



TOGETHER
for a sustainable future

OCCASION

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



TOGETHER
for a sustainable future

DISCLAIMER

This document has been produced without formal United Nations editing. The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations Industrial Development Organization (UNIDO) concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries, or its economic system or degree of development. Designations such as “developed”, “industrialized” and “developing” are intended for statistical convenience and do not necessarily express a judgment about the stage reached by a particular country or area in the development process. Mention of firm names or commercial products does not constitute an endorsement by UNIDO.

FAIR USE POLICY

Any part of this publication may be quoted and referenced for educational and research purposes without additional permission from UNIDO. However, those who make use of quoting and referencing this publication are requested to follow the Fair Use Policy of giving due credit to UNIDO.

CONTACT

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

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

08456

UNITED NATIONS INDUSTRIAL
DEVELOPMENT ORGANIZATION

Distr.
LIMITED
UNIDO/ICIS.90
30 May 1978
ENGLISH

INDUSTRIAL REDEPLOYMENT TENDENCIES AND
OPPORTUNITIES IN THE FEDERAL REPUBLIC OF GERMANY .

Prepared by the
Global and Conceptual Studies Section
International Centre for Industrial Studies

UNIDO Working Papers on Structural Changes
No. 5, November 1978

Id. 78-2746

Explanatory notes

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

A slash between dates (e.g., 1970/71) indicates a crop year, financial year or academic year.

Use of a hyphen between dates (e.g., 1960-1965) indicates the full period involved, including the beginning and end years.

The term "billion" signifies a thousand million.

In tables a dash (-) indicates that the amount is nil or negligible.

The following abbreviations of organizations have been used in this document:

AASM	Associated African and Malagasy States
DAC	Development Assistance Committee (of OECD).

PREFACE

In April 1976 the IFO-Institute for Economic Research was commissioned by the United Nations Industrial Development Organization (UNIDO) to carry out a study dealing with industrial redeployment trends and opportunities in the Federal Republic of Germany. The results of this study are presented in this document. The aim of the study is to explore the nature and extent of industrial redeployment and the industries mainly affected by it; to identify cases of present and potential redeployment; and to facilitate discussion, in bilateral talks with the companies concerned, of any national or international measures to assist redeployment.

The study is based on the result of three IFO questionnaires sent to 3,600 selected companies of the Federal Republic in so-called structurally weak industrial sectors regarding redeployment activities in developing countries they had already carried out or planned. The questionnaires dealt generally with direct investment in developing countries, and more particularly with redeployment. The broader approach, ranging from foreign investment in developing countries in general to industrial redeployment in particular, was selected on grounds of method. If the inquiry had applied only to investments for redeployment in conjunction with deliveries from developing countries to the market of the Federal Republic, possibly coupled with a decrease of production capacities in the Federal Republic there would have been great risk of misunderstanding, and the number of firms responding would probably have been unrealistically small. Adding questions about investment in developing countries in general made it possible not only to clarify the relative importance of investment for redeployment among investments in the third world as a whole, but also to induce more firms to answer the questionnaire. Actual cases of redeployment were then discussed in a second phase of the work, the results of such discussion being compiled in "company profiles".

Not all industries in the Federal Republic were approached, but only those manufacturing industries found to be wholly or in part structurally weak; the results are therefore to be regarded as representative only in regard to these particular industries. Within these, however, they well

illustrate the importance of redeployment as an element among total investments in developing countries. They also bring out the nature of investments, the motives accounting for such redeployment, the difficulties and obstacles encountered, the regions preferred for redeployment, the main products being redeployed and so forth.

Chapter I outlines the extent and structure of direct investment of the Federal Republic in developing countries. Chapter II deals with the factors influencing it, such as cost of labour, raw material intensity and environment pollution, factors that increasingly lead to redeployment in low-wage countries. Chapter III, the heart of the study, analyses the results of three IFO investigations of investment in developing countries in general, and of investment for redeployment in particular. The annex summarizes the results of investigations carried out in the Federal Republic, to identify structurally weak industries that constitute the redeployment potential of the Federal Republic.

CONTENTS

<u>Chapter</u>	<u>Page</u>
INTRODUCTION.....	7
I. EXTENT AND STRUCTURE, REGIONAL AND SECTORAL, OF DIRECT INVESTMENT OF THE FEDERAL REPUBLIC OF GERMANY IN DEVELOPING COUNTRIES.....	8
II. EFFECTS OF ALTERED CONDITIONS OF LOCATION ON THE INDUSTRIAL STRUCTURE IN THE FEDERAL REPUBLIC OF GERMANY.....	14
General considerations.....	14
Raw-material-intensive industries.....	15
Labour-intensive industries.....	16
Industries especially harmful to the environment.....	16
III. FOREIGN INVESTMENT AND LOCATION POLICY: RESULTS OF THREE IFO INQUIRIES.....	19
Direct investment by Federal Republic industry in foreign countries.....	19
Investment in developing countries, with special emphasis on redeployment.....	23
Foreign investments and location policy of European electrical engineering firms.....	34
Annex. Statistical analyses designed to identify structurally weak industries in the Federal Republic of Germany.....	37

Tables

1. Federal Republic direct investment in industrial and developing countries, 1952-1975.....	8
2. Regional structure of Federal Republic direct investment in developing countries at end of selected years.....	10
3. Sectoral structure of direct investment in developing countries...	13
4. Comparison of Federal Republic imports of finished goods from various origins.....	14
5. Purpose of production in developing countries	25
6. Size of firms according to labour force.....	26
7. Nature of investment in developing countries.....	28

<u>Chapter</u>	<u>Page</u>
8. Importance of additional facilities connected with investment...	29
9. Reasons for investing in developing countries.....	30
10. Regional distribution of investment	31
11. Obstacles encountered while investing or planning to invest in developing countries.....	33

INTRODUCTION

Experience shows that the co-operation of the rich countries will not suffice, through direct government transfers of development aid alone, gradually to close the gaps in the balance of payments of the poor countries. To build up the third world's industries, moreover, so far as exporting industries are concerned, it is not readiness for sacrifice that is required from the industrial countries but only readiness for adjustment. In that connection an export-oriented industrialization strategy will serve the aims of development policy better than a policy of import substitution. Export industrialization compels the countries of the third world to exploit their comparative advantages better than they have in the past. These advantages are concentrated in two fields: (a) the advantage of location for extracting, producing and processing tropical products and raw materials; and (b) lower production costs owing to the practically unlimited supply of relatively cheap labour.

The industrial countries can contribute to the success of a strategy of export promotion by opening up their markets and showing readiness to change their own industrial structures. As early as 1971 the Government of the Federal Republic of Germany emphasized this point. The call for the opening up of markets was answered positively through the preferential tariff system of the European Economic Community (EEC), which has steadily been modified in the course of years to benefit the developing countries. The progressive gearing of the underindustrialized countries to export and the related redeployment of production units from the original parent countries to countries having advantages of location are today widely recognized as preconditions for supporting the third world's efforts to industrialize. These efforts could be highly successful if supported, as an element in the international division of labour, by assignment of certain free areas for production with the object of re-exporting the products manufactured there to the country producing them originally.

