mn = Million; th = Thousand; sq m = Square meter; cu m = Cubic meter; km = Kilometer

Note: Additional information can be obtained from institutions and organizations listed in Annex C-5.

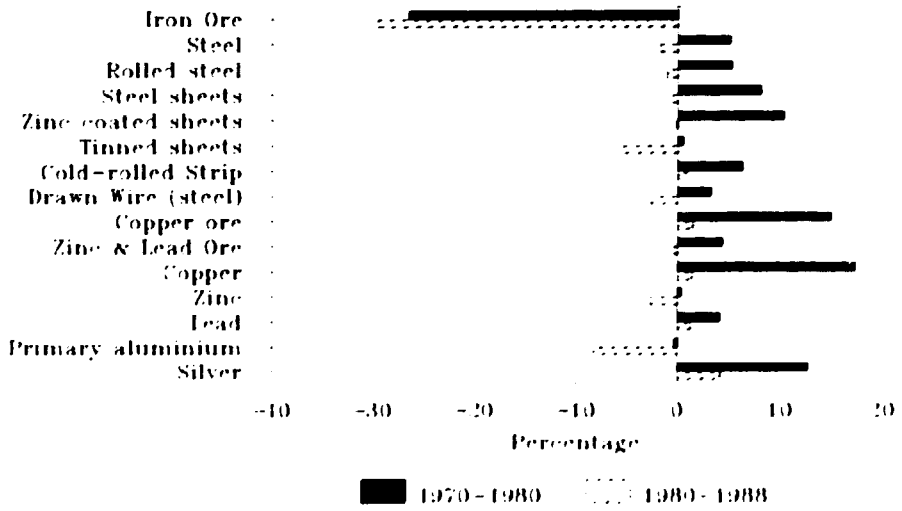
4. Prospects

Prospects for the basic metals sub-branch are constrained by obsolete over-capacity in relation to domestic and foreign demand from the main users - ship-building, building construction, heavy machinery and transport equipment. Although potential demand from the USSR for these products is very large, it is effectively constrained by the trade policy of the USSR. At the time of writing, Poland had a large and growing overall trade surplus with CMEA countries which constrained Poland's exports. As discussed earlier, from 1991, trade within the CMEA will be conducted in convertible currencies and no longer subject to quantitative constraints. Freed of these constraints, it would appear that Poland would be competitive in the metallurgy branch and a large increase in exports to the established markets would become a possibility. However, with trade conducted in convertible currencies, Poland would find itself in direct competition with OECD suppliers in these markets. Most steel products are not of high quality or value and production capacity was expanded primarily to serve demand expected from the USSR for ships, building and civil engineering construction, heavy lifting equipment, etc. To upgrade the quality of this branch's products in order to make them competitive with OECD suppliers would be a lengthy and expensive task for local enterprises.

There are thus abundant opportunities for profitable foreign investments in basic metals to replace outdated equipment. The technology of steel production has been changing. In 1970, about 80 per cent of steel was produced using open-hearth furnace technology. The corresponding figure for 1988 was 39 per cent, reflecting the introduction of oxygen converters and electric furnaces. This is still a very high proportion by international standards.

The basic metals branch is concentrated, along with coal mining, in the Silesi region and environmental pollution from the two activities is very high, constituting a major health hazard to the regional population. The Katowice administrative area produces most of Poland's hard coal, about half of its rolled and crude steel, and one third of its coke. It also produces 30

Fig. IV.1. Growth of metallurgical products, 1970–1980 and 1980–1988
(Average annual physical output growth)



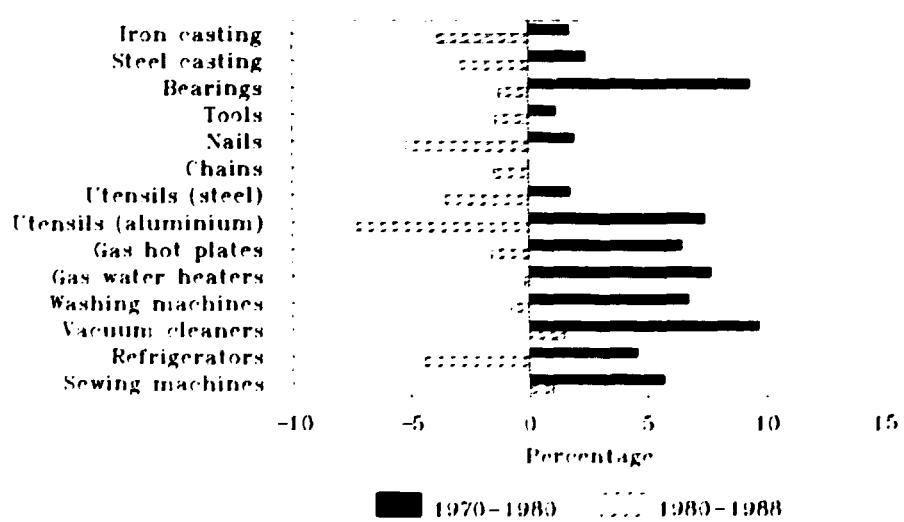
per cent of the country's dust, 40 per cent of gaseous pollutants, and 60 per cent of solid refuse. The cost of reducing Poland's industrial pollution to acceptable levels will be very substantial – possibly in the order of $20–25 billion. A large slice of these costs will fall upon the metallurgy industry.

The need to reduce pollution gives new investment an added urgency. The government has tightened its regulation of emissions and has also introduced tax concessions. The recent large increase in prices helps provide domestic producers with the necessary resources to finance such investment. In addition, some World Bank funding has recently been approved, and neighbouring countries such as Finland have also offered assistance.

Prospects for Poland's non-ferrous metal exports seem good. Non-ferrous export products are technologically efficient and competitive on the world market, while enterprises are financially sound. They do not seem to require financial assistance for restructuring as they generate most of their investment funds internally. However, environmental pollution, principally in the form of lead emissions, is a problem which provides an opportunity to suppliers of clean technology. Although the major markets for Polish copper exports are in the EC, Poland stands to benefit from a significant rise in copper consumption in Eastern Europe. A substantial increase in demand stems from joint ventures in the automotive sector and building improvements.

With a view to reducing import dependence on aluminium, Poland could venture into recycling projects. Cans made from used aluminium containers may cost only about three-quarters as much as the cost of imports. Recycling projects are gaining momentum world-wide for good commercial reasons, particularly in view of the substantial amount of energy conserved in the process of recycling. It requires around 5 per cent of the energy needed to produce aluminium from ore. Given the volatility of energy prices on the world market and the high energy intensity of products in Poland (discussed in Section IV.H), this is an attractive area of investment.

Fig. IV.J. Growth of metal products, 1970–1980 and 1980–1988
(Average annual physical output growth)



G. ENGINEERING INDUSTRY: SURVIVAL OF THE FITTEST

1. An overview

The engineering industry in Poland is the largest branch of the industry, accounting for over 25 per cent of industrial output and around 30 per cent of industrial employment. Its role in foreign trade is even more important by virtue of its significant contribution of 43.2 per cent to industrial exports. Its share in industrial imports was also high at 39 per cent in 1989. However, the relatively great importance of the branch is partly exaggerated by the Polish statistical classification of engineering which covers a wide spectrum of products and activities. Predominant subsectors are machinery and equipment and transport equipment, accounting for 7.2 per cent and 7.1 per cent of total industrial sales in 1987 respectively, followed by electrical engineering and electronics (5.4 per cent), metal forming (4.2 per cent), and precision instruments (1.2 per cent). In 1988, Poland ranked ninth in the world as a shipbuilder, with a share in world shipbuilding of 2.1 per cent. Poland was also the world's 12th biggest passenger car producer, with a share of 0.9 per cent of world passenger car output.

The engineering branch shows a high degree of producer concentration, with the ten largest enterprises accounting for 61 per cent of sales in the mid-1980s. However, this figure is strongly influenced by a few subsectors; production of ships, cars, television and radio sets is highly concentrated, while on the other hand there are many comparatively small producers of components.

2. Emerging trends

Production trends across a wide range of engineering products are presented in Annex Table A-11. The 1970s witnessed a rapid expansion of the engineering industry. The growth leaders during the decade were metal bearings, aluminium utensils, gas hotplates, gas water heaters, washing machines, vacuum cleaners, sewing machines, piston engines, machines for coal mining, numerical control machine tools, wood-processing machines, cultivators, grain drills, combine harvesters, cranes, typewriters, electric locomotives, passenger cars, special trucks, bicycles, baby buggies, electric machines, cables and wires, telephone switchboards, telephone sets, telegraph sets, radio receivers sets, tape recorders, semiconductor elements, resistors and condensers. Most of these products recorded an annual rate of expansion of over 5 per cent, while a few products grew rapidly at a double-digit growth rate.

In contrast to a healthy pace of expansion in the 1970s, the engineering industry plummeted into a severe downturn during 1980–1988 with almost all segments of the metal-forming industry recording negative growth or subdued rates. Although several branches of the machine and equipment branch suffered negative growth rates, a few branches recorded high rates of expansion. These notable exceptions included fix-tube boilers and machines for the clothing industries (these two products had suffered negative growth rates in the 1970s). Out of 25 product areas in the precision engineering industry, 21 plunged into negative growth trends during 1980–1988. The general wave of deterioration swept through a large number of products in the electrical engineering and electronics subsector. Positive growth rates registered by few product areas were far below the level achieved in the 1970s.

Production of transport equipment grew by 8.8 per cent per annum during the 1970s, but the growth rate fell to only 1.6 per cent per annum in 1980–1988. Over the period 1970–1988 the branch increased its share of total industrial sales from 6 per cent to 8 per cent. The corresponding figures for value added were 5 per cent in 1970 and 9 per cent in 1988. The growing share in value added reflects the special position of the car industry, which accounts for more than half of the sales of this branch. The consumer hunger for cars reinforced the power of producers and created a 'car lobby', with the effect that throughout the 1980s the

Fig. IV.K. Growth of machinery products, 1970–1980 and 1980–1988
(Average annual physical output growth)

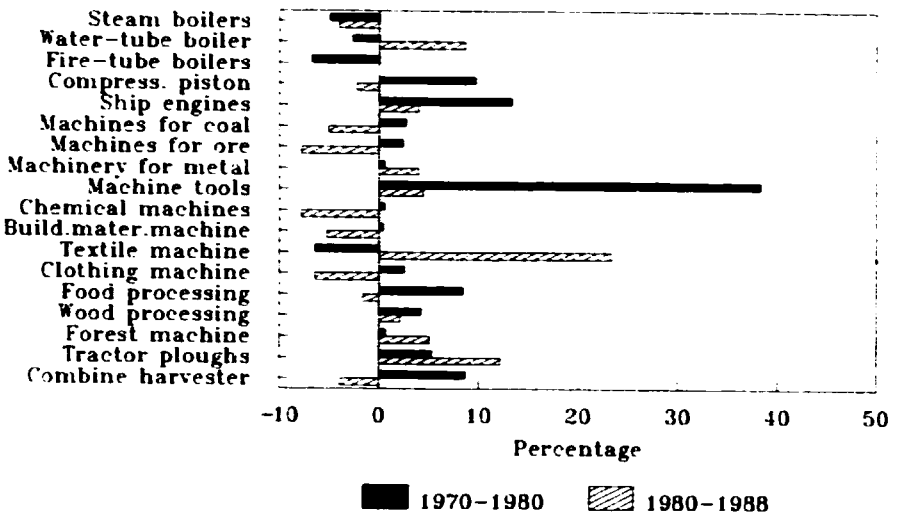


Fig. IV.L. Growth of transport equipment, 1970–1980 and 1980–1988
(Average annual physical output growth)

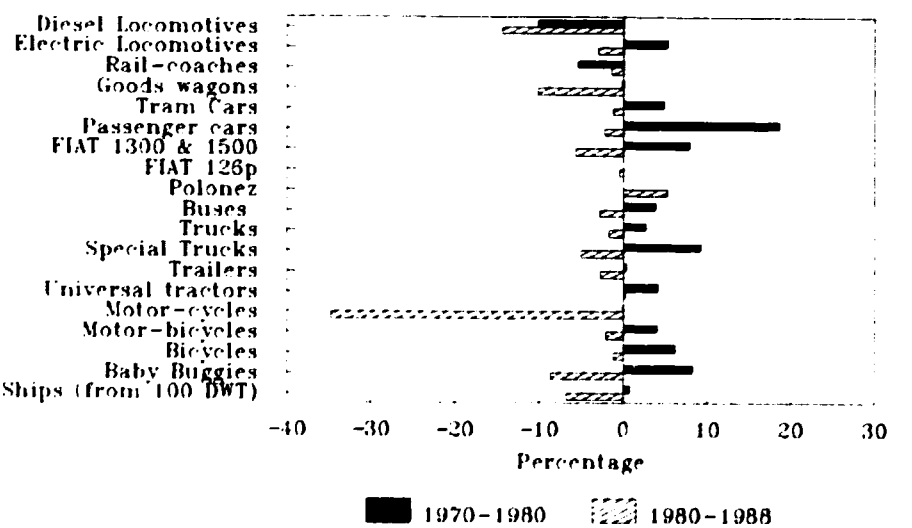
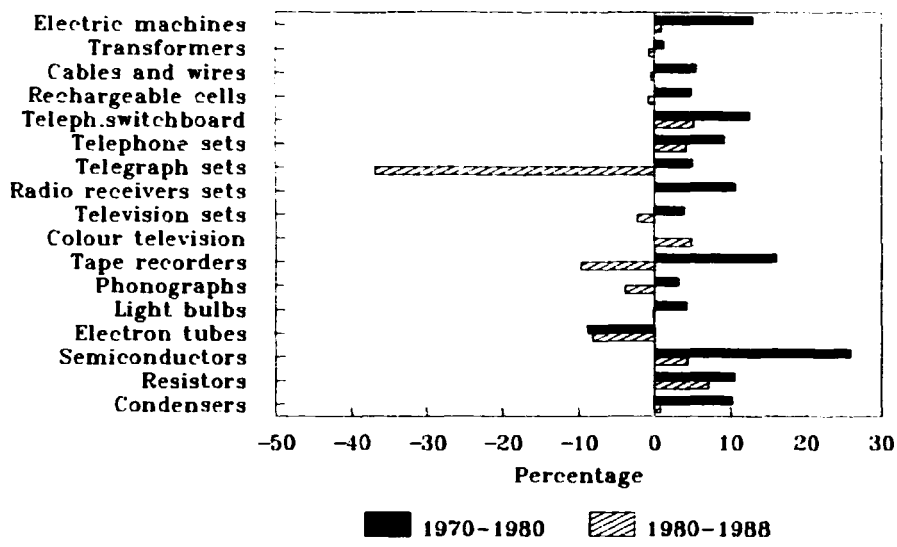


Fig. IV.M. Growth of electrical and electronic products, 1970–1980 and 1980–1988
(Average annual physical output growth)



car industry has received special reliefs and incentives under the threat that car production might be halted. Matters have not changed under the new government, which has granted car producers tax reliefs in respect of the 'obligatory dividend'. These reliefs do not apply to other producers.

In general, the quality of transport equipment products is not encouraging. The volume of production of almost all major products was lower in 1988 than in 1980. A huge decline is observable for ships, diesel locomotives, goods wagons, motor-cycles and baby buggies. This is attributable not only to lack of competitiveness but also to stagnant or declining demand.

The efficiency of this branch has been handicapped by excessive product diversification. In the 1980s its output was frequently constrained by shortages of essential inputs, including imported inputs. Its outputs have been in some cases poorly matched to market needs; for example, large farm tractors which were inappropriate for small-scale domestic farmers. These problems can be traced to a lack of market orientation in production planning. Although formal central planning ceased at the beginning of the 1980s, the habit of a co-operative rather than competitive approach to inter-enterprise relationships continued, reinforced by the absence of financial performance constraints.

Amidst a 1.7 per cent fall in the sales of the engineering industry in general, metal products and electrical engineering and electronics recorded over 2 per cent growth in sales in 1989. A 203 per cent increase in average prices for engineering products dramatically increased profits from 11.1 per cent of sales in 1988 to 26.7 per cent in 1989, the highest figure for any branch. The profit/sales ratio was 34.5 per cent in precision instruments, compared with 30.2 per cent in engineering.

Despite severe distortions and bottle-necks, engineering goods have consistently maintained a predominant share of industrial exports. Poland is a net exporter of iron castings, metal fittings, metal constructions, tools, piston engines, automatic control instruments, computer

systems, measuring instruments and electrical and electronics products. The country is a net importer of refrigerators, freezers and washing machines. Most of these articles were imported from the Soviet Union in 1988.

Among the exports of consumer products, the Soviet Union bought about 300,000 gas hotplates which accounted for 75 per cent of the total exported. The other important markets were the Libyan Arab Jamahiriya and Sweden. Poland is also a big exporter of vacuum cleaners (270,000 in 1988). Some major importers include France, Germany, Federal Republic of, Greece, the United Kingdom, Sweden and Switzerland. Export of sewing machines accounted for 141,000. Most of them were sold in Czechoslovakia, Hungary and the United States.

For most products of the machinery and equipment category, exports continued to be higher than imports (see Table IV.21 and Table IV.22). In the trade profile of precision instruments Poland stands as a net importer of optical and medical instruments and equipment, photographic cameras and other equipment. Among the more important types of transport equipment traded in 1988 were: railway locomotives, of which Poland imported 155 (64 from Romania, 38 from the Soviet Union, 29 from Czechoslovakia and 24 from the German Democratic Republic); passenger rail coaches, of which 60 were imported (34 from the German Democratic Republic and 26 from Romania); and goods wagons. Poland imported 3,698 goods wagons (2,348 from Romania and 1,300 from Czechoslovakia), but also exported 2,836, of which 2,500 were sent to the Soviet Union; of the 112,832 passenger cars exported in 1988 (44,000 passenger cars were exported to Switzerland, 13,000 to Yugoslavia, 12,000 to China, 12,000

Table IV.21. Exports of selected engineering goods, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Metal forming industry						
Metal fittings	tons	..	11,276	21,313	..	8.3
Gas hot plates	'000 units	317.6	293.1	393.8	-0.8	3.8
Sewing machines	'000 units	122.8	185.1	141.0	4.2	-3.3
Machinery and equipment						
Piston engines	units	4,336	12,772	9,138	11.4	-4.1
Machines for coal mining	tons	..	28,177	55,001	..	8.7
Machinery for metallurgy	tons	..	39,842	59,464	..	5.1
Machine tools	units	5,653	7,410	6,320	2.7	-2.0
Wood processing machines	tons	..	12,632	9,515	..	-3.5
Excavators	units	1,780	1,535	1,229	-1.5	-2.7
Loading machines	units	..	1,395	2,101	..	5.3
Bulldozers	units	52	280	400	18.3	4.6
Liquid pumps	units	26,279	22,294	20,607	-1.6	-1.0
Transport equipment industry						
Rail-coaches	units	295	143	..	-7.0	..
Goods wagons	units	5,779	6,745	2,836	1.6	-10.3
Passenger cars	units	20,617	112,826	112,832	18.5	0.0
Buses	units	4,200	6,200	3,800	4.0	-5.9
Trucks	units	12,700	14,600	10,000	1.4	-4.7
Trailers	units	1,383	7,390	12,815	18.2	7.1
Universal tractors	units	12,652	4,305	3,477	-10.2	-2.6
Bicycles	'000	271.9	527.5	380.5	6.9	-4.0
Ships (from 100 DWT)	'000 DWT	385.4	363.8	45.0	-0.6	-23.0
Electronic engineering and electronics						
Telecommunication equipment	tons	..	2,839	1,541	..	-7.3
Phonographs	'000	..	279.4	345.6	..	2.7

Source: Central Statistical Office.

to Italy, 9,000 to Hungary and 8,000 to the United Kingdom); ships, which were sold to the Finland, Holland, Panama, Soviet Union, Sweden, Syrian Arab Republic, and the United States; ship repair services, which were of almost of the same importance as exports of various ships (ship repair services were sold to the German Democratic Republic, the Soviet Union, and even Ireland); and aircraft (mostly small agricultural aircraft) which were exported to Czechoslovakia, Romania, the Soviet Union, the United States and other countries.

Poland exports electrical and electronics products to almost all countries in the world. The main exports and their destinations in 1988 were: electronic machinery for power plants, exported to the German Democratic Republic, Germany, Federal Republic of, the Netherlands, Turkey, the Soviet Union, the United Kingdom, and other countries; cables and wires, exported to China, France, Germany, Federal Republic of, the United Kingdom and Yugoslavia; telecommunication products, exported mainly to Czechoslovakia, Libyan Arab Jamahiriya and the Soviet Union; radio receiver sets, exported to France (105,000), Germany, Federal Republic of (57,000) and Czechoslovakia (44,000); television sets, exported to the United Kingdom (35,000 units), the Netherlands (32,000) and France (18,000); and lamps, electronic lamps and various electronic elements, sold in Asia, Europe, the Middle East, and the United States.

In 1988, the metal-forming branch consisted of 861 socialized enterprises, contributing 4 per cent of industrial output and 3.8 per cent of industrial exports, employing 6 per cent of the industrial workforce and using 4.2 per cent of industrial fixed assets. There were also 32,267 small private enterprises registered in this branch. Their employment was over 86,000 workers, an average of less than three workers per enterprise. Private employers are more important in this branch than in any other in engineering. They employed 26 per cent of

Table IV.22. Imports of selected engineering goods, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Metal forming industry						
Metal fittings	tons	0.9	7,463	8,271	23.6	1.3
Washing machines	'000 units	24.8	20.0	419	-2.1	46.3
Refrigerators and freezers	'000 units	37.4	199.3	555	18.2	13.7
Machinery and equipment						
Machine tools	units	5,371	7,167	11,838	2.9	6.5
Cranes	tons	9,000	14,330	12,705	4.8	-1.5
Precision industry						
Watches	'000	1,629	2,601	2,912	4.8	1.4
Transport equipment industry						
Locomotives	units	169	247	155	3.9	-5.7
Goods wagons	units	222	1,353	3,698	19.8	13.4
Passenger cars	units	16,480	14,891	38,741	-1.0	12.7
Buses	units	306	1,512	460	17.3	-13.8
Trucks	units	7,836	16,779	9,075	7.9	-7.4
Trailers	units	624	7,860	7,149	28.8	-1.2
Universal tractors	units	1,650	16,025	20,108	25.5	2.9
Motor-cycles	units	5,507	28,705	41,473	17.9	4.7
Electronic engineering and electronics						
Television sets	units	1,700	240,000	469,000	54.0	8.7

Source: Central Statistical Office.

the branch workforce. In 1988, there were 155 socialized enterprises manufacturing precision instruments and 327 enterprises in the transport equipment branch. The shipbuilding sub-branch consisted of 33 enterprises in 1988. The number of State enterprises in electrical engineering and electronics was 350 in 1988. Their share in industrial sales was 5.1 per cent and their share in exports 5.9 per cent. They employed 252,000 workers (6 per cent of industrial employment) and used 3.55 per cent of industrial fixed assets. There were also 20,474 small private firms with 25,000 workers, an average of only just over 1 worker per firm. Selected financial performance indicators of engineering enterprises are presented in Annex Table B-7.

3. Investment opportunities

Of the 27 foreign investments in non-electrical machinery and equipment made by October 1989, 5 were in the manufacture of machinery for special purposes, such as forest machinery, machine-tools, food processing machines and textile machinery. Machinery for general purposes attracted 14 foreign investments, while communication equipment and precision instruments together attracted 20 foreign investments by October 1989. The engineering industry represented the largest number of potential investment proposals during the Second Investment Forum held in May 1990 (see Table IV.23).

4. Prospects

Excessive product diversification and shortages of essential imports continue to constrain the prospects for healthy expansion. In the 1980s, these constraints have tended to shift the pattern of production from finished products to the manufacture of parts, components and subassemblies in which Poland seems to have enjoyed relative comparative advantage in a seller's market (domestic and CMEA). However, lack of foreign exchange, components and spare parts constrains modernization and export expansion. Shortages of good quality castings, forging, electronic components, cables, aluminium, bearings, plastics and rubber-band items, and stainless steel, have adversely affected product design and timely delivery. With some notable exceptions there is a lack of flexibility to accommodate design changes and new lines of production. Lack of improvements in product technology was largely due to the absence of foreign competition for decades. The weakness of the engineering industry became more transparent in the 1980s, revealing the need for fundamental restructuring in order to create efficient capacity and to enhance the quality of products. Inadequate advancement in product technology was due also to a substantial reduction in licensing agreements with foreign producers. Poland's Fiat 126 car has remained virtually unchanged ever since it came on stream in 1974. Considerable new investment is needed to reach the frontier of modern technology. Negotiations are underway to produce a new Fiat model, the Fiat 500, the first western car to be produced from scratch in Eastern Europe.

Many engineering enterprises could survive in 1990 by drawing on previously accumulated reserves and taking advantage of low-cost, soft-currency energy and new material supplies from the Soviet Union. Even shaky enterprises have survived by paying lower wages, or even by shedding workers. Comparative advantages based on the intensive use of relatively low cost labour are being increasingly eroded in the face of progressive automation in the world engineering industry. The introduction of new technologies is emerging as the major determinant of competitiveness. Most of the large enterprises have specialized for decades in dealing with the CMEA market. A large number of these need radical restructuring if they are to survive as the switch to hard currency trade from January 1, 1991, is reducing the scope for trade in low-cost soft-currency supplies. The implications for Poland will be profound. A product at great risk is consumer electronics. This can now be purchased more cheaply by Poland's traditional partners from Southeast Asia. This calls for a change in product mix and marketing.

Table IV.23. Potential investment proposals in engineering industry seeking external contribution, May 1990

Project number	Product	Capacity per year	Investment $ million Total	Foreign	Forms of foreign contribution[a]
POL/459/ W/90-05	Hydraulic lifts	1.5 th pcs/y	3.75	1.25	jve,cai,eqy,lic,sot, eqs,afm,sct,tex
POL/460/ W/90-05	Wire fastening machines	120 pcs/y	11.0	3.0	cai, sot, eqy, mkx, tex, trx, afm
POL/461/ W/90-05	Winchester (HDD) drives	300 th pcs/y	35.7	17.0	jve,cai,eqy,lic,sot, max,,mkx,tex,trx
POL/462/ W/90-05	Magnetic card read-write equipment Magnetic card computer systems	4,400 pcs/y 300 pcs/y	1.25	0.7	
POL/463/ W/90-05	Hydraulic and hydro-static system units	6,000 pcs/y	13.30	4.00	jve, eqy, sot, eqs, afm, max, tex, mkx
POL/464/ W/90-05	Hydraulic servo-mechanism Hydraulic engines	110 th pcs/y 20 th pcs/y	19.72	9.00	jve, cai, afm, max, mkx
POL/465/ W/90-05	Agriculture and construction equipment	1,000 t/y	0.7	0.57	jve, eqy, sot, afm sct, tex, trx, mkx
POL/466/ W/90-05	Precision machine tools	50 pcs/y	12.00	2.70	jve,cai,sot,eqs,afm sct,ctr,tex,trx,mkx
POL/467/ W/90-05	Fuel injectors	250 th pcs/y	1.0	1.0	jve, cai, afm, mkx
POL/468/ W/90-05	Pintle nozzles size S	440 th pcs/y	2.0	2.0	jve, cai, Ins
POL/469/ W/90-05	Agricultural machines	26 th pcs/y	8.38	2.7	jve,cai,eqy,Ins,lic, sot,eqs,afm,ctr,tex, trx,mkx
POL/470/ W/90-05	Fastener manufacturing devices	3 mn USD/y	10.00	8.50	jve, eqs, lic, sot mkx
POL/471/ W/90-05	Universal stomatology stands	1,000 stands/y	4.54	2.38	jve,cai,eqs,eqy,Ins, lic,sot,afm,ctr,tex, mkx
POL/472/ W/90-05	Agricultural machinery Tractors	5,000 pcs/y 2,000 pcs/y	150.0	100.0	jve, lic, sot, afm mkx, trx
POL/473/ W/90-05	Agricultural heavy trailers	8,000 pcs/y	10.35	4.75	jve, cai, eqs, sot, afm, tex, trx, mkx

Table IV.23 (*continued*)

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/474/ W/90-05	PC computers and hardware	1,000-1,500 pcs/y	8.00	4.00	jve,cai,lic,sot,afm sct,max,mkx,tex,trx
POL/475/ W/90-05	Farm tractors	56 th pcs/y	111.00	34.20	jve,cai,eqy,Ins,eqs, afm,ctr,trx,tex
POL/476/ W/90-05	High resolution graphic terminals High resolution graphic monitors	500 pcs/y 2,500 pcs/y	0.45	0.23	jve,cai,lic,sot,eqs, afm,tex,trx,mkx
POL/477/ W/90-05	Light multifunction farming machinery Equipment for municipal sewage treatment	10 mn USD/y	6.10	1.60	jve,cai,eqs,sot,lic, afm,max,mkx,tex,trx
POL/478/ W/90-05	Steel structures, mobile crane components	30 mn USD/y	24.9	5.0	jve, eqy, sot, eqs, afm, tex, mkx
POL/479/ W/90-05	Diesel engines to 10 170 HP Generators	35 th pcs/y 2 th pcs/y	n.d.	n.d.	jve, afm, trx, mkx
POL/480/ W/90-05	Machines for cable production	30 pcs/y	2.4	1.2	jve, cai, Ins, afm, max, mkx
POL/481/ W/90-05	Hydraulic propulsion systems	115 pcs/y	8.0	6.6	jve, cai, eqy, afm, eqs, mkx
POL/482/ W/90-05	Polyester-metallized capacitors	10 mn pcs/y	1.84	0.9	jve, cai, eqy, eqs, afm, tex, trx
POL/483/ W/90-05	Alternating current capacitors	500 th pcs/y	1.68	0.88	jve, eqy, cai, eqs, afm, tex, trx
POL/484/ W/90-05	Compact fluorescent lamps	5 mn pcs/y	10.6	7.3	jve,cai,eqy,lic,sot, eqs,afm,tex,trx,mkx
POL/485/ W/90-05	Halogen lamps	3.75 mn pcs/y	9.8	6.8	jve,cai,eqy,lic,sot, eqs,afm,tex,trx,mkx
POL/486/ W/90-05	Metallized polyester and polypropylene foil	80 t/y	1.54	0.86	jve, cai, eqy, eqs, afm, tex, trx
POL/487/ W/90-05	Aluminium electrolyte capacitors	80.6 mn pcs/y	6.30	3.50	jve,cai,eqy,eqs,afm, ctr,tex,trx,mkx
POL/488/ W/90-05	Radio-telecommunication and electronic equipment	50 mn USD/y	38.6	19.2	jve,cai,lic,sot,eqs, afm,Ins,rmt,max,mic, tex,trx

Table IV.23 (*continued*)

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a]
POL/489/ W/90-05	Digital resistance meters Convertors X-Y recorders	10,000 pcs/y 4,000 pcs/y 2,000 pcs/y	5.2	4.1	jve, eqy, sot, sct, mkx, xtr, max, mkx
OIL/490/ W/90-05	Bipolar power transformers Darlington modules	7 mn pcs/y 70,000 pcs/y	20.8	16.4	jve, eqy, sot, sct, max, mkx, tex, trx
POL/491/ W/90-05	DC electric motors	1 mn pcs/y	2.12	1.04	jve, cai, eqy, Ins, eqs, afm, trx, mkx
POL/492/ W/90-05	Magnetic media	80 mn pcs/y	62.26	30.62	jve, cai, eqy, sot, afm, max, trx, mkx
POL/493/ W/90-05	Professional electronics	20 mn USD/y	4.0	2.0	jve, eqy, eqs, sot, afm, trx, mkx
POL/494/ W/90-05	Motor speed governors	10 th pcs/y	1.0	0.50	jve,eqy,lic,sot,eqs, afm,ctr,tex,trx
POL/495/ W/90-05	Electric switchboards	5 th pcs/y	1.55	0.55	jve, eqy, lic, sot, eqs, afm, ctr, tex
POL/496/ W/90-05	Lightning-arresters with zinc-oxide varistors	800 th pcs/y	10.10	4.30	jve, cai, sot, eqs, afm, max, mkx, tex
POL/497/ W/90-05	Electronic heat-meters	50 th pcs/y	4.00	2.50	jve, eqs, cai, sot, afm
POL/498/ W/90-05	Control and distribution equipment Movable transformers	2,500 pcs/y	3.80	1.00	cai, eqs, jve
POL/499/ W/90-05	Welding equipment and compressors	15 th pcs/y	10.00	5.00	eqy, jve
POL/500/ W/90-05	Automatic means, robots, measuring apparatus	Prototype series	2.60	1.30	jve,cai,eqy,lic,sot,
POL/501/ W/90-05	Thyristor frequency convertors	4 th pcs/y	1.80	0.65	jve,cai,eqy,Ins,lic, sot,eqs,afm,sct,ctr, max,mkx,tx,trx
POL/502/ W/90-05	Multifunctional switchcs and accessories	10 mn pcs,y	13.13	1.25	jve, eqy, lic, sot, eqs, afm, sct, mkx
POL/503/ W/90-05	Light fittings	330 th pcs/y	3.00	1.50	jve,cai,eqy,lic,sot, eqs,afm,ctr,mkx

Table IV.23 (*continued*)

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/504/ W/90-05	Universal single/ double process controllers	4.5 th pcs/y	8.2	5.0	jve, eqy, Ins, sot, afm, mkx, tex, trx
POL/505/ W/90-05	Water meters, heat meters,regulators	150 th pcs/y	0.94	0.48	jve,cai,eqy,lic,sot eqs,afm,tex,trx
POL/506/ W/90-05	First aid cardiological equipment	5,000pcs/y	0.62	0.32	jve, cai, eqs, sot
POL/507/ W/90-05	Monitoring/diagnostic cardiological apparatus	2,000 pcs/y	0.50	0.26	cai, sot, afm, jve, tex, trx, mkx
POL/508/ W/90-05	Private branch exchange for digital/voice transmission	100 pcs/y	1.06	0.26	cai, sot, afm, jve, tex, trx, mkx
POL/509/ W/90-05	Telephone exchanges and sets Magnetic cards	1,700 pcs/y 1 mn pcs/y	7.0	4.0	jve, cai, lic, sot, max, mkx, tex, trx
POL/510/ W/90-05	Electrical equipment and installations	95 th USD/y	2.44	1.20	jve, cai, eqy, tex, mkx
POL/511/ W/90-05	Computer peripherals	8,000 pcs/y	6.00	3.00	jve,cai,lic,sct,afm sct,max,mkx,tex,trx
POL/512/ W/90-05	Industrial heat consumption meters Radiator thermostats	1,000 pcs/y 100 th pcs/y	0.55	0.28	jve, sot, eqy, lic, rmt, max, mkx, tex
POL/513/ W/90-05	Clerices	1 mn USD/y	4.0	0.5	jve, sot, eqy, mkx, max, afm
POL/514/ W/90-05	Electronic small capacity suscribers trunks	1,000 pcs/y	0.7	0.12	jve,eqy,Ins,sot,eqs, afm,tex,mkx,trx
POL/515/ W/90-05	Radio and TV aerials	200 th/pcs/y	0.17	0.06	jve,eqy,Ins,sot,eqs, afm,mkx,tex,trx
POL/516/ W/90-05	Mini tractors	400 pcs/y	3.50	2.98	jve, cai, sot, eqs, afm, tex, trx, mkx
POL/517/ W/90-05	Lorries	2,000 pcs/y	10.06	9.62	jve, cai, eqy, Ins, sot, ctr, trx, mkx
POL/518/ W/90-05	Hulls-length to 40 m	2,900 t/y	2.36	1.92	jve,cai,eqy,Ins,sot, eqs,afm,max,tex,trx, mkx

Table IV.23 (*continued*)

Project number	Product	Capacity per year	Investment $ million Total	Investment $ million Foreign	Forms of foreign contribution[a/]
POL/519/ W/90-05	Sport boats	200 pcs/y	0.22	0.07	jve, eqy, afm, mkx
POL/520/ W/90-05	Microscopes, Refractometers, telescopes Enlargers/slide-projectors Ophtalmic glasses Spectroscopes	20 th pcs/y 30 th pcs/y 50 th pcs/y 1.7 mn pcs/y 30 pcs/y	15.0	6.0	jve, eqy, sct, ctr, mkx, tex, trx
POL/521/ W/90-05	Potentiometers	100 mn pcs/y	10.9	2.50	jve,cai,eqy,lic,sot, eqs,afm,tex,trx,mkx
POL/522/ W/90-05	Electronic measuring and control instruments	6 th pcs/y	1.20	0.50	jve, cai, max, mkx, tex, trx
POL/523/ W/90-05	Toy baby carts and scooters	350 th pcs/y	1.02	0.30	jve,cai,eqy,eqs,sot, afm,ctr,trx,mkx
POL/524/ W/90-05	Mechanical pencils and ball-pens	15 mn pcs/y	0.23	0.23	cai, eqs, Ins, eqy, afm, tex

Source: UNIDO, *List of Projects, Second Investors Forum for the Promotion of Foreign Investment* (Warsaw, 21-24 May 1990).

a/ afm = Access to Foreign Markets; lic = Licensing; rmt = Supply of Components; cai = Cash Investment; Ins = Loans; sct = Subcontracting; ctr = Compensation Trade; max = Management Expertise; sot = Technology; eqs = Equipment Supply; mkx = Marketing Expertise; tex = Technical Expertise; eqy = Equity Participation; trx = Training Expertise; jve = Joint Venture; pcs = Pieces; y = Year; t = Ton; mn = Million; th = Thousand; sq m = Square meter; cu m = Cubic meter; km = Kilometer

Note: Additional information can be obtained from institutions and organizations listed in Annex C-5.

