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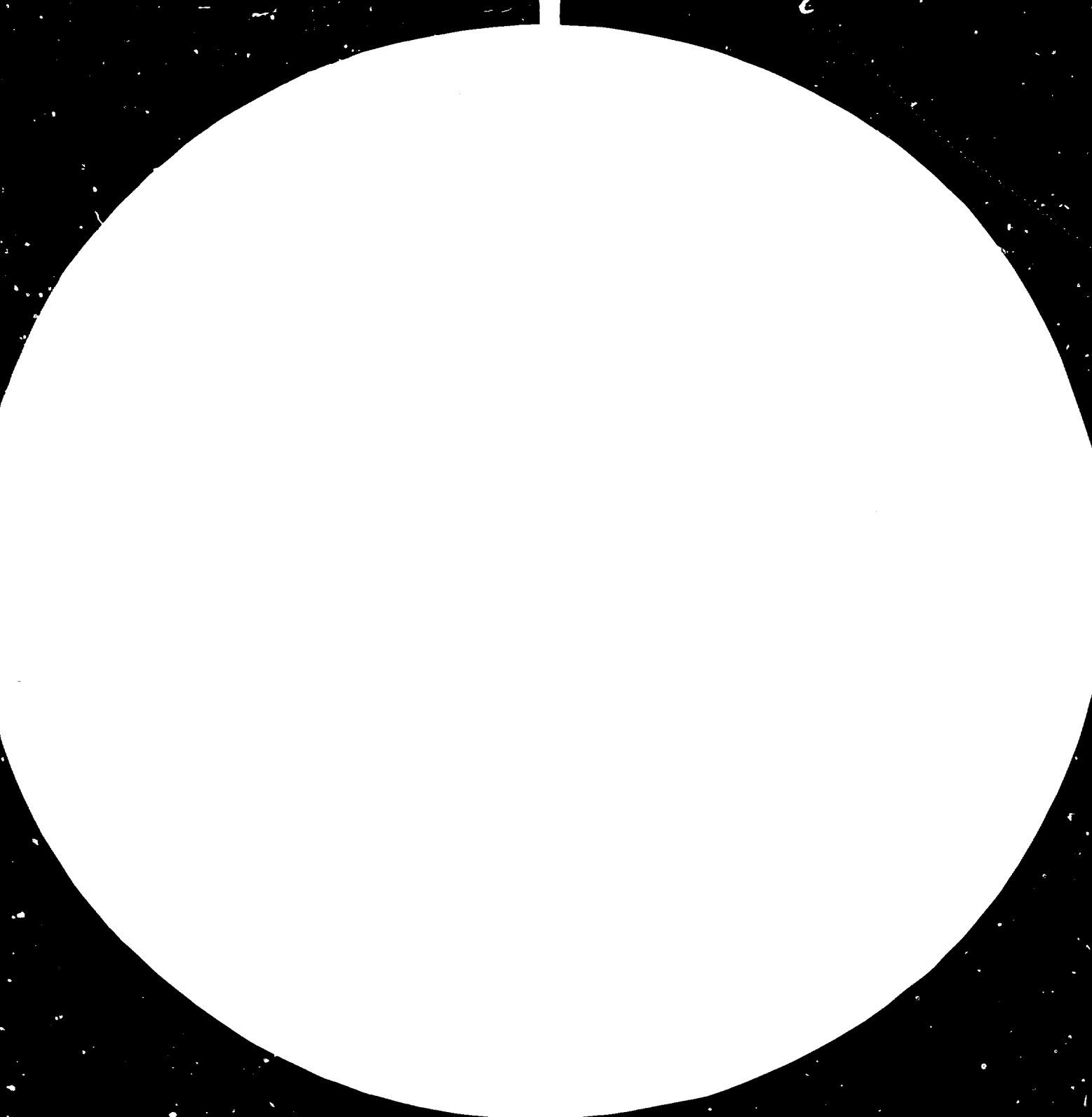
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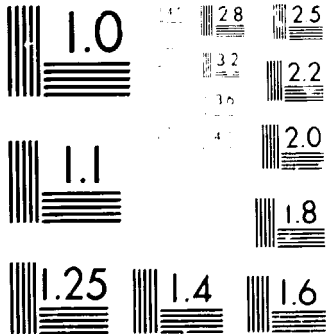
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STRUCTURAL CHANGES IN THE CZECHOSLOVAKIAN INDUSTRY AND
PROSPECTS OF INTERNATIONAL DIVISION OF LABOUR
WITH THE DEVELOPING COUNTRIES *

by

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EXPLANATORY NOTES

A comma (,) is used to distinguish thousands and millions.

A full stop (.) is used to indicate decimals.

Dates divided by a hyphen (1981-1985) indicate the full period involved, including the beginning and end years.

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

The following abbreviations are used in this study:

CSSR The Czechoslovak Socialist Republic

CMEA The Council for Mutual Economic Assistance

OECD Organisation for Economic Co-operation and Development

EEC European Economic Community

References in tables or in the text of the study, e.g. (/28/, p. 28) use standard method; numbers, e.g. /28/ refer to the list of sources.

PREFACE

This study was undertaken in the framework of the research programme of UNIDO on industrial redeployment and structural change.

Basic structural changes of Czechoslovak national economy are characterized through the period of 1945-1980 in the first chapter. The second chapter contains detailed analyses of the development of the structure of Czechoslovak industry and its participation in the international division of labour during the period of the seventies. In the third chapter the development is being analyzed of the position of developing countries in the participation of Czechoslovak national economy in the international division of labour. In the fourth chapter main features of structural changes in Czechoslovak industry, and its influence on division of labour with developing countries, in the period of the eighties are being analyzed.

The study was carried out by Karel Zeman, with assistance from Mojmir Kasalický, Senior Researchers at the Research Institute of Planning and Management of National Economy, Prague, as UNIDO consultants in co-operation with UNIDO Secretariat, following a request by UNIDO to the State Planning Commission CSSR.

Introduction

Background of the study

Within the framework of the research programme of the Global and Conceptual Studies Section of the International Centre for Industrial Studies of the UNIDO studies are being worked on analyzing the process of industrial structure development in developed countries from the standpoint of its past development, basic determinants of structural changes and expected development in future (/72/, p.6).

The basic objective of this research programme consists in identifying the following :

- development trends of industrial structure adaptation in developed countries in the process of economic growth, reflecting changes in internal and external economic conditions;
- influence of this adaptation process on the participation of developed countries in the international division of labour, especially with developing countries.

Basic aim of the study

The primary aim of this study which has been prepared under the mentioned research programme is to present:

- identification of fundamental features of the development of the structure of Czechoslovak national economy during the past thirty-five years (underlining the period of intensive socialist industrialization and the seventies);
- analysis of structural changes in Czechoslovak industry during the seventies and of their impact on the participation in the international division of labour;
- analysis of Czechoslovak national economy's participation in the international division of labour with developing countries;
- identification of basic economic conditions and of development of the structure of Czechoslovak industry in the period of the first half of the eighties and of their impact on the participation by this complex of branches

in the international division of labour, especially with the developing countries.

Structure of the study

In the first introductory chapter of the study (1) four basic stages of development of Czechoslovak national economy are characterized through the period of 1945-1980. Main attention has been concentrated on the period of intensive socialist industrialization (1949 - 1953), when basic structural changes of Czechoslovak industry took place, the consequences of which are reflected in the development of the whole following period. Structural development of Czechoslovak national economy and industry during the period of the seventies is identified against the background of changes in the substitution processes among the basic production factors after 1973.

The second chapter (2) contains detailed analysis of the development of the structure of Czechoslovak industry during the period of the seventies with characteristic features of production structure and basic production factors (employment, investments and fixed assets). The second part of that chapter is dealing with an analysis of Czechoslovak manufacturing industry's participation in the international division of labour from the standpoint of creating its specialization profile. In the conclusion of the chapter there is an analysis of the importing capacity of Czechoslovak industry, especially concerning the production exported by developing countries, and the development of the exporting capacity of this complex of branches that occurred during the seventies.

In the third chapter (3) the development is being analyzed of the position of developing countries in the participation of Czechoslovak national economy in the international division of labour from the point of view of basic territorial and commodity structures of Czechoslovak foreign trade with these countries. Following the results

of analysis in chapter (2) conclusions are made as to the possibilities of further development of economic co-operation of the CSSR with the developing countries.

In the fourth (4) closing chapter basic conditions are being analyzed of the adaptation of the structure of Czechoslovak industry in the first half of the eighties together with basic features of its structural changes and the orientation of structural policy for this period. The impact of the adaptation of the structure of Czechoslovak industry to the conditions of the eighties on its participation in the international division of labour is being analyzed especially from the point of view of its influence on economic co-operation with developing countries in this period.

1. Basic features of structural changes of Czechoslovak national economy in post-war period

For the purpose of identifying the basic features of structural changes in the Czechoslovak national economy within the period of 1945-1980 four main stages of economic development can be distinguished (/5/, p. 466):

- I. Post-war reconstruction and the beginnings of planning (1945-1948)
- II. Building of the foundations of the socialist economic system (1949-1960)
- III. Completion of the socialist economic system (1961-1970)
- IV. Building of the developed socialist society (1971-1980).

Within the course of development at these individual stages there occurred changes in the orientation of the economic and social policies which were reflected in the characteristics and dynamics of the economic growth, in the basic structural proportions of the national economy, as well as in its participation in the international division of labour.

1.1 Structural changes in the period of intensive industrialization

The foundations of the socialist economic system in Czechoslovakia were laid down during the period of 1949-1960. Decisive structural changes occurred in the years of the first five-year plan, i.e. from 1949 to 1953. The most important changes in the socio-economic structure may be characterized as follows (/5/, pp. 469-470):

- the capitalist sector had been removed (with the exception of small remnants in agriculture) and the majority of small crafts had been socialized;

- the first stage had been completed of the collectivization of peasant holdings (in the spring of 1953 the Agricultural Co-operatives together with state agricultural enterprises worked 45 per cent of all agricultural land);
- the management of national economy had been centralized;
- in the process of restructuring the Czechoslovak national economy the role is strengthened of the industry and in its inner structure prominence is given to the heavy manufacturing, especially to engineering; this structural development is reflected also in the structure of Czechoslovak exports where a marked increase of the share of machines and equipment on the cost of consumer goods can be seen;
- the orientation of external economic relations at centrally planned economies is substantially strengthened: in 1953 almost 80 per cent of the turnover of Czechoslovak foreign trade is being realized with those countries;
- the industrialization of Slovakia is proceeding at a rapid pace;
- high dynamics of growth is being attained (the average annual rate of growth in net material product during the years of 1949-1953 are highest in the whole post-war period). 1)

1) Average annual growth rates of net material product ^{a)}
 (at constant prices, percentage)
 (/20/, pp.23, 137; /25/, p.23):

	1949- 1953	1954- 1955	1956- 1960	1961- 1965	1966- 1970	1971- 1975	1976- 1979
Net material product	9.3	6.8	7.0	2.0	6.9	5.7	3.9
of which:							
industry	8.3	6.9	8.9	3.9	6.2	6.1	3.7
construction	17.2	8.3	10.6	1.2	7.2	7.7	1.4
agriculture	5.0	-1.2	-2.2	-5.6	6.2	1.5	-0.8
Social productivity of labour	9.2	4.7	7.1	1.5	5.6	4.6	2.6

a) Net material product in Material Product System (MPS) of CMEA member countries (net production of material sphere: agricultural, industry, construction, transport, trade).

The development of basic macro-structural proportions of Czechoslovak economy is characterized throughout the course of the first five-year plan (see data in Tables A.1 and A.2) by:

- increase in the share of the industry and a marked fall of agriculture's share in the structure of produced net material product and in the structure of overall employment in the national economy
- increase of the share of the heavy manufacturing and falling down of the share of the light manufacturing in the structure of production and employment in industry.

The realization of structural changes in the Czechoslovak national economy during the first five-year plan reflected also in principal changes in the commodity and territorial structure of its participation in the international division of labour. In the commodity structure of Czechoslovak exports there is a rapid increase of the share of machinery and equipment and a substantial lessening of the share of consumer goods (see data in Table A.3). Their share in the structure of Czechoslovak imports in 1953 too, almost doubles the figure for 1949. In the territorial structure of Czechoslovak foreign trade, too, the principal changes are being realized towards orientation at the centrally planned economies, especially at the European CMEA member countries and namely at the USSR (see data in Table A.4). In the course of the first five-year plan it is not only the share of the developed market economies in Czechoslovak foreign trade which is falling, but also that of the developing countries.

The development of Czechoslovak national economy in the years of 1949-1953 was influenced by the culmination of the cold war period and by the consequences of economic discrimination employed by the developed market economies against the centrally planned economies. Similar to other CMEA member countries, the CSSR, too, reacts at this situation by speeding up the dynamics of economic growth,

by stressing the preference of the development of the heavy manufacturing (especially engineering) and by postponing the plans in the sphere of the living standards. Under these conditions the problems of the effectiveness of production recede to the background. In this period, especially, the output of the Czechoslovak industry starts playing an important role in the process of socialist industrialization of the rest of the CMEA member countries.

High maximum rate of growth as well as a number of structural proportions that did not correspond to the economic conditions of a small economically developed country resulted in the appearance of disproportions, especially between the needs of the society and the lagging behind of the agricultural and consumer goods production. The development of the raw material and fuel-energy base began to lag behind the development of the manufacturing industry branches. The unspent buying capacity (because of the advance of population's incomes over the productivity of labour) weakened the material incentives and had negative influence on the stability of the monetary system. To re-establish economic stability a monetary reform was introduced in the middle of 1953.

The development of basic structural proportions of Czechoslovak national economy in the course of the fifties and sixties is characterized by creating a type of structure that corresponds to the achievement of a high degree of economic and industrial development, with high share of the industry in produced net material product and in the structure of basic production factors (in the structure of employment and investments -see data in Table A.2). During this period we can identify direct ties between the development of the share of industry in the sphere of material production and the achieved level of development (characterized by the indicator of economic level: GDP/per capita).

On the assumption (proved by a number of empirical analyses /21/, /22/, /24/) that a structure of the national economy, and especially of the industry, is, in a predominant measure, depending - besides the achieved level of economic and industrial development - also on the endowment of a given economy with the natural conditions we may state that the development of Czechoslovak economy, namely of the industrial structure, took place, up to the beginning of the seventies, under the conditions of relatively cheap sources of raw-materials and energy that were obtained mainly through imports from the USSR.

This situation affected the long - term substitution processes related to the basic factors of economic growth. In this period the criterion function of natural conditions did not create enough pressure to adapt the structure, especially of industry, to the effectiveness in the utilization of internal natural conditions. Moreover, at this time there was not yet fully recognizable the limiting influence of the space aspect of economic growth from the standpoint of the saturation of life environment with the waste "products" of this growth (within the given structure).

1.2 Structural changes in the seventies

In the seventies, a number of phenomena, resulting from profound changes both in internal and, particularly external, economic conditions find expression in the development of basic macrostructural proportions of Czechoslovak national economy. Though the social aims of national economy in Czechoslovakia are based on the yardsticks proper of the socialist socio - economic system, the internationalization of production as an expression of objective economic laws of development of the world eco-

nomy has affected the tendencies in the development of its reproduction process too, due to the changes in external economic conditions after 1973. The consequences of these changed external (as well as internal) economic conditions have been reflected both in the dynamism of economic growth of the national economy as a whole and particularly of individual national economic branches, and in the changing conditions for the substitution of basic production factors.

The gradually decreasing dynamism of growth in the period from 1971 to 1979 (see data in Table A.5), especially in the second half of this period, results not only from the substantial deterioration in the conditions of fulfilling the planned targets of growth of net material product and of its individual branches, but also from a deliberate attempt at the adaptation of both the aggregate and the partial branch strategies of economic growth to the changed external and internal economic conditions (/27/). Especially during the years from 1978 to 1980 the economic policy oriented itself at the adaptation of the dynamism of growth to the requirements of the long - term aims of development of the Czechoslovak national economy under the new economic conditions. The slow - down in the dynamism of growth of produced net material product is a result of an analogous tendency prevailing in the basic branches, i.e. in agriculture, in industry and in construction in the period from 1976 to 1979 (see data in Table A.5).

The technical and economic aspects of the changes in the substitution processes between individual production factors ¹⁾ have been reflected (through their inter-branch relationship) in the development of individual branches of national economy and in the structure of net material product (see data in Table A.6, A.7). The complex

1) Between expenditures on labour, energetic resources, raw materials, fixed assets and processes of absorption of technological progress in the process of production.

process of adaptation to these changed conditions of the structure of produced and distributed net material product is reflected - through its consequences - in the over-all dynamism of economic growth.

The relationship between the dynamism of economic growth and the productivity of labour is one of the decisive relationships in this regard. In the seventies, the dynamism of the social productivity of labour in the CSSR kept up to the trends in the development of net material product (see data in Table A.5).

Along with the said influence of the changes in the substitution of production factors, the main reasons of why the average dynamism of the productivity of labour slowed down include such factors as inadequate dynamism in the introduction of labour-saving production technologies and manufacturing equipment, deficiencies in the organization and management and changes in the structure of national economy.

Though the effects of the above - mentioned deteriorated conditions of growth in the effectiveness of national economy were embodied partly already in the plans of development for the period of 1978-1980, the real conditions proved to be more complex than expected, with the slow - down in the dynamism of national economic development more expressive as a result.

Owing to the development in specific internal and external conditions of national economy in Czechoslovakia (but also as a result of objective tendencies of development connected with the increase in the economic level and the degree of industrialization), in the course of the seventies, the possibilities of affecting profound structural branch changes in the sphere of production were exhausted and the dynamism of structural changes slowed down conspicuously (see data in Table A.8).

The adaptation of the functioning of the reproduction process to its intensification is more difficult under the conditions of a slowed-down dynamism of growth and a slowed-down dynamism of structural changes. Though the growth of net material product in all of its branches was achieved mainly thanks to the increase in the productivity of labour both in the sixties and in the seventies (see data in Table A.9), the results of the analysis show that there are draining possibilities of affecting structural shifts (on the level of six branches of produced net material product) of manpower to the branches with higher productivity of labour (as well as possibilities of changing the structure of produced net material product) to achieve the growth of the over-all productivity of labour (see data in Table A.10).

The above-stated conclusions of the analysis of the influence of changes in the structure of employment and net material product (in the period from 1960 to 1979 - see data in Table A.10) and the conclusions of other analytical studies (/33/) give us the ground to presume that the increase in the productivity of labour in the sphere of material production in the CSSR in the eighties will be the result mostly of the accelerated absorption of scientific and technological achievements in such branches that play a key role in such increase (i.e. in industry), and in other branches which share relatively high in the over-all employment in national economy (in agriculture), or in still other branches where the possibilities of saving manpower are relatively limited (in the branches of productive and non-productive services). This aim is also emphasized in the main directions of economic and social development of the CSSR for the years 1981-1985 (/28/).

One may also presume that the influence of the structural reallocation of manpower inside individual branches of national economy (especially in the branches of manufacturing industry) could be rather noticeable. It is just this direction that calls for the structural policy to be applied in the conditions of the Czechoslovak national economy in the eighties.

In the seventies, the basic structural proportions of industry in Czechoslovakia developed analogously to the development in the preceding period (see data in Table A.11): the share of engineering and chemical industry in the structure of production and employment was increasing steadily, while the share of other branches was either declining or stabilized.

The basic structure of participation of the Czechoslovak national economy in the international division of labour did not change much either. A minor change occurred in the structure of exports where the share of machines and equipment increased slightly (see data in Table A.3).

As a result of the development of prices, the share of raw materials in the structure of Czechoslovak imports has increased (after 1973). As to the territorial structure of foreign trade of Czechoslovakia (see data in Table A.4), the share of the CMEA member states has been increasing after the preceding decline in the years from 1965 to 1973. The share of developing countries continues to decline in the structure of both exports and imports.

In view of a considerable delay in the changes of prices in foreign trade between the CSSR and other CMEA member states in consequence of changes in the prices of raw materials and sources of energy in the world market after 1973, the effects of this development in Czechoslovak economy began to manifest themselves noticeably not earlier than in the second half of the seventies.

It was at this period only that the necessity of a profound adaptation of the structure of Czechoslovak national economy (especially industry) to the changes in internal and, above all, external economic conditions became apparent. Of particular urgency is the necessity of the structural adaptation of Czechoslovak national economy from the standpoint of the development of its effectiveness.

2. Structural changes in Czechoslovak industry in the period of the seventies and their influence on the participation in the international division of labour

Besides the long-term acting factors (i.e. mutual ties between an achieved level of economic and industrial development and the patterns of structural change of production and basic production factors) the development of the structure of Czechoslovak industry was influenced, during the period of the seventies, also by specific conditions of that period. Changes in the conditions of obtaining raw materials and energetic sources on the world markets which took place after 1973, accompanied by ever more limited possibilities of extensive utilization of the basic production factors (especially of manpower) turn the structural policy towards mobilizing qualitative, intensive elements of the development and to domestic raw-material and energy sources.

2.1 Basic tendencies of development of branch structure of the industry

The main determinant of development of the branch structure of Czechoslovak industry (like in other developed countries) is the achieved level of economic and industrial development. In the period of the seventies the long-term tendency continues to act of changes in the shares of basic groups of branches in the industry's structure, namely: the mining branches (or the fuel-energy base), the manufacturing industry and the branches of light and heavy manufacturing industries (see data in Tables A.12, A.13, A.14). The development of the structure of Czechoslovak industry follows similar tendencies as that in other developed countries (/21/; /24/; /53/) which are expressed in the following:

- a fall of the share of the mining industry resulting from the action of a universal tendency to lower the specific consumption of raw-materials, fuels and energy per unit of production (at all levels of the technological process of manufacture and during the utilization of the manufactured goods for the whole period of their expected life). This development of the share of the mining industry was going on also in the period of 1973-1979 (see Table A.13)
- a growth of the share of manufacturing branches accompanied with changes of their basic structural proportions, i.e. with a fall of the share of light manufacturing industry and an increase of the share of heavy manufacturing industry.

Adaptation of the structure of Czechoslovak industry depending on the achieved level of economic development is being reflected in the basic structural proportion of the manufacturing industry, i.e. in the development of the relations of shares of groups of branches of the light and heavy manufacturing industries (see data in Table 1). In analogy with other developed centrally planned and market economies (/21/; /24/), in the CSSR, too, the branches of the heavy manufacturing industry play a dominating role in the process of economic growth and in creating a specialization profile of the Czechoslovak industry.

By the size of the relation of these groups of branches the CSSR stands, however, closer to the developed countries with big sized (big potential) national economy. It may be presumed that a higher share of heavy manufacturing industry in the structure of Czechoslovak manufacturing industry (the same being true in other socialist countries of the CMEA /21/) has been caused not only by the achieved level of economic development but also by specific conditions of the realization of socialist industrialization in the preceding period ¹⁾ and by the role played by Czechoslovak industry in that process in other countries of the CMEA.

1) Of considerable influence was the directive to quicken the industrialization process in the fifties related to lesser possibilities of utilizing the transfer of world technological progress.

Ratio of shares between light and heavy
manufacturing in Czechoslovakia

Indicators	Prices	1970	1973	1975	1978	1979
ISIC branch classification of industry a)						
Gross output	CP	0.54	0.53	0.57	0.49	.
	CNP b)	0.54	0.52	0.50	0.47	.
Value added	CP	0.39	0.39	0.36	0.35e)	.
	CNP b)	0.39	0.37	0.36	0.33e)	.
Investment	CNP c)	0.44	0.40	0.40	0.38e)	.
Employment	-	0.56	0.55	0.54	0.54e)	.
CSSR branch classification of industry a)						
Gross output	CNP d)	0.62	0.58	0.55	0.52	0.51
Sale total	CNP d)	0.60	0.58	0.55	0.51	0.51
Investment	CNP d)	0.41	0.40	0.40	0.36	0.35
Fixed assets	CNP d)	0.34	0.34	0.34	0.35	0.35
Employment	-	0.48	0.47	0.47	0.45	0.45

- a) ISIC: light manufacturing branches: 31-33, 342, 355-356, 39
heavy manufacturing branches: 341, 351-354, 36-38
CSSR: light manufacturing branches: 29, 33-39
heavy manufacturing branches: 23-28, 31, 32

- b) At 1970 prices
c) At 1.1.1967 prices
d) At 31.12.1979 prices
e) 1977

Source: /37/; /38/; /52/; Table A.12, A.13, A.14

2.2 Structural changes and the dynamics of industrial production

The measure of structural changes in output of Czechoslovak industry during the seventies is an outcome result of mutual ties between its overall dynamics and the dynamics of the individual branches. Characteristic feature of its development is a slowing down of its dynamics both in comparison with the period of the sixties (see data in Table A. 15) and in the course of the seventies, namely in the second half of this period (see data in Table 2).

The evolution of growth elasticity indicators ¹⁾ defines the branches of chemicals and engineering industries as those with the highest growth potential, both in the period of the sixties and of the seventies (see data in Tables 2 and A.15). In the course of the seventies, when the average annual growth rate of industrial production falls from 6.2 per cent (in the years 1971-1975) to 4.7 per cent (in the period of 1976-1979) there is a marked increase of the share of branches with high growth elasticity (chemicals, engineering) and a decrease of the share of branches with low growth elasticity (the fuel industry, basic metal industries, the branches of textiles, clothing, leather and footwear, printing and food industries). This development can be identified through classifying the seventeen branches of Czechoslovak industry (see data in Table 2) into groups according to the growth elasticity for the period of 1971-1979 (share in gross output in per cent):

	1970	1979
1. High growth elasticity (1.30 and over)	25.8	30.8
2. Average growth elasticity (1.11-1.29)	10.1	11.5
3. Lower than average growth elasticity (0.90 - 1.10)	11.5	11.5
4. Low growth elasticity (under 0.90)	52.6	46.2

1) The relation of mean annual rate of production growth of individual branches compared to the dynamics of the total industrial production, or, rather, to the dynamics of the manufacturing industry output.

Average annual growth rate and percentage distribution of industrial gross output_{a)} in Czechoslovakia

Table 2

(In percentage)

Branches _{b)}	Average annual growth rate			Ratio of growth rate			Percentage distribution		
	1971-1975	1976-1979	1971-1979	1971-1975	1976-1979	1971-1979	1970	1975	1979
21 - Fuel	3.8	3.6	3.7	0.61	0.77	0.66	9.6	8.5	8.2
22 - Energy	6.1	4.2	5.2	0.98	0.89	0.93	3.6	3.6	3.5
21+22 - Fuel and energy base	4.4	3.8	4.1	0.71	0.81	0.73	13.2	12.1	11.7
23 - Iron and steel	5.4	3.0	4.3	0.87	0.64	0.77	10.6	10.2	9.5
24 - Non-ferrous metal	5.8	3.1	4.6	0.94	0.66	0.82	3.2	3.1	2.9
23+24 - Basic metal industries	5.5	3.0	4.4	0.89	0.64	0.79	13.8	13.3	12.4
25 - Chemicals	9.8	6.1	8.1	1.58	1.30	1.45	7.4	8.7	9.1
26 - Machinery	7.9	7.1	7.5	1.26	1.51	1.34	18.4	19.8	21.7
27 - Electrotechnical industry and metal products	7.6	6.6	7.2	1.23	1.40	1.29	7.5	8.0	8.6
26+27 - Total engineering	7.8	7.0	7.4	1.26	1.49	1.32	25.9	27.8	30.3
28 - Construction materials	6.3	4.3	5.4	1.02	0.91	0.96	3.3	3.3	3.2
29 - Wood and wood processing	7.3	6.4	6.8	1.18	1.36	1.21	2.6	2.7	2.9
31 - Paper	7.1	4.4	5.9	1.15	0.94	1.05	1.9	2.0	2.0
32 - Glass and china	5.7	5.0	6.0	0.92	1.06	1.07	1.4	1.5	1.5
33 - Textiles	5.5	3.3	4.5	0.89	0.70	0.80	6.0	5.7	5.4
34 - Clothing	5.1	4.0	4.6	0.82	0.85	0.82	1.6	1.5	1.4
35 - Leather and footwear	5.5	3.1	4.5	0.89	0.66	0.80	2.6	2.5	2.4
36 - Printing	4.4	4.0	4.2	0.71	0.85	0.75	0.7	0.6	0.6
37+38 - Food	7.8	2.8	3.8	1.26	0.60	0.68	18.3	17.0	15.8
39 - Other	6.3	4.4	5.4	1.02	0.94	0.96	1.3	1.3	1.3
29,33-39 - Light manufacturing	5.1	3.4	4.3	0.82	0.72	0.77	33.1	31.3	29.8
23-28,31,32 - Heavy manufacturing	7.4	5.6	6.6	1.19	1.19	1.18	53.7	56.6	58.5
23-39 - Manufacturing	6.5	4.8	5.8	1.05	1.02	1.04	86.8	87.9	88.3
21-39 - Total industry	6.2	4.7	5.6	1.00	1.00	1.00	100.0	100.0	100.0

a) At constant producer prices 31.12.1979

b) CSSR branch classification of industry

Source: /52/

The development of the position of the fuel and energy base in the structure of production of Czechoslovak industry (see data in Tables 2 and A.13) follows similar development tendencies which are characteristic of the growth of an economic and industrial level reflecting in a fall of its share but, nevertheless, it continues to show higher share of the mining industry (see data in Table A.12) than countries with similar natural and economic conditions (/24/p.27).

This structural proportion of Czechoslovak industry, i.e. the relatively high share of the mining industry (the fuel industry) and a relatively low share of electrical energy production - being a result of a relatively higher specific energy consumption demand of the economic growth (along the whole chain of its use, i.e. also of a higher specific demand by the economic growth on the consumption of metals, especially of steel - /55/) - is resulting in lowering the adaptation flexibility of its structure to changes in internal and external economic conditions.

Characteristic structural proportion of the material base which accompanies the growth of economic and industrial level (that reflects the absorption of scientific and technological progress) consists in the development of the shares of chemicals and basic metal industries in its structure to the advantage of the chemicals. Its development in the CSSR, though following similar development tendencies as is the case with other developed countries, is marked by a definitely dominating position of the basic metal industries - iron and steel (see data in Tables A.13). The constantly high share of iron and steel industry (displaying, nevertheless, a fall of the share in the output of the material base during the seventies) being the result of specific historic and economic condit-

ions¹⁾ is increasing the complexity of needed structural changes in Czechoslovak manufacturing industry.

In the conditions of the CSSR, too, the achieved level of economic and industrial development counts as an important factor for explaining the development of the share of the engineering industry in the structure of Czechoslovak manufacturing industry. But there is also a number of other influences: among the important ones we must mention the degree of this branch participation in the international division of labour and the size (volume) of economy. By the total share of this branch in the structure of manufacturing industry the CSSR ranks among highly developed (big) countries (see data in Table A.13 and in Table A.16). Less favourable are, though, the inner structural proportions of that branch: in the structure of engineering industry is low share of electrotechnical and electronic industries, or rather of the manufacture of electrical machines (group 373 under the ISIC classification) (see data in Table A.13, A.16).

