The Economic Interpenetration Between the EC and Eastern Europe: The Case of Hungary

Gács, János

International Institute for Applied Systems Analysis

June 1994

Working Paper

The Economic Interpenetration Between the EC and Eastern Europe: The Case of Hungary

János Gács

WP-94-043
June 1994

IIASA International Institute for Applied Systems Analysis □ A-2361 Laxenburg □ Austria
Telephone: +43 2236 71521 □ Telex: 079 137 iiasa a □ Telefax: +43 2236 71313

The Economic Interpenetration Between the EC and Eastern Europe: The Case of Hungary

János Gács

WP-94-043
June 1994

International Institute for Applied Systems Analysis □ A-2361 Laxenburg □ Austria
Telephone: +43 2236 71521 □ Telex: 079 137 iiasa a □ Telefax: +43 2236 71313

Foreword

One of the most remarkable recent changes in the East European economies has been the rearrangement of their trade patterns in a few years. Two regional organizations were the focal points of the geographical shift: the CMEA which lost its dominant position, and the EC which had a magnetic attraction to East European economies. Accompanying the geographical reorientation from East to the West major sectoral shifts occurred in the last three to five years. These changes are marked in Hungarian trade, the subject of this working paper. The author prepared this paper in the framework of a project organized by the Commission of the European Communities. Since the publication of the study was delayed and the subject matter fit appropriately in the Economic Transition and Integration project of the International Institute of Applied Systems Analysis, the Institute decided to publish it. We hope that the dissemination of the results will encourage discussion of the crucial topic of emerging trade patterns in Eastern Europe.

Table of Contents

Introduction

After World War I, following the collapse of the Austria-Hungarian Monarchy and the adoption of the Trianon treaties Hungary became a small country, poorly endowed with mineral resources and with shrivelling internal markets. Despite outstanding performance of some industries (like electrical engineering, or vacuum technology) the dominant and surplus sectors of the country were still agriculture and food industry.

Protectionist tendencies in the world economy between the two world wars had their impact on the slow development of the Hungarian economy. The strong trade orientation of Hungary toward the successor countries of the former Monarchy gradually decreased and by the early 1940s, through political and military alliance, Germany emerged as the major trading partner.

The political changes after World War II modified the pace and the direction of development in Hungary in a radical way. A fast reconstruction was followed by the program of rapid, forced industrialization. Industrial production expanded at a remarkable pace, many new industries were built up within a short period of time. Annual growth rate of industrial output was 10.3% in the 1950s, 7.0% in the 1960s and 4.9% in the 1970s. As a result of favoring industrial activity, manufacturing industry became the dominant sector in the production of GDP.

In its first stage, during the 1950s, industrialization was characterized by autarky, while in its second stage (from the early 1960s on) by "CMEA-autarky". This meant a strong orientation toward members of the CMEA, primarily toward the Soviet Union, and many efforts to build a self-sufficient, closed regional community.

International trade in Hungary reached a comparatively high level, i.e. 35-40% in export to GDP ratio. However, much of this trade was highly dependent on the special arrangements of division of labor in respect to the Soviet Union. Following the distorted ideology of socialist industrialization, Hungary established and developed a relatively large heavy industry, with a high proportion of primary heavy industries like metallurgy, petrochemical and other heavy chemical industries. The first source of dependence was related to the material base of these new industries: here fuel and raw materials almost exclusively originated from supplies of the Soviet Union. The second source of dependence was that the primary market for both more processed manufactured products and agriculture and food industry products was again the Soviet Union.

In the second half of the 1980s several factors pushed Hungarian enterprises to turn to western, and mostly EC markets at the expense of trade with CMEA economies, and production for the domestic markets. These factors were the following:

(a) Cooperation within the framework of CMEA became gradually more and more erratic, and the evolving tensions pushed the Hungarian government to curtail exports to this direction in 1988-1990.

(b) The elimination of transferable rouble payments and annual bilateral protocols in CMEA

trade in 1991, the shift to use world market prices, as well as the termination of the practice of prompt honoring the claims of Hungarian exporters for export revenues in Hungarian currency, have made trade with CMEA (and then ex-CMEA) economies more troublesome and consequently less attracting for Hungarian enterprises. Systemic changes and the ensuing recession in the countries of CMEA, the dissolution of the CMEA and the collapse of the USSR, with the uncertainties that followed all inhibited the maintenance of trade with Eastern European countries on former levels.

(c) Regulations on how to start and conduct trading activity with the west became gradually liberalized. As a consequence, thousands, and even tens of thousands of Hungarian enterprises found it much easier to make market research and conclude contracts in the west on their own, than carry out this through the specialized and monopolized foreign trade enterprises, as they did before. The liberalization of entry into trading activity boosted trade with the west substantially.

(d) In 1989 a program of gradual liberalization of imports from western markets was started.

(e) Successive agreements with EC and EFTA made access of Hungarian enterprises to these markets easier. At the same time the introduction of tariffs to trade with ex-CMEA economies made trade less attractive with these traditional partners.

(f) Several changes in the regulation of joint ventures, market entry, acquiring property rights etc. made it easier for western companies to establish joint or fully owned business in Hungary, and make ties of trade, capital, intellectual property etc. between Hungarian and western business closer.

As a joint impact of the factors listed above, Hungarian and western business activities became more interrelated than they had been for many decades, and the inter-penetration of the two sides became more and more palpable.

One of the major fields of this penetration is trade, and this is the subject matter of this study. What are the dimensions of the recent process of inter-penetration, what sectors, what countries of the EC are affected? What effects can be attributed to, and expected from past and further dismantling of trade barriers? On the ground of past experiences and recent developments in the structure of industry what potential can be attributed to Hungarian manufacturing industry for a further progress in western markets? These are the basic questions we are going to answer in the course of our analysis.

Main conclusions

After a slow, gradual shrinkage, Hungary's trade with her CMEA partners abruptly collapsed in 1990-1991. The ties so powerful for many decades are being replaced through the reconstruction of historically close relations to west European economies. Emerging major trade partners from this part of Europe are Germany, Austria, and Italy, and as the primary region of cooperation, the European Community. By 1992, half of Hungary's trade was carried out with the EC.

Hungarian foreign trade has long been characterized by a dual nature: highly

processed, advanced manufacturing products were exported almost exclusively to the CMEA, while less processed, or labor intensive products to western economies. Hungary's major surplus industries in her trade with the EC were mostly natural resource based or labor intensive sectors.

The rapid rearrangements in Hungary's trade between 1988 and 1992 led to grave sectoral changes in imports, and modest, but noticeable shifts in the structure of exports. The least significant changes in trade structures was recorded in exports to the EC. Given that in the course of 1988-1992 this trade flow increased by a factor of two, we may note that a secular expansion was carried out that had basically an across-the-board character.

In the course of 1988-1992 mostly labor intensive industries gained share in EC markets, while resource based industries lost from their earlier export share. Within imports, the share of consumption goods has increased substantially and continuously, while the ratio of engineering products is still very high, even if investment activity in Hungary is at historically very low level.

Intra-industry trade has monotonously increased in Hungarian-EC relations in the past, and between 1988 and 1992 its share jumped over more than half of manufacturing trade. Given the building up of closer, more organic relations with the EC, intra-industry relations may develop to become the engine of further trade expansion between Hungary and the EC.

One reason for the relatively low level of trade between Hungary and the economies of the EC in the past was the extent and intensity of trade distorting measures on both sides.

Protection of the EC economies was the strongest in the so-called sensitive sectors. These were iron and steel industry, textile and clothing, leather, fur and footwear production, as well as food industries. Here, paradoxically, Hungarian exporters showed good performance and high specialization despite the notoriously applied protectionist barriers. In fact, the thirty most protected sectors produced half of Hungary's exports to the EC, while the thirty least protected ones less than 8%.

The recent trend of gradually phasing out trade barriers, especially on the base of the programmed schedule of the Europe Agreement between Hungary and the EC, gives hope for the fast elimination of these trade distortions. The first assessments of the effects of the Agreement, however, shows that EC restrictions are still strongly biased against Hungary's leading export industries. The Agreement also has not eliminated the possibility that EC members would apply further discriminatory protection measures against exports in the sensitive sectors.

By 1991-92, in Hungary almost no trade distortions are hindering trade with the EC. The remaining import quotas are applied for certain consumer and food products only, while stricter export controls, where applied, are reflections of Hungary's agreement with her western partners to exert voluntary exports restrictions. As far as subsidies are concerned, the Hungarian government effectively slashed product-, producer- and export-specific subsidies in recent years. The remaining subsidies that may have relation to foreign trade are subsidies to exports of food products, assistance packages provided recently to certain large state enterprises in deep crisis, and generous tax exemptions having provided in 1988-90 to

major foreign investors.

The analysis of Hungarian trade performance and the possible effects of the elimination of trade barriers in the EC leads to the conclusion, that while some sectors will certainly benefit from the easier access to Western markets, others, in fact so far leading exporters, will most probably not be in the position to utilize it. Iron and steel industry and slaughtering fall in this category, but processing and preservation of fruit and vegetables, and manufacture of mass produced footwear, as well as ready made clothing may also follow the suit, unless financial and business input of western investors help them to establish further penetration to Western markets.

The analysis of the relation of factor intensity of Hungarian exports and trade protection in the EC confirmed the earlier finding that from among Hungarian export industries mostly labor intensive sectors are constrained in their access to EC markets. Some significant and prospective R&D- and skill-intensive sectors are, however, also hindered by protection of medium strength. These are sectors of the engineering industry (insulated wires and cables, electrical machinery, domestic type electric appliances, electric lamps and lighting equipment). An easier access of these sectors to Western markets is even more required since the weight of these R&D- and skill intensive sectors in Hungary's western exports are on the rise.

The regressional analysis of current Hungarian trade performance with sectoral factor endowments as explanatory variables leads to the conclusion that labor intensity was crucial for sectors to achieve good export performance in the west. According to the results, high skill intensity was contra-indicative in this respect, however current trade patterns may reflect more past policies of industrialization and geographical orientation, than actual endowments with resources.

As further factors that determine trade performance, also the impact of western and Hungarian recession has to be taken into account. Many Hungarian firms fighting with the detrimental effects of current domestic recession may have to be liquidated irrespective of their ability to compete in Western markets. Many otherwise viable firms, or even industries may go under because of the lack of sound domestic demand.

The analysis of trade reorientation found that about 19% of trade switching from CMEA to non-CMEA trade was due to reorientation proper. The rest was short- or long-term disappearance of exports on the CMEA side, and new exports from scratch, export augmentation or sales reorientation from the domestic market.

The evolution of the real exchange rate of the Hungarian currency, especially its strong real appreciation in recent years, seriously threaten the sustainability of Hungarian exports in the West. The real wages of Hungarian workers that became uncompetitive with the real wages of other East European countries in recent years, have the same effects. The fragility of the position of Hungarian exports in the EC became apparent in 1993, when these exports suffered a serious, 25-30% fall.

The assessment of Hungary's future trade specialization starts with the perception that the future recovery of Hungarian output should be the result of an export-led growth, where

the pulling force could not come from other region than Western Europe. From the forecasted 2-3% annual GDP growth in Western Europe for the period 1993-2000, a Hungarian GDP growth between 1.4% and 3.6% per annum is envisaged.

Two scenarios were elaborated, one for the lower bound of the forecasts (the pessimistic), and one for the upper bound (the optimistic). The underlining assumptions of the two scenarios differ basically in the external conditions, especially in Hungary's two major markets, in the EC and the ex-CMEA region.

The pessimistic scenario counts with 4.7% annual export growth to the EC from the low level of 1993, while the optimistic target is 8.8%. The respective numbers for imports are 3.3% and 4.4%.

One of the underlining ideas of the forecasts is that by 1991 the demolition of past CMEA trade has gone already far, perhaps unreasonably far. A decent recovery of trade among former CMEA partners can be foreseen, if economic conditions normalize in the successor republics of the former Soviet Union, and if the potential of the Central European Free Trade Agreement is utilized.

Further abolishment of trade barriers between Hungary and the EC are important factors in forming the future rate and pattern of trade. However, many additional elements play a role. Labor intensive sectors and manufacturing of food products would benefit from further reduction of trade barriers, and would still give a dominant, if not very expansive part of Hungarian exports. If industrial investors attach Hungarian labor intensive industries to EC markets in a more organic way, there is hope that the loss of wage competitiveness can be compensated.

The export of higher value added manufacturing industries will gain momentum, but most of them slowly, given the recent slack of investments in most of these sectors. The base of hope for some recovery is partly earlier industrial traditions (electric engineering, transport equipment, domestic type equipments), and the expected continuation of speeding up intra-industry trade in most of the sectors. While the engineering sectors will achieve some expansion, the export share of metalliferous and metal products will continue to decrease.

I Recent evolution and current position of Hungary's industrial structure and foreign trade

I.1 Definition of industrial and trade structure

The structure of Hungarian manufacturing industry is shown in the statistical Appendix tables 1-2.[1]

[1] An adjustment between the Hungarian system of sectors and NACE 2-digit industries had to be accomplished, to facilitate the use of Hungarian data in accordance with the NACE system. This is why some NACE 2-digit industries are consolidated in these tables.

As data reveal, in 1988 Hungary had a relatively advanced structure in manufacturing industry. The share of engineering industries in output was about 25%, that of the chemical industry 20%, while production of food another 20%. There was a substantial metallurgical industry (13%) and a comparatively modest labor intensive sector (13-15%).

As for the sensitivity of production to exports we can observe that, given the usual homogeneity assumption, about two thirds of the labor force has been engaged in the production for domestic use. Within exports, already in 1988, a larger part of working force was engaged in production for sale to market economies, than for sale to traditional CMEA markets. Two qualitatively distinctive sectors present themselves as most export oriented branches: the labor intensive 44,45 Footwear, clothing and leather goods industry and the R&D intensive 33,37 Instrument and office machinery engineering.