The new foreign trade and foreign exchange regimes introduced by the new government serve to help solve supply problems for producers. It remains to be seen whether competitive behaviour will develop rapidly. There are many new opportunities opening up, such as the increased investment in new agricultural food processing equipment resulting from government incentives and World Bank funding. If producers in this branch respond dynamically to the new economic environment in the 1990s, this should have a major impact on the economy's performance in view of the branch's large weight in industrial production. This would not however be entirely cost-free since the required adjustment would involve the contraction and in some cases liquidation of those enterprises unable to compete.

H. FUEL AND POWER: FOCUS ON CONSERVATION

1. The resource base

Poland is the fourth largest hard coal producer in the world and the largest in Europe. Its share in total world hard coal production was 5.5 per cent in 1988 (19.9 per cent of Europe's production). The country is one of the world's largest hard coal exporters and is also the fifth largest lignite producer in the world, with a share in world production of 5.9 per cent in 1988. Proven recoverable reserves of hard coal are estimated at 31 billion tons. Hard coal is a mainstay of the national economy: about 85 per cent of total primary energy requirements and 60 per cent of the power produced in Poland is derived from the combustion of hard coal.

Hard coal is divided into three major groups. Power coal constituted 68 per cent of hard coal production, gas coal 10.8 per cent and coking coal 17.4 per cent in 1988. There is virtually no premium quality coal. However, there are medium-low quality, low sulphur coals which have to pass through washeries or preparation plants.

The fuel branch divides into coke, gas and petroleum. Natural gas deposits are not large, and a lot of gas is imported. Although Poland was a pioneer of petroleum extraction, domestic production is nowadays insignificant, and refining is based on imported oil. The fuel industry covers a wide range of mainly intermediate products, including coke, high-temperature tar, benzol, coke-oven gas, gas from gas-works, crude oil, natural gas, petrol, gasolines, kerosine, refinery gas, diesel fuel, furnace oil, lubricating oil and asphalt.

The power industry transforms primary fuels into electric energy and heat energy. The Polish power sector has recorded impressive growth since the 1960s. Electric energy production increased from 64.5 TW/h in 1970 to 122 TW/h in 1980. In the 1980s it was still growing (at a smaller rate), reaching 145.5 TW/h in 1989. In 1988, its share in the world's electric energy production was 1.4 per cent.

The principal primary fuel in electric energy production is coal. However, lignite is of growing importance, increasing its share from about 19 per cent of electric energy production to over 36 per cent in 1988. The role of water power plants is small, but growing. The hydroelectric potential in terms of the possible annual electric energy production is estimated at 12 GWh. Currently only about 15 per cent of the country's hydroelectric potential is used. Its share in electric energy production in 1960 was 2 per cent and it increased to 4.2 per cent in 1988. Nuclear power plants do not exist at all, and the use of oil for generating electricity is negligible. Heat energy produced in tandem with electricity generation rose from 398 PJ in 1970 to 715 PJ in 1980. Almost the same level (716 PJ) was achieved in 1988.

2. Emerging trends

Fuel and power accounted for 12.1 per cent of total industrial sales in 1989; of this coal mining accounted for 3.8 per cent, oil and gas for 5.2 per cent and electric power generation and transmission 3.1 per cent. This industry branch contributed 11 per cent to industrial exports in 1989 and accounted for 13.3 per cent of industrial imports. Its share in industrial employment stood at 16.6 per cent.

Because of the administrative prices of coal and electricity prevailing in 1989, the importance of this branch is understated by the sales figures. In 1989 coal mining paid virtually no taxes, but it received subsidies which were equal to 51 per cent of its costs and 85 per cent of its sales. In some coal mines such as Bogdanka subsidies were 3 times higher than sales. The opposite was true for oil products where subsidies were very small, and taxes (mainly turnover tax) reached 26 per cent of sales. In electric power and heat taxes and subsidies were equal, but the price was and remains administered. The electric energy price covers costs (themselves artificially low because of the coal subsidy) plus a profit margin of 8 – 12 per cent.

Recent price adjustments have gone some way towards correcting this. Between December 1989 and January 1990, producer prices in the socialized sector increased on average by 110 per cent. Hard coal prices, however, increased by 304 per cent. Despite this, the coal industry still continued to operate at a loss, with no profitable mines in 1989 when evaluated at current money costs and prices. The financial position of the coal mining branch has been improved by abolition of administered prices from July 1990, but for many coal mines remains very weak. Future restructuring and pruning of the industry needs care if it is to achieve a measure of profitability and still remain as a significant generator of foreign exchange.

Following rapid expansion in the 1960s and 1970s, many of the products of the fuel branch reached their highest levels of production in 1970 – 1980. In contrast there was a sharp decline in the 1980s (see Annex Table A-12). The production of coke was almost 20 million tons in 1980 and only 16.5 million tons in 1989. Natural gas production increased from 549 cubic hectometres (cu hm) in 1960 to 5,182 cu hm in 1970. It was 6,329 cu hm in 1980 but only 5,377 cu hm in 1989. Petroleum refining increased from 7.5 million tons to over 16 million tons in 1980 and then declined to 15.2 million tons in 1988.

Of the various fuel products, petrol has probably been the fastest growing area followed by asphalt, refinery gas and diesel fuel. In value terms, in the 1970s fuel production was growing at 5.5 per cent per annum. However, in the 1980s it was decreasing at 0.9 per cent per annum. This branch showed a decline in the share of total industrial sales from 9 per cent in 1970 to 7 per cent in 1988. The shares in total industrial value added were 10 and 7 per cent respectively. The share in total industrial employment was steady at around 1 per cent over the period 1970 – 1988. The same is true for the share in industrial fixed assets (5 per cent).

The output of the power sector was impressive during the 1970s, growing at about 6.6 per cent per annum. Between 1980 and 1988, energy production grew at a lower rate of 2.1 per cent per annum. The average growth for both periods was 4.6 per cent per annum. Over the period 1970 – 1988 the energy output represented 2 – 4 per cent of total industrial sales, 2 – 3 per cent of value added, 13 – 14 per cent of industrial fixed assets and 2 – 3 per cent of industrial employment.

Poland imports virtually all of its crude oil. The major supplier of crude oil is the Soviet Union, which contributed 87 per cent of total crude oil imports (15 million tons) in 1988. It is notable that petroleum imports declined from 16.4 million tons in 1980 to 15 million tons in 1988. Reduced availability of crude oil from the Soviet Union, if it continues, could be a major problem for Poland. In 1989 and 1990 the shortfall had relatively little impact due to falling demand in Poland consequent upon the recession. The Soviet Union is also the major supplier of petroleum products, of which Poland imported over 3.2 million tons in 1988. The share of the Soviet Union in the total volume of these imports was 66.6 per cent.

There was a significant increase in imports of natural gas over the period 1970 – 1980, from 1,002 cu hm in 1970 to 5,312 cu hm in 1980, representing an annual growth rate of 18.1 per cent. Between 1980 and 1988, the annual growth rate in imports slowed down to 4.4 per cent (see Table IV.24). In the fuel branch, Poland exports coke. The largest importer of Polish coke is the Soviet Union which accounted for 66 per cent of Poland's export volume in 1988.

Poland both exports and imports electric energy. In 1988, Poland imported 6.8 TW/h, mainly from the Soviet Union (90 per cent), and exported 2.6 TW/h. Electric energy was exported to Austria (56 per cent), Romania (13 per cent), the Soviet Union (11.7 per cent) and other neighbouring countries.

The fuel industry in Poland consisted in 1988 of 35 State enterprises contributing 6.5 per cent to industrial sales. The branches with their respective shares in sales were: coke engineering (1 per cent), gas industry (1.3 per cent), petroleum extracting (0.1 per cent) and petroleum

refining (4.1 per cent). At the end of 1988 there were 29 small private enterprises in the fuel industry which employed 379 workers.

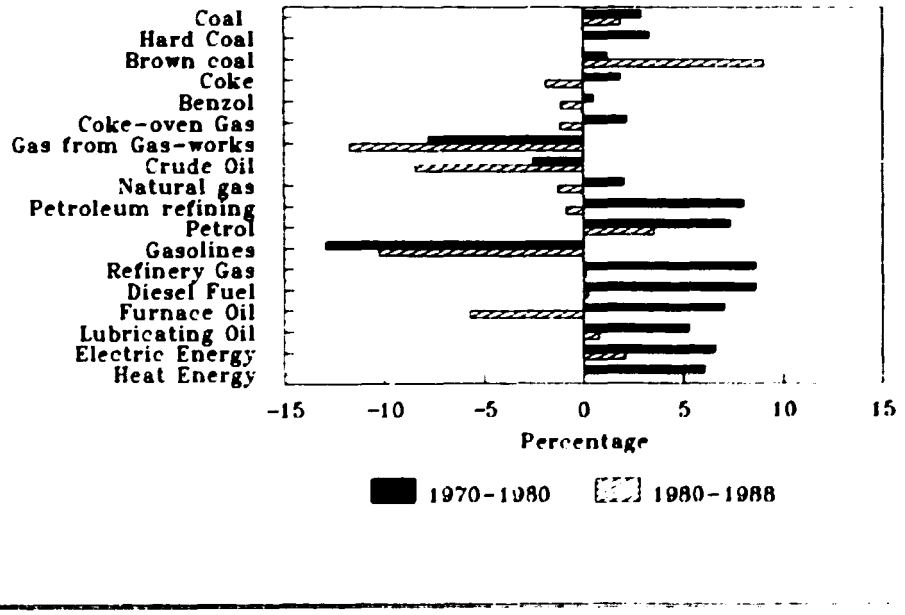
Coke is processed in four enterprises. The biggest of them are: Kombinat Koksowniczy Zabrze and Zaklady Koksownicze Walbrzych. In 1988, there were 19 State gas enterprises. The most important are located in Gdansk, Zabrze, Poznan, Warsaw and Tarnow.

Table IV.24. Exports and imports of coal, selected fuels and power, 1970, 1980 and 1988

Products	Units of measure	1970	1980	1988	Average annual growth rate (Percentage) 1970-1980	1980-1988
Exports						
Hard coal	million tons	28,815	31,048	32,177	0.7	0.4
Coke	million tons	2,284	1,343	2,844	-5.2	9.8
Petrol products	'000 tons	1,315.5	1,573.3	793.3	1.8	-8.2
Electric energy	GW h	437.7	1,415.6	2,571.3	12.5	7.7
Imports						
Natural gas	cu hm	1,002.4	5,311.6	7,486.8	18.1	4.4
Petroleum	'000 tons	7,010.7	16,347.4	14,966.2	8.8	-1.1
Petrol products	'000 tons	2,423.9	4,406.5	3,281.8	6.2	-3.6
Electric energy	GW h	446.0	888.0	6,790.0	7.1	29.0

Source: Central Statistical Office.

Fig. IV.N. Growth of coal, fuel and power, 1970–1980 and 1980–1988
(Average annual physical output growth)



There are eight huge State enterprises involved in petroleum refining. They are located in Plock, Gdansk, Czechowice, Trzebinia, Jaslo, Gorlice and Jedliszcze. The refinery in Plock is the biggest State enterprise in Poland (if one omits 'Polmos', distributing spirit and alcohol). It produces 2.7 per cent of total industrial sales and 0.93 per cent of total exports, though only 6 per cent of Plock output is exported. Moreover, it employs 8,000 workers and uses 1.2 per cent of total industrial fixed assets. The Gdansk refinery contributes 0.7 per cent to industrial output.

In 1988 the power industry consisted of 90 State enterprises employing about 120,000 people (2.9 per cent of the industrial labour force) and operating 14 per cent of total industrial fixed assets. At the end of 1988 there were 28 private enterprises producing energy, mostly small water power plants. Selected financial performance indicators of fuel and power enterprises are presented in Annex Table B-8.

3. Energy intensity

The energy intensity of the Polish national income is estimated at 2 to 3 times higher than that of developed market economies.[10] This implies that a unit of growth of the national income in Poland requires 2 to 3 times higher energy consumption than in DMEs. There are signs of a declining trend in the energy consumption intensity in Poland, but it is insufficient to achieve a high degree of rational utilization of factors of production. Comparison of Polish unit energy consumption indices with world indices for selected products is given in Table IV.25. Excessive energy intensity of products in Poland is apparent. Direct energy consumption per unit of pig iron, ammonia, cement, steel, sinters, and flat glass is significantly higher. A task facing the transition to market orientation is the rationalization of energy use. This calls for fundamental changes in the production structure, leading to efficient use of capital, labour, materials and energy in every single unit of production.

Table IV.25. Comparison between Polish energy intensity and world energy intensity for selected industrial products, 1987

		Poland			Reference world energy index intensity	
Item	Product	Direct energy consumption PJ/year	Percentage share	Energy intensity index GJ/t	GJ/t	Column 5:6
1	2	3	4	5	6	7
0	Industry	1682	100.0			
1	Pig iron	244	14.51	15.5	11.8	1.31
2	Ammonia from natural gas	82	4.88	39.0	32.4	1.20
3	Cement and clinker	87	5.17	5.3	3.1	1.71
4	Steel total	55	3.27	3.2[a/]	0.75[b/]	4.27
5	Sinters	31	1.84	2.0	1.7	1.18
6	Flot glass	8.3	0.49	18.5	11.9	1.55

Source: Slawomir Pasierb, "Rational use of energy in Poland: present state and future tendencies". In International Energy Agency, *Seminar on Energy in East and West: The Polish Case* (Paris 1990).

a/ Existing technological fraction: open hearth process 41 per cent, BOF process 46 per cent, electrical process 15 per cent.

b/ Technological fraction of electrical process 25 per cent, BOF process 75 per cent.

In the sphere of energy conservation, Poland could learn from the research and experience of the OECD countries. OECD member countries, in 1988, consumed around 25 per cent less energy than they did in 1973.[11] The industrial sector in these countries has perhaps experienced the most significant developments in energy conservation. The industrial sector's final consumption of energy demand decreased by 7.4 per cent during 1983 – 1988, due largely to a 20 per cent fall in industrial energy intensity. Structural changes resulting from economic re-adjustment also contributed to rational energy use.

The approach to energy conservation in Poland should, therefore, be both technical and structural. Equipment modernization and production improvements constitute the technical aspect, while the structural approach involves the winding up of energy-inefficient enterprises which may not survive in the new market environment.

According to a projection worked out by a research team of the Power and Research Institute, Warsaw, within the perspective of two scenarios of the growth of NMP, energy intensity is expected to fall. The NMP rates of increase for two scenarios were assumed to be 3.5 per cent and 3.0 per cent for Scenario I and 4.0 per cent and 3.5 per cent for Scenario II for the periods 1986 – 2000 and 2000 – 2020, respectively.[12] It is expected that the effects of rationalization will reduce the energy intensity of NMP from 25.1 kg coal equivalent (ce) per Zl 1.000 NMP in 1985 to 13.3 kg ce in 2020 in Scenario I and to 11.5 kg ce in Scenario II.

4. Constraints

Some of the difficulties now besetting Poland's hard coal branch have arisen from poor capital allocation. Investments were decided by a bargaining process in which the implied opportunity cost of capital has been taken as near zero. Investment decisions have been taken largely to satisfy the government's criteria of maximizing production and coal recovery with little or no consideration of their economic cost implications. The bargaining process has also been unduly influenced by factors external to efficient mining. Some typical cases which could explain the high current operating costs in Poland's hard coal industry involve over-manning and high overhead costs resulting from provision by the local mines of housing and social welfare services. One may also question the number of longwall faces and the quantity of machinery in individual mines resulting from policies of the Polish mining equipment manufacturers in keeping their labour force fully employed, and the commitment to total recovery of reserves with little analysis of marginal costs.

The discussion of alternative structural options and the assessment of the investment opportunities needs to take into account the various constraints. These include the importance of coal for the Polish economy and for export revenues, environmental issues, changes in coal prices, interdependencies between coal and other potential energy sources and uses, and the financial strengths of alternative organizational forms for mines. The key structural problem is the proper degree of vertical and horizontal integration. In the past the hard coal branch has been highly integrated both vertically (with production, distribution, mining equipment manufacturing and social overheads such as housing) and horizontally (all economic activities in the mining sector grouped together). The main factors for the consideration and selection of the proper degree of integration are: the balance between competition and regulations, the need for 'hard' budget constraints, integration costs, and economic incentives.

The main constraint on petroleum refining in 1989 – 1990 has been supplies of crude oil from the USSR. This together with higher prices has resulted in a large fall in refinery throughput. Nominal refinery capacity is about 30 per cent greater than current throughput, but the availability of some of this capacity is doubtful and some re-equipment is needed. Distribution is concentrated in one enterprise, Centrala Produktow Naftowych (CPN). This enterprise

has responded to the shortfall in crude oil supplies from the USSR by increasing the price to clear the market. This has resulted in a domestic market price which in mid-1990 was higher than the marginal cost of obtaining additional supplies in the world market.

5. *Prospects*

In the current recession, coal stocks are large and increasing, but in the longer term the coal industry cannot easily expand its output, which is therefore also a constraint on electricity generation. Although coal reserves are very large, increased coal output will require heavy investment in modernizing existing mines or exploiting new reserves. Also, some of the coal is of poor quality, with a high sulphur and ash content. To overcome this problem requires investment in processing equipment, which although costly results in a much higher quality coal with a potential for export in addition to its environmental benefits. The government has recently imposed new restrictions on environmental pollution which mean that this problem must be tackled, but to do so successfully Poland requires foreign assistance in the form of both investment finance and technological expertise.

Future investment in coal preparation facilities may point the way to potential increases in exports if more coal becomes available because of energy conservation in the domestic economy. Equally important, such facilities may also give the opportunity to upgrade the low quality coal currently being used by power stations and district heating plants, thereby reducing the environmental costs of atmospheric emissions and reducing costs for electricity generation.

Low labour costs continue to give the hard coal branch a significant advantage over its neighbouring coal producing countries in Europe. Provided the industry is able to shed excess labour, unit labour costs and administrative costs should remain well below the European average (particularly German rates) in the future. Despite the need to rationalise the industry's cost structure by removing market distortions, and the need to recognize and reduce environmental costs, the opportunities to maintain the current levels of Polish hard coal output and develop new export markets are promising.

At the beginning of 1990 the Government of Poland decided to liquidate the key institutions that control the power and hard coal industries by 30 September 1990. At the time of writing the replacement institutional structure had not been decided, and this needs to be settled as soon as possible, otherwise uncertainty might result in serious disruption at the colliery level. Twenty-three mines have already declared their intention to operate independently. The potential for expanding natural gas exploitation is under way. In May 1990, the World Bank approved credits of $250 million for natural gas investment, with the possibility of a further $350 million.

Although energy supplies are adequate in the current heavily depressed state of the economy, any recovery and growth would bring with it the threat of energy shortages. In electricity generation and transmission, the problem is that the traditional sources of finance for investment – city governments and the central budget – have now been cut off. Although capital intensity is high, an increase in prices of the order of 20 per cent would be sufficient to make self-financing of investment possible, with a reasonable rate of return. A somewhat larger increase would make investment in electricity generation and transmission a very attractive proposition to foreign investors. Such an increase would not be unreasonable given that energy prices are still very low by international standards.

Energy conservation is a major focus of analysis and policy in Poland and is likely to remain so. If Poland could reduce its dependence on imported oil relative to national production, and release more of its domestic coal production for export, this could contribute significantly to the balance of payments. The increased foreign resources acquired in this way could be

used either to service foreign debt or to import much-needed capital equipment for industry in general. Atmospheric pollution from power stations is equally important on the policy agenda, and the two issues are interlinked because improved conservation also reduces pollution. But conservation and reduced pollution will both require substantial investment and sophisticated technology. This provides important opportunities for profitable foreign investment in these areas.

NOTES TO CHAPTER IV

1. See UNIDO, *Industry and Development: Global Report 1989/90* (Vienna 1989), p. 242, Table IV.105.
2. In Polish industrial classification textiles, garments and leather are classed as light industries.
3. As with other branches it should be recalled that this figure relates to sales rather than value added. There is therefore considerable double-counting because textile output is an input into garments.
4. Paper and board consumption in Eastern Europe is, to a large extent, determined by supply. Presumably, the fall in the per capita consumption of paper and board over the years, particularly in the 1980s, could be attributed to a marked decline in production.
5. See *Chemical and Engineering News* (May 14, 1990), p. 15.
6. See Chemicon Surveys Ltd., *On Course to Reform: The East European Chemical Industry, 1986–90* (United Kingdom, August 1987), p. 354.
7. See *Chemical and Engineering News*, op.cit., p. 18.
8. See *European Chemical News* (3 September 1990), p. 48.
9. For further details, see *Sulphur* (November/December 1988), No. 119, p. 20.
10. See International Energy Agency, *Seminar on Energy in East and West: The Polish case*, (Paris, 1990), p. 493.
11. *Ibid.*, p. 507.
12. *Ibid.*, pp. 287–318.

ANNEXES: INVESTMENT INFORMATION AND INSTITUTIONS

ANNEX
A

INDUSTRIAL PRODUCTION STATISTICS

Table A-1. Production linkages (intermediate demand) between industries and other sectors of the economy, 1987
(Percentage)

Sales by: \ Sales to:	Fuel and power	Metal-lurgy	Engine-ering	Chemi-cals	Mine-rals	Wood and paper	Light industry	Food industry	Other industries	Construc-tion	Agri-culture	Forestry	Transport and commu-nication	Trade	Other sectors
Fuel and power	18.3	7.9	5.0	6.4	3.2	1.2	1.4	2.8	0.6	3.1	6.7	0.1	6.7	2.1	7.6
Metallurgy	0.8	38.3	25.6	1.1	1.0	0.2	0.1	0.3	0.5	6.2	2.3	0.0	1.3	0.3	0.3
Engineering	5.0	1.7	18.2	0.8	0.9	0.6	0.4	1.5	0.5	5.7	4.7	0.1	3.1	1.6	1.0
Chemicals	2.3	1.1	8.0	18.1	1.3	1.8	8.3	1.7	0.9	4.5	7.4	0.1	1.6	0.9	1.5
Minerals	1.9	3.9	4.0	2.1	8.5	1.1	0.4	3.6	0.9	34.4	10.6	0.3	3.6	2.8	0.5
Wood and paper	1.8	0.5	4.7	2.2	2.0	15.0	1.4	2.1	4.0	5.7	3.1	1.6	6.3	3.8	2.9
Light industry	0.6	0.2	1.6	2.1	0.2	0.7	26.5	0.6	0.4	2.0	0.7	0.1	0.6	1.8	0.2
Food industry	0.1	0.0	0.1	0.5	0.0	0.0	1.0	12.7	0.2	0.1	0.5	0.2	0.0	3.7	0.0
Other industry branches	0.7	0.9	7.5	2.8	0.5	0.5	2.9	4.6	2.4	5.7	37.3	0.3	1.1	5.5	2.8
Construction	2.6	1.1	1.3	0.7	0.5	0.2	0.4	0.9	0.2	1.9	2.6	0.5	0.8	1.7	0.3
Agriculture	0.0	0.0	0.0	0.2	0.0	0.0	1.0	37.1	0.1	0.0	36.3	0.3	0.0	4.8	0.0
Forestry	0.1	0.0	0.1	1.3	0.1	53.1	0.1	5.0	0.3	18.0	2.5	5.0	0.1	0.0	0.0
Transport and communication	8.5	1.7	4.6	2.6	2.2	2.3	1.0	7.4	0.6	10.9	1.6	1.9	5.3	12.7	1.0
Trade	3.8	2.2	7.5	3.1	0.8	0.9	2.3	3.1	1.0	3.2	2.6	0.2	2.6	1.7	1.0
Other sectors of economy	5.5	1.3	4.3	1.7	0.5	1.1	1.0	3.3	0.4	4.7	2.4	0.3	2.5	4.0	13.7

Source: Computed using Central Statistical Office data.

Table A-2. Final demand, distribution of total domestic production,[a/] 1987
(Percentage)

Item	Consumption			Investment			Export	Final demand	Final and intermediate demand
	Total	Private	Government	Total	Fixed	Inventories			
Fuel and power	16.5	6.8	9.7	0.8	0.0	0.8	9.5	26.8	100.0
Metallurgy	0.7	0.0	0.7	7.4	0.0	7.4	13.5	21.6	100.0
Engineering	13.6	9.3	4.3	17.4	11.8	5.6	23.3	54.3	100.0
Chemicals	13.4	7.8	5.6	8.7	0.0	8.7	18.5	40.6	100.0
Minerals	11.3	8.3	3.0	5.6	0.0	5.6	4.6	21.5	100.0
Wood and paper	29.3	24.3	5.0	3.7	0.6	3.1	9.9	42.8	100.0
Light industry	43.4	40.5	2.8	6.2	0.0	6.2	12.0	61.6	100.0
Food industry	69.8	67.9	1.9	2.1	0.0	2.1	8.8	80.7	100.0
Other industry branches	18.4	7.8	10.6	4.1	0.0	4.1	1.9	24.4	100.0
Construction	6.8	1.8	5.0	73.3	73.2	0.1	4.1	84.2	100.0
Agriculture	17.1	16.7	0.4	-0.8	-0.5	-0.3	3.9	20.2	100.0
Forestry	1.6	1.5	0.1	3.4	0.0	3.4	9.1	14.1	100.0
Transport and communication	19.8	14.6	5.2	0.3	0.3	0.0	15.3	35.4	100.0
Trade	60.9	57.9	3.0	5.3	3.5	1.7	-2.1	64.1	100.0
Other sectors of economy	50.0	32.3	17.7	0.8	0.0	0.8	2.2	53.0	100.0

Source: Computed using Central Statistical Office data.

a/ Total production includes each industry's absorption of its own production. In Polish statistical terms it is called global production.

Table A-3. Geographical distribution of industrial production, 1988
(Percentage)

	Voivodship	Total	Fuel and power	Metallurgy	Engineering	Chemicals	Minerals	Wood and paper	Light industry	Food industry	Other
1	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
2	Warszawskie	7.7	3.3	3.3	15.4	7.3	3.9	4.5	2.3	7.3	14.7
3	Bialskopodlaskie	0.1	0.0	0.0	0.1	0.0	0.1	0.4	0.4	0.2	0.1
4	Bialostockie	1.4	0.3	0.0	1.0	0.3	1.2	2.9	2.9	3.4	1.3
5	Bielskie	3.3	0.3	2.6	5.5	4.2	0.1	2.2	6.5	2.1	2.5
6	Bydgoskie	2.9	0.7	0.3	3.4	5.7	3.8	9.0	1.6	3.3	4.9
7	Chelmskie	0.3	0.0	0.0	0.0	0.0	2.9	0.1	0.9	0.3	0.0
8	Ciechanowskie	0.3	0.0	0.0	0.4	0.0	0.6	0.2	0.3	0.9	0.3
9	Czestochowskie	1.8	0.1	5.2	1.8	0.5	1.8	3.9	3.8	0.5	2.5
10	Elblaskie	0.8	0.1	0.0	0.8	0.1	0.0	4.5	1.1	1.3	0.2
11	Gdanskie	4.0	5.4	0.1	5.3	3.7	2.8	2.8	1.6	5.3	3.6
12	Gorzowskie	0.8	0.2	0.0	0.4	2.5	0.3	4.3	1.2	0.5	0.3
13	Jeleniogoskie	1.5	1.9	0.0	0.8	2.1	3.6	2.1	4.1	0.6	0.2
14	Kaliskie	1.2	0.1	0.2	1.4	0.6	1.6	2.5	2.3	1.9	0.5
15	Katowickie	18.2	45.8	45.4	12.2	9.2	11.8	5.2	3.3	5.2	8.0
16	Kieleckie	2.2	0.2	3.5	3.8	0.3	6.7	3.3	1.0	1.5	2.6
17	Koninskie	0.9	2.1	1.5	0.3	0.4	0.1	0.2	0.5	1.1	2.1
18	Koszalinskie	0.6	0.1	0.0	0.6	0.1	0.7	2.1	0.5	1.2	1.0
19	Krakowskie	3.8	1.4	12.9	2.4	3.4	4.4	0.5	1.9	4.2	5.1
20	Krosnieskie	1.0	1.5	0.0	1.1	1.5	2.2	1.4	0.7	0.5	0.1
21	Legnickie	3.0	0.1	20.2	1.1	0.5	0.8	0.9	1.6	0.6	6.0
22	Leszczynskie	0.4	0.0	0.0	0.4	0.0	0.6	0.2	0.2	1.4	0.4
23	Lubelskie	2.3	0.4	0.0	3.2	2.8	2.1	0.7	2.0	4.4	3.0
24	Lomzynskie	0.3	0.0	0.0	0.1	0.0	0.0	0.9	0.9	0.8	0.2
25	Lodzkie	4.4	1.1	0.0	2.6	4.0	1.0	2.0	19.4	4.4	6.5
26	Nowosadeckie	0.7	0.6	0.0	0.9	0.3	1.1	1.3	1.5	0.3	0.4
27	Olsztynskie	1.1	0.1	0.0	0.8	2.1	1.3	2.7	1.0	2.4	1.3
28	Opolskie	3.0	3.3	1.0	2.5	5.9	6.6	4.0	3.5	2.0	1.6
29	Ostroleckie	0.5	0.4	0.0	0.3	0.0	1.5	3.2	0.2	0.8	1.4
30	Pilskie	0.5	0.0	0.0	1.0	0.0	1.4	2.4	0.3	0.5	0.6
31	Piotrkowskie	1.7	3.0	0.0	1.5	2.0	4.0	1.6	3.0	0.4	0.3
32	Plockie	3.5	17.0	0.0	1.4	0.9	0.4	0.3	0.6	1.3	0.2
33	Poznanskie	3.4	1.1	0.2	3.8	3.8	1.5	4.3	1.8	7.6	6.1
34	Przemyskie	0.5	0.0	0.0	0.3	0.5	1.6	1.1	0.5	0.8	1.0

(continued)

Table A-3. (continued)

Voivodship	Total	Fuel and power	Metallurgy	Engineering	Chemicals	Minerals	Wood and paper	Light industry	Food industry	Other
35 Radomskie	1.5	1.1	0.0	1.4	1.8	2.4	1.0	1.9	2.3	1.9
36 Rzeszowskie	1.8	0.2	0.0	2.6	1.8	2.8	1.0	1.1	3.5	1.5
37 Siedleckie	0.7	0.0	0.0	0.7	0.7	0.4	0.2	1.3	1.7	0.7
38 Sieradzkie	0.4	0.0	0.0	0.3	0.2	2.4	0.0	1.9	0.3	0.0
39 Skierniewickie	0.6	0.0	0.0	0.4	1.0	0.3	0.0	2.0	1.0	0.1
40 Slupskie	0.6	0.1	0.0	0.5	0.2	0.2	1.6	1.7	0.8	0.7
41 Suwalskie	0.5	0.0	0.0	0.3	0.0	0.8	2.3	0.3	1.5	0.4
42 Szczecinskie	2.7	1.1	0.7	2.7	4.2	0.6	2.9	1.0	5.8	3.0
43 Tarnobrzeskie	1.6	1.2	0.0	2.5	5.7	2.5	0.4	0.6	0.3	0.0
44 Tarnowskie	1.6	2.3	1.0	0.7	6.9	1.0	0.8	0.3	1.3	0.1
45 Torunskie	1.5	0.1	0.0	1.5	3.6	0.7	1.5	1.5	2.9	1.3
46 Walbrzyskie	2.0	1.7	0.0	2.2	0.8	6.3	2.5	5.9	0.7	0.8
47 Wloclawskie	0.7	0.0	0.0	0.5	2.8	0.5	1.4	0.3	0.8	0.5
48 Wroclawskie	3.4	0.7	1.9	4.9	5.2	2.1	2.6	1.9	4.4	8.0
49 Zamojskie	0.4	0.1	0.0	0.2	0.0	0.3	0.9	0.9	0.9	0.1
50 Zielonogorskie	1.8	0.5	0.0	1.7	0.1	4.1	2.8	4.1	2.8	2.0

Source: Central Statistical Office.