The development of the position of engineering in the structure of Czechoslovak manufacturing industry (as well as of its own inner structure) in the process of economic growth has been influenced by its role in the realization of socialist industrialization in other European member countries of CMEA. The Czechoslovak engineering industry fulfilled a function of a markedly bigger production complex than that corresponding to a real size of Czechoslovak national economy (with a relatively lower level of participation in the international division of labour) which resulted in stressing the extensive elements of this branch development.

1) The quick development of the production base of Czechoslovak engineering in the period of the fifties and sixties under conditions of relatively limited possibilities of using the transfer of world technological progress required an extensive development of iron and steel. Since the middle of the sixties this extension of iron and steel had been stimulated also by its role in participation of Czechoslovak manufacturing industry in the international division of labour.

The development of the position of light manufacturing industry in the structure of production of Czechoslovak manufacturing industry has, in the course of the seventies, followed the usual pattern of ties: with the growth of the economic level their share is falling (see data in Tables A.12, A.13, A.16). Yet, there is also a modifying influence by the impact of a number of specific factors, especially the endowment with natural conditions and the manufacturing tradition. Their influence causes the preservation of a relatively higher share of the wood and wood processing, textile and clothing industries and leather and footwear. The relatively high share of these branches in the structure of Czechoslovak manufacturing industry tends to preserve the reliance of its specialization profile on imports of textile and leather and footwear raw materials and on demand for manpower with lower skills. It may be assumed that the adaptation of the position of light manufacturing industry branches would continue to proceed towards lowering the dependence on raw material imports and to lowering the need in manpower through convenient participation in the international division of labour, especially by developing adequate methods and forms of international specialization and co-operation of production that could lead to the deepening of intra-branch specialization of output in those branches. In this context, substantial potential possibilities exist of developing co-operation with the developing countries.

A characteristic feature of the structural adaptation of Czechoslovak manufacturing industries in the past twenty years is the slowing down of the dynamics of structural changes of the manufacturing industry output (see data in Table A.17). The process of slowing down of the dynamics of structural changes in the production of Czechoslovak industry has continued also through the seventies (see data in Tables A.18, A.19). From the stated facts we may assume that the adaptation of the structure of Czechoslovak in-

industry in the process of economic growth is characterized by similar features as in other developed countries: with the growth of economic and industrial level the dynamics of structural changes slows down (/29/; /53/, p. 125).

Like in those countries, in the structure of Czechoslovak industry's production, too, the share is constantly lowering of branches in which the CSSR (as a country with a high level of economic development) permanently loses its comparative relative advantage, i.e. the share of branches demanding lower-skilled manpower (the branches of textile, clothing and leather and footwear industries), while the share is growing of branches with objective conditions for re-acquiring of this advantage, i.e. the share of branches demanding skills and scientific and technological progress (the branches of electrical machines, chemical industry) (see also data in Table A.20). The implementation of a structural policy under these conditions (i.e. with a lowering pace of structural changes) is becoming more complex, especially in view of the growing need in intensifying the reproduction process in Czechoslovak industry.

2.3 The structure of employment, investments and fixed assets in Czechoslovak industry

In the development of the structure of employment in Czechoslovak industry there are, in the period of the seventies, similar tendencies going on as in the sixties (see data in Tables A.14, A.21 and 2). The decisive group of branches displaying a fall of the share is formed by the branches of light manufacturing industry (especially by branches of textile, clothing and food industries). In absolute figures though it is only the textile industry that registers a fall in the number of persons employed during 1970-1979 (3.5 thousand persons) accompanied with the clothing industry (a fall of 6.6 thousand persons).

The absolute increase of employment (135.6 thousand persons) during that period was mainly covered by manpower from other branches of the national economy. Five branches shared decisively in this absolute increase (92.9 per cent of the total): engineering (39.9 per cent), construction materials (18.8 per cent), electrotechnical and metal products (16.6 per cent), chemicals and rubber-asbestos industry (10.0 per cent), and energy (7.6 per cent).

In view of the exhausted possibilities of absolute growth of employment in the Czechoslovak industry in the period of the eighties - through transfer from other branches of Czechoslovak national economy - the main source of manpower should consist in structural transfers among individual branches of the industry resulting from an increase in the productivity of labour. Comparison of the latter level by individual branches reveals that the branches of light manufacturing industries continue to represent a considerable potential reserve for additional manpower (see data in Tables A.22, A.23).

Yet an analysis of the share of changes in the structure of production and employment in the increment of labour productivity reveals that both in the period of the sixties and of the seventies the possibilities are gradually being exhausted of structural shifts of production and employment in favour of stimulating the growth of labour productivity in the Czechoslovak industry (see data in Tables A.24, A.25). This conclusion provides new conditions for the realization of structural policy through its orientation at the speeding-up of the absorption of scientific and technological progress in the individual branches and at a much more substantial utilization of the possibilities of the international division of labour. In this sphere (particularly in textile, clothing and leather and footwear industries) a potential room is being created for the development of international division of labour with the developing countries.

Average annual growth rate and percentage distribution of industrial employment^{a)} in Czechoslovakia

Table J

(In percentage)

Branches ^{b)}	Average annual growth rate			Ratio of growth rate			Percentage distribution		
	1971-1975	1976-1979	1971-1979	1971-1975	1976-1979	1971-1979	1970	1975	1979
21 - Fuel	-0.1	1.0	0.4	-0.17	1.43	0.67	7.1	6.9	7.0
22 - Energy	2.0	2.7	2.3	3.33	3.86	3.83	1.9	2.0	2.2
21+22 - Fuel and energy base	0.4	1.4	0.9	0.67	2.00	1.50	9.0	8.9	9.2
23 - Iron and steel	0.2	0.5	0.3	0.33	0.71	0.50	6.9	6.7	6.7
24 - Non-ferrous metal	2.0	1.1	1.6	3.33	1.57	2.67	1.5	1.7	1.7
23+24 - Basic metal industries	0.6	0.6	0.6	1.00	0.86	1.00	8.4	8.4	8.4
25 - Chemicals	1.7	0.6	1.2	2.83	0.86	2.00	5.1	5.4	5.4
26 - Machinery	0.6	1.3	0.9	1.00	1.86	1.50	28.2	28.2	28.9
27 - Electrotechnical industry and metal products	0.9	1.0	0.9	1.50	1.43	1.50	10.8	11.0	11.1
26+27 - Total engineering	0.7	1.2	0.9	1.17	1.71	1.50	39.0	39.2	40.0
28 - Construction materials	0.3	0.3	0.3	0.50	0.43	0.50	4.2	4.2	4.1
29 - Wood and wood processing	1.1	1.0	1.0	1.83	1.43	1.67	3.7	3.8	3.8
31 - Paper	1.1	0.8	1.0	1.83	1.14	1.67	1.7	1.7	1.7
32 - Glass and china	0.8	0.0	0.5	1.33	0.00	0.83	3.2	3.2	3.1
33 - Textiles	-0.1	-0.4	-0.2	-0.17	-0.57	-0.33	8.9	8.6	8.3
34 - Clothing	-1.1	-1.2	-1.1	-1.83	-1.71	-1.83	2.9	2.7	2.5
35 - Leather and footwear	1.2	-0.3	0.5	2.00	-0.43	0.83	3.3	3.4	3.3
36 - Printing	0.4	0.0	0.3	0.67	0.00	0.50	1.0	1.0	0.9
37+38 - Food	0.5	0.0	0.3	0.83	0.00	0.50	8.5	8.5	8.3
39 - Other	0.1	0.2	0.1	0.17	0.29	0.17	1.1	1.0	1.0
29,33-39 - Light manufacturing	0.3	-0.1	0.1	0.50	-0.14	0.17	29.4	29.0	28.1
23-28,31,32 - Heavy manufacturing	0.7	0.9	0.8	1.17	1.29	1.33	61.6	62.1	62.7
23-39 - Manufacturing	1.5	-0.5	0.6	2.50	-0.72	1.00	91.0	91.1	90.8
21-39 - Total industry	0.6	0.7	0.6	1.00	1.00	1.00	100.0	100.0	100.0

a) Total employment

b) CSSR branch classification of industry

Source: /52/

The dynamics of changes in the branch structure of investments spent in Czechoslovak industry in the second half of the seventies is falling to less than a half of the period of 1970-1975. In the average annual rate of growth one may note a slowing down of their dynamics specially in the branches of the fuel and energy base and in the branches of light manufacturing industry as a whole (resulting from the slowing down of the investments' dynamics in the branches of the food industry) (see data in Table 4).

The dynamics of investments spent in the branches of heavy manufacturing industry in the period of 1976-1979 compared to the preceding five-year period is increasing due to preserving the very high dynamics of investments in the iron and steel, and quickening of its pace in the chemicals (against an absolute decrease during the previous five years). The marked quickening of the dynamics of investments spent in iron and steel, chemicals, paper and the clothing (including the glass and china industry and the textile industry) reflects the objectives of structural policy during the period of modernization of the production base and creation of conditions for the utilization of domestic raw-material.

The dominating position is occupied by three groups of branches (which comprise about 65 per cent of investments spent in Czechoslovak industry during the final years of the seventies): the fuel and energy base (27.8 per cent), iron and steel (11.1 per cent), total engineering (24.0 per cent).

The high polarity of the structure of investments spent in Czechoslovak industry, being determined by the already existing macrostructural proportions of its production (by them the CSCR is closer to big developed

Average annual growth rate and percentage distribution of industrial investment^{a)} in Czechoslovakia

Table 4

(In percentage)

Branches ^{b)}	Average annual growth rate			Ratios of growth rate			Percentage distribution		
	1971-1975	1976-1979	1971-1979	1971-1975	1976-1979	1971-1979	1970	1975	1979
21 - Fuel	10.0	5.5	8.0	1.59	1.17	1.45	12.2	14.5	15.1
22 - Energy	13.7	3.0	8.8	2.17	0.64	1.60	9.6	13.5	12.7
21+22 - Fuel and energy base	11.8	4.3	8.4	1.87	0.91	1.53	21.8	28.0	27.8
23 - Iron and steel	10.2	11.6	10.8	1.62	2.47	1.96	7.2	8.6	11.1
24 - Non-ferrous metal	-11.0	6.3	-3.5	-1.75	1.34	-0.64	2.7	1.1	1.2
23+24 - Basic metal industries	6.0	11.0	8.2	0.95	2.34	1.49	9.9	9.7	12.3
25 - Chemicals	-3.5	5.0	0.2	-0.56	1.06	0.04	10.9	6.7	6.8
26 - Machinery	10.5	5.5	8.2	1.67	1.17	1.49	14.3	17.4	18.0
27 - Electrotechnical industry and metal products	7.6	4.2	6.1	1.21	0.89	1.11	5.8	6.1	5.0
26+27 - Total engineering	9.7	5.1	7.6	1.54	1.09	1.38	20.1	23.5	24.0
28 - Construction materials	5.0	-6.0	0.0	0.79	-1.28	0.00	7.8	7.3	4.8
29 - Wood and wood processing	9.1	0.1	5.0	1.44	0.02	0.91	3.0	3.4	2.9
31 - Paper	-4.0	16.9	4.7	-0.63	3.60	0.85	4.4	2.6	4.1
32 - Glass and china	-2.2	5.4	1.1	-0.35	1.15	0.20	2.4	1.6	1.6
33 - Textiles	-2.9	3.9	0.1	-0.46	0.83	0.02	7.7	4.9	4.8
34 - Clothing	4.5	12.4	7.9	0.71	2.64	1.44	0.5	0.4	0.6
35 - Leather and footwear	14.2	-3.4	6.0	2.25	-0.72	1.09	1.0	1.5	1.1
36 - Printing	0.6	-6.6	-2.7	0.10	-1.40	-0.49	1.1	0.9	0.5
37+38 - Food	7.5	2.1	5.1	1.19	0.45	0.93	8.4	8.9	8.1
39 - Other	4.9	5.2	-0.6	0.78	1.11	-0.11	1.0	0.6	0.6
29,33-39 - Light manufacturing	4.1	1.9	3.1	0.65	0.40	0.56	22.7	20.6	18.6
23-28,31,32 - Heavy manufacturing	4.7	5.7	5.2	0.75	1.21	0.95	55.5	51.4	53.6
23-39 - Manufacturing	4.5	1.3	4.6	0.71	0.28	0.84	78.2	72.0	72.2
21-39 - Total industry	6.3	4.7	5.5	1.00	1.00	1.00	100.0	100.0	100.0

a) At constant producer prices 31.12.1979

b) CSSR branch classification of industry

Source: /52/

countries), increases the complexity of the adaptation of the growth of Czechoslovak industry to the conditions of the eighties when a substantial slowing down is expected of the dynamics of investment spending.

The dominating position in the structure of fixed assets in Czechoslovak industry in the period of the seventies continues to be occupied by the branches of the fuel and energy base (26.5 per cent), iron and steel (11.0 per cent), total engineering (23.0 per cent), and from other branches by the chemicals (8.6 per cent) and the food industry (8.1 per cent) (see data in Table 5). Relations of the dynamics of development of fixed assets in the individual branches of Czechoslovak industry during this period reveal that their structure has been reproduced with the dominating position of heavy manufacturing industry and the fuel and energy base. The branches of light manufacturing industry registered only an insignificant increase of the share. Positively must be appraised the tendency to utilizing the domestic raw-material base which is being reflected in the increase of the share in the structure of industrial fixed assets of the branches of wood and wood processing (i.e. increase of the share of branches 29 + 31 + 36 from 4.6 per cent in 1970 to 5.7 per cent in 1979).

2.4 Development of techno-economic level of Czechoslovak industry

The measure and intensity of the absorption by national economy of the scientific and technological progress and of its impact on the dynamics of economic growth are influenced by a wide array of factors creating the "innovative climate" for its application. One of the important factors for creating that climate consists in the structure of industry. In the structure of Czechoslovak

Average annual growth rate and percentage distributin of industrial fixed assets_{a)} in Czechoslovakia

Table 5

(in percentage)

Branches _{b)}	Average annual growth rate			Ratios of growth rate			Percentage distribution		
	1971-	1976-	1971-	1971-	1976-	1971-	1970	1975	1979
	1975	1979	1979	1975	1979	1979			
21 - Fuel	5.5	7.1	6.2	0.79	1.03	0.89	14.3	13.3	13.4
22 - Energy	6.8	8.5	7.6	0.97	1.23	1.09	12.5	12.4	13.1
21+22 - Fuel and energy base	6.2	7.8	6.9	0.89	1.13	0.99	26.8	25.7	26.5
23 - Iron and steel	3.9	5.0	4.4	0.56	0.72	0.63	13.8	11.8	11.0
24 - Non-ferrous metal	7.1	4.2	5.8	1.01	0.61	0.83	2.1	2.1	1.9
23+24 - Basic metal industries	4.3	4.9	4.5	0.61	0.71	0.64	15.9	13.9	12.9
25 - Chemicals	9.4	5.7	7.7	1.34	0.83	1.10	8.1	9.0	8.6
26 - Machinery	7.2	7.6	7.4	1.03	1.10	1.06	16.6	16.7	17.2
27 - Electrotechnical industry and metal products	8.7	8.5	8.6	1.24	1.23	1.23	5.1	5.5	5.8
26+27 - Total engineering	7.5	7.8	7.7	1.07	1.13	1.10	21.7	22.2	23.0
28 - Construction materials	9.2	6.7	8.0	1.31	0.97	1.14	5.1	5.5	5.6
29 - Wood and wood processing	10.5	10.6	10.5	1.50	1.54	1.50	1.7	2.1	2.3
31 - Paper	11.0	6.1	8.8	1.57	0.88	1.26	2.2	2.7	2.6
32 - Glass and china	7.7	6.1	7.0	1.10	0.88	1.00	1.8	1.8	1.8
33 - Textiles	7.7	5.4	6.6	1.10	0.78	0.94	5.6	5.8	5.5
34 - Clothing	8.3	7.5	7.9	1.19	1.09	1.13	0.4	0.5	0.5
35 - Leather and footwear	8.4	7.2	7.9	1.20	1.04	1.13	1.2	1.2	1.2
36 - Printing	8.0	8.1	8.0	1.14	1.17	1.14	0.7	0.7	0.8
37+38 - Food	6.7	6.8	6.7	0.96	0.99	0.96	8.3	8.1	8.1
39 - Other	9.2	7.5	8.4	1.31	1.09	1.20	0.5	0.6	0.6
29,33-39 - Light manufacturing	7.6	6.9	7.4	1.09	1.00	1.06	13.4	19.0	19.0
23-28,31,32 - Heavy manufacturing	7.3	6.5	6.9	1.04	0.94	0.99	54.8	55.3	54.5
23-39 - Manufacturing	7.3	6.6	7.0	1.04	0.96	1.00	73.2	74.3	73.5
21-39 - Total industry	7.0	6.9	7.0	1.00	1.00	1.00	100.0	100.0	100.0

a) At constant producer prices 31.12.1979

b) CSSR branch classification of industry

Source: /52/

manufacturing industry a share is continually growing of the branches with high skills and science and research intensity (see data in Table A.20). Due to a number of objective and subjective causes, however, the process of Czechoslovak industry's structural adaptation does not evolve at a needed pace with regard to the creation of advantageous "innovative climate". Considerable potential reserves exist not only in mobilizing the inner sources of scientific and technological progress but also in utilizing scientific and technological co-operation by means of engaging the Czechoslovak industry into the international division of labour.

The capacity of the scientific and research base (SRB) of Czechoslovak industry has considerably increased in the course of the seventies. The number of employees working on research and development (ERD) in this base has reached about 111,000 persons (/52/, p.12). During the years of 1965 - 1980 their numbers have increased at an ever accelerating growth rate. Average annual rate of growth of the number of workers of that base increased from 0.5 per cent in the period of 1966-1970 to 1.5 per cent in the years of 1971-1975 and to 2.9 per cent in 1976-1980. The majority of branches have preserved high levels of research intensity (ERD/1000 employees) (see data in Table 6). Characteristic of the branch structure of the ERD is its high level of concentration (analogous to other developed countries (/21/, p.65). The decisive share in the branch structure of the SRB workers of Czechoslovak industry falls on the engineering and electro-technical industry (in 1979 about 68 per cent - see data in Table 21). The dynamic growth of the number of workers with college and university education (see data in Table A.26) is a positive feature of the development of the SRB in the branches of Czechoslovak industry.

Table 6

Research intensity^{a)} in Czechoslovak industry

Branches b)	Research intensity						Branch structure of ERD			Annual changes in percentage			
	ERD/1000 E			Relative ERD/1000 E			1971	1975	1979	1972-1975	1976-1979	Ratio	
	Number			Total industry =100								Percentage	
21 - Fuel	16.0	17.9	20.1	43	45	45	3.1	3.2	3.2	2.5	3.6	1.09	1.89
22 - Energy	4.6	4.3	18.3	12	11	41	0.2	0.2	0.9	0.9	47.0	0.39	24.74
23 - Iron and steel	17.2	19.5	21.3	46	49	48	0.6	0.7	1.8	3.6	2.6	1.57	1.37
24 - Non-ferrous metal	35.4	34.3	32.8	95	86	74	1.5	1.5	1.6	1.2	-5.6	0.52	-2.95
25 - Chemicals	61.4	61.5	70.7	165	155	160	9.3	8.9	9.2	1.4	4.0	0.61	2.11
26+27- Total engineering	61.0	64.7	68.4	164	163	155	69.7	70.1	67.9	2.4	2.5	1.04	1.32
28 - Construction materials	5.2	6.9	19.1	14	17	43	3.2	3.3	3.2	7.5	29.5	3.26	15.53
29 - Wood and wood processing	10.8	11.2	13.2	29	28	30	1.9	1.8	1.2	1.9	4.4	0.83	2.32
31 - Paper	10.8	11.9	17.0	29	30	39	0.5	0.6	0.7	4.3	9.7	1.87	5.11
32 - Glass and china	25.5	24.9	23.6	69	63	53	2.3	2.1	1.7	0.0	-1.5	0.0	-0.79
33 - Textiles	9.8	11.4	13.3	26	29	30	2.5	2.7	2.7	3.9	3.4	1.70	1.79
34 - Clothing	3.2	3.1	3.2	9	8	7	0.4	0.3	0.3	-2.0	0.2	-0.87	0.11
35 - Leather and footwear	11.3	12.8	14.6	30	32	33	1.3	1.4	1.4	3.9	3.0	1.70	1.58
36 - Printing	3.2	3.7	5.2	9	9	12	0.1	0.1	0.1	3.7	11.3	1.61	5.95
37+38- Food	8.3	8.4	11.0	22	21	25	1.9	1.8	2.1	0.6	7.7	0.26	4.05
39 - Other	30.2	29.3	50.8	81	74	115	1.5	1.3	2.0	-1.2	15.7	-0.52	8.26
21-39- Total industry	37.2	39.7	44.1	100	100	100	100.0	100.0	100.0	2.3	1.9	1.00	1.00

a) Employees working on research and development (ERD) per 1000 employees (E)

b) CSSR branch classification of industry

Source: /52/; /58/, pp. 17-24

The increase of the absorption of the scientific and technological progress in the production process and the techno-economic level of production in the industry are influenced not only by the growth of research intensity (ERD/LOCO employees), by their qualifications and by the results of their research being applied in the production process but also by the scientific and technological progress embodied in production fixed assets. A very dynamic process of equipping the manpower with fixed assets was under way in the seventies (see data in Table A.27). Positively can be evaluated the development feature consisting in the fact that an advantage has been established in the equipment of workers of individual branches with active part of fixed assets, i.e. with tools and machinery (relation of the average annual growth rate of machinery fixed assets per worker to the dynamics of total fixed assets per worker in Czechoslovak industry reached 1.48 in the years 1971-1979 and it continued to keep at a high level both in the first and in the second half of the seventies: it reached 1.52 in the years 1971-1975 and 1.42 in 1976-1979 - see data in Table A.27).

2.5 The degree of specialization in participation of Czechoslovak industry in the international division of labour

Within the framework of the Czechoslovak national economy the effectiveness of the adaptation of its structure to the changes in domestic and external economic conditions in the process of economic growth is affected, in a decisive measure, by the course of its participation in the international division of labour, particularly by the degree of specialization of this participation.

Table 7

Basic structural pattern of Czechoslovak foreign trade

(Percentage)

Groups of branches ^{b)}	Centrally planned economies			Market economies			Total		
	1965	1970	1979	1965	1970	1979	1965	1970	1979
	EXPORTS a)								
Light manufacturing	15.6	15.3	14.5	34.8	26.7	30.8	22.1	18.6	18.9
Heavy manufacturing	84.4	84.7	85.5	65.2	73.3	69.2	77.9	81.4	81.1
Material base	22.8	20.7	20.5	30.5	37.7	37.9	23.0	25.6	25.2
Chemicals	9.5	9.6	10.2	10.8	12.0	19.3	10.6	10.3	12.6
Basic metals	12.0	8.9	8.2	12.2	19.8	14.2	9.6	12.0	9.8
Metal products	61.6	63.9	65.0	34.7	35.6	31.3	54.9	55.9	55.9
	IMPORTS a)								
Light manufacturing	22.0	23.0	14.2	39.2	32.7	28.8	26.3	26.1	18.7
Heavy manufacturing	78.0	77.0	85.8	60.8	67.3	71.2	73.7	73.9	81.3
Material base	30.6	28.8	24.2	33.7	28.7	34.3	31.3	28.7	27.4
Chemicals	13.0	14.3	13.4	24.6	23.9	26.4	15.9	17.4	17.5
Basic metals	16.8	12.5	9.9	12.9	6.3	9.4	15.8	10.5	9.7
Metal products	47.4	48.2	61.6	27.1	38.7	36.8	42.4	45.1	53.9

a) At current prices

b) Including groups of ISIC as in Table 9, 12

Source: /40/; Table B.2

If we proceed from the assumption that the increasing level of economic development is usually accompanied by the increasing skill of labour, by the absorption of scientific and technological progress and by the growing accumulation of the fixed assets (the equipment of labour with fixed assets increasing permanently), then the development in the adaptation to the changes in economic conditions of the specialization profile of the participation of Czechoslovak manufacturing industry in the international division of labour is, more or less, in correspondence with the above mentioned scheme of relationships (see data in Tables 7 and A. 28, A. 29). In the structure of manufacturing exports and imports in the two basic markets there

- decreases the share of those branches in the light manufacturing industry which are characterized by a relatively stable and universally available technology and by relatively high demands on the number of employees (and the import of raw materials);
- increases the share of those branches in the heavy manufacturing industry which put high demands on the skills of labour, on the capacity of scientific and research base and on the absorption of scientific and technological progress. The effective development of production in these branches and their participation in the international division of labour are affected by the conditions of the optimization of the volume of production.

The said conclusion is also substantiated by the development in the structure of Czechoslovak exports and imports according to basic factor intensities (see data in Tables 8 and A.30, A.31). There changes their structure (with growing economic level) from the production with high demands on the employment of labour to the production putting high demands on the skills of labour and fixed assets, i.e. on technological progress embodied in fixed assets, in production technology and in skilled manpower (see data in Table 8).

Commodity composition by factor intensity of manufacturing
trade^{a)} in Czechoslovakia

(Percentage)

		Exports b)				Imports b)			
		H1	Hk	L1	Lk	H1	Hk	L1	Lk
Centrally planned economies	1965-1967	49.6	5.0	12.1	33.3	44.7	6.7	19.5	29.1
	1973-1975	53.7	4.9	11.9	28.4	38.8	10.2	19.3	31.7
	1976-1978	56.0	5.3	10.9	27.8	68.0	6.7	3.7	21.6
Market economies	1965-1967	44.7	6.7	19.5	29.1	50.7	27.1	7.5	14.7
	1973-1975	38.8	10.2	19.3	31.7	55.0	29.4	8.4	7.2
	1976-1978	45.2	9.4	18.4	27.0	60.7	25.8	6.6	6.9
Total	1965-1967	48.5	5.4	13.7	32.4	59.7	11.4	5.5	25.2
	1973-1975	50.3	6.2	13.8	29.7	62.3	13.8	6.4	17.5
	1976-1978	53.7	6.2	12.5	27.6	65.9	12.4	4.5	17.2

a) H1 - high skill labour intensive industries; Hk - high skill capital intensive industries; L1 - low skill labour intensive industries; Lk - low skill capital intensive industries

b) At current prices in SITC

Source: /40/; /49/; /50/, p.317; /51/, p.143

The creation of conditions for intra - branch specialization is an important element of the adaptation of structure of the Czechoslovak foreign trade in the process of economic growth. The development of indices related to the intra - branch specialization of the Czechoslovak foreign trade (see data in Table 9) indicated the existence of similar tendency as one may find in other developed countries (/60/).

This positive feature of development in the structure of participation in the international division of labour creates favourable potential conditions for the accelerated adaptation of the structure of the Czechoslovak industry and national economy to the changes in economic conditions.

Intra - industry trade of Czechoslovakia

Period	R a)			R b)			
	Centrally planned economies	Market econo- mies	Total	Centrally planned economies	Market econo- mies	Total	
Foreign trade total	1966-1970f)	50.7	39.1	54.3	51.7	40.0	55.0
	1971-1975f)	54.7	40.9	59.3	56.0	43.7	58.7
	1976-1979f)	58.9	42.4	61.1	59.7	47.4	61.9
Manufacturing foreign trade c)e)	1965	77.0	62.4	76.3	86.0	69.8	85.2
	1970	72.8	67.4	74.6	84.4	71.2	84.1
	1979	81.6	71.6	80.7	93.7	74.1	89.8

a) Not adjusted for balance

b) Adjusted for balance

c) At current prices

d) The level of disaggregation: 176 3-digit groups SITC

e) The level of disaggregation: 19 3-digit groups ISIC

f) Unweighted average

Sources: /40/; /41/; Table B.2, B.1

The European CMEA member countries have a decisive place in developing Czechoslovak industry's participation in branch specialization (/61/; /62/; /63/). The main source of the growth of the turnover of the exchange of goods between the CSSR and these countries (which reached 13.3 billion Roubles in 1980 and grew by 65 per cent in comparison with 1975 - in current prices) lies in developing bilateral and multilateral co-operation. The main item of the turnover growth is the exchange of engineering products as an expression of deepening specialization and co-operation of production. In 1980 engineering products shared, on the basis of concluded specialization and co-operation agreements, in the CSSR exports to the CMEA countries by more than 30 per cent (/61/, p. 5). By January 1, 1980 the CSSR had concluded 271 contracts on international specialization and co-operation of production (ISCP) with other European CMEA member countries (/64/, p.150). During the period of 1973-1979 the share

had grown of specialized production in the total exports of machines and equipment from the CSSR to other CMEA countries from 11.4 per cent to 29.1 per cent with the CSSR's share in the total volume of specialized exports of machinery and equipment production of the CMEA member countries increasing from 10.7 per cent to 13.4 per cent (/64/, p. 152-153).

2.6 Import capability of Czechoslovak industry especially for developing countries products

In the 1960-1978 period in the CSSR the share of imports has increased from 12.4 per cent to 28.4 per cent in covering the domestic demand (apparent consumption) of goods and services ¹⁾ (at current prices - /67/, p.1207) and in the domestic demand of the manufacturing industry's production in 1970 - 1978 it keeps around 16 per cent (see data in Table 10).

From the mentioned data (/67/) it becomes clear that the import capacity (capability) of Czechoslovak national economy has constantly increased in the last period and that it has kept at a relatively high level as far as the manufacturing industry is concerned. The increase of the share of imports in total resources and in total domestic demand of manufacturing industry's production has been stimulated by the intrabranh trade (see data in Table 9) and there has been a constantly increasing influence on the growing share of imports in covering the total domestic demand (apparent consumption) which has been exerted by Czechoslovak manufacturing industry's growing participation in socialist economic integration. The influence of specific factors during the period following 1973 (in connection with the course of Czechoslovak national

1) Domestic demand (DD) = gross domestic product (GDP) - exports (E) + imports (M) of goods and services; calculated in SNA system.