Data in table 1 give a picture of Hungary's swinging **geographical structure** of trade in the last 60 years. As for the latest development we can observe that from among the past partners of Hungary in the Austro-Hungarian Monarchy, by 1992 Austria has quickly gained back a part of her earlier share (up to 10.68% from the lowest level of 3.25%). This is not the case though with Czechoslovakia and Romania (parts of these two also belonged to the Monarchy). Given the proximity and the level of development of these two (or from January 1993, three) partners of Hungary, their share in Hungary's trade has fallen to unreasonably low level in recent years. The table also indicates that trade with Germany gained a lot, reaching a record share of 27.73% in 1992.

Table 2 provides information on the geographical distribution of the Hungarian foreign trade in manufacturing products. For many decades Hungary conducted 40-50% of her trade in manufacturing products with CMEA partners; in 1988 this share still stood on 45% in exports, and on 37% in imports. By 1992 the ratio has fallen to 17% in exports, and to 14% in imports. The decline in trade was pronounced both with the ex-USSR and with other ex-CMEA members.[2] On balance of this shrinkage, trade surged with OECD countries, and within this, mostly with EC economies. EC's share has increased by 20-25 percentage points in four years, clearly a remarkable shift. EFTA's share also increased substantially, mostly due to intense trade relations with Austria.

As for the distribution of Hungary's trade with members of the EC, we refer to table 3. Data here again give evidence of an increasing German dominance, and also of Hungary's traditional close relation to the Italian economy. The rearrangements in the period 1988 to 1992 are remarkable at three additional instances: (1) Germany's share increased by a lot in Hungary's exports[3], but not in her imports; (2) Italy's share increased significantly in Hungary's imports; and (3) the share of the United Kingdom in Hungarian manufacturing exports declined substantially.

Table 4 on the sectoral distribution of exports in 1988 reveals the double face of

---

[2] The drop in other ex-CMEA trade may partly be explained by the disappearance of the GDR and its trade from CMEA (or ex-CMEA) trade statistics since 1991.

[3] Only a small part of this shift can be attributed to German unification, since the 'Neue Länder' cut back their East European trade substantially - by 60-75% - in 1991.

Hungarian exports. Apart from 41/42 Food, drink and tobacco and 25,26 Chemical industry, there was a clear split between sectors being leading exporters to the CMEA, on the one hand, and sectors being leading exporters to non-CMEA economies, on the other. Highly processed, advanced manufacturing products were exported to the CMEA, while less processed or labor intensive products (Metallurgy, Footwear, clothing and leather goods industry) to the EC and to other developed market economies. Changes of the last four years resulted in a painful cut in the share of exports of highly processed engineering products to the ex-CMEA (sectors 32, 33, 34, 35, 36, 37; see Table 4). Note, that output in most of these sectors relied on CMEA markets at a very high degree: for instance 33,37 Instrument and office machinery engineering by 57% and 35,36 Motor vehicle engineering by 46% in 1988. This sectoral rearrangement took place within an export turnover to ex-CMEA countries that declined to one third of its previous (current) ECU value.

As far as changes in the structure of exports to OECD economies, and within it to the EC, are concerned, we can see significant, but not so pronounced shifts as compared to the trade with ex-CMEA economies as a whole. A logical change was the decline of the share of exports of 22, 31 Metallurgical products, following the gradual abandonment of export subsidies and other subsidies that had made this sector competitive in western markets earlier. A similar explanation applies to the decline of the share of 44,45 Food, drink and tobacco industry.[4] The increase of export shares characterizes several industries and are, among other factors, a response to the decline in domestic and CMEA demand for Hungarian production. Industries that show fast growing export shares in the OECD area are 25,26 Chemical industries, 34 Electrical engineering, 35,36 Motor vehicle engineering, and 44,45 Footwear, clothing and leather goods. All these modest structural rearrangements took place within radically expanding flows of exports: exports to OECD increased by close to 80%, and to the EC by more than 100% in 1988-1992 in current ECU terms.

Imports from the OECD and EC went through fundamental restructuring between 1988 and 1992 and became less concentrated than before. This was the result of two factors: the elimination of earlier quantitative restrictions on Hungary's imports, that had distorted trade flows earlier, and the demise of the system of CMEA.

When regressing the trade structures between 1988 and 1992 (see Table 5) we find that the most substantial structural changes have taken place in trade with "other ex-CMEA economies" (correlation coefficient of 0.4339 and 0.4321). If, given their marginal significance, we exclude these countries from the analysis, we find the largest rearrangements (the lowest correlation coefficients) in exports to the ex-USSR (0.7865) and imports from the EC (0.8655). The least changing structures were exports to the EC and imports from the ex-USSR.

[4] The problems of food production and trade, however, are related also to a series of other factors, like the discontinuation of cross-financing of western exports from domestic subsidies and high CMEA prices, the loss CMEA markets, recent ownership changes in Hungarian agriculture, etc.

I.2 Trade performance vis-à-vis the EC

Data for trade in NACE 3-digit industries facilitates a more detailed analysis of trade between Hungary and the EC.

As table 6 demonstrates, in 1992, Hungary's leading export sectors to the EC are mostly natural resource based or labor intensive industries. Among them, by 1992 the natural resource based ones (412, 252, 414, 221) lost from their earlier share in EC exports, while the labor intensive ones (453, 451, 436) rather gained share. As a rule, we can assert that a loss of share in exports to the EC has been connected with either the elimination of export subsidies and the additional blows that have hit the agriculture and food industry (221, and 412, 224, 414, 413), or with the recession on world commodity markets combined with (alleged) dumping by other countries in transition (221, 224) (see the lower block of the table). Gains on EC markets, on the other hand, have been due to successful attempts at reorienting production earlier targeted to domestic or CMEA markets (451, 352, 351, 342)(see the middle block of the table).

As for the most favored sectors in Hungary's imports from the EC we find a diversity of industries with a high ratio of engineering sectors (351, 328, 344, 324). The list of the ten industries with the largest import increase shows that consumer products have played a pivotal role in boosting Hungary's imports from the EC. The list of the industries with the largest import decrease reflects partly the current recessionary (or even depressionary) phase of the Hungarian economy, i.e. the decline of investment activities, and partly a decline in the purchase of various chemicals.

In table 7 we see the correlation between trade structures in different years between 1980 and 1992. The most apparent result here is that changes in Hungary's import structure were much more substantial throughout the whole period, than shifts in the structure of exports (i.e. smaller correlation indices for imports than for exports). In the previous section on the base of more aggregate data. The stunning discrepancy between the correlations is worthy of a detailed analysis. As for a general explanation, here we should refer to the difference between the softness/hardness of the domestic (Hungarian) and the EC market. The structure of imports to Hungary from Western Europe could heavily been influenced by the past changes in the Hungarian economic and trade policy in the widest sense (i.e. including the recent reforms), while exports to the west could be influenced by domestic policy measures, like export promotion, to a limited extent only: in most sectors western markets themselves decided what shipments they accept and what they refuse.

It is remarkable, that by 1992/1991 the characteristic discrepancy between the changes of the structure of imports and exports seems to disappear: the structure of exports and imports transform at similar rates. This may signify the beginning of a new era, when economic and trade policies of Hungary are no more interventionist (as before 1989), and the systemic changes already have a balanced impact on exports and imports.

In table 8 those NACE 3-digit sectors were selected that occupy the ten first and the ten last places in the order of sectors in respect to sectoral trade coverage ratios (sectoral exports/imports). The table also contains the corresponding values of the sector's share in

manufacturing exports, the specialization index[5] and the intra-industry trade index[6].

The table demonstrates again that Hungary's major surplus industries in her trade with the EC are mostly natural resource based or labor intensive sectors[7]. Given that Hungary is not exceptionally rich in wood, it is a surprising feature that there are four wood-related industries in the first ten surplus sectors, and nearly all among them show high export specialization. However, their weight in manufacturing exports is rather low (see the second column), and with the disappearance of cheap wood supplies from the ex-Soviet Union they do not seem to be especially prospective sectors. The only sector that we find here from the group of engineering industries is 347 electric lamps, Hungary's strong, advanced sector with long tradition. On the other hand, it is not by chance that the group of ten deficit sectors contains three engineering industries.

As for the third column of the table, it is interesting to learn that most of the industries with high coverage ratios achieved also a high level of export specialization in EC markets. This is partly a reflection of the fact that EC is not a marginal market for Hungary (in fact it has never been), and partly that industries capable for a substantial surplus trade with the EC also manage to utilize their potential to realize a significant level of specialization there.

Intra-industry trade was traditionally on low level in centrally planned economies, partly due to the special division of labor between the raw material supplying Soviet Union and manufacturing product exporter smaller East European economies[8]. On the other hand, trade with the rest of the world could incorporate more intra-industry trade. According to Gács (1989) the intra-industry trade ratio in Hungary's trade (manufacturing and non-manufacturing combined) with market economies went through a steady growth in the period of 1972-1986. Calculations for 108 NACE 3-digit manufacturing sectors show a continuously growing intra-industry trade in Hungary's trade with the EC. From a level of 44% in 1980 it gradually grew to 47% by 1988, and jumped to 53% by 1992. The acceleration of the expansion of intra-industry trade has most probably been connected with the abandonment of earlier administrative barriers of trade, as well as with the activity of a great number of joint ventures (many of them in the network of multinational companies), that were

---

[5] The specialization index is the ratio of the given Hungarian sector's exports to the EC to Hungary's total manufacturing exports to the EC, divided by the ratio of EC imports of the products of the given sector from the world to total manufacturing imports of the EC from the world. I.e.:

$$\frac{x^{HEC}_i \; / \; \Sigma \, x^{HEC}_i}{m^{ECW}_i \; / \; \Sigma \, m^{ECW}_i}$$

where x^{HEC}_i stands for export by Hungarian manufacturing sector i to the EC, and m^{ECW}_i for import by the EC of the products of manufacturing sector i from the world.

[6] This index is the Gruber-Lloyd index of intra-industry trade:
$1 - (\mid (x_i - m_i) \mid /(x_i + m_i))$, where x_i and m_i are sectoral exports to, and imports from the EC respectively.

[7] We found the same above for the leading exporter sectors.

[8] See Halpern-Kőrösi-Richter (1985).

established in Hungary in the last five years.

As a **summary of this chapter** we can state the following. Hungary's trade has been characterized with a strong attachment to her CMEA partners for many decades. This close relation first gradually and then abruptly collapsed and gave way to the reconstruction of historically close relation to west European economies, especially Germany, Austria and Italy. As a region and integration EC became the primary trading partner for Hungary. The pendulum of reorientation, however, has swung to the extreme by 1991, the share of ex-CMEA trade falling to a particularly low level. Data for 1992 show that trade with neighboring ex-CMEA countries may recover in the near future.

Hungary's trade has long been characterized by a dual nature: some industries exported almost exclusively to the CMEA, others almost exclusively to the OECD economies. Highly processed, advanced manufacturing products belonged to the first group of products, while less processed, resource based or labor intensive products to the second one. The sectors that comprised an exception to this rule of separation were some chemical industries and food, drink and tobacco production. Hungary's major surplus industries in her trade with the EC were mostly natural resource based on the one hand, and labor intensive sectors, on the other.

In the course of recent trade reorientation mostly labor intensive industries gained share in EC markets, while resource based industries lost from their earlier export share. These changes notwithstanding, up to 1991, the structural changes in Hungary's exports to the EC were much less pronounced than changes in her imports from that area. Within imports, the share of consumption goods has increased substantially and continuously, while the ratio of engineering products is still very high, even if the recent decline in investment activity in Hungary is felt on engineering import flows.

The earlier growth of intra-industry trade in Hungarian-EC relations has accelerated in the last few years, and by 1992 it is characterizing more than half of this trade.

II Current trade performance and market distortions

Most of the changes in conditions that led to a closer, more intense relationship between the Hungarian economy and the EC meant in fact the elimination of formerly pervasive distortions to trade. Hungary had a trading system characterized by strong state intervention even after the establishment of relative independence of enterprises after 1968. At the same time, EC treated Hungary as a state-trading country, belonging to a block hostile to countries of Western Europe. Accordingly, trade with Hungary was treated the least favorable way by the EC. The years 1988 to 1993 saw a fast, spectacular dismantling of former trade barriers in Hungarian-EC relations, the effects of which is the subject of this chapter.

II.1 EC barriers to Hungary's exports

An improvement in the treatment of the Hungarian exports by the EC started in December 1988, when the so-called Trade and Cooperation Agreement between the two

parties came into force. That was followed by the granting Hungary the GSP status in 1990, and the agreement on Hungary's association with the EC (the Europe Agreement). Since March 1992 an interim agreement on the association status of Hungary is in existence until the association agreement is ratified in all the countries of EC. The provisions of the agreement were supplemented by the Market Access Package of the Copenhagen summit of the EC in June 1993, which basically accelerate the phasing out of tariffs on East European exports to the EC.