Table A-4. Industrial production by branch and location, 1988
(Percentage)

	Voivodship	Total	Fuel and power	Metallurgy	Engineering	Chemicals	Minerals	Wood and paper	Light industry	Food industry	Other
1	Total	100.0	16.0	10.6	25.7	9.3	3.5	4.0	10.9	17.6	2.3
2	Warszawskie	100.0	7.0	4.5	51.2	8.7	1.8	2.3	3.3	16.8	4.4
3	Bialskopodlaskie	100.0	0.0	0.0	25.5	0.0	1.8	11.0	31.8	28.3	1.6
4	Bialostockie	100.0	3.8	0.0	17.5	2.0	2.9	8.1	22.2	41.3	2.0
5	Bielskie	100.0	1.5	8.1	41.9	11.7	0.1	2.6	21.3	11.0	1.7
6	Bydgoskie	100.0	3.7	1.1	29.7	18.2	4.6	12.5	6.2	20.2	3.9
7	Chelmskie	100.0	0.0	0.0	4.0	0.0	39.8	1.2	36.5	18.5	0.0
8	Ciechanowskie	100.0	0.0	0.0	31.7	1.3	6.5	2.8	9.2	46.7	1.8
9	Czestochowskie	100.0	1.0	29.7	24.4	2.7	3.5	8.5	22.5	4.7	3.1
10	Elblaskie	100.0	2.4	0.0	27.7	0.9	0.2	23.6	15.0	29.6	0.6
11	Gdanskie	100.0	21.8	0.3	34.2	8.5	2.5	2.8	4.4	23.4	2.1
12	Gorzowskie	100.0	3.9	0.0	14.1	29.8	1.4	22.2	16.2	11.6	0.7
13	Jeleniogoskie	100.0	20.5	0.0	14.6	13.1	8.5	5.7	30.6	6.6	0.4
14	Kaliskie	100.0	1.9	2.1	29.8	4.5	4.6	8.4	20.3	27.5	0.9
15	Katowickie	100.0	40.2	26.4	17.2	4.7	2.3	1.2	2.0	5.0	1.0
16	Kieleckie	100.0	1.4	16.9	43.8	1.5	10.7	6.0	5.0	12.1	2.6
17	Koninskie	100.0	36.9	17.3	9.0	4.3	0.3	0.7	6.5	20.0	5.1
18	Koszalinskie	100.0	3.1	0.0	27.2	1.0	4.1	15.0	9.2	36.4	3.9
19	Krakowskie	100.0	6.1	36.2	16.7	8.3	4.1	0.6	5.4	19.6	3.1
20	Krosnieskie	100.0	24.4	0.0	30.1	14.5	7.9	5.9	8.2	8.9	0.3
21	Legnickie	100.0	0.4	72.1	9.8	1.4	0.9	1.3	5.8	3.6	4.6
22	Leszczynskie	100.0	0.0	0.0	24.1	0.9	5.4	2.0	6.2	59.0	2.2
23	Lubelskie	100.0	2.6	0.0	35.8	11.3	3.3	1.3	9.3	33.5	3.0
24	Lomzynskie	100.0	0.0	0.0	7.1	0.6	0.0	12.5	32.4	45.9	1.6
25	Lodzkie	100.0	4.0	0.0	15.1	8.6	0.8	1.9	48.5	17.8	3.4
26	Nowosadeckie	100.0	13.9	0.0	33.9	4.6	5.7	7.9	23.9	8.9	1.2
27	Olsztynskie	100.0	1.7	0.0	19.0	16.9	4.0	9.6	9.7	36.5	2.6
28	Opolskie	100.0	17.9	3.5	21.6	18.3	7.8	5.4	12.8	11.7	1.2
29	Ostroleckie	100.0	11.1	0.0	15.2	0.9	10.7	25.7	3.3	26.9	6.3
30	Pilskie	100.0	0.0	0.0	48.8	0.8	9.1	17.6	5.3	16.0	2.4
31	Piotrkowskie	100.0	29.1	0.0	22.8	11.1	8.4	4.0	19.9	4.4	0.4
32	Plockie	100.0	77.9	0.0	10.3	2.4	0.4	0.4	1.9	6.6	0.1
33	Poznanskie	100.0	5.2	0.5	28.4	10.2	1.5	5.1	5.8	39.2	4.0
34	Przemyskie	100.0	0.0	0.0	18.7	9.9	12.0	9.5	12.6	32.1	5.1

(continued)

Table A-4. (continued)

Voivodship	Total	Fuel and power	Metallurgy	Engineering	Chemicals	Minerals	Wood and paper	Light industry	Food industry	Other
35 Radomskie	100.0	11.8	0.0	24.7	11.3	5.8	2.8	13.9	26.8	2.9
36 Rzeszowskie	100.0	2.2	0.0	36.9	9.6	5.5	2.4	7.0	34.5	1.9
37 Siedleckie	100.0	0.0	0.0	24.5	8.9	2.1	1.1	20.0	41.4	2.1
38 Sieradzkie	100.0	0.8	0.0	15.3	4.1	19.9	0.5	46.7	12.7	0.0
39 Skierniewickie	100.0	0.0	0.0	15.3	15.2	1.6	0.3	37.4	29.9	0.2
40 Slupskie	100.0	1.7	0.0	23.2	2.5	1.3	11.8	32.2	24.5	2.7
41 Suwalskie	100.0	0.0	0.0	15.9	0.7	5.5	18.2	6.0	51.8	2.0
42 Szczecinskie	100.0	6.4	2.7	26.0	14.7	0.8	4.4	4.0	38.4	2.5
43 Tarnobrzeskie	100.0	12.2	0.0	40.0	33.6	5.5	0.9	4.2	3.5	0.0
44 Tarnowskie	100.0	22.6	6.6	11.5	38.8	2.1	2.1	2.2	14.0	0.2
45 Torunskie	100.0	1.3	0.0	25.2	21.9	1.6	4.0	10.8	33.3	2.0
46 Walbrzyskie	100.0	13.6	0.1	28.4	3.7	10.9	4.9	31.8	5.7	0.9
47 Wloclawskie	100.0	0.0	0.0	20.3	39.8	2.8	8.7	4.6	22.1	1.6
48 Wroclawskie	100.0	3.3	5.8	37.0	14.1	2.2	3.1	6.1	23.0	5.4
49 Zamojskie	100.0	5.3	0.0	16.1	0.0	3.1	9.5	24.4	40.7	0.9
50 Zielonogorskie	100.0	4.4	0.0	25.1	0.4	8.1	6.4	25.3	27.7	2.6

Source: Central Statistical Office.

Table A-5. Production of selected commodities in food industry, 1970-1990, selected years

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III	1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Meat and fat	'000 tons	1376	2459	1973	2259	2233	2248			6.0	-1.1
Beef	'000 tons	376	624	643	673	657	613			5.2	-0.2
Veal	'000 tons	32.3	5.7	3.8	1.9	0.9	0.6			-15.9	-24.5
Pork	'000 tons	878	1446	1086	1314	1307	1337			5.1	-1.0
Poultry	'000 tons	62.9	344	196	229	231	245			18.5	-4.2
Animal fat	'000 tons	79.9	117	106	124	130	132			3.9	1.5
Meat products	'000 tons										
Bacon	'000 tons	53	17.6	5.3	5.6	4.7	5			-10.4	-14.6
Canned meat	'000 tons	91.9	162	106	113	123	123			5.8	-3.4
Cured meat products	'000 tons	528	811	692	753	777	799			4.4	-0.2
Sea fish	'000 tons	451	791	650	608	639	590	548	52	5.8	-3.6
Canned fish	'000 tons	29.6	46.0	31.1	31.7	32.5	32.0			4.5	-4.4
Milk	million liter	1501	2680	2536	2514	2508	2577			6.0	-0.5
Fat cheese	'000 tons	42.2	93.4	112	111	116	119			8.3	3.1
Cottage cheese	'000 tons	69	204	250	272	301	313			11.4	5.5
Butter	'000 tons	127	253	275	260	264	267	289.7	59.7	7.1	0.7
Corn milling	'000 tons	6414	7721	6428	5815	5763	6203			1.9	-2.7
Wheat	'000 tons	3080	4089	3439	3550	4003	4277			2.9	0.6
Rye	'000 tons	2146	1399	2329	1679	1223	1332			-4.2	-0.6
Macaroni	'000 tons	57.8	95.1	83.1	80.8	85.8	92.4			5.1	-0.4
Bakery goods	'000 tons	3102	3523	3618	3629	3642	3614			1.3	0.3
Sugar	'000 tons	1388	1067	1708	1753	1671	1684			-2.6	5.9
Spirit	million liter	86.7	156	114	123	109	108			6.0	-4.5
Vodka	million liter	23.6	56.1	65.6	63.8	64.2	63.9			9.0	1.6
Yeast	'000 tons	30.8	46.1	50.3	48.2	50.2	50.3			4.1	1.1
Marmalade	'000 tons	59.5	94.2	78.9	73.1	91.9	94.7			4.7	0.1
Stewed fruits	'000 tons	31.5	59.2	56.8	42.6	36.3	44.8			6.5	-3.4
Frozen fruits	'000 tons	30.8	85.7	144	133	120	129			10.8	5.2
Canned vegetables	'000 tons	31.8	44.9	59.8	64.4	65.9	58.0			3.5	3.3
Frozen vegetables	'000 tons	13.9	66.0	88.7	85.3	92.8	89.7			16.9	3.9
Wine	million liter	181	304	268	257	260	256			5.3	-2.1
Malt	'000 tons	172	219	184	197	199	204			2.4	-0.9
Beer	million hl	10.4	11.2	11.1	11.3	11.9	12.5			0.7	1.4
Vegetable fat	'000 tons	213	275	291	308	342	350			2.6	3.1
Sweetmeat	'000 tons	135	119	169	151	154	158			-1.3	3.6
Chocolate	'000 tons	16.6	35.7	10	7.6	11.7	14.9			8.0	-10.3
Chocolate products	'000 tons	42.1	79	34.6	32.5	32.8	39.2			6.5	-8.4
Cocoa	tons	2801	4610	2575	1584	2277	3160			5.1	-4.6
Mineral water	million liter	2154	2710	1966	1829	1648	1699			2.3	-5.7
Vinegar	million liter	75.0	77.5	69.2	71.7	69.6	73.2			0.3	-0.7
Tobacco	'000 tons	81.2	58.6	88.6	96.7	106.0	99.9			-3.2	6.9
Tobacco products	'000 tons	68.7	93.7	89.3	93.5	98.0	89.6			3.1	-0.6
Cigarettes	billion	69.2	93.4	90.0	94.2	98.7	89.7			3.0	-0.5

Source: Calculated using Central Statistical Office data.

Table A-6. Production of selected textiles, garments and leather products, 1970-1990, selected years

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III	1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Textile industry											
Cotton yarn	'000 tons	208	217	184	195	198	206			0.4	-0.6
Wool yarn	'000 tons	84.4	107.0	84.2	82.2	79.9	83.7			2.4	-3.0
Flax and hemp yarn	'000 tons	55.8	38.9	30.1	31.0	28.6	28.2			-3.5	-3.9
Jute yarn	'000 tons	24.6	20.4	14.4	14.2	14.4	14.7			-1.9	-4.0
Threads	'000 tons	4.2	4.3	4.4	4.6	4.0	3.5			0.2	-2.5
Cotton fabric	'000 sq km	981	903	831	821	749	783			0.2	-1.8
Wool fabric	'000 sq km	99	121	105	103	99.5	101			2.0	-2.2
Flax and hemp fabric	'000 sq km	128	105	82	83.6	83.8	83.5			-2.0	-2.8
Jute fabric	'000 sq km	59.8	70.3	37.3	34.4	35.5	36.7			1.6	-7.8
Silk fabric	'000 sq km	156	163	137	129	120	131			0.4	-2.7
Carpets	'000 sq km	4.3	11.4	11.6	12.4	13	13.3			10.2	1.9
Hosiery products	'000 tons	33.4	46.7	40.3	40.4	38.1	38.7			3.4	-2.3
Stockings	million	135	259	275	302	296	315			6.7	2.5
Clothing industry											
Cotton clothing	'000 km	395	468	494	448	442	365			1.7	-3.1
Wool clothing	'000 km	43.1	68.4	50.7	48.3	44.1	39.1			4.7	-6.7
Flax and hemp clothing	'000 km	24.5	74.6	48.8	46.8	45.7	43.2			11.8	-6.6
Silk clothing	'000 km	66.0	97.9	83.0	81.4	72.6	72.8			4.0	-3.6
Garments	million	49.2	81.9	74.7	76.3	82.1	75.1			5.2	-1.1
Leather industry											
Hard leather	'000 tons	11.9	9.2	5.8	5.7	5.4	4.8			-2.5	-7.8
Light leather	sq km	21.9	31.8	30.7	31.6	31.8	31.7			3.8	-0.0
Footwear	million pairs	142	162	164	160	164	167	144	28.1	1.3	0.4

Source: Calculated using Central Statistical Office data.

Table A-7. Production of selected wood and paper products, 1970-1990, selected years

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III	1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Wood industry											
Sawn timber	cu dam	6818	7428	6366	5985	5803	5799			0.9	-3.0
Coniferous timber	cu dam	5885	6308	5647	5227	5021	4942			0.7	-3.0
Hardwood timber	cu dam	933	1120	719	758	782	857			1.8	-3.3
Fibreboard	sq km	74	116	111	120	115	116			4.6	0.0
	'000 tons	271	398	378	404	388	394			3.9	-0.1
Chipboard	cu dam	219	941	1171	1219	1077	1189			15.7	3.0
Blockboard	cu dam	106.0	90.2	58.0	52.9	48.1	46.9			-1.6	-7.8
Scaleboard	sq km	44.5	55.8	44.8	38.6	38.6	39.5			2.3	-4.2
Woodwork	'000 sq m		10689	9521	9005	8721	9013				-2.1
Furniture sets	'000	468	1004	847	838	779	766			7.9	-3.3
Paper industry											
Groundwood	'000 tons	163	145	118	105	116	108			-1.2	-3.6
Cellulose	'000 tons	470	526	595	614	624	623			1.1	2.1
Paper	'000 tons	764	1033	1071	1100	1158	1220	1161	267	3.1	2.1
Cardboard	'000 tons	197	244	221	226	221	227			2.2	-0.9

Source: Calculated using Central Statistical Office data.

Table A-8. Production of selected commodities in chemical industry, 1970-1990, selected years

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III	1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Sulphur ore	'000 tons	4031	2043	2887	2445	2755	2636			-6.6	3.2
Sulphur	'000 tons	2683	5164	4876	4894	4966	5000	4864.6	1095.2	6.8	-0.4
Anhydride	'000 tons	234	212	278	243	186	239			-1.0	1.5
Salt	'000 tons	2904	4533	4865	5419	6175	6179			4.6	3.9
Rock-salt	'000 tons	1225	1464	1200	1222	1234	1247			1.8	-2.0
Evaporated salt	'000 tons	277	825	868	823	844	858			11.5	0.5
Salt from brines	'000 tons	1402	2244	2797	3374	4097	4074			4.8	7.7
Barite	'000 tons	57.3	127	91.2	77.1	73.1	63.1			8.3	-8.4
Nitric acid	'000 tons	1526	1882	1883	2050	2136	2187			2.1	1.9
Ammonia	'000 tons	1443	1803	1812	2124	2177	2338			2.2	3.3
Chlorine	'000 tons	188	309	344	362	360	373			5.1	2.4
Copper sulphate	tons	3007	5460	7776	8176	8457	7357			6.1	3.8
Sulfuric acid	'000 tons	1901	3019	2863	2965	3149	3154			4.7	0.5
Soda dichromate	'000 tons	17.7	18.6	18.6	19.3	19	19.2			0.5	0.4
Soda ash	'000 tons	657	762	939	963	930	956			1.5	2.9
Caustic soda	'000 tons	326	433	431	445	440	463			2.9	0.8
Calcium carbide	'000 tons	533	455	434	446	414	413			-1.6	-1.2
Fertilizers (pure comp.)	'000 tons	1629	2237	2270	2526	2622	2718			3.2	2.5
Nitrogenous fertilizers	'000 tons	1030	1290	1254	1445	1543	1622	1645	360	2.3	2.9
Phosphatic fertilizers	'000 tons	599	843	889	948	942	962	945	128	3.5	1.7
Ethylene	'000 tons	26.3	185	261	279	276	328			21.5	7.4
Propylene	'000 tons	24	129	167	166	170	198			18.3	5.5
Methanol	'000 tons	83.7	138	177	169	172	168			8.4	-1.4
Butanol	'000 tons	20.1	21.7	16.3	21.2	36.8	44			0.8	o ^
Acetone	'000 tons	7.3	23.9	21.4	22.4	21.8	23.3			12.6	-0.3
Acrylonitrile	'000 tons	9.5	12.4	12.6	12.3	10.9	11.1			2.7	-1.4
Carbon disulfide	'000 tons	29.8	98.3	138	147	148	152			12.7	5.6
Toluene	'000 tons	16.6	92.6	99.1	95.7	102	102			18.8	1.2
Xylene	'000 tons	38.6	83.6	86.4	88.3	81.7	89.1			8.0	0.8
Phthalic acid anhydride	'000 tons	18.8	33.0	35.2	39.2	39.2	42.9			5.8	3.3
Acetic acid	'000 tons	27.8	25.9	18.4	20.0	21.2	22.0			-0.7	-2.0
Caprolactam	'000 tons	26.8	86.6	87.9	89.7	87.0	96.6			12.4	1.4
Phenol	'000 tons	54.1	67.7	65.8	67.9	65.4	67.0			2.3	-0.1
Naphthalene	'000 tons	13.0	10.0	8.1	8.4	8.9	10.2			-2.6	0.2
Synthetic dye	'000 tons	21.0	25.1	18.2	15.9	17.0	18.1			1.8	-4.0

(continued)

Table A-8. (continued)

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III 1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Pesticide	'000 tons	59.9	34.5	37.4	33.8	40.6	47.7		-5.4	4.1
Black	'000 tons	33.1	50.5	48.5	49.4	46.4	45.7		4.3	-1.2
Plastics	'000 tons	224	549	603	632	641	723		9.4	3.5
Synthetic rubber	'000 tons	61.7	118	126	116	117	127		6.7	0.9
Synthetic fibres	'000 tons	138	256	241	233	237	245		6.4	-0.5
Cellulose fibres	'000 tons	80.6	86.4	70.9	72.0	73.3	74.2		0.7	-1.9
Polyamide fibres	'000 tons	23.2	72.8	70.3	67.6	67.8	66.8		12.1	-1.1
Polyester fibres	'000 tons	20.4	80.6	81.2	76.9	81.1	87.4		14.7	1.0
Acrylic fibres	'000 tons	10.2	12.2	10.9	10.8	10.4	10.9		1.8	-1.4
Synthetic tannin	'000 tons	3.8	3.7	2.9	3.1	2.7	3.0		-0.3	-2.6
Zinc white	'000 tons	35.8	31.1	31.7	31.9	32.4	32.7		-1.4	0.6
Lithophone	'000 tons	14.3	16.4	14.1	14.2	14.8	13.4		1.4	-2.5
Varnish products	'000 tons	272	416	408	415	404	415		4.3	-0.0
Soap and washing powder	'000 tons	209	293	301	353	357	390		3.4	3.6
Soap	'000 tons	65.9	72.2	63.8	76.1	73.6	75.8		0.9	0.6
Acetylene	'000 tons	10.8	16.6	17.6	13.9	13.7	14.3		4.4	-1.8
Photographic papers	'000 sq m	5333	6140	6539	6828	6492	5945		1.4	-0.4
Imitation leather	'000 tons	5.6	14.8	14.2	13.5	13.9	15.8		10.2	0.8
Vegetable tannin	'000 tons	2.4	2.4	0.7	0.7	0.9	0.8		0.0	-12.8
Rubber products	'000 tons	280	401	375	364	356	366		3.7	-1.1
Car and track tyres	'000	2995	6533	6254	6217	6020	6276		8.1	-0.5
Tractor tyres	'000	414	783	982	890	862	801		6.6	0.3
Bicycle tyres	'000	5148	6266	5430	5494	5458	5811		2.0	-0.9

Source: Calculated using Central Statistical Office data.

Table A-9. Production of selected non-metallic mineral products, 1970-1990, selected years

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III	1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Building materials industry											
Gypsum stone	'000 tons	1476	1422	973	1107	1127	1097			-0.4	-3.2
Limestone	'000 tons	8544	9586	11863	13306	12536	13263			1.2	4.1
Chalk	'000 tons	219	303	264	264	248	246			3.3	-2.6
Filler sand	cu hm	47.9	28.1	25.1	22	22.9	21			-5.2	-3.6
Glass-making sand	'000 tons	938	1626	954	1073	1051	854			5.7	-7.7
Moulding sand	'000 tons	1675	2424	2242	2465	2261	1849			3.8	-3.3
Quartz schist	'000 tons	58.6	62.5	47.8	48.8	46.6	46.7			0.6	-3.6
Fire-clay	'000 tons	1316	1226	980	1076	1104	1032			-0.7	-2.1
Magnesite	'000 tons	38.7	19.6	19.2	20.9	22.3	23.9			-6.6	2.5
Cement clinker	'000 tons	9041	15009	11652	11677	12818	13387			5.2	-1.4
Cement	'000 tons	12180	18428	14990	15831	16090	16984			4.2	-1.0
Portland cement	'000 tons	7236	12818	11604	11989	12167	13236			5.9	0.4
Lime	'000 tons	3599	4830	4124	4108	4265	4430			3.0	-1.1
Lime fertilizers	'000 tons	2130	3565	4065	4731	4608	5395			5.3	5.3
Gypsum	'000 tons	265	312	236	264	261	279			1.6	-1.4
Brick	million	3724	2058	1800	1470	1447	1452			-5.8	-4.3
Burnt brick	million	2979	1738	1526	1171	1149	1147			-5.2	-5.1
Roofing-tile	million	82.9	24.6	19.3	17.4	16.5	17.7			-11.4	-4.0
Structural-floor tile	million	15.8	14.0	10.3	14.1	14.3	16.0			-1.2	1.7
Ceramic tiles	million	35.7	16.2	19.4	16.0	17.0	18.8			-7.6	1.9
Drain tiles	million	275	77.4	83.3	75.8	90.2	93.8			-11.9	2.4
Concrete	million tons	24.4	33.9	28.2	26.8	26.7	28.3			3.3	-2.2
	cu hm	13.1	18.5	15.4	14.6	14.4	15.2			3.5	-2.4
Building paper	sq km	170	175	188	186	190	192			0.3	1.2
Asbestos cardboard	sq km	36.9	51.5	41.3	40.5	42.5	44.5			3.4	-1.8
Silica	'000 tons	104	102	81.9	86.2	87.6	60.9			-0.2	-6.2
Fire clay	'000 tons	649	615	498	517	512	498			-0.5	-2.6
Glass making industry											
Architectural flat glass	'000 tons	327	459	401	380	422	430			3.4	-0.8
Domestic glassware	'000 tons	36.1	89.2	77.6	66.9	67.1	68.1			9.5	-3.3
Lead glass	tons	2663	9375	10326	10492	10507	10644			13.4	1.6
Glass packages	'000 tons	425	638	696	692	691	672			4.1	0.6
Whiteware industry											
Chinaware	'000 tons	19.8	36.2	31.7	31.0	37.0	38.1			6.2	0.6
Electrical porcelain	'000 tons	20.4	17.2	16.8	15.8	15.6	15.4			-1.7	-1.4
Semi-vitreous China-ware	'000 tons	7.9	13.9	17.0	15.4	14.6	14.8			5.8	0.8
Chemical stoneware	'000 tons	18.9	25.7	14.1	21.3	20.4	23.0			3.1	-1.4
Faience	tons	4097	2035	2137	1878	2043	1858			-6.8	-1.1

Source: Calculated using Central Statistical Office data.

Table A-10. Production of selected commodities in metallurgy industry, 1970-1990

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III	1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Basic metals industry											
Iron ore	'000 tons	2254	104	11.3	8.8	6.3	6.3			-26.5	-29.6
Pig iron											
Recalculated to											
Steelmaking pig iron	'000 tons	7296	11953	9807	10574	10476	10264			5.1	-1.9
In real weight	'000 tons	6984	11510	9435	10193	10121	9929			5.1	-1.8
Steelmaking pig iron	'000 tons	6052	10357	8449	9148	9179	9032			5.5	-1.7
Foundry pig iron	'000 tons	795	1021	885	948	845	805			2.5	-2.9
Specular pig iron	'000 tons	137	132	101	97.2	97.8	92.2			-0.4	-4.4
Steel	'000 tons	11795	19485	16126	17144	17145	16873	15094	3727	5.1	-1.8
Open-hearth furnace	'000 tons	9364	9102	6894	7088	7099	6620			-0.3	-3.9
Electric furnace	'000 tons	905	2725	2401	2507	2638	2802			11.6	0.3
Oxygen converter	'000 tons	1489	7609	6801	7521	7472	7425			17.7	-0.3
Rolled steel	'000 tons	8136	13551	11845	12340	12410	12424	11276	2660	5.2	-1.1
Steel pipes	'000 km							254.3	46.7		
	'000 tons	723	1133	992	1027	1038	1053			4.6	-0.9
Steel sheets	'000 tons	723	1594	1467	1544	1554	1530			8.2	-0.5
Zinc coated sheets	'000 tons	133	360	347	356	360	355			10.5	-0.2
Tinned sheets	'000 tons	125	132	88.4	95.2	94.8	84.7			0.5	-5.4
Cold-rolled strip	'000 tons	168	311	323	332	340	333			6.3	0.9
Drawn wire (steel)	'000 tons	269	369	295	300	295	297			3.2	-2.7
Sheet-metal section	'000 tons	22.2	220	232	305	334	324			25.8	5.0
Non-ferrous metals industry											
Copper ore	'000 tons	6552	26568	29377	29581	29821	29996			15.0	1.5
Zinc and lead ore	'000 tons	3583	5510	5334	5322	5300	5352			4.4	-0.4
Copper	'000 tons	72.2	357	387	388	390	401	390.3	90.5	17.3	1.5
Zinc	'000 tons	209	217	180	179	177	174	163.7	36.4	0.4	-2.7
Lead	'000 tons	54.5	82	87.3	88.3	89.8	90.7	78.2	16.8	4.2	1.3
Primary aluminium	'000 tons	98.8	95.1	47	47.5	47.5	47.7	47.8	11.4	-0.4	-8.3
Silver	'000 tons	231	766	831	829	831	1063			12.7	4.2

Source: Calculated using Central Statistical Office data.

Table A-11. Production of selected commodities in engineering industry, 1970-1990, selected years

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III	1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Metal forming industry											
Iron casting	'000 tons	1643	1946	1449	1457	1434	1423			1.7	-3.8
Steel casting	'000 tons	280	355	275	284	285	281			2.4	-2.9
Bearings	million	51.4	125	96.3	104	114	113			9.3	-1.3
Tools	'000 tons	15.8	17.7	14.9	14.4	15.2	15.8			1.1	-1.4
Nails	'000 tons	85.3	103	80.2	73.4	66.6	67.2			1.9	-5.2
Chains	'000 tons	53.4	53.3	57.4	54.5	49.1	47.4			-0.0	-1.5
Utensils (steel)	'000 tons	27.1	32.2	20.8	22	27.2	24.2			1.7	-3.5
Utensils (aluminium)	'000 tons	2.6	5.3	4.5	3.7	3.1	2.9			7.4	-7.3
Gas hot plates	'000	461	858	758	782	759	757			6.4	-1.5
Gas water heaters	'000	102	213	207	211	218	210			7.6	-0.2
Washing machines and centrifuges	'000	423	809	739	773	779	761	811.1	152.2	6.7	-0.8
Vacuum cleaners	'000	383	961	950	971	1022	1081			9.6	1.5
Refrigerators and freezers	'000	444	694	578	569	506	484	516.3	146.7	4.6	-4.4
Sewing machines	'000	235	409	419	440	450	443			5.7	1.0
Machines and equipment											
Steam boilers											
Water-tube boilers	units	262	159	115	122	117	115			-4.9	-4.0
Fire-tube boilers	units	152	116	334	347	229	225			-2.7	8.6
Turbine sets and steam turbines	units	24	12	11	7	9	12			-6.7	0.0
Compressor piston engines (without car and tractor)	'000	15.3	38.5	33.4	32.8	33.6	32.3			9.7	-2.2
Ship engines	units	105	105	128	125	142	105			0.0	0.0
Machines for coal mining	'000 tons	108	375	396	461	490	512			13.3	4.0
Machines for ore dressing	tons	14136	18478	11083	12352	11615	12182			2.7	-5.1
Machinery for metallurgy	tons	47367	59895	28279	23521	27198	31349			2.4	-7.8
Machine tools	units	36299	38281	57442	51902	46102	52428			0.5	4.0
with numerical control	units	13	332	327	417	447	469			38.3	4.4
for plastic processing	units	6573	10087	8755	8820	8147	6374			4.4	-5.6
Chemical machines	tons	70971	74215	54334	40764	36547	31260			0.4	-10.2

(continued)

Table A-11. (continued)

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III	1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Building materials machines	tons	42691	45079	21953	26983	24508	23545			0.5	-7.8
Machines for textile industry	tons	18623	19420	13418	11840	12342	12663			0.4	-5.2
Machines for clothing industry	tons	134	69	312	391	439	368			-6.4	23.3
Food processing machines	tons	56901	73202	55721	50891	43634	43181			2.5	-6.4
Wood processing machines	tons	17836	39946	44193	35243	34421	34968			8.4	-1.6
Agriculture and forestry machines	'000 tons	227	343	460	431	410	406			4.2	2.1
Tractor ploughs	'000	28.1	30	84.7	66.2	47.8	44.5			0.7	5.1
Cultivators	'000	6775	11319	21650	23725	24003	28337			5.3	12.2
Disk harrows	'000	6600	5406	2800	3657	3350	4404			-2.0	-2.5
Grain drills	'000	3221	13434	21576	21836	21620	20984			15.3	5.7
Tractor movers	'000	8000	11037	15517	16772	13561	15889			3.3	4.7
Sheafers	'000	7220	6773	12575	11650	11037	8000			-0.6	2.1
Threshers	'000	9657	12125	14475	13827	12686	11279			2.3	-0.9
Combine harvesters	'000	2155	4593	5131	5707	5990	5919			7.9	3.2
Cranes	units	2151	4933	5352	4627	3144	3596			8.7	-3.9
Precision industry											
Computer processors	units	60	29	42	45	31	41			-7.0	4.4
Typewriters	'000	1.5	76.7	59	64	66.6	64.8			48.2	-2.1
Water meters	'000	245	199	231	228	234	245			-2.1	2.6
Gas meters	'000	250	261	153	188	217	226			0.4	-1.8
Transport equipment industry											
Diesel locomotives	units	351	121	29	29	31	35			-10.1	-14.4
Electric locomotives	units	75	125	108	104	96	98			5.2	-3.0
Rail-coaches	units	569	328	350	335	301	294			-5.4	-1.4
Goods wagons	'000	15.5	15.2	6.8	6.9	6.7	6.5	4.6	0.7	-0.2	-10.1
Tram cars	units	138	220	217	204	200	200			4.8	-1.2

(continued)

Table A-11. (continued)

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III	1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Passenger cars	'000	64.2	351	283	290	293	293	285.6	69.1	18.5	-2.2
FIAT 1300 & 1500	'000	28.6	61.6	56.2	56.8	52.4	38.7			8.0	-5.6
FIAT 126p	'000		214	197	201	205	206				-0.5
Polonez	'000		32.1	29.5	32.2	36.6	48.3				5.2
Buses	'000	9.0	13.1	8.0	9.4	10.0	10.4			3.8	-2.8
Trucks	'000	41.0	53.7	49.1	46.1	45.6	46.8	43.9	7.5	2.7	-1.7
Special trucks	'000	2.9	7.0	5.0	4.9	5.3	4.6			9.2	-5.1
Trailers	'000	53.3	54.5	48.6	48.0	45.2	43.5			0.2	-2.8
Universal tractors	'000	38.7	57.5	59.0	61.5	59.2	58.3	48.0	9.9	4.0	0.2
Motor-cycles	'000	95.2	94.2	35.5			3.1			-0.1	-34.7
Motor-bicycles	'000	85.1	126	107	113	117	106			4.0	-2.1
Bicycles	'000	903	1637	1402	1431	1442	1486			6.1	-1.2
Baby buggies	'000	163	360	289	237	187	175			8.2	-8.6
Ships (from 100 DWT)	units	57	61	41	42	41	35			0.7	-6.7
	'000 DWT	518	292	343	537	327	224	282.6	12.4	-5.6	-3.3
	'000 BRT	434	359	263	391	303	227			-1.9	-5.6
Electronic engineering and electronics											
Electric machines	'000	3668	12335	12505	12714	12543	13194			12.9	0.8
	MW	7429	9864	8878	9142	9065	9022			2.9	-1.1
Transformers	'000	15451	17326	17326	14599	15733	16395			1.1	-0.7
Cables and wires	'000 tons	153	261	236	238	266	252			5.5	-0.4
Rechargeable cells	'000 tons	36.7	58.4	68.6	72.9	59.0	54.7			4.8	-0.8
Telephone switchboards	'000 units	62.3	203	269	276	303	305			12.5	5.2
Telephone sets	'000	635	1520	1702	1916	2009	2110			9.1	4.2
Telegraph sets	units	4045	6593	221	158	92	167			5.0	-36.8
Radio receivers sets	'000	987	2695	2690	2729	2833	2684	2514	496	10.6	-0.0
Television sets	'000	616	900	610	631	647	749	762	167	3.9	-2.3
Colour	'000		147	158	169	211	215	238	50	4.9	
Tape recorders	'000	184	806	384	405	361	357			15.9	-9.7
Phonographs	'000	274	370	242	263	229	271			3.0	-3.8

(continued)

Table A-11. (continued)

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989 I-III	1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Light bulbs	million	312	469	404	420	431	464			4.2	-0.1
Electron tubes	'000	26676	10736	5489	5245	4890	5428			-8.7	-8.2
Semiconductor elements	million	26.5	262	289	307	323	368			25.7	4.3
Resistors	million	190	518	563	683	747	900			10.5	7.1
Condensers	million	265	703	723	825	782	749			10.2	0.8

Source: Calculated using Central Statistical Office data.

Table A-12. Production of selected commodities in fuel and power industry, 1970-1990, selected years

Products	Units of measure	1970	1980	1985	1986	1987	1988	1989	I-III 1990	Average annual growth rate (Percentage) 1970-1980	1980-1988
Coal industry											
Coal	million tons	173	230	250	259	266	266			2.9	1.9
Hard coal	million tons	140	193	192	192	193	193	178	42	3.3	0.0
Of which:											
Power coal	million tons	103	146	130	130	131	131			3.5	-1.3
Gas coal	million tons	12.6	9.1	20.6	20.2	20.4	21.1			-3.2	11.1
Coking coal	million tons	16.9	27.3	33	33.5	33.8	33.6			4.9	2.6
Brown coal	million tons	32.8	36.9	57.8	57.3	73.2	73.5	72	19	1.2	9.0
Coal briquette											
Hard	'000 tons	1496	1567	858	1154	1221	1301			0.5	-2.3
Brown	'000 tons	336	163	153	155	158	159			-7.0	-0.3
Fuel industry											
Coke	'000 tons	16548	19849	15996	16398	17066	17071	16548	3742	1.8	-1.9
High-temperature tar	'000 tons	654	819	706	718	738	770			2.3	-0.8
Benzol	'000 tons	199	209	174	177	175	191			0.5	-1.1
Coke-oven gas	cu hm	5871	7241	5912	6140	6468	6593			2.1	1.2
Gas from gas-works	cu hm	811	361	223	182	176	133			-7.8	-11.7
Crude oil	'000 tons	424	329	194	167	149	163			-2.5	-8.4
Natural gas	cu hm	5182	6329	6390	5824	5781	5713	5377	1245	2.0	-1.3
Petroleum refining	'000 tons	7471	16126	14067	14298	14306	15008	15238	2832	8.0	-0.9
Petrol	'000 tons	1624	3282	3771	3873	4039	4339			7.3	3.5
Gasolines	'000 tons	43.5	10.9	4.3	4.3	4.9	4.6			-12.9	-10.2
Kerosine	'000 tons	149	224	190	171	162	176			4.2	-3.0
Refinery gas	'000 tons	92	211	189	204	202	213			8.6	0.1
Diesel fuel	'000 tons	2239	5093	4833	4856	4981	5172			8.6	0.2
Furnace oil	'000 tons	2000	3938	2434	2405	2321	2457			7.0	-5.7
Lubricating oil	'000 tons	303	505	507	534	523	537			5.2	0.8
Asphalt	'000 tons	549	1327	1133	1260	1236	1290			9.2	-0.4
Power industry											
Electric energy	TW.h	64.5	122	138	240	146	144	145454	37961	6.6	2.1
Of which:											
based on lignite	TW.h	20.6	23.5	39.6	46.2	49.6	52.3			1.3	10.5
	Percentage	31.9	19.3	28.7	19.2	34.0	36.3			-4.9	8.2
Thermal power stations	TW.h	54.1	108	125	128	133	132			7.2	2.5
Water power plants	TW.h	1.9	3.3	3.9	3.8	4.1	4.2			5.7	3.1
Heat energy	PJ	398	715	721	696	733	716			6.0	0.0

Source: Calculated using Central Statistical Office data.