Table 10

Degrees of manufacturing exports and imports dependence^{a)} in Czechoslovakia

(Percentage)

Branches b)	Exports as percentage of gross output				Imports as percentage of gross output				Imports as percentage of apparent consumption			
	1970	1973	1975	1978	1970	1973	1975	1978	1970	1973	1975	1978
1. Food and drink	6.0	5.5	5.5	6.7	14.0	9.6	6.5	9.7	13.0	9.2	6.5	9.4
2. Tobacco	2.2	3.9	0.7	5.7	122.0	92.7	59.0	89.7	55.5	49.1	37.3	48.8
3. Textiles	18.6	21.2	20.2	21.6	32.0	28.6	26.9	23.3	28.2	26.7	25.2	22.9
4. Clothing and footwear	28.0	34.7	41.5	39.8	9.7	9.7	10.7	9.4	11.9	12.9	15.5	13.5
5. Leather	10.4	3.5	3.2	4.4	20.8	7.3	20.6	23.5	18.8	7.1	17.5	19.7
6. Wood	20.3	22.1	21.5	25.0	14.7	9.7	12.4	8.7	15.6	11.1	13.7	10.4
7. Paper	12.3	12.6	10.8	12.4	15.3	15.6	16.7	15.0	15.6	15.2	15.8	14.6
8. Printing	5.8	8.0	6.4	5.6	7.4	5.9	5.3	4.4	7.3	6.0	5.4	4.4
9. Chemicals	8.9	8.5	7.2	9.6	15.0	12.0	11.3	12.6	14.1	11.6	10.9	12.2
10. Petroleum and coal products	14.0	12.9	16.8	11.5	11.9	9.8	12.3	9.9	12.1	10.1	12.9	10.0
11. Rubber	21.0	21.5	23.1	22.7	27.3	32.0	35.3	40.4	25.7	28.9	31.5	34.3
12. Non-metallic minerals	14.7	15.7	14.0	14.9	3.9	4.4	4.0	4.4	4.4	4.9	4.5	4.9
13. Basic metals	18.6	19.5	18.3	18.3	12.9	16.1	15.6	15.3	13.7	16.6	16.0	15.8
14. Metal products	10.3	5.2	12.5	4.9	9.0	5.2	8.1	3.8	9.1	5.2	8.5	3.9
15. Non-electrical machinery	30.8	34.2	34.9	34.6	22.1	29.9	33.6	30.8	24.2	31.2	34.0	32.0
16. Electrical machinery	22.3	23.9	21.2	24.2	15.0	15.0	18.5	22.0	16.2	16.5	19.0	22.5
17. Transport equipment	27.4	25.7	23.0	21.6	11.1	13.2	11.4	11.3	13.3	15.1	12.9	12.6
18. Scientific instruments	7.5	8.9	6.6	35.1	9.6	9.7	10.0	58.3	9.4	9.7	9.7	47.3
19. Other manufacturing industries	25.5	32.6	6.4	29.7	11.3	15.8	3.1	16.8	13.2	19.0	3.3	19.3
Total manufacturing	17.5	18.5	17.4	18.4	15.7	15.8	15.1	15.8	16.0	16.2	15.4	16.2

a) At current (producer) prices; for full descriptions see Table B. 2

b) For full descriptions see Table B.2

Source: /20/, /37/, /38/, /40/, /47/

economy's adaptation to changes in the conditions for obtaining raw-material and energy resources on world markets) reflects in its import capacity (due to efforts aimed at improving the balance of payments) yet the solution is not being sought in promoting economic policies with autarchic elements of approach. A more convenient way of lowering the demands by the reproduction process on imports is seen in rationalizing the consumption of imported resources and raw materials and in the orientation at increasing the effectiveness of imported technology and know-how.

The evaluation of the import capacity of Czechoslovak national economy regarding the production of manufacturing industry offering relative advantage to the developing countries, i.e. regarding the production of textile, clothing and leather industries (branches 321, 322, 323, 324 ISIC classification) indicates that during the seventies their share had continued to fall in the structure of domestic demand of the CSSR (see data in Table A.33).

Considerable potential room for this production's imports in the CSSR is provided by a rather high share of imports in covering the domestic demand, especially of textile and leather industries (see data in Table 10). In the period of 1970-1978 the share of imports in covering the domestic demand of the textile industry's production falls, but nevertheless, it still oscillates around 23 per cent. Due to the higher share of imports than exports in the production of this branch (see data in Table A.33) the employment content ¹⁾ is higher in the imports of

1) The method of calculation used (/34/, p.35) is based on calculating the number of workers tied up with a given share of the branches in the exports structure (l_e) or in the imports structure (l_m) expressed through the following formula:

$$l_e = \frac{E_i}{Q_i} \times L_i$$

$$l_m = \frac{M_i}{Q_i} \times L_i$$

where $\frac{E_i}{Q_i}$, $\frac{M_i}{Q_i}$ = share of exports (E_i) or imports (M_i) in the volume of branch production (Q_i)
 L_i = employment in branch i

Czechoslovak textile industry

and lower in its export (see data in Table A.34). These data, too, indicate considerable potential possibilities for the developing countries provided by the structure and level of Czechoslovak manufacturing industry's participation in the international division of labour. But it may also be assumed that considerable possibilities of increasing the import capacity of Czechoslovak national economy can be provided by other branches of the manufacturing industry, especially by the engineering branches, with the needed degree of Czechoslovak imports diversification that would correspond to the level of development and to the structure of production in those countries.

2.7 The export capability of Czechoslovak industry

The rapid growth of the import capacity of Czechoslovak national economy during the period of the sixties and of the seventies was based on the relatively rapid dynamics of "active" participation in the international division of labour. In the course of the 1960-1978 period the share of exports in total demand ¹⁾ grows from 11.2 per cent to 21.3 per cent - in current prices (/67/, p.1206). This development enabled to lower the CSSR's lagging behind in the degree of international division of labour participation. But in the period following 1973 there occurs a marked slowing-down in the growth of the degree of Czechoslovak national economy's "active" participation in the international division of labour. This development has had negative consequences in the balance of external economic relations of the CSSR and it has failed to create sufficient room for the growth of the import capacity of Czechoslovak national economy (see data

1) The total demand (TD) = total domestic demand (DD) + exports of goods and services (E);
in the SNA indicators

Differences between produced and distributed net material
product and index numbers of foreign trade prices in Czechoslovakia

	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Differences between produced and distributed NMP, billion Kčs a)	9.7	11.9	12.5	7.1	0.5	6.6	-11.5	-1.3	4.4	12.7
Index numbers b)										
Exports	112.0	115.3	114.5	125.6	161.8	165.3	172.1	173.1	177.6	195.7
Imports	104.9	107.9	110.6	122.4	151.8	170.1	187.0	202.5	207.4	239.8
Terms of trade	106.8	107.2	103.7	102.6	106.6	97.2	92.0	89.5	85.6	81.6

a) At current prices

b) 1967 = 100

Source: /69/, pp. 338, 339

in Table 11). Due to considerable volumes of foreign trade with the CMEA countries and to price changes which influenced the foreign trade among those countries with a certain delay the Czechoslovak economy experienced these negative external economic influences fully and openly only in the 1976-1977 years. Only then the necessity of adapting Czechoslovak national economy to external changes appeared in full intensity. There occurs a marked worsening of exchange relations. Though a number of factors had influenced their development, e.g. the changes in the demand on world markets or the steep rise of raw material prices, the main cause of the worsening of exchange relations must be seen in the low adaptability of Czechoslovak national economy being the result of slow growth of effectiveness and of inadequate application of scientific and technological progress in production, and of Czechoslovak manufacturers' insufficient adaptability to demands posed by the qualitative indicators of the exported products.

In view of the manufacturing industry's share in the structure of participation in the international division of labour (in 1979 reaching about 87 per cent of the total volume of exports of goods and 62 per cent in the volume of imports) it is the course of Czechoslovak manufacturing industry's

adaptation to changes in inner and outer economic conditions that influences decisively the export capacity of Czechoslovak national economy. Consequences of the course of its adaptation are being projected into the development of individual branches' production position on the basic markets (see data in Table 12).

The position of the production of the whole complex of branches has been substantially deteriorating, especially on the market of market economies. Notwithstanding the fact that the engineering industry has continuously kept the decisive share in the structure of Czechoslovak manufacturing industry's participation in the international division of labour its position (measured by the share of net exports in the foreign trade turnover of the individual branches) has deteriorated. A markedly more favourable position is occupied by the branches of light manufacturing industry (322, 324 - clothing and footwear industry; 331, 332 - wood industry), chemical industry (353, 354 - petroleum and coal products) and the non-metallic minerals (361, 362, 369). Among the engineering branches, the transport equipment (384) develops relatively best. In these branches the CSSR gains also a relatively marked comparative advantage (see data in Table 13 1).

It is in the unsatisfactory innovative capacity that we have to look for the basic cause of the weakening of the export potential of especially the branches of Czechoslovak engineering. The development of the position of individual branches of Czechoslovak manufacturing industry on both basic markets (see data in Table 12) and the development of the comparative advantage (see data in Table 13) at the end of the seventies indicate the necessity to re-evaluate the intensity of its branches participation in the international division of labour. The main criterion for selective adaptation of the export capacity of Czechoslovak manufacturing industry during the period of the eighties

1) The relation of the position of individual branches to the development of the position of the whole manufacturing industry (=1.00) - see data in Table 12.

Table 12

Net exports share in total foreign trade in Czechoslovakia
 (Percentage)

Branches	Centrally planned economies			Market economies			Total		
	1965	1970	1979	1965	1970	1979	1965	1970	1979
1. Food and drink	-59.3	-65.4	-26.4	40.1	-8.8	3.6	-22.4	-40.3	-12.8
2. Tobacco	-96.5	-97.1	-94.3	-61.6	-94.6	-62.1	-86.9	-96.5	-86.1
3. Textiles	-32.3	-32.4	-2.9	-27.6	-21.7	-6.3	-29.8	-26.5	-4.8
4. Clothing and footwear	57.9	53.6	67.6	71.1	32.0	49.6	60.2	48.6	63.0
5. Leather	9.5	23.7	-27.6	-73.3	-77.8	-87.6	-49.9	-33.4	-76.1
6. Wood	12.2	-12.5	16.7	83.3	69.6	82.2	42.3	16.1	52.3
7. Paper	15.7	-35.0	-25.2	29.2	7.0	4.7	23.4	-13.9	-11.3
8. Printing	-33.3	-24.8	8.6	33.2	5.7	17.6	-13.0	-12.2	12.5
9. Chemicals	-2.2	-8.0	3.4	-42.7	-46.0	-34.8	-19.3	-25.7	-15.7
10. Petroleum and coal products	-9.2	-12.6	-7.0	82.8	89.9	85.1	4.0	8.3	20.9
11. Rubber	-2.3	31.7	-2.7	-72.0	-57.4	-53.9	-38.6	13.1	-28.1
12. Non-metallic minerals	20.7	45.6	51.2	89.1	82.1	66.6	50.0	58.0	56.5
13. Basic metals	-6.5	-2.9	3.3	8.1	55.7	23.3	-3.2	18.0	10.3
14. Metal products	6.9	-6.9	16.2	55.6	33.2	9.1	24.3	6.7	14.0
15. Non-electrical machinery	8.5	24.9	15.8	10.7	-6.5	-8.5	8.9	16.5	11.1
16. Electrical machinery	41.0	22.6	-6.9	10.2	5.4	-5.2	36.7	19.7	-6.6
17. Transport equipment	47.6	42.3	34.6	65.0	41.7	49.3	49.6	42.3	35.7
18. Scientific instruments	1.0	-2.5	-10.9	-38.4	-47.4	-55.4	-7.5	-12.5	-22.8
19. Other manufacturing industries	22.6	22.7	8.0	69.0	61.8	58.4	42.0	38.5	27.7
Total	10.4	13.8	12.9	10.7	5.3	3.4	10.5	11.3	10.2

a) At current prices; net exports (E-M) share in total foreign trade (E+M) in percentage

Source: /40/

Table 13

Revealed comparative advantages in foreign trade^{a)},
by 19 manufacturing branches in Czechoslovakia

Branches ^{b)}	Centrally planned economies			Market economies			Total		
	1965	1970	1979	1965	1970	1979	1965	1970	1979
1. Food and drink	-5.71	-4.73	-2.05	3.76	-1.65	0.11	-2.14	-3.57	-1.26
2. Tobacco	-9.28	-7.01	-7.32	-5.78	-17.69	-18.21	-8.30	-8.56	-8.47
3. Textiles	-3.11	-2.34	-0.22	-2.59	-4.05	-1.84	-2.85	-2.35	-0.47
4. Clothing and footwear	5.57	3.86	5.24	6.67	5.97	14.56	5.75	4.31	6.20
5. Leather	0.91	1.72	-2.14	-6.87	-14.54	-25.67	-4.76	-2.97	-7.18
6. Wood	1.17	-0.90	1.30	7.81	13.00	25.86	4.04	1.42	5.14
7. Paper	1.51	-2.53	-1.96	2.74	1.31	1.37	2.23	-1.23	-1.11
8. Printing	-3.20	-1.79	0.67	3.11	1.06	5.16	-1.25	-1.08	1.23
9. Chemicals	-0.22	-0.58	0.26	-4.00	-8.60	-10.20	-1.85	-2.28	-1.55
10. Petroleum and coal products	-0.88	-0.91	-0.54	7.76	16.80	24.96	0.38	0.73	2.05
11. Rubber	-0.22	2.29	-0.21	-6.75	-10.74	-15.81	-3.68	-1.17	-2.76
12. Non-metallic minerals	1.99	3.30	3.98	8.35	15.34	19.53	4.78	5.14	5.56
13. Basic metals	-0.63	-0.21	0.26	0.76	10.41	6.84	-0.31	1.60	1.01
14. Metal products	0.67	-0.50	1.26	5.21	6.21	2.66	2.33	0.59	1.38
15. Non-electrical machinery	0.82	1.80	1.23	1.01	-1.21	-2.50	0.85	1.46	1.09
16. Electrical machinery	3.95	1.64	-0.53	0.96	1.01	-1.52	3.51	1.75	-0.65
17. Transport equipment	4.58	3.06	2.69	6.09	7.80	14.47	4.74	3.75	3.51
18. Scientific instruments	0.10	-0.18	-0.84	-3.60	-8.86	-16.25	-0.71	-1.11	-2.25
19. Other manufacturing industries	2.18	1.64	0.62	6.47	11.55	17.12	4.01	3.41	2.72
Total manufacturing	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

a) At current prices

b) For full descriptions see table B.2

Source: /40/; /41/; /42/; /43/

should be the availability of skilled manpower, scientific and technological innovations and the possibilities of utilizing domestic raw-material resources. Intensification of Czechoslovak manufacturing industry branches' involvement in the international division of labour, first of all through socialist economic integration, should create room for its growth with the developing countries as well.

3. Position of developing countries in the participation of Czechoslovak national economy in the international division of labour

The extension of trade, economic, production, scientific and technological relations with developing countries constitutes an important element in the process of involving Czechoslovak national economy in the international division of labour. In conformity with the principles of its foreign policy, especially with the principle of equality and mutual benefits, the CSSR develops economic co-operation with these countries having in mind, too, to facilitate their efforts aimed at the attainment of economic independence, the strengthening of their national sovereignty and the development of social progress.

3.1 The development in the position of developing countries in Czechoslovakia's foreign trade

In the course of the seventies, the development of Czechoslovakia's foreign trade with developing countries was noted for its dynamic character. As compared to the sixties, the dynamism of Czechoslovakia's imports from, and especially exports to, these countries accelerated conspicuously (see data in Tables 12, A.36) . During the last thirty years the total turnover of Czechoslovakia's foreign trade with developing countries increased 11.6 times, particularly the volume of exports 11.9 times and the volume of imports 11,2 times.

Despite the said over-all positive tendency, the share of developing countries in both the total volume of Czechoslovakia's foreign trade and the volume of its trade with non - socialist countries is declining. While in the fifties the share of developing countries increased (most remarkably in relation to the volume of Czechoslovakia's foreign trade with non - socialist countries), in the course of the sixties and the seventies the share of these countries fell down. In the second half of the seventies

Table 14

Average annual growth rate and share of the developing countries in the Czechoslovak foreign trade^{a)}

(Percentage)

	Turnover	Exports	Imports
Average annual growth rate of the Czechoslovak foreign trade with the developing countries			
1951-1960	11.0	10.0	12.4
1961-1970	3.8	4.8	2.4
1971-1980	10.9	11.0	10.6
1971-1975	10.8	10.3	11.6
1976-1980	10.9	11.8	9.6
Share of the developing countries in total Czechoslovak foreign trade			
1950	9.7	10.5	8.6
1960	10.4	11.0	9.8
1970	7.6	9.0	6.1
1975	7.0	8.6	5.6
1980	7.1	8.7	5.5
Share of the developing countries in the Czechoslovak foreign trade with market economies			
1950	21.8	23.4	19.9
1960	37.0	39.9	34.1
1970	25.3	30.7	20.0
1975	23.9	30.3	18.4
1980	23.5	28.7	18.3

a) At current prices (in Kčs) (FOB)

Source: /40/, /68/, pp. 7,9; /70/, p. 47; Table A.4

a tendency toward the stabilization of these countries' share both in the volume of Czechoslovakia's exports and imports began to appear. In 1980, their share in Czechoslovakia's exports to non - socialist countries reached 29 per cent, in Czechoslovakia's imports from non - socialist countries it was about 18 per cent (see data in Table 14).

Basic reasons of the decline in the share of developing countries in the structure of participation of Czechoslovakia's national economy in the international division of labour may be considered as follows (/65/, p.31) :

- inadequate preconditions for such diversification of

Czechoslovakia's imports that would correspond to the level and the structure of production in these countries;

- inadequate capability of the capital products of Czechoslovakia's engineering to assert themselves in the industrialization process of developing countries.

In the long run, the balance of mutual trade with developing countries has been favourable for Czechoslovakia. The share of net exports (exports minus imports) in the total turnover of foreign trade (exports plus imports) is held at a high level (per cent) a)

<u>1950</u>	<u>1960</u>	<u>1970</u>	<u>1973</u>	<u>1975</u>	<u>1978</u>	<u>1980</u>
19.5	9.1	20.4	6.5	17.5	23.5	22.3

a) At current prices (in Kčs) (FOB)

Source: /40/; /68/, pp.7,9; /70/, p.47

Because of the fact that a transition from clearing payments to the payments in convertible currencies^{1/} represents a general tendency in the relation of the CSSR with developing countries, the foreign trade with developing countries constitutes a significant source of convertible currencies for Czechoslovakia's national economy.

The main part of active balance of Czechoslovakia's foreign trade with these countries is based on the relation with African and Asian groups of countries. But on the other side these countries participate significantly in flows of long-term credits from Czechoslovakia. Cumulative amounts of commitments of credits from Czechoslovakia to developing countries (excluding commitments to Cuba and Vietnam) reach 2,087 million US \$ (converted at official rates of exchange) during the period 1971 to 1978 (/35/, p. 69). Considerable proportions of these long-term credits (which are granted with the term of payment of 8-15 years at a low interest rate 2.5-3.0 per cent on the average) received Asian (Afghanistan, India, Yemen PDR, Burma, Pakistan, Syria, e.g.) and African (Algeria, Ethiopia, Egypt, Mozambique, Nigeria, Somalia, Sudan, Zambia, e.g.) countries. It must be taken also into consideration that with some OPEC countries the trade relations are based both on the long-term credit agreements and on convertible currencies transactions.

1/ The share of convertible currency arrangements in Czechoslovakia's total payment with the developing countries (in percentage) (/66/, p.23):

	<u>1960</u>	<u>1970</u>	<u>1975</u>	<u>1977</u>
Cz. exports	56.4	40.1	64.6	66.9
Cz. imports	44.6	43.9	56.2	60.6
Turnover	51.5	41.6	61.2	64.0

Czechoslovakia fosters trade relations with developing countries of all continents. A decisive position in the territorial structure of the Czechoslovak exports to developing countries belongs to the developing countries in Asia (see data in Table 15). The structure of Czechoslovak imports from developing countries shows a permanent increase of the share of the developing countries of American continent. Though the share of African countries in the structure of Czechoslovakia's foreign trade with developing countries continues to decline, it contributes considerably - along with Asian countries - to the creation of Czechoslovakia's active balance with developing countries. An outstanding start of the dynamism of imports from, in relation to exports to, the American countries is reflected in the passive balance of Czechoslovakia's foreign trade with this region.

Table 15

Territorial structure of the Czechoslovak foreign trade ^{a)} with the developing countries

(Percentage)

		Groups of countries			Total
		Asian	African	American	
		Share			
Exports	1960	46.6	27.1	26.3	100.0
	1970	55.2	34.8	10.0	100.0
	1979	61.3	28.0	10.7	100.0
Imports	1960	54.1	25.8	20.1	100.0
	1970	43.3	30.0	26.6	100.0
	1979	36.2	21.7	42.1	100.0
		Average annual growth rate			
Exports	1961-1970	6.6	7.5	-4.8	4.8
	1971-1979	10.5	6.6	9.9	9.2
Imports	1961-1970	0.2	4.0	5.4	2.4
	1971-1979	7.5	5.8	15.4	9.7
		Share of net exports in turnover			
		1960	11.5	22.1	9.1
		1970	27.3	-27.5	20.4
		1979	30.6	-46.4	22.3

a) At current prices (in Kčs) (FOB)

Source: /40/; /68/, p. 9; Table A.4

Table 16

Share of developing countries in the Czechoslovak foreign trade^{a)}

(Percentage)

	Machinery and equipment	Fuels, raw materials, metals, chemicals	Foodstuffs, inc. raw materials ^{b)}	Industrial consumer goods	Total
EXPORTS					
1960	9.8	10.3	13.6	13.7	11.0
1970	10.7	6.7	8.8	8.0	9.0
1973	8.5	6.3	8.7	6.3	7.5
1975	9.6	7.7	9.5	7.2	8.1
1978	9.7	6.3	9.8	7.2	8.4
IMPORTS					
1960	0.0	15.2	7.8	0.0	9.8
1970	0.1	9.2	12.7	2.2	6.1
1973	0.2	9.9	15.4	4.1	6.5
1975	0.0	8.8	12.1	4.3	5.6
1978	0.0	7.3	16.8	2.5	4.9

a) At current prices (in Kčs) (FOB)

b) Including live animals

Source: /40/; /68/, pp. 12, 21

3.2 The structure of participation of Czechoslovak national economy in the international division of labour with developing countries

The position of developing countries in the engagement of Czechoslovakia's national economy in the international division of labour is even more important for the development of its economy than these countries' share in the structure of Czechoslovak foreign trade may indicate. The development of economic co-operation with these countries not only provides imports necessary to ensure the smooth functioning of the process of production but, along with socialist countries, opens a market to the products of Czechoslovakia's manufacturing industry, above all of Czechoslovak engineering.

The developing countries share almost 10 per cent in Czechoslovakia's exports of machines and equipment and about 7 per cent in exports of industrial consumer goods (see data in Table 16). These countries share relatively high in the total volume of Czechoslovak exports of fuels, raw materials, metals and chemicals (about 6 per cent) and food, including raw materials for food industry (about 10 per cent) .

The developing countries participate very significantly in the total volume of Czechoslovakia's imports of fuels, raw materials, metals and chemicals (about 7 per cent) and food, including foodstuff (about 17 per cent). However, the negligible share of these countries in the total volume of Czechoslovakia's imports of machines and equipment and of industrial consumer goods is a less favourable feature. The need for the adaptation of the structure of branches of Czechoslovakia's manufacturing industry to the changes in both external and internal economic conditions of their development (especially with respect to the possibility of providing raw materials from world markets necessary to ensure the development of a number of branches of light manufacturing industry, and in view of rather limited possibilities of the country's production factors - especially manpower - necessary for their development) opens up important potential avenues for the strengthening of the role of developing countries in the structure of satisfying Czechoslovakia's needs in the area of raw materials and semi-products, and finished products as well.

In the course of the last thirty years the commodity structure of Czechoslovakia's imports from developing countries has been characterized by the overwhelming preponderance of products having the nature of raw materials (see data in Tables 17 and A.35). The share of semi-products and finished products (commodity groups 5 - 8 according to the SITC classification) oscillates around about 16 per cent in the course of the seventies (see

Table 17

Commodity patterns of Czechoslovak foreign trade
with developing countries

(Percentage)

	Machinery and equipment	Fuels, raw materials, metals, chemicals	Foodstuffs, inc. raw materials ^{b)}	Indust- rial con- sumer goods	Total
EXPORTS a)					
1950	24.2	16.7	13.2	45.9	100.0
1960	39.8	28.9	6.5	24.8	100.0
1970	59.7	21.8	3.8	14.7	100.0
1973	56.8	23.8	4.8	14.6	100.0
1975	53.7	27.0	4.7	14.6	100.0
1978	61.1	19.9	4.5	14.5	100.0
IMPORTS a)					
1950	0.2	87.5	12.3	-	100.0
1960	0.1	82.1	17.7	0.1	100.0
1970	0.7	64.9	31.4	3.0	100.0
1973	1.1	64.9	29.5	4.5	100.0
1975	0.3	74.1	20.0	5.6	100.0
1978	0.2	67.4	29.2	3.2	100.0

a) At current prices (in Kčs) (FOB)

b) Including live animals

Source: /40/; /68/, pp. 12, 21

data in Table A.35). Consumer goods play an unimportant role in the structure of Czechoslovak imports from developing countries and the share of machines and equipment is negligible (see data in Table 17).

The increase in the share of finished products in the structure of Czechoslovakia's imports from developing countries is dependent not only on the creation of preconditions of desirable diversification of Czechoslovak imports within the framework of Czechoslovak national economy but, to a considerable measure, it depends, too, on the degree of development of economic co-operation between the CSSR and these countries and on the degree of industrialization in individual developing countries. The share of finished products in the structure of imports from developing countries is considerably higher in case of such of these countries with which the economic co-operation

reached a relatively high level of development (see data in Table A.37). For example, in 1979 the share of commodity groups 5 - 8 SITC in Czechoslovakia's imports from selected developing countries (whose share in the total volume of Czechoslovak imports from developing countries represented 36,2 per cent) reached the following amounts (per cent) :

<u>Argentine</u>	<u>Peru</u>	<u>Egypt</u>	<u>Iraq</u>	<u>Indonesia</u>	<u>India</u>
42,2	41,8	26,8	16,7	32,5	33,4

One may assume that the development of higher forms of economic co-operation, such as industrial co-operation in particular, bears favourably on the structure of Czechoslovakia's imports from individual developing countries. Various forms of industrial co-operation are developed with a number of these countries (Argentina - leather procession; India - manufacture of machine tools, tractors, motorcycles; Egypt - manufacture of motorcycles and tires; Iraq - manufacture of tractors).

The comparative analysis of the structure of Czechoslovakia's imports from developing countries shows that there are considerable possibilities, unused thus far, of increasing the position of finished products of manufacturing industry (5 - 8 SITC) and especially of machines and equipment (SITC 7) as well as other products of manufacturing industry (SITC 8) - see data in Table 18. On the other hand, however, the analysis indicates that the CSSR maintains tendencies analogous to those of other economically advanced countries. In view of historical ties and highly developed relations on this basis between the developing countries and the developed market economics (OECD countries) there exist, of course, differences in the structure of imports from developing countries going to the CSSR on one hand and to the said group of countries on the other hand, but the character of relations between the CSSR and the developing countries shows the existence of a tendency toward the mutually advantageous division of

Table 18

Commodity patterns of foreign trade of Czechoslovakia
and developed countries with developing countries

(Percentage)

		Groups of commodities SITC						
		0,1,2, 3,4,9	3	5	6	8	7	5-8
Imports from developing countries								
CSSR a)	1970	84.5	-	4.6	8.4	2.3	0.2	15.5
	1977	86.2	9.8	2.6	9.1	2.0	0.1	13.8
CMEA b)	1970	84.8	1.5	1.5	13.4		0.3	15.2
	1977	88.7	20.5	1.5	9.8		0.3	11.3
OECD- Total b)	1970	77.8	33.2	1.5	13.2	5.4	2.1	22.2
	1977	81.4	56.8	1.0	6.9	7.1	3.6	18.6
OECD- Europe b)	1970	79.9	37.8	1.6	13.9	3.3	1.3	20.1
	1977	83.1	54.2	1.1	7.4	5.9	2.5	16.9
Exports to developing countries								
CSSR a)	1970	4.5	0.0	4.1	25.1	5.3	60.6	95.1
	1977	5.6	0.0	3.6	23.0	6.6	60.7	93.9
CMEA b)	1970	23.2	6.4	6.0	24.2		46.6	76.8
	1977	31.1	13.7	7.0	19.8		42.1	68.9
OECD- Total b)	1970	17.4	-	11.0	22.3	6.8	42.5	82.6
	1977	16.0	-	9.3	19.4	6.6	48.7	84.0
OECD- Europe b)	1970	12.8	-	13.0	22.1	7.6	44.5	87.2
	1977	13.4	-	10.7	19.8	7.5	48.6	86.6

a) At current prices (in Kčs) (FOB)

b) At current prices (in US dollars)

Source: /72/, p. 90; /73/, pp. 9, 11; Table A.35

labour related to the production of manufacturing industry. For instance, the differences in the shares of finished products and semi-products (SITC 5 - 8) in imports to the developing countries and to the OECD member states decreased in the period from 1970 to 1977 (from 6,7 point to 4,8 point). Analogously, in comparison with the European OECD member states the differences in the amount of the share of this group decreased from 4,6 point to 3,1 point in favour of the CSSR.

The commodity structure of Czechoslovak imports from de-

veloping countries reflects, above all, the needs of the development of Czechoslovakia's national economy as a specialized manufacturer and a universal consumer. This fact finds its expression in the decisive prevalence of the share of raw materials and foodstuff in Czechoslovakia's imports from developing countries. The imports from developing countries cover the needs of Czechoslovak national economy in a number of these products (see data in Table A.38). For example, in 1979 in the over-all imports the developing countries shared 22,0 per cent in case of manganese ore, 56.2 per cent in case of tin, 46.6 per cent in case of phosphates, 91.1 per cent in case of natural rubber, 17.1 per cent in case of cotton, 19.0 per cent in case of wool, 62.5 per cent in case of jute, 50.7 per cent in case of tea. As to the value, raw and other materials continue to represent the most significant long - term item in Czechoslovakia's imports from developing countries.

In the course of the seventies, the structure of imports of raw materials and foodstuff (groups 0 - 4 SITC) from developing countries changed in favour of mineral fuels (SITC 3) - the volume of imports to Czechoslovakia of groups 0 - 4 SITC = 100 per cent (see data in Table A.35) :

	<u>Groups of commodities SITC</u>				
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
1970	38,3	2.6	57.8	-	1.3
1977	36.2	1.7	47.2	12.9	2.0

One may assume that this structural tendency will be strengthened still further in the eighties.

The commodity structure of Czechoslovakia's exports to developing countries reflects an active role the CSSR plays in the international division of labour in relation to these countries. The export of machines and equipment has been a dynamic item in Czechoslovakia's exports to developing countries during the last thirty years (see data in Table A.36). In relation to developing countries

there is no substitution to the Czechoslovak exports of machines and equipment from the standpoint of Czechoslovakia. These exports contribute decisively to the acquisition of foreign currency necessary for imports from this area, especially of raw and other materials and food. Of extraordinary importance is the export of Czechoslovak machines and equipment to developing countries from the point of view of the implementation of their industrialization programs, with the plant and other capital equipment sharing considerably in the over-all export of Czechoslovak engineering to developing countries (the share of plant and other capital equipment representing about 13 per cent of the total exports of the engineering industry).

The share of fuels, raw materials, metals and chemicals, as well as the share of food and foodstuff in the structure of Czechoslovakia's exports to developing countries have been declining continuously (see data in Tables 17 and A. 35). The development in the shares of the said two groups in the structure of Czechoslovak exports to developing countries is affected by the growing degree of finalization of raw and other materials and food exported from Czechoslovakia and by the necessity and the development of complementary production base of individual developing countries and the CSSR.

The declining share of consumer goods in the structure of Czechoslovakia's exports to developing countries reflects an objective tendency stemming from the process of industrialization of these countries as well as from the internal conditions of development of relevant branches in the CSSR (changes in the structure of Czechoslovakia's manufacturing industry as reflected in a permanent decline in the share of branches of light manufacturing industry, limited possibilities of increasing production of consumer goods as a result of a non - complex base of raw materials and a growing shortage of manpower).