In the course of negotiating these agreements Hungary's major target was to push for a phasing out of specific quotas and other non-tariff barriers applied by the EC against Hungary. While these quotas affected only a small portion of the whole product range, the incidence on Hungary's exports was high. Accordingly, the removal of these quotas implied a high potential for these exports to increase.[9] As late as in 1988, the incidence in the application of non-tariff barriers against Hungary was in most SITC 2-digit product groups significantly higher than against other groups of countries, and even against other CMEA economies.[10]

Another direction of negotiations aimed at reduction of tariff rates applied for Hungarian products. Hungary exported many kinds of labor intensive products that attracted relatively high protection. This is why in 1983 the average of tariff rates applied for imports from Hungary was in fact more than double than the average of the rates applied for imports from other East European economies.[11]

In the last few years the situation went through some change as it is reflected in the series of analyses by Schumacher and Möbius on more disaggregated data[12]. The authors distinguish between different forms of trade protection: these are tariff protection, quantitative restrictions, other non-tariff barriers, and government procurement and technical standard regulations. They also make a detailed calculation for the strength of each of this forms of protection effected by the EC. According to their results, by 1991, quantitative restrictions on Hungarian exports concentrated on a few sensitive sectors only in the iron and steel industry, textile and clothing, leather, fur and footwear production. The ratio of products within these sectors exposed to quantitative restrictions was extremely high, in most cases close to 85%.

As for tariffs, the Hungarian sectors most hit by high - 11% to 15% - tariffs were to some extent the same sectors as those covered by quantitative restrictions, i.e. 436 Knitting industry, 453 ready made clothing and 483 Processing of plastic, these three making up close to 20% of Hungary's exports to the EC. Another group of products also facing high (8-10%) tariffs were 222 steel tubes, 252 petrochemicals, 345 radio and tv receivers, 438 carpets, and 351 manufacture and assembly of motor vehicles. All these made up another 15% of the

[9] See Pinder (1991).

[10] See Tovias and Leer (1991).

[11] See Tovias and Leer (1991).

[12] See Schumacher and Möbius (1992a, 1992b, 1993).

country's exports.

The combined effect of tariffs, different kinds of quantitative restrictions as well restrictions due to public procurement and technical standard requirements, all for 1991, was summarized by Schumacher and Möbius and is reproduced in the statistical Appendix in Table 3. The strength of restrictions is evaluated with points ranging between 0 and 9, the larger indices marking stronger protection.

II.1.1 The expected effects of the Europe Agreement[13]

Information on the expected impact of the Europe Agreement is only tentative for different reasons. Given the scheduled nature of the agreement, its impact is deemed to change from year to year. Also some regulations, like the application of tariff quotas and tariff ceilings make it difficult to forecast the future level of tariffs even if trade flows could be perfectly predicted.

As it is well-known, in the field of industrial products the Europe Agreements aim at establishing free trade areas between the EC and the East European countries each.

From the point of view of Hungary's manufacturing goods export the following changes have been the most important. The EC abolished quantitative restrictions on all products but textiles and coal products. The pattern of removal of restrictions on textile products are dependent on the results of the Uruguay round[14]. In Hungary's exports in 1991 the most important textile items were those of 436 Knitting industry (ECU 112 million) and 453 Clothing (ECU 344 million). In each industrial category the coverage of quantitative restrictions (i.e. the share of products constrained by quotas) was 56-57%, and this did not decline by more than 3-5 percentage points from 1991 to 1992. The utilization of the quotas by Hungarian exporters were on average not high: 22-27% in these two industries, and usually much less in others. The low level of this average does not necessarily imply, though, that there were no products where quotas would have been effective.

The EC also abolished customs duties on all imports except for the following groups: "basic products", "sensitive products", textiles, coal and steel products. The share of those industrial products whose exports are exempt from duties without any qualification is 54% (on the base of 1991 exports).

"Basic products" is a virtually unimportant category for Hungary. In the case of "sensitive products" duties are to be phased out by 1995, with the application of tariff quotas and ceilings. This means that annually increasing amounts of imports are to be free of tariffs, but tariff will be applied to imports over that predetermined volume (in the case of quotas), or the Community may decide to reintroduce duties (in the case of ceilings). Ceilings are applied in two thirds of the sensitive products, and quotas are applied in the rest. Sensitive

[13] The following description is based on Schumacher and Möbius (1992b, 1993).

[14] The length of period of the removal would be half of that decided in the Uruguay Round, but not shorter than five years starting January 1, 1993.

products made up close to 21% of Hungary's exports to the EC in 1991. The special feature of the EC's Europe Agreement with Hungary is that it applies much less favorable parameters, than the agreements concluded with Czechoslovakia and Poland. The export of Hungarian sensitive products in 1991 exceeded the volumes predetermined for 1992 on average by 60%, which shows that tariff quotas and ceilings in most cases were effective. The practice of the year 1992 shows that EC authorities tend to apply the reintroduction duties on imports above ceiling very rarely[15].

Duties on textiles and clothing are to be phased out by 1997. Textile and clothing made up another 21% of Hungary's export of industrial goods to the EC. Re-imports are to be exempt of duties from 1994 if processing of imported materials takes place in Hungary only. Since this kind of outward processing made up 68% of Hungary's textile and clothing exports to the EC in 1992, the above provision may mean a considerable advantage to Hungarian exporters.

The phasing out of duties on steel products (4% of Hungarian exports) will be completed by 1996.

Schumacher and Möbius (1993) calculated the actual and expected tariff rates in EC on Hungarian exports of manufacturing products. Their results are the following: 1989 - 7.0%, 1990 - 5.0, 1991 - 4.5%, 1992 - 2.5%, 1994 - 1.9%, 1995 - 1.2%, 1997 - 0.0%.

On the base of the above listed changes and the data published in Schumacher and Möbius (1993) I made some tentative calculations for the combined sectoral trade protection indices for 1992. It turned out that as compared to protection points in table 3 of the Appendix in the majority of industries only a 1 point decline of protection could be experienced. The most significant changes occurred in sectors 221 iron and steel, 224 non-ferrous metals, and 341 insulated wires, where a 2-3 points fall of protection met a 2-3% share of total exports.

Given that in the time of writing this paper the combined index of protection in its complete form was available for 1991 only, in the following we will use mostly that data.

II.1.2 The weight of the most protected industries

Table 9 shows the first thirty export sectors of Hungary meeting the strongest trade restrictions in EC markets. The strength of restrictions is represented by the combined index of Schumacher and Möbius calculated for 1991. The table unambiguously asserts the finding that EC restrictions are strongly biased against Hungary's leading export industries. The turnover of the first thirty most severely hit export sectors amounts to half of Hungary's export to the EC. In contrast to this, the thirty least restricted export sectors (not reproduced here) amount to less than 8% of this export. It is interesting and highly disturbing that apart from the well-known sensitive industries (like 453, 221, 412, 451, 436) some of Hungary's other leading exports sectors were also drastically restricted in their export activities. These are 247 glass and glassware, 481 rubber products, and 342 electrical machinery.

[15] See Schumacher and Möbius (1993).

To inspect the first tentative impact of the Europe Agreement on the formerly most protected industries we also incorporated the 1992 protection points in the last column of Table 9. As the data indicates, strong protection, as a rule, did not change, or was reduced only moderately.

II.2 Market imperfections in Hungary

In the last five years, in the Hungarian economy, most of the market distorting elements have been dismantled or substantially reduced. These developments can be listed as follows.

a) Liberalization and deregulation of economic activity in a general way and, through this, the reinforcement of basic principles of the market. This entailed, inter alia, the reduction of the interference of state administration to business and the liberalization of the prices.

b) Trade related relaxations ensured the possibility to carry out trade without the need of a licence for this; the gradual liberalization of imports from 1989 on, that lead to a liberalization ratio (ratio of liberalized imports to all imports) of 92% by 1991; a similar, although slower relaxation of licencing of exports; the gradual reduction of specific export subsidies.

c) Measures connected with the rearrangement of relations with CMEA (ex-CMEA) economies.

Due to the special price setting principles that had been introduced in Hungary back in 1980, producers in Hungary had to buy the imported energy sources and raw materials at world market prices, while the difference between the low price paid by foreign trade enterprises to foreign suppliers of other CMEA economies and the price paid by Hungarian users was collected by the budget. Because of this special arrangement the shift to world market prices in trade with CMEA partners did not imply a serious supply shock for Hungarian importers. The majority of the burden of price adjustment fell on the Hungarian budget. Due to this peculiar feature, in this field Hungarian business meets less pressure for adjustment than respective producers in other small East European economies.

As for an account of the remaining factors that would encourage/discourage exports to the EC, and imports from there, we are left with almost no measures the Hungarian government is using in a differentiated way.

Among the factors **encouraging exports**, subsidies granted to exporters must be mentioned. In 1990-1991 almost exclusively agricultural and food industry products enjoyed export subsidies. The justification for the use of these subsidies was the need to counterbalance protectionist measures and outright subsidization of agriculture and food industry in foreign countries, like the support granted by the procedures of the Common Agricultural Policy in the EC. Data for the years 1989-1991 show that no manufacturing sector enjoyed a significant[16] export subsidization outside the food industry. Actual

[16] We considered a subsidy significant, if it exceeded 2% of exports sales value.

subsidization of the different sectors of food industry varied between 1% and 42% of the value of exports with an average of 28%.[17]

If instances of **discouragement of exports** are to be assessed, one has to refer to the narrowing, but still visible, domain of export licencing. It is in existence in the case of numerous products, however, in most cases there is not a genuine national initiative. Hungarian authorities here make efforts to enforce western restrictions before they become effective and would have their - allegedly - widespread harmful impact on Hungary's trade.[18]

Special note should be given to the so-called Self-governed Commodity Councils. These institutions were organized in recent years to assist the Ministry of Foreign Economic Relations in enforcing voluntary export restraints, quantity restrictions and quality requirements, as well as threat of anti-dumping measures that Hungary had to accept in her relations to the EC, EFTA, the USA and other countries. The recommendation of these Councils for the allocation of export quotas, as well as for the qualification of would be exporters is not binding for the ministry. Anecdotal evidence shows, that these councils tend to be dominated by large traditional producers and trading companies that make efforts to limit the access of new agents to western markets.

In addition to reducing export subsidization the Hungarian government has slashed product- and producer specific subsidies substantially in the past four years. The bulk of the remaining subsidization is related to non-tradable activities. There has been a certain amount of subsidization of near bankrupt large state enterprises through debt- and tax forgiveness in 1992 and this subsidization expanded in 1993. The effect of this latter form of subsidies on export, however, could not be taken into account.

In the years 1988-1990, the Hungarian government has encouraged the inflow of foreign direct investments by generous tax holidays for joint ventures. In addition, special concessions were granted for some individual investments of exceptionally large value. It is not easy to take into account benefits like this in a systematic way. The sectors most visibly benefitting from this were 351, 352, 353 industries related to motor vehicle manufacturing and - to a less extent - 247 glass and glassware.

When trying to make a composite index of encouragement/discouragement of exports, one can not avoid the dubious exercise of combining the effects of export subsidies and export licencing (including the effect of the Self-governed Product Councils). Since mostly the same sectors are subject to effective licencing and subsidies, the impact of the two

---

[17] For a further calculation with the relative strength of these subsidies in section II.3 we weighted the level of subsidization with weights between 0 and 5. The weight 0 is applied under 2% subsidization (in terms of exports sales value), 1 for subsidization between 2 and 5%, 2 for 5%-10%, 3 for 10-15%, 4 for 15%-20% and 5 for subsidization over 20%.

[18] For the purpose of further calculations, we determined numerical values (ranging between 0 and 3) to reflect the coverage of export licencing in each sector. This index serves as a proxy for discouragement of exports in the given sector.

measures may neutralize each other. Another difficulty is that only those exports overcoming the hurdles of licencing can enjoy subsidies. It is also not easy to establish a 'normal' level of subsidies in the case of food industry products. All these puzzles notwithstanding a composite index was established to serve as the base of analysis in section II.3 of this paper.[19]

As for **encouragement/discouragement of EC imports** to Hungary, due to the recent process of liberalization of imports, we cannot identify significant quantitative barriers. In 1991-1992 5-10% of imports has been exposed to quantitative restrictions, most of these products being industrial consumer products and food products. The form of regulation is either individual licencing, or determination of global quotas for a wide range of goods, and the allocation of these. Experience has shown that many quotas are soft. In some fields, however, they have been really effective in containing imports. In 1992 effectively restricted products were footwear, certain kinds of clothing and used passenger cars.

To make a tentative assessment for the level of discouragement of imports for section II.3, both the estimated coverage of licencing and the perceived effectiveness of import control were taken into account.

II.3 Trade performance and trade distortions

This section combines the results of different sections of chapter I and II. Table 10 gives results of a classification of manufacturing sectors according to Hungarian trade performance in EC markets on the one hand, and EC trade protection that Hungarian exports face, on the other. Trade performance is represented by trade coverage ratios (x/m for each sector, see Appendix Table 4), while trade protection classification makes use of the Schumacher-Möbius indices for 1991 (Appendix Table 3).[20]

In principle the sectors that faced **high** protection and showed **good** performance are prospective candidates for a rapid expansion, were trade barriers removed or reduced in the future. In contrast to this, in principle sectors that faced **low** trade protection and achieved **bad** trade performance are the least prospective ones, since these sectors already had the chance in the past to achieve better results in EC markets, but were not successful in doing this (at least not in achieving a high trade coverage ratio).

It was not by chance that we stressed the expression 'in principle'. Future trade performance will be determined not only by the expected reduction of trade barriers, but by a multitude of factors (for a review of further factors see chapter IV.) As a consequence, some of the seemingly prospective sectors are in fact declining, and some of the less

---

[19] Levels of encouragement and discouragement, as well as the presence of support for FDI (as a sign of enhancing economic activity in Hungary, including exports) were confronted in each sector. As a consequence, 8 industries were found to be 'encouraged', 11 as 'discouraged', and the overwhelming majority were classified as 'neutral', i.e. exports in these sectors were not affected by government measures.

[20] The classification according to trade performance is as follows: good (i) over 1.3, medium (ii) between 0.7 and 1.3, and bad (iii) under 0.7. The classification of trade protection is arranged in the following way: low (*) for values of 0, 1, 2, and 3; medium (**) for 4, 5, and 6 and high (***) for 7, 8 and 9.

prospective ones in fact may show progress soon.