I. EXTENT AND STRUCTURE, REGIONAL AND SECTORAL, OF DIRECT INVESTMENT OF THE FEDERAL REPUBLIC OF GERMANY IN DEVELOPING COUNTRIES

During the period 1952-1975, non-residents invested about DM 50 billion in the Federal Republic of Germany, while Federal Republic direct investment in foreign countries reached not quite DM 42 billion. The net inflow of capital into the country was particularly great during the 1960s. Recently, however, this trend has been reversed. In 1975, private Federal Republic investment abroad amounted to DM 5.2 billion, while non-residents invested only DM 2.5 billion in the Federal Republic.

Table 1 shows how the cumulative total of Federal Republic direct investment in foreign countries has grown since 1966 and what proportion of it has gone to industrial and to developing countries. The cumulative total rose more than fourfold - from DM 9.3 billion in 1966 to DM 42 billion in 1975. During this period the proportion of such direct investment going to developing countries remained practically constant at about 30%, while 70% or more went to other industrial countries. An increase of the third world's share in the growth of such net capital transfers is at present not yet in sight, but may be achievable in the future.

Table 1. Federal Republic direct investment in industrial and developing countries
(Cumulative net capital transfers since 1952)

Year	In industrial countries		In developing countries		Total (millions of DM)
	(millions of DM)	(%)	(millions of DM)	(%)	
1966	6 607	70.9	2 713	29.1	9 320
1970	14 850	70.8	6 112	29.2	20 962
1973	22 586	70.1	9 650	29.9	32 236
1975	29 710	70.8	12 282	29.2	41 992

As regards its total foreign investment in developing countries, the Federal Republic of Germany ranks fourth among Western industrial countries. According to World Bank statistics, the DAC countries invested in the third world a total of \$28.6 billion^{1/} between 1960 and 1971. Of this total the

^{1/} Including reinvested profits, averaging about one third of the total.

United States of America alone accounted for \$13.9 billion, or nearly half. France came second with \$3.7 billion, the United Kingdom of Great Britain and Northern Ireland third with \$2.9 billion and the Federal Republic of Germany fourth with \$2 billion. The regional distribution of investment between industrial and developing countries looks much the same in the Federal Republic as in the United States and United Kingdom, whereas Japan invested 50% more in developing countries.

A more detailed breakdown of the regional statistics for the Federal Republic's foreign investment in the third world than simply as between industrial and developing countries (see table 2) shows that, while the developing countries' share of the total did not rise, some appreciable inter-regional shifts took place between 1967 and 1975. Africa's share of the total investment in developing countries varied only slightly, at around 17%. But it remained constant only because the untypical Canary Islands, reckoned as part of Africa, became increasingly preferred as an area for Federal Republic investment. Without these islands, the share of Africa would have fallen steeply to 11.5%. Latin America's share fell by 10% but remained predominant, reaching just under 45%. Prominent in that area is Brazil, which at 23.4% accounted for not quite a quarter of all Federal Republic direct investment in developing countries at the end of 1975. At that date Asia had raised its share by only 2%, from 9.2% in 1969 to 11%. The most important destination for investment in Asia is Israel, followed by Iran, although their shares of the total were only moderate at 3.4% and 1.8%, respectively. Apart from Latin America, Federal Republic investors have mainly concentrated on the geographically near developing countries in Europe. Such countries' share of the corresponding Federal Republic direct investment rose by 9% between 1967 and 1975, reaching 27%. First among them, at 23%, is Spain, which thus shows a prominence similar to that of Brazil. The remaining area, Oceania, is as yet of no importance. An IFO questionnaire has brought evidence that the trends in regional distribution described above are likely to become, if anything, more marked; the European developing countries, with rising proportions, continue to be those most favoured by Federal Republic investors. An increase, likewise slight, is expected for Asia. Against it stands a slight decline in Latin America and a greater decline in Africa.

Table 2. Regional structure of Federal Republic direct investment in developing countries at end of selected years

Region and country	1967		1969		1973		1975	
	(millions of DM)	(%)	(millions of DM)	(%)	(millions of DM)	(%)	(millions of DM)	(%)
<u>Africa, including:</u>	<u>591</u>	<u>17.0</u>	<u>792</u>	<u>14.7</u>	<u>1 301</u>	<u>13.7</u>	<u>2 096</u>	<u>17.1</u>
Algeria	-	-	51	0.9	1	0	136	1.1
Canary Islands	-	-	11	0.2	703	7.3	306	6.65
Liberia	138	4.0	131	2.4	131	1.4	140	1.1
Libyan Arab Jamahiriya	143	4.1	369	6.8	461	4.3	324	2.6
Nigeria	25	0.7	25	0.5	103	1.1	172	1.4
<u>Latin America, including:</u>	<u>1 926</u>	<u>55.5</u>	<u>3 280</u>	<u>60.9</u>	<u>4 081</u>	<u>42.3</u>	<u>5 484</u>	<u>44.7</u>
Argentina	336	9.7	411	7.6	539	5.6	592	4.8
Brazil	960	27.6	1 343	24.9	1 997	20.7	2 375	23.4
Curaçao	-	-	774	14.4	513	5.4	710	5.3
Mexico	168	4.8	275	5.1	417	4.3	462	3.3
Panama	-	-	102	1.9	135	1.4	202	1.6
<u>Asia, including:</u>	<u>320</u>	<u>9.2</u>	<u>383</u>	<u>7.1</u>	<u>1 041</u>	<u>10.3</u>	<u>1 356</u>	<u>11.0</u>
India	154	4.4	168	3.1	171	1.3	178	1.4
Indonesia	-	-	-	-	46	0.5	79	0.6
Iran	52	1.5	65	1.2	134	1.4	223	1.8
Israel	15	0.4	16	0.3	377	3.9	419	3.4
Malaysia	-	-	-	-	17	0.2	39	0.3
Pakistan	-	-	39	0.7	54	0.5	58	0.5
Thailand	-	-	-	-	23	0.2	26	0.2
Oceania	-	-	-	-	2	-	2	-
<u>Europe, including:</u>	<u>636</u>	<u>18.3</u>	<u>929</u>	<u>17.3</u>	<u>2 726</u>	<u>23.2</u>	<u>3 344</u>	<u>27.2</u>
Greece	81	2.3	106	2.0	210	2.2	236	2.3
Spain	472	13.6	732	13.6	2 344	24.3	2 358	23.3
Turkey	83	2.4	91	1.7	1	1.4	136	1.1

table 2 (continued)

Region and country	1967		1969		1973		1975	
	(Millions of DM)	(%)	(Millions of DM)	(%)	(Millions of DM)	(%)	(Millions of DM)	(%)
Developing countries		<u>100.0</u>		<u>100.0</u>		<u>100.0</u>		<u>100.0</u>
Total	3 473	28.8	5 384	30.6	9 651	29.9	12 282	29.2
For comparison:								
Industrial countries								
Total	<u>8 584</u>	<u>71.2</u>	<u>12 234</u>	<u>69.4</u>	<u>22 585</u>	<u>70.1</u>	<u>29 710</u>	<u>70.3</u>
Grand total	12 057	100	17 618	100	32 236	100	41 992	100

Source: Bundesanzeiger, various years, Vermögensanlagen Gebietsansässiger in fremden Wirtschaftsgebieten (Residents' investments abroad). 1975 = Bundesanzeiger, 14 April 1976.