Table 19

Development of Czechoslovak foreign trade balance^{a)}
with developing countries

(Percentage)

	Machinery and equipment	Indust- rial con- sumer goods	Foodstuffs, inc. raw materials	Fuels, raw materials, metals, chemicals	Total
Share of net exports in turnover b)					
1950	98.6	100.0	-52.2	22.8	19.5
1960	99.7	99.2	-31.2	-38.8	9.1
1970	98.4	76.2	-32.7	-68.9	20.4
1973	96.6	57.6	-41.1	-68.4	6.5
1975	99.2	57.9	-31.6	-49.7	17.5
1978	99.6	75.9	-35.4	-60.2	23.5
Share of commodity groups in active (+) or pasive (-) foreign trade balance					
1950	32.1	61.3	100.0	6.6	100.0
1960	61.7	38.3	82.7	17.3	100.0
1970	82.3	17.7	55.5	44.5	100.0
1973	84.0	16.0	61.2	38.8	100.0
1975	83.3	16.7	72.8	27.2	100.0
1978	83.0	17.0	61.6	38.4	100.0

a) At current prices (in Kčs) (FOB); exports (E) - imports (M),

b) $\left[\frac{E - M}{E + M} \right] \times 100$

Source: /40/; /68/, pp. 12, 21

In a summarized way, it is possible to evaluate the development of the position and the structure of Czechoslovakia's foreign trade with developing countries on the basis of the development of the balance of individual commodity groups (see data in Table 19). During the last period the active balance was achieved in case of machines and equipment and industrial consumer goods (in 1950 also in case of foodstuff). The share of industrial consumer goods is permanently declining in the structure of the active balance. An assumption can be made, based on this development, that as far as these products are

concerned, there appears potential room for developing countries not only in the market of the CSSR, but in the world market as well.

The group of fuels, raw materials, metals and chemicals, together with foodstuff, creates a permanently passive balance in Czechoslovakia's foreign trade with developing countries. In the course of the seventies there was steadily on the rise the share of fuels, raw materials, metals and chemicals in the volume of the passive balance of the said two commodity groups.

3.3 Other forms of participation of the CSSR in the international division of labour with developing countries

Along with trade exchange carried out on terms of payment, under currency and delivery conditions as applied in trade customs at the time of signing the contracts and/or modified by mutual agreement of contracting parties, the CSSR develops also some other forms of economic co-operation with developing countries.

Among them, the conclusion of agreements on economic co-operation represents a higher form of economic co-operation with developing countries. During the last decade the CSSR concluded 23 agreements on economic co-operation with 21 developing countries, in the framework of which long-term credits were granted with the term of payment of 8 - 15 years on the average at a low interest rate 2.5 - 3.0 per cent on the average (/65/, p.32). These credits cover from 85 to 95 per cent of the value of contracts concluded on the basis of economic agreements. They concern, first of all, deliveries of technology, in some cases also projects. The rest 5 to 15 per cent are paid by the buying countries in cash.^{1/}

^{1/} The credits are granted in the first place to import Czechoslovak plant and other capital equipment, to a lesser degree to import piecemeal deliveries and, quite exceptionally, to import Czechoslovak consumer goods. Under these credits, the deliveries are paid predominantly in convertible currencies. In some cases, however, the payments are realized by deliveries of raw materials /such as, e.g. oil, iron ore, phosphates, jute etc./

The CSSR concludes agreements on economic co-operation with the developing countries of Asia in the first place (i.e. India, Iran, Iraq, Burma, Afghanistan, Syria) and with some countries in Africa (i.e. Egypt, Algeria, Nigeria, Tunisia, Ethiopia). This form of economic co-operation is not typical in relation to the developing countries in Latin America (most deliveries of plant and other capital equipment and machines are realized in the form of factory or banking credits).

A number of plants and other structures built jointly in some of the developing countries bear testimony to the extensive economic co-operation between the CSSR and these countries. For instance, in India the CSSR participated in the construction of over 60 big- and middle-sized factories (foundries, wood-processing plants, the heavy machine tool factory at Ranchi, the steam power station with annual output capacity of 900 MW at Heyderabad, the plant for the manufacture of boilers and chemical equipment at Vishakapatnam, the plant for the manufacture of tractors "Zetor" built in co-operation with Indian contractors etc.).

On basis of the contract of 1978 an oil refinery is under construction in Iraq (at Salahuddin) with the oil-refining plants at Basra and Daura already built and put into operation. On the basis of deliveries of assembly parts tractors are manufactured (at the plant Iskanderia). A brick factory with annual output capacity of 30 million bricks was built etc.

In Syria, the oil refinery at Homs and the thermal power station were built with Czechoslovak assistance, the production of saltpeter was introduced in co-operation with the USSR and Italy. At present, such projects are under construction as a plant for the manufacture of tires, a cotton mill, a weaving mill, a radio - transmission centre etc.

In the framework of industrial co-operation there was introduced the manufacture of motorcycles and tires in Egypt.

Though industrial co-operation between the CSSR and the developing countries of Latin America has not developed sufficiently, the interest in economic co-operation on part of the countries of this region is reflected in the conclusion of agreements on scientific and technological co-operation.

In view of long - term prospects of the development of economic relations between the CSSR and the developing countries there exist considerable potential possibilities, unused thus far, of developing higher forms of such co-operation (especially industrial co-operation). Considerable potential possibilities are connected e.g. with the development of coordinated activities of all or several CMEA member states in the markets of developing countries, especially with reference to the construction of big industrial complexes. In this regard, the potential possibilities of Czechoslovakia's engineering have not been exhausted by far.

4. Main features of structural changes in Czechoslovak industry in the eighties

The adaptation of Czechoslovak industry's structure will, under the conditions of the eighties, be influenced in a decisive measure by the realization of development targets of the whole national economy in the course of the five-year plan for the period of 1981-1985.

The strategic line set for this period (and for the whole period of the eighties) consists in increasing the effectiveness and in strictly applying the intensive factors of economic growth. To attain this fundamental strategic target it is necessary to realize effective structural changes in Czechoslovak national economy, to rationally utilize the production potential, to achieve a high level of valorization of the basic factors of economic growth (raw materials, energy and manpower) and to intensify the degree of Czechoslovak national economy's participation in the international division of labour. The application of science and technology at every stage of the reproduction process will provide a decisive element of intensification and the basic source of growth of the social productivity of labour.

4.1 Basic conditions of adaptation of the structure of Czechoslovak industry

In the conditions of the first half of the eighties the development of the structure of Czechoslovak industry will evolve under the influence of especially the following factors (/28/, pp. 193-203):

- a/ lower dynamics of growth of the produced net material product (in the period of 1981-1985 the average annual rate of growth is expected to reach 2.6 - 3.0 per cent as against 3.7 per cent in the period of 1976 - 1980);
- b/ lower dynamics of material inputs. It is expected that through higher valorization of raw materials, energy and materials in the production process the consumption of energy will be lowered by 2 per cent and that of metals by 4.5 - 5.0 per cent annually in the period of 1981 - 1985. The sources of raw materials, material and of fuel and energy, both domestic and imported, will essentially stay put on the level of the end of the seventies, or they will grow at a substantially lower rate than during the preceding period;
- c/ lower manpower increment for the development of Czechoslovak national economy. The number of employees in national economy will increase by no more than 70 - 80 thousand persons. For this

reason, the increment of produced net material product is expected to be covered in 90 - 95 per cent by the increment of the social labour productivity;

- d/ CSSR's more active participation in the international division of labour, especially in the socialist economic integration. Structural adaptation of Czechoslovak national economy (and especially of Czechoslovak industry) must be consistently subordinated to ensuring maximum growth of export deliveries, to lowering Czechoslovak economy's dependence on imports and to increasing the exporting capacity of the individual branches. More effective participation of Czechoslovak economy in the international division of labour should contribute to growth of the technological level, level of production and labour productivity, to increasing the level of serial production and of its effectiveness, to lowering its demands on energy and materials. The lowering of import dependence of Czechoslovak economy should be realized through development of production in sectors for the development of which there are favourable natural and economic conditions in the CSSR;
- e/ extensive application of scientific and technological progress in all branches of Czechoslovak national economy. Applying the achievements of scientific and technological progress should substantially increase the techno-economic level of the production process as well as the quality and technical level of the manufactured output;
- f/ increasing complexity of conditions on foreign markets both from the standpoint of acquiring the necessary raw materials, energy and transfer of the scientific and technological progress, and from the standpoint of marketing conditions for the products of Czechoslovak national economy (especially of the branches of the manufacturing industry).

4.2 Basic features of structural changes in Czechoslovak industry

According to the main directives for economic and social development of the CSSR for the years 1981-1985 (/28/, p.116) industrial production is the decisive branch for the development of the whole national economy and for the increase of its effectiveness. Its

dynamics will continue to hold its advantage before the dynamics of national economy as a whole (average annual growth rate and ratios of growth rate) (/28/, pp.190,199,208):

	<u>Average annual growth rate in percentage</u>		<u>Ratio of growth rate GO/NMP</u>
	Gross output of industry	Produced net material product	
1976-1980	4.6	3.7	1.24
1981-1985	3.4-3.7	2.6-3.0	1.31-1.23

Adaptation of the structure of Czechoslovak industry according to the basic objectives of Czechoslovak national economy's development in the period of 1981-1985 and according to the changes in inner and outer economic conditions for its development, and following the needs of the participation by this complex of branches in the international division of labour will be realized through corresponding changes in the position of the basic production complexes of branches in the structure of industry and through changes in their inner structure, i.e. through structural adaptation of :

- the fuel-and-energy base;
- the material base (especially of the metallurgical and chemical industries) and engineering industry;
- light manufacturing industry.

As may be seen from data in Table 20 a key position in the development of Czechoslovak industry continues to be occupied by the engineering industry that will remain the basis for the development of Czechoslovak national economy. The development of this branch will decisively influence the modernization of the technological and production base of other industrial branches and of the whole national economy as well as the effective growth of its participation in the international division of labour. Adaptation of the

Average annual growth rate of industrial production^{a)}
in Czechoslovakia

Branches b)	1981 - 1985	
	Average annual growth rate in percentage	Ratios of growth rate
Fuel and energy base		
Brown coal, including lignite	1.3 - 1.5	0.38 - 0.41
Hard coal	0.0	-
Electric energy	1.8 - 2.6	0.53 - 0.70
Chemical industry	2.3	0.68 - 0.62
Pharmaceutical industry	6.5	1.91 - 1.76
Engineering and electrotechnical industry	5.9 - 6.2	1.74 - 1.68
Electrotechnical industry	7.0 - 8.4	2.06 - 2.27
Light industry c)	2.8	0.82 - 0.76
Food industry	1.9 - 2.1	0.56 - 0.57
Total industry	3.4 - 3.7	1.00 - 1.00

a) Gross output; at constant prices

b) CSSR branch classification of industry

c) Including textile, clothing, leather and footwear industries, glass and china

Source: /28/, pp. 132, 208 - 225; /77/, p. 138

inner structure of Czechoslovak engineering industry is the decisive element in the adaptation of the structure of entire national economy according to the inner and outer economic conditions of the eighties.

4.2.1 Changes in the structure of the fuel-and-energy base

Securing fuel and energy resources for the planned development of Czechoslovak economy will be more difficult in the period after 1980 than it was in the preceding period. The fuel-and-energy balances for the period of 1981-1985 will be substantially more tight than in the previous five-year period, which is true both for the absolute volumes of fuel-and-energy

resources and for their structure. In order to reach an equitable fuel-and-energy balance and to assure further growth of national income (and following the general trend in the world) a further lowering is anticipated in the energy demands of the produced net material product.^{1/}

The realization of the long-term programme of rationalization of consumption, economy and better utilization of fuels and energy is expected to bring an economy of at least 12.4 mil. metric tons of standard fuel in 1985 and about 27 mil. tons of standard fuel in 1990 as compared with the consumption of 1980 (/74/, p.63).

Though there will be a slight decrease in imports for covering total resources of fuel-and-energy balance during the period of 1980-1985 its share in 1985 will still stay at some 37 per cent of the total resources (see data in Table 21).

For securing imports of fuel-and-energy sources the CSSR is relying mainly on the USSR. So far it has been possible to increase imports of high quality fuels at a substantially higher rate than that indicated by realistic possibilities for the period till 1985. This represents a market change in the structure of covering the sources of Czechoslovak fuel-and-energy balance to which the whole energetic policy in every branch of Czechoslovak national economy should be accommodated.

It may be assumed that this development will promote economic co-operation with developing countries producing fuels (and raw materials). Czechoslovak economic co-operation with those countries will be aimed at promoting the development of

^{1/} Though in 1980 the energy demand of the unit of produced net material product reached only 79 per cent of the level of 1970 (/74/, p.59) there still exist considerable potential reserves. In comparison with other developed countries the consumption of energy resources per unit of produced net material product in the CSSR is higher by 20 - 50 per cent (/28/, p.109).

Structure of energy balance in Czechoslovakia
(Percentage)

	1970	1975	1980	1985
Total resources	100.0	100.0	100.0	100.0
Of which: domestic resources	74.1	65.6	60.6	63.0
imports	25.6	34.1	39.2	37.0
Total demand	100.0	100.0	100.0	100.0
Of which: domestic demand	91.5	92.2	93.4	95.0
exports	7.8	7.8	6.2	5.0

Source: /74/, p. 60

their forces of production thus creating conditions for long-term partial securing of fuel and energy resources by imports from those countries. So far the development of the structure of Czechoslovak imports from the developing countries has confirmed this tendency in the period of the seventies - the share of mineral fuels has been growing (see data in Table A.35).

Brown coal continues to be the basic element of Czechoslovak fuel and energy balance: the increase of its extraction should cover roughly 25 per cent of the total increment of primary energetic source in the years of 1981 - 1985 (the total increment of primary energetic sources is supposed to reach about 7 mil.tons of standard fuel) (/74/, p.60). The major part of the increment of fuel and energy sources in this period (about 50 per cent) should be ensured by dynamic development of nuclear energetics. Nuclear power plants will share by some 18 per cent in the total output of electricity in 1985 (80-83 billion kWh) (/28/, p.212).

This trend of development of the fuel and energy base in the period after 1980 will support the tendency to continued lowering of the share of the fuel branches in the structure of Czechoslovak industry and the tendency of the increase of the share of the output of electrical power in

the structure of the fuel and energy base which originated in the seventies (see data in Table A.13).

Distinct orientation at rationalizing fuel and energy consumption after 1980 will be projected into the adaptation of the structure of Czechoslovak economy and especially of the branches of manufacturing industry. This orientation of economic growth will mean slowing down or stopping of the existing development of growth of the share of branches with high energy demands in the structure of Czechoslovak manufacturing industry (see data in Table A.20), in the structure of exports to market economies (see data in Table A.30) and strengthening of the tendency of the growth of the share of high-energy demanding production in the structure of Czechoslovak imports (see data in Table A.31). The realization of this objective will be reflected especially in the development of metallurgical and chemical industries and in the adaptation of their inner structures. Modernization of the production base of engineering and innovation of its manufactured production will provide an important source of power economy.

Orientation at an energy-saving type of economic growth in the CSSR is creating, in the long-term, new conditions for development of foreign trade and economic co-operation with developing countries. Besides ensuring partially its energy sources needs from those countries the adaptation of the structure of Czechoslovak manufacturing industry in these conditions will gradually create possibilities for covering the Czechoslovak need in energy demanding production through its imports from developing countries with ready production capacities (e.g. imports of metallurgical materials, metal products, chemical products etc.).

4.2.2 Changes in the structure of the material base of manufacturing industry

During the first half of the eighties the adaptation of the structure of Czechoslovak manufacturing industry to constant changes in inner and outer economic conditions will markedly project into the position and the inner structure of two basic branches of the material base : metallurgy and chemical industry.

In the main directives for economic and social development of the CSSR for the years 1981-1985 (/28/, p.213) it is supposed that the development of metallurgical industry will be based on the level of production reached by the end of the seventies.^{1/} In all sectors of the national economy extensive rationalization of metal consumption is expected during this period which should enable us to reach an economy of about 2 mil.tons of ferrous metals and roughly 44 - 50,000 tons of non-ferrous metals.

The realization of these intentions of the state plan for 1981-1985 will positively influence the existing trend of the falling share of metallurgy and especially of iron and steel metallurgy in the structure of Czechoslovak industry (see data in Tables A.13, A.16).

The orientation at improving the assortment range in production will be followed by improved range of exported rolled material especially by excluding (stopping) exports of products with lower amounts of processing. This orientation, too, of Czechoslovak metallurgy's participation in the international division of labour (accompanied by rationalizing the volumes of exported metallurgical materials) creates new conditions for the evolution of specific forms of economic co-operation with developing countries (besides the imports of ferrous and non-ferrous metal ores).

1/ In 1980 the output of steel reached 15.2 mil. metric tons and the output of rolled material was 10.8 mil. tons (/47/, p.138).

The development of chemical industry during the period after 1980 will proceed under the influence of the following factors (/76/, pp.52-53; /28/, p.126):

- development of prices on imported crude oil whose increase will have its impact on the development of the share of chemical processed of oil (it will reach 15 per cent in 1985);
- orientation at less energy demanding chemical production, i.e. orientation at bigger imports of the respective products (e.g. methanol, urethane, some sorts of caoutchouc etc.);
- orientation at the development of the so called qualified low-tonnage chemistry (pure chemicals, organic pigments, polymeric additives, drugs, biofactors and paints);
- creating conditions for the dynamic development and innovation of the product range of the pharmaceutical industry;
- improving the structure of exports and imports of chemical goods, especially limiting imports of those chemical material for the effective manufacture of which conditions could be created in the CSSR, and to promote development of output of chemical products ensuring adequately rapid foreign currency incomes and usable at the same time at home, or directly exportable to the most demanding foreign markets.

In view of the expected slowing down of the dynamics of development of the chemical industry in the period of 1981-1985 (2.3 per cent of average annual growth rate - see data in Table 20) against the period of 1976 - 1980 (5.4 per cent of average annual growth rate in constant prices) (/28/, p.103) this branch will show a decrease of the share in the industrial production.^{1/} Consistent

2/ While in the period of 1976-1980 the relation of the dynamics of gross output of the chemical industry compared to the dynamics of industrial production as a whole reached 1.17 it will fall to 0.62 - 0.68 in the period of 1981-1985, i.e. it will almost fall to a half of the previous level.

orientation at selective structural adaptation of its inner structure will gradually create new conditions for its inclusion in the international division of labour. The expected development of oil prices after 1980 will also require a reassessment of the development of the position of Czechoslovak chemical industry's production on world markets (see data in Tables 12 and 13). The conditions of the eighties will orientate the development of Czechoslovak chemical industry's participation in the international division of labour at exports of production with higher degree of processing and at imports of the energy demanding chemical production.

This new orientation of the development of Czechoslovak chemical industry creates new conditions for selective intensification of the development of mutually advantageous economic relations with the developing countries. In this connection it is necessary to state that in the seventies, already, the CSSR showed a markedly higher share of chemical products (SITC 5) both in the imports from and in the exports to this area, than other groups of economically developed countries (see data in Table 18). It should not be assumed that the conditions of the eighties would orientate the development of chemical products' share in the structure of Czechoslovak foreign trade in a way differing from its structure in the quoted groups of countries. A certain room is being created by the supposed increase of the developing countries' share in the imports of liquid fuels into CSSR and by an increase of the share of their chemical processing.

4.2.3 Changes in the structure of the engineering industry

The engineering and electro-technical industries continue to be the basic link of the development of Czechoslovak national economy. Their impact over the application of scientific and technological progress and the growth of their exporting ability will be much more

evident than in the period of the seventies. In line with the intentions of the plan for the 1981-1985 period it is supposed that these branches - a certain slowing down of their dynamics (5.9 - 6.2 per cent of average annual growth rate) compared to the period of 1976 - 1980 (6.7 per cent) notwithstanding - will continue to play the part of the dynamic element in the development of the whole industry.^{1/}

The engineering and the electrotechnical industry will play an important part in ensuring exports. For the period of 1981 - 1985 it is supposed that the average dynamics of export deliveries in constant domestic prices will reach about 8.4 - 9.2 per cent of average annual growth rate (/28/, p.132). The achievement of an advance of average annual dynamics of exports over the average annual dynamics of output ranging from 1.42 to 1.48 is characteristic of the dynamic involvement of Czechoslovak engineering and electrotechnical industries into the international division of labour.

Subordinated to this end will also be the adaptation of the inner structure of this complex of branches. Dynamic increase of production for exports will also be accompanied with an expected lowering of the dynamics of deliveries intended for investment construction. Consistent adaptation of the structure of Czechoslovak engineering and electrotechnical industries to the requirements of foreign markets represents another condition for the growth of the exporting capability of this complex of branches. In this context high attention will be paid to defining an optimum range

1/ The relation of average annual growth rate of production of the engineering and electrotechnical industries against the dynamics of production in the industry as a whole will markedly increase and reach 1.68 - 1.74 in the period of 1981 - 1985 as against the 1.46 reached in the period 1976 - 1980.

Table 22

Proposed engineering branches^{a)} selected for State target programs in Czechoslovakia

-
1. Drive conversion equipment
 2. Power semiconductor inventors
 3. Hydraulic element and aggregates
 4. Industrial robots and manipulators
 5. Motor car accessories
 6. Electronics
 7. Switch board
 8. Computer systems for programming technological processes
-

a) CSSR branch classification of industry

Source: /28/, pp. 217 - 222; /78/, pp. 66 - 69

of the produced output. Attention and means will be concentrated on the development of a limited number of sectors and goods which have prerequisites for reaching the world standard of techno-economic parameters.

During realizing the structural adaptation of Czechoslovak engineering industry main attention will be concentrated on selected production programs (see data in Table 22), which will enable creation of conditions necessary for the achievement of substantially higher technical level of Czechoslovak machines and equipment and thus will contribute to an increase of their competitiveness on world markets.

Realization of production programmes including selected engineering and electrotechnical sectors of completing character represents the decisive condition for ensuring the achievement of these targets. Their dynamic development should make it possible :

- to increase mass production of final components (through their concentration and modernization);
- to make economy in investments and manpower;
- to attain the necessary typization, normalization, standardization and unification (thus achieving economy in products' designing);
- to increase the technical level of final components (and thus also the growth of the technical level, dependability and durability of final engineering and electrical products which would favourably influence the growth of their exporting capability and the setting of optimum import volumes of that production).

The electrotechnical industry will play the key part in the development of Czechoslovak engineering industry. The dynamics of its production (7.7 per cent) will ensure and create conditions for the electronization of Czechoslovak national economy. Preferential development of electronics (reaching an average annual growth rate of production of 14.7 per cent) and especially of microelectronics will make it possible to systematically elevate the use value of goods and technologies in the decisive sectors and branches.

An important task of the electrotechnical industry will consist in creating of conditions for an increase of the exporting capability of Czechoslovak engineering products and for lowering of import dependence. Effective development of this branch calls for the intensification of its participation in the international division of labour especially within the framework of socialist economic integration.

intensive development of electrotechnical industry requires ensuring of a highly dynamic development of production (about 24 per cent of average annual growth rate (/28/, p.221)) of the parts base of electrotechnics, electronics, optoelectronics and especially microelectronics.

In the development of production sectors of heavy engineering main attention will be concentrated on ensuring the equipment for nuclear power stations, for the extraction of coal, on equipment for thermal and water power stations with substantially better techno-economic parameters. During the period of 1981-1985 conditions will be created for further development of the production of equipment for chemical, pharmaceutical and food industries so as to substantially enlarge deliveries of this equipment for investment construction and for exports after 1985. Envisaged also is a further intensification of the development of rolling mills and of systems for their automation.

Fulfilment of export tasks of this branch will concentrate on this branch's production better utilization by way of exporting of investment complexes to the non-socialist countries markets, paying higher attention to the fulfilment of export obligations stemming from long-term trade agreements with socialist countries.

The development of general engineering industry will be more markedly orientated at solving the export tasks at the same time providing production technologies for investment construction and innovation of engineering consumer goods. There should be dynamic development of production of industrial robots and manipulators, hydraulic elements and assemblies, and motor vehicles accessories. Intensive application of microprocessors is envisaged in the wide production programme range of this branch (production of machinery tools, equipment for textile, leather, shoe and polygraphic industries, agricultural machines and manufacture of motor vehicles, consumer goods).

Adaptation of the structure of Czechoslovak engineering and electrotechnical industries as foreseen in the state plan for the 1981-1985 period is based on the assumption that exports of machines and equipment will fulfil the function of an active component in Czechoslovak balance of trade with the developing countries. Special attention will be paid to strengthening export capability of complex technological equipment and investment sets. It may be assumed that this direction of economic co-operation would gradually create conditions for target oriented imports of engineering production from the developing countries to the CSSR. Deepening of coordinated co-operation with other socialist countries on the markets of developing countries especially in exports of investments complexes from the CSSR should even more increase the potential possibility of engineering production imports from these countries.

4.2.4 Changes in the structure of light manufacturing industry

In the period after 1980 the development of basic structural proportion of the production of Czechoslovak manufacturing industry will follow a direction analogical to the preceding period (see data in Table 1): there will be a continuous fall in the share of the light manufacturing industry. Both the group of light manufacturing industry branches and the food industry will develop at a markedly slower rate than the total industrial production (see data in Table 20).

Adaptation of the structure of this complex of branches to changed internal and external conditions of its development will be directed especially at :

- a/ development of production based on domestic raw material (base consumption x processing of all available wood);
- b/ production based on utilization of manpower's skills (orientation at top quality and luxury products of textile and clothing industries);

- c/ lowering material and energy demands of the manufactured output;
- d/ increasing the quality and technical standard of products, intensive innovation of the collection depending on domestic and foreign market demands.

According to the intentions of the plan for the 1981-1985 period it is expected that the average annual dynamics of production growth of the wood-processing industry (/28/, p.224) will be about 4.5 per cent. For the realization of this concept production capacities would be used that had been completed before 1980. There will be a very dynamic development of production of chipboards (10.5 - 11.2 per cent of average annual growth rate) and of non-bleached pulp (9.9 per cent). The indicated dynamics of growth will make it possible to do away with the imports of chemical pulp and chipboards from non-socialist countries and to markedly increase the exporting capabilities of the wood-processing industry replacing at the same time the so far existing exports of timber products (by products with higher degree of processing).

The development of the glass industry and of the china and ceramics industry will be orientated at the output of top quality and luxury products. The expansion of the glass industry is to be directed primarily to broadening the output of technical products for further manufacturing consumption, and efforts must be made to reduce its energy intensiveness. The most rapid growth is to be recorded in the production of glass fibres and glass-fibre cloths for electronics and home furnishing textiles.

The expansion of the textile, clothing and leather-processing industries is to be concentrated particularly on rising the quality and technical standards of its products. In the cotton industry a share will increase of fine sorts of yarn, in the wool industry preference will be given to the development of production of decorative furniture textiles and carpets.

The dynamics of production of the food industry 1.9 - 2.1 per cent average annual growth rate in the period of 1981 - 1985 will be influenced by efforts directed at the achievement of a high degree of valorization of raw materials and by-products. Stress will be made on products' quality and innovation.

The development of the branches of Czechoslovak light manufacturing industry in the period of the first half of the eighties follows similar development tendencies as in other developed countries. The intentions of the production plan especially in branches producing goods exported from the developing countries, i.e. textile, footwear and clothing industry, make room for establishing optimum amounts of imports into the CSSR of this production from those countries. In view of the existing and future conditions for the development of these branches in the CSSR (i.e. an orientation at top quality products and at products with high demands on skilled manpower) it is possible to foresee the development of higher forms of economic co-operation with developing countries. A room for the development of this co-operation will be created through increasing the exporting capability of these branches in the eighties.

4.2.5 Basic features of structural policy in Czechoslovakia's industry

In the eighties, the adaptation of the structure of Czechoslovakia's industry in its concrete conditions requires (while preserving well-balanced development) the application of such structural policy that is based on the assumption of permanently valid inter-dependencies of internal and external conditions. It is necessary to keep in mind basic relationships between the existing level of development of the process of production on one hand, and, on the other hand, the structure of national economy (especially the manufacturing industry) corresponding to this level.

The direction of the economic and the social development of Czechoslovak national economy in the first half of the eighties (/28/) orientates the structural policy, above all, at the preservation of dynamic and balanced development of national economy in accordance with the socio - economic aims as planned, at the continuous and growing effectiveness in the exploitation of basic production factors and, finally, at the increase in the qualitative parameters of products - in accordance with the requirements of both domestic and external markets. Above all, it will be oriented at:

- subordinating consistently the adaptation of the structure of production to the requirements of effective development and to the highest possible increase in deliveries for exports, the strengthening of exporting

- capacities and, finally, to the decrease of demands on imports in the framework of economic growth;
- rationalizing the consumption and the use of fuels and energy, raw and other materials, of available fixed assets and manpower;
 - increasing the share of the productivity of labour in the growth of production;
 - ensuring more effective participation of Czechoslovakia's economy in the international division of labour.

The main implement of achieving higher efficiency in the national economic planning of big structural changes is a more consequent application of a target-oriented program approach. Such application should make it possible to focus attention on the preparation and the realization of important qualitative structural changes, oriented at final results of national economy. It should serve as a tool of structural policy which enables the integration of all decisive criteria (ensuring especially the links between internal and external economic factors) that have important bearing on the assessment of necessary structural changes with respect to the maximalization of their national economic effect, while minimizing the time period necessary for their implementation.

The application of the target-oriented approach in the process of implementing the structural policy within Czechoslovakia's national economy in the form of State target programs is closely linked to the application of this principle to international co-operation with the CMEA member states carried out in the form of Long-term target programs of co-operation. On the basis of such programs it will be possible to coordinate the implementation of

intentions pursued by the structural policy in the CS3R, with the intentions in the rest of the CMEA member states and thus to increase (and to accelerate) the effectiveness of the structural adaptation of Czechoslovakia's economy.

Basic aims of the structural policy related to the Czechoslovak industry will be reflected in a number of structural policies relevant to the area of manpower, capital investments, consumption of fuels and energy, raw and other materials and, too, to the area of foreign trade.

The principal precondition for the adaptation of the structure of Czechoslovakia's manufacturing industry is to ensure the increase in production, more or less without any new additions of manpower. The envisaged increase in the productivity of labour (by 3.2 - 3.5 per cent of the average annual growth rate) in the years 1981-1985 should cover over 90 per cent of the increase in production (/28/, p.209).

New additions of manpower will be concentrated on increasing the number of work shifts at factories, the production of which ensures the exporting tasks, decreases the dependency of production on imported sources of energy and raw materials and, too, on newly opened shops and plants, especially on the selected engineering branches (see data in Table 22).

In the process of implementing the structural policy in relation to manpower, the main attention will be devoted to the improvement of the structure of workers' skills and to the increase in the innovative activities of labour in the process of production (above all, to the increase in the technical level and the quality of production, to the improvement of technological processes and organization of production).

In the period after 1980, of considerable importance within the structural policy is complex rationalization in all sections of the process of production, aimed at the attainment of savings of raw and other materials, labour,

investments, decreasing, too, the dependency of Czechoslovakia's economy on imports. Decreasing demands on materials, energy and labour also is the basic criterion for the structural adaptation of the structure of Czechoslovakia's industry in the period after 1980.