ANNEX
B

FINANCIAL PERFORMANCE OF ENTERPRISES

Table B-1. Financial performance of enterprises in food industry, 1988

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
FOOD INDUSTRY	296397	575693		1309805	262362	1592821						
Of which:												
Meat industry	-390122	60580		438	18246	451172						
Of which:												
O.P. Przem. Miesnego Katowice	-27721	8031	4365	18	2407	35773	0	69.97	5.68	-16684	-1785	49.0
O.P. Przem. Miesnego Bydgoszcz	-36948	6472	4428	1	2438	43422	732	42.93	5.14	-26849	-3176	54.3
O.P. Przem. Miesnego Wroclaw	-36457	3763	2383	10	1028	40231	1475	53.16	3.82	-29572	-2476	43.8
O.P. Przem. Miesnego Lodz	-31489	3195	2531	13	558	34696	388	51.34	3.37	-22130	-3719	31.8
O.P. Przem. Miesnego Warszawa	-21123	27.7	1881	5	672	23855	1117	57.42	3.41	-14408	-2500	47.3
O.P. Przem. Miesnego Kolo	-19903	3588	2186	4	989	23495	618	35.76	4.62	-13303	-2590	24.1
O.P. Przem. Miesnego Olsztyn	-19257	3790	2323		1267	23048	1217	53.35	5.47	-14164	-3350	59.8
O.P. Przem. Miesnego Poznan	-28064	2855	1554		719	30919	1161	51.50	3.81	-22819	-4410	32.7
O.P. Przem. Miesnego Lukow	-17621	2156	1381	8	447	19785	1169	77.14	3.34	-12605	-2958	39.9
W.P. Przem. Miesnego Elk	-13085	1589	947		384	14674	240	93.11	3.27	-10159	-4481	60.8
O.P. Przem. Miesnego Bialystok	-12985	1370	771	3	312	14358	587	58.32	3.12	-10455	-4425	70.2
O.P. Przem. Miesnego Koszalin	-17453	2687	1630	3	1042	20143	120	56.80	5.79	-14070	-4555	33.0
W.P. Przem. Miesnego Gdansk	-13736	2323	1633		879	16059	161	41.71	5.90	-9793	-2637	26.7
W.P. Przem. Miesnego Szczecin	-13469	869	644	3	131	14340	82	0.18	2.31	-10391	-3608	39.8
O.P. Przem. Miesnego Lublin	-9790	1929	1482	5	795	11725	125	128.21	5.58	-5975	-1841	43.2
O.P. Przem. Miesnego Rzeszow	-11383	937	642	9	179	12330	112	53.72	2.65	-8715	-3636	27.7
Z-dy Miesne Rawa Maz.	-9658	1411	392	6		11075		0.00	4.26	-7204	-3903	0.0
W.P. Przem. Miesnego Tarnow	-6559	1262	809	3	235	7825	318	81.37	4.24	-3467	-1290	32.7
O.P. Przem. Miesnego Przylep	-9866	1718	1381	3	721	11606	91	68.48	5.64	-6858	-3221	35.8
W.P. Przem. Miesnego Opole	-12506	1393	970	5	509	13904	106	73.58	4.59	-10456	-2988	39.6
W.P. Przem. Miesnego Zamosc	-7730	1311	690	5	412	9053	217	76.05	5.08	-5838	-3558	38.2
W.P. Przem. Miesnego Jaroslaw	-2871	1349	790	3	425	4223	265	60.32	6.56	-636	-516	15.3
W.P. Przem. Miesnego Kielce	-7536	1334	843	5	521	8876	73	68.25	6.01	-5927	-57	47.5
Eggs and poultry	-2916	30895		6	14129	33977						
Of which:												
Z-dy Drobiarskie Olsztyn	1490	2419	1331		1024	934	559	48.82	11.97	3892	1372	22.4
Z-dy Drobiarskie Chorzow	-781	1845	1281		927	2636	35	79.83	8.57	1604	436	23.4

(continued)

Table B-1. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Z-dy Drobiarskie Swiebodzin	1495	2532	1769	2	1544	1043	17	78.74	15.75	3096	2267	15.5
Z-dy Drobiarskie Lodz	1	1600	692	1	376	1617	106	50.96	9.44	1883	743	33.2
Pozn. Z-dy Drobiarskie Kozeglow	108	2241	1307		969	2139	393	39.66	14.92	2031	487	19.8
Z-dy Drobiarskie Lublin	1811	2604	1691		1429	798	283	37.38	20.39	3389	867	18.6
Z-dy Drobiarskie Kielce	1024	2363	1646		1314	1344	227	58.62	17.54	2895	1630	20.3
Z-dy Drobiarskie Torun	-712	1621	1004		640	2341	141	34.07	11.79	1036	-49	22.0
Z-dy Drobiarskie Szczecin	-909	1418	885		488	2334	160	38.51	10.30	792	-16	27.7
Z-dy Drobiarskie Ostrow Wlkp.	72	2112	1236		974	2045	304	69.19	17.05	1511	276	25.4
Z-dy Drobiarskie Warszawa	-1022	716	544		302	1742	26	77.32	5.57	232	-473	32.8
Z-dy Drobiarskie Krakow	-1176	783	583		295	1975	134	55.44	6.20	407	-543	12.0
Fishing industry	20267	26741		25	11034	6510						
Of which:												
PPDiUR DALMOR Gdynia	2899	5138	2883	1	2068	2240	1292	54.48	12.43	13719	1836	25.5
PPDiUR GRYF Szczecin	639	2629	1757		1055	2000	660	46.70	6.13	10757	2526	49.3
PPDiUR ODRA Swinoujscie	3054	5314	2846		2128	2260	1330	81.60	13.27	13229	1916	34.0
TRANSOCEAN Szczecin	6945	6944	3183		2780		1738	80.36	22.63	15081	5019	31.8
Dairy industry	-563737	92172		47	12828	656106						
Of which:												
CZSMI Murowana Goslina	5076	5076	35					0.00	37.34	5503	39865	7.4
Milling and macaroni	-235150	32713		4	33213	287871						
Of which:												
PZZ Olsztyn	-5151	3990	2974		2542	9141	60	62.08	14.35	-2761	-2227	33.0
PZZ Poznan	-13917	2210	1815		1418	16128	18	49.51	8.09	-11717	-5994	35.1
Woj. Przeds. Roln-Przem. Opole	-13621	4757	3229		2850	18377	245	80.22	17.78	-11198	-3481	13.6
PZZ Szczecin	-9543	2799	2190		1819	12341	10	50.16	13.38	-7504	-3065	21.2
PZZ Jaroslaw	-8237	1809	1416		1200	10047	10	58.82	9.60	-6732	-3361	32.9
Bakery industry	3140	3313		125	1888	298						
Sugar industry	-3048	60000		68	37859	65838						
Of which:												
Cukrownie Lubelskie Lublin	1642	13388	11594	4	8356	13011	363	67.20	23.87	12881	399	12.3
Cukrownie Dolnoslaskie Wroclaw	707	7352	6336	1	4816	6835	11	55.49	21.85	7353	-581	7.7

(continued)

Table B-1. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Cukrownie Wielkopolskie Poznan	46	6076	5010	20	3787	6386	213	57.17	20.05	5459	-1789	6.1
Cukrownie Mazowieckie Plock	-2699	4055	3828	1	2503	6755	148	58.75	12.89	4472	-2211	5.8
Cukrownie Opolskie Raciborz	-830	3687	3115	1	2344	4568	64	55.72	13.61	3463	-387	10.8
Cukrownie Torunskie Torun	-891	4995	4064	6	3188	5892	162	66.99	20.16	4124	-559	9.4
Cukrownie Bydgoskie Inowroclaw	728	5670	4589		3615	5200	90	56.23	24.67	4591	-549	10.4
Cukrownie Leszczynskie Wschowa	133	4255	3669	2	2573	4649	121	62.58	22.98	3313	-573	7.8
Cukrownie Gdanskie Malbork	167	2944	2587	32	1905	2809	32	63.34	18.70	3844	-437	9.0
Spirit and yeast	1107119	43616		1067069	27453	4116						
Of which:												
POLMOS Warszawa	1106298	43480	1097724	1066378	27453	4109	562	62.12	31.46	1132355	7476	36.7
Potato industry	7935	9922		3024	5741	5012						
Of which:												
Przeds. Przem. Spoz. Lomza	111	2032	4550	2902	1284	4913	43	92.66	11.43	2004	-1949	12.5
Fruit and vegetables	71387	38535		36410	14445	3609						
Of which:												
HORTEX Warszawa	8733	8726	1822	7	0	0	3016	29.78	16.28	22734	584	5.0
Warminskie ZPOW Kwidzyn	5721	2428	4762	3293	1059		535	64.51	17.62	8985	1612	8.4
FRUCTOPOL Lublin	5539	2147	4830	3391	1005		399	93.13	18.02	8771	-29	8.7
ZPOW MILEJOW	5435	1631	4718	3804	654		408	74.02	21.45	7053	548	6.9
Mazowieckie ZPOW Tarczyn	1975	1738	1422	237	988		160	111.26	16.86	3499	4217	6.8
Dolnoslaskie ZPOW Wroclaw	5350	1642	5047	3708	1062		13	63.17	25.48	7083	1997	9.4
Pomorskie ZPOW Bydgoszcz	2396	1124	2083	1272	534		208	68.92	13.53	4184	1452	15.9
Wine industry	46143	8356		37788	4567	1						
Of which:												
Centr. Piwn.Win Import.Warszawa	18110	3199	17361	14912	2098	1	5	47.55	30.92	20458	2967	8.3
Brewery	167563	32443		135857	20390	749						
Of which:												
Z-dy Piwowarskie Poznan	20479	4259	19505	16220	2773		26	67.19	41.04	23314	4259	16.8
Z-dy Piwowarskie Brzesko-Okocim	13191	2477	12475	11007	1172	293	447	70.59	31.05	15226	2573	15.5

(continued)

Table B-1. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Z-dy Piwowarskie Zywiec	13463	3151	12950	10635	2023	323	27	61.22	44.50	15092	4259	27.6
Z-dy Piwowarskie Warszawa	9955	2650	9333	7305	1689		37	47.88	34.00	11517	3385	25.1
Z-dy Piwowarskie Tychy	11321	1979	10867	9342	1291			59.65	36.26	12605	3432	16.0
Z-dy Piwowarskie Lezajsk	10462	1940	10142	8646	1246	124	17	73.50	36.40	12108	3215	10.4
Z-dy Piwowowarskie Zabrze	9980	1613	9652	8367	1051			39.00	34.65	11263	3075	16.2
Z-dy Piwowarskie Wroclaw	9439	1753	9116	7686	1126		21	70.13	42.36	10771	2618	15.7
Z-dy Piwowarskie Warka	6997	405	6900	6592	176		110	83.28	8.14	8298	678	7.7
Z-dy Piwowarskie Lublin	6418	1919	5683	4500	1046		136	46.69	34.35	7328	4239	14.0
Z-dy Piwowarskie Glubczyce	7072	1465	6782	5610	947	9	7	67.62	31.41	8309	2740	16.5
Z-dy Piwowars = Elblag	8060	1260	7809	6800	823			64.10	34.79	9022	2747	25.9
Z-dy Piwowarskie Lodz	7107	1900	6648	5207	1241			25.80	52.60	8066	4354	18.5
Oil industry	-39508	20392		5	8349	59905						
Of which:												
Z-dy Przem. Tluszcz. Kruszwica	-14101	6790	3534		3380	20892	1044	64.51	15.37	-11957	-9981	19.9
Z-dy Przem.Tluszczowego Katowice	-638	2404	1002		807	3042	766	63.91	17.50	773	336	15.1
Z-dy Przem. Tluszczowego Brzeg	-5291	2837	1352	1	1177	8129	676	60.99	15.41	-3655	-6359	19.6
Z-dy Przem. Tluszczowego Gdansk	-6476	1638	741		588	8113	500	72.82	8.87	-5158	-8318	18.9
Z-dy Przem. Tluszcz. Bodaczow	-3167	1523	543		403	4690	613	82.86	10.52	-1957	-2379	29.6
Z-dy Przem. Tluszcz. Warszawa	-5112	2344	546		440	7456	1136	79.53	14.75	-3902	-6323	15.7
Confectionery	67901	44523		27503	25643	4137						
Of which:												
ZPC 22 LIPCA Warszawa	13068	6909	12056	6678	4284	519	236	27.70	28.48	16442	3052	25.2
ZPC GOPLANA Poznan	9975	6373	8920	4417	3919	815	226	37.42	33.00	12666	3434	51.1
S.P.Prod.Rynk. SPOLEM Warszawa	2422	3020	3174	798	1784	1397	172	26.93	16.00	5828	1406	48.7
ZPC WAWEL Krakow	7145	4088	6359	3435	2548	377	115	30.79	32.36	8979	3867	43.9
ZPC GRYF Szczecin	5174	4079	4475	1921	2480	826	173	43.56	31.96	5857	8564	33.5
ZPC BALTYK Gdansk	5708	2867	4815	2841	1838		27	51.40	60.04	6564	5210	33.9
Concentrated food	910	10510		682	6060	10295						
Of which:												
KZKS Winiary	-355	3856	2733		2336	4211	188	73.22	16.55	2254	1131	22.8
Z-dy Konc. Spoz. Skawina	43	1280	981	20	715	1257	123	67.32	10.98	1413	1072	17.7
Kuj. Z-dy Konc. Spoz. Wloclawek	1988	1693	1487	295	1054		48	80.76	17.94	3082	2742	18.9

(continued)

Table B-1. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Beverages and soft drinks	1358	1022		336	650	0						
Tobacco industry	25614	25609		3	15174							
Of which:												
Z-dy Przem. Tytoniowego Krakow	7279	7277	5274	1	4565		182	46.26	16.48	13547	4005	44.6
Z-dy Przem. Tytoniowego Radom	7740	7740	5288		4777		233	60.90	18.76	12272	4265	52.4
Wytw. Wyr. Tytoniowych Poznan	4960	4958	3194	1	2792		432	50.48	17.10	8577	3886	29.5
Wytw. Tytoniu Przem. Lublin	1840	1840	1149		854		455	82.57	9.29	4027	2617	25.4
Wytw. Tytoniu Przem. Augustow	1766	1766	1166		1004		145	68.16	17.34	2960	3094	16.1
Cooling industry	4808	4893		1	2425	90						

Source: Calculated using *Yearbook of Industry 1989*, Central Statistical Office (Warsaw 1990); *Zarzadzanie* (Warsaw 1989), No 6-7.

Table B-2. Financial performance of enterprises in textile, garments and leather industry, 1988

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
TEXTILE INDUSTRY	554440	332557		222779	186047	2464						
Of which:												
Cotton industry	140645	93226		48761	55012	1387						
Of which:												
BIELBAW Bielawa	12898	8808	10550	4155	5428	65	358	63.40	32.92	18843	2703	51.9
FASTY Bialystok	10337	6350	8653	3988	3856		322	69.47	23.39	15838	2308	44.4
ZPB ANDROPOL Andrychow	13088	8953	10396	4134	5570		292	68.99	43.55	18092	2461	55.0
ZPB PAMOTEX Pabianice	9722	6240	8373	3482	3868		282	61.67	31.28	14763	2413	43.5
ZPB UNIONTEX Lodz	5449	2711	5069	2738	1424		459	61.15	11.85	11796	1368	42.8
ZPB FROTEX Prudnik	6320	1965	5861	4359	1082	6	225	70.39	9.73	9694	1815	43.9
Z-dy Przem. Baweln. Czestochowa	6752	3941	6055	2811	2329		224	47.01	21.92	10564	2382	44.8
ZPB POLTEX Lodz	4821	2234	4324	2592	1008	5	522	58.83	12.73	9360	1279	30.5
ZPB HARNAMA Lodz	7153	4112	6031	3041	2689		7	65.61	32 69	9802	2538	49.3
ZPB ESKIMO Lodz	7454	5250	4776	2204	2232		1226	48.99	48.72	10369	2766	69.7
ZPB ALBA Lodz	3704	2241	3579	1462	1487		56	68.30	16.10	6665	1675	29.3
Z-dy Przem. Baweln. Lomza	4234	2021	4092	2224	1227	12	93	70.71	15.37	6920	1776	44.1
ZPB MORFEO Ozorkow	4186	1641	4117	2555	1003	10	84	62.22	12.92	7244	1465	34.4
ZPB BIELTEX Bielawa	6248	4186	5423	2195	2451	145	199	55.08	39.38	10184	2078	52.3
ZPO ZWOLTEX Zdunska Wola	4266	2565	3519	1681	1360		281	64.96	22.21	7353	1992	63.2
ZPB PIAST Gluszyca	4900	3460	4027	1441	2173		89	77.98	31.51	7745	2223	45.9
Z-dy Przem. Baweln. Bogatynia	2313	1770	2925	1566	1104	1023	55	68.81	13.81	4216	1334	29.3
ZPB FANAR Zelow	1353	1347	1205	5	877			47.62	10.97	2991	1565	44.8
Przedz. Baw. PRZYJAZN Zawiercie	383	383	482					0.00	3.00	4073	1594	90.6
Z-dy Przem. Bawelnianego Luban	2953	2800	1989	154	1480		379	56.30	27.72	5336	2418	34.5
Z-dy Przem. Bawelnianego Zambro	1710	1706	1372	4	995		45	61.31	17.03	4101	1617	45.4
ZPB 1 MAJA Lodz	2547	2487	2007	55	1610		5	59.34	26.97	4650	2150	64.0
Z-dy Przem. Baweln. Dzierzoniow	1843	1740	1777	100	1085		51	59.21	20.01	4032	1735	63.7
Wool industry	87975	46056		41881	25864	167						
Of which:												
Przedz. Czes. Gwardii Lud. Lodz	2939	2763	2478	176	1750		71	75.47	11.39	6426	1980	24.3
MERINOTEX Torun	4124	3560	3002	527	1562		266	52.31	16.46	8803	1421	33.1
POLT PS Zagan	1475	1475	1141		969			66.94	9.16	2510	2590	42.8

(continued)

Table B-2. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
P.C.WELDORO Bielsko-Biala	672	671	579	1	427		11	74.96	5.45	1724	1622	47.5
ZPW 9 MAJA Lodz	4520	2137	3809	2384	1242		152	69.78	32.94	5873	3093	42.4
Bast fibre industry	39494	31002		8755	16373	268						
Of which:												
LENTEX Lubliniec	3949	3532	3029	680	1851	264	418	78.89	17.40	6883	2840	61.2
F. Nici ODRA Nowa Sol	4234	2841	3421	1393	1517		341	62.62	24.17	7616	2060	48.4
ZPL STRADOM Czestochowa	4706	3022	3612	1684	1560		370	70.37	29.08	7143	2471	45.0
Z-dy Przem. Lniarskiego Zyrardow	870	810	1056	60	341		223	47.27	6.74	4361	1155	27.5
ZPL LEN Kamienna Gora	1939	1875	1366	64	807		431	65.47	20.56	5181	1690	30.1
Silk industry	40094	21714		18259	12637	0						
Of which:												
Z-dy Przem. Jedw. Gorzow Wlpk.	5069	2370	4350	2699	1201		341	41.36	19.50	8000	1975	57.1
ZPJ ORTAL Lodz	6013	3279	5302	2734	2116		70	70.07	33.94	8749	2466	43.8
ZPJ WISTIL Kalisz	6508	3251	5393	3250	1825		327	60.39	34.90	8513	2706	41.6
ZPJ PIERWSZA Lodz	6624	3568	5734	3050	2303		77	64.99	43.01	9118	2906	39.3
ZPJ MIRANDA Turek	4328	2301	3739	2027	1231		268	59.31	25.97	6905	2036	43.7
Fabryka Dywanow Kowary	9417	4733	7896	4684	2769		307	79.89	44.07	11667	3937	60.0
Tapestry industry	71516	31503		39438	19010	226						
Of which:												
WISAN Skopanie	8155	1358	7815	6821	772	23	111	69.28	24.05	9772	1750	55.0
RUNOTEX Kalisz	4354	2010	4073	2342	1235		80	53.98	23.81	6887	1717	43.9
AGNELLA Bialystok	7104	2130	6588	4974	1376		13	68.84	50.60	8607	2923	36.9
DYWILAN Lodz	5313	1507	5190	3806	917		116	73.87	26.48	7494	1739	31.1
Haberdashery	9040	4003		5035	2395	0						
Knitting and hosiery industry	147306	88760		58563	45846	402						
Of which:												
ZPP FENIKS Lodz	13677	3786	12921	9891	2474		129	64.30	33.12	16701	2829	26.7
ZPDz MEWA Bilgoraj	7232	2848	6948	4419	1651	35	223	61.77	31.08	11031	1643	56.6
ZTK TEOFILOW Lodz	6659	4152	5604	2554	2478	47	223	12.90	44.16	9526	2479	19.2
ZPDz BISTONA Lodz	3234	1845	3033	1388	1190		14	6.83	14.79	5332	1922	49.7

(continued)

Table B-2. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
ZPDz SIGMATEX Piotrkow	6239	5348	4356	897	3135	6	352	33.53	61.28	8329	3107	40.6
ZPP SYNTEX Lowicz	4473	1920	4231	2554	1151		104	57.78	21.14	7785	1802	36.7
ZPDz HANKA Legnica	2702	1482	2318	1206	603		347	60.02	13.56	5917	1315	38.5
JARLAN Jaroslaw	5314	3736	4258	1594	2175	16	257	38.10	50.61	8542	1833	37.6
ZPDz KARO Siedlce	4345	2667	3509	1683	1245	11	494	47.25	33.43	7535	1967	43.1
TERPOL Sieradz	2751	2329	2262	416	1294	1	201	55.04	25.97	6016	2139	16.3
ZPP SANDRA Aleksandrow	4327	1822	3972	2465	1017	1	189	63.58	26.06	6898	1764	58.7
Felt and technical fibres	9666	8962		705	5116	1						
Of which:												
Z-dy Sr. Opatrunkowych Pabianice	885	863	766	22	535		31	73.00	6.95	2529	1675	30.7
Non-weaving products												
Of which:												
Z-dy Tkanin Techn. Zyrardow	2523	2536	1936	1	1645	13	16	69.23	20.43	3905	3337	35.0
ZPB Maltex Lodz	2102	1113	1988	988	690		46	60.15	11.02	3418	1452	44.8
CLOTHING INDUSTRY	127898	138921		1350	59756	12853						
Of which:												
Clothes and linen	96702	107083		1027	50848	11860						
Of which:												
ZPO VISTULA Krakow	3474	4633	3150		2509	1159	380	28.56	32.60	7446	1712	38.9
ZPO MODUS Bydgoszcz	2769	3348	1841		1342	585	957	65.66	23.70	6864	1813	52.0
ZPO WOLCZANKA Lodz	3131	3342	2317		1546	222	522	56.20	25.00	8071	1482	71.4
ZPO Bytom	2067	3130	2047		1504	1078	534	54.78	25.89	5801	1540	43.4
ZPO CORA Warszawa	3276	3381	2463		1985	105	185	33.60	33.90	6446	1960	55.4
ZPO PROCHNIKA Lodz	1415	1884	1318		829	469	400	66.45	19.19	4648	1558	56.7
Other clothes												
Of which:												
Sp. Pracy BIELPO Bialystok	501	784	430		312	283	209	36.52	7.49	1448	1538	38.5

(continued)

Table B-2. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
LEATHER INDUSTRY	164149	111055		68574	58389	15893						
Of which:												
Tanning industry	11090	9354		1742	5315	6						
Of which:												
Z-dy Garbarskie Wlodawa	1561	1470	1149	91	880		84	82.47	14.48	2896	2348	51.3
Z-dy Garbarskie Leszno Gorne	2310	2248	1540	63	1350		119	20.91	25.08	3253	5146	18.3
Footwear industry	107407	71272		45568	37860	9564						
Of which:												
Z-dy Przem. Skorzanego Chelmek	10937	4944	9687	6283	2036	290	1273	59.19	15.40	19684	1671	45.9
RADOSKOR Radom	10790	6723	9422	4096	3945	28	600	70.11	25.57	22338	1885	33.8
ALKA Slupsk	8859	5612	8830	4082	3710	836	368	46.55	20.53	16883	1777	40.6
ZPS PODHALE Nowy Targ	6285	3798	6091	2901	1968	415	603	55.42	15.20	13973	1421	20.9
Z-dy Przem. Skorzanego Krapkowice	5449	4719	5986	2220	2489	1529	707	58.09	18.28	13665	1397	36.0
SKOGAR Lodz	6621	4447	8291	4765	2604	2591	299	36.94	27.71	11912	1491	27.6
ZPS ODRA Olesnica	5630	4349	5070	1805	2508	528	434	46.91	27.96	10041	1953	40.5
WZPS SYRENA Warszawa	5406	3628	4908	1925	2454	146	49	61.21	29.78	8828	2625	41.3
Z-dy Przem.Skorz. Starogard Gd.	4901	3572	4099	1389	2100	62	251	56.82	29.27	8644	1944	39.2
Z-dy Przem. Skorz. Lukow	3318	2006	2781	1565	828	265	517	37.00	19.09	6545	1555	41.2
POLANIA Gniezno	2218	1542	2072	867	646	192	419	55.89	13.46	6074	1410	54.2
ZPS KOBRA Bydgoszcz	2281	881	2548	1565	455	165	180	57.74	8.08	5881	1080	35.1
Zaklady Obuwia PKWN Chelm	1704	1063	1669	785	462	144	266	64.86	9.85	4527	1024	28.4
Z dy Przem. Skorz. Lublin	2234	1314	1734	959	523	39	327	53.69	14.17	4308	1725	41.8
RESPAN Rzeszow	2912	1319	2779	1591	672		226	37.53	15.68	6218	1451	21.1
Z-dy Przem. Skorz. Skarzysko-Kam.	1107	1766	1360	81	787	739	384	56.71	17.62	4317	1318	19.6
Furriery and leather clothes	20451	12180		10510	6948	2252						
Other leather products												
Of which:												
Doln.Z.Bialosk.-Rekawicz.Swidnic	5871	3444	6385	3972	2104	1547	151	65.41	44.92	8482	2630	41.7

Source: Calculated using *Yearbook of Industry 1989*, Central Statistical Office (Warsaw 1990); *Zarzadzanie* (Warsaw 1989), No 6-7.

Table B-3. Financial performance of enterprises in wood and paper industry, 1988

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
WOOD INDUSTRY	165431	115285		54093	53554	4924						
Of which:												
Sawmills	35122	28326		6834	14531	76						
Of which:												
Z-dy Drzewne PW Katowice	1990	1928	1634	42	1081		177	37.73	8.33	4807	1751	53.6
Doln. P.P. Drzew. Wroclaw	3664	2970	3209	694	1705		244	84.68	17.06	8094	1679	26.7
Przeds. Przem Drzewnego Poznan	3196	2437	2596	759	1331		255	61.41	25.21	5724	2014	24.9
Przeds. Przem Drzewnego Olsztyn	2218	1997	1688	221	1009		295	63.67	18.66	4812	1645	38.3
Przeds. Przem. Drzewnego Torun	1440	1059	1315	379	539		154	68.97	10.98	3989	1459	31.6
Board and plywood industry	12731	11272		1454	4094	17						
Of which:												
Z-dy Plyt Wiorowych Wieruszow	903	778	542	124	60		406	18.96	6.35	2708	2255	47.2
Z-dy Plyt Wiorowych Grajewo	1071	1019	851	52	500		136	56.38	10.27	2738	2606	36.2
Woodwork industry	11807	9242		2626	5159	61						
Furniture industry	94757	59685		39058	26203	4760						
Of which:												
FURNEL INTERNATIONAL Warszawa	6112	4222	2633	1891		0		0.00	22.94	12165	2573	14.1
ZPM Gwardii Lud. Radomsko	4857	4041	3302	909	1801	92	469	46.29	36.56	7956	1845	45.5
Fabryka Mebli Swarzedz	2634	1968	1930	956	523	290	769	39.67	17.01	5324	1284	46.6
Fabryki Mebli Zamosc	2337	1302	2014	1081	576	66	296	60.95	14.48	4608	1371	14.9
Fabryki Mebli Olsztyn	1392	1293	1881	875	669	776	185	76.79	13.42	3694	1213	37.0
Fabryka Mebli Wyszkow	1512	545	1914	1174	211	207	177	53.17	5.75	3950	1046	43.7
Fabryki Mebli Sedziszow	2164	1262	2148	1145	568	242	263	76.47	14.61	4752	1377	23.9
Wood packages industry	417	388		29	163	0						
Matches industry	6286	2830		3454	1739	0						
PAPER INDUSTRY	67997	71424		3220	36665	6866						
Of which:												
Pulp and paper industry	52172	56448		1695	27589	6208						
Of which:												
Z-dy Celulozy i Papieru Swiecie	15894	16485	9991	34	8511	697	3204	73.86	36.72	20603	4545	65.5
Z-dy Celulozy i Papieru Kwidzyn	1730	3510	3705	67	1460	1996	958	61.91	7.30	15185	2924	43.1
Z-dy Papiernicze Kostrzyn	6004	5819	4256	325	3465	139	325	70.62	34.04	9012	3704	33.0

(continued)

Table B-3. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Z-dy Cel.-Papiern. Ostroleka	7239	7211	3702	32	3141	4	1565	77.56	42.62	9548	3451	72.6
Z-dy Papiernicze Myszkow	2984	2885	1075	99	549		1952	73.15	16.77	5377	2330	35.2
Z-dy Papiernicze Szczecin	2639	2538	1516	92	1122	6	187	67.15	15.48	4796	3433	23.7
Z-dy Papiernicze Krapkowice	2397	2325	1438	72	921		712	64.75	20.72	5254	2867	77.7
Z-dy Papiernicze Konstancin-Jez.	1602	1564	1521	44	982	5	49	21.95	14.98	3798	2330	27.4
Z-dy Cel.Pap. Wloclawek	359	1595	1535	185	854	1421	282	74.22	13.71	3549	1372	24.5
Karkon. Z-dy Papiern. Jelenia Go	1903	1770	1288	202	721	68	16	71.72	18.40	4037	2114	48.8
Z-dy Papiernicze Klucze	1813	2227	1457	153	919	567		82.54	23.00	3145	1842	42.6
Paper processing industry	15825	14976		1525	9076	678						
Of which:												
Z-dy Wyr. Papier. Kielce	5447	5410	3899	37	3526		4	74.54	31.51	7404	4477	33.4

Source: Caiculated using *Yearbook of Industry 1989*, Central Statistical Office (Warsaw 1990); *Zarzadzanie* (Warsaw 1989), No 6-7.

Table B-4. Financial performance of enterprises in chemical industry, 1988

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
CHEMICAL INDUSTRY	516518	551445		89314	280894	125176						
Of which:												
Sulphur mining												
Of which:												
SIARKOPOL Tarnobrzeg	28989	49627	32172	31	28003	20677	4316	66.28	47.59	52366	4562	103.1
SIARKOPOL Grzybow	7539	12352	6433	1	5658	4814	2551	79.54	51.49	11995	5456	73.5
Chemical raw materials mining												
Non-organic industry	20157	22134		271	11220	2291						
Of which:												
AZOTY Chorzow	2584	2612	1746	45	889	72	965	63.43	9.07	7130	2293	46.3
Z-dy Sodowe Janikowo	3669	3987	2699	5	1759	323	843	82.82	20.20	6894	3319	87.9
Z-dy Chemiczne Inowroclaw	3485	3747	2208	9	1505	271	941	81.26	19.95	7239	2683	55.9
Z-dy Chemiczne Alwernia	6182	6158	4104	23	3622		399	65.26	47.35	8370	7658	43.9
POLCHEM Torun	651	670	528	6	312	25	160	92.08	6.64	1833	2323	29.0
Fertilizer industry	9352	77509		456	35213	69072						
Of which:												
AZOTY Tarnow	17279	16766	13181	254	9257	200	1596	36.95	19.20	34368	3661	40.0
AZOTY Kedzierzyn	13494	15863	8315	78	5810	2447	4497	64.69	19.03	27586	3998	50.5
Z-dy Chemiczne Police	-19794	21985	15870	2	11890	41780	2426	72.33	21.43	-4313	-894	45.0
AZOTY Pulawy	-4335	10048	5880	28	4045	14411	2529	54.48	14.14	6785	1040	44.6
AZOTY Wloclawek	-4307	5841	1825	81		10229	1752	30.00	9.61	6581	1542	47.3
Z-dy Nawozow Fosfor. Gdansk	1788	1787	995	1	718		430	67.55	9.11	3799	5444	26.8
Z-dy Nawozow Fosfor. Lubon	1539	1540	1215	5	976	6	42	62.89	11.71	2679	5121	49.8
Z-dy Przem. Nieorg. Wroclaw	1048	1041	922	8	721			55.50	10.86	1794	4019	33.7
Organic industry	42542	59698		1397	30389	18586						
Of which:												
ORGANIKA-ZACHEM Bydgoszcz	14285	13848	7468	460	5558	23	3474	76.49	28.51	23361	4086	66.9
Z.Ch. BLACHOWNIA Kedzierzyn	8916	8707	5721	210	4590	0	1038	68.96	16.77	14565	3814	57.8
ORGANIKA Brzeg Dolny	10757	11731	7538	72	5849	1046	1701	70.75	28.68	18304	4266	36.8
ORGANIKA Nowa SARZYNA	-2242	4880	3666	56	2941	7178	226	57.24	13.31	1719	-259	17.1
BORUTA Zgierz	4988	4986	3343	3	2687		572	60.64	35.13	8953	3330	51.1
ORGANIKA-AZOT Jaworzno	-1128	4953	3558	21	3152	6103	14	46.65	25.24	1446	663	22.7

(continued)

Table B-4. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Plastics industry	16166	15919		443	8530	196						
Of which:												
Z-dy Chemiczne Oswiecim	13661	13739	10239	105	7563	183	1627	79.52	18.85	26267	3563	47.2
ERG Pustkow	1998	1684	1509	326	733	12	389	65.62	11.04	4300	2221	26.2
Synthetic fibre industry	43104	38880		4221	8302	2						
Of which:												
Z-dy Wlokien Chem. Gorzow Wlkp.	15147	14089	11844	1059	9033	0	110	63.06	27.24	24570	3050	53.7
ELANA Torun	11028	10831	8884	198	6565		482	74.59	26.09	20832	2749	32.9
Z-dy Wl. Chem. Tomaszow Maz.	8536	6057	6445	2479	2735		1300	53.04	22.95	15385	2080	48.7
Z-dy Wlokien Chem. Lodz	1319	1053	1321	262	693	2		55.57	8.39	3502	1628	35.9
Z-dy Wlokien Chem. Jelenia Gora	2446	2439	2097	7	1574		11	61.60	23.12	4891	2618	35.4
Auxiliary chemical agents industry	6527	5128		1403	2664	4						
Of which:												
BORYSZEW-ERG Sochaczew	2779	2646	1466	133	1061		666	34.59	21.54	4496	3922	26.7
Chemistry of coke	1801	658		1143	354	0						
Of which:												
Z-dy Chem. HAJDUKI Chorzow	1801	658	1663	1143	354		153	82.46	6.33	3231	2974	29.5
Paint and varnish industry	26845	17517		12792	9303	3686						
Of which:												
POLIFARB Cieszyn	5474	3772	4819	2523	1809	821	666	71.76	15.77	7856	3970	31.3
F. Farb i Lakierow Wloclawek	4390	2588	3517	1802	1358		327	64.39	12.46	6344	4003	43.2
POLIFARB Wroclaw	5247	3736	4273	1936	2072	425	246	74.07	19.53	7357	5862	34.1
POLIFARB Debica	3010	1146	3121	2276	598	412	153	32.25	8.89	4166	1561	23.3
Z-dy Chemiczne Szczecin	868	1590	1083	80	894	802	142	49.20	11.29	1658	359	30.6
Fat, household chemistry, perfume	68283	47407		21071	20610	233						
Of which:												
INCO Warszawa	18025	13574	12449	4423	5791		1056	45.35	34.94	29882	2469	93.3
POLLENA-LECHIA Poznan	6113	4088	4745	2096	2335	71	271	76.09	22.01	8620	3960	48.4
POLLENA Nowy Dwor Maz.	2817	2059	2693	806	1227	48	156	73.98	10.12	4914	2764	14.9
POLLENA-URODA Warszawa	7866	4871	6200	2995	2928		253	32.07	35.82	9470	5368	23.5

(continued)

Table B-4. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
POLLENA Wroclaw	2935	2835	451	167	70	66	21	85.95	19.61	4246	5110	33.6
POLLENA Raciborz	1542	1239	1190	303	772		40	60.77	11.03	2522	3679	21.1
POLLENA Jawor	1478	988	671	489	17		776	57.40	9.11	2529	2833	27.1
POLLENA Bydgoszcz	1679	1679	808		670		38	43.90	17.22	2452	4874	26.1
Other chemical agents	18957	17189		1752	10046	33						
Of which:												
Przeds. Przem.-Handlowe Gliwice	7350	7289	4658	81	4149	21	580	67.40	36.51	9391	5554	76.8
FOLGAZ Gliwice	3355	3307	2971	47	1979		176	50.80	23.19	6574	1963	40.5
Pharmaceutical industry	99318	99105		1029	55055	826						
Of which:												
POLFA Starogard Szczecinski	18124	18411	10278	2	9751	288	2262	75.40	78.01	22330	6538	62.3
POLFA Tarchomin	10148	10145	7264	3	5953		684	79.16	39.36	15961	3713	34.0
POLFA Kutno	3903	4072	2611		2242	170	348	78.81	19.91	6655	3478	28.3
POLFA Grodzisk Mazowiecki	14399	14393	7240	6	6996		744	63.95	147.44	16433	13069	44.7
POLFA Poznan	5822	5701	3793	121	3331		359	73.63	35.99	8028	6143	54.3
POLFA Jelenia Gora	12323	12316	7623	8	7364	1	661	76.58	143.33	14533	8261	37.5
POLFA Warszawa	10709	10708	6671	1	6377		523	19.59	117.07	12911	8816	46.5
POLFA Pabianice	7187	7411	4654	6	4365	239	506	54.65	65.08	9423	5912	35.1
POLFA Krakow	3246	3234	2309	12	1960		157	50.35	25.99	5681	3018	23.2
POLFA Rzeszow	7972	8098	4450	1	4351	128	435	85.84	139.92	8920	16690	70.1
Herbalist industry	3247	6310		221	3790	3285						
Plastic products industry	59380	48847		10608	19228	110						
Of which:												
PRONIT Pionki	3910	3757	2870	218	1465	64	1007	56.43	12.42	9782	2068	47.5
GAMRAT-ERG Jaslo	3713	3208	2027	507	457	2	1556	48.18	15.94	7852	1852	33.1
ERG Tychy	5349	3718	3511	1633	1247	1	921	57.60	22.93	9015	2853	41.0
NITRON-ERG Krupski Mlyn	2553	2144	1858	399	868		542	47.60	15.14	6044	2120	35.8
KRYWALD-ERG Knurow	2755	2223	1803	530	843		527	59.24	17.96	5091	3826	37.5
ERG Gliwice	1244	1131	939	114	546		95	38.37	9.45	3016	2298	32.0
ERG Wabrzezno	2122	1526	1777	585	879		111	40.75	16.58	3207	3084	46.3
SANWIL Przemysl	3263	2792	2380	481	1697	10	105	74.93	35.09	4504	5043	32.2

(continued)

Table B-4. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Rubber industry	56217	27424		29743	13869	978						
Of which:												
STOMIL Olsztyn	15265	3747	14044	11598	1499	80	937	54.10	8.97	20750	2023	36.1
STOMIL Debica	16770	4735	15965	12035	2456		623	45.77	12.26	25515	1914	22.1
STOMIL Bydgoszcz	2923	2923	2276	95	1664	95	240	46.10	15.97	5590	2507	28.7
STOMIL Sanok	3244	2473	3710	1276	1425	505	147	56.29	14.65	8372	1415	19.6
STOMIL Grudziadz	2805	1625	2963	1468	807	294	248	39.49	9.68	7590	1118	34.0
STOMIL Wolbrom	1634	1515	1568	121	936	3	70	58.03	9.41	5585	2218	22.5
STOMIL Poznan	2188	1519	1710	667	604	2	407	86.08	10.26	5387	2096	54.4
FAGUM-STOMIL Lodz	2188	1124	1931	1049	494		236	65.60	11.85	4631	1483	48.8
STOMIL Rogowiec	2604	2579	1914	24	1647		4	20.14	30.03	3755	5448	27.0

Source: Calculated using *Yearbook of Industry 1989*, Central Statistical Office (Warsaw 1990); *Zarzadzanie* (Warsaw 1989), No 6-7.