These regional trends largely coincide with the results of studies on countries best suited for investment in the third world. Important factors include favourable local conditions such as low wages in relation to per capita productivity, government aid for investment and the infrastructure provided.

Table 3 gives the sectoral structure of Federal Republic direct investment in developing countries for 1969 and 1975. It shows that, in relation to the total investment of the Federal Republic in the third world, the investment in industry declined during the period. Industrial projects accounted in 1969 for 31% of all Federal Republic direct investment in developing countries, but in 1975 for only 67%. The Federal Republic foreign investment thus became more differentiated, going also to other industries or activities (banks, land and housing, hotels and the like).

Within the industrial sector, Federal Republic direct investment has up to now apparently been little affected by the specific local conditions in the developing countries, since its sectoral structure largely coincides with that of the direct investment made in other industrial countries. For instance, labour-intensive consumer goods industries, which show only a small propensity to invest abroad, account for an even smaller share of investment in the third world than of that in other industrial countries. Not until recently, as is confirmed by the investment made in 1975, do the consumer goods industries appear to have directed a growing proportion of their foreign investment to developing countries.

The principal industries investing more than the average in developing countries include chemicals, motor vehicles and electrical engineering. These three industries accounted in 1969 for 63% of all industrial foreign investment, and even in 1975 for as much as 53%. Next in order of importance come mechanical engineering, iron and steel production, mineral oil and natural gas and the food, beverages and tobacco industry.

Table 3. Sectoral structure of Federal Republic direct investment in developing countries

Category	1969			1975		
	(Millions of DM)	(%)	^{a/}	(Millions of DM)	(%)	^{a/}
Manufacturing industries	4 349	100.00	32	8 187	100.00	30
Petroleum and natural gas	183	4.2	49	621	7.6	34
Chemicals	1 549	35.6	37	2 098	25.6	26
Mineral oil processing	43	1.0	13	266	3.2	41
Rubber and asbestos	36	0.8	26	85	1.0	39
Pharmaceuticals	172	4.0	45	334	4.1	34
Plastics	-	-	-	25	0.3	15
Non-metallic minerals	41	0.9	36	62	0.8	15
Fine ceramics, china, glass and glass products	-	-	-	38	0.5	12
Iron and steel	321	7.4	29	595	7.3	17
Non-ferrous metals	44	1.0	35	77	0.9	20
Sawmills and woodworking	30	0.7	82	96	1.2	71
Wood processing	12	0.3	51	65	0.8	55
Cellulose, paper and cardboard production	8	0.2	6	14	0.2	6
Paper and cardboard processing	6	0.1	16	36	0.4	32
Mechanical engineering	399	9.2	33	786	9.6	25
Motor vehicles	614	14.1	36	1 120	13.7	40
Electrical engineering	568	13.1	31	1 100	13.4	25
Hardware	49	1.1	32	74	0.9	19
Precision engineering and optical industry	24	0.6	30	50	0.6	20
Musical instruments, sporting goods, toys	-	-	-	4	0.0	19
Textiles	20	0.4	15	140	1.7	23
Clothing	25	0.6	14	14	0.2	7
Leather	44	1.0	40	80	1.0	38
Footwear	1	0.0	1	11	0.1	8
Food, beverages and tobacco	160	3.7	18	370	4.6	21
Other manufacturing industries	-	-	-	26	0.3	10
Other economic activities	<u>1 035</u>	<u>19.2</u>	<u>28</u>	<u>4 095</u>	<u>33.0</u>	<u>28</u>
Total	5 384	100.00	31	12 282	100.00	29

^{a/} Developing countries' percentage of the category's total foreign investment.

II. EFFECTS OF ALTERED CONDITIONS OF LOCATION ON THE
INDUSTRIAL STRUCTURE IN THE FEDERAL REPUBLIC OF
GERMANY

General considerations

Finished goods from developing countries account for only a small proportion of the industrial countries' imports of finished goods, but within the industrial countries they put a number of local industries under strong pressure. During the recession of 1974/75, for example, industrial goods from developing countries actually increased their share of the market in the Federal Republic, which suggests that they were well able to compete. Table 4 shows that the developing countries' share in the Federal Republic's imports of finished goods

Table 4. Comparison of Federal Republic imports of finished goods from various origins (Percentage)

Origin	Share in total imports of finished goods		Increase in imports over previous year		
	1972	1975 (January-September)	1973	1974	1975 (January-September)
European Economic Community countries ^{a/}	56.0	58.8	3	5	17
United Kingdom of Great Britain and Northern Ireland	(5.6)	(5.9)	8	6	26
Switzerland	5.1	5.4	8	15	23
Austria	2.8	3.0	16	17	9
United States of America	10.9	10.1	2	15	8
Developing countries	3.6	6.7	39	40	25
Eastern Europe	2.5	2.7	22	5	18
Other	<u>19.1</u>	<u>13.3</u>			
Total	100.0	100.0	7	10	17

Source: Statistisches Bundesamt, Deutsche Bundesbank, IFO calculations.

a/ Including the United Kingdom.

almost doubled between 1972 and 1975. The developing countries' success in selling appears even more impressive in the last three columns of their entry in the table.

Against this background, coupled with the effects of the rectification of the exchange rate structure since the early 1970s, the wage-cost explosion after 1973 and the tariff preferences accorded to developing countries (this last effect is the least important of the three) the change in local conditions in the Federal Republic is likely to mean that:

(a) Manufacturing industry's share in the total net domestic product will continue to decline;

(b) The industrial structure will change as the relative importance of certain sectors changes. This change will particularly affect three groups negatively - raw-material-intensive industries, labour-intensive industries and those especially damaging to the environment.

The characteristics of these groups are described below.