Prevailing conditions and the demands on proportional development of the structure of Czechoslovakia's industry in the first half of the eighties orientate the capital investment construction, above all, at such measures that ensure the increase in exports and rationalization of imports, at the fulfillment of tasks related to the program of rationalized consumption of fuels, energy and, finally, at the necessary development of these resources. Preference will be given especially to such measures that make it possible to economize labour, raw materials and, above all, the metals. Main emphasis is laid on the achievement of a profound change in the way the reproduction of fixed assets occurs (it is envisaged that the proportion of investments allocated, on one hand, to finance the renewal, the reconstruction and the modernization investments to the investments meant, on the other hand, for development will be improved in favour of the former category of capital investments).

The adaptation of the structure of Czechoslovakia's industry in the eighties is contingent on the industry's active participation in the international division of labour, especially in the socialist economic integration. From the standpoint of the degree of participation of Czechoslovakia's manufacturing industry in the international division of labour the basic aims of the structural policy consist in (/28/, p.235 - 237):

- the strengthening of the exporting capacity and the effectiveness of foreign trade;
- the creation of conditions for attaining a continuous start of the rate of growth of exports over imports;

- the increase in the share of products with a high level of procession and valuation of skilled work;
- the rationalization of imports destined to satisfy the needs of production, the provision of imported machines and equipment of high technical level as well as consumer goods to enrich the internal market;
- the creation of conditions for the dynamic development of international specialization and co-operation of production within the framework of socialist economic integration as a key condition for increasing the exporting capacities of Czechoslovakia's manufacturing industry ;
- the creation of conditions for the accelerated adaptation of production in individual branches of the manufacturing industry to the changes in world markets by way of linking together the sphere of production and foreign trade more closely each with the other.

4.3 The influence of the adaptation of the structure of Czechoslovakia's industry on its participation in the international division of labour

In the eighties, the development of Czechoslovakia's national economy and the growth in its effectiveness are contingent on a highly active participation of the Czechoslovak industry in the international division of labour, especially in socialist economic integration. The capacity of this complex of branches to adapt itself quickly to the changing conditions in world markets is dependent, to a decisive degree, on the course of adaptation of its structure to the changes occurring both in internal and external economic conditions and, secondly, on the capacity of individual branches of industry to make such use of their participation in the international division of labour as to intensify the process of production and to realize structural changes as planned.

In the period after 1980, the relationship between the adaptation of the structure of Czechoslovak industry and its participation in the international division of

labour will be affected by the orientation of Czechoslovakia's economy at the renewal, step-by-step, of the balanced development of external economic relations. This process of renewal will represent a consistent application of the real and the marked start of the rate of exports over the rate of imports (in both physical volumes and the amounts of value).

The course of adaptation of the structure of Czechoslovak manufacturing industry and the degree of its participation in the international division of labour will be subordinated to the realization of the said intention. As far as individual branches of the manufacturing industry (and of other branches of Czechoslovakia's national economy as a whole) are concerned, this necessitates the orientation at large savings of raw and other imported materials, at a rational consumption and the highest possible valuation of such materials and at increasing the returnability of foreign currencies invested originally in the import of machines and equipment for capital construction.

4.3.1 The influence of the adaptation of the structure of Czechoslovakia's industry on its participation in the international division of labour with the CMEA member states

The many-sided economic, scientific and technological cooperation with the USSR and other socialist countries is considered a basis of continuous dynamism and the increasing effectiveness of the development of Czechoslovakia's national economy and external economic relations.

In the period from 1981 to 1985 conditions will be created to attain an average annual growth rate of 4.6 per cent (in physical volumes) in mutual trade between the USSR and other socialist countries (/28/, p.236). The development of mutual co-operation and specialization of production should lead to the creation of conditions for increasing

the export capacities of Czechoslovakia's industry and for lessening the dependence of economic growth on imports -especially imports from non - socialist countries .

The deliberation concerning the development of economic co-operation with the CMEA member states in the period till 1985 are affected (/79/, p.2) by :

- a/ the anticipated need of resources necessary to pay for the import of raw materials and fuels. In view of the anticipated development of prices of these commodities^{1/} imported into the CSSR only to ensure a simple reproduction of the existing level of imports of raw materials and fuels, it will be necessary to produce larger resources to pay for the imports;
- b/ the course of implementation of the long-term target - oriented programs of co-operation among the CMEA member states with investments and other outlays realized already in the period before 1985, while the returns and other effects for the Czechoslovak economy will come only after 1985.

The structural orientation and the dynamism of further development of economic co-operation with socialist countries is affected most of all by the results of the coordination of national economic plans with the CMEA member states. The agreements concluded with these countries (/79/, p.2) envisage an annual rate of growth of Czechoslovakia's exports in the amount of 5.2 per cent and 4.2 per cent in case of Czechoslovak imports (at constant prices) in the period from 1981 to 1985. This alternative envisages that the start of the dynamism of exports over the dynamism of

1/ Which is affected by the conditions, more complex and deteriorating, of the production of raw materials and by the development of prices in world markets - while preserving the validity of the principle of setting prices in foreign trade among the CMEA member states according to the level of prices in the preceding five - year period.

imports will be attained (1.24). According to this alternative, the balance of the CSSR should be equalized (on basis of constant prices) upon the condition that the share of these countries in the foreign trade of Czechoslovakia will be stabilized at the level of about two thirds of the total.

Decisive position in the economic relations of the CSSR with socialist countries is held by products of the engineering industry. According to one of the alternatives (/79/, p.3), it is envisaged that the production of Czechoslovakia's engineering and electrotechnical industries will represent 77.5 per cent in the total growth of Czechoslovak exports to socialist countries in the period from 1980 to 1985. If this were so, the share of the engineering products in the total sum of Czechoslovak exports to socialist countries would constitute about 60 per cent in 1985 (against 55 per cent in 1980).

The realization of this alternative requires the creation of such conditions (both in the sphere of production and in the area of foreign trade) that would enable to attain the level of products of Czechoslovakia's engineering corresponding to the requirements of world markets.

It is expected that in developing mutual economic relations between the CSSR and the CMEA member states an important role will also be played by Czechoslovak exports of such products from manufacturing industries that are based on domestic sources of raw materials, particularly the products of wood, glass and ceramic industries. Specialization and cooperation of production in the branches of the chemical industry (especially with the USSR) will enable to reduce substantially the consumption of energy as compared with the existing structure of Czechoslovakia's manufacturing industry and will contribute to increase the effectiveness of exports of chemical products from the CSSR.

Of decisive importance in the development of external economic relations between the USSR and the CMEA member states in the period after 1980 will be the growth of a purposeful linkage of the structure of Czechoslovakia's manufacturing industry with the structures of this complex of branches in the rest of the CMEA member states (especially the USSR) through the development of higher forms of socialist economic integration.

The course of adaptation of the structure of Czechoslovak manufacturing industry in the period following 1980 will be affected very substantially by the realization of the long-term program of specialization and co-operation of production between the USSR and the USSR till 1990. The present course of preparatory work on this program envisages further extension and deepening of the participation of both countries in international specialization and co-operation, especially in the engineering branches and also in the chemical and petrochemical industries (/81/, p.3) ^{1/}.

1/ Especially in branches as follows: heavy and transport engineering, power engineering, chemical and oil-processing engineering, production of machine tools and instruments, automobile industry, manufacture of tractors and agricultural machinery, machines for husbandry and the production of fodders, manufacture of hydraulic equipment, electrotechnical industry, electronic industry, manufacture of appliances and means of automation, computing technology, manufacture of machines for light industry, chemical and petrochemical industries.

4.3.2 The influence of the adaptation of the structure of Czechoslovakia's industry on its participation in the international division of labour with developing countries

The main directions of economic and social development of the CSSR for the years 1981-1985 (/28/, p. 237) assume that in the process of realization of intentions as set forth in this document use will be made also of the development, based on mutual advantage, of scientific, technological and economic relations with market economies. The deliberation concerning the development of these relations for the period of the seventh five-year plan proceeds consistently from the necessity of ensuring the task of restoring, step-by-step, external economic balance of the Czechoslovak national economy.

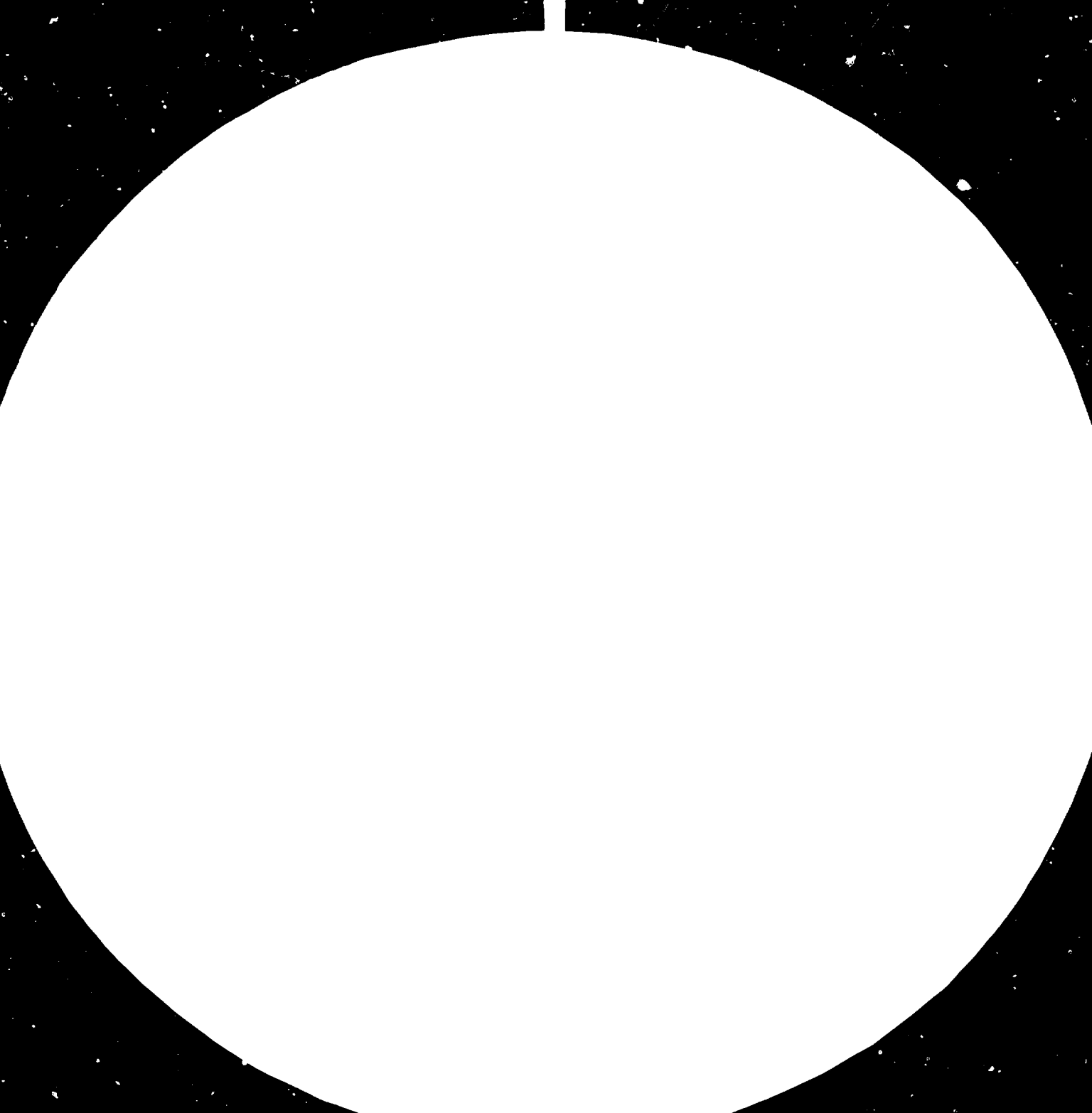
The basic precondition for the materialization of this task calls for greater dynamism of exports to these countries as compared to the dynamism of imports from these countries.

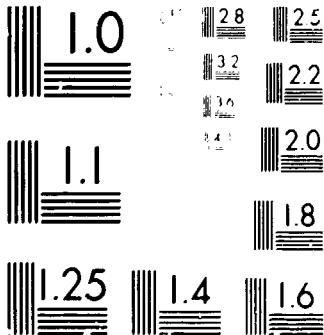
The fulfillment of this task is the basic precondition of the well - balanced development of economic relations between the CSSR and market economies.

Low dynamism of the growth in imports not only reflects an economical alternative of the growth in imports for the period from 1981 to 1985 but is the result, too, of the high volume of imports to the CSSR from these countries in the year taken as a starting base (1980).

GOVERNMENT







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The realization of the said intention assumes that conditions will be created gradually for the improvement of the structure of mutual trade exchange with developed market economics so as

- a/ to increase the share of machines and equipment in exports from the CSSR to the markets in these countries;
- b/ to orientate imports from these countries at necessary raw and other materials, machines of the highest technical level bringing quick returns with respect to foreign currency.

Our deliberations concerning external economic relations of the CSSR after 1980 attach great importance to the development of economic co-operation with developing countries. Deepening many-sided co-operation with these countries will make it possible to gain better returns from the international division of labour both for the CSSR and for these countries as well.

The analysis regarding the evolution of the position of developing countries in Czechoslovakia's foreign trade in the period of the seventies and the expected requirements of the development of Czechoslovak national economy (especially the requirements of the process of adaptation of the structure of Czechoslovak manufacturing industry) in the years following 1980 enable us to arrive at the following conclusions concerning the international division of labour between the CSSR and the developing countries :

A. From the standpoint of imports from developing countries

- a/ The imports from developing countries will have to ensure a part of the increase in the supply of a number of important raw materials, fuels and food for Czechoslovak national economy. Raw and other materials will continue to be the most important items in Czechoslovakia's imports from developing countries. The interest of the Czechoslovak national economy in ensuring a stable source able to cover its long - term planned needs for

raw and other materials and power resources will affect favourably the development of higher (closer) forms of co-operation with individual developing countries acting as producers and suppliers.

- b/ The consequent orientation of the adaptation of the structure of Czechoslovak national economy (and Czechoslovak manufacturing industry in the first place) at an energy- and material - saving type of economic growth will create conditions for increasing the share of semi-products and/or raw materials with a higher form of procession in Czechoslovakia's imports of raw and other materials from developing countries (e.g. products of the metallurgical and chemical industries). The increasing role of semi-products may serve as a beginning of the planned transfer of some kinds of production and/or production operations to the developing countries.
- c/ The structural adaptation of the position of individual branches of light manufacturing industry in the structure of Czechoslovak manufacturing industry as a whole to the production based on the use of domestic raw materials (wood-processing industry, glass industry, china and ceramics) and, with reference to exporting branches in developing countries (textile, clothing and leather industries), to the production with higher degree of procession and that needed highly skilled labour, all this will create conditions for the development of different forms of industrial co-operation with developing countries in these branches. One may assume that this type of co-operation could have a very favourable bearing on the increase of the exporting capacity of these branches of Czechoslovakia's manufacturing industry. In view of the fact that the development of the international division of labour in the said branches between the developing countries and the CSSR does not cause any social consequences from the standpoint of releasing workers from these branches in the

CSSR one may consider this to be a favourable element, too, in such form of economic co-operation.

- d/ The anticipated adaptation of the structure of Czechoslovak engineering (i.e. optimized volumes of production, increasing share of products with higher degree of procession and less demands on raw materials and energy) and the development of international specialization and co-operation of production with the CMEA member states, along with the results, already existing, of industrial co-operation with the developing countries, create conditions for increasing the share of engineering products (e.g. components, spare parts, selected kinds of engineering consumer goods) in Czechoslovak imports from these countries. The development of higher forms of co-operation in this branch may serve, too, as a possible beginning of the planned transfer of production or some kinds of production operations to the developing countries.

Basic preconditions for such diversification of Czechoslovak imports from developing countries that would meet the requirements of the planned adaptation of the structure of Czechoslovak industry and the needs of development of the economy as a whole and, on the other hand, would correspond to the level and the structure of production in respective developing countries, include also the creation of an adequate information system providing information on the development of national economies and markets in respective partner countries.

The long-term target-oriented co-operation between the CSSR and these countries will require the deepening of certain forms of co-operation also in the area of structural policy (from the standpoints of both the industrialization plans of developing countries and the planned aims of Czechoslovakia's national economy).

B. From the standpoint of exports to developing countries

- a/ Machines and equipment perspectivevely are the decisive commodity group able to fulfil in real terms the function of an active component of Czechoslovakia's trade balance with developing countries. The increasing share in the structure of Czechoslovak exports of machines and equipment to developing countries will have the deliveries of capital equipment and investments (especially power and metallurgical equipment, textile plants, assembly shops for tractors and transport vehicles, equipment for the procession of agricultural products and food, metal-working and metal-forming plants, equipment for chemical and rubber industries). The growing volumes of capital equipment will create conditions for the implementation of higher forms of economic co-operation (co-operation of production). The scientific and technological co-operation will be an important incentive in the development of co-operation in connection with the export of capital equipment as it creates conditions for the realization of such exports.
- b/ An assumption can be made that in the course of the eighties the share of consumer goods in the structure of Czechoslovak exports to developing countries will continue to decrease, especially the export of goods that the developing countries export themselves. There will be found the influence of internal conditions both for the development of consumer branches in the CSSR (limited possibilities of increasing production as a result of an inadequate and/or non - complex base of available domestic raw materials and as a result of the existing relative shortage of manpower) and especially for the development of production of consumer goods in developing countries. The tendency toward the decline of the share of industrial consumer goods in the structure of Czechoslovak exports to developing countries should be considered an objective phenomenon, a by-product of the industrialization process

in these countries. The anticipated adaptation of the structure of Czechoslovakia's consumer industry supposedly carried out through the orientation at such branches and products that use raw material available in the country and at products with higher degree of procession (or products requiring higher skills of workers) creates, too, potential conditions for developing appropriate forms of co-operation of production and, in specific cases, for transferring production to the developing countries.

The aims of the plan of development of the Czechoslovak national economy for the period from 1981 to 1985 and the deliberation of its development during the whole period of the eighties which direct the adaptation of its structure (and especially different branches of the manufacturing industry) at the intensification of economic growth, together with the conditions and the course of industrialization in developing countries, during the same period, create potential conditions favourable for the development of higher forms of economic co-operation, especially industrial co-operation. An assumption can be made that as a result of such co-operation it will be possible to gain a much larger room for the adaptation of the structure of Czechoslovakia's foreign trade with developing countries as well as for the sale of products of these countries in the Czechoslovak market.

General findings and conclusions

1. Basic features of structural changes in Czechoslovak national economy

Adaptation of the structure of Czechoslovak national economy in the process of the economic growth to changes in internal and external economic (and other) conditions has taken place in four basic stages of economic development^{1/}. Characteristic features and dynamics of the economic growth, basic structural proportions of national economy and level of its participation in the international division of labour were influenced by planned changes in the orientation of economic and social policies in the course of these stages.

The foundations of socialist economic system in Czechoslovakia were laid in the period of 1949-1960. Decisive structural changes took place during the first five-year plan (1949-1953). In the course of restructuring the Czechoslovak national economy at that stage the role of the industry had been strengthened and in its inner structure the role of the branches of heavy manufacturing industry, especially the role of engineering. This structural development is reflected in the structure of Czechoslovak national economy's participation in the international division of labour. In the structure of exports there is a marked increase of the share of machinery and equipment on the expense of the production of

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- 1/ I. Post-war reconstruction and the beginning of planning (1945-1948).
II. Building of the foundations of the socialist economic system (1949-1960).
III. Completion of the socialist economic system (1961-1970).
IV. Building of developed socialist society (1971-1980).

light manufacturing industry, and in the territorial structure of external economic relations the orientation is strengthened in socialist countries.

The mentioned structural proportions of Czechoslovak economy had been reproduced in the course of the fifties and sixties (1950-1970). A type of structure had been created corresponding to a high level of achieved economic and industrial development (with high share of industry in produced net material product and in the structure of basic production factors, with high share of branches of heavy manufacturing industry in the structure of manufacturing industry).

The creation of the structure of this type, which because of its basic proportions, especially of the manufacturing industry (above all, because of the share of heavy manufacturing industry and engineering) approaches rather the structure of advanced big countries (enjoying better natural conditions and basic factors of economic growth and, moreover, having at their disposal bigger scientific and technological potential) - was affected by the availability of relatively cheap resources of raw materials and energy (acquired through imports from the USSR) and by the role that the Czechoslovak industry played in the process of industrialization of other socialist countries.

The changes in the conditions for substituting basic production factors (as a result of growing prices of raw materials and energy in the first half of the seventies) and the ever scarcer sources of labour for the growth of employment orientate the structural policy, especially in the second half of the seventies, at a rather profound adaptation of the structure of Czechoslovakia's national economy (especially industry) and its engagement in the international division of labour according to the conditions of a small advanced country with limited resources of raw materials, energy and labour.

The necessity of the adaptation of the structure of Czechoslovakia's national economy appears particularly urgent from the standpoint of efforts aimed at increasing the level of its effectiveness.

The slow-down in the dynamism of economic growth (and the dynamism of its effectiveness) in the seventies complicates conditions for the necessary adaptation of the structure of Czechoslovak national economy. Under these circumstances, emphasis is laid on a selective structural adaptation which is meant to be carried out through intra-structural changes. The realization of such changes is facilitated by the conditions provided by the planned regulation of macro-structural proportions within the Czechoslovak national economy.

2. Structural changes in Czechoslovak industry and in its participation in the international division of labour

The period of the seventies is characterized by the continuation of a long-term tendency toward changes in the structure of Czechoslovakia's industry accompanying the increase in the economic and the industrialization level of the country and consisting in the decline of the share of the mining industry and, on the other hand, in the increase of the share of the whole complex of manufacturing industries. In the structure of manufacturing industries

there continues the growth in the share of heavy manufacturing industry whose different branches play a dominant role in the formation of the specialized profile of Czechoslovakia's industry.

In the structure of Czechoslovak industry (i.e. in the structure of both the production and the basic production factors) there decreases steadily the share of those branches, in which the CSSR is losing a relative comparative advantage, i.e. the share of branches with big demands on labour with lower skills (textile, clothing and leather industries), while there increases the share of other branches where conditions for the acquisition of such advantage exist, i.e. the share of branches with big demands on labour with higher skills and on scientific and technological progress (engineering and chemical industries).

Though the development of basic structural proportions in Czechoslovak industry maintains evolutionary tendencies similar to those in other advanced countries, these tendencies are modified by the specific conditions of the industry's development in the CSSR.

A relatively higher share of mining industries and metallurgical industry is the result of a greater dependence of economic growth in Czechoslovakia on the consumption of energy and metals. To a considerable degree, the high share of engineering, in the structure of Czechoslovakia's industrial production is the result of the role this branch has played in the realization of socialist industrialization in the rest of the CMEA member states. The internal structure of this branch is less favourable (low shares of electrotechnical and electronic industries) and this fact does not create adequate conditions for the intensification of the reproduction process in other branches of Czechoslovak national economy.

The development of the over-all share of different branches of light manufacturing industry maintains usual

scheme of relationships, with their share declining in proportion to growing economic level, though the branches of wood-processing, textile, clothing and footwear industries continue to preserve a rather high share due to specific conditions of the country (availability of natural conditions and long tradition of production).

In the seventies, the development of the structure of Czechoslovak industry is characterized by the slow-down in the dynamism of structural changes. In this situation, the possibilities for the structural changes in production and employment to stimulate the increase in the productivity of labour are gradually diminishing. The structural policy orients at accelerating the absorption of scientific and technological progress and at making better use of the possibilities provided by the international division of labour (especially in branches with high demands either on the absorption of scientific and technological progress, i.e. engineering and chemical industry, or raw materials and energy, i.e. metallurgy of iron and steel, or labour, i.e. different branches of light manufacturing industry).

Though the structure of Czechoslovak manufacturing industry changes in favour of branches with high demands on skills, science and research, there still exist considerable possibilities, unused as yet, of mobilizing internal sources of scientific and technological progress (especially with respect to the utilization of capacities of the scientific and research base of Czechoslovakia's industry) and of engaging the manufacturing industry in the international division of labour to transfer the world knowledge of scientific and technological progress.

The structure of participation of the Czechoslovak manufacturing industry in the international division of labour on the side of both exports and imports changes, shifting from production with demands on the over-all consumption of labour to production requiring higher skills and technological progress materialized in fixed

assets, in production technology and in qualified manpower. This evolutionary tendency, along with the increasingly limited possibilities of ensuring sources of raw materials, energy and labour for the branches with high demands on their consumption (metallurgy of iron and steel, chemical industry and different branches of light manufacturing industry), create appropriate objective conditions for developing international division of labour in these branches, especially with the developing countries.

Of especially favourable effect from this point of view is the growth of intra-branch foreign trade and the development of the participation of Czechoslovakia's industry in the intra-branch specialization and co-operation of production with the CMEA member states, accompanied by the growing import and export capacity of the Czechoslovak industry.

In the seventies, the import capacity of Czechoslovakia's national economy in relation to the production of manufacturing industry was affected by the course of the adaptation of the export capacity of this complex of branches to the changes in external conditions prevailing in world markets in the period following 1973 out, nevertheless, despite certain improvement (resulting from the efforts to better the country's existing balance of payments), there exist considerable potential possibilities of now to develop the import capacity especially for the products exported from developing countries (such branches as textile, clothing and leather industries) and, too, for some other branches of the manufacturing industry (metallurgical, chemical and engineering industries). The objective development of the structure of Czechoslovakia's manufacturing industry aims just in this direction, especially from the standpoint of demands put on basic production factors (above all, on labour and resources of raw materials and energy).

In the same direction there will aim also the selective adaptation of the production capacity of Czechoslovakia's manufacturing industry for which the main criteria will be such factors as the availability of skilled manpower and scientific and technological innovations and the possibilities for the exploitation of domestic sources of raw materials.

3. The position of developing countries in the engagement of Czechoslovak national economy in international division of labour

In the seventies (1971-1980), the development of Czechoslovakia's foreign trade with developing countries had a dynamic character. In comparison with the preceding period (1961-1970), the dynamism of both the export (11.0 per cent against 4.8 per cent of the average annual growth rate) to developing countries and the import (10.6 per cent against 2.4 per cent) to the CSSR from this area accelerated very conspicuously. In the second half of the seventies there begins to appear the tendency toward the stabilization of the share of these countries in Czechoslovak over-all exports (representing about 29 per cent in 1980) and over-all imports (reaching approximately 18 per cent in 1980) to/from market economies.

The developing countries share very highly in the export of Czechoslovak machines and equipment (nearly 10 per cent) and industrial consumer goods (about 7 per cent). The share of these countries is relatively high also in the total value of Czechoslovak exports of fuels, raw materials, metals and chemicals (about 6 per cent) and foodstuff (about 10 per cent).

However, the position of developing countries is less favourable in the structure of Czechoslovak imports. Their share is significant only in the over-all value of Czechoslovakia's imports of fuels, raw materials, metals and chemicals (about 7 per cent) and foodstuff (about 17 per cent). The imports from developing countries cover a substantial portion of needs for important raw materials and the role of these countries as suppliers of mineral fuels increased in the course of the seventies. Their position is negligible, however, as far as the Czechoslovak imports of products from manufacturing industries, especially of industrial consumer goods, machines and equipment, are concerned.

The main reasons of such development (which is reflected through its consequences in the disproportionately low share of developing countries in the structure of participation of Czechoslovakia's national economy in the international division of labour) may be considered as follows:

- the inadequate creation of preconditions for such diversification of Czechoslovak imports that would correspond to the development and the structure of production in these countries;
- the inadequate ability of the capital products of Czechoslovak engineering to find broader markets in these countries in connection with the process of their industrialization.

The relatively low share of products from the manufacturing industry (commodity groups SITC 5-8) in the structure of Czechoslovak imports from developing countries is, to a considerable extent, also the result of the existing level of economic co-operation. The experience gained thus far shows that the share of products from the manufacturing industry in the structure of Czechoslovak imports from these countries increases in proportion to the increasing degree of development of economic co-operation (especially of industrial co-operation).

The substantially higher asymmetry of the commodity structure of Czechoslovak foreign trade with developing countries from the standpoint of the share of manufacturing industries (SITC 5-8) in the structure of imports and exports (the relation of shares being 14:94) - even in comparison with other groups of advanced countries (e.g. CMEA countries 11:69; the OECD countries 19:84; the OECD - Europe 17:87) - shows that it is necessary to create conditions, step-by-step, for effecting changes in the structure of Czechoslovak imports from these countries, especially by way of extending room for the import of consumer goods, raw materials and semi-products with higher degree of procession, as well as of products from the engineering industry.

The adaptation of the structure of Czechoslovakia's manufacturing industry to internal and external economic conditions prevailing in the seventies and the eighties (namely, rather limited resources for the development of different branches of light manufacturing industry and the necessity of optimizing the volume and the structure of production manufactured in other branches, i.e. in metallurgical, chemical and engineering industries) will create potential possibilities for the desirable adaptation of the structure of Czechoslovakia's foreign trade with the developing countries. In this direction there will also aim the development of activities, coordinated with the rest of the CMEA member states, meant to develop higher forms of economic co-operation with developing countries.

4. Basic features of changes in the structure of Czechoslovak industry and their influence on the participation of Czechoslovakia's national economy in the international division of labour with developing countries in the period of the eighties

In the eighties, the development of the structure of Czechoslovak industry will be affected by the strategic guideline of the economic policy for this period, i.e. the

consistent application of intensive factors of economic growth.

During this period the structural adaptation of the Czechoslovak industry will be carried out under the conditions of lower dynamism of growth in the net material product and in basic production factors (i.e. lower dynamism of growth in inputs consumption and smaller additions of new manpower). The dynamism of growth of national economy as planned and the desirable level of its effectiveness will be reached by a more extensive application of scientific and technological progress in all branches of economy and by a more active participation of Czechoslovakia's economy in the international division of labour (above all, in socialist economic integration).

As to this period, it is also envisaged that the complexity of external economic conditions in foreign markets will increase noticeably (from the standpoints of both the acquisition of necessary raw and other materials, energy and transfer of scientific and technological achievements and, on the other hand, the conditions for the sale of products of the Czechoslovak manufacturing industry).

The adaptation of the structure of Czechoslovak industry to the conditions of the eighties will be realized in application to the position and the internal structure of fuels and energy base, metallurgical, chemical and engineering industries, as well as to different branches of the light manufacturing industry.

In the eighties there will be applied a strong orientation at an energy-saving type of economic growth, achieving this especially through the implementation of a long - term program of rationalizing the consumption of energy and, secondly, through the necessary adaptation of the structure of Czechoslovakia's manufacturing industry and its participation in the international division of

labour. The realization of the said aim will be reflected primarily in the adaptation of the structure of metallurgical and chemical industries and in the structure of both exports (by way of reducing the export of products with high consumption of energy needed for their production) and imports (by way of a preferential import of products with high demands on energy necessary for their manufacture). This type of development will also create potential conditions for the extension of imports from developing countries of products with high demands on energy (metallurgical materials, chemical products).