Table B-5. Financial performance of enterprises in non-metallic mineral industry, 1988

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
BUILDING MATERIALS INDUSTRY	101664	104726		9850	58477	13022						
Of which:												
Mineral raw materials	13143	16944		852	9532	4672						
Cement industry	18858	21647		2746	11738	5540						
Of which:												
Komb. Cementowy Chelm	2701	2416	2587	389	1202	104	500	68.51	9.80	7396	2314	37.9
ZC-W GORAZDZE Chorula	3425	3935	4079	151	2250	666	322	66.97	25.72	7060	3098	70.6
ZC-W NOWINY Sitkowka	1341	2201	1906	173	1129	1033	20	50.86	15.64	3956	2024	57.9
KC-W KUJAWY Piechcin	-76	1572	1538	202	627	1850	228	66.82	10.22	3606	1408	47.5
POLCEMENT Sosnowiec	2444	2263	2023	181	1367		150	56.72	17.61	4994	2682	44.4
Cementowania OZAROW	1934	1831	1838	103	1044	1	168	76.45	18.23	4527	2561	46.8
Cementowania STRZELCE OPOLSKIE	1041	846	1146	195	399		174	68.48	7.76	2966	2184	46.8
KC-W WARTA Dzialoszyn	846	1331	1615	292	594	777	111	79.69	12.07	3465	1279	24.7
Limestone and gypsum	925	3304		215	1769	2600						
Of which:												
ZPW TRZUSKAWICA Sitkowka	788	1230	1205	76	589	517	212	63.87	9.76	3582	1792	30.9
Ceramic industry	16876	14403		2434	7676	0						
Of which:												
Przeds. Mat. Bud. PW Katowice	1933	1911	2172	21	1235		9	46.01	20.08	5100	2044	57.7
Concrete industry	25597	23767		1847	13365	37						
Insulation industry	16389	14897		1491	8384	0						
Of which:												
IZOLACJA Zdunska Wola	1768	1599	1062	168	720		329	70.36	14.91	2696	4312	37.8
Refractory materials industry	9260	9324		99	5740	163						
Of which:												
Z-dy Magnet. Ropczyce	1602	1602	1338		1031		14	71.57	16.89	2747	3737	29.7
Z-dy Mat. Ogniotrwalych Skawina	1528	1524	1163	5	995		71	91.42	16.31	2714	2733	49.2
GLASS MAKING INDUSTRY	52658	31064		23457	15384	1892						
Of which:												
Architectural glass industry	7391	6771		816	2609	396						

(continued)

Table B-5. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Of which:												
Huty Szkla Sandomierz	**2311**	**2277**	**1378**	**142**	**700**	**108**	**785**	**51.84**	**21.08**	**4376**	**2199**	**28.7**
Domestic glassware and others	20965	13778		8162	6916	1003						
Of which:												
Huty Szkla Krosno	4060	3696	3590	623	1814	267	613	47.84	20.53	11909	1615	56.2
Glass packaging industry	24281	10295		14478	5848	493						
Of which:												
Huta Szkla Jaroslaw	5698	1892	5443	3997	1007	190	203	60.26	16.81	7817	2613	30.2
WHITEWARE INDUSTRY	24915	12741		12595	5835	459						
Of which:												
China-ware and semi-vitreous	12265	7015		5700	3629	455						
Stoneware	1568	1088		478	532	0						
Faience and others	11082	4638		6417	1674	4						
Of which:												
Z-dy Plytek Ceram. Opoczno	9361	3633	7452	5726	1054		1001	70.42	30.46	13763	2200	46.1

Source: Calculated using *Yearbook of Industry 1989*, Central Statistical Office (Warsaw 1990); *Zarzadzanie* (Warsaw 1989), No 6-7.

Table B-6. Financial performance of enterprises in metallurgy industry, 1988

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
BASIC METALS INDUSTRY	186750	220714		5817	115894	39962						
Of which:												
Iron and steel industry	179074	213046	6989	5808	111313	39962						
Of which:												
Huta KATOWICE Dabrowa Gornicza	17183	39713	32685	843	20088	23528	6099	72.54	9.77	91854	2583	40.6
Huta LENINA Krakow	40911	39740	32375	2120	21260	949	5046	61.61	11.81	105247	2955	26.7
Huta BIERUTA Czestochowa	14669	16118	12760	33	7786	1482	2851	67.67	11.38	35176	2704	36.0
Huta NOWOTKI Ostrowiec Sw.	7887	10524	8884	533	4811	3170	2261	59.37	9.74	32914	1911	36.7
Huta WARSZAWA	8253	8120	6610	133	4639	0	207	62.65	11.38	21431	2696	39.2
Huta Zawiercie	8471	8251	6497	220	4586	0	967	36.55	12.76	18586	2830	33.0
Huta BATORY	11381	11336	8513	45	6778	0	725	37.11	19.01	22058	2895	45.9
Huta LABEDY	5146	5145	3570	0	2728	0	799	72.42	8.00	11245	2772	36.8
Huta FLORIAN Swietochlowice	4767	4301	3711	466	2044	0	756	54.00	7.22	12041	2482	50.8
Huta BAILDON Katowice	14109	13777	10379	332	7791	0	1179	55.68	28.27	24616	2698	43.0
Huta CEDLERA Sosnowiec	7106	6830	4326	275	3224	0	1226	28.13	12.98	11140	4909	28.5
Huta KOSCIUSZKO Chorzow	4456	4399	3550	123	2412	66	715	47.92	8.05	12525	2590	31.4
Huta POKOJ Ruda Slaska	3725	4679	3634	52	2607	1006	454	48.75	10.52	11024	2501	33.0
Huta BOBREK Bytom	-4908	4465	929	1		9375	350	76.46	8.97	1513	-17	20.2
Huta SWIERCZEWSKI Zawadzkie	7724	7668	5521	56	4726		60	68.41	31.69	13275	3012	68.6
Huta JEDNOSC Siemianowice	3266	3050	2886	216	1904		183	46.72	11.36	8560	1691	29.1
Huta FERRUM Katowice	5521	5533	4513	1	3574	28	108	47.23	24.40	9458	3368	52.7
Huta BUCZKA Sosnowiec	6297	6149	4873	148	3963		77	57.48	32.14	10294	3657	53.4
Huta LAZISKA	4378	4375	3560	3	2809		48	56.56	21.15	8176	4563	30.0
Huta SZCZECIN	1301	1618	1248	41	857	358	231	64.20	7.56	3316	2249	29.3
Huta 1 MAJA Gliwice	2498	2497	1914		1480		169	79.21	16.73	5346	2431	37.6
Kolejowe Zakl. Naw. Krakow	1110	1110	76					13.52	10.41	2083	6096	36.3
Ferrous scrap industry												
Of which:												
Przeds. Przer. Zlomu Nerby	2053	2053	1348		1210		141	83.60	18.13	2921	4704	51.3
NON-FERROUS METALS INDUSTRY	308706	309321		882	181165	1602						
Of which:												
Non-ferrous metals ore mining	233647	234655		489	138017	1602						
Non-ferrous metallurgy	75059	74666		393	43148	0						
Of which:												
Komb. G-H. Miedzi Lubin	196615	196545	136369	29	117938	43	9888	71.54	79.14	303790	6951	69.0
Z-dy Metalurgiczne Trzebinia	20376	20342	11081	35	10615	0	2629	30.78	27.46	24495	12001	39.0
Z-dy Metali Lekkich Kety	14080	13950	9710	130	8759	0	317	77.94	20.01	18867	5700	40.0
Huta Alum. KONIN Maliniec	12501	12497	8769	4	7954		173	69.68	33.72	16985	5941	60.8
Huta Metali Niezel. Katowice	18559	18439	11951	119	10823	0	1063	68.17	13.98	26945	5507	56.8
Z-dy H-P Metali Niezel. Wroclaw	5922	5859	3852	63	3114		678	56.68	14.06	9318	4786	61.2
Walc. Metali Warszawa	3519	3482	2232	37	1820		429	45.14	21.20	5397	4788	38.4

Source: Calculated using *Yearbook of Industry 1989*, Central Statistical Office (Warsaw 1990); *Zarzadzanie* (Warsaw 1989), No 6-7.

Table B-7. Financial performance of enterprises in engineering industry, 1988

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
METAL FORMING INDUSTRY	253664	204120		54460	101017	5922						
Of which:												
Foundry engineering	37693	36265		2354	19092	944						
Of which:												
Huta MALAPANEW Ozimek	5939	5934	4948	1	3594	3	168	62.36	33.83	13800	2093	40.6
Z-dy Armatur Krakow	3748	2939	2834	809	1416		500	63.87	23.27	6615	2066	45.8
POMET Poznan	2364	2363	1739		1355		202	45.46	27.08	4951	1927	41.4
Odlewnia Zeliwa Staporkow	1690	1639	1092	51	606		462	72.02	17.81	4013	1945	38.3
Metal construction industry	16556	16212		744	8435	431						
Of which:												
PRKO Przem. Czestochowa	3132	3106	2341	8	1872		156	52.66	29.76	9048	2399	59.0
METALPLAST Oborniki Wlkp.	1363	1301	1264	62	730		67	65.64	13.62	3474	1781	39.0
Bearing industry	24385	21144		3198	10788	4						
Of which:												
F. Lozysk Tocznych Krasnik	6688	5980	4127	712	2414	4	1938	48.42	28.53	15025	2053	24.2
ISKRA Kielce	8367	7475	6360	880	4070		833	42.30	43.34	15646	2370	44.8
PREMA-MILMET Sosnowiec	4039	3368	2964	636	1842		353	69.69	33.34	6713	2783	44.3
F. Lozysk Tocznych Poznan	2223	2158	1737	65	1178		239	41.91	25.96	4726	2006	38.3
Tools industry	22726	20603		2155	10250	74						
Of which:												
KPN VIS Warszawa	13031	12350	9467	726	6162	59	1853	52.05	29.44	25988	2338	41.4
FPU-BIAL Bialystok	3056	3047	2188	16	1464	13	518	56.63	40.07	6787	1918	76.7
Metal products for industry	52469	48053		5733	22548	1403						
Of which:												
OPAKOMET Krakow	5916	6861	5239	55	4379	10	38	53.54	25.42	11555	3127	23.0
KOMUNA PARYSKA Radomsko	2868	2540	2184	686	1024	359	640	67.45	11.76	5001	2065	75.4
Sl. Z-dy Lin i Drutu Zabrze	1709	1707	1320	4	936	2	215	70.81	12.78	3637	1994	74.3
DRUMET Wloclawek	2607	2616	1935	18	1512	27	190	40.58	21.80	4462	2551	60.6
F. Akces. Meblowych Chelmno	2222	2239	2289	130	1386	146	64	44.59	21.05	6600	1398	27.8
Fabryka Srub Lancut	1684	1879	1266	49	752	245	470	65.87	18.52	4073	2022	41.1
Fabryka Srub Zywiec	2430	2397	1479	45	1031	12	539	80.51	25.80	4352	2848	29.7

(continued)

Table B-7. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Metal products for households	93900	56745		39443	27399	3049						
Of which:												
POLAR Wroclaw	25924	11517	23657	14642	7288	235	503	55.61	25.32	35202	2730	41.8
Mennica Panstwowa Warszawa	3405	3342	1715	57	1409		763	39.48	10.63	5296	5406	60.0
LUCZNIK Radom	6577	2585	6526	4037	1083	34	677	37.63	11.48	16640	1290	54.5
PREDOM-ZELMER Rzeszow	5838	3858	3887	2306	750	328	1281	59.00	19.13	11494	1777	41.0
Z-dy Wyrobow Metalowych Rybnik	3625	1635	3397	2039	701	48	423	67.42	9.93	7839	1464	32.0
PREDOM-PRESPOL Niewiadow	4130	3239	2509	1066	1049	187	1060	35.40	20.52	7067	2711	21.8
POLSREBRO Warszawa	8451	4915	7333	3535	3018		182	27.55	45.07	12069	2662	44.6
F. Naczyn Emaliowanych Myszkow	3868	2123	3614	1783	1393	38	44	68.06	14.80	6640	2306	36.1
F. Naczyn Emaliowanych Olkusz	2500	1692	2213	840	687	32	660	58.82	12.80	6947	1335	32.4
WDA Poniatowa	2182	1686	1939	497	919		317	59.48	12.87	5768	1395	36.6
PREDOM-TERMET Swiebodzice	3650	3096	2268	696	1288	143	805	48.38	43.29	5875	2426	50.6
Repair and services plants	5405	4573		831	2165	17						
ENGINEERING	611517	569064		54601	284477	13216						
Of which:												
Machinery for power plants	116468	108964		9736	51881	2318						
Of which:												
Wspolnota MEGAT Warszawa	54379	53390	38605	961	27148	27	7525	58.74	29.76	115661	2725	32.3
WSK Rzeszow	12777	12496	7375	472	5065	202	3156	42.47	45.54	26148	1852	32.5
PZL WOLA Warszawa	10447	11656	5631	8	4693	1216	2933	51.69	47.81	17446	3101	32.5
ANDORIA Andrychow	7001	6361	5557	700	3741	60	445	63.24	28.49	11841	2849	37.7
WSK Gorzyce	4863	3055	3761	1808	1267		486	59.33	21.86	9588	2064	44.0
DEZAMET Nowa Deba	2924	2296	2521	941	899	328	562	54.71	17.03	7561	1745	35.8
WSK Kalisz	2570	2807	1860	30	1134	268	709	62.93	24.52	7198	1528	46.9
ZUT Swietochlowice	1938	2141	1608	2	953	204	451	74.90	21.65	5671	1733	29.8
PZL Sedziszow	4251	2180	3319	2069	867		542	54.86	29.62	7017	1966	34.3
PZL-WZM Warszawa	3779	2965	2370	814	1059		662	58.59	41.57	7731	2019	59.0

(continued)

Table B-7. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Machinery for mining industries	60638	9537		1246	31741	184						
Of which:												
Gwarectwo POLMAG Katowice	48937	47853	32796	1230	25140	184	4931	70.91	30.36	86104	3359	40.7
GLINIK Gorlice	8432	8429	6541	3	4885		357	49.22	21.86	17462	2133	33.0
Machinery for metallurgy	16391	16346		263	8414	228						
Of which:												
Huta ZYGMUNT Bytom	4084	4206	3015	78	2090	200	301	54.00	29.82	8865	2220	37.8
DOZAMET Nowa Sol	4399	4339	2722	57	1738	1	239	62.08	34.30	9095	2364	44.4
Huta Zabrze	3665	3676	2937		2229	15	164	63.32	29.92	7543	2209	57.1
ZAMET Tarnowskie Gory	2306	2229	2851	89	1208	12	348	62.64	21.38	5606	1872	37.8
Machine tools	45582	36761		9429	18800	656						
Of which:												
TECHMA-ZUGIL Wielun	4657	3535	4081	1123	2070		257	46.24	37.83	8599	2291	36.1
Z-dy Mechaniczne Tarnow	2213	2092	1754	130	852	9	532	49.80	20.94	6901	1506	43.7
RAFAMET Kuznia Raciborska	3897	3825	2750	148	2002	75	458	45.19	50.29	7475	2686	52.8
ASPA Wroclaw	1705	2013	1498	246	930	554	399	59.24	20.95	3980	1514	41.0
Machinery for chemical industry	18452	16669		1908	9168	152						
Of which:												
ZUP Nysa	4973	4885	3464	87	2750		430	37.94	60.66	8659	2669	29.9
Machinery for building materials	8585	7461		1115	4355	0						
Machinery for light industry	23157	21698		1658	11948	258						
Of which:												
WIFAMA Lodz	4397	3953	3057	578	1607	173	1004	60.21	27.99	10433	2434	40.4
F.Maszyn. Wlok. Bielsko-Biala	5043	4930	3545	139	2792	26	412	61.28	67.99	8475	2984	74.8
Machinery for food processing	23758	21995		1751	12128	68						
Machinery for construction	119311	122537		5409	52475	8681						
Of which:												
Huta STALOWA WOLA	38038	43299	23627	1121	17415	6407	10881	72.54	34.29	79259	2704	42.1
BUMAR-LABEDY Gliwice	54832	55961	26204	393	22512	1523	14047	84.68	68.32	79489	5187	78.3
BUMAR-WARYNSKI Warszawa	6738	6541	5573	825	3496	628	791	58.41	27.59	12521	2880	33.0
BUMAR-FADROMA Wroclaw	2886	2717	1958	176	1453	7	321	40.64	30.87	4787	3836	29.6

(continued)

Table B-7. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Machinery for agriculture and forest	37654	31371		6037	15774	4						
Of which:												
AGROMET Plock	6921	5990	5121	724	3181	3	1029	59.53	21.37	12462	2595	28.6
AGROMET Lublin	3490	2895	2516	595	1241		776	70.63	21.00	6988	2611	33.8
AGROMET Strzelce Op.	2217	1850	1716	343	760		460	73.31	12.57	4690	2231	44.2
AGROMET-ROFAMA Rogozno	2049	1904	1483	145	814		447	41.05	18.30	4426	2643	26.6
AGROMET Jawor	1695	1620	1424	75	774		288	64.97	15.24	3863	2046	50.8
AGROMET Poznan	1191	1084	915	107	411		433	56.05	10.40	3821	1735	40.1
AGROMET-WARFAMA Dobre Miasto	1326	1139	1139	187	659		98	29.22	11.39	3083	1583	23.6
AGROMET-UNIA Grudziadz	1505	1136	1204	369	414		351	59.82	11.89	4146	1599	52.1
Machinery for trade and others	8286	7592		830	3683	148						
Machinery for transport and cranes	33995	27185		6832	14921	98						
Of which:												
BUMAR-FABLOK Chrzanow	4172	3828	2332	336	1509		1026	31.58	26.60	8268	3419	34.9
Other machines and equipment												
Of which:												
PZL-HYDRAL Wroclaw	4798	4478	3048	324	1795	4	1122	60.76	33.94	10591	1739	66.8
PONAR Ostrzeszow	5179	5167	3070	12	2517		846	68.69	79.83	7520	4443	41.4
Pom. Odl. i Emaliernia Grudziadz	1775	1131	1619	645	628		117	52.80	12.43	4093	1548	62.9
Repair and services plants	40564	38421		1998	20674	1						
Of which:												
Hutn. Przeds. Remontowe Katowice	4654	4632	5830	22	3074			37.67	15.23	26858	1417	60.7
Z-dy Naprawcze PW Zabrze	2025	2021	1551	4	1302		10	47.04	20.24	4531	2922	64.1
POLKAT Warszawa	3716	3277	2528	439	1471		185	31.97	42.14	7548	2243	91.4
PONAR-REMO Warszawa	4567	4213	3769	354	2574		177	48.50	61.25	8767	2630	36.5
PRECISION INDUSTRY	132741	128514		4327	54518	353						
Of which:												
Automatic control engineering	29531			250	13203	16						

(continued)

Table B-7. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Of which:												
EMAG Katowice	7686	7645	6013	36	3850		518	41.04	32.00	18738	2099	38.7
MERA-ZAP Ostrow	3672	3656	2608	17	1815		577	54.24	42.36	8414	2070	28.7
MERASTER Katowice	5081	5074	2108	7	1944		1215	78.69	73.70	6585	8511	39.4
Informatics engineering												
Of which:												
ELWRO Wroclaw	11768	11174	8101	552	6193	45	1212	63.82	49.46	21169	4874	40.7
MERA Blonie	11493	11745	5689	151	4844		3027	65.75	56.84	18013	4338	51.2
MERA-ELZAB Zabrze	9996	9981	4311	15	3627		2169	69.24	61.92	12542	9864	79.1
ERA Warszawa	5903	5854	2979	49	2310		1444	76.19	33.88	11640	4114	44.4
Measuring apparatus												
Of which:												
Zj. Z-dy Urz. Jadrowych Warszawa	9763	9719	4810	41	3493	2	798	51.34	86.30	15121	4805	63.7
WSK WARSZAWA II	2860	2819	1765	33	1132		620	43.00	35.49	7048	1852	39.7
Optical instruments	6399	5758		735	1687	147						
Electronic instruments												
Medical equipment	9621	9376		245	3785	14						
Repair and services plants	4388	4350		62	2663	25						
TRANSPORT EQUIPMENT INDUSTRY	463664	400604		113990	190673	52205						
Of which:												
Railway industry	30954	33289		754	17071	3161						
Of which:												
H.CEGIELSKI Poznan	10991	12853	10362	663	6821	2524	1605	48.46	22.16	31680	2256	50.0
ZASTAL Zielona Gora	7657	7649	4601	7	3688		1290	63.78	22.85	11596	5112	38.7
PAFAWAG Wroclaw	4563	4558	3656	5	2917		66	44.22	27.12	8392	2504	34.0
Fabryka Wagonow Swidnica	1477	2096	1271	18	838	637	530	70.07	11.76	3628	2160	39.5
KONSTAL Chorzow	3202	3118	2097	11	1651		416	72.36	19.53	5558	3358	43.9
Car industry	234165	160962		98766	86902	26160						
Of which:												
FSM Bielsko-Biala	32910	37088	39583	12457	17897	16733	6719	64.73	17.75	90651	2506	53.9
FSO Warszawa	61507	44533	61070	25235	27346	8400	2962	53.82	24.65	111574	3254	51.9

(continued)

Table B-7. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
JZS Jelcz	21034	11689	19941	9344	6929	190	0	52.47	15.57	34432	2231	44.7
FSC Starachowice	27534	12574	22480	15210	5119	255	3199	49.21	19.97	45161	1728	29.4
FSC Lublin	32335	11121	30366	21156	7085	10	461	34.31	19.12	44153	2491	46.3
AUTOSAN Sanok	10489	8042	9090	2448	4817		486	55.36	17.48	19675	2625	56.7
F. Samoch. Specjalizow. Kielce	5871	4403	4103	1604	1774	140	1109	68.67	17.53	10969	1973	53.0
Z-dy Sprz. Motoryz. Praszka	11145	9927	7869	1284	5772	66	703	66.82	66.07	16127	3292	34.3
F. Samoch. Rolniczych Poznan	5327	2414	4548	2896	920	38	687	79.51	16.99	9744	1963	31.9
F.Amortyzatorow Krosno	4392	3411	3885	1298	1931	324	313	33.25	32.52	7649	2655	43.8
F. Osprz. Samochod. Lodz	3682	3017	3042	665	1877		65	56.43	42.18	6424	2873	29.7
F. Przekladni Samoch. Tczew	2395	1624	2260	771	1019		100	59.83	19.74	4643	2116	34.9
Tractor industry	11762	16574		3449	8206	8293						
Of which:												
URSUS Warszawa	9994	15111	18224	2956	7370	8105	3736	72.84	9.61	46745	1357	53.0
ARCHIMEDES Wroclaw	1705	1400	1700	493	795	188	128	35.20	15.82	4020	2059	32.8
Motor-cycles and bicycles	12202	8588		3800	3930	188						
Of which:												
ROMET Bydgoszcz	10200	6731	8757	3613	3488	144	895	70.01	20.11	19255	2020	28.6
Shipbuilding industry	59378	68477		287	31253	9757						
Of which:												
Stocznia LENINA Gdansk	3065	8291	6910	3	4559	5298	1496	39.95	16.80	23041	1867	20.0
Stocznia KOM. PARYSKIEJ Gdynia	18203	19201	9955	11	6989	1009	673	76.87	52.34	27839	2496	34.8
Stocznia WARSKIEGO Szczecin	10300	10980	8494	7	5932	688	1329	46.53	31.08	25311	1489	14.3
Stocznia Polnocna Gdansk	15146	15046	7161	113	6065	18	3791	48.57	59.13	25118	5548	36.8
Aircraft industry												
Of which:												
WSK Mielec	17892	18160	13250	3005	7389	3274	4618	68.30	29.15	42162	1763	44.3
WSK Swidnik	11822	12133	6712	277	4876	628	3035	56.52	43.24	23919	2342	36.3
WSK OKECIE Warszawa	3880	3876	1836	3	1167		1277	104.30	27.89	10485	3047	34.3

(continued)

Table B-7. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Repair and services plants	79582	76085		3612	28704	273						
Of which:												
Stocznia Remontowa Gdansk	9009	9100	5417	1	4068	92	1897	70.49	41.45	18916	3074	35.7
Stocznia GRYFIA Szczecin	7782	7775	4056	21	3395	31	1664	78.29	77.64	12189	3567	44.2
ZNTK Ostrow Wlkp.	2401	2398	2423	3	1523		42	35.78	17.04	8577	1525	31.0
ZNTK Bydgoszcz	1505	1504	487	1				12.17	12.33	6354	2016	55.8
ZNTK Nowy Sacz	1810	1794	514	3				16.83	17.11	6902	1689	46.9
ZNTK Poznan	2133	2130	500	2				10.35	22.78	6763	1953	52.2
Stocznia Remontowa NAUTA Gdynia	3082	3092	1689	2	1245	12	778	70.00	38.13	6577	2743	54.0
K.Z. Masz.i Sprz. Drog. Raciborz	1040	993	184	47				0.00	10.47	2228	3986	31.5
ELECTRONIC ENGINEERING AND ELECTRONICS	372694	296286		87304	125853	12865						
Of which:												
Electronic machinery for power plants	50975	49881		2191	22625	1144						
Of which:												
EMA-APATOR Torun	7647	7646	3528	1	2961		1845	49.59	51.47	10900	4565	64.1
CELMA Cieszyn	3421	3645	2247	196	1200	419	352	65.06	22.10	7316	2033	37.4
EMA-ELESTER Lodz	4418	4400	2797	18	2309		581	37.31	39.96	7567	2543	47.4
APENA Bielsko-Biala	4204	4211	2823	2	2413	10	325	58.35	53.34	6630	3549	69.0
EMA-TAMEL Tarnow	1987	2173	1627	146	788	332	482	48.66	23.66	4877	1547	40.8
Cables and wires industry	32478	35823		440	16003	3785						
Of which:												
F.Kabli i Masz. Kabl. Krakow	9891	9943	5646	296	4659	348	1840	66.50	17.79	15342	3786	47.8
F. Kabli ZALOM Szczecin	3968	7173	3335	51	2881	3255	1801	74.34	13.46	7528	3303	38.8
Fabryka Kabli Ozarow	6289	6261	3267	28	2487		1592	79.82	21.40	9771	4361	39.2
F. Kabli Bydgoszcz	6779	6903	3636	26	3354	150	1106	56.92	28.14	8676	7244	30.6
F. Przewodow Energet. Bedzin	2298	2313	1210	12	1104	27	419	57.52	14.81	3284	6192	26.9
Fabryka Kabli Czechowice	2110	2096	1142	19	987	5	376	72.53	17.79	2932	4329	51.4

(continued)

Table B-7. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Electric products industry	75360	61402		15093	27258	1185						
Of which:												
MESKO Skarzysko-Kamienna	9085	9008	5868	591	3658	520	2286	65.55	30.67	19857	2063	54.9
Z-dy Elektrotechn. Mot.Swidnica	10766	7879	8309	2887	4670		508	61.74	52.35	14886	3298	47.8
EMA-CENTRA Poznan	5871	3145	5018	2754	1739	27	441	70.62	19.79	9507	2496	53.7
POLAM Gostynin	4714	4563	2783	151	2198		771	73.86	31.76	7171	2910	38.4
Electronic products industry	187131	123701		68203	49684	6639						
Of which:												
UNITRA-POLCOLOR Piaseczno	17624	11249	15511	6114	4642	1474	2901	69.32	26.51	33286	3265	41.8
UNITRA-WZT Warszawa	23722	11455	20167	12288	6743	21	380	58.82	37.78	32002	4391	38.4
UNIMOR Gdansk	20173	6544	17002	13640	2629	10	1643	50.57	19.62	28543	3330	20.6
N.-P. Centrum Polprzew. W-wa	14345	14133	7932	206	5631		3520	69.22	54.80	26473	2685	45.1
DIORA Dzierzoniow	12364	4782	11945	8554	2053	973	1283	55.26	18.22	20542	1548	28.7
ZR KASPRZAKA Warszawa	10060	3656	9360	6926	1511	521	438	42.18	16.90	18586	1820	28.0
UNITRA-RADWAR Warszawa	9652	9634	4860	44	3677	26	2298	65.09	57.36	16961	2526	43.6
UNITRA-ELTRA Bydgoszcz	5752	2795	4921	2957	1016		936	63.49	14.47	12890	1524	19.9
POLAM Pila	5897	3870	5858	3605	1615	1579	946	69.98	21.28	11492	2036	44.0
UNITRA-BIAZET Bialystok	4684	3738	2913	939	1504		940	34.36	25.56	8297	2689	26.9
UNITRA-TELPOD Krakow	4916	4819	2990	114	1937	17	1453	50.02	38.17	9738	2302	40.8
FONICA Lodz	4493	2201	3772	2330	917	39	317	44.17	20.35	8043	1816	20.3
POLAM-R. LUXEMBURG Warszawa	3617	2514	3617	1767	1302	679	336	42.31	21.49	7023	1765	35.8
TONSIL Wrzesnia	4200	2970	3382	1582	1197	356	389	61.24	26.76	7710	1832	48.9
UNITRA-UNITECH Warszawa	2694	2419	1932	261	937		588	59.82	20.57	6864	1592	37.0
UNITRA-WAREL Warszawa	2553	2543	1333	10	1031		644	56.41	26.48	4937	3080	33.0
ZATRA Skierniewice	2037	1781	1567	229	731	18	457	38.51	19.03	5250	1582	23.2
UNITRA Lubartow	3143	1267	3062	2223	525	350	328	49.71	16.02	5449	1202	29.1
MIFLEX Kutno	2222	2197	1471	30	828	23	66	55.97	25.21	5639	1700	27.1

(continued)

Table B-7. (continued)

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
Telecommunication engineering	18387	17165		1321	6836	102						
Of which:												
TELKOM-ZWUT Warszawa	3745	3795	2840	11	1538	60	610	39.76	22.10	10468	1664	33.5
TELKOM-TELFA Bydgoszcz	2777	2776	1611	5	1114	4	696	73.71	17.30	6795	2263	30.0
TELKOM Warszawa	3111	3106	1494	6	1155		722	70.30	34.32	6504	3040	37.6
Repair and services plants	7410	7361		48	3012	1						

Source: Calculated using *Yearbook of Industry 1989*, Central Statistical Office (Warsaw 1990); *Zarzadzanie* (Warsaw 1989), No 6-7.

Table B-8. Financial performance of enterprises of fuel and power industry, 1988

Branch/Enterprise	Financial accumulation (million zlotys)	Gross profit (million zlotys)	Total taxes (million zlotys)	Turnover tax (million zlotys)	Income tax (million zlotys)	Total subsidies (million zlotys)	Total tax reduction (million zlotys)	R & D as percentage of profit	Net profit as percentage of costs	Value added (million zlotys)	Labour productivity (thousand zlotys)	Short-term funds as percentage of inventories
COAL INDUSTRY	-307459	107989		146	9022	415637						
Of which:												
Hard coal industry	-336703	78841		91	3853	415635						
Lignite industry	23394	23329		23	1352	1						
FUEL INDUSTRY	608110	156961		461185	80503	10141						
Of which:												
Coke engineering	5827	15167		35	8927	9375						
Of which:												
Komb. Koksowniczy Zabrze	2604	10827	7270	30	6242	8253	724	60.97	13.46	11472	2685	19.0
Z-dy Koksownicze Walbrzych	3223	4341	3140	5	2684	1122	166	29.46	11.67	6945	3107	34.5
Gas industry	12284	12211		71	7793	44						
Of which:												
Okr. Zakl. Gaz. Gdansk	1564	1572	1709	13	1023	44	2	1.82	11.21	5796	1591	39.5
Okr. Zakl. Gaz. Zabrze	2570	2559	2420	10	1642		36	0.00	20.00	6945	2055	34.8
Okr. Zakl. Gaz. Poznan	2006	2003	1837	2	1188			7.54	15.13	6444	1884	60.6
Okr. Zakl. Gaz. Warszawa	3136	3104	3162	21	2008		4	20.29	27.47	7767	2214	16.2
Okr. Zakl. Gaz. Tarnow	1423	1399	2394	24	911			11.42	13.05	5351	1411	18.2
Petroleum industry	34989	34931		0	9588	0						
Petroleum refining industry	555010	94652		461079	54195	722						
Of which:												
PETROCHEMIA Plock	364742	54763	344861	310345	30982	365	4685	77.92	11.56	389305	8114	49.0
RAFINERIA Gdansk	106321	16634	101204	90035	9088	349	2412	50.13	15.58	112982	12384	66.8
RAFINERIA Czechowice	30283	5541	28596	24750	3380	8	166	65.65	12.11	33815	6620	41.5
RAFINERIA Trzebinia	26134	6304	24129	19830	3949	0	125	74.59	20.18	28430	10567	48.0
RAFINERIA Jaslo	11217	5049	9613	6168	2862		326	59.33	21.51	14078	4866	42.7
Rafineria GLIMAR Gorlice	11266	3459	10300	7807	2147		82	63.76	19.88	13020	5462	45.7
RAFINERIA Jedliszcze	4893	2748	4369	2144	1778		11	61.09	12.24	6986	4337	38.9
POWER INDUSTRY	53761	53395		268	11732	272						

Source: Calculated using *Yearbook of Industry 1989*, Central Statistical Office (Warsaw 1990); *Zarzadzanie* (Warsaw 1989), No 6-7.