Raw-material-intensive industries

Developing countries that have abundant raw materials are increasingly processing them domestically and are switching from exporting raw materials to exporting industrial products that have a large raw material content. Investigations by IFO and the German Institute for Economic Research^{2/} have shown, in this connection, that in the Federal Republic the following industries must be regarded as especially raw material intensive (ranked in order of intensity):

- Food, beverages and tobacco
- Woodworking and wood processing
- Iron and steel
- Leather goods and processing
- Non-ferrous metals
- Cellulose, paper and cardboard
- Chemicals, including petrochemicals
- Rubber and asbestos processing

These industries, which include those producing basic materials and producer goods, are especially suitable for redeployment, with the sole exception of the food, beverages and tobacco industries, even though they head the list. Some of the above-mentioned industries in developing countries, however, are

^{2/} Determination of raw material intensity, using the IFO input-output table on the basis of previous output from the primary sector per DM gross product.

making strong efforts to build up their own production capacities; this is happening, for instance, in iron and steel, in non-ferrous metals, in chemicals and in the industries concerned with food, beverages and tobacco, with timber and with leather.

Labour-intensive industries

The main characteristics of the Federal Republic's labour-intensive industries, which are especially exposed to competition from developing countries, are as follows:

- (a) The net product per employee and the wage level are appreciably below the industrial average;
- (b) Some of the industries concerned are located in sparsely industrialized areas of the country and employ an unusually large number of female or of poorly skilled male workers, a situation that creates regional adjustment problems;
- (c) Three of the particularly labour-intensive industries, leather processing, textiles and electrical engineering, employ more than the average number of foreign workers;
- (d) Investments were in the past designed to ward off competition from low-price countries. The consequent saving of labour was, without exception, greater than in other industries.

These characteristics apply particularly to consumer goods industries such as:

- Wood processing
- Textile and garment manufacturing
- Footwear
- Leather processing
- Electrical engineering
- Musical instruments, jewellery, sports gear and toymaking

All these industries are extremely heterogeneous, in that not all aspects of the production in question are equally labour intensive, and hence will not be equally affected by foreign competition.

Industries especially harmful to the environment

The third and last group comprises industries that are especially harmful to the environment. Unlike the industries previously mentioned, discussion

about a possible redeployment of the production of these industries has not gone very far. Yet the "social costs" in the form of pollution of the environment are being felt more severely as the damaging plants become geographically more concentrated, the population becomes denser and the overall living standard rises. The question of redeploying these industries may arise more frequently in the future. The industries where the investment to protect the environment (as indirect indicator of potential pollution effects) exceeds the average, not only in absolute terms but also in proportion to turnover and to total capital expenditure, include, with the exception of drawing and cold rolling mills, all industries concerned with basic materials and producer goods, particularly:

- Non-ferrous metals
- Mineral oil processing
- Iron and steel
- Chemicals
- Cellulose and paper
- Woodworking and wood processing
- Plastics processing
- Leather
- Rubber and asbestos
- Ceramics

Investigations have clearly shown that compliance with regulations to protect the environment places a relatively heavier burden on small and medium-sized firms than on large concerns.

No information on redeployment of industries to developing countries because of rising expenditure on environment protection is yet available. Replies to an IFO questionnaire concerning the reasons for foreign investment suggest, however, that environment pollution is as yet merely an additional, and not in itself a sufficient reason for redeployment.

From the point of view of the developing countries, apart from purely economic effects, the transfer of industries for reasons of environment protection in developed countries raises two particular problems. One is that most of the polluting industries are capital intensive, manufacturing basic materials and semi-products; their redeployment therefore means providing only a few jobs. What is more, the establishment of such industries ties up

resources (for example, infrastructure), which are then no longer available for other, more labour-intensive industries. It thus conflicts with the goals of the developing countries employment policies. Secondly, if the developing countries accept industries that pollute their environment, they will repeat the mistakes the industrial countries made during their industrialization, ignoring the fact that the costs of restoring the environment will probably exceed those entailed by developing environment-protecting technologies or by forgoing growth because polluting industries are restricted. However, transfers because of the costs of protecting the environment in industrial countries may reduce the overall damage, since the polluting industries would be more widely distributed.

III. FOREIGN INVESTMENT AND LOCATION POLICY: RESULTS OF THREE IFO INQUIRIES

In recent years the IFO Institute has carried out three inquiries that provide data of interest in connection with the problems discussed here. They dealt with the following points:

- (a) The direct investment of Federal Republic industry in foreign countries;
- (b) The nature and regional breakdown of foreign direct investment, the obstacles encountered in that connection, the reasons that had led to such foreign investment, and the effects on each firm's investment behaviour in the Federal Republic;
- (c) The foreign investment and location policy of European electrical engineering firms in particular.

Direct investment by Federal Republic industry in foreign countries

In 1975, the IFO Institute sent about 1,000 questionnaires on foreign, direct investment to selected industrial firms; the 214 usable replies came from firms having some 20% of the Federal Republic's industrial turnover. Of the 214 respondents, 96, or nearly half, had invested in developing countries (among others), and for the future intended to continue operating in the third world.

For these 96 firms, the developing countries accounted for only a part of their total direct foreign investment; and their answers to the questionnaire referred to their foreign investments as a whole, not only to those in developing countries.

Size of the respondent firms

The results show that, in terms of number, small and medium-sized firms in the Federal Republic account for much less than their due proportion of Federal Republic foreign investment in developing countries. The reasons are no doubt partly financial, but also include lack of information.

Regional breakdown of foreign investment in developing countries

Irrespective of the size of firms, the regional breakdown of direct investment in developing countries presents a uniform picture, which largely conforms to the pattern of the statistical analysis given earlier (see table 2).

Latin America holds first place, with 42% of all affirmative replies, followed by the European developing countries (Greece, Portugal, Spain, Turkey) with 38%. Asia accounts for a further 15%, whereas Africa, with only 5%, is clearly not a region much preferred by Federal Republic investors.

Within Latin America, by far the greatest importance attaches to Brazil, with 75% of all affirmative replies coming from this country. In Asia, on the other hand, the investments are much less concentrated; India leads, with 38%, followed by Iran with 25%, Indonesia with 22% and Pakistan with 15%.

Nature of the foreign investment

For all firms taken together, the main object of foreign investment is to establish or extend producing plants, marketing agencies or other operating units. Those categories account for nearly half the foreign investment. Relatively equal proportions, between 17% and 19%, are found for minority holdings, majority holdings and the 100% acquisition of existing production facilities etc.

As regards transferring management and skills to the developing countries, approximately half of all those investing in a developing country couple that investment with the employment of nationals of the Federal Republic in the host country. The total number of Federal Republic nationals working there, often only one to three per country, is so small in relation to all persons employed, however, that they can only be occupying management positions. To that extent it can be assumed that job creation through direct investment in the developing country benefits the local population in full.

It can further be assumed that one out of every two Federal Republic investments in developing countries, while primarily consisting of the transfer of capital, is additionally coupled with the providing of management functions and technical know-how. Among the companies questioned, however, none had effected the investment only by transferring personnel without transferring capital.

Sectoral breakdown of foreign investment

Of the 96 firms that have invested in developing countries, 25% are in industries turning out basic materials and producer goods, mostly chemicals, non-ferrous metals, iron, steel and non-metallic minerals. The majority of

firms, 58% of those replying, are in the capital goods industries, especially mechanical and electrical engineering and hardware. Only 17% of the replies came from firms making consumer goods; most of these are engaged in textile and garment manufacture, plastics processing and the pottery industry.