The structure of the balance of fuels and sources of energy will show an increasing share of domestic resources, especially of brown coal and lignite and nuclear energy. Realistic possibilities of imports of fuels from the USSR will focus attention on the acquisition of a part of these fuels through the import from developing countries (the tendency of the seventies will continue into the eighties).

The declining share of fuels and energy base in the structure of Czechoslovak industry will be accompanied by an increasing share of electric energy in the structure of industrial production.

In the structure of the material base there will continue the existing tendency toward lowering the share of metallurgy of iron and steel, while adapting, at the same time, the assortment of products to the production with higher degree of procession. In this direction there will aim, too, the efforts undertaken to optimize the degree and the structure of engaging this branch in the international division of labour.

The orientation at an energy - saving type of economic growth and the complexity of conditions related to the acquisition of basic raw materials for the chemical industry, these are the reasons for the planned slow-down in the dynamism of growth of production in this branch and for

the decline of its share in the structure of production of Czechoslovakia's industry in the years from 1981 to 1985 and, also, for shifting the orientation of its internal structure toward the manufacture of chemical products with lower demands on energy, especially toward the development of the so called qualified low-tonnage chemistry. This kind of planned development of the chemical industry creates potential conditions, too, for fostering the development of economic co-operation with the developing countries in this branch.

The engineering and the electrotechnical industries continue to represent the main element in the development of Czechoslovak national economy and industry in particular. Their role will grow both in the structure of Czechoslovak industry and in its engagement in international division of labour. The adaptation of internal structures of these two branches will be oriented at the optimization of the scale of products these two branches will manufacture and, secondly, at the development of such products and commodity groups that will enable to achieve technical and economic parameters of final products analogous to the best in the world, and to increase the exporting capacity of Czechoslovak engineering. The electrotechnical industry and electronics in the first place will have a key position in the development of Czechoslovak engineering.

The dynamic growth of the participation of this branch in the international division of labour as envisaged by the plan for the period of 1981-1985 (the dynamism of production meant for exports will show a conspicuous start over the over-all dynamism of total production) will be realized primarily through the export of capital equipment and other capital deliveries destined for different branches of heavy and light manufacturing industries. The anticipated exports of these capital products to developing countries will create conditions for the purposeful development of imports into the CSSR of products manufactured abroad with the help of this equipment.

The adaptation of the structure of branches of light manufacturing industry will be oriented at the development of production based on the utilization of raw materials available in the country (wood-processing industry, glass, china and ceramics); and at the manufacture of top and luxury goods in the textile and clothing industries requiring highly skilled work. Such direction in the adaptation of the structure of this complex of branches creates potential room, too, for the development of higher forms of co-operation with the developing countries.

A target-oriented approach carried out by means of state target programs will be the principal tool of implementing the structural policy that is to be applied in the process of realizing the structural adaptation of Czechoslovak industry in the eighties. The structural policy will be oriented primarily at maintaining the dynamic and balanced development of Czechoslovakia's national economy, at applying continuously the growing effectiveness in the exploitation of basic production factors and, finally, at ensuring the highest possible increase in the volume of deliveries for export and the increase in the export capacity of Czechoslovak goods, while optimizing (reducing) the dependence of economic growth on imports.

The employment of the participation of Czechoslovak industry in the international division of labour for the purpose of bringing about the effective changes in its structure as planned will be carried out in the conditions of renewing gradually a well-balanced development of external economic relations which presupposes the consistent application of a real and a considerable start of the rate of growth in exports over imports.

The balanced development of external economic relations will be based on the many-sided economic, scientific and technological co-operation with the CMEA member states (above all, with the USSR). It is envisaged that in relations with these countries there will be reached a start of the

dynamism of exports over imports resulting in the equilization of the balance of trade. This aim is meant to be achieved primarily through a noticeable increase in the dynamism of export of products from the engineering industry which is certain to play a decisive role in the growth of Czechoslovak exports to these countries.

The development of external economic relations with market economies in the period from 1981 to 1985 will also be based on the achievement of a gradual restoration of external economic balance with these countries.

The realization of a substantial start of the dynamism of exports over imports will proceed, first, from the increasing share of machines and equipment in the export from the CSSR to the developed market economies and, secondly, from the orientation of imports from these countries at raw and other materials necessary and machines of the highest technical level with quick returnability of foreign currencies.

In the eighties the dynamic development of external economic relations with the developing countries is envisaged, especially the development of higher forms of economic co-operation (industrial co-operation above all).

The conceptually substantiated long-term development of this co-operation will necessitate the creation of an adequate information system providing information on the course and the aims of development of national economies (especially industries) in the CSSR and in partner countries. The development of mutually advantageous economic co-operation will also require to deepen appropriate forms of co-operation in the area of structural policies (from the standpoints of the planned aims of Czechoslovakia's national economy and the industrialization plans of developing countries).

The course of adaptation of the structure of Czechoslovak national economy and especially of Czechoslovak

industry in the period of the seventh five-year plan (1981 - 1985) and the anticipated development of external economic relations will be based on the development of economic co-operation with developing countries in their capacity as suppliers of important raw materials, fuels and foodstuff for Czechoslovakia's national economy and, secondly, as important buyers of products from Czechoslovak engineering, especially of complex technological and capital equipment.

Raw and other materials will continue to be the most important items in the structure of Czechoslovakia's imports from these countries. However, the adaptation of the structure of Czechoslovak national economy to the energy- and material- saving type of economic growth and the anticipated adaptation of the structure of light manufacturing industry (to the manufacture of products requiring highly skilled labour) will create preconditions for increasing imports of semi - products and/or raw materials with higher degree of procession (e.g. the products of metallurgical and chemical industries) as well as products from different branches of light manufacturing industry. The fact that releasing workers from these branches in the CSSR as a possible result of this co-operation does not have social consequences as it does in developed market economies, is a condition favourable for the development of the international division of labour in these branches between the CSSR and the developing countries.

The development of higher form of co-operation (especially of industrial co-operation) on the basis of deliveries of complex production equipment and capital products from the CSSR will create conditions for increasing the share of engineering products in Czechoslovakia's imports from developing countries.

An assumption can be made that the increasing participation of the CSSR in the industrialization process in developing countries, implemented primarily through the

deliveries of capital equipment, will create, step-by-step, conditions for a planned and mutually advantageous transfer of some kinds of production and/or production operations to developing countries.

Machines and equipment will continue to be the most important items in Czechoslovakia's exports to developing countries, with the share of capital equipment growing. These products will be the main active component of Czechoslovakia's balance of trade with developing countries and these items will create adequate room to increase imports from developing countries to the internal market in the CSSR.

The anticipated continuation of a declining trend in the share of consumer goods in the structure of Czechoslovak exports to the markets of developing countries will reflect an objective evolutionary tendency and will create room for developing appropriate intra - branch trade (intra - branch specialization), especially with products exported from developing countries (the products of textile and clothing industries).

The dynamic development of all forms of scientific and technological co-operation between the CSSR and the developing countries will enable to make use of the existing scientific and technological potential of Czechoslovak national economy and its historical experience of industrialization for the benefit of developing countries and will create conditions favourable for the development of higher forms of economic co-operation in the complicated situation of the eighties.

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APPENDIX A

Basic statistical tables

Table A.1

Structure of net material product, employment and investment
in Czechoslovakia in 1949 - 1960

(In percentage)

		Agriculture and forestry	Industry	Construction	Transport	Trade	Residual	Material sphere	Non-material services
		<u>Net material product</u>							
At current prices	1949	18.0	62.6	8.4	3.5	6.9	0.4	100.0	-
	1950	17.4	61.4	8.7	3.3	8.6	0.6	100.0	-
	1953	13.5	66.8	9.6	3.0	6.6	0.5	100.0	-
	1955	15.5	62.2	10.4	3.1	8.2	0.6	100.0	-
	1960	15.7	62.3	10.6	3.7	7.0	0.7	100.0	-
At constant prices a)	1949	20.0	64.6	7.0	2.0	6.0	0.4	100.0	-
	1950	20.4	61.6	7.1	2.1	8.3	0.5	100.0	-
	1953	15.2	64.1	10.1	2.8	7.2	0.6	100.0	-
	1955	13.0	64.3	10.4	2.9	8.7	0.7	100.0	-
	1960	8.3	70.0	12.2	3.5	5.2	0.8	100.0	-
		<u>Employment b)</u>							
	1949	40.6	29.3	5.9	5.1	7.9	.	88.8	11.2
	1950	38.6	30.0	6.3	3.1	8.3	0.2	86.6	13.4
	1953	34.5	32.1	7.6	5.6	7.7	.	87.5	12.5
	1955	34.0	32.6	6.8	3.4	8.0	0.3	85.1	14.9
	1960	25.9	37.3	8.3	3.6	7.9	0.3	83.3	16.7
		<u>Investment c)</u>							
	1949	7.1	45.7	1.3	15.2	1.0	0.0	70.3	29.7
	1950	8.0	45.1	2.2	13.5	2.2	1.0	72.0	28.0
	1953	11.6	36.9	1.9	14.4	1.4	0.0	66.2	33.8
	1955	14.1	34.3	2.0	10.5	3.0	0.0	63.9	36.1
	1960	16.9	40.1	3.3	9.4	3.1	0.2	73.0	27.0

a) At 1.4.1955 prices

b) Active population employed in national economy

c) At 1.1.1967 prices

Sources: /15/, pp. 89, 99; /16/, p. 128; /17/, pp. 121, 138, 139; /18/, pp. 188, 189

Table A.2

Structure of industrial production and employment
in Czechoslovakia in 1948 - 1960

(In percentage)

Branches	Production a)				Employment b)			
	1948	1953	1955	1960	1948	1953	1955	1960
Industry total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
of which:								
Means of production	51.3	58.1	57.1	59.8	48.9	58.3	57.5	58.0
Consumer goods	48.7	41.9	42.9	40.2	50.2	41.7	42.5	42.0
Branches:								
Fuel	9.9	7.2	7.0	6.6	9.6	8.8	9.2	8.8
Energy	2.9	2.5	2.7	2.8	1.3	1.4	1.5	1.4
Metallurgy	9.6	9.9	9.4	9.3	6.7	8.3	7.9	8.1
Engineering	18.9	28.7	28.8	33.7	23.7	30.9	30.9	32.5
Chemicals	4.0	4.7	5.0	6.1	3.4	3.7	3.8	4.1
Construction materials	2.9	2.8	3.1	4.2	4.7	4.5	4.6	4.5
Light industry c)	28.2	21.6	22.7	19.9	39.8	31.9	32.0	31.4
Food	23.1	21.7	20.4	16.4	10.3	9.8	9.4	8.3

a) Gross output (at constant prices)

b) Operatives

c) Including: wood and wood processing, paper, glass and china, textiles, clothing, leather
and footwear, printing

Source: /1/, pp. 77, 116

Table A.3

Commodity structure of (Czechoslovak foreign trade a)

(In percentages)

Commodity groups	1949	1950	1953	1955	1960	1965	1970	1973	1975	1979
EXPORTS										
I. Machinery and equipment	27.2	26.4	42.4	43.5	45.1	48.5	50.2	50.1	48.0	51.1
II. Raw materials and semi-finished products	37.0	35.5	36.8	39.3	29.2	30.4	29.4	28.4	30.3	28.5
III. Foodstuffs and raw materials for food products	0.1	0.1	0.0	0.0	0.1	0.2	0.1	0.2	0.1	0.1
IV. Cattle and other animals for breeding	7.8	12.7	8.6	6.1	5.2	4.4	3.8	4.0	4.2	3.7
V. Consumer goods	27.9	25.3	12.2	11.1	20.4	16.5	16.5	17.3	17.4	16.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
IMPORTS										
I. Machinery and equipment	7.3	11.2	14.1	13.3	21.7	29.9	33.3	37.3	36.9	36.5
II. Raw materials and semi-finished products	64.6	61.0	54.2	53.6	53.0	48.8	43.1	43.0	46.6	47.4
III. Foodstuffs and raw materials for food products	0.2	0.0	0.1	0.0	0.1	0.2	0.3	0.2	0.1	0.1
IV. Cattle and other animals for breeding	26.2	25.2	30.1	29.0	21.9	15.9	14.8	12.3	9.2	9.3
V. Consumer goods	1.7	2.6	1.5	4.1	3.3	5.2	8.5	7.2	7.2	6.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) The percentages are derived from absolute figures in Kčs; at current prices

Sources: /15/, pp. 315; /18/, pp. 411, 412; /19/, pp. 447, 448; /20/, pp. 456, 467

Table A.4

Foreign trade ^{a)} of Czechoslovakia by major regions

(In percentage)

	1948	1953	1955	1960	1965	1970	1973	1975	1979
EXPORTS									
Centrally planned economies	39.6	78.1	68.9	72.3	73.1	70.6	70.6	71.6	72.3
of which: CMEA	32.5	70.8	62.1	63.6	68.0	64.7	66.1	66.5	67.5
of which: Soviet Union	15.9	32.3	34.2	34.1	38.0	32.2	31.7	33.0	35.6
Market economies	60.4	21.9	31.1	27.7	26.9	29.4	29.4	28.4	27.7
of which: developed	43.9	14.7	16.7	16.7	17.1	20.4	21.8	19.8	19.9
of which: EEC	.	.	.	7.4	7.7	10.4	14.1	12.8	12.1
developing	16.5	7.2	14.4	11.0	9.8	9.0	7.6	8.6	7.8
of which: asiatic	.	.	.	5.1	5.4	5.0	4.5	4.7	4.8
african	.	.	.	3.0	3.1	3.1	2.3	2.7	2.2
american	.	.	.	2.9	1.3	0.9	0.8	1.2	0.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
IMPORTS									
Centrally planned economies	39.7	78.9	71.7	71.3	73.4	69.4	68.1	69.8	71.0
of which: CMEA	32.5	72.2	64.9	64.0	68.2	63.8	64.2	65.6	67.0
of which: Soviet Union	16.4	39.1	34.7	34.7	35.7	32.7	32.8	32.1	35.5
Market economies	60.3	21.1	28.3	28.7	26.6	30.6	31.9	30.2	29.0
of which: developed	47.3	14.9	15.9	18.9	18.8	24.5	25.4	24.6	24.1
of which: EEC	.	.	.	7.9	7.4	11.6	13.7	14.3	12.8
developing	13.0	6.2	12.4	9.8	7.8	6.1	6.5	5.6	4.9
of which: asiatic	.	.	.	5.3	3.6	2.7	3.0	2.0	1.8
african	.	.	.	2.5	2.8	1.8	1.8	2.0	1.1
american	.	.	.	2.0	1.4	1.6	1.7	1.6	2.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) The percentages are derived from absolute figures in Kčs; at current prices

Sources: /14/, p. 124; /18/, p. 410; /20/, p. 453

Table A.5

Average annual growth rate and structure of net material product,
employment and labour productivity in Czechoslovakia

(Percentage)

Activities	Branches	Annual changes in percentage				Structure in percentage d)		
		1961-1965	1966-1970	1971-1975	1976-1979	1960	1970	1979
Net material product a)	Agriculture	-5.6	6.3	1.5	-0.9	14.7	9.7	6.6
	Industry	3.9	6.1	5.8	3.7	63.4	67.1	67.8
	Construction	1.2	7.3	7.7	1.6	10.6	10.4	10.6
	Transport	1.7	2.6	-1.3	7.7	3.0	2.4	2.0
	Trade	-3.7	13.7	5.5	9.6	7.0	7.2	8.9
	Total	1.9	7.0	5.5	3.9	100.0	100.0	100.0
Employment b)	Agriculture	-3.0	-1.3	-2.7	-1.7	28.2	20.7	16.2
	Industry	1.9	1.5	1.4	-0.4	43.5	46.6	47.3
	Construction	0.8	3.0	2.6	1.5	9.6	10.6	12.3
	Transport	2.7	2.7	0.3	0.3	7.0	8.4	8.3
	Trade	2.7	3.1	3.8	0.6	9.2	11.2	13.2
	Total	0.6	1.3	0.9	-0.1	100.0	100.0	100.0
Labour productivity c)	Agriculture	-2.7	7.7	4.3	0.8	52	47	41
	Industry	2.0	4.6	4.4	4.1	146	143	143
	Construction	0.4	4.2	5.0	0.0	110	98	86
	Transport	-0.9	-0.1	-1.7	7.4	43	29	24
	Trade	-6.2	10.3	1.6	8.9	76	64	68
	Total	1.3	5.6	4.5	3.9	100	100	100

a) NMP at 1960 prices

b) Active population employed in the material sphere

c) NMP per person employed (active population) in material sphere (at 1960 prices)

d) 100 % including residual; relative sectoral labour productivity

Source: /26/, Table 1

Table A.6

Structure of net material product, employment and investment
in Czechoslovakia in 1965 - 1979

(In percentage)

		Agriculture and forestry	Industry	Construction	Transport	Trade	Residual	Material sphere	Non-material services
<u>Net material product</u>									
At current prices	1965	13.3	64.9	9.3	3.2	8.4	0.9	100.0	-
	1970	9.2	61.0	11.2	4.2	11.3	1.0	100.0	-
	1975	9.3	64.1	12.6	4.3	8.9	0.9	100.0	-
	1979 d)	7.9	52.8	10.8	4.9	13.1	0.5	100.0	-
At constant prices a)	1965	9.9	68.9	10.3	4.1	6.0	0.8	100.0	-
	1970	10.9	61.6	10.9	3.6	11.8	1.2	100.0	-
	1975	8.9	62.7	11.9	3.7	11.6	1.2	100.0	-
	1979 d)	8.3	59.4	11.3	4.6	15.9	0.5	100.0	-
<u>Employment b)</u>									
	1965	21.1	38.3	8.0	3.6	8.4	0.4	79.8	20.2
	1970	18.7	38.3	9.0	3.9	6.9	0.3	79.1	20.9
	1975	15.9	38.4	9.8	3.8	10.0	0.2	78.1	21.9
	1979 d)	14.4	38.0	10.0	3.8	10.4	0.2	76.8	23.2
<u>Investment c)</u>									
	1965	13.9	43.2	2.7	11.9	3.8	0.1	75.6	24.4
	1970	10.3	38.3	3.7	12.5	5.0	0.2	70.0	30.0
	1975	11.6	36.4	4.1	13.9	5.0	0.3	71.3	28.7
	1979 d)	11.2	38.7	5.7	6.0	3.9	0.3	65.8	34.2

a) Year 1965 at 24.4.1960 prices; 1970-1975 at 1.1.1967 prices; 1979 at 1.1.1977 prices

b) Active population employed in national economy

c) 1965-1975 at 1.1.1967 prices; 1979 at 1.1.1977 prices

d) Preliminary

Source: /18/, pp. 119, 145; /19/, p. 200; /20/, pp. 136, 184, 218

Structure of the national economy in Czechoslovakia

(Percentage)

Activities		Material sphere					Residual	Non-material services
		Agriculture	Industry	Construction	Transport	Trade		
Net material product a)	1960	14.7	63.4	10.6	3.0	7.0	1.3	-
	1970	9.7	67.1	10.4	2.4	7.2	3.2	-
	1973	9.1	67.0	11.8	1.5	7.6	3.0	-
	1975	8.0	68.1	11.6	1.7	7.2	3.4	-
	1979	6.6	67.8	10.6	2.0	8.9	4.1	-
Active population employed in the material sphere	1960	28.2	43.5	9.6	7.0	9.2	2.5	-
	1970	20.7	46.8	10.6	8.4	11.2	2.3	-
	1973	18.2	47.8	11.2	8.2	12.4	2.2	-
	1975	17.3	47.9	11.6	8.1	12.9	2.2	-
	1979	16.2	47.3	12.3	8.3	13.2	2.7	-
Active population employed in the national economy	1960	24.2	37.2	8.3	6.0	8.0	2.1	14.2
	1970	16.8	38.0	8.6	6.8	9.1	1.9	18.8
	1973	14.7	38.6	9.1	6.7	10.0	1.8	19.1
	1975	13.9	38.4	9.3	6.6	10.3	1.7	19.8
	1979	13.0	38.1	9.9	6.6	10.6	2.2	19.6

a) NMP at 1960 prices

Source: /26/, Table A.2

Table A.8

Structural change_{a)} of net material product in Czechoslovakia
(Indices of structural changes)

Indicators	Period	D(T/T+DT)	Q(T/T+DT)	DR(T/T+DT)	I(T/T+DT)
Net material product b)	1960-1970	0.1152	0.0650	2.6955	0.0092
	1970-1979	0.0700	0.0374	1.0744	0.0040
	1960-1979	0.1818	0.0981	2.6910	0.0051
Active population employed in the material sphere	1960-1970	0.1506	0.0858	0.8542	0.0069
	1970-1979	0.0932	0.0528	0.7579	0.0038
	1960-1979	0.2406	0.1355	1.5472	0.0191

a) For full descriptions see Appendix B.1; the level of disaggregation: 6 branches

b) At 1960 prices

Source: Table A.7; B.1

Table A.9

The contribution of labour productivity growth to NMP
growth and relative sectoral labour productivity
in Czechoslovakia

Branches	Contribution of labour productivity growth to NMP growth in percentage a)			Relative sectoral labour productivity level a)		
	1960- 1970	1970- 1979	1960- 1979	1960	1970	1979
Agriculture	1328.5	705.1	1023.3	52	47	41
Industry	60.5	84.8	67.1	146	143	143
Construction	49.0	50.6	44.7	110	98	86
Transport	-21.2	87.2	29.1	43	29	24
Trade	32.9	59.9	41.5	76	64	68
Material sphere total	74.9	88.1	78.0	100	100	100

a) NMP per person employed (active population) in material
sphere (at 1960 prices)

Source: /26/, Table A.5

The contribution of changes in the structure of output and employment in the material sphere to the over-all growth of labour productivity^{a)} in Czechoslovakia

(Percentage)

	Output weights ^{b)}		Employment weights ^{b)}			
	Total rise in productivity	Contribution of shift in output structure to total rise	Total rise in productivity	Contribution of shift in employment structure to total rise		
	A	B	A	B		
1960-1970	42.1	14.6	6.8	40.4	13.0	9.9
1970-1979	46.7	6.0	3.4	45.7	7.4	4.6
1960-1973	59.0	13.2	6.1	57.9	12.6	9.6
1973-1979	31.2	2.4	2.0	29.5	3.6	2.5
1960-1979	108.5	13.0	3.5	104.5	12.5	5.7

a) Net material product (NMP) per person employed (active population) in material sphere (at 1960 prices)

b) The level of disaggregation: 6 branches ; for full descriptions see Appendix B.3

Source: /26/, Table A.3

Table A. 11

Average^{a)} branch shares in industrial gross output and employment in Czechoslovakia

(In percentages)

Branches b)	Gross output c)				Employment			
	1955	1966-	1971-	1976	1961-	1966-	1971-	1976-
	1955	1970	1975	1979	1965	1970	1975	1979
1. Electricity and steam	2.5	2.7	2.7	2.7	1.6	1.6	1.6	1.8
2. Fuel	9.2	8.5	7.9	7.0	8.2	7.0	6.2	6.1
3. Metallurgy	14.0	14.0	13.2	12.3	8.6	8.9	8.7	7.5
4. Engineering	25.4	28.3	30.9	33.9	36.1	37.5	38.0	39.9
5. Chemicals	5.8	7.3	8.2	9.0	4.5	4.8	5.1	5.2
6. Construction materials	3.5	3.5	3.5	3.5	4.2	4.1	3.9	3.9
7. Wood and wood processing	4.8	4.5	4.1	4.2	5.0	5.0	5.0	4.9
8. Paper	1.9	1.7	1.7	1.7	1.7	1.6	1.7	1.7
9. Glass and china	1.3	1.3	1.4	1.4	2.7	3.0	3.1	3.1
10. Textiles	6.2	5.6	5.4	5.0	9.7	9.1	9.0	8.5
11. Clothing	2.1	1.9	1.8	1.7	4.6	4.6	4.6	4.1
12. Leather and footwear	2.7	2.7	2.7	2.5	3.9	4.1	4.3	4.1
13. Printing	0.6	0.7	0.7	0.6	1.2	1.1	1.1	1.2
14. Food	20.1	17.6	15.8	14.5	8.1	7.8	7.8	8.0

a) Unweighted; total industry = 100.0 (branches 1.-14.)

b) CMRA branch classification of industry

c) At producers prices in 1960

Sources: /22/, Tables P 17, P 65; /23/; /24/

Table A.12

Percentage distribution of production, employment and investment according to kind of industrial activity in Czechoslovakia

(Total industry = 100,0 %)

	Mining	Manufac- turing total	Light manufac- turing	Heavy manufac- turing	Material base	Basic metals	Chemicals	Metal products	Non-elec- trical machinery	Electri- cal machinery	Electri- city, gas and water
ISIC	2	3	31-33, 342,355- 356,39	341,351- 354,36- 38	341,351- 354,36, 37	37	35	38	382	383	4
Gross output (Current prices)											
1963	6.6	89.7	34.4	55.3	24.5	10.2	10.2	30.8	15.0	4.6	3.7
1970	5.3	90.1	31.7	58.4	30.8	14.7	11.4	27.6	12.2	4.3	4.6
1977	4.4	90.7	31.2	59.5	30.9	12.1	13.6	28.6	12.6	3.9	4.9
Gross output (Constant prices) a)											
1963	7.0	88.6	36.0	52.6	28.7	14.8	9.1	23.8	11.4	3.3	4.4
1970	5.3	90.1	31.7	58.4	30.8	14.7	11.4	27.6	12.2	4.3	4.6
1977	4.1	91.4	29.1	62.3	30.7	13.2	12.9	31.5	14.0	5.7	4.5
Value added (Current prices)											
1968	11.6	84.6	24.7	60.1	25.3	10.9	8.4	34.8	17.5	4.6	3.6
1977	8.3	85.5	22.8	63.7	29.7	11.2	11.0	34.0	17.3	4.4	5.2
Value added (Constant prices) a)											
1963	12.6	84.4	27.3	57.1	44.7	12.4	6.7	31.2	16.5	3.9	3.0
1970	9.4	87.3	24.5	62.8	50.7	12.1	8.5	35.5	17.5	5.0	3.3
1977	7.2	89.6	22.4	67.2	56.4	10.8	9.7	40.3	19.6	6.6	3.2
Employment											
1963	9.0	89.0	34.5	54.5	20.1	7.3	5.7	34.4	17.4	4.5	2.0
1970	6.7	91.3	32.6	58.7	22.3	8.2	6.1	37.4	16.9	5.1	2.0
1977	6.4	91.4	32.2	59.2	20.0	6.9	6.5	39.1	18.1	5.4	2.2
Investment (Constant prices) b)											
1968	12.8	73.5	14.0	59.5	40.9	13.1	16.9	18.6	9.1	2.4	13.7
1977	10.8	75.4	20.6	54.8	33.0	11.1	14.5	21.8	9.5	2.3	13.8

a) At 1970 prices

b) At prices of 1. January 1967

Source: /37/; /38/

Table A.13

Percentage distribution of production and sale according
to kind of industrial activity in Czechoslovakia

(Total industry = 100.0 %)

Branches b)	Gross output a)					Total sale a)				
	1970	1973	1975	1978	1979	1970	1973	1975	1978	1979
21 - Fuel	9.6	9.2	9.5	8.2	8.2	9.4	9.2	8.7	8.5	8.5
22 - Energy	3.6	3.6	3.6	3.7	3.5	5.3	5.3	5.2	5.3	5.3
21+22 - Fuel and energy base	13.2	12.8	12.1	11.9	11.7	14.7	14.5	13.9	13.8	13.8
23 - Iron and steel	10.6	10.3	10.2	9.7	9.5	10.1	9.8	9.8	9.4	9.2
24 - Non-ferrous metal	3.2	3.1	3.1	2.9	2.9	3.1	3.0	2.9	2.7	2.7
23+24 - Basic metal industries	13.8	13.4	13.3	12.6	12.4	13.2	12.8	12.7	12.1	11.9
25 - Chemicals	7.4	8.3	8.7	9.2	9.1	7.1	7.9	8.2	8.6	8.7
26 - Machinery	18.4	19.3	19.8	21.1	21.7	19.4	19.8	20.6	22.0	22.2
27 - Electrotechnical industry and metal products	7.5	7.6	8.0	8.4	8.6	7.3	7.4	7.7	8.1	8.2
26+27 - Total engineering	25.9	26.9	27.8	29.5	30.3	26.7	27.2	28.3	30.1	30.4
28 - Construction materials	3.3	3.2	3.3	3.3	3.2	3.1	3.0	3.1	3.1	3.0
29 - Wood and wood processing	2.6	2.6	2.7	2.9	2.9	2.6	2.6	2.7	2.8	2.9
31 - Paper	1.9	1.9	2.0	2.0	2.0	1.8	1.8	1.9	1.8	1.8
32 - Glass and china	1.4	1.4	1.5	1.5	1.5	1.3	1.4	1.4	1.4	1.4
33 - Textiles	6.0	5.9	5.7	5.4	5.4	5.7	5.6	5.4	5.1	5.2
34 - Clothing	1.6	1.5	1.5	1.4	1.4	1.5	1.4	1.4	1.3	1.3
35 - Leather and footwear	2.6	2.5	2.5	2.4	2.4	2.4	2.4	2.4	2.2	2.2
36 - Printing	0.7	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
37+38 - Food	18.3	17.6	17.0	16.0	15.8	17.9	17.4	16.7	15.8	15.5
39 - Other	1.3	1.4	1.3	1.3	1.3	1.4	1.4	1.3	1.3	1.3
29,33-39 - Light manufacturing	33.1	32.1	31.3	30.0	29.8	32.1	31.4	30.5	29.1	29.0
23-28,31,32 - Heavy manufacturing	53.7	55.1	56.6	58.1	58.5	53.2	54.1	55.6	57.1	57.2
23-39 - Manufacturing	86.8	87.2	87.9	88.1	88.3	85.3	85.5	86.1	86.2	86.2
21-39 - Total industry	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) At constant producer prices 31.12.1979

b) CSSR branch classification of industry

Source: /52/

Percentage distribution of employment, investment and fixed assets according to kind of industrial activity in Czechoslovakia

Table A.14

(Total industry = 100.0 %)