As for the prospective sectors, we must recognize that these are not simply sectors with good performance (in terms of exports exceeding imports), but eight sectors that produce 36% of Hungary's exports to the EC. If these industries have a solid basis in the period when trade restrictions disappear, they can really contribute to the expansion of Hungary's exports in the future. The problem lies in the condition 'if'. Some of the industries are declining, because they can not maintain their former level of activity after most of earlier subsidies were phased out, old institutional structures had to be modified and import competition crowds out them even from the Hungarian market. 221 iron and steel industry is like this, experiencing a 30% decline in the ECU value of exports in 1990-1992 following an upsurge of a similar extent in 1988-1990. According to forecasts, 412 slaughtering is to follow the same path, even if its performance still shows a spectacular (31%) export expansion in 1988-1992. Other sectors in this column have exhausted much of their sales possibilities with their old marketing strategy by 1992, and can not significantly expand unless they find the necessary western partners for an effective further penetration to established EC markets. These are 414 processing and preservation of fruit and vegetables, 451 mass produced footwear and 453 ready-made clothing. As the events of 1993 show (see chapter IV.2) these exports are extremely vulnerable to the harvest (food industry sectors) and to changes in the business cycle in Western Europe (consumer products).

From among the allegedly less prospective industries (second column) some really deserve the adjective 'less progressive', partly because of the lack of necessary mineral resources in the country (like sectors 211, 233), and partly because they produce goods usually not profitable to freight far (like most sectors of the building materials industry). Some sectors, however, showed a bad performance in trade with the EC because of their specialization to show a good performance in relation to the CMEA (like 371 measuring and precision instruments). Still, in the case of many, especially engineering sectors in this column, it is justified to say that, unless substantial investments, involving transfer of know-how and the provision of good marketing opportunities, are made, little can be expected from them in the near future in EC markets.

For a further analysis we classified manufacturing sectors according to trade performance and domestic restricting/supporting measures affecting Hungarian exports. In principle, sectors falling into the class of 'good' export performance and 'discouraging' measures may be considered prospective sectors if we assume a further dismantling of restrictions. Since the share of the sectors falling into this category makes up 27% of Hungary's export to the EC in 1992 dismantling the remaining domestic restrictions on Hungarian exports might be beneficial for Hungary's export performance. Here we find sectors related to the steel industry (221, 222): for them the same applies as expressed in the paragraphs above. Other sectors (453, 455), however, have some potential if restrictive measures, mostly coerced by VERs and other bilateral agreements on the Hungarian authorities, are to be relaxed.

If for another analysis we take the sectors in which EC showed good trade performance in Hungary (inverse coverage ratios), and imports in Hungary are strongly discouraged then we have those sectors that in principle are prospective for a future penetration to Hungary (since they have been performing well against the odds). Here we

get, among others, 351 manufacture and assembly of motor vehicles, which is really an important one. Hungarian authorities already partially liberalized imports, in terms of not favoring the import of motor vehicles from CMEA economies and enlarging quotas for vehicle imports. While the import of this sector stood at 0.62% of total manufacturing imports from the EC twelve years ago, it surged to 7.01% in the last few years. Further liberalization, especially those of used cars, could enhance additional penetration. Most of the other sectors in this category, however, are food industry products, where restrictions can be expected to persist, at least in the first years covered by the Europe Agreement.

We should add that further industries in this category have attracted foreign direct investment in the recent years (sectors 351, 411, 421, 427, 429). This development indicates, that the investors envisage a bright future in these sectors. Their short term ambition is most probably to dominate domestic markets and crowd out imports. This endeavor has its implication of strong lobbying for the maintenance of some sort of trade protection and preventing future penetration of imports from EC in these sectors.

As a **summary of this chapter** we may state the following. The last five years brought massive, but partial dismantling of trade barriers to Hungary's exports to the EC. Even now, those industries of Hungary that showed outstanding trade performance and produce a determinant share of Hungarian exports face the strongest and most persistent restrictions in Community markets. A reduction of quantitative restrictions and tariff barriers is vital for these industries, but one must also understand that dismantling trade barriers is only one of the prerequisites necessary to make prospective Hungarian industries competitive in Western markets. Accordingly, several industries that can expect easier access to EC markets in the future (like Iron and steel and Slaughtering) are bound to decline, due to reasons other than the intensity of trade measures.

Hungarian markets are not exceptionally restrictive against imports from the EC. However, firms in food and consumer goods industries, that are still protected, may fight for the prolongation of their protection ferociously, since the new, private owners of these firms are mostly experienced western investors.

III. Factor endowments and market imperfections

III.1 EC tariff and non-tariff barriers and factor endowments

The analysis of development of trade structures naturally raise the question what role factor endowments had played in the past in the formation of trade, and what role would they play in future restructuring.

To study these relations factor intensity data collected for a group of representative countries of the EC, for most of NACE 3-digit sectors, and for different years of the period 1988-1990 were used. The data was made available by the DG-II of the Commission of the EC.

Because of lack of similar data for Hungary the rudimentary assumption was made that factor intensities of sectoral production in Hungary are similar to those of EC

economies. Accepting this assumption, we can refine our previous analysis concerning EC trade barriers to Hungary's exports on the one hand, and the nature of trade distortions in Hungary, on the other.

Table 11 gives the cumulated export and import shares of the sectors with highest factor intensity. The result is a new proof for the dominance of labor intensive industries in Hungary's export to the EC, both in the past and at present. The share of these sectors even increased in the course of the last few years.

It is a remarkable and a new finding though, that the importance of R&D- and skill-intensive sectors visibly increased in Hungary's exports between 1988 and 1992. The protagonists here were four sectors that were both highly R&D- and skill-intensive: 341 insulated wires with 2.61 percentage point increase, 352 bodies of motor vehicles with 1.16 percentage points, 342 electric machinery, and 351 manufacture and assembly of motor vehicles. While the double face of former structure of Hungarian exports (i.e. resource and labor intensive exports to the west, and R & D- and skill intensive engineering exports to the East) had predetermined, to some extent, the necessary expansion of research- and skill-intensive exports to the West, the progress is still encouraging.

On balance of the increasing share of labor-, R&D- and skill-intensive products in Hungary's exports to the EC, we see a slight drop in the share of capital- and energy intensive exports.

Hungary's imports reflect naturally a substantially different structure of factor intensities: high R&D- and skill-intensity, and a growing share of capital-, labor-, and R&D-intensive imports.

Table 12 analyzes the distribution of the fist 20 most resource intensive sectors (out of a total of 95) in respect to the level of trade protection in the EC against Hungary's exports. The table testifies again that Hungary's export is mostly hurt in the EC by the high level of protection of labor intensive industries, notably 453 ready made clothing and 451 mass produced footwear. These two make up almost 17% of Hungary's exports. In both sectors Hungary established a broad base of capacities. In footwear production a dominant share (over 40%) used to be exported to CMEA markets, while cloth manufacturing was less dependent on these markets (15%). Consequently, facing the demise of CMEA was more difficult for footwear manufacturers. The barriers of high protection on the side of EC notwithstanding, in 1992 in cloth manufacturing 74%, in footwear production 86% of exports found their way to the EC, a substantial part through outward processing. Still, unutilized capacities and expertise are present, that could be revitalized, were protection in EC less severe. Let us remind the reader, that protection in the EC in these sectors did not become palpably less severe in the first effective year of the Europe Agreement, in 1992.

Two energy intensive sectors (247 glass and glassware and 481 rubber products) are also facing high protection in EC markets. For an observer who knows that Hungary is especially poor in energy resources, this constrained access to EC markets may seem to be of not much importance. However, additional features of business in these sectors should also be taken into account. First, that in Hungary fuels have been close to realistically priced for users for many years, so the level of export of energy intensive products, as a rule, may not

have been artificially high for reasons of cheap energy. Second, both industries are strong in one way or other: glass industry attracted substantial foreign direct investment, while the manufacture of rubber products has gained a good international reputation in the last decades and has built up a diversified export market.

An interesting characteristic feature of EC trade protection revealed by the table is that no R&D- and skill intensive sector is highly protected in EC markets. Many such sectors are protected though by medium strength. In the case of Hungary, the most important ones are 341 insulated wires and cables, 342 electrical machinery, 346 domestic type electric appliances, and 347 electric lamps and lighting equipment. All these industries are important sectors of the Hungarian manufacturing industry, some of them (like those producing electric lamps and refrigerators, the latter as part of sector 346) have long traditions in selling on western markets and recently joined the network of giant multinational enterprises - two characteristic features indicating favorable prospects.

III.2 Explaining current trade performance by factor endowments

Given the data on factor intensities in most of the manufacturing industries in the EC, there is a possibility to test how much the pattern of Hungary's trade with the EC can be explained by factor endowments. To do this, we have to make the assumption that the production function of Hungary is identical to that of the EC economies and factor intensities in production are reflecting factor endowments. On the ground of these assumptions, the basic method to test the factor endowments hypothesis is regressing the implied underlying factor endowments with trade coverage data (x/y) across industries.

Undoubtedly, many objections can be set against this exercise. From among the usual ones[21] one has to be concerned here most with the implicit assumption of having a single world market. In this way we have to ignore the secular differences between the market of capitalist economies and CMEA economies in the past, for that matter. As explained in the Introduction, production and trade patterns have been formed in Hungary on the base of a dual world market (if 'market' is a good notion for the exchange of goods in the framework of the CMEA). Even if the effects of transition were spreading fast in the ex-communist world by 1992, one could not expect trade patterns to adjust to the single world market assumption instantaneously.

Another serious problem with this exercise is of course the heritage of centrally planned economy. Production and trade patterns were determined by a complex system of peculiar institutions and incentives, that could be interpreted as a multitude of trade distortions. The system was neither devised, nor permitting to realize comparative advantages.

The above objections notwithstanding the test of the factor endowments hypothesis can only enrich our analysis. Table 13 shows the results of the six most meaningful regressional calculations. They differ from each other whether the independent and dependent variables were taken on their original values, or with their logarithmic values, and whether

[21] See for instance Deardorff (1984).

a constant was calculated or not. In each case one dummy had to be used for two sectors: 412 Slaughtering, and 414 Processing and preservation of fruit. In the case of these food industries important additional factors must have influenced trade and shifted the trade coverage ratios upward.

Each result is more or less acceptable both from the statistical and the economic points of view.[22]

According to the results, Hungary's export to the EC reflects Hungary's abundant endowment in simple labor (positive coefficients), and poor endowment in skilled labor (negative, significant coefficients). Although recent analyses on Eastern Europe's (and within it, Hungary's) endowments in skilled labor[23] did not bring unanimous results, nevertheless there is a general understanding that "..factor abundances suggest that among manufactures it is hi-tech goods rather than labor intensive goods that represent Eastern Europe's area of comparative advantage". (CEPR (1990) p. 12.). As the results of our regression estimates suggest, this comparative advantage, if it exists, has not broken through Hungary's trade with the EC, and is not going to do it in the near future.

The last calculation manages to involve other factors as well: according to this, exports also reflect the country's abundance in energy, and poor endowments in R & D. The high energy intensity is certainly an inheritance of the past, when cheap energy imports were used for producing exports to the West.

As a **summary of chapter III** we may report about a complex and changing picture of factor intensity of Hungarian exports. Labor intensive industries have been determinant in Hungary's exports to the EC, and will go on to be in the future, if trade barriers that effectively inhibit further expansion will be reduced in due course. While some calculations (like the regressional analysis) suggest that R&D- and skill intensity were not significantly, or if significantly, even negatively influencing sectoral export performance in general, other analyses (like the comparison of contributions of the most resource intensive industries, Table 11) indicate that some industries with high R&D- and skill-intensity gradually gain ground in Hungary's Western exports. The elimination of existing medium strong trade barriers to export of these industries may support their further development.

IV. Other factors in determining trade performance

In the preceding chapters several factors influencing trade relations between Hungary and the EC were analyzed including EC barriers to Hungary's trade, trade distortions in Hungary, and factor endowments in Hungary. While we can not give a systematic analysis of all factors that seem to be important in this respect, it is justified to mention some further components that have played and are expected to play essential roles in shaping Hungary's trade structure in the future.

---

[22] Coefficients with 93 observations are significant, the adjusted R squares (where reasonable to observe, i.e. at calculations with constant), and F statistics show medium strong relationships in these cross-section calculations.

[23] See CEPR (1990), Graziani (1994), Helpman (1994).

The first additional factors are the level of economic activity in EC and in Hungary. These are obvious elements, but the impact of the former and the causes of the latter are not easy to grasp. We will show below, what kind of radical changes in Hungary's trade occurred in 1993, at least partly due to the recession in western Europe, and especially in Germany. The pattern of fast contraction of exports as a response to a modest recession in Western Europe deserves further analysis.

The rate of decline of economic activity in Hungary and in its specific sectors has also far-reaching consequences for future trade interpenetration. The steady decline of output leads to qualitative changes in industry, with much variation across industrial sectors. If new opportunities in trade with the EC (like gradually reduced tariff rates) are not proportional to the detrimental effects of other factors affecting output, trade may not benefit from concessions at all. It was not by chance that respondents of a survey carried out among managers of Hungarian manufacturing companies gave almost the same answers to a question asking about the benefits of the 1992 Europe Agreement. They easily skipped over the benefits of the agreements, and expressed their deep concern about shrinking domestic and ex-CMEA demand, sweeping competition by - allegedly dumping - East European imports, cheap imports from the far East and, in some markets, black (untaxed) trade. According to the arguments of enterprise managers these adverse effects can not be compensated by meager changes in their most demanding markets, like the EC.[24]

The current and future competitiveness of Hungarian products are shaped by many factors, the real exchange rate and comparative wages being the most fluid ones. Many Hungarian analysts warned for several years that the exchange rate policy of the Hungarian government, that followed anti-inflationary principles, led to such real appreciation of the Hungarian currency in 1990-1993 that, sooner or later, it had to have its impact on the export performance[25]. The real effective exchange rate of the forint that stood at 82.6% in 1988 (1985=100), that is before the wave of transition, increased more or less gradually to 106.5% by 1992, and to 114.5% by the middle of 1993. As we will show below, the events of 1993 seem to prove the truth of the above mentioned predictions. Accordingly, Hungary's relation with the EC hinges also on its future exchange rate policy.