192/193

ANNEX
C

FOREIGN INVESTMENT INFORMATION AND OPPORTUNITIES

ANNEX C-1: Industrial Investment Law*

THE LAW

On Economic Activity with the Participation of Foreign Parties

The Polish Foreign Investment Law
on the 23rd of December, 1988
after amendments introduced on the 28th of December, 1989

In order to create stable conditions for further development of mutually advantageous capital co-operation between Polish and foreign parties, to guarantee to foreign parties the protection of their property, income and other rights, the following is adapted:

Chapter 1

General Provisions

Article 1

1. This Law sets forth the conditions for the commencement of, and the principles for, the conduct of economic activity with the participation of foreign parties on the territory of the Polish People's Republic.
2. For the purposes of this Law – economic activity is defined as production, construction, trade and services conducted for profit.

Article 2

1. The activity referred to in Article 1 may be conducted either in the form of a limited liability company or a joint stock company, hereinafter referred to as 'Companies', established jointly by Polish parties and foreign parties, or solely by foreign parties. The share of foreign parties may not be lower than 20 per cent of the Company's subscribed equity.
2. Unless the provisions of this Law state otherwise, the provisions of Polish law and in particular the Commercial Code shall apply to the Companies.

Article 3

1. Polish parties entitled to participate in Companies are:
   (1) the Treasury and other legal persons established under the laws of the Polish People's Republic, having their registered seats in Poland;
   (2) natural persons domiciled in Poland.
2. Foreign parties entitled to participate in Companies are:
   (1) legal persons having their registered seat abroad;
   (2) natural persons domiciled abroad;
   (3) companies established by persons referred to in clauses 1 and 2 without personality at law.

Article 4

1. The Foreign Investment Agency, hereinafter referred to as 'the Agency', is hereby established as the bureau of the President of the Agency. The organization and functioning of the Agency are outlined in its charter granted by the Prime Minister.

*At the time of printing, the new version of the Law after the proposed amendments in 1991 was not available. The new version incorporating the latest amendments can be obtained from: Foreign Investment Agency, Warsaw, Poland.

2. The President of the Agency is a Central Administrative Authority on foreign investments, subordinated to the Prime Minister.

3. The Prime Minister, on the recommendation of the Minister of Foreign Economic Relations, appoints and recalls the President of the Agency.

4. The responsibilities of the President of the Agency include:

   (1) formulating the objectives of, and implementing the policy of the State on investment co-operation with abroad;

   (2) stimulating and undertaking measures to increase the interest of foreign parties in pursuing economic activity in the Polish People's Republic in the areas, and within the scope consistent with the interests of the national economy;

   (3) supervising the compliance of the activities of entities, acting under this Law with its provisions and the conditions set forth in the permit for the establishment of a Company;

   (4) performing other responsibilities as provided by this Law.

5. The Foreign Investment Council shall constitute the advisory and consulting body of the President of the Agency. The members of the Council are appointed and recalled by the Minister of Foreign Economic Relations on the recommendation of the President of the Agency.

Article 5

1. The establishment of a Company requires a Permit. The issuance of the Permit authorizes the commencement of economic activity indicated therein.

2. The Permit is to be issued whenever the economic activity ensures in particular:

   (1) introduction of modern technologies and management methods into the national economy;

   (2) provision of goods and services for export;

   (3) improvement of the supply of modern and high quality products and services for the domestic market;

   (4) protection of natural environment.

3. A Permit is also required for:

   (1) the transfer of shares or ownership interests in a Company among the Shareholders;

   (2) the acquisition of shares or stock by a new person;

   (3) on Amendment in the Company's founding act changing either the ratio of the subscribed equity, or the related voting rights or the nature and value of contributions;

   (4) the change in the object of the Company's activity, as specified in the Permit.

4. A Permit is issued by the President of the Agency, upon an application of the parties concerned.

5. Foreign exchange transactions mentioned in paragraphs 1 and 3 do not require a separate foreign exchange Permit.

Article 6

1. The Permit shall be denied whenever the conduct of the economic activity would be unjustified due to:

   (1) a threat to State economic interests;

   (2) the requirements of the environment protection;

   (3) State security and defense interests or the protection of State secrecy.

2. The decision to deny the Permit based on paragraph 1, clause 1 or 3, does not require any reasoning as to the underlying facts.

3. The parties concerned have the right to appeal to the President of the Agency to re-examine the case within fourteen days from the date of the delivery of the decision denying issuance of the Permit.

4. The decision to deny the Permit may not be appealed to the Supreme Administrative Court.

Article 7

Whenever the conduct of economic activity, specified in the Permit, by virtue of other regulations requires a license, the Permit is issued in agreement with the appropriate licensing authority.

Article 8

1. The President of the Agency may condition the issuance of the Permit upon an undertaking of activity by a foreign party jointly with a Polish party and the setting by the Shareholders a specified ratio of their contributions to a Company's subscribed equity.

2. In economically justified cases the President of the Agency may agree to the raising of equity of a joint stock Company through a public subscription of shares, setting the ratio of shares to be held by Polish and foreign parties. In these instances Article 5, paragraph 3, clause 1 and 3 of this Law do not apply; Article 10, paragraph 1, clause 1 and Article 11, paragraph 1, clause 1 apply respectively.

Chapter 2

Establishment of a Company

Article 9

Parties establishing a Company may freely arrange their relationships and the internal affairs of the Company in its founding act, unless the provisions of the Commercial Code or this Law state otherwise.

Article 10

1. An application for the Permit should set forth:

   (1) the Shareholders;

   (2) subject and scope of the economic activity of the Company, including export and import activity;

   (3) anticipated time of Company's activity;

   (4) assets necessary by the Company to commence economic activity, including the subscribed equity;

   (5) ratio between each Shareholder's contribution to the Company's subscribed equity and the form of contribution;

   (6) seat of the Company and the location of its production plants.

2. The application referred to in Paragraph 1 should include:

   (1) a draft of the Company's founding act as required by the Commercial Code;

   (2) documentary evidence as to the legal status and financial standing of the prospective Shareholders;

   (3) a feasibility study of the proposed Company.

3. The documents enumerated in paragraph 2 should be submitted in Polish, or in a foreign language, together with a certified translation thereof into Polish.

4. The decision on issuing the Permit should be undertaken within two months from the date of the filing of the application.

Article 11

1. A Permit designates:

   (1) the Shareholder, the name and the seat of the Company, the location of its production plants and the object and term of Company's activity;

   (2) the ratio between Shareholder's contribution to the Company's subscribed equity and the form of contribution;

   (3) other requirements that a Company should satisfy in the course of its activity;

   (4) the duration of the validity of the Permit.

2. Whenever the Company plans to change the location of its production plants, it informs the President of the Agency of the anticipated location. The lack of objection within one month is to be understood as an approval.

Article 12

1. The Company shall be registered in court in accordance with the regulations on the commercial register.

2. The application for the registration should have the Permit enclosed.

Article 13

The Board of Directors of a Company is required to notify the President of the Agency of its registration, enclosing the statement of registration and a copy of a Company's founding act within two weeks from the date of registration.

Article 14

The authority that issued the Permit has the right to enter a Company and its production plants and to review its books and records in order to determine whether the activities of the Company comply with the conditions set forth in the Permit.

Article 15

If the Company engages in any activity incompatible with the conditions set forth in the Permit, the authority that issued the Permit shall request that activity to be corrected within a specified period of time, otherwise it may restrict the scope of the Permit or withdraw it.

Article 16

1. The contribution to the Company's subscribed equity may be made either in money and in kind.

2. The contribution of the foreign parties may be made:

   (1) in money – in Polish currency obtained from the sale of foreign currencies to a foreign exchange bank, effected with the use of foreign currency rates denominated in zlotys and published by the National Bank of Poland;

   (2) in kind – under the condition of its transfer from abroad or acquisition of Polish currency obtained from the sale of foreign currency to a foreign exchange bank, effected with the use of foreign currency rates denominated in zlotys and published by the National Bank of Poland.

3. The Minister of Finance, in consultation with the President of the Agency, may approve the contribution made by a foreign party in Polish currency obtained by other ways than specified in paragraph 2, clause 1, and in particular by way of the sale of State obligations in virtue of contracted foreign credits.

4. The total value of foreign parties contributions to the Company's subscribed equity shall not be less than 25 million zlotys. This amount is adjusted accordingly to the changes in the rate of exchange of the zloty to the foreign currency, in which the value of those contributions had been denominated before that value was denominated in Polish zlotys.

5. The contribution of the Polish parties may be made in Polish currency or in kind. The rights to the State-owned real property may be contributed to the Company to the extent allowed, and in accordance with, the principles set forth in the regulations applicable to the use of State real property.

6. The value and the nature of the in-kind contributions shall be set forth in the Company's founding act. At the request of the authority issuing the Permit, the value of those contributions may be subject to verification by independent experts. If such verification shows that the market value of the in-kind contribution is lower than that given in the application, the cost of the verification shall be borne by the Shareholder making that contribution.

7. Only registered shares shall be issued in exchange for a contribution to the Company's subscribed equity.

Chapter 3

Business Activities of a Company

Article 17

1. To determine the profit of a Company, the depreciation of fixed assets, including those situated permanently on leased real property and non-material assets, based on the depreciation rates applicable to the State-owned enterprises, should be added to total outlays.

2. The depreciation allowances shall be retained by the Company.

3. The profit of a Company, decreased by the corporate income tax due, constitute the profit for distribution.

4. The profit for distribution shall be decreased by a contribution to a reserve fund to cover any balance loss equal to 8 per cent of such profit. The Company may cease to make such contribution when the reserve fund reaches 4 per cent of the Company costs in a fiscal year.

5. The distribution of profit among the Shareholders is based on their holdings in the Company. Other principles of profit distribution shall require approval of the President of the Agency.

Article 18

1. The Minister of Finance determines the general principles of accounting for the Companies, in compliance with the requirements of the Commercial Code.

2. The annual balance sheet of a Company shall be audited by an applicable authority of the Minister of Finance or by any other entity, chosen by the Company, authorized by the Minister of Finance to audit the annual balance sheets of the Companies, within three months of its filing. The cost of auditing is borne by the Company.

3. The balance sheet is considered audited if within 3 months the authority referred to in paragraph 2 does not notify the Company of its objections. From the moment when the objections are complied with, by the Company, the balance sheet is considered audited.

Article 19

1. The foreign Shareholder has the right to purchase foreign currency in a foreign exchange bank with the profit (paid out by a Company – up to the amount revealed in business books and audited by the organ or entity auditing an annual balance sheet of the Company) – constituting the surplus of export revenues over import expenses, acquired by the Company in convertible currency in the previous fiscal year and decreased by sums certified by the Company, as mentioned in Article 32, paragraph 3a.

2. Notwithstanding the right mentioned in paragraph 1, from the 1st of January 1991, the foreign Shareholder has the right to purchase foreign currency in a foreign exchange bank with the profit paid out by the Company, amounting to 15 per cent of the remaining profit, for the previous fiscal year, exceeding the surplus, referred to in paragraph 1. When more than one Shareholder is involved, foreign currency may be purchased up to the share of that surplus determined in the proportion to the distribution of profit between the Shareholders.

3. Foreign currency may be purchased on the basis of an individual certificate issued by the organ or entity mentioned in Article 18, paragraph 2, immediately after the annual balance sheet has been audited. The certificate should specify the amount of profit paid out to the foreign Shareholder and the surplus mentioned in paragraph 1, or its adequate portion.

4. In economically justified cases, upon an application of the foreign Shareholder, the Minister of Finance may issue a foreign exchange permit for the purchase of foreign currency in a foreign exchange bank, for the profit paid out by the Company, and exceeding the amounts mentioned in paragraph 1 and 2. Such permit may be issued before the issuance of the Permit for the establishment of a Company.

Article 20

The foreign Shareholder has the right to transfer abroad foreign currency purchased in a foreign exchange bank in accordance with Article 19 without a separate foreign exchange permit.

Article 21

1. Shareholders have the right to use their part of the profit to increase a Company's equity, without a separate permit, provided that there is no change in the ratio of equity holdings set in the Permit for the establishment of a Company.

2. The foreign Shareholder has the right, after the payment of applicable taxes, to transfer abroad, without a separate foreign exchange permit, proceeds from the sale of his shares, or stock and money due him in connection with the dissolution of a Company.

3. In those cases where the amounts referred to in paragraph 2 are received in Polish currency, their transfer abroad may take place 10 years from the date of the registration of the Company.

4. The Minister of Finance may agree, in specially justified cases, to an earlier transfer of the amounts referred to in paragraph 3.

Article 22

1. Companies deposit their cash assets on their accounts in Polish foreign exchange banks of their choice.

2. The banks referred to in Paragraph 1 may open and maintain accounts in Polish currency and extend loans to a Company, at its request.

3. After obtaining a foreign exchange Permit, a Company may open and maintain accounts in foreign banks.

4. A company may draw loans in foreign currency in banks located abroad, without a foreign exchange permit.

5. Banks referred to in paragraph 1 may guarantee obligations of a Company in accordance with the applicable regulations.

6. The Minister of Finance, may, upon an application of the foreign Shareholder, issue a compensation payment guarantee up to the amount equal to the value of his equity the Company's assets, in the event of a loss resulting from a decision of any State authority in respect of nationalization, expropriation, or from other actions having a similar result to nationalization or expropriation.

Article 23

1. A Company may purchase goods and services for foreign currency on the domestic market from the licensed entities.

2. A Company may sell goods and services, within the scope of its economic activity, on the domestic market wholly or partially for foreign currency, having obtained a foreign exchange permit.

Article 24

Procurement of raw materials and supplies in the domestic market by Companies is effected in accordance with the regulations applicable to socialized economic entities.

Article 25

State-owned enterprises may sell fixed assets to the Companies or may grant them limited rights in rem in respect of such assets.

Article 26

1. State real property may be granted to the Companies:

   (1) for a perpetual use in accordance with the regulations applicable to the administration of State real property;

   (2) on a lease basis.

2. Companies may acquire and lease land and other real property not owned by the State with respect to binding regulations.

Chapter 4

Taxes and Fees

Article 27

A Company shall pay the following taxes: the turnover tax, the corporate income tax, the agricultural tax, local taxes and fees, stamp charge and community or city fees. It is entitled to relief and exceptions therefrom in accordance with the principles applicable to legal persons not being socialized economic entities.

Article 28

1. The Company is exempted from corporate income tax during the first three years of its economic activity. The date of the commencement of economic activity is the date of the first invoice.

2. A Company may be granted an additional period – of up to three years – of tax exemption when it engages in the preferred economic activity, as determined by the Council of Ministers. The additional tax exemption period is specified by the President of the Agency in the Permit.

Article 29

The income of a foreign Shareholder is subject to an income tax of 30 per cent, unless international agreements concluded by the Polish People's Republic provide otherwise. The tax is withheld by the Company as a payer, upon the distribution of profit as required by separate provisions.

Article 30

1. Custom duties and other fess of similar effect will not be levied on:

   (1) items constituting in-kind contribution of the Shareholders to the Company's subscribed equity, such as machinery and equipment as well as other items required for the conduct of the economic activity specified in the Permit;

(2) machinery, equipment as well as other items required for the conduct of the economic activity specified in the Permit, purchased by the Company or entities commissioned by it, within three years of its establishment.

2. Items falling to the foreign Shareholder upon the dissolution of the Company are exempt from outwards customs duty.

3. The Company is entitled to the drawback of inwards customs duty, in accordance with the principles applicable to State-owned enterprises.

Chapter 5

Employment

Article 31

1. Polish law applies to employment, labour relations and work conditions in the Company, social security for the employees as well as to the activity of trade unions.

2. A Company may employ persons who neither have a Polish citizenship or a Polish permanent residence card, having obtained the consent of the local State administrative authority of specific competence on employment matters of the voivodship level.

3. The permission mentioned in paragraph 2 is not required for persons although not employed by the Company, but acting in its production plants on the assignment from the foreign partner, agreed upon by the Company.

Article 32

1. The principles for the remuneration of Company's employees shall be set forth either in a Company's founding act or in the resolution of its management.

2. The remuneration of Company's employees shall be set and paid in Polish currency.

3. Employees being foreign persons according to the provisions of the Foreign Exchange Law have the right to purchase foreign currency in a foreign exchange bank with Polish currency constituting their remuneration for the work in the Company after the payment of due taxes. The purchase of foreign currency is effected on the basis of a certificate issued to the name of the employee by the Company. The certificate determines the amount of Polish currency, for which foreign currency may be purchased and the amount of remuneration paid after taxes. These employees are entitled to transfer the purchased foreign currency abroad without a separate foreign exchange permit.

3a. The amount specified in the certificate mentioned in paragraph 3, decreases the surplus mentioned in Article 19, paragraph 1.

4. The remuneration of employees, being foreign persons according to the provision of the Foreign Exchange Law, is subject to a tax of 30 per cent, unless international agreements concluded by the Polish People's Republic provide otherwise. The tax is withheld by the Company as a payer, upon the payment of remuneration according to separate provisions.

5. Principles specified in the provisions concerning employees of non-socialized entities are applicable to the taxation of the remuneration of Polish employees of the Company.

Chapter 6

Transfer of Rights Resulting from Participation in a Company and the Dissolution of a Company

Article 33

1. If the sale of shares or stock is to be effected pursuant to judicial execution, a Company may, within two months from the date of receiving notice that such a sale has been ordered, name a party who will purchase the shares or stock at a price set by the court upon a motion of the Company and after consultation with experts.

2. If a request for a price determination is not filed within the term set in paragraph 1, or a person named by the Company fails to pay the price within a month of the date of the notification of the Company of the price determination or of the approval for the replacement of the Shareholder, whichever of these terms expires later, the shares or stock will be sold according to the provisions on judicial execution, with the reservation of Article 5, paragraph 3, clause 2.

Article 34

In case of a dissolution of a Company, the Polish Shareholder has the pre-emptive right to purchase the items and rights constituting the assets of the Company unless the Company's founding act provides otherwise.

Article 35

In case of a dissolution of a Company during the corporate income tax exemption period and within three years after the exemption period mentioned in Article 28, paragraph 1 and 2, has expired, the Company shall be obliged to pay the tax for the exemption period. In such a case the tax obligation arises upon the notification of the dissolution of the Company.

Chapter 7

Special, Temporary and Final Provisions

Article 36

The regulations on socialized economic entities are not applicable to the Companies, unless this Law states otherwise.

Article 37

1. Companies may associate in the Chamber of Industry and Commerce of Foreign Investors and other Polish economic chambers.

2. The Polish-Polonian Chamber of Industry and Commerce established under the Law of July 6, 1982 on the Principles of the Conduct of Economic Activity in Small Industry by Foreign Legal and Natural Persons on the territory of the Polish People's Republic (Dz.U. (Official Journal of Law) of 1985, No. 13, item 58), hereby becomes the Chamber of Industry and Commerce of Foreign Investors hereinafter referred to as the "Chamber". Former foreign members of the Polish-Polonian Chamber of Industry and Commerce may within three months from the date this Law comes into force, confirm their membership to the Chamber.

3. The President of the Agency supervises the Chamber and approves its charter. The President of the Agency may refuse to approve the charter if its provisions infringe the law.

4. The responsibilities of the Chamber include, in particular:

   (1) representing the business interests of its members and undertaking actions to protect their interests;

   (2) assisting its members in solving their business, management and legal problems related to the commencement and conduct of their economic activity.

5. The specific responsibilities of the Chamber, the principles of its activities, its administrative bodies, procedures for its establishment, the scope of its activity and its finances shall be set forth in its charter.

6. The Chamber has personality at law.

7. In the event that any activity of an administrative body of the Chamber is in violation of law or the Chamber's charter, the authority that supervises the Chamber may set a date by which such violations must be corrected, or may request a change in the composition of that body of the Chamber within a specified period. If such a period expires ineffectively, the supervising authority may

suspend that administrative body of the Chamber and establish an appropriate provisional body until a new administrative body is established in accordance with the procedures set forth in the charter.

Article 38

1. This law does not apply to international enterprises subject to compliance with the provisions of paragraph 2-4 unless an international agreement provides otherwise.
2. If an international agreement provides that an international enterprises, or its branch with its registered seat on the territory of the Polish People's Republic has personality at law, the enterprise, or its branch, should be registered in the commercial register.
3. The registration in the commercial register is effected upon an application from the appropriate authority of the international enterprise or its branch. The registration is effected on the basis of a certified copy of the Polish text, or a certified translation into Polish of the agreement establishing the international enterprise or its branch. The agreement should have a list of the members of a Board of Directors and the plenipotentiaries of such an enterprise or of its branch enclosed.
4. Regulations governing the commercial register of the limited liability companies are applied respectively to the registration of international enterprises, or of branches thereof, subject to the provisions of the international agreement.

Article 39

1. Foreign parties, conducting economic activity under the Law referred to in Article 37, paragraph 2, may, having obtained a Permit, contribute their enterprises, or parts thereof, as well as property, rights and financial means derived from this activity, to the equity of Company established under this Law.
2. The Permit referred to in paragraph 1 may be issued when the requirement of the minimum investment of US$ 50,000 in convertible currency in contributed enterprise or part thereof, has been satisfied by the foreign entities.
3. The application for a Permit should set forth the methods by which the creditors of the foreign entity will be satisfied in respect of the liabilities incurred in connection with the operation of the enterprise. The issuance of the permit may be conditioned on the establishment of a proper security for the creditors claims.

Article 40

1. Limited liability companies and joint stock companies established pursuant to the Law referred to in Article 37, paragraph 2, may, having obtained a Permit, to reorganize themselves into Companies established pursuant to this Law.
2. The Permit may be issued when the requirement of Article 39, paragraph 2, has been satisfied.

Article 41

Foreign entities may, having obtained a Permit, purchase shares or stock of, existing companies established under Polish law, which do not constitute Companies with foreign capital participation, provided that the foreign parties thereby increase the equity of these Companies. After such an increase in the company's subscribed equity is properly registered, the provisions of this Law shall be applicable to these companies.

Article 42

1. The Permits referred to in Article 39, paragraph 1, Article 40, paragraph 1 and Article 41 are issued by the President of the Agency.
2. The application for the issuance of any of the Permits referred to in paragraph 1 is governed respectively by Articles 6 and 10 of this Law.

3. If the location and subject of conducted activity are the same as in the existing Permit, the Permits referred to in Article 39, paragraph 1 and in Article 40, paragraph 1 are issued when the applicant complies with the conditions of Article 39, paragraph 2 and submits a draft of the founding act of the Company, consistent in accordance with the provisions of this Law.

Article 43

The provisions of Article 28, paragraph 1, do not apply to the Companies established pursuant to the provisions of Articles 39, 40 and 41.

Article 44

1. Companies with foreign capital participation established under the Law of April 23, 1986 on Companies with a Foreign Capital Participation (Dz.U. of 1986 No. 17 item 88 and of 1987 No. 33 item 181), operating at the time this Law comes into force, become Companies under the provisions of this Law.
2. The President of the Agency will adapt the already issued Permits to the requirements of this Law within three months after the Law comes into effect.

Article 44a

Taxpayers subject to tax deductions according to the regulations issued on the basis of Article 27, paragraph 1, clause 2 letter (a), of the existing Law, maintain this right until the deductions expire.

* * *

This final text does not include the provisions of Articles 45-52 of the Law of December 23, 1988 on Economic Activity with the Participation of Foreign Parties (Dz.U. No. 41, item 325).

These Articles set forth changes in the various laws already in force pertaining mostly to foreign economic activity conducted in small industry.

* * *

This final text does not include the provisions of the Law of December 23, 1988 on Economic Activity with the Participation of Foreign Parties in the following wording:

'Article 53

The Law of April 23, 1986 on the Companies with Foreign Capital Participation (Dz.U. No. 17, item 88 and of 1987 No. 33, item 181) is hereby declared null and void.

Article 54

This Law comes into effect on the 1st of January, 1989.'

* * *

This final text does not include the following provisions of the Law of December 28, 1989 on the change of the Law on the Principles of Conducting of Economic Activity in Small Industry by Foreign Legal and Natural Persons on the territory of the Polish People's Republic and the Law on Economic Activity with the Participation of Foreign Parties (Dz.U. No. 74, item 442) in the following wording:

'Article 3

1. In 1990 entities conducting economic activity on the basis of the Law on the Principles of Conducting of Economic Activity in Small Industry by Foreign Legal and Natural Persons on the territory of the Polish People's Republic and of the Law on Economic Activity with the Participation of Foreign Parties, may, having fulfilled the balance sheet for a first half year of 1990, purchase convertible currency in a foreign exchange bank, at the exchange rate of the date of the purchase - up to the profit transferable abroad in accordance with the provisions of these Laws.

2. The foreign exchange bank pays the amount of convertible currency, referred to in paragraph 1, after the presentation of a certificate issued to the name by the organ or entity auditing the annual balance sheet and determining the amount of profit transferable abroad.

3. If the amount of convertible currency purchased in accordance with paragraph 1 and denominated in Polish currency, exceeds the amount of profit transferable abroad, the difference which has arisen, is transferable abroad during the year in which that transfer is possible.

Article 4

1. In a case when during the years 1990-1995 a change is introduced to the principles of income taxation or profit transfer, entities conducting economic activity on the basis of the Laws referred to in Article 3, paragraph 1, may continue to conduct their activity during that period, in accordance with the principles in force prior the amendments come into force.

2. The entity conducting economic activity should inform the President of the Agency about the choice made, within 14 days after the amendments referred to in paragraph 1 come into force.

Article 5

This Law becomes effective on the 1st of January, 1990."

Source: Foreign Investment Agency.

ANNEX C-2: List of countries which have concluded agreements with Poland for reduced rates of withholding tax on dividends

1. **Austria**
   Maximum tax on dividends is 10 per cent to be paid in the country where the dividends are paid out.
2. **Belgium**
   Tax on dividends is 10 per cent irrespective of foreign holdings.
3. **China**
   The treaty is not yet in force.
4. **Denmark**
   In corporations where foreign holdings are a minimum of 25 per cent, the tax on dividends is 0 per cent; in all other cases tax is 15 per cent.
5. **Finland**
   In corporations where foreign holdings are a minimum of 25 per cent, the tax on dividends is 5 per cent; in all other cases the tax is 15 per cent.
6. **France**
   In corporations where foreign holdings are a minimum of 10 per cent, the tax on dividends is 5 per cent; in all other cases the tax is 15 per cent.
7. **Germany**
   In corporations with foreign holdings of a minimum of 25 per cent of equity the tax on dividends is 5 per cent; in all other cases 15 per cent on gross dividends.
8. **India**
   The tax on dividends is 15 per cent.
9. **Italy**
   The tax on dividends is 10 per cent.
10. **Japan**
    In corporations with foreign holdings of a minimum of 25 per cent, the tax on dividends is 10 per cent.
11. **Malaysia**
    No tax on dividends is charged.
12. **The Netherlands**
    No tax on dividends when foreign holdings are of a minimum of 25 per cent; in all other cases 15 per cent.
13. **Norway**
    In corporations with foreign holdings of at least 25 per cent, the tax on dividends is 5 per cent, in all other cases is 15 per cent.
14. **Pakistan**
    The tax on dividends is 10 per cent.
15. **Spain**
    In corporations with foreign holdings of a minimum of 25 per cent the tax on dividends is 5 per cent; in all other cases 15 per cent.
16. **Sri Lanka**
    The tax on dividends is 15 per cent.
17. **Sweden**
    In corporations with foreign holdings of a minimum of 25 per cent of votes, the tax on dividends is 5 per cent; in all other cases 15 per cent.

18. Thailand

In corporations with a minimum of 25 per cent foreign holdings the tax on dividends is 20 per cent.

19. United Kingdom

In corporations where a foreign party holds a minimum of 10 per cent of the votes, the tax on dividends is 5 per cent; in all other cases 15 per cent.

20. United States of America

In corporations with foreign holdings of a minimum of 10 per cent of equity, the tax on dividends is 5 per cent; in all other cases 15 per cent.

21. Yugoslavia

In corporations with foreign holdings of a minimum of 25 per cent of equity the tax on dividends is 5 per cent; in all other cases 15 per cent.

Source: UNIDO, *Investors' Guide to Poland* (Vienna, 1990), pp. 98 – 100.

ANNEX C-3. Joint ventures in 1989

No	Company	Total sales ('000 zlotys)	Export as percentage of sales	Area II Export as percentage of sales	Net profit as percentage of sales	Total loans ('000 zlotys)	Import as percentage of sales	Employment (30.06-31.12)	Wages ('000 zlotys)	Equity ('000 zlotys)	Foreign equity in percentage	Fixed assets ('000 zlotys)
1	"FURNEL INTERNATIONAL LTD",W-WA	142783418	22.9	21.2	39.2	49727172	10.7	6484	21722077	15212583	1.3	13287583
2	"EFFECTA"SA,KONSTANCIN JEZ.	25107335	62.1	62.1	32.8	0	11.6	8	25870	275980	14.5	175980
3	PP"COMPAR"SP.Z O.O.PARCZEW	23687267	98.0	98.0	71.0	480000	0.0	97	299789	296687	51.4	271529
4	"SUGARPOL"SP.Z O.O.,TORUN	23427888	47.9	47.9	32.0	0	0.0	465	1094233	4120348	16.1	2752203
5	LIM JOINT VENTURE SP.Z O.O,W-WA	23199923	0.0	0.0	38.3	95155841	16.5	1105	2482122	305262	50.3	41118
6	"POLSPAN"SP.Z O.O.,SZCZECINEK	20267190	1.1	1.1	61.1	2200000	0.6	391	544325	14103096	0.0	1723138
7	CENTRAL SOYA ROLPOL,OSNOWO	18981914	53.2	51.4	30.4	1903059	3.3	83	235221	2098767	11.8	891506
8	"UNION-VIS"SP.Z O.O,BIELSKO-B.	17285342	19.6	19.6	35.5	353200	29.8	340	1103997	914908	25.0	564981
9	"THK"SP.Z O.O.,CHORZOW	17051154	28.9	28.9	39.2	0	0.1	524	2122336	150000	49.0	143025
10	"AGROLAS"SPOLKA Z O.O.,LOMZA	14196264	21.2	21.2	23.2	300000	0.0	38	217869	388972	9.0	273972
11	"TEFA"SP.Z O.O.,RADOM	13610160	41.6	2.0	39.0	2429442	0.3	1671	2531960	5545428	15.3	3025686
12	"INTERKOTLIN",KOTLIN	12038854	89.9	89.9	-59.0	8087988	8.7	37	200811	24350	45.0	23133
13	MERCOMP SPOLKA Z O.O.,WARSZAWA	11166503	40.2	2.5	21.6	1374249	0.0	785	2493750	1640069	6.0	1316069
14	ADIPOL SPOLKA Z OO,CHORZOW	11129900	23.3	23.3	25.3	143027	0.0	83	339329	907485	20.0	828003
15	POLNISSKOSHER-SPOLKA Z O.O.,W-WA	10613049	0.4	0.4	71.8	0	0.9	13	120240	325154	49.0	99803
16	"SEAFOOD PRODUCT"SP.Z O.O,GDYNIA	10286407	0.0	0.0	45.0	1800000	2.7	551	735912	2110902	13.7	835880
17	"INTER-BEFA"SP.Z O.O.,BIELSKO-B.	10205135	20.5	15.1	42.9	0	0.0	352	558750	319513	33.0	210007
18	"BILTON"SA,WARSZAWA	10143313	0.0	0.0	37.1	0	0.0	54	139(43	210163	17.8	125075
19	"ARPOZ"SPOLKA Z O.O.,KOZIEGLOWY	9965069	56.7	56.7	24.6	2488297	0.0	473	827702	518375	16.4	39771
20	"MULTICO"SP.Z O.O.,WARSZAWA	8753837	66.5	66.5	42.8	150000	0.0	144	213916	1074196	60.5	987946
21	"CHEMAK"-SPOLKA Z O.O.-GRYFINO	7738348	9.8	9.8	34.1	0	5.3	241	388744	477066	8.9	349566
22	"DOLFAMEX"SP.Z O.O.,JELENIA G.	7138833	53.9	49.5	63.2	0	8.1	359	760142	2525000	20.0	1057786
23	"LIPEXIN"SP.Z O.O.,LIPIANY	6889377	31.2	31.2	17.2	1082000	6.1	168	380102	49464	19.8	29463
24	"TUN-POL"SP.Z O.O.,BRUZYCZKA	6865542	22.2	22.2	35.2	1400000	10.8	326	747305	1877002	45.0	375597
25	"POLSIM"SP.Z O.O.,OPACZ KOLONIA	6830089	100.0	100.0	-33.5	0	0.0	12	21551	552938	9.0	252938
26	"WI-KON TRADING"S.Z OO.,SZCZECIN	6271544	99.8	99.8	26.6	0	11.5	85	246495	244630	100.0	84259
27	"ALSTER"SP.Z O.O.,CIERPICE	6044408	42.5	42.5	37.4	0	19.0	75	136312	374199	37.7	269067
28	"CASINOS"POLAND",WARSZAWA	5782418	0.0	0.0	54.0	0	0.0	147	328750	17797354	1.2	1242470
29	"IBG PROJECT"SP.Z O.O.,WARSZAWA	5763205	99.5	99.5	1.9	0	0.0	13	17078	5030269	1.3	69046
30	"RAIFFPOL"SP Z O.O.,BIESOWICE	5700406	56.3	56.3	34.4	427089	18.9	13	36946	1168428	50.6	707240
31	"POLNED"SP.Z O.O.,JADWIGOW	5657910	36.6	36.6	28.1	0	0.0	61	77925	360000	62.5	223075

(continued)

ANNEX C-3. (continued)

No	Company	Total sales ('000 zlotys)	Export as percentage of sales	Area II Export as percentage of sales	Net profit as percentage of sales	Total loans ('000 zlotys)	Import as percentage of sales	Employment (30.06-31.12)	Wages ('000 zlotys)	Equity ('000 zlotys)	Foreign equity in percentage	Fixed assets ('000 zlotys)
32	STANDARD-ARMATURA-OLESNO,OLESNO	5622658	7.0	7.0	43.0	160000	0.0	309	978404	644804	24.6	539112
33	"JAHR VERLAG",CZERNIEJEWO	5382763	15.9	15.9	-9.2	1400000	0.5	13	38561	353949	96.0	0
34	SEDAR SP.Z.O.O MIEDZYRZEC P	5341825	62.3	62.3	36.2	850252	0.0	240	534402	883527	20.0	134608
35	PCS CO.LTD.,WROCLAW	5155734	94.4	0.1	7.5	35810	60.1	50	142256	94105	90.0	84693
36	"DANEX"SPOLKA Z O.O.,WARSZAWA	4940572	4.7	3.0	19.6	0	0.0	398	826486	546251	7.9	422467
37	HAMMILTON SP.Z O.O.,WROCLAW	4875958	33.7	33.7	16.7	0	55.3	240	837160	502782	100.0	1907364
38	"MADO"SP.Z O.O.,ORZESZE	4843276	18.9	18.9	85.8	500000	0.0	120	4386577	641170	7.2	429099
39	"UNIBUSZ LP"SP.Z O.O.,BUSZEWO	4760248	40.5	40.5	42.2	0	0.0	10	58000	229745	25.0	110890
40	DOM MODY"TELIMENA"SP.AKC.,LODZ	4740793	9.5	9.5	40.7	262000	1.6	377	521917	568470	19.3	48470
41	"INTERROKITA"SP.Z O.O.,WARSZAWA	4686352	27.5	27.5	34.6	0	2.7	93	214052	3451234	76.2	0
42	"POLARICA"SP.Z O.O.,NIEMIERZYNO	4668147	24.2	24.2	34.0	6187069	0.0	132	265213	3922170	2.0	1383128
43	MAGNUM TRADE INVESTMENTS,POZNAN	4267416	48.7	48.7	4.9	0	0.0	1	3450	84320	50.3	0
44	ORBIS"CASINO"SP.O.O.,WARSZAWA	4038385	0.0	0.0	49.1	6070000	0.0	84	97531	77603	54.0	19245
45	GREENEX-SPOLKA Z O.O.,POZNAN	4021056	30.3	30.3	4.1	350000	0.0	25	54393	667487	4.5	614987
46	"BEFANA VIS"SP.Z O.O.,BYDGOSZCZ	3872497	34.3	32.1	45.1	383000	11.2	506	692256	9639830	23.6	1918178
47	"OPOLMADOR"SP.Z O.O.,OPOLE	3788640	97.5	97.5	-80.0	1913492	0.0	31	105985	252071	35.7	252071
48	"HUBERTUS"SP.Z O.O.,DOBRZYCA	3743517	99.6	99.6	-14.5	0	0.0	72	89342	320761	35.2	42538
49	"SEMECO"SPOLKA Z O.O.,GDYNIA	3707380	41.8	41.8	0.5	0	3.3	72	223647	183759	32.4	112085
50	GROMADA-TOURIST SP.Z OO.,W-WA	3682147	19.3	12.5	35.7	0	0.0	380	926246	250000	0.0	52966
51	"KOWARY"SP.Z O.O.,JELENIA GORA	3606422	16.2	16.2	24.5	48000	14.8	131	723054	369833	2.9	318853
52	"D'AMICO"SP.Z OO,BRZEZINY	3521084	23.6	23.6	18.8	1171674	5.5	401	744926	352800	50.0	356724
53	"UNOX"SA,BRZEG DOLNY	3512763	10.0	10.0	65.0	0	22.5	55	117630	1058036	91.2	0
54	"CAMPEROL"SP.Z O.O.,N.WIES LEB.	3456014	20.5	20.5	33.0	0	7.8	7	28568	126705	39.1	103135
55	"TWD-IBA"SP.Z O.O.,KRASZEWO	3310478	0.0	0.0	19.5	0	0.0	57	67198	485866	64.0	359866
56	PPH"CENTRUM"SP.Z O.O.,WARSZAWA	3147736	11.9	11.9	57.0	0	14.5	36	58875	666237	60.0	551596
57	"POLSIB"SP.Z O.O.,WARSZAWA	3140371	39.2	0.0	15.5	0	39.4	18	77763	120000	48.3	29077
58	"RUNID"SP.Z O.O.,RUCIANE NIDA	3098205	14.8	14.8	55.1	0	0.0	161	224221	1443151	24.5	871034
59	PPU"MALMET"SP.Z O.O.,GDANSK	2945367	0.0	0.0	38.2	400000	0.0	116	305951	130000	52.0	65283
60	DE JAGER SP.Z O.O.,TRZEBIATOW	2825615	32.7	32.7	8.8	307000	0.0	189	262166	641771	100.0	487974
61	"INTER-MAK"SP.Z O.O.,WISNIOWA G.	2770660	17.4	17.4	35.5	460000	18.4	62	111912	120894	33.1	98159
62	"SINAX"SP Z O.O.,KRAKOW	2626556	16.2	0.0	53.3	0	1.1	109	292344	120000	49.2	610229