Branches c)	Employment a)					Investment b)					Fixed assets b)				
	1970	1973	1975	1978	1979	1970	1973	1975	1978	1979	1970	1973	1975	1978	1979
21 - Fuel	7.1	6.9	6.9	6.9	7.0	12.2	16.4	14.5	16.4	15.1	14.3	13.7	13.3	13.3	13.4
22 - Energy	1.9	2.0	2.0	2.2	2.2	9.6	12.5	13.5	11.0	12.7	12.5	12.3	12.4	12.9	13.1
21+22 - Fuel and energy base	9.0	8.9	8.9	9.1	9.2	21.8	28.9	28.0	27.4	27.8	26.8	26.0	25.7	26.2	26.5
23 - Iron and steel	6.9	6.8	6.7	6.7	6.7	7.2	6.5	8.6	11.7	11.1	13.8	12.9	11.8	11.0	11.0
24 - Non-ferrous metal	1.5	1.6	1.7	1.7	1.7	2.7	1.4	1.1	1.0	1.2	2.1	2.1	2.1	1.9	1.9
23+24 - Basic metal industries	8.4	8.4	8.4	8.4	8.4	9.9	8.0	9.7	12.7	12.3	15.9	15.0	13.9	12.9	12.9
25 - Chemicals	5.1	5.3	5.4	5.3	5.4	10.9	9.6	6.7	6.5	6.8	8.1	8.8	9.0	8.9	8.6
26 - Machinery	28.2	28.1	28.2	28.8	28.9	14.3	14.8	17.4	17.8	18.0	16.6	16.8	16.7	17.1	17.2
27 - Electrotechnical industry and metal products	10.8	10.9	11.0	11.1	11.1	5.8	5.6	6.1	6.5	6.0	5.1	5.3	5.5	5.7	5.8
26+27 - Total engineering	39.0	39.0	39.2	39.9	40.0	20.1	20.4	23.5	24.3	24.0	21.7	22.1	22.2	22.8	23.0
28 - Construction materials	4.2	4.2	4.2	4.2	4.1	7.8	8.0	7.3	5.7	4.8	5.1	5.3	5.7	5.7	5.6
29 - Wood and wood processing	3.7	3.7	3.8	3.8	3.8	3.0	2.7	3.4	3.2	2.9	1.7	1.8	2.1	2.3	2.3
31 - Paper	1.7	1.7	1.7	1.7	1.7	4.4	3.3	2.6	2.3	4.1	2.2	2.3	2.7	2.5	2.6
32 - Glass and china	3.2	3.2	3.2	3.2	3.1	2.4	1.4	1.6	1.8	1.6	1.8	1.8	1.8	1.8	1.8
33 - Textiles	8.9	8.8	8.6	8.3	8.3	7.7	5.7	4.9	4.7	4.8	5.6	5.8	5.8	5.6	5.5
34 - Clothing	2.9	2.8	2.7	2.5	2.5	0.5	0.5	0.4	0.6	0.6	0.4	0.5	0.5	0.5	0.5
35 - Leather and footwear	3.3	3.4	3.4	3.3	3.3	1.0	1.5	1.5	1.0	1.1	1.2	1.2	1.2	1.3	1.2
36 - Printing	1.0	1.0	1.0	1.0	0.9	1.1	0.7	0.9	0.8	0.5	0.7	0.7	0.7	0.8	0.8
37+38 - Food	8.5	8.5	8.5	8.3	8.3	8.4	8.8	8.9	8.5	8.1	8.3	8.1	8.1	8.1	8.1
39 - Other	1.1	1.1	1.0	1.0	1.0	1.0	0.6	0.6	0.5	0.6	0.5	0.6	0.6	0.6	0.6
29,33-39 - Light manufacturing	29.4	29.3	29.0	28.2	28.1	22.7	20.5	20.6	19.3	18.6	18.4	18.7	19.0	19.2	19.0
23-28,31,32 - Heavy manufacturing	61.6	61.8	62.1	62.7	62.7	55.5	50.7	51.4	53.3	53.6	54.8	55.3	55.3	54.6	54.5
23-39 - Manufacturing	91.0	91.1	91.1	90.9	90.8	78.2	71.2	72.0	72.6	72.2	73.2	74.0	74.3	73.8	73.5
21-39 - Total industry	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) Total employment

b) At constant producer prices 31.12.1979

c) CSSR branch classification of industry

Source: /52/

Table A.15

Average annual growth rates of manufacturing output, employment and labour productivity in Czechoslovakia

(Annual changes in percentage)

Branches c)	Output a)			Employment			Labour productivity b)		
	1964- 1970	1971- 1977	1964- 1977	1964- 1970	1971- 1977	1964- 1977	1964- 1970	1971- 1977	1964- 1977
1. Food and drink	3.8	4.2	4.0	0.5	0.9	0.7	3.2	3.3	3.3
2. Tobacco	3.5	4.7	4.1	0.0	0.0	0.0	4.6	4.7	4.6
3. Textiles	4.4	4.9	4.7	0.7	-0.3	0.2	3.6	5.2	4.4
4. Clothing and footwear	6.1	5.0	5.5	1.3	-0.4	0.5	4.7	5.4	5.0
5. Leather	4.4	5.3	4.9	3.1	0.5	1.8	1.2	4.8	3.0
6. Wood	5.9	6.8	6.3	-0.4	0.3	-0.1	6.3	6.4	6.4
7. Paper	4.4	6.6	5.5	1.0	1.0	1.0	3.3	5.6	4.4
8. Printing	9.4	4.3	6.9	2.3	2.0	2.2	7.0	2.3	6.4
9. Chemicals	10.5	9.1	9.8	2.2	1.5	1.8	8.1	7.5	7.8
10. Petroleum and coal products	12.3	6.9	9.6	0.0	2.2	1.1	12.3	4.6	13.4
11. Rubber	8.1	8.1	8.1	3.4	1.1	2.3	4.5	6.8	5.7
12. Non-metallic minerals	7.3	6.2	6.7	1.2	0.4	0.8	6.0	5.7	5.9
13. Basic metals	6.7	4.8	5.5	2.8	-2.0	0.4	3.4	6.9	5.1
14. Metal products	10.7	7.2	8.9	1.3	4.4	2.8	9.3	2.7	5.9
15. Non-electrical machinery	7.6	8.4	8.0	0.7	1.6	1.1	6.9	6.7	6.8
16. Electrical machinery	10.5	10.9	10.7	2.9	1.3	2.1	7.4	9.5	13.4
17. Transport equipment	8.7	6.4	7.5	0.4	3.1	1.7	8.3	3.2	5.7
18. Scientific instruments	12.0	9.6	10.8	7.7	-20.0	0.9	3.8	-0.7	1.4
19. Other manufacturing industries	9.6	5.3	7.4	13.1	1.8	7.3	-3.1	3.5	0.1
Total manufacturing	7.3	6.9	7.1	1.5	0.6	1.0	5.7	6.3	6.0

a) Value added at 1970 prices

b) Value added per person employed

c) For full descriptions see table B.2

Source: /37/; /38/

Table A.16

The distribution of value added and gross output by 19 manufacturing branches
in Czechoslovakia
(Percentage)

Branches ^{d)}	Value added ^{a)}						Gross output ^{b)}					
	At current prices			At 1970 prices ^{c)}			At current prices			At 1970 prices ^{c)}		
	1968	1970	1977	1960	1970	1977	1963	1970	1977	1960	1970	1977
1. Food and drink	8.6	8.5	9.4	11.0	8.4	7.1	19.1	17.3	17.4	22.1	17.3	14.9
2. Tobacco	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.4	0.3	0.4	0.4	0.3
3. Textiles	7.1	7.1	6.2	9.0	7.1	6.2	7.1	6.5	5.9	8.0	6.5	5.8
4. Clothing and footwear	4.1	4.3	3.3	4.9	4.3	3.8	4.2	3.7	3.5	4.1	3.7	3.4
5. Leather	0.7	0.7	0.5	0.9	0.7	0.6	0.6	0.7	0.7	0.9	0.7	0.7
6. Wood	3.7	3.7	3.4	4.4	3.7	3.7	4.0	3.1	3.1	3.5	3.1	3.2
7. Paper	2.1	1.8	2.4	2.2	1.8	1.7	1.8	1.9	2.2	2.3	1.9	1.9
8. Printing	1.1	1.1	0.8	1.0	1.1	0.9	0.7	0.7	0.7	0.6	0.7	0.6
9. Chemicals	6.1	6.4	8.4	4.5	6.4	7.4	6.9	8.0	8.6	5.4	8.0	9.4
10. Petroleum and coal products	2.1	2.1	3.2	1.0	2.1	2.1	3.2	3.4	5.1	2.2	3.4	3.2
11. Rubber	1.8	1.3	1.1	1.1	1.3	1.4	1.3	1.3	1.3	1.1	1.3	1.5
12. Non-metallic minerals	6.8	7.1	7.6	7.7	7.1	6.8	4.1	4.7	4.8	4.9	4.7	4.6
13. Basic metals	12.8	13.9	13.0	13.6	13.9	12.0	11.3	16.3	13.4	17.6	16.3	14.5
14. Metal products	2.5	3.2	4.3	2.1	3.2	3.2	2.4	2.6	4.5	1.7	2.6	2.7
15. Non-electrical machinery	20.7	20.0	20.0	19.4	20.0	22.1	16.7	13.5	13.9	12.7	13.5	15.3
16. Electrical machinery	5.5	5.7	5.0	4.2	5.7	7.4	5.1	4.7	4.3	3.3	4.7	6.3
17. Transport equipment	9.3	8.3	9.4	7.6	8.3	8.1	8.7	7.6	8.3	6.7	7.6	7.5
18. Scientific instruments	3.1	3.4	0.5	2.1	3.4	4.1	1.4	2.2	0.5	1.3	2.2	2.7
19. Other manufacturing industries	1.7	1.2	1.3	1.1	1.3	1.2	1.0	1.4	1.5	1.2	1.4	1.5
Total manufacturing	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) Net of depreciation and non-industrial costs; state industry only

b) Excluding turnover taxes and non-industrial costs; state industry only

c) Value added or gross output at current prices in 1970 extrapolated by index numbers of industrial production (1970=100)

d) For full descriptions see table B.2

Source: /37/; /38/

Table A.17

Structural change of manufacturing in Czechoslovakia a)

(Indices of structural changes)

Indicators	Period	D(T/T+DT)	Q(T/T+DT)	ER(T/T+DT)	I(T/T+DT)
Gross output (CP)	1963-1970	0.1680	0.0658	2.9528	0.0087
	1970-1977	0.1178	0.0442	2.9888	0.0097
	1963-1977	0.1882	0.0555	4.6454	0.0120
Gross output (CNP) b)	1963-1970	0.1324	0.0507	3.0765	0.0056
	1970-1977	0.1140	0.0420	2.8605	0.0062
	1963-1977	0.2378	0.0880	4.7689	0.0167
Value added (CNP) b)	1963-1970	0.1178	0.0364	3.0829	0.0049
	1970-1977	0.1114	0.0387	1.9687	0.0046
	1963-1977	0.2190	0.0700	4.5629	0.0146
Employment	1963-1970	0.0788	0.0243	2.8907	0.0038
	1970-1977	0.1128	0.0423	2.2625	0.0102
	1963-1977	0.1092	0.0326	3.8444	0.0080

a) For full descriptions see Appendix B.2; the level of disaggregation:
19 3-digit groups ISIC (for full descriptions see Appendix B.2)

b) At constant prices (1970)

Sources: /37/; /38/

Table A.18

Changes in branch shares in total manufacturing output, employment
and gross fixed capital formation in Czechoslovakia

(Points)

Branches ^{c)}	Value added			Gross output			Employment ^{a)}		GFCF ^{b)}	
	At cur- rent prices	At 1970 prices	At 1970 prices	At current prices	At 1970 prices	At 1970 prices	1963- 1970	1970- 1977	1970- 1977	
	1970- 1977	1960- 1970	1970- 1977	1963- 1970	1970- 1977	1960- 1970	1970- 1977	1963- 1970	1970- 1977	1970- 1977
1. Food and drink	0.9	-2.6	-1.3	-1.8	0.1	-4.8	-2.4	-0.5	0.1	0.2
2. Tobacco	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0
3. Textiles	-0.9	-1.9	-0.9	-0.6	-0.6	-1.5	-0.7	-0.5	-0.5	-3.6
4. Clothing and footwear	-1.0	-0.6	-0.5	-0.5	-0.2	-0.4	-0.3	-0.1	-0.5	0.3
5. Leather	-0.2	-0.2	-0.1	0.1	0.0	-0.2	0.0	0.1	0.0	0.1
6. Wood	-0.3	-0.7	0.0	-0.9	0.0	-0.4	0.1	-0.7	-0.1	0.7
7. Paper	0.6	-0.4	-0.1	0.1	0.3	-0.4	0.0	0.0	0.0	-2.3
8. Printing	-0.3	0.1	-0.2	0.0	0.0	0.1	-0.1	0.0	0.1	-0.2
9. Chemicals	2.0	1.9	1.0	1.1	0.6	2.6	1.4	0.1	0.4	-1.7
10. Petroleum and coal products	1.1	1.1	0.0	0.2	1.7	1.2	-0.2	-0.1	1.1	2.8
11. Rubber	-0.2	0.2	0.1	0.0	0.0	0.2	0.2	0.1	0.0	-0.4
12. Non-metallic minerals	0.5	-0.6	-0.3	0.6	0.1	-0.2	-0.1	-0.1	-0.1	-2.7
13. Basic metals	-0.9	-1.7	-1.9	5.0	-2.9	-1.3	-1.8	0.8	-2.5	2.3
14. Metal products	1.1	1.1	0.0	0.2	1.9	0.9	0.1	-0.1	1.6	0.4
15. Non-electrical machinery	0.0	0.6	2.1	-3.2	0.4	0.8	1.8	-1.1	1.4	2.3
16. Electrical machinery	-0.7	1.5	1.7	-0.4	-0.4	1.4	1.6	0.5	0.3	0.3
17. Transport equipment	1.1	0.7	-0.2	-1.1	0.7	0.9	-0.1	-0.6	1.5	1.7
18. Scientific instruments	-2.9	1.3	0.7	0.8	-1.7	0.9	0.5	1.3	-2.9	0.1
19. Other manufacturing industries	0.1	0.2	-0.1	0.4	0.1	0.2	0.1	0.9	0.1	-0.3

a) Total employment

b) At prices of January 1967

c) For full descriptions see Table B.2

Sources: /37/; /38/

Table A.19

Changes in branch shares in industrial gross output, employment, investment and fixed assets in Czechoslovakia

(Points)

Branches a)	Gross output b)			Employment			Investment b)			Fixed assets b)		
	1970-1975	1975-1979	1970-1979	1970-1975	1975-1979	1970-1979	1970-1975	1975-1979	1970-1979	1970-1975	1975-1979	1970-1979
21 - Fuel	-1.1	-0.3	-1.4	-0.2	0.1	-0.1	2.3	0.6	2.9	-1.0	0.1	-0.9
22 - Energy	0.0	-0.1	-0.1	0.1	0.2	0.3	3.9	-0.8	3.1	-0.1	0.7	0.6
23 - Iron and steel	-0.4	-0.7	-1.1	-0.2	0.0	-0.2	1.4	2.5	3.9	-2.0	-0.8	-2.8
24 - Non-ferrous metal	-0.1	-0.2	-0.3	0.2	0.0	0.2	-1.6	0.1	-1.5	0.0	-0.2	-0.2
25 - Chemicals	1.3	0.4	1.7	0.3	0.0	0.3	-4.2	0.1	-4.1	0.9	-0.4	0.5
26 - Machinery	1.4	1.9	3.3	0.0	0.7	0.7	3.1	0.6	3.7	0.1	0.5	0.6
27 - Electrotechnical industry and metal products	0.5	0.6	1.1	0.2	0.1	0.3	0.3	-0.1	0.2	0.4	0.3	0.7
28 - Construction materials	0.0	-0.1	-0.1	0.0	-0.1	-0.1	-0.5	-2.5	-3.0	0.6	-0.1	0.5
29 - Wood and wood processing	0.1	0.2	0.3	0.1	0.0	0.1	0.4	-0.5	-0.1	0.4	0.2	0.6
31 - Paper	0.1	0.0	0.1	0.0	0.0	0.0	-1.8	1.5	-0.3	0.5	-0.1	0.4
32 - Glass and china	0.1	0.0	0.1	0.0	-0.1	-0.1	-0.8	0.0	-0.8	0.0	0.0	0.0
33 - Textiles	-0.3	-0.3	-0.6	-0.3	-0.3	-0.6	-2.8	-0.1	-2.9	0.2	-0.3	-0.1
34 - Clothing	-0.1	-0.1	-0.2	-0.2	-0.2	-0.4	-0.1	0.2	0.1	0.1	0.0	0.1
35 - Leather and footwear	-0.1	-0.1	-0.2	0.1	-0.1	0.0	0.5	-0.4	0.1	0.0	0.0	0.0
36 - Printing	-0.1	0.0	-0.1	0.0	-0.1	-0.1	-0.2	-0.4	-0.6	0.0	0.1	0.1
37+38 - Food	-1.3	-1.2	-2.5	0.0	-0.2	-0.2	0.5	-0.8	-0.3	-0.2	0.0	-0.2
39 - Other	0.0	0.0	0.0	-0.1	0.0	-0.1	-0.4	0.0	-0.4	0.1	0.0	0.1

a) CSFR branch classification of industry

b) At constant producer prices 31.12.1979

Source: /52/

Table A.20

Structure of manufacturing by activities according to factor intensities
in Czechoslovakia

(Percentage)

Intensities	Group of branches a)	Value added b)			Gross output b)			Employment			Gross fixed output formation c)		
		1968	1970	1977	1963	1970	1977	1963	1970	1977	1968	1970	1977
Capital intensity	A	23.1	24.1	26.9	23.2	29.6	29.3	15.6	16.5	15.5	43.4	34.6	35.6
	B	22.7	22.6	23.1	29.5	28.1	27.8	21.3	21.3	21.7	24.9	25.8	23.1
	C	41.2	39.9	37.0	34.6	30.5	29.4	41.7	40.8	40.3	26.1	30.5	30.9
	D	11.1	11.9	11.4	11.2	10.2	11.8	20.4	19.6	20.6	4.8	7.6	9.1
Skill intensity	A	30.3	30.7	34.0	30.2	35.3	35.4	22.5	22.8	23.2	45.1	36.3	41.4
	B	25.5	24.1	24.3	20.5	17.4	18.1	23.4	22.4	24.0	19.7	18.8	18.2
	C	26.5	27.9	26.9	32.0	31.5	31.5	28.1	29.1	28.2	26.1	27.8	26.1
	D	15.7	15.8	13.3	15.9	14.0	13.2	25.1	23.9	22.7	8.3	15.6	13.1
Research intensity	A	26.5	28.1	29.6	26.5	32.4	31.4	18.8	20.3	19.5	41.9	32.0	35.7
	B	33.7	31.4	32.9	28.5	24.3	25.7	31.0	29.4	32.3	25.6	24.7	26.0
	C	25.0	25.8	27.5	32.7	31.1	32.6	30.7	29.5	30.6	25.6	32.7	27.0
	D	9.6	9.8	7.9	9.5	8.3	8.0	16.2	15.5	15.0	4.1	7.0	7.9
Energy intensity	A	37.9	40.1	43.9	34.8	41.6	42.9	33.0	34.2	34.9	60.2	50.1	49.0
	B	31.7	29.6	30.7	26.5	22.5	23.6	29.0	28.2	31.2	19.4	18.6	22.5
	C	15.2	15.2	10.4	13.4	12.9	10.5	21.0	21.7	17.8	9.9	15.6	12.2
	D	15.0	14.8	14.7	25.0	22.7	22.7	16.8	15.8	16.0	10.3	15.6	16.1

a) A (high) → D (low) intensity; the breakdown into groups of branches see table B.4

b) At current prices

c) At prices of 1. January 1967

Source: /37/; /38/; Table B.4

Table A.21

The distribution of employment and gross fixed capital formation
by 19 manufacturing branches in Czechoslovakia

(Percentage)

Branches c)	Employment a)			Gross fixed capital formation b)		
	1963	1970	1977	1968	1970	1977
1. Food and drink	8.4	7.9	8.0	7.2	10.3	10.5
2. Tobacco	0.2	0.2	0.2	0.2	0.2	0.2
3. Textiles	10.0	9.5	9.0	4.8	9.8	6.2
4. Clothing and footwear	8.1	8.0	7.5	1.7	1.6	1.9
5. Leather	1.0	1.1	1.1	0.3	0.4	0.5
6. Wood	6.0	5.3	5.2	1.6	3.8	4.5
7. Paper	1.8	1.8	1.8	4.7	5.4	3.1
8. Printing	1.1	1.1	1.2	0.6	1.2	1.0
9. Chemicals	4.5	4.6	5.0	14.3	12.2	10.5
10. Petroleum and coal products	1.1	1.0	1.1	6.5	4.5	7.3
11. Rubber	0.9	1.0	1.0	2.1	1.9	1.5
12. Non-metallic minerals	7.0	6.9	6.8	12.3	10.8	8.1
13. Basic metals	8.2	9.0	7.5	17.8	12.5	14.8
14. Metal products	5.3	5.2	6.8	1.3	1.8	2.2
15. Non-electrical machinery	19.6	18.5	19.9	12.3	10.3	12.6
16. Electrical machinery	5.1	5.6	5.9	3.3	2.8	3.1
17. Transport equipment	8.7	8.1	9.6	6.5	7.1	8.8
18. Scientific instruments	2.3	3.6	0.7	1.9	2.1	2.2
19. Other manufacturing industries	0.7	1.6	1.7	0.6	1.3	1.0
Total manufacturing	100.0	100.0	100.0	100.0	100.0	100.0

a) Including homeworkers

b) At prices of 1 January 1967

c) For full descriptions see table B.2

Source: /37/; /38/

Table A.22

Average annual growth rate and contribution of labour productivity to industrial output growth in Czechoslovakia

Branches b)	Average annual growth rate a)			Contribution to output growth a)			Relative level of labour productivity a)		
	1971-1975	1976-1979	1971-1979	1970-1975	1975-1979	1970-1979	1970	1975	1979
	In percentage			In percentage			Total industry = 100		
21 - Fuel	3.8	2.6	3.3	100.5	70.2	86.5	135	124	117
22 - Energy	4.0	1.4	2.9	63.5	32.0	49.5	189	175	158
23 - Iron and steel	5.2	2.5	3.9	95.7	82.3	90.7	154	150	142
24 - Non ferrous metal	3.7	1.9	2.9	61.8	60.9	59.4	205	187	172
23+24 - Basic metal industries	4.4	2.2	3.4	77.8	71.2	74.2	359	338	314
25 - Chemicals	8.0	5.4	6.8	78.6	88.7	79.9	145	161	170
26 - Machinery	7.2	5.8	6.6	91.0	80.0	84.3	65	70	75
27 - Electrotechnical industry and metal products	6.7	5.5	6.2	86.3	82.1	82.6	69	73	77
26+27 - Total engineering	7.1	5.7	6.4	89.6	80.5	83.9	66	71	76
28 - Construction materials	5.9	3.9	5.0	93.5	91.2	92.0	77	78	78
29 - Wood and wood processing	6.2	5.3	5.8	82.7	81.8	80.2	71	73	76
31 - Paper	5.9	3.6	4.8	81.1	80.2	79.0	114	115	113
32 - Glass and china	5.9	5.0	5.5	85.9	99.5	90.1	45	46	48
33 - Textiles	5.5	3.7	4.7	100.3	113.1	105.1	67	67	66
34 - Clothing	6.2	5.3	5.8	124.6	134.1	132.1	54	55	58
35 - Leather and footwear	4.3	3.4	3.9	74.8	109.9	85.2	79	74	72
36 - Printing	3.9	3.9	3.9	88.8	98.2	92.5	68	63	63
37+38 - Food	4.1	2.8	3.5	48.6	100.9	92.1	215	200	191
39 - Other	6.2	4.2	5.3	98.3	94.2	96.6	125	128	129
21-39 - Total industry	5.7	4.0	4.9	89.3	84.2	86.0	100	100	100

a) At constant prices 31.12.1979; (gross output per employed person

b) CSSR branch classification of industry

Source: /52/

Table A.23

Contribution of labour productivity growth to manufacturing output growth and relative level of value added per person employed in Czechoslovakia

Branches ^{b)}	Contribution of labour productivity growth to output a) growth in percentage			Relative level of value added per person employed a)		
	1963- 1970	1970- 1977	1963- 1977	1963	1970	1977
1. Food and drink	83.7	76.3	77.4	127	107	88
2. Tobacco	114.0	103.0	117.4	127	118	100
3. Textiles	81.1	108.3	93.4	85	74	69
4. Clothing and footwear	73.8	109.4	87.9	58	54	51
5. Leather	25.7	87.9	54.2	85	63	57
6. Wood	109.6	93.8	101.4	68	71	71
7. Paper	73.1	81.9	75.1	115	98	93
8. Printing	68.3	50.0	57.4	87	94	72
9. Chemicals	71.6	78.7	69.0	117	137	148
10. Petroleum and coal products	100.0	61.7	80.2	135	206	184
11. Rubber	50.3	81.6	59.3	139	129	133
12. Non-metallic minerals	79.8	91.4	82.2	101	104	100
13. Basic metals	49.4	153.8	89.9	180	154	160
14. Metal products	82.8	32.3	53.4	48	61	48
15. Non-electrical machinery	88.8	75.7	77.9	100	108	111
16. Electrical machinery	64.1	82.8	66.6	92	102	126
17. Transport equipment	94.2	45.6	66.6	88	103	84
18. Scientific instruments	24.7	-5.3	7.3	111	97	61
19. Other manufacturing industries	-22.1	61.7	1.1	145	79	66
Total manufacturing	75.0	89.2	78.3	100	100	100

a) Value added at constant prices (1970)

b) For full descriptions see table B.2

Source: /37/, /38/

Table A.24

The contribution of changes in the structure of manufacturing output and employment to the over-all growth of labour productivity^{a)} in Czechoslovakia

(Percentage)

	Output weights b)			Employment weights b)		
	Total rise in productivity	Contribution of shift in output structure to total rise		Total rise in productivity	Contribution of shift in employment structure to total rise	
		A	B		A	B
1963-1970	45.1	2.7	1.6	47.7	1.4	3.0
1970-1977	49.7	1.8	0.5	47.3	0.0	-1.2
1963-1977	117.2	2.9	1.7	117.5	0.6	0.8

a) Value added per person employed (at 1970 prices)

b) The level of disaggregation: 19 branches

Source: /21/; /27/; /38/; B.3

Table A.25

The contribution of changes in the structure of industrial output and employment to the over-all growth of labour productivity_{a)} in Czechoslovakia

(Percentage)

	Output weights b)		Employment weights b)			
	Total rise in productivity	Contribution of shift in output structure to total rise	Total rise in productivity	Contribution of shift in employment structure to total rise	A	B
	A	B	A	B		
1970-1975	26.9	5.6	6.3	31.6	1.4	93.2
1975-1979	13.4	-13.0	-13.6	11.7	0.5	0.4
1970-1979	43.9	-7.8	-8.7	54.2	1.2	0.6

a) Gross output per person employed (at 1979 prices)

b) The level of disaggregation: 17 branches

Source: Table A.20, A.21, A.18, B.3

Table A.26

Qualified scientists and engineers working on research and development in Czechoslovak industry

Branches b)	Intensity of QSE a)						Branch structure of QSE			Annual changes in percentage			
	QSE/1000 E			Relative QSE/1000 E			1971	1975	1979	1972-1975	1976-1979	Ratio	
	1971	1975	1979	1971	1975	1979						1972-1975	1976-1979
21 - Fuel	4.5	5.0	5.9	55	53	52	3.9	3.7	3.6	2.7	4.2	0.77	0.86
22 - Energy	1.5	1.4	7.9	18	15	69	0.4	0.3	1.5	-1.7	55.0	-0.49	11.22
23 - Iron and steel	4.8	6.3	7.5	59	67	66	4.0	4.6	4.4	7.1	4.4	2.03	0.90
24 - Non-ferrous metal	9.6	9.1	8.0	117	97	70	1.8	1.6	1.2	-1.3	-3.2	-0.37	-0.65
25 - Chemicals	18.4	19.2	22.5	224	204	197	11.6	11.0	10.6	1.1	4.0	0.31	0.82
26+27 - Total engineering	13.8	15.9	18.1	168	169	159	65.8	66.1	63.7	3.6	3.3	1.03	0.67
28 - Construction materials	1.2	1.9	5.6	15	20	49	0.6	0.8	2.0	12.2	31.0	3.49	6.33
29 - Wood and wood processing	4.5	5.0	5.6	55	53	49	2.0	2.0	1.9	2.7	2.9	0.77	0.59
31 - Paper	4.1	4.2	6.2	50	45	54	0.8	0.8	0.9	0.6	10.2	0.17	2.08
32 - Glass and china	4.6	5.5	5.5	56	59	48	1.8	1.9	1.5	4.6	0.0	1.31	0.00
33 - Textiles	2.0	2.4	3.1	24	25	27	2.2	2.2	2.3	4.7	6.6	1.34	1.35
34 - Clothing	0.7	0.7	1.1	9	7	10	0.2	0.2	0.2	0.0	11.9	0.00	2.43
35 - Leather and footwear	2.4	3.2	4.0	29	34	35	1.0	1.2	1.1	7.5	5.7	2.14	1.16
36 - Printing	1.1	1.3	2.2	13	14	19	0.1	0.1	0.2	4.3	14.0	1.23	2.86
37+38 - Food	2.3	2.5	3.3	28	27	29	2.4	2.3	2.4	2.1	7.2	0.60	1.47
39 - Other	10.8	10.4	27.8	132	111	244	1.4	1.2	2.5	-0.9	28.0	-0.26	5.71
21-39 - Total industry	8.2	9.4	11.4	100	100	100	100.0	100.0	100.0	3.5	4.9	1.00	1.00

a) University graduates

b) CSSR branch classification of industry

Source: /52/; /58/, pp. 17 - 24

Table A.27

Capital intensity_{a)} in Czechoslovak industry

Branches b)	Annual changes in percentage						Relative capital intensity					
	FA/employee			ME/operative			FA/employee			ME/operative		
	1971- 1975	1976- 1979	1971- 1979	1971- 1975	1976- 1979	1971- 1979	1970	1975	1979	1970	1975	1979
21 - Fuel	5.5	6.1	5.8	9.0	8.4	8.8	201	193	192	156	163	168
22 - Energy	4.8	5.7	5.2	-21.0	10.8	-8.2	653	603	591	64	13	15
23 - Iron and steel	3.6	4.5	4.0	4.4	6.1	5.2	200	175	164	250	211	199
24 - Non-ferrous metal	5.0	3.0	4.1	1.7	4.0	2.7	133	124	110	178	131	114
25 - Chemicals	7.6	5.0	6.4	11.8	8.0	10.0	159	168	161	200	236	239
26 - Machinery	6.6	6.3	6.4	7.0	6.6	6.8	59	59	59	75	71	68
27 - Electrotechnical industry and metal products	9.8	7.3	7.6	8.9	8.9	8.9	47	50	52	65	67	71
26+27 - Total engineering	6.8	6.6	6.7	7.5	7.2	7.4	56	57	57	72	70	69
28 - Construction materials	8.8	6.4	7.7	9.0	7.2	8.2	121	135	136	114	119	118
29 - Wood and wood processing	9.3	9.5	9.4	13.4	12.6	13.0	47	54	61	37	47	57
31 - Paper	9.8	5.3	7.7	15.3	6.7	11.4	133	155	150	168	232	225
32 - Glass and china	6.9	6.0	6.5	6.8	7.7	8.9	56	57	57	56	53	53
33 - Textiles	7.7	5.8	6.8	9.5	7.8	8.7	63	67	66	68	93	94
34 - Clothing	9.5	8.8	9.2	14.3	13.9	14.1	16	18	20	11	15	19
35 - Leather and footwear	7.1	7.6	7.3	10.6	8.5	9.6	36	37	39	29	32	33
36 - Printing	7.5	8.1	7.9	7.7	5.0	6.5	71	75	81	182	179	163
37+38 - Food	6.2	6.8	6.5	8.5	9.0	8.7	97	96	98	86	87	92
39 - Other	9.1	7.3	8.3	13.8	10.4	12.3	51	57	60	42	54	60
21-39 - Total industry	6.4	6.2	6.3	8.1	7.6	7.8	100	100	100	100	100	100

a) Fixed assets (at 31.12.1979 prices) total (FA); fixed assets machinery and equipment (ME)

b) CSSR branch classification of industry

Source: /52/

Table A.28:

The distribution of commodity exports^{a)} by 19 manufacturing branches from Czechoslovakia

(Percentage)

Branches ^{b)}	Centrally planned economies			Market economies			Total		
	1965	1970	1979	1965	1970	1979	1965	1970	1979
1. Food and drink	1.7	1.3	1.9	10.1	6.9	7.2	3.8	2.9	3.3
2. Tobacco	0.03	0.02	0.03	0.3	0.03	0.2	0.1	0.02	0.1
3. Textiles	2.2	1.8	2.0	8.4	6.1	7.0	3.7	3.0	3.4
4. Clothing and footwear	7.7	7.4	6.8	5.4	4.9	5.6	7.1	6.7	6.5
5. Leather	0.3	0.6	0.1	0.6	0.3	0.2	0.4	0.5	0.2
6. Wood	1.7	1.6	1.4	5.9	4.0	5.9	2.7	2.3	2.6
7. Paper	0.6	0.5	0.5	2.7	2.0	1.6	1.1	0.9	0.8
8. Printing	0.2	0.2	0.2	0.6	0.5	0.5	0.3	0.3	0.3
9. Chemicals	4.5	5.1	5.8	5.9	6.5	9.8	4.9	5.5	6.9
10. Petroleum and coal products	4.1	3.3	3.6	4.1	4.6	8.3	4.1	3.7	4.8
11. Rubber	0.8	1.2	0.9	0.8	1.0	1.1	0.8	1.1	0.9
12. Non-metallic minerals	1.6	2.9	2.5	5.6	4.7	4.0	2.6	3.5	2.9
13. Basic metals	12.0	8.9	8.2	12.2	19.9	14.2	12.1	12.0	9.8
14. Metal products	1.7	1.6	1.4	4.0	2.9	1.6	2.2	1.9	1.5
15. Non-electrical machinery	29.8	32.9	30.9	18.2	22.8	20.3	26.9	30.0	33.9
16. Electrical machinery	10.3	9.1	8.0	3.9	4.0	5.1	8.7	7.6	7.2
17. Transport equipment	18.9	18.9	15.4	8.1	5.4	3.7	16.2	15.1	12.2
18. Scientific instruments	1.0	1.4	1.2	0.5	0.6	0.6	0.9	1.2	1.0
19. Other manufacturing industries	0.9	1.3	1.2	2.7	2.9	3.1	1.4	1.8	1.7
Total manufacturing	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) At current prices

b) For full descriptions see table B.2

Source: /40/; /41/

Table A.29

The distribution of commodity imports ^{a)} by 19 manufacturing branches into Czechoslovakia

(Percentage)

Branches b)	Centrally planned economies			Market economies			Total		
	1965	1970	1979	1965	1970	1979	1965	1970	1979
1. Food and drink	8.0	8.3	4.2	5.4	9.2	7.7	7.3	8.6	5.2
2. Tobacco	1.9	1.8	1.2	1.7	1.1	0.8	1.8	1.6	1.1
3. Textiles	5.3	4.5	2.8	18.3	10.6	8.5	8.5	6.5	4.5
4. Clothing and footwear	2.5	3.0	1.7	1.1	2.8	2.0	2.2	2.9	1.8
5. Leather	0.4	0.5	0.3	5.0	2.9	4.3	1.5	1.2	1.5
6. Wood	1.6	2.6	1.3	0.7	0.8	0.4	1.4	2.0	1.0
7. Paper	0.6	1.3	1.0	1.8	2.0	1.5	0.9	1.6	1.2
8. Printing	0.5	0.4	0.2	0.4	0.5	0.4	0.5	0.4	0.3
9. Chemicals	5.9	7.9	7.0	18.1	19.6	21.8	8.9	11.7	11.6
10. Petroleum and coal products	6.0	5.6	5.3	0.5	0.3	0.7	4.6	3.9	3.9
11. Rubber	1.1	0.8	1.2	6.0	4.0	3.9	2.3	1.8	2.0
12. Non-metallic minerals	1.3	1.5	1.1	0.4	0.5	0.9	1.1	1.2	1.0
13. Basic metals	16.8	12.5	9.9	12.9	6.3	9.4	15.8	10.5	9.8
14. Metal products	1.8	2.4	1.4	1.4	1.6	1.5	1.7	2.1	1.4
15. Non-electrical machinery	30.9	26.1	36.6	18.2	28.9	25.8	27.8	27.0	33.3
16. Electrical machinery	5.3	7.6	11.9	4.0	4.0	6.0	5.0	6.4	10.1
17. Transport equipment	8.2	10.1	9.7	2.1	2.4	1.3	6.7	7.7	7.1
18. Scientific instruments	1.2	2.0	1.9	1.4	1.7	2.2	1.3	1.9	2.0
19. Other manufacturing industries	0.7	1.1	1.3	0.6	0.8	0.9	0.7	1.0	1.2
Total manufacturing	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

a) At current prices

b) For full descriptions see table B.2

Source: /40/; /41/

Table A. 30

Structure of manufacturing exports^{a)} according to factor intensities
from Czechoslovakia

(Percentage)

Intensities	Groups of branches b)	Centrally planned economies			Market economies			Total		
		1965	1970	1979	1965	1970	1979	1965	1970	1979
Capital intensity	A	21.2	17.8	17.9	24.9	33.0	33.9	22.1	22.1	22.2
	B	14.3	14.6	13.3	20.4	16.6	17.3	15.8	15.1	14.4
	C	52.1	55.2	57.7	35.7	35.4	32.0	48.0	49.6	50.8
	D	11.4	11.1	9.8	15.9	12.1	13.4	15.2	11.4	10.7
Skill intensity	A	39.5	36.2	32.9	30.2	36.3	36.0	37.2	36.2	33.7
	B	31.5	34.8	40.4	22.3	26.3	23.4	29.2	32.4	35.9
	C	16.1	16.4	15.1	24.1	19.1	18.5	18.1	17.1	16.0
	D	11.9	11.3	10.3	20.3	15.3	18.8	14.0	12.4	12.6
Research intensity	A	30.9	26.4	25.5	26.1	34.9	37.4	29.7	28.2	28.7
	B	50.1	53.5	55.7	29.7	31.2	26.6	45.0	47.2	47.6
	C	7.1	7.6	7.9	28.1	20.7	19.8	12.3	11.3	11.1
	D	9.9	9.7	8.5	15.5	9.7	12.2	10.6	9.7	9.5
Energy intensity	A	34.7	31.4	29.9	38.4	44.5	44.6	35.6	35.1	33.9
	B	49.6	53.2	55.5	29.0	31.1	27.1	44.4	46.9	47.9
	C	8.4	7.7	7.7	13.0	10.6	13.2	9.5	8.6	9.2
	D	7.3	7.7	6.8	19.3	13.9	14.9	10.3	9.3	9.0

a) At current prices

b) A (high) → D (low) intensity; the breakdown into groups of branches see table B.4

Source: /40/; Table B.4

Table A. 31

Structure of manufacturing imports^{a)} according to factor intensities into Czechoslovakia

(Percentage)

Intensities	Group of branches b)	Centrally planned economies			Market economies			Total		
		1965	1970	1979	1965	1970	1979	1965	1970	1979
Capital intensity	A	29.3	27.3	23.2	33.3	28.1	33.5	30.3	27.6	26.4
	B	15.6	18.2	18.3	15.7	17.7	18.4	15.6	18.0	18.4
	C	46.2	43.2	51.3	40.4	44.2	38.2	44.8	43.5	47.2
	D	6.2	8.4	4.6	8.2	8.1	8.2	6.7	8.3	5.7
Skill intensity	A	37.0	36.1	31.9	33.6	28.6	33.3	36.1	33.7	32.3
	B	33.1	28.7	39.1	26.3	35.4	31.6	31.4	30.9	36.6
	C	17.5	21.7	20.4	12.5	17.0	18.2	16.3	20.2	19.8
	D	9.8	10.6	6.0	25.1	17.1	15.3	13.6	12.7	8.9
Research intensity	A	34.0	33.6	34.1	35.4	30.1	38.0	34.4	32.5	35.3
	B	40.8	38.4	48.6	28.1	37.4	32.5	37.6	38.1	43.6
	C	16.3	16.6	9.3	25.5	21.9	18.5	18.6	18.3	12.2
	D	5.0	6.5	3.5	7.2	7.0	7.1	5.6	6.6	4.6
Energy intensity	A	37.6	38.7	37.5	39.1	34.2	41.8	38.0	37.3	38.7
	B	39.9	37.4	47.7	20.9	32.2	28.0	35.2	35.7	41.6
	C	9.4	10.7	7.9	26.9	18.7	16.6	13.8	13.3	10.6
	D	11.2	11.4	5.6	11.4	13.9	12.8	11.3	12.2	7.8

a) At current prices

b) A (high) → D (low) intensity; the breakdown into groups of branches see table B.4

Source: /40/; Table B.4

Table A.32

Structure of manufacturing demand^{a)} and degrees of imports dependence
in Czechoslovakia

(Percentage)

Branches b)	Structure of manufacturing demand						Imports as percentage of			
	Gross output		Domestic demand ^{c)}		Imports		gross output		apparent consumption	
	1970	1978	1970	1978	1970	1978	1970	1978	1970	1978
1. Food and drink	17.3	16.0	19.1	16.9	15.6	9.9	14.0	9.7	13.0	9.4
2. Tobacco	0.4	0.3	0.8	0.6	2.8	1.8	122.0	89.7	55.5	48.8
3. Textiles	6.5	5.9	7.5	6.2	13.2	8.7	32.0	23.3	28.2	22.9
4. Clothing and footwear	3.7	3.4	3.1	2.4	2.3	2.0	9.7	9.4	11.9	13.5
5. Leather	0.7	0.7	0.8	0.9	1.0	1.1	20.8	23.5	18.8	19.7
6. Wood	3.1	3.1	3.0	2.7	2.9	1.7	14.7	8.7	15.6	10.4
7. Paper	1.9	2.2	2.0	2.3	2.0	2.0	16.3	15.0	15.6	14.6
8. Printing	0.7	0.7	0.7	0.7	0.3	0.2	7.4	4.4	7.3	4.4
9. Chemicals	8.0	10.1	8.6	10.7	7.7	8.1	15.0	12.6	14.1	12.2
10. Petroleum and coal products	3.4	5.1	3.3	5.1	2.5	3.2	11.9	9.9	12.1	10.0
11. Rubber	1.3	1.3	1.4	1.6	2.3	3.3	27.3	40.4	25.7	34.3
12. Non-metallic minerals	4.7	4.7	4.3	4.3	1.2	1.3	3.9	4.4	4.4	4.9
13. Basic metals	16.3	13.2	15.7	13.2	13.5	12.8	12.9	15.3	13.7	15.8
14. Metal products	2.6	4.4	2.6	4.5	1.5	1.1	9.0	3.8	9.1	3.9
15. Non-electrical machinery	13.5	14.2	12.6	14.0	19.0	27.6	22.1	30.8	24.2	32.0
16. Electrical machinery	4.7	4.4	4.5	4.4	4.5	6.2	15.0	22.0	16.2	22.5
17. Transport equipment	7.6	8.4	6.5	7.7	5.4	6.0	11.1	11.3	13.3	12.6
18. Scientific instruments	2.2	0.4	2.3	0.5	1.3	1.5	9.6	58.3	9.4	47.3
19. Other manufacturing industries	1.4	1.5	1.2	1.3	1.0	1.5	11.3	16.8	13.2	19.3
Total manufacturing	100.0	100.0	100.0	100.0	100.0	100.0	15.7	15.8	16.0	16.2

a) Estimate; at current (inner) prices

b) For full descriptions see Table B.2

c) $DD = GO - E + M$

Source: /20/; /37/; /38/; /40/; /47/

Table A.33

Employment content^{a)} of Czechoslovak manufacturing foreign trade

Branches b)	Employment content						Employment contents as percentage of total employment					
	Exports			Imports			Exports			Imports		
	1970	1975	1977	1970	1975	1977	1970	1975	1977	1970	1975	1977
	Thousands						Percentage					
1. Food and drink	11.3	10.4	10.2	26.3	12.4	19.6	6.0	5.5	5.1	14.0	6.5	9.8
2. Tobacco	0.1	0.0	0.0	4.9	2.4	2.9	2.5	0.0	0.0	122.5	60.0	72.5
3. Textiles	42.2	45.9	50.6	72.6	61.1	70.9	18.6	20.2	22.7	32.0	26.9	31.8
4. Clothing and footwear	53.8	78.8	76.8	18.6	20.3	15.7	28.0	41.5	41.1	9.7	10.7	8.4
5. Leather	2.7	0.9	0.7	5.4	5.6	6.1	10.4	3.3	2.6	20.8	20.7	22.6
6. Wood	25.6	28.0	33.4	18.5	16.1	13.3	20.3	21.5	25.9	14.7	12.4	10.3
7. Paper	5.3	5.0	6.1	7.0	7.7	7.3	12.3	10.9	13.3	16.3	16.7	15.9
8. Printing	1.6	1.8	1.7	2.0	1.5	1.7	5.9	6.4	5.5	7.4	5.4	5.5
9. Chemicals	10.0	8.8	13.5	16.8	13.8	17.8	8.9	7.2	10.9	15.0	11.3	14.4
10. Petroleum and coal products	3.4	4.4	3.2	2.8	3.2	2.8	14.2	16.9	11.4	11.7	12.3	10.0
11. Rubber	5.0	6.0	5.9	6.6	9.2	9.4	20.8	23.1	22.7	27.5	35.4	36.2
12. Non-electrical machinery	24.1	23.5	26.0	6.4	6.7	6.8	14.7	14.0	15.4	3.9	4.0	4.0
13. Basic metals	40.0	40.3	33.8	27.7	34.3	27.9	18.6	18.3	18.1	12.9	15.6	14.9
14. Metal products	12.9	15.5	10.5	11.2	10.0	6.8	10.3	12.5	6.2	9.0	8.1	4.0
15. Non-electrical machinery	136.1	147.6	167.5	97.7	142.1	154.6	30.8	34.9	33.9	22.1	33.6	31.3
16. Electrical machinery	29.7	29.7	33.1	20.0	25.9	28.9	22.3	21.2	22.7	15.0	18.5	19.8
17. Transport equipment	52.9	54.3	50.2	21.4	26.9	24.8	27.4	23.0	21.0	11.1	11.4	10.4
18. Scientific instruments	6.4	5.9	4.8	8.2	9.0	7.0	7.5	6.6	28.2	9.6	10.0	41.2
19. Other manufacturing industries	9.7	2.6	12.8	4.3	1.2	6.4	25.5	6.5	29.8	11.3	3.0	14.9
Total manufacturing	417.9	427.5	450.5	374.9	371.0	400.7	17.5	17.4	18.1	15.7	15.1	16.1

a) At current prices

b) For full descriptions see Table B.2

Source: /26/, Table A.22; /34/, p. 85

Table A.34

Average annual growth rate of Czechoslovak foreign trade^{a)}
(Percentage)

	1961-1970	1971-1979		
		Total	Of which	
			1971-1975	1976-1979
<u>EXPORTS</u>				
Centrally planned economies	6.7	11.3	11.6	11.0
Of which: CMEA	7.1	11.6	11.9	11.1
Market economies	7.6	10.3	10.6	10.0
Of which: developed	9.1	10.8	10.7	10.8
developing	4.8	9.2	10.3	7.9
Of which:				
Asiatic	6.6	10.5	10.1	11.0
African	7.5	6.6	8.2	4.7
American	-4.8	9.9	17.5	1.1
Total	7.0	11.1	11.3	10.7
<u>IMPORTS</u>				
Centrally planned economies	7.1	12.6	13.9	11.1
Of which: CMEA	7.3	12.9	14.4	11.1
Market economies	8.0	11.7	13.5	9.4
Of which: developed	10.2	12.1	13.9	9.9
developing	2.4	9.7	11.6	7.4
Of which:				
Asiatic	0.2	7.5	8.0	7.0
African	4.0	5.8	16.0	-5.4
American	5.4	15.4	11.7	20.3
Total	7.4	12.3	13.8	10.6

a) At current prices (in Kčs) (FOB)

Source: /40/; /68/, pp. 7,9

Table A.35

Commodity structure of trade of Czechoslovakia
with developing countries
(Percentage share in total exports or imports)

Code SITC	Groups of commodities	Exports a)			Imports a)		
		1970	1976	1977	1970	1976	1977
0	Food and live animals	3.5	3.4	3.2	32.4	38.4	27.6
1	Beverages and tobacco	0.0	0.0	0.1	2.2	1.6	1.3
2	Crude minerals (except fuels)	1.0	1.6	2.3	48.8	37.7	36.0
3	Mineral fuels, lubri- cants and related materials	0.0	0.0	0.0	-	4.2	9.8
4	Animal and vege- table oil and fats	-	-	-	1.1	1.3	1.5
5	Chemicals	4.1	2.7	3.6	4.6	3.1	2.6
6	Manufactured goods	25.1	24.8	23.0	8.4	10.5	9.1
7	Machinery and tran- sport equipment	60.6	60.4	60.7	0.2	0.3	0.1
8	Miscellaneous manu- factured articles	5.3	6.6	6.6	2.3	2.8	2.0
0-9	Total	100.0	100.0	100.0	100.0	100.0	100.0

a) At current prices (in Kčs), FOB

Source: /40/

Table A.36

Average annual growth rate of Czechoslovak foreign trade^{a)}
with developing countries in commodity structure
(Percentage)

	Machinery and equipment	Mineral fu- els, crude materials, metals and chemicals	Food, in- cluding food cru- de mate- rials	Industrial consumer goods	Total
<u>EXPORTS</u>					
1951-1960	15.6	16.2	2.5	3.4	10.0
1961-1970	9.2	1.9	-0.6	-0.5	4.8
1971-1978	10.5	8.9	12.4	9.9	10.2
1971-1973	1.0	5.7	11.1	2.1	2.6
1974-1978	16.6	10.9	13.2	14.9	14.9
<u>IMPORTS</u>					
1951-1960	0.0	11.7	16.6	-	12.4
1961-1970	28.2	0.1	8.4	47.6	2.4
1971-1978	-6.5	9.8	8.3	10.1	9.3
1971-1973	29.4	12.8	10.5	28.5	12.8
1974-1978	-23.1	8.0	7.0	0.4	7.2

a) At current prices (in Kčs) (FOB)

Source: /40/; /68/, pp. 12, 21

Table A.37

Commodity structure of foreign trade^{a)} of Czechoslovakia
with selected developing countries in 1979.

(Percentage)

		Code SITC								
		0	1	2	4	5	6	7	8	5-8
Argentina	Exports	0.2	0.1	0.0	-	5.4	2.6	84.3	7.3	99.6
	Imports	27.3	0.8	26.0	6.0	1.6	38.0	-	2.6	42.2
Brasil	Exports	11.1	-	-	-	2.2	7.1	70.0	9.5	88.8
	Imports	77.6	0.4	17.8	3.1	0.0	0.5	0.3	0.2	1.0
Peru	Exports	-	-	1.7	-	0.6	3.2	74.5	18.9	98.3
	Imports	52.0	-	6.2	-	-	41.8	-	0.0	41.8
Turkey	Exports	-	-	0.0	-	6.8	12.1	77.9	3.1	99.0
	Imports	25.7	19.0	51.0	-	1.6	2.4	-	0.2	4.2
Iran	Exports	-	-	3.7	0.0	2.4	51.3	39.6	2.9	96.2
	Imports	39.0	-	56.3	-	-	-	1.0	3.7	4.7
Egypt	Exports	0.9	-	2.3	0.0	1.9	29.2	59.8	5.7	96.6
	Imports	30.1	9.9	33.1	-	1.3	15.4	0.7	9.4	26.8
Iraq	Exports	0.4	0.3	0.0	-	0.1	29.1	65.0	4.1	98.3
	Imports	11.6	4.8	65.1	-	0.2	3.8	12.7	-	16.7
Syria	Exports	0.0	-	0.0	0.0	0.6	18.2	79.1	1.9	99.8
	Imports	-	-	100.0b)	-	-	-	-	-	-
India	Exports	0.0	-	0.1	-	0.6	39.6	54.1	2.9	97.2
	Imports	49.1	2.1	14.9	0.5	1.5	25.9	2.0	4.0	33.4
Singapore	Exports	3.2	-	-	-	0.6	43.3	35.0	17.9	96.8
	Imports	-	-	100.0c)	-	-	-	-	-	-
Indonesia	Exports	-	-	-	-	-	25.9	67.7	6.4	100.0
	Imports	3.0	-	64.5	-	-	32.5	-	-	32.5

a) At current prices (in Kčs) (FOB)

b) Cotton

c) Natural rubber

Source: /40/

Table A. 38

The share of developing countries in selected commodity imports^{a)} into Czechoslovakia

(Percentage)

		1965	1970	1979
Iron ore	Venezuela	-	0.8	2.0
	India	7.7	5.6	1.7
	Algeria	0.7	0.5	0.6
Manganese ore	Brazil	4.2	-	12.4
	India	41.3	17.3	7.2
	Gabon	-	-	2.4
Tin	Bolivia	-	-	22.2
	Indonesia	-	-	20.3
	Malaysia	1.0	25.1	13.7
Asbestos	Botswana	-	23.1	17.5
Phosphates	Marocco	14.4	23.8	31.7
	Tunisia	8.6	11.4	6.8
	Algeria	-	5.0	6.5
	Jordan	-	-	1.6
Natural rubber	Malaysia	37.0	51.0	41.1
	Indonesia	30.4	7.8	33.9
	Thailand	6.5	11.8	7.1
	Sri Lanka	8.7	2.0	5.4
	Singapore	-	-	3.6
Cotton	Turkey	3.0	3.5	9.0
	Syria	1.0	6.1	4.9
	Iran	6.0	7.0	1.6
	Afghanistan	2.0	0.9	1.6
Wool	Uruguay	9.5	10.0	9.5
	Argentina	9.5	5.0	9.5
Jute	Bangladesh	57.1	75.0	62.5
Other forage	Brazil	-	-	42.6
	India	16.4	19.2	10.5
	Peru	4.4	22.5	3.6
	Argentina	-	-	0.9
Cocoa beans	Nigeria	-	-	9.8
Tea	India	17.9	26.0	47.8
	Sri Lanka	6.9	2.9	2.9
Vegetable oils adible	Brazil	-	-	9.8
	Argentina	-	-	5.9
Rice	Egypt	23.3	39.0	17.4
Oranges	Libanon	21.7	3.2	9.9
	Egypt	-	-	4.9

a) On the base of physical indicators

Source: /40/

APPENDIX B

Statistical methods and sources

The branch structure of output, factors of production
and foreign trade

In order to measure structural changes by comparing the share of branch a_i in the year t with the share of branch a_i in the year $t + \Delta t$, the following indices were calculated (/29/, pp. 368-369):

1. The sum-of-the values norm

$$Dt/t + \Delta t = \sum_{i=1}^n |a_{i,t + \Delta t} - a_{it}| \quad (1)$$

2. The Euclidian norm

$$Qt/t + \Delta t = \sqrt{\sum_{i=1}^n (a_{it + \Delta t} - a_{it})^2} \quad (2)$$

3. The sums of the relative differences

$$DRt/t + \Delta t = \sum_{\substack{1 \leq i \leq n \\ a_{it} \neq 0}}^n \frac{|a_{i,t + \Delta t} - a_{it}|}{|a_{it}|} \quad (3)$$

4. The information yield

$$It/t + \Delta t = \sum_{\substack{1 \leq i \leq n \\ a_{it} > 0}}^n |a_{it + \Delta t}| \log \left| \frac{a_{it + \Delta t}}{a_{it}} \right| \quad (4)$$

In order to measure changes in the relative importance of individual branches (the changes in the branch concentration), the following Hirschman index was calculated (/30/, p. 176):

$$H = \frac{\sqrt{\sum_{i=1}^n a_i^2} \sqrt{n} - 1}{\sqrt{n} - 1} \quad (5)$$

a_i = the share of branch i in total output, factors of production or foreign trade

n = number of branches

In order to measure structural changes in one country's vector in two periods or in two countries in a single period, the following coefficient was calculated (/31/, p. 50):

$$\text{Cosine } a_i a_j = \frac{\sum_{i=1}^n a_i a_j}{\sqrt{\left(\sum_{i=1}^n a_i^2 \sum_{i=1}^n a_j^2 \right)}} \quad (6)$$

a_i, a_j = two vectors (the share of branch a in the year i and in the year j in one country or the share of branch a in country i and j in one year)

n = number of branches

The interpretation of this coefficient is: if two structures (in year i or j , or in country i and j) are identical the value of coefficient is 1; if they are completely dissimilar, the value is zero.

The convergence of the export and import structures is measured by index of intra-industry trade (/32/, p. 22):

$$R = \frac{\sum_{i=1}^n (E_i + M_i) - \sum_{i=1}^n |E_i - M_i|}{\sum_{i=1}^n (E_i + M_i)} \times 100 \quad (7)$$

(Proportion not corrected for balance)

$$R = \frac{\sum_{i=1}^n (E_i + M_i) - \sum_{i=1}^n |E_i - M_i|}{\sum_{i=1}^n (E_i + M_i) - \left| \sum_{i=1}^n E_i - \sum_{i=1}^n M_i \right|} \times 100 \quad (8)$$

(Proportion corrected for balance)

where E_i = exports

M_i = imports

Decomposition of output growth into effects of increases in domestic demand, exports and import substitution is based on the accounting balances for each manufacturing branch:

$$TR = Q + M$$

$$DD = (Q - E) + M$$

$$TD = DD + E$$

where TR = total resources

DD = domestic demand (apparent consumption)

TD = total demand

Q = gross output

M = imports

E = exports

The level of gross output expansion in each manufacturing branch (ΔQ_i) can be expressed as the sum of these factors:

$$\Delta Q_i = n_{i0} \Delta DD_i + n_{i0} \Delta E_i + \Delta n_i TR_i$$

(1) (2) (3)

where $n_i = Q_i/TR_i$

(1) = domestic demand

(2) = exports

(3) = import substitution

The breakdown of total manufacturing industry into component branches according to the International Standard Industrial Classification (ISIC)

Branch a)	ISIC (1968), Major Group Codes
1. Food manufacturing and beverage	311-312, 313
2. Tobacco manufacturing	314
3. Textiles	321
4. Clothing and footwear	322, 324
5. Leather and leather products	323
6. Wood and wood products, and furniture and fixtures	331, 332
7. Paper and paper products	341
8. Printing, publishing and allied industries	342
9. Chemicals, and plastics products, nec.	351, 352, 356
10. Petroleum refineries and miscellaneous products of petroleum and coal	353, 354
11. Rubber products	355
12. Non-metallic mineral products b)	361, 362, 369
13. Basic metal industries c)	371, 372
14. Fabricated metal products	381
15. Non-electrical machinery	382
16. Electrical machinery and appliances	383
17. Transport equipment	384
18. Scientific instruments	385
19. Other manufacturing industries d)	390

a) For full descriptions see International Standard Industrial Classification of All Economic Activities, UN New York 1968.

b) Pottery, china, glass and glassware, structural clay products, cement, etc.

c) Iron and steel, and non-ferrous metal basic industries.

d) Inter alia, jewellery, musical instruments, sports goods, toys, etc.

Estimating the contribution of changes in the branch structure of output and employment to the rise of productivity in the manufacturing sector

The average increase of productivity is a combination of
 a) increases in branch productivities and
 b) changes in branch shares of total output or employment

The decomposition of the over-all change into these two separate components is as follows:

$$\frac{\sum_i P_{1,1} q_{1,1}}{\sum_i P_{0,1} q_{1,0}} = \frac{\sum_i P_{1,1} q_{1,0}}{\sum_i P_{0,1} q_{1,0}} \cdot \frac{\sum_i P_{1,1} q_{1,1}}{\sum_i P_{1,1} q_{1,0}} \quad (1)$$

where P_i represents value added per man in branch i , and q_i represents value added of branch i as a proportion of total value added of manufacturing;
 $i = 1 \dots 19$ branches in this study, and subscripts 0 and 1 represent successive time periods.

The first term on the right-hand side gives the branch productivity contribution by normalizing for the value added structure and the second terms gives the contribution of the structural change by normalizing for branch productivities.

The contribution of changes in branch structures to the rise in aggregate manufacturing productivity is calculated on absolute differences as follows:

$$DP = \sum_i P_{1,1} q_{1,1} - \sum_i P_{0,1} q_{1,0} \quad (2)$$

$$SL = \sum_i P_{0,1} q_{1,1} - \sum_i P_{0,1} q_{1,0} \quad (3)$$

$$SP = \sum_i P_{1,1} q_{1,1} - \sum_i P_{1,1} q_{1,0} \quad (4)$$

where SL and SP is the "structural" component estimated according to the Laspeyers and Paasche indexes, respectively; DP is the increase (at constant prices) in manufacturing productivity (value added per employed in Kčs).

The inter-action effect, r, is

$$r = SL - SP \quad (5)$$

and so the proportionate contribution of changes in branch structure to the over-all productivity rise range from

$$\frac{SP}{DP} \text{ to } \frac{SP + r}{DP} \quad (6)$$

The effect of changes in the structure of branch employment was computed in the same way, substituting the branch shares of e_i , for q_i .

Source:/21/, Annex 3.1

Table B.4

The breakdown of total manufacturing industry into groups of branches according to the relative factor intensities^{a)}

Branch ^{b)}	Capital inten- sity	Skill inten- sity	Research inten- sity	Energy inten- sity
1. Food manufacturing and beverage	B	C	C	D
2. Tobacco manufacturing	-	-	-	-
3. Textiles	C	D	C	C
4. Clothing and footwear	D	D	D	C(322), D(324)
5. Leather and leather products	D	D	D	D
6. Wood and wood products, and furniture and fixtures	D	D	D	C(332), D(331)
7. Paper and paper products	A	B	B	A
8. Printing, publishing and allied industries	C	B	D	D
9. Chemicals, and plastics products, nec.	A	A	A	A
10. Petroleum refineries and miscellaneous products of petroleum and coal	A	A	A	A
11. Rubber products	B	B	B	C
12. Non-metallic mineral products	B	C	C	A
13. Basic metal industries	A	A	A	A
14. Fabricated metal products	D	C	C	A
15. Non-electrical machinery	C	B	B	B
16. Electrical machinery and appliances	B	C	A	A
17. Transport equipment	C	A	B	B
18. Scientific instruments	C	C	-	C
19. Other manufacturing industries	-	-	-	B

a) A(high) → D (low) intensity

b) Group codes see in table B.1

Source: /21/, Table 2.11; /39/