Small and medium-sized firms with up to 1,000 employees are represented hardly at all among those turning out basic materials and producer goods, but in a much greater proportion among those making consumer goods.

Motives for investing abroad

The IFO questionnaire dealt with motives for investing abroad, a central point, in detail; the replies, correspondingly detailed, can be differentiated as between investing in industrial and developing countries.

The three most important motives, accounting for 60% of all the replies, with only slight differences between one region and another, are:

To take advantage of lower costs of production and transport compared with costs in the Federal Republic

To avoid import restrictions in customer countries

To prevent a reduction of sales by being nearer the market

The remaining 40% of the replies give no fewer than seven further reasons, with an individual weight of 3% - 8% placed on each; they are therefore not to be regarded as evidence of a determining motive for foreign investment.

It is interesting to note what weight is assigned according to country or region to a particular reason.

The obtaining of advantages in regard to costs of production and transport is clearly more important in the European developing countries than, for example, in Latin America. Africa ranks on this ground slightly below the average, and the situation in Asia differs widely between countries. While the average weight is almost as high for Asia as for Europe, the importance of this reason is appreciably lower for India, Indonesia, Iran and Pakistan.

The opposite is the case as regards avoiding import restrictions in customer countries. While this reason may be significant for certain European developing countries, it is of less than average weight for such countries as a whole in comparison with the importance, in some cases substantial, assigned to it in countries in Latin America (in Mexico, for example, 23.5%) and in Asia (India, 27.1%; Pakistan, 25%). In Africa, at only 13.3%, its importance is even lower than in Europe.

The most important reason for foreign investment is, on the average, the desire to ensure sales by being nearer the market. This motive ranks first for nearly all countries and regions; for Mexico, for instance, it reaches a weight of almost 31%.

Purpose of foreign investment

The results of the inquiry regarding the purpose of foreign investment relate, as other replies have, not only to the investment made in developing countries but to all foreign investment made by the firms in question.

The replies show that, considered alone, the supplying of foreign countries so as to open up additional markets (while maintaining the investor's own exports from the Federal Republic) is still the most important purpose of foreign investment; it is followed by supplying foreign countries with goods replacing previous exports from the Federal Republic. These two purposes together account for 58% of the weighted answers, against only 42% for three other reasons combined. As regards product categories, semi-products and finished capital goods are the most important, with 57% of the weighted answers; raw materials, on the other hand, are relatively less significant.

The supplying of parent firms in the Federal Republic by the foreign subsidiary to replace the parent's own or some other domestic production (i.e., partial redeployment of production facilities) does not yet equal the importance of ensuring and expanding markets in foreign countries, but ranks after these two motives. The supplying of the parent company in place of other procurement from abroad is significant only in the case of raw materials.

Effects produced by foreign production on the domestic structure of industry

Replies to the question about the effects produced on the exports of the parent firm in the Federal Republic show that the parent firm in no case contemplates a complete replacement of its exports by its foreign branch. But 40% of the firms questioned mention in their replies partial replacement; 44% say that their existing exports will remain unaffected by foreign investment, while the remaining 16% maintain that foreign investment has stimulated their own exports.

As for production by the parent firm in the Federal Republic, 79% of the firms say that it has been unaffected. The remaining 21% say that the foreign subsidiary's production has replaced the parent's output up to 30%. No firms report higher redeployment percentages.

Future of foreign investment

On balance it can thus be stated, even though these data do not relate to investments in the third world alone, that Federal Republic firms can in any event be expected to show a stronger propensity to invest abroad in the future than in the past. This trend is discernible in statistics, which in recent years have shown a growing volume of Federal Republic direct investment abroad, particularly in developing countries.

Investment in developing countries, with special emphasis on redeployment

Scope and method of the study

An IFO study on redeployment activities of Federal Republic industry was carried out in 1976 to ascertain how far firms were inclined to relocate or had actually relocated production units in developing countries.

For this purpose, questionnaires were sent to some 3,600 firms, of which 50% replied, an astonishingly high response, so that the results of the investigation can be judged representative.

The study takes into account only those industries that are regarded as "structurally weak" (criteria: trade flows and turnover) and that are therefore thought to have a high "propensity to redeploy". These industries, and their subcategories, are as follows:

- Manufacture of food and beverages
- Textiles, wearing apparel and leather industry
- Manufacture of wood and wood products, including furniture
- Manufacture of plastic products
- Manufacture of pottery, china and earthenware
- Basic metal industries (i.e., wire industry, rolling mills) and non-ferrous metal basic industries
- Certain subdivisions within the group of fabricated metal products, machinery and equipment
- Other manufacturing industries, including jewellery, musical instruments, sporting goods and toys

Consequently, the results summarized below may relate only to the situation of these particular industries, not to Federal Republic industry as a whole.

An attempt has been made to separate redeployment activities from traditional direct investment by means of a definition: an investment is considered redeployment if its purpose is to supply the Federal Republic parent firm or the Federal Republic market in general (second and third columns in table 5). A simultaneous reduction of production capacities in the Federal Republic is not regarded a condition, because it is also possible to redeploy an otherwise planned expansion of capacities. In reality, it is difficult to find pure cases of redeployment in the above-defined sense: most investments in developing countries are intended for the supply not only of the home market of the host country but also of the market of the Federal Republic.

The study differentiates redeployment activities that have already been carried out from those that are planned. This distinction thus recognizes structural changes in investment behaviour.

Sectoral and size distribution of redeploying firms

Sectoral distribution

Taking the criterion of redeployment investment as a proportion of an industry's total investment in developing countries (average: 46%), the following sectors show the highest propensity to redeploy:

(a) The textile, wearing apparel and leather industries. The redeployment motive predominates (81%) in these industries. The subcategories of wearing apparel and of leather and leather substitutes (both excluding footwear) even reach 100%, which means that the purpose of investment in developing countries in these subcategories is exclusively redeployment. It should be kept in mind that this sector is, structurally, the weakest of all;

(b) Manufacture of wood and wood products. In this sector only firms producing furniture and fixtures (exclusive of metal) seem to have considerable redeployment potential (50%);

(c) Metal processing and mechanical engineering. In this highly diversified sector the following subcategories are found to be above the average:

Photographic and optical goods (69%)

Cutlery, hand tools and general hardware (64%)

Only slightly below the average are the following:

Radio, television, and apparatus (44%)

Electrical appliances and housewares (40%)

Table 5. Purpose of production in developing countries
(Percentage of the respondent firms)

Status of investment in developing countries	Reduction of domestic capacities in favour of own foreign capacities	Supply of the Federal Republic parent firm, replacing own domestic production or supplies from Federal Republic or other industrial countries	Supply of the Federal Republic market in general	Supply of foreign countries replacing own former exports from the Federal Republic	Supply of foreign countries while maintaining own exports from the Federal Republic
Made (146 replies)	20.2	40.1	15.6	49.7	59.2
Planned (92 replies)	14.0	29.0	14.0	40.9	50.5

Thus, nearly every second investment in a developing country is at least partly due to redeployment, which is obviously an indication of rapid structural change in the economy of the Federal Republic.