(continued)

ANNEX C-3. (continued)

No	Company	Total sales ('000 zlotys)	Export as percentage of sales	Area II Export as percentage of sales	Net profit as percentage of sales	Total loans ('000 zlotys)	Import as percentage of sales	Employment (30.06-31.12)	Wages ('000 zlotys)	Equity ('000 zlotys)	Foreign equity in percentage	Fixed assets ('000 zlotys)
63	"FERREX"SP.Z O.O.,POZNAN	2556540	10.2	10.2	19.6	1499135	0.0	307	616077	636000	26.0	27120
64	TEXIM SP.Z O.O.,POZNAN	2527172	83.7	83.7	20.9	0	2.8	57	105350	1303520	6.5	1133390
65	ARF SPOLKA Z O.O.,JELENIA GORA	2500769	47.9	47.9	31.6	0	28.9	65	188010	390485	100.0	353080
66	"EURO-KONFEX"SP.Z O.O,WROCLAW	2421802	13.2	13.2	5.6	187000	47.9	149	556131	61409	70.2	1060442
67	"BIELKON"SP.Z O.O.,BIELSKO-B.	2374869	41.5	41.5	53.5	0	0.0	383	570851	1216433	76.7	492967
68	"NIDA"-SP.Z O.O.,KIELCE	2311875	12.2	0.0	44.1	975000	0.0	997	495210	2755936	0.0	1714790
69	"JENOTEX"SP.Z O.O.,POZNAN	2301169	89.5	89.5	96.0	0	0.0	23	22014	176670	41.0	109004
70	"SMILPOL"SP.Z O.O.,LUKOW	2270835	49.8	49.8	17.6	0	0.0	3	11282	80000	50.0	2618
71	"HARUS"SP.Z O.O.,POZNAN	2132064	73.1	73.1	87.7	0	12.0	12	31583	119974	25.0	89974
72	"UNIFOOD"SP.Z O.O.,OLSZTYN	1993011	68.5	68.5	26.1	1000000	0.0	6	16328	185800	25.0	32000
73	"SWEDEX UNIVERSAL",RADZYMIN	1992069	9.8	0.0	59.7	53000	2.4	195	555239	1037476	0.0	662178
74	HB-POLAND SP.Z O.O.,WARSZAWA	1969508	13.1	13.1	38.3	0	4.1	173	418675	380109	2.9	113974
75	"ELTEM"SP.Z O.O.,ZABRZE	1888451	0.7	0.7	30.0	0	0.0	83	232000	250000	60.0	142508
76	"ANGORATEX"SP.Z O.O.,LODZ	1855697	0.0	0.0	3.4	3157633	1.9	64	157706	559365	38.6	469365
77	"DAUNEX"SP.Z O.O.,RZESZOW	1848941	100.0	100.0	21.0	0	0.0	0	0	480000	30.0	0
78	"RUDNIK"SP.Z O.O.JGU,RUDNIK	1848272	41.0	36.1	13.1	0	0.0	602	343757	309214	10.4	174301
79	"UNICOMP"SPOLKA Z O.O.,KATOWICE	1815473	20.8	20.8	50.8	0	19.5	108	123369	435451	100.0	283086
80	DIAMOND SP.Z.O.O.	1802507	2.7	2.7	13.6	0	0.5	328	422334	89408	57.8	89407
81	ALLIANCE INTERNATIONAL,MYSLENICE	1744082	0.0	0.0	15.0	0	23.9	182	205530	339150	97.7	128161
82	"POLMARYB"SP.Z OO-JGU,POZNAN	1730977	90.7	90.7	13.4	0	2.1	4	21060	118752	40.0	71696
83	DELTA TRANS SP.Z.O.O.CHORZOW	1625856	100.0	100.0	33.6	688729	0.0	18	70602	1450603	2.7	1450602
84	"CORT"INTER."SP.Z O.O.,ZAMOSC	1605569	14.1	14.1	16.5	0	12.0	329	346969	134256	0.0	133256
85	"MARCAM CONTAINERS "ELBLAG	1579806	1.1	0.7	21.5	360228	0.0	176	281404	161811	0.0	136811
86	"LOMONTA"SP.Z O.O.,LODZ	1563468	0.0	0.0	24.9	0	0.0	104	126509	327467	37.1	176500
87	"VONKPOL"SP.Z O.O.,GDYNIA	1540613	0.9	0.9	81.2	0	0.0	4	7950	4249877	1.0	4166273
88	MSJ TELIGA SP.Z O.O.,SZCZECIN	1537334	67.9	6.7	1.9	1020000	104.5	284	329262	1527602	27.5	132844
89	"MADOL"SP.Z O.O.,MSZANA DOLNA	1533373	0.0	0.0	25.5	0	0.0	86	102175	559616	55.0	525157
90	"SOLCOM"SP.Z O.O.,WARSZAWA	1527007	100.0	79.2	43.1	0	3.4	69	75617	807270	66.9	530150
91	"PERIBA"SP.Z O.O.,BYTOM	1469132	85.4	85.4	28.2	0	0.0	57	111360	867961	4.8	807191
92	"SUPERVISE"POL.TOW.KONTR.,GDYNIA	1456183	32.7	32.7	70.3	0	0.0	54	217745	75423	3.5	69965
93	"LASLAND"SP.Z O.O.,SZCZECIN	1406565	36.4	36.4	38.2	306820	0.0	126	240453	232500	49.0	118575

(continued)

ANNEX C-3. (continued)

No	Company	Total sales ('000 zlotys)	Export as percentage of sales	Area II Export as percentage of sales	Net profit as percentage of sales	Total loans ('000 zlotys)	Import as percentage of sales	Employment (30.06-31.12)	Wages ('000 zlotys)	Equity ('000 zlotys)	Foreign equity in percentage	Fixed assets ('000 zlotys)
94	"YA AND TA"CO.LTD,WARSZAWA	1400998	72.0	72.0	5.9	0	0.0	4	28120	159602	25.1	5000
95	"ORBITA"SP.Z O.O.,WARSZAWA	1350364	0.3	0.3	32.3	0	0.0	13	53913	200000	50.0	16420
96	"TALOR"SP.Z O.O.,RUSIEC	1314455	0.0	0.0	74.3	0	0.0	21	19305	223872	51.0	160938
97	"ITC"SP.Z O.O.,GDANSK	1246478	0.0	0.0	13.8	0	0.0	116	339667	123440	51.5	123440
98	ALLROUND SHIP SERVICE,SZCZECIN	1218493	0.0	0.0	22.7	0	0.0	247	562208	292314	20.6	170153
99	"EXPOL"SP.Z O.O.,PRZYLEP	1171029	100.0	100.0	19.6	0	0.0	5	5048	630000	49.9	628312
100	"HMS"SP Z O.O.,KRAKOW	1075695	84.2	84.2	10.3	0	0.0	32	84978	200000	34.0	49977
101	"ABBA"-SP.Z O.O.,GDANSK	1067861	76.9	76.9	23.4	0	8.3	130	275837	138250	100.0	137783
102	"INTERFRYS"KUSOWO,GLOBINO	1053618	91.0	91.0	20.8	0	0.9	29	86021	363645	48.7	363644
103	"JACO"SP.Z O.O.,WARSZAWA	1043137	100.0	0.0	23.3	0	0.0	15	35123	372349	25.3	88816
104	"TECHNODIAMENT"SP.Z O.O,W-WA	994691	76.3	76.3	61.4	0	27.9	32	105505	185675	6.8	157675
105	"SILSCRAP"SP.Z O.O.,BIELSKO B.	978656	27.9	27.9	12.4	0	0.0	35	52633	170000	60.6	103000
106	"FATA"SP.Z O.O.,WARSZAWA	976382	54.8	54.8	41.9	150000	6.6	5	24699	172626	24.6	87626
107	"BARITPOL"SP.Z O.O.,NOWY SACZ	975042	0.0	0.0	67.6	0	0.0	448	105379	7561816	16.4	4636634
108	"PEGRO-CAZ"SP.Z O.O.,RZESZOW	972630	100.0	100.0	98.6	0	0.0	1	398	300000	50.0	94953
109	"MODA TEXTIL"SP.Z O.O.,WARSZAWA	915524	6.2	6.2	43.8	120000	0.0	185	220667	83577	51.0	65390
110	INTERLIGHT SPOLKA Z OO,GNIEWKOWO	902257	12.1	12.1	54.3	0	0.0	108	72508	399883	47.6	147036
111	REMILEX SPOLKA Z O.O.,MILANOWEK	848419	4.2	4.2	49.9	0	0.0	80	128569	198333	49.0	119630
112	NBA SP.Z O.O.,GLIWICE	833361	15.0	15.0	0.6	0	0.0	52	81616	419992	11.9	166597
113	"OSNOWA-INTERNAT."SP.Z O.O.,LODZ	811214	56.3	56.3	24.3	0	0.0	145	108389	930800	29.8	447500
114	"WAMEX"SP.Z O.O.,PIATNICA	809308	52.2	52.2	-102.6	900000	0.0	8	57427	66791	61.4	56718
115	"ALBATROS POLAND"SP.Z O.O,POZNAN	807487	100.0	100.0	-30.9	0	41.3	13	46214	95368	53.9	29250
116	"WARTABAU"SPOLKA Z O.O.,POZNAN	791650	89.6	89.6	35.4	0	0.0	232	271726	92185	46.1	25111
117	ATLANTICO-TRANS-EX,KATOWICE	760685	70.7	70.7	20.3	0	0.0	7	16567	224968	23.5	96750
118	"HIDOTEX"-SP.Z O.O.,CHWASZCZYNO	738885	45.3	45.3	-10.3	0	5.6	144	328271	137277	48.1	137277
119	"INTERMOR"SP.Z O.O.,TRZEBIEZ	736969	66.2	66.2	6.8	140000	19.9	39	35831	141176	67.1	100618
120	"AMPOL-TRADING"SP.Z O.O,LODZ	696711	99.9	99.9	41.8	100000	0.0	44	65511	706722	6.1	609529
121	"PEPS"SP.Z O.O.,WARSZAWA	690371	47.1	47.1	79.6	0	0.0	10	70821	178647	43.6	102300
122	"AGROIMPEX"SP.Z O.O.,SZESTNO	682507	0.0	0.0	45.3	0	0.0	21	27873	172800	49.0	77515
123	BEXPO SP.Z O.O.,WARSZAWA	677889	100.0	100.0	5.3	214919	0.0	12	17381	1553090	90.2	0
124	POLFOOD LTD,WARSZAWA	658299	40.9	40.9	13.7	0	0.0	0	0	337250	96.4	5730

(continued)

ANNEX C-3. (continued)

No	Company	Total sales ('000 zlotys)	Export as percentage of sales	Area II Export as percentage of sales	Net profit as percentage of sales	Total loans ('000 zlotys)	Import as percentage of sales	Employment (30.06-31.12)	Wages ('000 zlotys)	Equity ('000 zlotys)	Foreign equity in percentage	Fixed assets ('000 zlotys)
125	"UP"-SP.Z O.O.,SOPOT	629440	69.0	60.1	-27.4	0	0.0	14	25375	17000	50.0	13710
126	"ATEMPOL"SPOLKA ZOO,KATOWICE	613356	96.7	96.7	62.4	0	11.0	12	63748	126536	21.8	125535
127	"BLOMMIMPEX"SP.Z O.O.,KOSZALIN	568787	71.5	71.5	10.8	150000	0.0	2	2856	50097	80.0	27400
128	IT+T SPOLKA Z OO,GLIWICE	559238	0.4	0.4	23.2	0	0.0	0	0	116700	51.0	58217
129	"TRANSLAMM"SP.Z O.O.,KOLACZKOWO	528479	100.0	100.0	51.7	0	0.0	10	85656	181076	3.7	167476
130	"EDELWEISS"SP.Z O.O.,SZCZECIN	512797	23.3	23.3	8.9	0	0.0	133	139221	108973	50.0	108973
131	"ARNO II"SPOLKA Z O.O.,SZCZECIN	504378	4.9	4.9	25.7	0	2.8	105	142459	85647	48.3	85647
132	"ABCO"SP.Z O.O.,LODYGOWICE	503258	0.0	0.0	72.5	0	0.0	275	114940	6966528	5.0	348264
133	"BRAMSOP"SPOLKA Z OO.,SZCZECIN	493829	29.0	29.0	22.0	0	0.0	12	33365	205000	71.2	146000
134	"POLDREM"SP.Z O.O.,ZIELONA GORA	475643	15.8	15.8	54.4	0	0.0	30	27256	105544	9.2	53865
135	"INTERPRINT"SP.Z O.O.,CZESTOCHOW	454225	4.3	4.3	50.5	0	0.0	37	97964	36167	46.0	29115
136	"EUROSAT"SPOLKA Z O.O.,WARSZAWA	440326	9.2	9.2	48.2	0	0.0	20	38961	95597	47.9	65467
137	PROD.KWIATOW I SADZ.,KOSAKOWO	439876	41.1	41.1	18.0	0	5.8	65	179447	120000	35.0	109801
138	"CANEXIM"SP.Z O.O.,WEGROWO	436557	94.8	63.5	63.4	0	0.0	99	75414	103440	45.9	56398
139	"INTER-BALTIC" SP.Z O.O.,WROCLAW	422267	19.0	19.0	34.1	0	0.0	24	46486	91092	74.1	68634
140	CER-MAC SP.Z O.O.,TRZEBIEZ	387436	100.0	100.0	85.2	0	16.5	10	19394	211099	16.8	163529
141	"FOTEX-POLAND"SP.Z O.O.,WARSZAWA	379877	1.2	1.2	25.9	0	5.7	12	27926	150468	100.0	110468
142	"VAPOL"SP.Z O.O.,SZCZECIN	371665	66.4	66.4	4.7	130000	29.5	25	28633	440017	99.8	440017
143	"BALTIC-STAL"-SP.Z O.O.,GDANSK	360183	56.8	56.8	26.0	0	0.0	22	61604	464000	55.0	454000
144	ANTON BARANSKI SP.Z O.O.	344564	57.9	57.9	26.4	0	0.0	37	24625	65264	100.0	65264
145	"SCRAPEX"SP.Z O.O.,KEDZIERZYN-KO	334468	71.3	71.3	25.3	0	0.9	14	41983	521586	9.6	0
146	"LEDEXIM"SP.Z O.O.,WARSZAWA	323234	6.0	6.0	24.8	0	80.3	222	80548	211529	99.0	40455
147	SANTA MONIKA SP.Z O.O.,KAMIEN P.	311840	100.0	100.0	27.7	0	121.8	52	62963	232414	81.9	205549
148	"BALTIC-UNISERVICE",SZCZECIN	302474	100.0	100.0	-7.4	0	0.0	29	74469	1616819	64.0	616832
149	"WASA"SP.Z O.O.,WARSZAWA	300534	100.0	100.0	15.5	0	0.0	0	0	150821	56.0	84693
150	"ROLLMET"SP.Z O.O.,KOZIENICE	298068	0.0	0.0	-20.5	526207	0.0	94	75511	165804	96.6	165804
151	"PROGRES"SP.Z O.O.,WROCLAW	288529	0.0	0.0	54.7	0	0.0	10	11862	429517	87.5	380581
152	"POMERANIA-TOUR"SP.Z OO,SZCZECIN	285649	31.6	31.6	27.9	0	0.0	39	71837	42363	48.5	17713
153	"RUNO"SP.Z O.O.,OLSZTYN	285000	0.0	0.0	97.5	0	0.0	7	3677	200000	20.0	108000
154	"KOMATON"SP.Z O.O.,WARSZAWA	280899	0.0	0.0	77.0	0	0.0	4	8995	80000	62.5	50868
155	"BATIMEX"SPOLKA Z O.O.,POZNAN	265287	0.0	0.0	77.4	0	0.0	4	8625	66015	51.8	54830

(continued)

ANNEX C-3. (continued)

No	Company	Total sales ('000 zlotys)	Export as percentage of sales	Area II Export as percentage of sales	Net profit as percentage of sales	Total loans ('000 zlotys)	Import as percentage of sales	Employment (30.06-31.12)	Wages ('000 zlotys)	Equity ('000 zlotys)	Foreign equity in percentage	Fixed assets ('000 zlotys)
156	"MANHATTAN"SP.Z O.O.,POZNAN	261362	0.0	0.0	21.4	0	39.8	11	33773	37314	44.4	19266
157	"INTERLOK"SP.Z O.O.,PILA	256515	77.4	77.4	27.4	0	0.0	3	3421	182928	56.0	162928
158	PRO... SP.Z O.O.,STARGARD SZCZ.	252875	0.0	0.0	70.2	0	0.0	55	36186	115252	67.3	43149
159	PHU"TRANS-TOUR",RACIBORZ	249774	52.0	52.0	0.6	0	0.0	17	42107	170574	100.0	141574
160	"BORK"-SP.Z O.O.,KIELCE	242963	1.2	1.2	10.2	0	0.0	195	46002	72119	84.4	18147
161	"ZABIS"SP.Z O.O.,WALBRZYCH	236838	75.4	75.3	79.4	0	0.0	3	6880	7334	0.0	1677
162	"PAUL-ARENS"SP.Z O.O.,TCZEW	234207	0.0	0.0	24.5	0	189.0	7	13310	409641	100.0	309750
163	"GAWINEX"SP.Z O.O.,RYBNIK	226964	0.0	0.0	42.4	0	0.0	139	499760	563901	24.8	99155
164	"GOLDA-FAVORIT"SP.Z O.O.,TOSZEK	226198	99.9	99.9	26.1	0	0.0	5	6535	527235	87.8	527232
165	"PRO INTERNATIONAL LTD",W-WA	222619	89.5	89.5	59.0	0	0.0	21	26454	100000	51.0	81952
166	"BATAVIA TV"SP.Z O.O.,LODZ	222341	0.0	0.0	28.9	0	0.0	2	6076	76708	54.6	2940
167	"VIBROLOT"SP.Z O.O.,WARSZAWA	211991	72.8	72.8	13.5	0	58.6	7	25339	196335	53.8	112583
168	"CANTIGA"SP.Z O.O,SZCZECIN	211835	70.6	70.6	23.5	0	1.4	11	67532	445874	41.8	2260
169	PANEPOL SPOLKA Z O.O.,POZNAN	208479	0.0	0.0	-35.1	0	687.9	27	57496	69268	100.0	40831
170	IBS SPOLKA Z O.O.,WARSZAWA	183326	0.0	0.0	21.3	0	0.0	1	830	113307	78.8	9094
171	POL-SOFT SP.Z O.O.,POZNAN	179208	76.0	76.0	-6.2	0	0.0	4	5205	147820	82.9	14823
172	"INTER WOOD"SP.Z O.O.,MIASTKO	168308	0.0	0.0	19.5	150000	0.0	36	35165	113583	66.0	102475
173	"OBRAM-SCHWARTE"SP.Z O.O.,W-WA	165032	68.0	68.0	11.1	150000	200.0	22	74170	116828	44.0	0
174	"AUTO-CENTER"SP.Z O.O.,POZNAN	152359	17.6	17.6	7.3	0	0.0	11	21759	50000	85.0	42500
175	"POL-KAUFRING"SP.Z O.O.,WARSZAWA	149195	0.0	0.0	20.1	0	0.0	3	2266	3279971	100.0	3275967
176	"SCANWIL"LTD SP.Z O.O.,POZNAN	147251	0.0	0.0	41.1	0	0.0	29	20550	352227	40.2	230547
177	TESSO SP.Z O.O.,KRAKOW	139000	0.0	0.0	5.8	0	42.2	69	45556	151620	56.9	122653
178	"PROVIDOC-IWA"SP.Z O.O.,WARSZAWA	136653	99.6	99.6	80.6	0	0.0	0	0	488262	97.9	477888
179	"OKMESS"SP.Z O.O.,GDYNIA	131210	0.0	0.0	36.9	0	0.0	8	13468	623931	8.0	573931
180	"POLOTEX INTER."SP.Z O.O.,LODZ	129403	0.0	0.0	1.8	0	0.0	13	16544	137161	50.8	0
181	FAUST I S-KA SP.Z O.O.,CIECHOW	129400	0.0	0.0	75.9	0	2.0	1	2000	63283	67.2	30500
182	"ANKO II"SP.Z O.O.,KREPSKO	117799	100.0	100.0	22.9	58616	0.0	8	6468	189075	19.0	184075
183	"SIGNA-PLASTELIT"SP.Z O.O,KRAKOW	117208	0.0	0.0	43.5	0	0.0	9	12029	85000	50.0	800
184	GULF INTERNATIONAL,BYDGOSZCZ	113642	0.0	0.0	19.7	0	0.0	3	22620	26943	92.8	0
185	"KARPINSKI I PARTNER",SZCZUCZYN	113633	89.4	89.4	-92.6	90000	0.0	39	31341	40718	80.9	73398
186	"MILEX"SPOLKA Z O.O.,SZCZECIN	112477	0.5	0.5	13.2	0	299.0	21	17009	107812	74.3	98496

(continued)

ANNEX C-3. (continued)

No	Company	Total sales ('000 zlotys)	Export as percentage of sales	Area II Export as percentage of sales	Net profit as percentage of sales	Total loans ('000 zlotys)	Import as percentage of sales	Employment (30.06-31.12)	Wages ('000 zlotys)	Equity ('000 zlotys)	Foreign equity in percentage	Fixed assets ('000 zlotys)
187	FORTUNA SPOLKA Z O.O.,BUK	111431	100.0	100.0	27.1	0	0.0	40	27937	82063	90.3	78164
188	"OHM"SP.Z O.O.,GORZOW WLKP.	110365	0.0	0.0	-10.7	0	0.0	18	31607	511197	14.7	361197
189	PWIG"UKRAPOL"-SP.Z O.O.,GDANSK	109347	0.0	0.0	21.0	0	0.0	7	14394	40000	62.5	21000
190	"COBRA-INTERNATRONAL",KRAKOW	105746	0.0	0.0	32.2	0	28.8	5	2553	80000	62.5	20000
191	"SOPAGRO"SP.Z O.O.,GNIEZNO	105620	32.3	32.3	5.8	0	243.3	17	3453	25510	49.0	15819
192	"COLOD"SP.Z O.O.,SZCZECIN	104416	0.0	0.0	42.5	0	0.0	31	35026	402000	50.0	0
193	"BUDEXPORT"SP.Z O.O.,WARSZAWA	96182	0.0	0.0	6.3	0	0.0	52	91030	241885	57.8	186681
194	BEGATEX PL,LODZ	95166	0.0	0.0	29.3	0	0.0	8	12228	91000	50.0	69679
195	PSP"ALUCOLOR"-SP.Z O.O.,GDANSK	85317	39.5	39.5	22.3	0	0.0	13	28889	68425	0.0	60214
196	"KOPEX"SP.Z O.O.,SLUBICE	83615	36.3	36.3	43.6	5993	0.0	22	31345	48686	100.0	48686
197	"FABOS"SP.Z O.O.,OSTROW WLKP.	82242	100.0	100.0	10.2	15000	0.0	3	6100	144917	45.6	74507
198	NEXUS SPOLKA Z O.O.,POZNAN	78615	0.0	0.0	-65.5	75000	29.9	30	32800	172597	75.3	137524
199	VORAN MKP KATOWICE	77945	100.0	100.0	9.5	0	0.0	6	14003	160000	35.0	68509
200	"FRANC EST"SP.Z O.O.,PUSZCZYKOWO	73751	100.0	100.0	-51.1	0	0.0	9	5359	139480	85.7	145150
201	"KODAN"SP.Z O.O.,BOCZKI	62090	100.0	100.0	26.3	0	0.0	33	12922	64302	72.7	0
202	"TREND LTD"SP.Z O.O.,KATOWICE	58093	37.6	37.6	45.9	0	0.0	16	14607	135476	100.0	93673
203	"GALICJA"SP.Z O.O.,KRAKOW	54830	100.0	100.0	30.6	0	0.0	0	0	39900	36.1	14400
204	"DEKOP"SP.Z O.O.,KATOWICE	53575	0.0	0.0	50.0	0	0.0	4	11988	767455	97.9	21350
205	PZ"ARKPOL"SP.Z O.O.,REDA	53542	0.0	0.0	-32.8	0	17.3	42	29816	142188	79.9	107859
206	"SAREX"SPOLKA Z O.O.,SZCZECIN	51756	68.5	68.5	28.9	0	0.0	12	10592	154650	0.0	145896
207	"OPOL-RAPP"SPOLKA Z O.O.,OPOLE	47038	0.0	0.0	16.5	0	0.0	27	37926	1130419	29.3	9005
208	AGENCJA"ECON"SP.Z O.O.,LUBLIN	42963	100.0	100.0	0.8	0	0.0	54	23958	73200	86.9	11900
209	"POLSTAHL"SP.Z O.O.,WARSZAWA	42235	0.0	0.0	22.8	0	0.0	0	0	117115	50.0	0
210	REPRO SERVICE POL,KAMIEN POM.	39990	100.0	100.0	49.7	0	0.0	5	4500	114615	81.7	111455
211	IFS SP.Z O.O.,KRAKOW	38818	100.0	100.0	12.6	0	0.0	9	7976	177876	50.0	84905
212	"NORDA-LAS"SP.Z O.O,PARSECKO	38251	70.4	70.4	47.9	0	0.0	25	35251	303463	89.9	240463
213	"CONTEXT"SP.Z O.O.,SLUBICE	32781	100.0	100.0	-2.2	0	0.0	20	19436	93539	86.1	51639
214	"MERK"-SP.Z O.O.,GDANSK	29510	0.0	0.0	-19.7	0	0.0	4	2618	55610	88.4	49150
215	"INTER-PPSO"SP.Z U.KAP 2,BYDLINO	29346	100.0	100.0	15.1	0	0.0	2	2680	77036	51.6	55036
216	"ASPIAN"S.O.O.,PRZEMYSL	25276	0.0	0.0	3.1	0	0.0	5	6595	205764	76.3	66320

(continued)

ANNEX C-3. (continued)

No	Company	Total sales ('000 zlotys)	Export as percentage of sales	Area II Export as percentage of sales	Net profit as percentage of sales	Total loans ('000 zlotys)	Import as percentage of sales	Employment (30.06-31.12)	Wages ('000 zlotys)	Equity ('000 zlotys)	Foreign equity in percentage	Fixed assets ('000 zlotys)
217	"EGYPOL"SP.Z O.O.,KRAKOW	24760	0.0	0.0	49.1	0	0.0	16	14045	98074	96.4	23060
218	"POLITEX"SP.Z O.O.,POZNAN	23703	73.1	73.1	-79.4	0	22.2	5	7330	134506	26.0	64506
219	IBC SP.Z O.O.,WARSZAWA	19600	0.0	0.0	5.0	0	0.0	2	2125	343700	95.1	90321
220	PZ"VIAMOND-OST"-SP.Z O.O.,GDYNIA	16220	0.0	0.0	0.1	80359	292.4	1	2060	395104	84.6	395104
221	"REMPEX"SP.Z O.O.,WARSZAWA	15859	0.0	0.0	17.4	0	0.0	11	2626	12617	0.0	582
222	"OBST-CO"SP.Z .O.O.,NOWA WIES	14924	100.0	0.0	-26.9	0	0.0	4	3490	45100	55.4	25000
223	"I.N.G."SP.Z OO.,TYCHY	13405	100.0	100.0	16.3	0	0.0	0	1071	0	*	0
224	"CONNECT"SPOLKA Z O.O.,POZNAN	10002	100.0	100.0	64.6	0	0.0	1	1500	37528	100.0	0
225	"NORDEX"SP.Z O.O.,WROCLAW	9647	96.3	96.3	-40.8	0	0.0	2	1971	106438	55.7	47190
226	"CURTIS CONSTRUCTION",WARSZAWA	2275	0.0	0.0	100.0	0	0.0	13	10500	420000	100.0	315000

Source: Central Statistical Office.

ANNEX C-4: Important contact points

Government institutions

Foreign Investment Agency
Pl. Powstancow Warzawy 1
00-950 Warsaw – Poland
Tel. 217171, Telex 814291
Fax 218427

Ministry of Finance
00-950 Warsaw, ul. Swietokrzyska 12
Tel. 20 03 11, Telex 815592 minfin pl
Foreign Department: Tel. 26 65 44

Ministry of Foreign Economic Relations
00-507 Warsaw, Plac Trzech Krzyzy 5
Tel. 693 50 00, Telex 814501 msz pl.
Fax 290617

Ministry of Industry
00-505 Warsaw, ul. Wspolna 4
Foreign Department: Tel. 28 21 41,
Telex 814267, 814261

Ministry of Foreign Affairs
00-580 Warsaw, Al. Armii Wojska Polskiego 23
Tel. 28 74 51, Telex 814301 msz pl

Banks

National Bank of Poland
00-950 Warszawa, ul. Swietokrzyska 11/21
Tel. 20 03 21, Telex 814681 nbp pl
Foreign Department: Tel. 26 56 41
World Bank Cooperative Office: Tel. 20 01 80

Bank Handlowy in Warsaw, S.A.
00-950 Warsaw, ul. Chalubinskiego 8
Tel. 30 30 00, Telex 814811 bhw pl

Bank PeKaO S.A.
00-067 Warsaw, ul. Traugutta 7/9
Tel. 26 92 11, Telex 813441 bpko pl

Panstwowy Bank Kredytowy
00-950 Warsaw
ul. Nowogrodzka 35/42
Tel. 29 93 48

Bank Gdanski
80-958 Gdansk
ul. Targ Drzewny 1
Tel. 31 16 11 to 16

Bank Slaski
40-950 Katowice, ul. Warszawska 14
Tel. 599 581 to 4

Bank Przemyslowo-Handlowy
30-960 Krakow, ul. Basztowa 20

Bank Depozytowo-Kredytowy
20-928 Lublin, ul. Chopina 6
Tel. 217 12

Powszechny Bank Gospodarczy
90-950 Lodz
ul. Roosvelta 15

Wielkopolski Bank Kredytowy
60-967 Poznan, Plac Wolnosci 15
Tel. 514 297

Pomorski Bank Kredytowy
70-952 Szczecin, ul. Obroncow Stalingradu
10/11
Tel. 881 10

Bank Zachodni
50-950 Wroclaw
ul. Ofiar Oswiecimskich 41/43
Tel. 44 66 21

Bank Rozwoju Eksportu S.A.
Al. Jerozolimskie 65/79
"Centrum LIM"
00-950 Warsaw
P.O. Box P-728
Tel. 30 59 20
Telex 817119 bre pl
Fax 28 78 50

Bank PKO
00-950 Warsaw, ul. Swietokrzyska 11/21
Tel. 26 38 39, Telex 814681

Bank Gospodarki Zywnosciowej
00-950 Warsaw, ul. Swietokrzyska 12
Tel. 26 28 30, Telex 817987, 813869

Others

Polish Chamber of Foreign Trade
00-074 Warsaw, ul. Trebacka 4
Tel. 26 02 21, Telex 814361 pihz pl

Foreign Investors Chamber of Industry and Commerce
00-325 Warsaw, ul.Krakowskie Przedmiescie
47/51
Tel. 26 32 01
Telex 817105 inpol pl
Fax 268593

Patent Office
00-950 Warsaw, Al. Niepodleglosci 188/192
Tel. 25 80 01, Telex 813716 cint pl
Central Customs Office
00-950 Warsaw, ul. Swietokrzyska 12
Tel. 20 03 11, Telex 814427

Polish Trade Representatives abroad
(Commercial Counsellor's Offices)

Austria
Titlgasse 15, 1130 Wien, O.O.Box 17
Tel. 82 63 42, Telex 132657

Belgium
18, Avenue de l'Horizon, 1150 Bruxelles
Tel. (02) 771 68 15, Telex 21562 morhan b

Canada
3501 Avenue du Musee, Montreal
Quebec, H3G 2C8
Tel. (514) 282 1732-4, Telex 05560964 hanpol mtl

Denmark
Ryvangsalle 46, 2900 Hellerup
Tel. (01) 622967, Telex 19264 polhan dk

Finland
Risto Rytin tie 7, Helsinki
Tel. 68 91 88, Telex 124642 morhan sf

France
86, Rue de la Faisanderie, 75116 Paris
Tel. 45041020, Telex 611029 morhan paris

Germany
An der Altenburger Muehle 6, 5000 Koeln Marienburg
Tel. (0221) 372914, Telex 8885382
Berlin
Felkenried 23/25, 1000 Berlin 33
Tel. (030) 83 12 937, Telex 185410 polmi d

Greece
1, Kondoleondos Street, GR-154552 Psychico-Athens
Tel. 67211952, Telex 215882 ampl gr

Holland
Van Lennenpweg, 51 LG2597 Den Haag
Tel. (070) 50 27 81, Telex 313559 morhan nl

Hungary
Nepstadion ut. 65, 1143 Budapest XIV
Tel. 843 141, Telex 224383 morhan h

Israel
2 Remba St., Ramat Gan,
Tel. (02) 752 05 55 7, Telex 371765 secin il

Italy
via Olona 2/4, 00198 Roma
Tel. (06) 85 11 28, Telex 610325

Japan
2-13-5, Mita, Meguro-ku, Tokyo 153
Tel. 711 52 24, Telex 223114 polamba j

Norway
Uranienborg terrasse 11, Oslo 3
Tel. 602448, Telex 71380 morhan n

Singapore
Suite 24-11/24-12, Shaw Towers
100 Beach Road, Singapore 0718
Tel. 29 42 513/4, Telex 26355 morhan

Spain
Av. del Dr. Arce, 25, 28002 Madrid
Tel. 2615100, Telex 313559 morhan pl

Sweden
Friggagatan 4, 11427 Stockholm
Tel. (08) 117635, Telex 1984 morhan s

Switzerland
Elfenstrasse 9, 3006 Bern
Tel. (031) 431935, Telex 912189 brhle ch

Turkey
Farabi Sokak 33, Ankara, Cankaya
Tel. 126 16 83

United Kingdom
15, Devonshire Street, London W1N 2AR
Tel. (01) 580 7472, Telex 28193 morhan