As indicated in the preceding chapters, Hungary's exports to the EC are increasingly dominated by labor intensive products. As a consequence, Hungary's competitivity is determined to a large extent by her wage competitiveness. Hungary's major competitors are, among others her neighbors, the other transition economies. As a consequence of a multitude of factors, some of them exogenous to Hungary, some of them not, comparative wages of Hungary "managed" to achieve a leading position in recent years, which puts her exports to a disadvantageous position. As calculated by Richter (1993), monthly compensation per industrial employee stood at USD 402 in Hungary in 1992, while the respective compensations in other transition economies were as follows: CSFR - USD 249, Poland - USD 335, Bulgaria - USD 135, and Romania - USD 96. If Hungarian industry persist "leading" the wage competition, it has to either increase its productivity substantially,

[24] See Meisel et al. (1992).

[25] See for example Oblath (1994) and Gács (1994a).

or to restructure its export bundle by getting rid of much of the unskilled labor-intensive products.

IV. 1 Reorientation of trade from the ex-CMEA towards the EC

Trade reorientation from CMEA to market economies (including the EC) started earlier in Hungary, than the political landslide in Eastern Europe or the collapse of the CMEA and the USSR. These dramatic events, however, accelerated strongly the fall of trade among ex-CMEA economies.

To understand the speed and nature of expansion of trade with the EC one must know more about the nature of contraction of trade with the ex-CMEA partners. One important, and frequently posed question is that what role was played by trade reorientation in the recent upswing of exports to the EC? In the following analysis we try give an answer.[26]

Unfortunately, the concept of reorientation is not defined exactly in recent studies dealing with the subject. According to less precise delineations, one may speak about reorientation if the aggregate redirection of trade is achieved mainly through the redirection of trade within the individual sectors. We do not speak about reorientation if the general pattern is that the decline in some sectors' exports to the East is compensated by the growth of other sectors' exports to the West.

The extent (or rather the ratio) of reorientation is important from the point of view of the foreseeable rate of long term growth of exports. If the export expansion to the west were originated dominantly from the decline of exports to the East, the shift might turn out to be a once-for-all act, not showing much prospect for further export growth. Partly on the this considerations, analysts tend to take exports emerging from scratch more prospective than those reoriented from Eastern markets.

Early analyses of trade reorientation (like Rodrik (1991) and Bruno (1993)) recorded negligible or no switch of exports from CMEA to the West as, according to them, these "were largely goods that were not competitive at the new relative prices".[27] The examination below tries to verify these statements too.

The calculation started with the 1988 value of gross output, and of Hungary's exports to CMEA and non-CMEA countries. The Hungarian classification of industries was used, that covers 59 manufacturing industries. Using the volume changes of output and exports for 1988-1992, the 1988 output equivalent of the export losses (gains) were calculated for each industry.

For calculating trade reorientation proper with these values only those sectors were taken into account, where both decline in export volumes to the East and increase of exports to the West could be recorded. The number of these sectors is 27 (out of 59) for the period

[26] The analysis of the following paragraphs are based on the analysis of Gács (1994b).

[27] See Bruno (1993) p. 37.

of 1988-1992.

In these clear cases, we distinguish between reorientation proper and "surpluses". The switch of trade can be characterized by Δx^e_i and Δx^w_i, where Δx^e_i is the volume change of exports to the East, and Δx^w_i is the volume change of exports to the West. (According to our selection of sectors Δx^e_i is always negative and Δx^w_i is always positive). The result of $(\Delta x^e_i + \Delta x^w_i)$ we call surplus (either negative or positive). The part of Δx^e_i that is matched by Δx^w_i is then reorientation proper. In fact, the whole concept is analogous to the concept of inter-industry and intra-industry trade. The ratio of reorientation (in respect to the relevant sectors) is than given by the familiar formula modified for our purpose:

$$1 - \frac{2 \Sigma \mid (\Delta x^w_i + \Delta x^e_i) \mid}{\Sigma \ (\Delta x^w_i - \Delta x^e_i) + \Sigma \mid (\Delta x^w_i + \Delta x^e_i) \mid}$$

The calculation on the base of the formula resulted a coefficient of 0.1893, which means that in the group of the relevant sectors 19% of trade switching was reorientation proper. By looking at the two sides of trade flows separately, we may add that 28% of the losses in CMEA trade were reoriented, and 37% of the increase of exports to the West was attributable to reorientation from the East (all in the group of relevant sectors). Clearly these results are at variance with the numbers that other analyzers presented for trade reorientation.

It is also worthwhile to look at the sectoral rate of reorientation. The sectors that were most prominent in trade reorientation in terms of sectoral output are the following (the percentage of 1988 sectoral output that was reoriented is in brackets): hosiery (23%), footwear production (18%), haberdashery (18%), clothing industry (13%), and leather and fur industry (9%). The sectors that were most outstanding in trade reorientation in terms of total output are the following (the percentage of 1988 total output that was reoriented is in brackets): motor vehicle manufacturing (0.1972%), meat and meat products industry (0.1066%), machinery and equipment production (0.0945%), footwear industry (0.0934%), and clothing industry (0.0874%).

In the years 1988-1992 a substantial **import reorientation** also took place from CMEA to EC. While we did not make the same sophisticated exercise as with export reorientation, an analysis of data shows that the most important products that were switched in Hungary's import from CMEA to EC belonged to the following industries: motor vehicle manufacturing, electrical machinery manufacturing, production of telecommunication equipment, hosiery, clothing. The picture is clear: Hungarian buyers switched the sources of their purchase mostly in the case of engineering products and consumption goods[28].

The 49% share of EC in Hungary's manufacturing imports in 1992 is substantially high, if we take into account that the low share in the case of mineral resource related industries is well justified. A further substantial reduction from the 14% share of ex-CMEA countries does not seem to be reasonable: proximity, transporting infrastructure and inertia

[28] In fact, a part of the imports, especially in textile and clothing industry, could have been connected with subcontract processing for exports.

of past use all seem to ensure imports of such order, unless supply from these countries are obstructed for some reason. A further penetration of EC to Hungary would imply, on the one hand, crowding out of other western suppliers, like EFTA (and mostly Austrian) exporters. On the other hand, there is room for further deepening of the relations between Hungary and the EC through the network of multinational enterprises, and the further growth of the share of intra-industry trade.

IV. 2 Break in the trend of Hungary's export performance in 1992-1993

The striking export performance of the Hungarian economy in recent years up to the first half of 1992 induced a host of different explanations both during the upswing, and especially when after the middle of 1992 Hungary had to see the reversal of this process. Manufacturing exports to the EC, for instance, increased by 13% annually in 1989-90, by 39% in 1991 and by 12% in 1992. The second half of 1992 already saw a deceleration of growth, and 1993 brought a disappointing 31% drop (on the base of data for the first six months of the year).

The first group of explanations for fast export expansion refers to institutional changes like easier access to western markets, deregulation of exports, easier access to inputs for exports through liberalization of imports, etc. All observers accept the importance of these factors, few attribute, however, a decisive part of the export growth to these.

A general, and by most analysts accepted explanation is connected with the abrupt and significant decline in other components of demand, i.e. the severe domestic recession and the loss of markets in ex-CMEA countries. Under the pressure to utilize their idle capacities Hungarian enterprises were driven to sell as much of their products at western markets, as they could. This endeavor resulted in a high ratio of distress exports, that did not carry profits for their producers, or even produced losses. Halpern (1994) found that the average profitability of dollar exports (originating from a sample of exporting firms making up about 90 percent of Hungarian non-ruble exports) declined from 9.8% in 1988 to 3.0% in 1991, while Antalóczy (1993) and KOPINT-DATORG (1993. No 1.) arrived at the conclusions that in 1991 already the whole of industry and all the major industrial sectors exported at losses.

Another explanation put the emphasis on the pull of the demand of the German economy[29]. The two Germanies combined traditionally accounted for 16-17% of total Hungarian exports, which share, after a spectacular growth, reached 28% in 1992. Still, according to our analysis of the data, the German mini-boom of 1988-1991 could not account directly for more than half of Hungary's export expansion to the West.

Many analyzers emphasized a specific feature of the "new exports": a very high share of it was job-work for western companies in labor intensive industries like clothing and footwear production. In 1991 as much as 60% percent of the increment of western exports originated from such subcontract processing, or job-work. The weak, defenseless position of Hungarian subcontractors could also contribute to the fact that in the course of deepening recession Western partners got rid of Hungarian supplies the first, causing close to half a

[29] See Inotai (1993).

billion dollar worth of loss in this single category of Hungarian exports within a year[30].

Table 14 summarizes our calculations for changes in the export volume of Hungarian manufactured products in 1988-1992 and 1993[31]. One can see the drastic break in the trend of export expansion of Hungarian manufacturing industry in OECD markets, including the EC. Almost all the industries suffered a painful loss. The across the board pattern of being crowded out from western markets lets us suppose that West European recession plays a major role here. Within the general picture of export decline it is an interesting feature that those sectors seem to loose the most, which gained the most in the preceding four years (sectors 35, 36, 43, 44, 45). This pattern sheds new light on Hungary's recent strong specialization in labor intensive industries: the special stance of these suppliers (subcontractor processing status) and probably their performance make their position very fragile; they could most probably not surpass the capacity of being the marginal suppliers of the EC markets only.

As the table demonstrates, if the most recent developments are taken into account (i.e. annual growth rates for 1988-1993), Hungary's export performance in recent years was in fact not particularly strong in EC markets.

V. Future sectoral specialization

V. 1 Changes in the volume of trade with the EC

Table 15 summarizes basic data for Hungary's development since 1970, and in more detail, for the period after 1985[32]. One can follow the gradual deceleration of the growth of output throughout the whole period, accompanied by the relative, and then absolute, decline in foreign trade. The growth of exports, as a rule, exceeded both the rate of growth of GDP and that of total imports by a substantial margin. The main reason for this has been the necessity to serve mounting external debts that accrued following the two oil price explosions. This structural constraint is still embedded in Hungary's balance of payments and capital accounts.

A forecast for the future volume of trade should start from the estimation of GDP growth up to 2000. Many early analysts of transition counted, whether explicitly or implicitly, with successful stabilization, a fast switch-over to market principles and private ownership of business, a rapid establishment of the infrastructure needed for resource reallocation, more or less smooth redirection of trade, appropriate accumulation of domestic savings, and sufficient inflow of foreign investments. On the social and political scene these assumptions implied a broad support for reformist government policies, social peace and

[30] See KOPINT-DATORG 1993. No 3.

[31] The indices were calculated on HUF data with HUF price indices that incorporated the exchange rate variation of the Hungarian forint.

[32] Trade data refer to total trade, not only trade in manufactured industrial products. 1993 data are estimates on the base of data for the first seven months.

consensus, decisive and strong governments and legislation in the new democracies of East Central Europe. Using these assumptions, many analysts counted with swiftly recovering output.

Current events do not seem to verify the above listed assumptions. The fast recovery does not come either, as GDP persistently decline in most of the countries concerned.

The growth that we expect to come in the second half of the 1990s, should basically be an export-led growth, and the pull should mostly come from Western Europe. Hungary's ties with her traditional East European economies do not show much prospect since the simultaneous drop in economic activity in the region. At the same time broadening trade relations with the countries of the Pacific region goes slowly, so strong impulses for growth can not be directly conveyed from that expanding part of the world.

If the drop of annual GDP growth rates of the EC from 2.2% in 1990-1991 to 0.2% in 1992-1993 was really mostly responsible for the drastic turn in Hungary's export performance in 1992-1993, then the Hungarian recovery should strongly hinge on the expansion of economic activity in Western Europe. In the light of the most recent developments one should not calculate with a higher than 2-3% annual rate of growth in Western Europe for the period 1994-2000.

Given the protracted slump in the Hungarian economy as a whole, the current slight recovery of industrial production, the extended crisis in agriculture, weak investment activity, and emerging imbalances (external debt and budget), the most one can hope for 1994 is stagnation.

For the forecasts of the annual average rates of GDP, export, and import growth see also Table 15. The underlining assumptions of the two scenarios differ basically in the external conditions, especially in Hungary's two major markets, in the EC and the ex-CMEA region. The optimistic scenario counts with the upper range of economic growth in the EC (3%), further concessions in market access to EC, in the application of rules concerning place of origin and cumulation (in addition to the Europe Agreement and the Copenhagen extensions), less protectionist practices in the case of potential safeguard, anti-dumping and anti-subsidy actions, and an unbroken flow of foreign direct investments to Hungary.

As far as Eastern markets are concerned, the optimistic scenario counts with recovery in Central Eastern Europe by the second half of the 1990s, and the spreading of orderly economic activity and stabilization in the countries of the former Soviet Union (FSU). This supposition is also based on the increasing inter-connection of the economies of Western Europe and the former CMEA region. According to a further (optimistic) assumption, the adverse turn of Hungarian exports in 1993 was mostly related to Western recession and the collapse of import demand in the FSU. As a consequence, in this scenario it is expected that the recovery in Western Europe and normalization in the FSU will soon make up for the losses of export volume in 1993.