Size distribution

The analysis of size distribution (table 6) shows that:

(a) The size of firms engaged in redeployment is not significantly different from that of firms engaged in traditional direct investment;

(b) As regards planned redeployment, there is a marked predominance of small and medium-sized firms, which is probably due to the time-lag in providing these firms with relevant information about developing countries.

Table 6. Size of firms according to labour force
(Percentage of the replies)

Status of investment in developing countries	1-500	500-1 000	>1 000
Made			
All (145 replies)	36.7	21.8	41.5
Redeployment only (73 replies)	37.0	23.3	38.4
Excluding redeployment (75 replies)	36.0	20.0	44.0
Planned			
All (93 replies)	55.9	25.8	18.3
Redeployment only (39 replies)	59.0	25.6	15.4
Excluding redeployment (54 replies)	53.7	25.9	20.4

Forms of redeployment

Whereas, up until now, minority holdings and the acquiring or setting up of their own subsidiaries have counterbalanced each other as

forms of redeployment, there is a marked shift to minority holdings as regards planned redeployment investment (they cover two thirds of the whole - see table 7). In both cases - present and future investments - majority holdings account for only a quarter of investments, with their share even declining, (probably as a result of the legislation of developing countries).

Concerning the transfer of technology (patents, licences), redeployment investment ranks below the average of all investment in developing countries, but a sharp increase of technology transfer is planned.

As regards the provision of additional facilities (see table 8), few firms are carrying on research and development in a developing country, but this activity will become increasingly important, especially in combination with redeployment. Much more emphasis (and indeed a high priority) is given to assistance in training local personnel. The intention is to employ Federal Republic personnel only for a limited time.

Motives for redeployment

As a motive for redeployment, "lower costs of production" occupies an overwhelming first place (82%), but its importance is declining as regards planned redeployment (see table 9). The same is true of "preventing a reduction in sales", which for the moment follows in second place (35%), but in the future will fall to fourth place (26%). A sharply increasing value is attached to the motive "securing raw materials" (from 16% to 39% - it has more than doubled) and to "investment promotion of the host country" - almost every second firm mentioned this incentive as determining its future redeployment activities.

Environment - protection regulations at home are, for the time being, a factor of minor importance in general, but far more important in cases of redeployment.

Regional distribution of redeployment

The regional distribution of redeployment follows, in general, the distribution pattern of investment in developing countries (see table 10). There is a clear tendency to favour the semi-industrialized countries in this group. Thus, the European and Mediterranean countries (mainly Greece, Malta and Tunisia) take the lead as recipients of redeployment (40%), followed by

Table 7. Nature of investment in developing countries
(Percentage of replies)

Status of investment in developing countries	Minority holding of capital (up to 49%)	Majority holding of capital (51 - 99%)	Acquiring or setting up an operating unit (100% owned)	Transfer of technology (patents, licences)
<u>Made</u>				
All (147 replies)	49.7	27.2	38.1	34.7
Redeployment only (73 replies)	45.2	28.8	47.9	26.0
Excluding redeployment (74 replies)	54.1	25.7	28.4	43.2
<u>Planned</u>				
All (88 replies)	54.5	17.0	21.6	50.0
Redeployment only (38 replies)	63.2	23.7	34.2	42.1
Excluding redeployment (50 replies)	48.0	12.0	12.0	56.0

Table 8. Importance of additional facilities connected with investment
(Percentage of replies)

Status of investment in developing countries	Research and development in developing countries	Employment of Federal Republic personnel in developing countries	Assistance in training local personnel in developing countries
<u>Made</u>			
All (147 replies)	12.2 ^{a/}	56.5	59.9
Redeployment only (73 replies)	8.2 ^{a/}	57.5	63.0
Excluding redeployment (74 replies)	16.2 ^{a/}	55.4	56.8
<u>Planned</u>			
All (88 replies)	8.0	52.3	69.3
Redeployment only (38 replies)	18.4	52.6	71.1
Excluding redeployment (50 replies)	-	52.0	68.0

a/ In most cases statements regarding planned research and development in a developing country.

Table 9. Reasons for investing in developing countries (Percentage of replies)

Status of investment in developing countries	Environment-protection				Investment promotion by the Federal Republic
	Lower costs of production	Securing raw materials	Preventing a reduction in sales	regulations at home (in the Federal Republic)	
Made					
All (141 replies)	63.1	11.3	56.7	5.7	25.5
Redeployment only (71 replies)	81.7	15.5	35.2	9.9	33.8
Excluding redeployment (70 replies)	44.3	7.1	78.6	1.4	17.1
Planned					
All (88 replies)	60.2	25.0	52.3	9.1	28.4
Redeployment only (39 replies)	76.9	38.5	25.6	12.8	46.2
Excluding redeployment (49 replies)	46.9	14.3	73.5	6.1	14.3

Table 10. Regional distribution of investment
(Percentage of replies)

States of investment in developing countries	Europe and Mediterranean	Latin America	East Asia	Middle East	Africa
<u>Made</u>					
All (275 replies)	38.2	35.6	15.3	6.9	4.2
Redeployment only (139 replies)	40.3	28.1	21.5	5.8	4.5
Excluding redeployment (136 replies)	36.0	43.4	8.8	8.1	3.7
<u>Planned</u>					
All (356 replies)	29.2	38.5	10.4	12.4	9.6
Redeployment only (147 replies)	33.3	36.7	17.0	4.8	8.2
Excluding redeployment (208 replies)	26.3	39.7	5.7	17.7	10.5

Latin America (20%), where Brazil alone accounts for more than half of all investment.

A considerable share is directed to East Asia (22%), especially to Hong Kong, Malaysia, Republic of Korea, Singapore and recently Indonesia, whereas the Middle East and Africa account for an almost negligible share.

As for planned redeployment investment, a percentage increase is seen for Latin America (taking the lead with 37%) and Africa and a corresponding decrease for all other regions. The last is true also for the Middle East, which in general is very attractive for foreign investment, but primarily for opening additional markets and less for redeployment.

Obstacles to redeployment

In the context of obstacles to redeployment (see table 11) the study divides firms into three groups, which permits alterations in the investors' attitudes to different obstacles to be recognized:

(a) Firms that refrained from investing in developing countries. These firms failed to invest mainly because of financing problems, lack of skilled workers and the socio-political conditions in the host countries, with almost equal emphasis placed on each obstacle;

(b) Firms that have not yet redeployed any activities but intend to do so. These firms expect financial problems and socio-political conditions to be the main hindrances to their investment (mentioned by almost every second firm);

(c) Firms that have already carried out redeployment. For these firms, the above-mentioned obstacles are of relatively low importance: obviously the financial problems can be overcome, and probably they have chosen countries with a favourable political climate. The following retarding factors, however, are strongly felt: import restrictions of the host countries, lack of skilled workers and supply problems (in that order). Technical problems and the low per capita productivity are evidently of minor importance, but are given above the average weight by the redeployment group.