United States of America
820 Second Ave, (17th floor) New York
N.Y. 10017
Tel. (212) 370 5300, Telex 595657 polcomer nyc

USSR
ul. Klimaszkina 4, Moscow
Tel. 253421, Telex 414358 morhan su

Yugoslavia
Ruzveltova 61, 11000 Beograd
Tel. 762635, Telex 11344 morhan beograd

ANNEX C-5: UNIDO offices providing information on investment opportunities[a]

Austria
UNIDO Investment Promotion Service – D-2006
Vienna International Centre
P.O.Box 400
A-1400 Vienna
Tel.: 21131/3943
Telex: 135612 uno a
Fax: 232156

France
UNIDO Investment Promotion Service
118, Rue de Vaugirard
F-75006 Paris
Tel.: 45443802
Telex: 203503 onudi pr f
Fax: 45487255

Germany
UNIDO Investment Promotion Service
Unter Sachsenhausen 10-26
D-5000 Cologne 1
Tel.: 120451
Telex: 17221349 un koeln
Fax: 120456

Italy
UNIDO Investment Promotion Service
Third Floor
Corso Magenta 59
I-20123 Milan
Tel.: 4815522
Telex: 353336 unido i
Fax: 4985925

Japan
UNIDO Investment Promotion Service
Shin-aoyama Building, East-1009
1-1-1-, Minamiaoyama, Minatoku
Tokyo
Tel.: 4029341
Telex: 2425528 unido j
Fax: 4029384

Poland
UNIDO Investment Promotion Service
00-950 Warsaw
Stawki 2
Tel.: 6357112, 6356086
Telex: 817916 unido pl
Fax: 6351260

Republic of Korea
UNIDO Investment Promotion Service
The Teachers' Pension Fund Building
2nd Floor
27-2, Yeoeuido-Dong
Youngdeoungpo-Ku
Seoul
Tel.: 7857074, 7857075
Telex: 22911 KTDCO
Fax: 7820689

Switzerland
UNIDO Investment Promotion Service
Löwenstrasse 1
CH-8001 Zürich
Tel.: 2212320
Telex: 814456 unit ch
Fax: 2114180

United States of America
UNIDO Investment Promotion Service
Suite 215
1660 L Street, N.W.
Washington D.C. 20036
Tel.: 6595165
Telex: 3730475 IPS WSH
Fax: 6597674

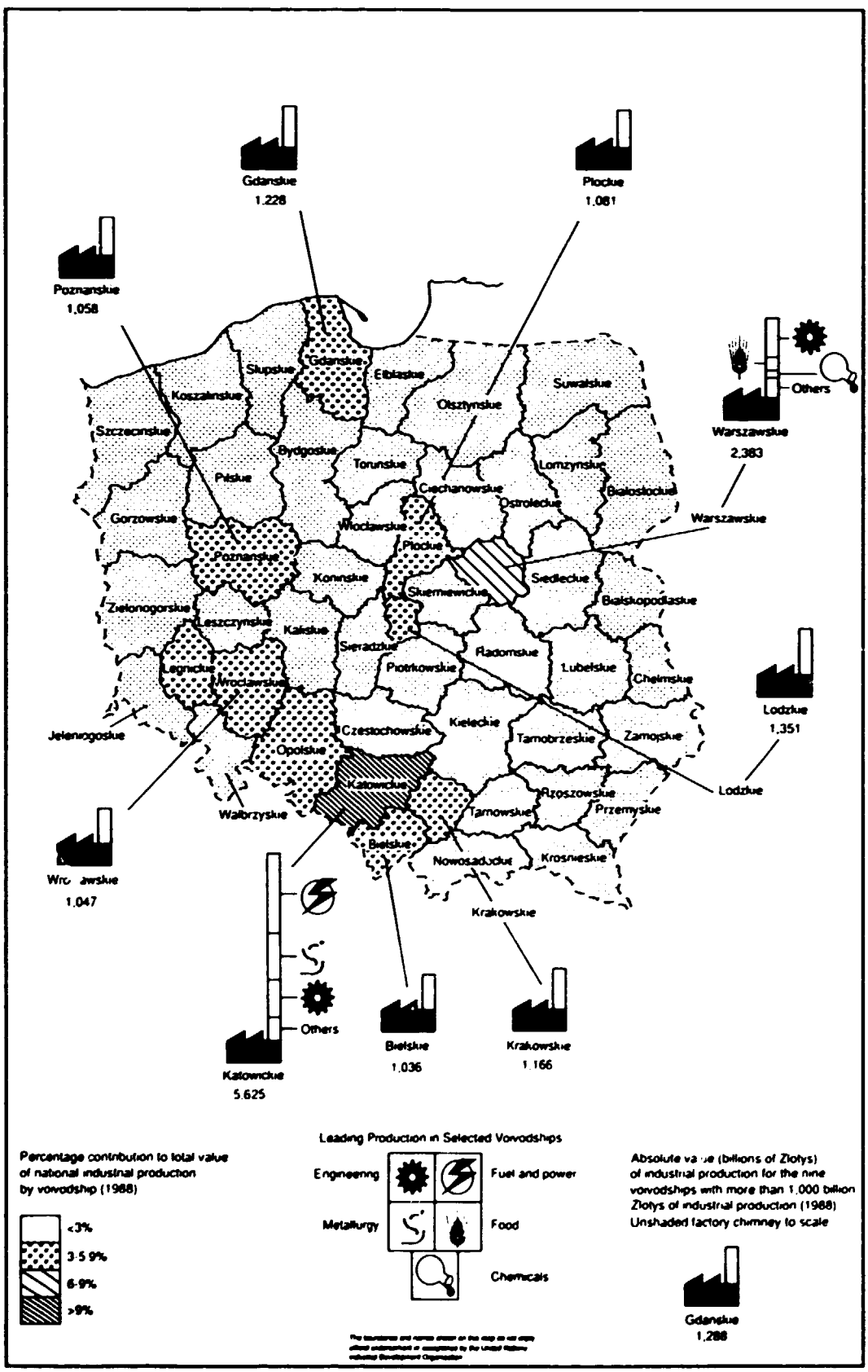
[a] Extensive project questionnaires are available upon request from these offices

ANNEX C-6: The approved and/or operational projects of UNIDO

Project Number	Backstopping responsibility	All.Acc. Code	Project title
SI/POL/90/801	IO/IIS/INFR	J12106	High-level advisory assistance on privatization strategies
TF/POL/90/801	IO/T/ENG	J13300	Packaging for pharmaceuticals and medical supplies
SI/POL/88/802	IO/T/ENG	J13314	High-level advisory assistance for robotization of middle presses line at the car factory FSM-TYCHY
DP/POL/87/007*	IO/T/ENG	J1331[illegible]	Development of computer aided design capabilities within the Polish machine building industry
TF/POL/90/802*	IO/T/ENG	J13300	Assistance in upgrading management and modernizing engineering of agricultural machinery industry
SI/POL/89/801	IO/T/CHEM	J13420	High-level technical advisory assistance for the rehabilitation of the technological process and quality improvement of the phtalocyanic pigments
TF/POL/90/803	IO/T/CHEM	J13421	Advisory services to the fertilizer industry
DP/POL/87/001*	IO/T/CHEM	J13422	Research and development in the field of biotechnology
DP/POL/87/002*	IO/T/CHEM	J13426	Pesticides formulation and application
SI/POL/89/802	IO/T/CHEM	J13426	High-level advisory assistance and technical service for cereal herbicides production
DP/POL/82/010*	IO/OS/IHRD	J14[illegible]02	Fellowships in the industrial sector
XP/POL/90/006	IO/OS/IHRD	J[illegible]4202	Fellowships in the field of processing plastics
TF/POL/90/800	PPD ICFM/COOP/STF	E05200	Umbrella project - industrial co-operation projects in support of Poland
TF/POL/90/900	PPD ICFM/COOP/STF	E05200	Umbrella project - UK/UNIDO industrial development support programmes for Poland
TF/POL/90/001	IPCT II/IPAEM	G01600	Assistance to the second investors forum in Poland
UT/POL/88/176	IPCT TP/INF	G04100	Establishment of an industrial and technological information system in Poland for INTIB networking and training (workshop Warsaw, Poland, 7-11 April 1989) (multifund to UC/POL/88/176)
XP/POL/91/012	EPL REL/PROT	L02100	Consultations with the Director, Department of UN System Organizations in the Ministry of Foreign Affairs and representatives of the European Institute for Global and Regional Development, delegated by Polish Authority

* Large-scale project (=total allotment $150,000 or above)
** Total allotment $1 million or above

INDUSTRIAL MAP OF POLAND



Map prepared for UNIDO by the Cartography Dept. School of Geography, University of Oxford
May 1991

SELECTED REFERENCES

Central Office of Planning. *Economic Strategy and Macroeconomic Policies in 1991–1993* (Warsaw,December 1990), pp. 6-9.

Central Statistical Office. *Statistical Yearbook 1988* (Warsaw 1989).

Central Statistical Office. *Statistical Yearbook 1989* (Warsaw 1990).

Central Statistical Office. *Poland in 1918-1988* (Warsaw 1989).

Central Statistical Office. *Statistical Yearbook of Industry 1989* (Warsaw 1990).

Central Statistical Office. *Economic Situation of Poland* (Warsaw 1990).

Central Statistical Office. *Foreign Trade 1989* (Warsaw 1990).

Central Statistical Office. *Poland Statistical Data* (Warsaw 1990).

Chemical and Engineering News (May 14, 1990), p. 15.

Chemicon Surveys Ltd., *On Course to Reform: The East European Chemical Industry, 1986–1990* (United Kingdom, August 1987), p. 354.

European and Chemical News (3 September 1990), p. 18.

Food and Agricultural Organization of the United Nations (FAO). *World Statistical Compendium for Raw Hides and Skins Leather and Leather Footwear* (Rome 1989).

Food and Agricultural Organization of the United Nations (FAO). *Yearbook Forest Products, 1977–1988* (Rome 1988).

International Energy Agency, *Seminar on Energy in East and West: The Polish case* (Paris 1990), p. 493.

Mining Annual Review 1990 (London 1990), p. 170.

Pasierb, Slawomir, 'Rational use of energy in Poland: present state and future tendencies', in International Energy Agency, *Seminar on Energy in East and West: The Polish case* (Paris 1990).

Rzeczpospolita, various issues.

Sulphur (November/December 1988), No. 119, p. 20.

UNIDO. *Industry and Development: Global Report 1989/90* (Vienna 1989), p.242, Table IV.105.

UNIDO. *List of Projects, Second Investors Forum for the Promotion of Foreign Investment* (Warsaw 21–24 May 1990).

United Nations Economic Commission for Europe. *East-West Joint Ventures*, No.4, April 1990.

World Bank. *World Development Report 1990* (Washington D.C. 1990).

World Bank. *Poland: Reform, Adjustment and Growth* (Washington 1987).

Zarzadzanie (various issues).

INDUSTRIAL DEVELOPMENT REVIEW SERIES ISSUED SINCE 1986

NON-SALES PUBLICATIONS[1]

Sri Lanka	UNIDO/IS.613	1986
Cuba	UNIDO/IS.615	1986
United Republic of Tanzania	UNIDO/IS.628	1986
Egypt	UNIDO/IS.637	1986
Mali*	UNIDO/IS.640	1986
Zaire*	UNIDO/IS.644	1986
Pacific Island States: Papua New Guinea, Fiji, Solomon Islands, Western Samoa, Vanuatu, Tonga, Kiribati, The Federated States of Micronesia and Micro States	UNIDO/IS.645	1986
Côte d'Ivoire*	PPD.6	1986
Saudi Arabia	PPD.7	1986
Congo*	PPD.10	1986
Central African Republic*	PPD.11	1986
Colombia	PPD.16	1986
Ghana	PPD.18	1986
The Republic of Korea	PPD.29	1987
Botswana	PPD.37	1987
The Caribbean Region: Jamaica, Trinidad and Tobago, Guyana, Barbados, Netherlands Antilles, Bahamas, Belize, Bermuda, St. Lucia, St. Vincent and the Grenadines, Grenada, Antigua and Barbuda, Dominica, St. Christopher-Nevis, Cayman Islands, British Virgin Islands, Montserrat, Turks and Caicos Islands, and Anguilla	PPD.51	1987
Malawi	PPD.58	1987
Indonesia: Changing Industrial Priorities	PPD.60	1987
Zimbabwe:	PPD.63	1987
Burma: Transition to agro-based industrial economy	PPD.65	1987
Jordan: Stimulating manufacturing employment and exports	PPD.67	1987
Liberia: Resource-based industrialization and rehabilitation	PPD.74	1988
Qatar: Towards industrial diversification of an oil-based economy	PPD.75	1988
Nepal: Industrialization, international linkages and basic needs	PPD.79	1988
Kenya: Sustaining industrial growth through restructuring and integration	PPD.85	1988
Somalia: Industrial revitalization through privatization	PPD.91	1988
Philippines: Sustaining industrial recovery through privatization and foreign investment	PPD.92/Rev.1	1988
Nigeria: Industrial restructuring through policy reform	PPD.100	1988

Djibouti:	Economic diversification through industrialization	PPD.111 1989
Bangladesh:	Strengthening the indigenous base for industrial growth	PPD.114 1989
Mauritania:	Industrial reorientation and rejuvenation	PPD.115 1989
People's Democratic Republic of Yemen:	Enhancing industrial productive capacity	PPD.122 1989
Yemen Arab Republic:	Diversifying the industrial base	PPD.130/Rev.1 1989
The Sudan:	Towards industrial revitalization	PPD.132 1989
Cameroon:	Coping with reduced oil revenue	PPD.146(SPEC)1990
Poland:	Second Investment Forum for the Promotion of Foreign Investment (Sales Publications forthcoming in 1991)	PPD/R.36**1990
Namibia:	Industrial development at Independence	PPD.1661990
Angola:	Economic reconstruction and rehabilitation	PPD.1721990
Viet Nam:	Industrial policy reform and international co-operation	PPD.1841991
Ethiopia:	New directions of industrial policy	PPD.1851991

SALES PUBLICATIONS[2]

India:	New dimensions of industrial growth	1990
Pakistan:	Towards industrial liberalization and revitalization	1990
Malaysia:	Sustaining the industrial investment momentum	1991

* Available also in French.
** Restricted

1/ Copies of non-sales publications may be obtained directly from: UNIDO, Regional and Country Studies Branch, P.O. Box 300, A-1400 Vienna, Austria. FAX: (0222) 232156

2/ Sales publications may be ordered directly from: Basil Blackwell Publishers, 108 Cowley Road, Oxford, United Kingdom. FAX: (0865) 791347

INDEX

Acquisitions 18, 107
Agency for Restructuring 21
Agricultural productivity 81, 87
Agriculture xv, xxiii, 2, 26–28, 37, 72, 76, 81, 88, 108, 125, 138, 139, 152, 178
Aluminium 112–115, 119, 120, 126, 129, 150, 151
Ammonia xxiv, 102, 133, 134, 147
Anti-Monopoly Agency 18
Anti-Monopoly Law 19
Balance sheet 192, 199
Balance-of-payments 29, 68, 76
Balcerowicz programme 4
Bank for Restructuring 21
Banking reforms xix, 17
Beverages 82, 85, 88, 161
Bonds 11, 16, 17, 19, 20
Bonus shares 16
Budget xix, xxvi, 2, 4, 10–12, 16, 17–19, 21, 25, 47, 67, 69, 78, 134, 135
Building materials v, viii, xx, xxiii, 21, 30, 31, 40, 42–44, 46, 50–53, 63, 76, 108, 109, 110, 149, 152, 172, 177
Butter 84, 144
Cables 56, 75, 116, 117, 120, 123, 129, 153, 181
Capacity utilization 51
Capital account 4
Capital gains 20
Capital goods xxvii, 22, 23
Capital intensity 96, 102, 112, 135
Capital market xx, xxvii, 17, 19, 20, 63, 66, 69
Capital productivity v, 17, 47, 51, 52, 100
Central planning 1, 76, 122
Central Planning Office 76
Ceramics 75, 110, 111
Chamber of Industry and Commerce 196, C
Cheese 83, 84, 86, 144
Chemicals v, vii, xvi, xvii, xx, xxii, xxiii, 28–31, 34, 37, 39–44, 46–48, 50, 51–54, 56–58, 63, 65, 71, 72, 74, 101–104, 107, 108, 138–143
Clean technology xxiv, 107, 119
Clothing viii, xvii, xxi, 30, 63, 88, 89, 94, 120, 145, 152, 164
CMEA xiii, xxi, xxiii, xxv, 4, 10, 12, 21, 25, 54, 56, 57, 62, 68, 95, 100, 103, 107, 117, 129, 130
Co-operatives xx, 13, 20, 21, 29, 46, 64, 70, 84
Coal viii, ix, xx, xxii, xxiv, xxv, 9, 10, 17, 19, 25, 29–31, 39–44, 46, 47, 48, 50–53, 56, 62, 63, 77, 100, 101, 107, 114, 119, 120, 123, 130, 131–135, 151, 155, 184
Cocoa 84, 85, 144
Coffee 84, 85
Coke 56, 62, 72, 77, 101, 102, 104, 114, 116, 119, 130–132, 155, 169, 184
Commercial Code 186, 189, 191
Communications xv, xx, 19
Comparative advantage v, xxi, 87, 88, 95, 129
Competitiveness xxii, xxvi, 2, 61, 65, 95, 122, 130
Construction xv, xxiii, 11, 21, 26–28, 75, 76, 109–111, 117, 125, 138, 139, 175, 177, 186, 209
Convertible currencies xxiii, xxv, 2, 10, 62, 107, 117
Convertible currency area xv, xxv, 12, 54, 56–58, 60, 61
Copper xxiii, 50, 56, 112–114, 116, 119, 147, 150
Corporate income tax 46, 71, 191, 194, 196
Cosmetics xxii, 72, 102–105, 107
Cotton 88–90, 92–94, 145, 162
Credit xxvii, 2, 9, 11, 13, 18, 74, 76
Crops xxi, 81, 82, 87, 88
Currency clearing arrangements 54, 57, 68
Currency retention quotas 10
Current account xv, xvii, 2, 10
Customs duties 16
Dairy processing 84
Debt xv, xvii, xviii, xix, xxiv, xxv, 1, 4, 10, 12, 16, 17, 21, 47, 48, 71, 77, 135
Debt service xv, xvii, xix, 1, 4, 12
Decapitalization 70
Depreciation rates 191
Devaluation 9, 24, 60, 61
Developed market economies xiii, xxi, xxiii, xxiv, 19, 20, 26, 31, 62, 71, 88, 100, 133
Dissolution of a company 192, 195, 196
Dividends 17, 200, 201
Division of labour 54, 95
Downstream processing v, 95
EC xiii, xxii, 27, 28, 78, 84, 100, 119
Economic Committee of the Council of Ministers 76
Economic structure 26
Economies of scale 52, 81, 95
Edible oil 84, 85
Education 11, 24
Electric furnaces 119
Electricity xxiv, 9, 48, 131, 135
Electronic components 75, 129
Electronics ix, xx, 30, 31, 37, 40–44, 46, 48, 50–53, 63, 75, 111, 119, 120, 122, 123, 124, 127, 130, 153, 181
Emergency aid package 78

Employment v, vii, viii, xv, xvi, xix, xxi, 1, 12, 18, 19, 21, 24, 27, 28, 31, 37, 39, 40, 47, 63, 64, 66–68, 82, 83, 85, 89, 98, 104, 108, 113, 114, 119, 124, 131, 195, 202–206, C, 208, 209, C
Energy viii, xvii, xx, xxiv, xxvi, 1, 10, 17, 19, 20, 44, 48, 50, 74–76, 78, 100, 110, 119, 130–136, 155, 218
Energy conservation xxiv, 76, 78, 110, 133, 135
Energy intensity viii, xxiv, 110, 119, 133, 134
Engineering v, viii, xvi, xx, xxiii, xxiv, 28–31, 35, 37, 39–44, 46, 48, 50–54, 56–58, 61–63, 65, 71, 73, 77, 102, 105, 108, 116, 117, 119, 120, 122–125, 129, 130, 132, 136, 138–143, 151, 153, 175, 176, 178, 179, 181, 183, 184, C, 218
Enterprise autonomy 4
Environmental pollution xxii, xxiii, 65, 95, 119, 135
Environmental protection 21, 71
Equalization payment 18
Equity participation 19, 87, 94, 99, 107, 111, 114, 117, 129
European Bank for Reconstruction and Development xiii, xxvii, 78
European Investment Bank 76, 78
Excess wage tax 46, 47
Exchange rate xv, xx, xxv, 2, 9, 10, 12, 17, 58, 60, 77, 199
Exports v, vii, viii, xv, xvi, xvii, xviii, xx, xxii, xxiii, xxvi, 2, 4, 10, 11, 12, 21–24, 29, 53, 54, 56–58, 60–62, 70, 84, 90, 92, 95, 96, 98, 100, 102–104, 108, 112–114, 117, 119, 122–124, 131, 132, 135, 220
Fabrics 89, 93–95
Fees 194
Fertilizers xxiii, 10, 25, 74, 102–104, 108, 147, 149
Fibre xxiii, 89, 92, 95, 102, 108, 163, 169
Fishing 28, 83, 158
Fixed assets v, vii, 44, 47, 50–52, 85, 98, 102, 104, 113, 114, 123, 124, 131, 132, 191, 193
Flour milling 84
Food v, vii, viii, xiii, xvi, xvii, xx, xxi, xxiv, 1, 2, 10, 17, 25, 28, 29, 30–32, 37, 39–44, 46–48, 50–54, 56–58, 61, 63, 65, 71, 72, 74, 76, 77, 78, 81–89, 124, 130, 138–144, 152, 157, 160, 177, 218
Food aid 2, 78
Footwear vii, xxi, xxii, 89, 90, 92, 93, 95, 145, 165, 218
Foreign capital 21–23, 29, 70, 71, 73, 74, 98, 198, 199
Foreign Exchange Law 195
Foreign exchange permit 188, 192, 193, 195
Foreign investment v, vii, xxvii, 16, 20, 22, 64, 70–73, 79, 80, 87, 94, 99, 104, 107, 111, 117, 129, 135, 186, 187, 199, 210, 218, 220, 221
Foreign Investment Agency 16, 20, 70, 71, 73, 80, 104, 186, 187, 199, 210
Foreign Investment Council 187
Foreign Investment Law xxvii, 70, 186
Foreign ownership 71, 73
Foreign participation 16, 17, 19, 20, 73
Forestry xv, 28, 72, 138, 139, 152
Fruits xxi, 56, 81–88, 144
Garments v, xvi, xx, xxii, 31, 32, 37, 39, 40, 42–44, 46, 48, 50–53, 56, 88, 89, 90, 92, 94, 95, 136, 145, 162
Gas 9, 28, 57, 74, 75, 77, 78, 101, 107, 120, 122, 123, 130–132, 134, 135, 151, 152, 155, 184
GNP xiii, xvii, 53
Government borrowing 11
Gross domestic product (GDP) vii, xv, 26, 27
Gross material product (GMP) vii, viii, xv, 24, 26, 27
Group Employment Reduction Law 18
Group of Seven (G7) 78
Gypsum 109, 110, 149, 172
Hides and skins vii, 88, 89, 218
IMF xiii, xxiv, xxvi, xxvii, 4, 9, 11, 12, 17, 21, 77, 78
Import substitution 4
Imports v, vii, viii, xv, xvi, xx, xxi, xxvi, xxvii, 2, 4, 10, 12, 21–23, 29, 30, 47, 53, 56–58, 60–62, 71, 78, 81, 84, 85, 90, 92, 95, 96, 98, 101–104, 108, 112–114, 119, 122, 124, 129, 131, 132
Income tax xxvi, 17, 46, 71, 73, 74, 76, 191, 194, 196
Incremental capital productivity 51
Indexation rules xxvi, 2
Industrial exports v, vii, viii, xvi, xx, 53, 54, 56, 58, 61, 84, 90, 96, 102, 104, 108, 112, 119, 122, 123, 131
Industrial imports vii, viii, xvi, 56–58, 84, 90, 96, 102, 108, 112, 119, 131
Industrial location 65
Industrial performance v, xix, xxi, 30, 65–67
Industrial sales vii, viii, xvi, xx, xxvii, 29–31, 56, 62, 64, 65, 82, 89, 96, 102, 104, 108, 113, 114, 119, 122, 124, 131, 132
Inflation xvii, xix, xx, xxv, xxvi, xxvii, 2, 4, 9–12, 24, 47, 58, 61, 66, 67
Institutions 70, 87, 94, 99, 107, 111, 117, 129, 135, 210
Inter-industry trade xx, 56
Interest rates xix, xxiii, xxvi, 11, 13, 17, 18, 47, 66, 67, 110
International Financial Corporation 78
Intra-industry trade 84
Inventories 47, 77, 139, 157, 184
Investment v, vii, viii, xi, xvii, xx, xxi, xxii, xxiii, xxiv, xxvii, 1, 4, 10, 11, 12, 16, 18, 24, 28–30, 42, 46–50, 64–66, 68, 73, 76, 80, 83, 85, 86, 88, 92, 94, 96, 98, 100, 102, 104, 108, 110, 111, 114, 117, 119, 124, 125, 130, 134, 135, 139, 185, 187, 197, 199, 210, 214, C, 215, 218, 220, 221, C, 221
Investment opportunities v, xxiv, 76, 80, 85, 92, 98, 104, 110, 114, 124, 134
Inward equity investment 70

Joint stock company 16, 186, 188
Joint venture xxii, 16, 70, 73, 85, 87, 94, 99, 107, 111, 117, 129, 202
Juice concentrates 81
Labour v, vii, viii, xx, xxi, xxii, xxiv, xxvi, 1, 4, 18, 21, 25, 27, 28, 31, 39–43, 50, 52, 54, 65–67, 69, 81, 83, 88, 90, 95, 96, 98, 100, 102, 108, 130, 132–135, 157–184, 195
Labour Fund 18, 25
Labour productivity v, vii, viii, 21, 27, 28, 31, 41–43, 50, 66, 67, 81, 83, 90, 96, 100, 102, 108
Law to Counteract Monopolistic Practices 18
Leather v, vii, viii, xvi, xx, xxii, 30–32, 37, 39, 40, 42–44, 46–48, 50, 51, 52, 53, 56, 63, 71, 72, 88–90, 92–95, 136, 145, 148, 162, 165, 218
Licensed entities 193
Licensing agreements 56, 129
Light industry 28–31, 37, 39, 40, 42–44, 46, 50–54, 56–58, 61, 63, 65, 88, 89, 95, 138, 139, 177
Limestone 106, 10 ,–110, 149, 172
Limited liability company 186
Livestock 2, 81, 84, 88
Locomotives 120, 122, 124, 152
Machines tools 120, 123, 124, 151, 177
Machinery ix, xvii, xx, xxi, xxiii, 21, 29–31, 40–43, 47, 48, 51–54, 58, 63, 70, 72, 74–78, 88, 95, 100, 10o, 117, 119, 122–126, 134, 151, 176, 177, 178, 181, 194, 216
Magnificent seven xxvi, 20
Management training 77, 78
Material product system (MPS) 24
Meat xxi, 2, 81–88, 144, 157
Medical equipment 54, 74, 179
Mergers xx, 18, 19, 107
Metal products ix, 31, 40, 42–44, 46, 48, 50–54, 72, 112, 114, 122, 175, 176
Metallurgy v, xvi, xx, xxiii, 28–31, 34, 37, 39, 40, 42–44, 46, 48, 50–54, 56, 57, 58, 63, 74, 108, 112–114, 117, 119, 123, 138–143, 150, 151, 174, 177
Milk 25, 82, 84, 87, 144
Minerals v, xvi, xx, 28–31, 33, 37, 39, 40, 42–44, 46, 50–54, 56–58, 63, 65, 108, 110, 138–143
Mining 28, 41, 44, 62, 101, 102, 112, 116, 119, 120, 123, 131, 134, 151, 168, 174, 177, 218
Mining equipment 134
Ministry for Ownership Changes 13, 16
Money market 17
National accounts 24
National Bank of Poland xiii, 2, 10, 11, 13, 17, 74, 76, 190, 210
Net export revenue 61
Net material product xiii, xx, 24, 26, 27, 29
New Employment Law 18, 66
Newly industrializing economies 70
Non-convertible currency area 54, 57, 60, 61
Non-ferrous metal xxiii, 112, 114, 119
Non-material services 24, 26–28
Non-socialized entities 195
Nuclear fuel 72, 104
Obligatory dividend 46, 122
OECD xiii, xvii, 58, 78, 88, 117, 133
Oil xvii, xxii, xxiv, 28, 30, 57, 62, 68, 77, 84–86, 101, 102, 105, 107, 127, 130, 131, 134, 135, 155, 160, 220, 221
Oil-based derivatives xxii, 102, 107
Open-hearth furnace 119, 150
Opportunity costs 10
Organic products 102
Ownership patterns v, 62
Packaging xxi, 75, 77, 88, 96, 173, 216
Paints 102
Paper v, vii, viii, xvi, xx, xxii, 28, 30, 31, 33, 37, 39, 40, 42–44, 46, 48, 50–54, 56–58, 63, 65, 71, 72, 74, 77, 95, 96, 98–100, 136, 138, 139, 140–143, 146, 149, 166, 167
Paris Club xxiv, 4, 21, 77
Passenger cars 56, 120, 122–124, 153
Pesticides 78, 102, 103, 216
Petroleum xxiv, 57, 62, 72, 104, 130–132, 134, 155, 184
Pharmaceuticals xx, xxii, 54, 72, 74, 102–104, 107, 216
Phosphate rock 103
Plastics xxii, 71, 72, 102, 104, 105, 107, 129, 148, 169, 216
Polonia firms 70
Population vii, xv, xvii, 37, 119
Poultry 82, 83, 85, 86, 144, 157
Power v, viii, ix, xvi, xx, xxi, 2, 17, 28–31, 35, 37, 39–44, 46, 48, 50, 51, 52–54, 56–58, 61, 63, 65, 66, 68, 73, 75, 77, 101, 108, 122, 123, 127, 130–133, 135, 138–143, 155, 176, 181, 184
Power and Research Institute 133
Price disincentive 60
Price distortions 28, 41, 51
Price effects 61
Price incentives 58, 61
Price indices 61
Prices vii, viii, xv, xvi, xix, xx, xxi, xxiii, xxiv, xxv, xxvi, 1, 2, 9, 10, 13, 18–22, 25, 28, 30, 31, 41, 42, 47, 50, 58, 60–63, 66–69, 77, 82–85, 88, 102, 108, 110, 112, 113, 119, 122, 131, 134, 135
Principles of accounting 191
Priority areas 73, 76
Private consumption xvii, 1
Privatization xix, xx, xxi, xxiv, xxvi, xxvii, 4, 13, 16, 19–21, 24, 25, 37, 40, 62, 64, 66, 67, 69–71, 78, C, 220
Privatization Law xxvii, 13, 16, 20
Producer prices 47, 60, 131
Product diversification xxiv, 63, 122, 129
Production cost 44
Profit bonuses 10, 12, 46, 85
Profit related bonuses 24
Profitability v, 19, 44, 47, 69, 131
Promotion of Investment Act 21
Pulp xxii, xxiii, 100, 106, 108, 166

Purchasing power 2, 58, 61
Radio sets 120
Rapeseed xxi, 84, 86, 88
Real property 191, 193, 194
Recession xix, xxiii, xxvi, 1, 10, 22, 23, 26, 30, 31, 40, 51, 58, 61, 63, 66, 67, 110, 132, 135
Recycling projects 119
Refrigerators 56, 122, 124, 151
Reserve fund 191
Rice 84, 85
Risk-bearing 20, 70
Salt 101, 102, 147
Science 24
Second Investors Forum 79, 85, 87, 94, 99, 104, 107, 111, 117, 129, 216, 218
Securities Commission xxvii
Securities exchange 17
Service sector 24, 26, 27, 37
Shares xx, xxvi, 13, 16–20, 26, 27, 29, 37, 47, 53, 56, 62–64, 69, 131, 132, 188, 191, 192, 195, 196, 198
Shipbuilding xxiii, 119, 124, 180
Silk 89, 92, 145, 163
Silver xxiii, 56, 112–114, 150
Soap 102, 148
Social security 195
Socialized economic entities 193, 194, 196
Socialized material sector 12, 24
Socialized sector xix, xx, 1, 2, 12, 21, 29, 37, 39, 40, 46, 47, 61, 64, 66, 67, 69, 85, 131
Solidarity movement 1
Spirits 82
Stabilization programme xix, xxv, xxvi, 9, 11, 13, 66, 67
State enterprises xx, xxvii, 12, 13, 19, 24, 64, 71, 104, 114, 124, 132
State monopolies xx, 17, 19
Structural adjustment xix, xxvi, 4, 18, 20, 65, 67
Structural change v, xxi, xxiv, 11, 13, 18, 20, 21, 29, 30, 37, 48, 62
Subsidies xix, xx, xxi, xxiii, 4, 9–10, 12, 13, 18, 19, 25, 31, 44, 47, 65, 67, 81, 83, 87, 90, 102, 108, 109, 112, 131, 157–184
Sugar 81–85, 87, 88, 144, 158
Sulphur xx, xxiii, 54, 56, 101–103, 106, 108, 130, 135, 136, 147, 168, 218
Tax concessions xxi, 10, 21, 70, 71, 76, 88, 119
Tax on dividends 200, 201
Taxes 43, 47, 83, 90, 109, 112, 131, 157–184, 192, 194, 195
Tea 84, 85
Technology v, xxi, xxii, xxiii, xxiv, 28, 29, 31, 44, 47, 58, 65, 70, 71, 77, 80, 84, 87, 94, 99, 100, 107, 108, 111, 112, 117, 119, 129, 135
Television 73, 120, 123, 124, 153
Terms of trade 4, 58, 61
Textiles v, vii, viii, xx, xxii, 29, 30, 32, 37, 39, 43, 47, 48, 51, 53, 56, 63, 71, 72, 88–90, 92, 95, 116, 136, 145
Tobacco 72, 82–85, 144, 161
Total factor productivity vii, 52, 53
Trade balance xxi, 12, 23–25, 58, 61, 62, 77
Trade surplus 2, 4, 12, 21–23, 25, 58, 60, 65, 117
Trade Unions 18, 195
Transfer of rights 195
Transport ix, xv, xvii, xxiii, xxvi, 9–11, 27, 28, 31, 40, 42–44, 46–48, 50, 51, 52–54, 63, 71, 72, 75, 77, 78, 87, 117, 119, 122–124, 138, 139, 152, 178, 179
Transport equipment ix, xxiii, 31, 40, 42–44, 46–48, 50–54, 63, 71, 72, 77, 117, 119, 122, 123, 124, 152, 179
Turnover tax 17, 47, 112, 131, 194
Unemployment viii, xix, xxvi, 4, 12, 18, 21, 25
Vacuum cleaners 48, 120, 122, 151
Valuation of assets 13, 52
Value-added tax 17
Vegetables 73, 81, 82, 84–88, 144, 159
Wage policy 43
Wage-price spiral 2
Wages v, vii, viii, xi, xix, xxiii, xxv, xxvi, 1, 2, 9–12, 24, 25, 30, 37, 41–44, 46, 67, 77, 85, 90, 110, 113, 130, 202–209
Wearing apparel vii, 71, 72, 92, 93, 95
Wood v, vii, viii, xvi, xx, xxii, xxiii, 28, 30, 31, 33, 37, 39, 40, 42, 43, 44, 46, 50–54, 56–58, 63, 65, 71, 72, 95, 96, 98–100, 108, 120, 123, 138–143, 146, 152, 166
Wool 88–90, 92, 94, 95, 145, 162
Worker participation 4
Workers' Council 13, 16
World Bank xvii, xxi, xxiii, xxiv, xxvii, 17, 68, 73, 74, 76–78, 88, 108, 119, 130, 135, 210, 218
Yarn 89, 90, 92–94, 106, 145
Zinc 56, 112–114, 127, 148, 150

V 91-28613 October 1991 600

Argentina
Brazil
People's Republic of China
Egypt
India
Indonesia
Republic of Korea
Malaysia
Mexico
Nigeria
Pakistan
The Phillipines
Thailand
Turkey
Poland
Czechoslovakia
Hungary

ISBN 0-631-18096-6