The pessimistic scenario counts with the lower end of Western European growth (2%) and with all the pessimistic versions of the external conditions, including that the current fall in Hungarian exports were mostly determined by structural causes (many of them internal

for Hungary). In this case, to achieve the 1992 level of exports again, will need several years. There is no special assumption made for Hungary's internal development other than in neither scenarios were such catastrophes taken into account as default on external debt service, or a drastic shrinkage of sources of external financing of Hungary.

In view of Hungary's development before 1986, the forecasted growth rate of exports to the EC in the optimistic scenario may seem to be excessively high, but in respect to export rates in 1986-1992 it seems modest. However, we have to take into account that some of the factors that accelerated the growth of exports in 1986-1992 will not be sustained in the future. Deregulation of external trade activities, liberalization of trade in Hungary and improving market access in the EC, reorientation of trade from East to West belong to these factors.

The progress of privatization of state enterprises may open new trade possibilities for the existing industries and firms, as well as it may contribute to the enforcement of competitive pressures. However, as recent empirical investigations substantiated[33], we may not be sure of a strong direct relation between privatization and the expansion of trade.

The inflow of foreign direct investments reached a remarkable level of 4-6% of the GDP in Hungary in 1991-1993. Much of FDI is connected with the process of privatization, but the supply of prospective state enterprises offered for sale in the framework of privatization is not indefinite. Accordingly, the sustainability of the inflow of foreign capital increasingly depends on the recovery of economic activity, in general, and the improvement of prospects for investments, specifically.

In estimating EC's share in Hungarian exports, we also took into account that the 55% share which is forecasted by the year 2000 in the optimistic scenario is close to the intra-trade average share of 61% for Community members in 1990.

We assumed a slower geographical reorientation of imports, than for exports in each scenario, since routes for raw material imports for resource-poor Hungary are more determined by the proximity of old suppliers and the infrastructure of transport, than for exports.

V. 2 The future sectoral composition of trade between Hungary and the EC

When forecasting future sectoral composition of trade under the high level of uncertainties, it is evident that a complex approach is needed, that takes into account the impact of a multitude of factors. In this exercise we rely mostly on the results of our former analysis.

Sectoral composition of exports

a) As it was expounded in chapter II., the dominant part of **reducing trade protection and**

[33] See Dabrowski (1994) and Török (1992).

eliminating market distortions has already taken place in EC-Hungary relation in the last five years. Their impact, however, has to come with some delay, especially when investments on the base of newly opened opportunities are concerned. From the point of view of foresight needed for investments, the programmed schedule of the establishment of the free trade area between Hungary and the EC is, without doubt, a plus.

On the basis of the analysis of chapter II.3, from among the highly protected sectors of table 10 we foresee a chance for expansion in the case of 247 glass and glassware, 414 processing and preservation of fruit, 423 other food products, 481 rubber products and the sectors connected with textile and footwear (451, 453, 455, 43A). In the case of some of these sectors, the implementation of this expansion is, however, conditional on an effective attraction of foreign industrial investors with their effective methods to ensure product quality, with their established brand names and access to distribution chains.

The analysis of chapter II.3 suggests that the elimination of current restrictions on Hungarian exports will be a function of eliminating EC and other external restrictions on Hungary's exports.

The impact of the two scenarios is straightforward: in the case of the pessimistic scenario, there will be a slower elimination of trade restrictions and that will result in a lower level of trade, mostly in the sensitive industries, like textile and clothing, food and, to some extent, steel.

b) The results of the analysis of Hungary's **factor endowments** in chapter III.2 emphasized the importance of labor intensive industries in Hungary's exports. The progress of R&D- and skill-intensive industries show, however, that the current dominance of simple labor-intensive exports may be characterizing a transitory phase only. R&D- and skill-intensive industries appear in exports to the EC as a consequence of trade reorientation from the ex-CMEA region, but it is also the result of the activity of foreign investors, who try to revitalize Hungary's few engineering industries with long historical traditions (electrical engineering, vacuum technology), or start new industries from (almost) scratch by responding to sales opportunities (passenger car manufacturing).

c) The analysis of recent **trade reorientation** from the CMEA to EC (chapter IV.1) showed that trade reorientation was not marginal. We also saw, however, that it was really strong (in terms of reorientation of sectoral output) in consumer goods production only. Many engineering industries lost their CMEA markets and did not manage to enter EC markets. For them there is not much time left for reorientation. If they can not restructure in the next 1-3 years, a whole culture of production, organization, marketing, R&D, training, etc. will disappear.

Many experts, including the author, believe that the bulk of the geographical reorientation has already been accomplished. The share of ex-CMEA economies in Hungary's trade will not fall further significantly. In fact this is also reflected in the two scenarios in table 15. However, a further restructuring of trade with ex-CMEA partners is foreseeable. The pattern of future trade hinges on the highly incalculable path of transition in the successor republics of the USSR, as well as on the utilization of the potential of the Central European Free Trade Area.

According to our assumption, the difference between the pessimistic and optimistic scenarios will have an impact on the trade with both the EC and the ex-CMEA region. In the pessimistic scenario Hungary will increase exports to both regions with slower pace.

d) The signals that **foreign direct investments** give about future prospect of the individual industries would be the most telling ones, were the data on FDI and activities of new joint ventures detailed enough and reliable.

Without doubt, Hungary has been the major target of foreign investments in East Central Europe in the recent years. Not all FDI is, however, concerned with exports. Many investors concentrate on grabbing a significant share of the Hungarian domestic market, without any clear intention of extending their activities to foreign markets. This is the case with many not sectors that produce not primarily tradeable goods (like newspaper publishing), or industries that produce consumer products but have no traditions to export their output (like 421 cocoa, chocolate products, 427 brewing and malting, 429 tobacco products).

All these reservations notwithstanding, much of the foreign investments in manufacturing industry has not only put western businessmen to the position of owners, but also meant additional efforts (including fresh investments) to utilize the capacities, and produce for exports. Out of the cumulated foreign direct investments effected in Hungarian manufacturing industries to the end of 1991, 35% were invested to machinery production, 28% to food industry, and about 10% to chemical industries, industrial consumer goods industries, and building material industries each. In the absence of detailed statistics we have to recall the common wisdom that substantial investments were carried out in the following industries (in the order of importance): 347 electric lamps and lighting, 351, 353 manufacture and assembly, resp. parts of motor vehicles, 247 glass and glassware, 257 pharmaceutical products, 471-472 Paper and pulp industry, 420 sugar manufacture and refining, 427 Brewing and malting, 421 cocoa, chocolate products, 429 tobacco products, 346 domestic type electronic appliances, 342 electrical machinery, 362 railway rolling stock.

In many industries the appearance of foreign owners means also a closer relation to western suppliers, to the network of multinational companies. Foreign businessmen make efforts to fit their Hungarian enterprise the pattern of trade they have been conducting in the West, and do not follow the former autark, excessively vertically integrated organization of the Hungarian enterprises. As a consequence, the ratio of intra-industry trade with the West will grow further.

In the forecast of export flows the obvious difference between the two scenarios is the difference between the rates of growth i.e. an annual 4.7% versus 8.8%. As for structural shifts, we foresee that the two sensitive industries that make up 35-40% of Hungary's exports to the EC (food products and textile) go on providing a decisive volume of exports, however their share is bound to decline. There are several reasons to make this assumption: the first is the deteriorating competitiveness of Hungary in simple labor intensive products; the second, the inevitable decline of Hungarian agriculture; the third is concerned with the stubborn protection of these industries in the EC, that seems to persist for the next years.

Metalliferous and metal products continue their decay and will loose export shares.

The major structural difference between the two scenarios is the pace of progress of Hungary's engineering exports i.e. electrical goods, transport, office machinery, and agricultural and industrial machinery. Especially the future growth of electrical goods and transport equipment is supported by recent foreign direct investments and industrial traditions. This is also true for some parts of the chemical industry, which as a whole will maintain its role of producing a bulk of Hungary's exports.

Sectoral composition of imports

As indicated already in chapter V.1, we consider the future geographical distribution of Hungary's imports more rigid, than that of the exports. Nevertheless the penetration of EC imports to Hungary will be further enhanced by the gradual reduction of tariff rates in Hungary, as envisaged by the Europe Agreement. On balance of this, Hungarian producers now seem to be more ready lobbying strongly for temporary protection from imports, than before. Another reason for a slower pace of penetration of EC imports into Hungary is connected with the learning process on the part of domestic entrepreneurs. Much of the recent surge in imports was connected with the euphoria of import liberalization. Sooner or later many new entrepreneurs will find the newly imported products appropriate to imitate, produce themselves in the future, and by this way crowd out imports. As a consequence, some of the consumer oriented industries will regain their earlier market share in Hungary (textile and food). At the same time, given the high share of subcontract processing in Hungarian textile exports, we also count with an increasing amount of textile imports for this purpose.

As for engineering products, we count with steadily growing imports from the West, especially in the optimistic scenario. We also predict continuing growth in the share of intra-industry trade. Without this, in the face of the envisaged low rate of investments, it would not be justified to project an unbroken growth of engineering imports.

The forecasts have also taken into account that ex-CMEA economies will continue to be important suppliers in certain industries. Growing shares of imports of metalliferous and metal products will be purchased from ex-CMEA economies due to their competitiveness in these branches. The same applies for certain chemical and timber products.

References

Antalóczy, K. (1993) Export Efficiency in the Period of Transition (in Hungarian), Európa Fórum, 1993. No 3.

Bruno, M. (1993) Stabilization and reform in Eastern Europe: preliminary evaluation, in: Blejer, M, Calvo, G, Coricelli, F. Gelb, A (eds) (1993) Eastern Europe in Transition: From Recession to Growth?, Word Bank Discussion Paper No. 196. Washington D.C.

CEPR (1990) Monitoring Economic Integration: The Impact of Eastern Europe, Centre for Economic Policy Research, London

Collins, M. S. and Rodrik, D. (1991) Eastern Europe and the Soviet Union in the World Economy, Institute for International Economics, Washington DC

Dabrowski, J. M. (1993) The Effect of the Privatization on the Enterprise Production and Trade Strategy, in: Gács and Winckler (1994)

Deardorff, A. V. (1984), Testing Trade Theories and Predicting Trade Flows, in: Jones, R. W. and Kenen, P. B. (eds): Handbook of International Economics, North Holland, Amsterdam

Gács, J. (1989) Changes in the Structure of Production and Foreign Trade of the Hungarian Industry in the Period of Restrictions (1978-1986), Acta Oeconomica Vol. 40 No.1-2

Gács, J. (1994a) Trade Liberalization in Eastern Europe: Rush and Reconsideration - Experiences of the CSFR, Hungary and Poland, in: Gács and Winckler (1994)

Gács J. (1994b) Output Decline and the Demise of the CMEA and the USSR: The Case of Hungary, Empirica (forthcoming) and also in: Holzmann, R., Gács, J., and Winckler, G. (Eds.) Output Decline in Eastern Europe - Prospects for Recovery?, Kluwer Academic Publishers (forthcoming)

Gács, J. and Winckler, G. (eds.) (1994) International Trade and Restructuring in Eastern Europe, Physica Verlag, Heidelberg and Wien

Graziani, Giovanni (1994) Trade Patterns and Comparative Advantages of Central Eastern Europe with EC Countries, in: Gács and Winckler (1994)

Halpern, L. (1994) Factors and Effects of Trade Reorientation in Hungary, in: Gács, J. and Winckler, G. eds. (1994)

Halpern, L., Kőrösi, G., and Richter, S. (1985) Intra-industry trade, (In Hungarian), Külgazdaság No 4-5.

Helpman, Elhanan (1994) Comments on Giovanni Graziani's paper, in: Gács and Winckler (1994)

Hungary - Trade Policy Review (1991), General Agreement on Tariffs and Trade, Geneva

Inotai, A. (1993) The European Communities and Central and East Europe: A critical assessment of the Association Agreements in strategic perspective, Paper prepared for the conference on "Europe: What Next?", Vienna, October 189-19, 1993

Jelentés a közvetlen külkereskedelmi forgalomról 1989, 1990, 1991, 1992 január-december (Report on the Direct Foreign Trade Turnover), Ministry of Trade, Budapest

KOPINT-DATORG (1990), Supplement to Foreign Trade Statistics - General Exports and Imports 1980-1989, KOPINT-DATORG Institute for Economic and Market Research, Budapest

KOPINT-DATORG Report on business tendencies - The position and prospects of the world economy and Hungary, various issues (in Hungarian), KOPINT-DATORG Institute for Economic and Market Research and Informatics, Budapest

Külkereskedelmi Évkönyv 1989, 1990, (Foreign Trade Yearbook), Central Statistical Office, Budapest

Magyar Statisztikai Évkönyv (Hungarian Statistical Yearbook), various issues, Central Statistical Office, Budapest

Magyar Statisztikai Zsebkönyv, various issues (Hungarian Statistical Pocketbook), Central Statistical Office, Budapest

Magyarország 1938. évi külkereskedelmi forgalma (Foreign Trade Turnover of Hungary in 1938), Hungarian Royal Statistical Office, Budapest

Meisel, V. S., Török, Á. and Zsarnay J. (1992) The Association to EC and the Hungarian Industrial Enterprises (Framework for control - enterprise viewpoints - adjustment of supply) (in Hungarian), Institute of Industrial and Company Research, Hungarian Academy of Sciences, Budapest.