Conclusions

Redeployment is not yet the main reason for direct investment of Federal Republic firms in developing countries. But its importance is growing, and by this time (1976) almost every second investment is at least partly due to redeployment.

The redeployment "profile" shows a concentration not only on specific industrial branches (raw-material-intensive and labour-intensive) but also on preferred areas of investment, particularly semi-industrialized countries with a certain degree of political stability.

Table 11. Obstacles encountered while investing or planning to invest in developing countries
(Percentage of the replies)

	Status of investment in developing countries	Financing problems	Insufficient infrastructure	Supply problems in developing countries	EEC trade barriers on delivery to Federal Republic	Lack of skilled workers in developing countries	Lack of information about developing countries	Technical problems	Low per capita productivity	Import restrictions of the host countries	Socio-political conditions in the host countries
<u>None</u>	(164 replies)	44.5	9.1	25.6	6.1	43.9	12.2	19.5	15.2	21.3	43.9
<u>Made</u>	All (112 replies)	26.8	16.1	38.4	2.7	41.1	4.5	16.1	15.2	59.8	27.7
	Redeployment only (57 replies)	17.5	15.8	36.8	3.5	45.6	1.8	24.6	21.0	52.6	24.6
	Excluding redeployment (56 replies)	35.7	16.1	39.3	1.8	35.7	7.1	7.1	8.9	66.1	30.4
<u>Planned</u>	All (58 replies)	50.0	17.2	29.3	5.2	24.1	13.8	12.1	12.1	34.5	51.7
	Redeployment only (25 replies)	44.0	20.0	32.0	12.0	16.0	20.0	8.0	12.0	36.0	44.0
	Excluding redeployment (33 replies)	54.5	15.2	27.3	-	30.3	9.1	15.2	12.1	33.3	57.6

Foreign investment and location policy of
European electrical engineering firms

Approach to the study

The study of the foreign investment and location policy of European electrical engineering firms is based on a questionnaire addressed to a total of 200 European firms in this sector and on interviews with the management of 35 firms. The questionnaire was directed to both large and small firms that were known to be either already operating in developing countries or, in the light of their production programme, that might be able to supply data of interest. A principal aim was to form an initial picture showing in what developing countries the firms had already taken steps to set up plants, what motives led them to do so, and whether the African States associated with EEC came into consideration of this point. IFO received 37 usable answers, from about 20% of the firms questioned.

The main products of the firms participating in the study are:

- Radio and television sets
- Electronic components
- Measuring and testing appliances
- Telecommunications equipment
- Cables and wires
- Low-voltage switchgears and fittings
- Electric motors
- Car accessories
- Computers
- Electric lights and lamps

Some of the firms are all-purpose suppliers.

Conclusions

The activities in developing countries of the respondent European firms are very broad. Such firms have many manufacturing plants in Argentina, Brazil, Greece, India and Iran. The range of electrical engineering products manufactured there is also extremely comprehensive. For most firms the reason for setting up a plant is that the country in question offers a profitable market for the

range of products contemplated; the primary aim is to substitute domestic production for imports. However, very few of the respondent firms have transferred their production on grounds of cost and capacity with a view to re-exporting the manufactured products for sale in Europe or on the world market. Such redeployment of production with a view to export has taken place only for electronic components, core stores and car accessories. The countries chiefly selected for such manufacture are Malaysia, Portugal and Singapore. It looks as though electrical engineering firms in the United States and in Japan assign greater importance to this motive for investment than those in Europe do.

Most of the respondent firms take the view that countries forming the Associated African and Malagasy States (AASM) are unsuitable for export-oriented manufacturing. One reason is that such firms do not treat this as a primary objective of relocating their production. Another is their feeling that there are more favourable locations for industry both in peripheral areas of Europe and in South-East Asia. With regard to AASM countries the European firms especially questioned:

The skill and efficiency of labour

Cost advantages due to lower wages

The possibility of relying on local supply of material inputs and parts

Security in regard to administrative arrangements and political conditions

Although the interviews primarily sought to answer the question what products might be especially suited for export-oriented manufacture in AASM countries, the companies questioned gave either no reply or a purely negative reply to that question. They based this attitude on the arguments stated above. When it came to discussing actual products they referred to technical problems and general economic conditions.

Not a few firms expressed the view that, if industrialization strategy is obliged to base itself exclusively on export-oriented production, it constitutes an inadequate policy, at least as far as electrical engineering is concerned. In the developing countries where European companies are now pursuing this strategy, an industrial basis already existed when the firms' manufacturing plants were set up. That applies, for example, to their activities in South-East Asia. Without such a basis, in the view of the European firms questioned, the AASM countries offer no industrial locations

attractive to them. The European firms evidently incline in this connection to continue letting the Chinese, Japanese, or United States firms set the pace. It does look as though Japanese and United States firms are more prepared to set up manufacturing plants in AASM countries if that confers advantages in regard to costs.

Thus, it may be concluded that the most important reason for developing an export-oriented electrical engineering industry in Africa is that countries in other low-wage regions already have such an industry. Even where the African States can claim on grounds of factor prices and factor availabilities an advantage as compared with the industrial countries, no such comparative advantage over competing areas of the third world is by any means guaranteed.

Annex

STATISTICAL ANALYSES DESIGNED TO IDENTIFY STRUCTURALLY WEAK
INDUSTRIES IN THE FEDERAL REPUBLIC OF GERMANY

Economic literature has hitherto reported two principal methods of arriving at new findings about structural changes in the economy of the Federal Republic. The most important working hypothesis, adopted by economists of the Institut für Weltwirtschaft at Kiel, has been that advantages of location can be discerned in the direction of trade streams. The IFO Institute, on the other hand, has started its investigations from the assumption that differing growth in the turnover of individual industries may reveal advantages or disadvantages in competition. Both methods have led to largely similar conclusions. Their combination should therefore ideally provide the desired information. The details of the work are described below.

In connection with the analysis of trade streams, it is accepted in principle that an industry, under conditions of free trade, shows an advantage of location if it exports more than it imports. In fact, however, these free-trade conditions are modified by several factors. In the case of the Federal Republic, for example, they were modified in particular by great undervaluation of the currency until the beginning of the 1970s. Until that undervaluation was ended, some industries achieved net exports even though, with more realistic exchange rates, they would have shown net imports. To eliminate the effect of exchange rates, it was therefore deemed correct, other conditions being equal, to consider only deviations from the normal, that is, from the average pattern of industry as a whole. A diagnosis of the conditions for production and sale existing in the Federal Republic since 1962 then served for further rounding off the results obtained.