Oblath G. (1994) Exchange Rate Policy and Real Exchange Rate Changes in Economic Transition, in: Gács and Winckler (1994)

Pinder, J. (1991) The European Unity and Eastern Europe, The Royal Institute of International Affairs, Pinter Publishers, London

Richter, S. (1993) East-West Trade Under Growing Western Protectionism, The Vienna Institute for Comparative Economic Studies (WIIW), Vienna

Rodrik, D. (1991) Foreign Trade in Eastern Europe's Transition: Early Results (Mimeo)

Schumacher, D. and Möbius, U. (1992a) Analysis of Current Trade Barriers to Central and East European Countries (CEECs), Prepared for the EC working group on "The Economic Interpenetration Between the EC and Eastern Europe", (Manuscript), German Institute for Economic Research (DIW), Berlin

Schumacher, D. and Möbius, U. (1992b) Community Trade Barriers Facing Central and East European Countries (CEECs) - Impact of the Europe Agreements, Prepared for the EC working group on "The Economic Interpenetration Between the EC and Eastern Europe", (Manuscript), German Institute for Economic Research (DIW), Berlin

Schumacher, D. and Möbius, U. (1993) Community Trade Barriers Facing Central and East European Countries (CEECs) - Impact of the Europe Agreements: Supplementary nd Updated Results, Prepared for the EC working group on "The Economic Interpenetration Between the EC and Eastern Europe", (Manuscript), German Institute for Economic Research (DIW), Berlin

Statisztikai Havi Közlemények (Monthly Statistical Bulletin), various issues, Central Statistical Office, Budapest

Tovias, A. and Laird, Sam (1991) Whither Hungary and the European Communities? Working Paper, International Economics Department, The World Bank

Török, Á. (1992) Privatization, Structural Adjustment and Exports: the Case of the Hungarian Engineering Industry, Paper presented at the Conference 'International Trade and Restructuring in Eastern Europe', November 19-21, 1992, Laxenburg, Austria.

Yearbook of Economic Statistics 1990, 1991, Central Statistical Office, Budapest

TABLES

Table 1

Changes in the geographical distribution of Hungary's exports among her major trade partners between 1928 and 1992
%

	1928	1938	1978	1988	1992
Austria	34.02	18.26	3.25	5.72	10.68
Germany	11.89	27.44	16.78	16.23	27.73
West Germany			8.40	10.95	
East Germany			8.38	5.28	
Italy	6.56	8.46	4.20	4.21	9.52
United Kingdom	2.87	8.08	1.49	1.88	2.00
Czechoslovakia	17.62	4.14	6.61	5.39	2.71
Romania	5.33	4.01	2.72	1.71	1.77
Poland	3.28	1.03	4.76	3.33	1.34
Soviet Union	0.41	0.09	30.46	27.61	13.14
EC 12 countries	25.01	49.73	27.75	22.56	49.76
European CMEA countries (Bulg, Czech, Pol, Rom, SU)	27.46	10.25	45.86	39.29	19.33

Sources: Collins–Rodrik (1991), Magyarország 1938. évi..., Statisztikai Évkönyv 1978, 1989, Külkereskedelmi termékforgalom 1991. január–december, 1992 január–december

Table 2

Geographical distribution of Hungary's trade in manufacturing products by regions

	Exports to (%)		Imports from (%)	
	1988	1992	1988	1992
OECD	39.78	73.25	49.34	79.62
- EC	24.10	51.65	30.24	49.39
- EFTA	9.58	15.04	14.31	23.86
- Japan	1.08	1.01	1.72	2.81
ex-USSR	27.03	10.21	16.37	6.50
other ex-CMEA	17.78	6.33	20.78	7.35
ROW	15.41	10.21	13.51	6.53
Total	100.00	100.00	100.00	100.00
Total in Millon ECU	7634.56	7347.28	6747.59	7173.46

Source: KOPINT-DATORG Data Base and own calculations

Table 3

Distribution of Hungary's exports and imports in manufacturing products by EC countries
(in per cent)

	Exports to		Imports from	
	1988	1992	1988	1992
Germany	52.24	58.98	59.54	58.31
France	10.69	7.66	8.36	7.12
Italy	14.86	16.35	11.89	15.93
Netherlands	4.99	4.38	5.75	4.93
Belgium-Luxemburg	3.70	4.12	3.78	4.38
United Kingdom	8.31	4.20	6.54	5.53
Ireland	0.19	0.10	0.65	0.33
Denmark	1.76	0.98	1.81	1.02
Spain	1.61	1.96	1.03	1.79
Greece	1.43	1.09	0.35	0.47
Portugal	0.21	0.17	0.30	0.18
EC total	100.00	100.00	100.00	100.00

Source: COMEXT Data Base

Table 4

Manufacturing exports to regions by sectors in 1988 and 1992

		ex-USSR (%)		other ex-CMEA (%)		OECD (%)		of which EC (%)	
		1988	1992	1988	1992	1988	1992	1988	1992
21,23	Extraction of minerals	0.78	0.01	0.36	1.11	0.10	0.04	0.07	0.03
22,31	Metallurgy	3.90	15.10	7.32	6.65	14.85	9.30	13.21	8.65
24	Man. of non-metallic mineral products	0.37	0.90	0.77	2.19	2.30	2.45	2.50	2.45
25,26	Chemical industry	9.83	13.37	10.90	25.74	18.82	12.63	15.28	10.61
32	Mechanical engineering	13.52	9.58	18.35	6.95	6.34	7.89	6.56	8.24
33,37	Instrument and office machinery engineerin	10.98	3.16	10.19	2.18	1.41	1.44	1.30	1.54
34	Electrical engineering	11.83	7.43	13.01	6.12	5.78	11.31	6.58	10.36
35,36	Motor vehicle engineering	22.27	19.12	17.13	7.89	2.26	4.88	0.96	3.77
41/42	Food, drink and tobacco industry	14.88	22.18	9.75	28.22	20.21	15.80	22.22	16.19
43	Textile industry	3.98	2.17	4.20	2.62	5.09	5.42	4.69	6.07
44,45	Footwear, clothing and leather goods indust	5.63	3.16	4.58	1.25	15.23	20.23	18.72	22.75
46	Timber and wooden furniture industry	0.29	0.78	0.59	1.68	3.58	4.03	3.77	4.50
47	Manufacture of paper, printing, publishing	0.49	0.32	0.71	3.18	1.06	1.32	1.23	1.50
48	Processing of rubber and plastics	1.06	2.53	1.53	3.50	2.34	2.29	2.30	2.43
49	Other manufacturing industries	0.18	0.21	0.62	0.72	0.63	0.96	0.61	0.91
	Total	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	Total in Million ECU	2063.30	750.24	1357.67	465.11	3036.94	5381.82	1839.63	3794.70

Source: KOPINT-DATORG Data Base, own calculations

Table 5

Correlations for trade structures, 1988 and 1992

Exports in 1988	Exports in 1992			
	Ex-USSR	Other ex-CMEA	OECD	EC
Ex-USSR	0.7865			
Other ex-CMEA		0.4399		
OECD			0.8796	
EC				0.9116

Imports in 1988	Imports in 1992			
	Ex-USSR	Other ex-CMEA	OECD	EC
Ex-USSR	0.9189			
Other ex-CMEA		0.4321		
OECD			0.8655	
EC				0.8555

Source: KOPIN-DATORG Data Base and own calculations

Table 6

Ten industries with highest share in manufacturing exports to the EC in 1992, and with largest positive and negative change in export shares between 1988 and 1992

		1992 %	1992/1988 percentage point change
	Industries with highest export share		
412	Slauhtering, prep. and preserv. of meat	10.21	-5.06
453	Man. of ready-made clothing	11.95	0.25
252	Man. of petrochemicals and coal-source chemicals	8.20	-0.12
451	Man. of mass produced footware	4.74	1.54
414	Proc. and pres. of fruit and vegetable products	3.07	-0.42
436	Knitting industry	4.01	1.20
224	Prod. of non-ferrous metals	2.95	-1.40
316	Man. of tools, finished metal goods	2.64	0.54
221	Iron and steel industry	2.41	-2.59
467	Man. of wooden furniture	2.43	0.38
	Industries with largest export increase		
341	Man. of insulated wires and cables	2.82	2.61
451	Man. of mass produced footware	4.74	1.54
436	Knitting industry	4.01	1.20
352	Man. of bodies for motor vehicles	1.16	1.16
351	Man. and assembly of motor vehicles, engines	1.18	0.87
342	Man. of electrical machinery	2.41	0.80
314	Man. of structural metal products	1.14	0.80
328	Man. of other machinery	2.21	0.66
325	Man. for mines, iron and steel industry	1.69	0.55
316	Man. of tools, finished metal goods	2.64	0.54
	Industries with largest export decrease		
412	Slauhtering, prep. and preserv. of meat	10.21	-5.06
221	Iron and steel industry	2.41	-2.59
253	Man. of other ind. chemicals	0.78	-1.76
224	Prod. of non-ferrous metals	2.95	-1.40
43B	Woven fabrics	0.67	-0.60
43A	Yarns	0.48	-0.42
414	Proc. and pres. of fruit and vegetable products	3.07	-0.42
456	Man. of furs and fur goods	0.19	-0.41
465	Other wood manufactures	0.53	-0.32
413	Man.of diary products	0.12	-0.25

Source: COMEXT Data Base, own calculations

Table 7

Correlation matrix of trade structures, 1980–1992

Hungarian exports to the EC	1980	1985	1988	1989	1990	1991
1992	0.9224	0.8974	0.9434	0.9343	0.9573	0.9832
1991	0.9503	0.9499	0.9763	0.9726	0.9823	
1990	0.9699	0.9623	0.9933	0.9910		
1989	0.9709	0.9832	0.9966			
1988	0.9786	0.9766				
1985	0.9568					
Hungarian imports from the EC	**1980**	**1985**	**1988**	**1989**	**1990**	**1991**
1992	0.6564	0.7169	0.7950	0.8653	0.9098	0.9825
1991	0.7293	0.7936	0.8621	0.9225	0.9551	
1990	0.8161	0.8831	0.9393	0.9708		
1989	0.8824	0.9388	0.9800			
1988	0.9306	0.9713				
1985	0.9728					

Source: own calculations

Table 8

Sectors with the Ten Highest and the Ten Lowest Coverage Ratios
1988-1992

NACE CODE	INDUSTRY	TRADE COVER	EXP STRUCTURE	EXP SPECIALIZATION	INTRA IND. TRADE
414	Proc. and pres. of fruit and vegetable products	21.29	3.32	3.50	0.09
465	Other wood manufactures	16.53	0.74	4.48	0.11
412	Slauhtering, prep. and preserv. of meat	16.15	13.09	11.17	0.12
463	Man. of carpentry, joinery, parquet flooring	7.16	0.38	1.98	0.24
461	Sawing and processing of wood	6.62	0.75	0.43	0.26
453	Man. of ready-made clothing	6.48	11.38	2.83	0.27
347	Man. of electric lamps and lighting equipment	6.00	1.77	6.75	0.29
464	Man. wooden containers	5.85	0.04	3.38	0.29
455	Man. of household textiles	5.70	0.86	2.19	0.30
418	Man. of starch and starch products	5.43	0.19	0.96	0.31
472	Processing of paper and board	0.11	0.18	0.24	0.20
344	Man. of telecomm. equipment, electr. measuri	0.11	0.32	0.10	0.19
258	Man. of soap, s. detergents, perfume	0.10	0.08	0.46	0.18
417	Man. of spagetti, macaroni	0.10	0.00	0.16	0.18
351	Man. and assembly of motor vehicles, engines	0.09	0.50	0.10	0.17
323	Man. of textile machinery	0.05	0.07	0.18	0.10
255	Man. of paints	0.03	0.03	0.17	0.05
415	Proc. and pres. of fish and other sea foods	0.02	0.00	0.00	0.05
246	Prod. of grindstones	0.02	0.00	0.06	0.04
429	Man. of tobacco products	0.00	0.00	0.00	0.00

Note: Sectors 211, 232, and 233 with no export at all were not taken into account, since the low level of trade coverage was clearly caused by the lack of the respective natural resources.