The matters investigated by the Kiel Institute included the extent of, and changes in, nominal and effective tariff protection and non-tariff trade barriers; structure of and trends in foreign trade, production and domestic demand; and the development of import and producer prices, of per capita productivity, of unit wage costs, of factor absorption, and of the structure of regional and sectoral employment. In every industry the investigation identified those groups of products for which developing countries had during the past already been prominent as suppliers for the Federal Republic market,

or which held out such a prospect for the future. In that connection, special weight was assigned to analysing those groups of products that developing countries have proved able to deliver on competitive terms, but which, up to now, they have been unable to sell in the industrial countries owing largely to the protectionist measures of these countries.

Investigation of growth in turnover of individual industrial sectors between 1965 and 1974 started from the hypothesis that industries growing either slowly or fast were comparatively strong, while industries shrinking either slowly or fast in relative or even absolute terms presented problems that industry in the Federal Republic had to counter. This analysis was carried further by splitting turnover into its two components, domestic sales and exports, and by working out the effect of imports on both. In addition for some 50 manufacturing industries, the investigators carried out detailed structural analyses, with projections up to 1985, of demand at home and abroad, problems of competition and supply (in connection with raw materials, energy and environment) and, in connection with these, relocation of production to foreign countries. The result of these mainly statistical analyses is briefly summarized below.

Problems of competition with developing countries arise especially in labour- and raw-material-intensive industries, whose regional location policy is determined mainly by differences in comparative costs. These industries have felt a definite increase in the pressure of competition from developing countries, especially since 1970, when protection afforded by exchange rates against competing imports was greatly reduced. In 1971, moreover, the EEC tariff preferences came into force for suppliers from developing countries.

The analysis of trade streams coupled with an analysis of production and sales has shown in the Federal Republic an increase in the pressure of third world competition since 1962 for the following industries:

Raw-material-intensive

- Food, beverages and tobacco
- Wood processing
- Leather production
- Non-ferrous metals

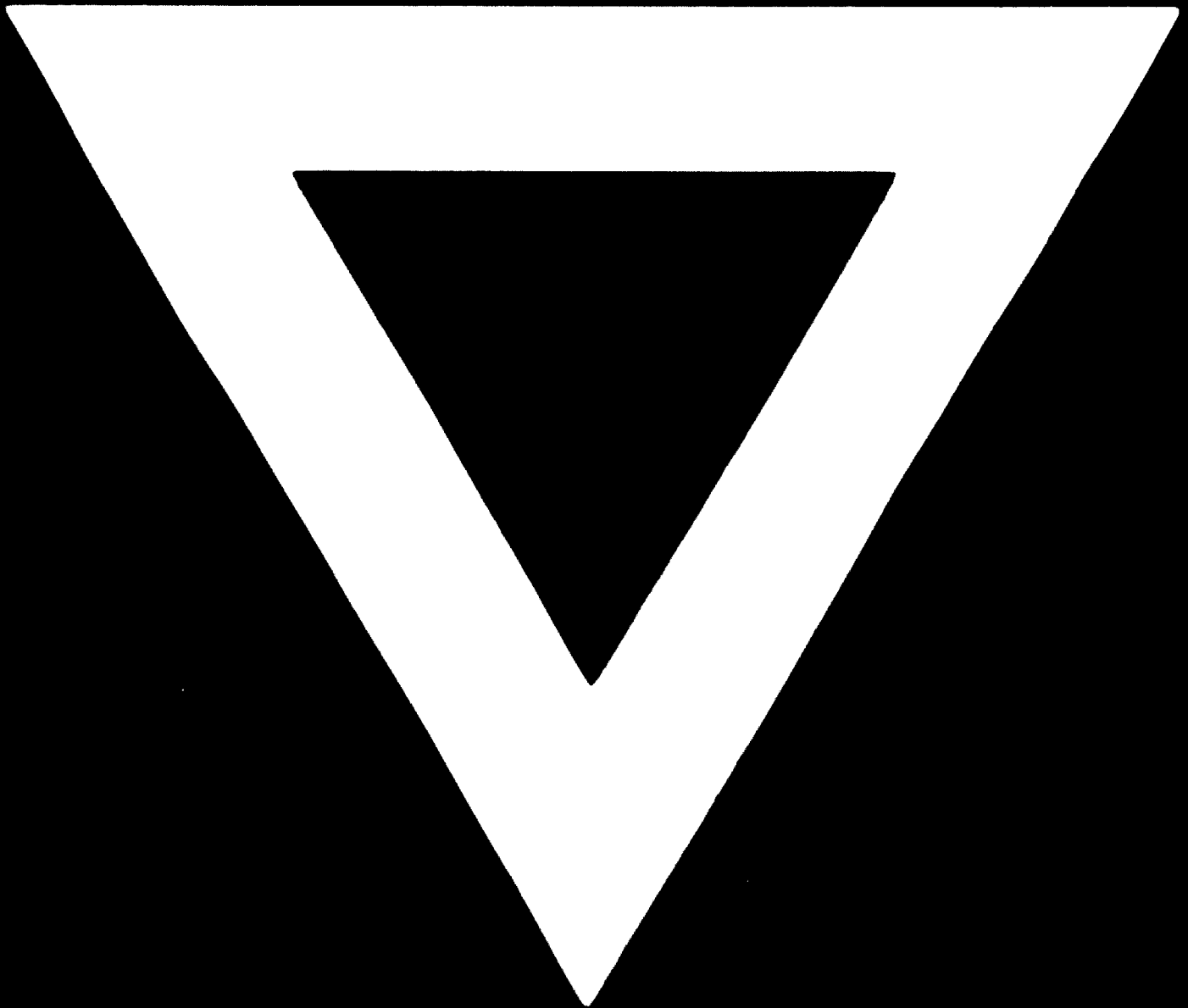
Labour-intensive consumer and capital goods industries

Leather processing
Shoemaking
Textiles and clothing
Musical instruments, sporting goods, jewellery and toys
Precision instruments, optical goods and watches
Office machinery, data-processing appliances
Electrical engineering

Because of import quotas that frequently still exist, third world competition in these branches is often even stronger than is reflected in the shares of markets.

The above-mentioned 11 industrial branches accounted, according to this trade-stream analysis, for almost 90% of the growth in imports of manufactured products from developing countries in the period 1970-1977. These industries are characterized by greater than average dependence on raw materials and/or by a greater than average number of unskilled or semi-skilled workers; by effective tariff protection higher than the average, and in some cases additionally by quantitative import restrictions; by a declining labour force; and by defensive investment (i.e., they have invested in rationalization, substituting capital for labour to meet the competition from low-wage countries). These industries are evidently the first to be affected by the high wage level in the Federal Republic, by tariff preferences and by possible further import liberalization. This delimitation is, of course, only a first rough approximation. The features mentioned do not apply equally to all sections of the industries concerned.

C-8



79.11.13