Source: own calculations

Table 9

The first thirty most protected sectors by the EC against Hungarian exports

	NACE CODE	INDUSTRY	Export Share	Index of trade protection	
			1992	1991	1992
1	427	Brewing and malting	0.02	9	n.a.
2	425	Man. of wine of fresh grapes and bev	0.01	9	n.a.
3	417	Man. of spagetti, macaroni	0.00	9	n.a.
4	414	Proc. and pres. of fruit and vegetable	3.07	9	n.a.
5	453	Man. of ready-made clothing	11.95	9	9
6	421	Man. of cocoa chocolate and sugar c	0.24	9	n.a.
7	43B	Woven fabrics	0.67	8	9
8	247	Man. of glass and glassware	1.60	8	8
9	438	Man. of carpets	0.22	8	8
10	221	Iron and steel industry	2.41	8	4
1-10		Cumulated export share	20.19		
11	455	Man. of household textiles	0.94	8	7
12	412	Slauhtering, prep. and preserv. of me	10.21	7	n.a.
13	451	Man. of mass produced footware	4.74	7	7
14	43A	Yarns	0.48	7	7
15	494	Man. of toys and sport goods	0.43	7	6
16	481	Man. of rubber products	1.30	7	5
17	423	Man. of other food products	0.98	7	n.a.
18	422	Man. of animal and poultry foods	0.48	6	n.a.
19	439	Miscellanious textile industries	0.31	6	6
20	413	Man.of diary products	0.12	6	n.a.
1-20		Cumulated export share	40.18		
21	419	Bread and flour confectionery	0.05	6	n.a.
22	260	Man-made fibres industry	0.42	6	6
23	342	Man. of electrical machinery	2.41	6	5
24	436	Knitting industry	4.01	6	6
25	418	Man. of starch and starch products	0.05	6	n.a.
26	222	Man. of steel tubes	0.77	6	6
27	416	Grain milling	0.01	6	n.a.
28	428	Man. of soft drinks, bottling nat. spa	0.01	6	n.a.
29	326	Man. of transmission equipment for	0.61	5	4
30	345	Man. of radio and tv. receivers, soun	0.97	5	3
1-30		Cumulated export share	49.48		

Source: own calculations

Table 10

The level of export performance and trade protection in EC markets

Hungary's Performance in EC Markets 1992		EC Trade Protection 1991
GOOD (i)		High(***)
221	Iron and steel industry	
247	Man. of glass and glassware	
412	Slauhtering, prep. and preserv. of mea	
414	Proc. and pres. of fruit and vegetable	
451	Man. of mass produced footwear	
453	Man. of ready-made clothing	
455	Man. of household textiles	
481	Man. of rubber products	

Hungary's Performance in EC Markets 1992		EC Trade Protection 1991
BAD (i)		Low (*)
211	Extr. iron ore	
231	Extr. of building materials	
233	Salt extraction	
242	Man. of cement, lime and paper	
245	Working of stone and non-metallic produc	
246	Prod. of grindstones	
255	Man. of paints	
258	Man. of soap, s. detergents, perfume	
259	Man. of other chemical products (househo	
313	Secondary transf. of metals	
324	Man. of mach. for food, chemical idustries	
327	Man. of other mach., for specific in. branc	
343	Man. of electrical apparatus for industrial	
363	Man. of cycles and motor-cycles	
364	Aerospace equipment manufacturing and	
371	Man. of measuring and precision instrume	
374	Man. of clocks, whatches and parts	
411	Man. of vegetable and animal oils and fats	
426	Man. of cider and of wines, beverages	
429	Man. of tobacco products	
471	Man. of pulp, paper and board	
472	Processing of paper and board	
482	Retreading and repairing of rubber produc	

Source: Own calculations on the base of Schumacher and Möbius (1992a) and COMEXT Data Base

Table 11

Hungarian manufacturing exports to and imports from EC – Share in total exports/imports of NACE 3-digit sectors with highest factor intensity, per cent

	Capital	Labour	R & D	Skills	Energy
			intensity		
EXPORT					
1988					
– first ten	1.59	17.84	8.35	4.12	7.95
– first twenty	8.97	23.33	10.44	10.72	12.24
– first thirty	17.27	28.32	16.11	14.20	15.77
1992					
– first ten	1.80	19.81	12.47	6.02	6.79
– first twenty	8.42	26.90	16.41	15.46	10.46
– first thirty	16.78	31.35	24.79	19.92	14.25
IMPORT					
1988					
– first thirty	23.01	14.72	44.08	39.10	20.35
1992					
– first thirty	27.95	17.88	48.95	38.42	16.67

Source: Own calculations

Table 12

EC trade protection and factor intensity of exports
(export share for 1992, first 20 most factor intensive sectors)

EC Trade Protection	Capital Intensive Sectors		Labour Intensive Sectors		R & D Intensive Sectors		Skill Intensive Sectors		Energy Intensive Sectors	
HIGH	417	427	451	455					247	
	423		453	494					481	
Share in total exports		0.99		18.06		0.00		0.00		2.91
	224	418	248	419	256	345	256	345	222	418
	256	422	326	436	257	346	257	346	223	
MEDIUM	260	428	361	442	330	347	330	347	224	
	330		362	492	341	372	341	372	248	
	351		372	493	342	373	342	373	256	
	416		373	495	344		344		260	
Share in total exports		6.35		8.48		12.99		12.99		6.02
	211	462	244		255	364	255	471	211	312
	241	471	365		258	371	258	472	241	313
LOW	242		464		259	374	259	473	242	420
	245		466		343		343		243	471
	411				352		371		245	482
	420				353		374		311	
Share in total exports		1.07		0.35		3.42		2.47		1.53
Total share		8.42		26.90		16.41		15.46		10.46

Source: COMEXT data base, Schumacher-Möbius (1992a), own calculations

Table 13

Multiple OLS regressions on factor intensities (N=93)

	Coeff.	t stat.	Coeff.	t stat.	Coeff.	t stat.
Charact. of estim.	Ind: orig,Dep: orig		Ind: orig,Dep: LN		Ind: orig,Dep: LN	
Constant			1.716	3.569	1.022	1.512
Capital intensity						
Energy intensity						
Labor intensity	0.106	6.818			0.042	1.453
R&D content						
Skill content			-0.059	-4.671	-0.054	-4.146
Dummy 412, 414	17.072	12.656	3.353	4.078	3.544	4.282
Adjusted R Square	0.707		0.283		0.292	
F	111.630		19.137		13.619	
Charact. of estim.	Ind: LN, Dep: LN		Ind: LN, Dep: LN		Ind: LN, Dep: LN	
Constant	8.094	4.809	6.910	3.435		
Capital intensity						
Energy intensity					0.232	1.213
Labor intensity			0.300	1.073	0.785	3.193
R&D content					-0.157	-1.620
Skill content	-2.392	-5.095	-2.263	-4.675	-0.721	-4.151
Dummy 412	3.432	4.249	3.546	4.356	3.520	4.124
Adjusted R Square	0.308		0.309		0.313	
F	21.507		14.745		9.178	

Source: own calculations

Table 14

Volume index of Hungarian exports of manufactured goods in 1988–1992 and in 1993
(per cent, 1993 index is estimated on first 6 months data)

NACE code	Destination	Volume index 1992/1988	Volume index 1993/1992	Volume index 1993/1988
	EC			
21,23	Extraction of minerals	74.0	231.6	171.5
22,31	Metallurgy	159.0	67.5	107.4
24	Man. of non-metallic mineral products	172.2	102.4	176.3
25,26	Chemical industry	156.6	87.3	136.6
32	Mechanical engineering	224.9	84.9	191.0
33,37	Instrument and office machinery engin	211.2	72.0	152.2
34	Electrical engineering	281.7	87.2	245.7
35,36	Motor vehicle engineering	705.7	52.7	372.2
41/42	Food, drink and tobacco industry	126.6	70.9	89.7
43	Textile industry	243.0	47.3	114.9
44,45	Footwear, clothing and leather goods i	227.9	44.5	101.5
46	Timber and wooden furniture industry	212.6	84.3	179.3
47	Manufacture of paper, printing, publis	228.6	77.1	176.2
48	Processing of rubber and plastics	237.9	95.9	228.1
49	Other manufacturing industries	316.9	77.8	246.4
	Total manufacturing	199.3	69.2	137.9
	CMEA	31.1	109.6	34.1
	ROW	95.5	80.6	77.0
	Germany	228.9	69.7	159.5
	OECD	171.8	72.4	124.5
	Total	92.5	79.1	73.2

Source: KOPINT-DATORG Data Base and own calculations

Table 15

Growth rates of basic indicators, actual and forecasted, volume indices, per cent
(For annual indices: previous year=100)

	GDP	Ind. prod.	Exports	Imports	Exports to EC**	Exports to CMEA (ex-CMEA)	Imports from EC**	Imports from CMEA (ex-CMEA)
1971–1975	106.3	106.4	109.4	107.3	101.2	111.7	103.7	108.4
1976–1980	103.3	103.2	106.6	103.5	107.5	105.9	105.9	102.5
1981–1985	101.8	101.9	105.5	101.4	100.1	106.1	101.4	100.5
1986–1988	101.8	101.9	102.6	101.6	111.4	100.0	100.9	102.5
1989–1992	97.3	92.4	98.2	95.7	113.8	86.4	98.9	92.3
1989	100.7	98.9	100.3	101.1	109.0	93.9	110.8	93.3
1990	96.5	90.4	95.9	94.8	118.7	79.3	96.4	86.1
1991	88.1	85.9	95.1	105.5	130.5	56.5	130.2	58.8
1992	95.5	90.2	101.0	92.4	109.5	99.6	92.9	98.7
1993*	97.0	102.0	74.0	100.0	70.0	85.0	99.0	102.0
1992/1985	86.3	73.3	99.7	97.9	240.7	41.9	122.6	49.1
1993/1985	83.7	74.8	73.8	97.9	168.5	35.6	121.4	50.1
2000/1993 Pessimistic scenario	101.4	102.0	103.8	102.8	104.7	103.0	103.3	102.8
2000/1993 Optimistic scenario	103.6	104.5	107.0	103.9	108.8	104.0	104.4	103.6
Trade distrib. 1993			100.0	100.0	49.0	19.1	48.9	14.1
Trade distrib. 2000 Pessimistic sc.			100.0	100.0	51.9	18.0	50.3	14.1
Trade distrib. 2000 Optimistic sc.			100.0	100.0	55.2	15.6	50.6	14.5

* Estimated data

** For 1971–1975 and 1976–1980 trade with developed market economies

Source: Various Hungarian satistical publications and own calculations

APPENDIX

Appendix - Table 1

1988

NACE code	Sectors	% of total employed	% of output	% of workforce involved in domestic output	% of workforce involved in output exported to CMEA	EC	ROW	Total
21,23	Extraction of minerals	1.70	0.80	85.61	11.85	0.74	1.79	100.00
22,31	Metallurgy	10.30	13.31	71.77	6.13	8.28	13.83	100.00
24	Man. of non-metallic mineral products	4.55	3.50	86.24	2.33	5.96	5.47	100.00
25,26	Chemical industry	6.39	19.23	71.85	8.27	6.63	13.25	100.00
32	Mechanical engineering	10.01	7.14	43.56	33.52	7.66	15.26	100.00
33,37	Instrument and office machinery engineering	3.99	2.91	29.32	56.82	3.74	10.13	100.00
34	Electrical engineering	11.45	8.98	63.10	21.24	6.11	9.55	100.00
35,36	Motor vehicle engineering	6.37	6.77	41.89	46.32	1.18	10.62	100.00
41/42	Food, drink and tobacco industry	15.86	19.15	72.50	10.40	9.67	7.43	100.00
43	Textile industry	7.50	4.99	68.41	12.65	7.84	11.11	100.00
44,45	Footwear, clothing and leather goods industry	8.93	4.04	25.55	20.03	38.66	15.76	100.00
46	Timber and wooden furniture industry	3.16	2.13	72.43	2.98	14.80	9.79	100.00
47	Manufacture of paper, printing, publishing	2.58	2.98	90.25	3.02	3.45	3.29	100.00
48	Processing of rubber and plastics	2.02	2.45	74.52	7.89	7.82	9.78	100.00
49	Other manufacturing industries	5.19	1.61	90.48	3.42	3.15	2.95	100.00
	Total manufacturing	100.00	100.00	65.39	15.51	8.34	10.76	100.00

Appendix - Table 2

1991

NACE code	Sectors	% of total employed	% of output	% of workforce involved in domestic output	% of workforce involved in output exported to CMEA	EC	ROW	Total
21,23	Extraction of minerals	1.22	0.72	89.93	4.29	2.79	2.99	100.00
22,31	Metallurgy	9.30	11.52	58.86	7.80	15.88	17.46	100.00
24	Man. of non-metallic mineral products	4.75	3.56	75.32	1.86	12.03	10.80	100.00
25,26	Chemical industry	7.36	22.25	71.53	4.06	12.48	11.93	100.00
32	Mechanical engineering	12.00	7.39	63.68	7.62	17.97	10.73	100.00
33,37	Instrument and office machinery engineering	3.39	2.53	64.84	13.52	10.04	11.59	100.00
34	Electrical engineering	9.13	6.28	38.90	7.44	25.12	28.54	100.00
35,36	Motor vehicle engineering	5.78	4.94	47.97	22.77	7.24	22.02	100.00
41/42	Food, drink and tobacco industry	18.29	24.03	68.13	8.29	13.91	9.67	100.00
43	Textile industry	5.91	3.46	60.20	3.96	23.99	11.84	100.00
44,45	Footwear, clothing and leather goods industry	9.48	3.46	-15.63	5.18	86.05	24.40	100.00
46	Timber and wooden furniture industry	3.97	2.48	56.81	1.67	30.67	10.84	100.00
47	Manufacture of paper, printing, publishing	3.16	3.59	87.60	2.21	6.67	3.51	100.00
48	Processing of rubber and plastics	2.54	2.70	65.06	8.31	17.49	9.14	100.00
49	Other manufacturing industries	3.72	1.11	78.16	1.54	13.10	7.20	100.00
	Total manufacturing	100.00	100.00	62.26	7.07	17.34	13.34	100.00

APPENDIX - Table 3

NACE CODE	INDUSTRY	STRUCTURE OF EXPORTS TO EC (%) 1980	1985	1988-1992	1992	Index of trade protection 1991	1992*
211	Extr. iron ore	0.00	0.00	0.00	0.00	0	0
212	Extr. non-ferrous metal	0.00	0.03	0.07	0.09	0	0
221	Iron and steel industry	6.14	3.34	3.59	2.41	8	4
222	Man. of steel tubes	0.81	0.74	0.93	0.77	6	6
223	Cold rolling of steel	0.58	0.28	0.56	0.40	5	4
224	Prod. of non-ferrous metals	3.78	4.29	3.81	2.95	4	3
231	Extr. of building materials	0.01	0.02	0.02	0.02	0	0
232	Mining of potassium	0.00	0.00	0.00	0.00	0	0
233	Salt extraction	0.00	0.00	0.00	0.00	0	0
239	Extr. of other minerals	0.06	0.04	0.06	0.04	1	1
241	Man. of clay products	0.00	0.00	0.01	0.02	2	1
242	Man. of cement, lime and paper	0.00	0.00	0.08	0.01	1	0
243	Man. of concrete	0.03	0.03	0.05	0.05	2	1
244	Man. of asbestos products	0.02	0.00	0.04	0.11	2	1
245	Working of stone and non-metallic	0.01	0.02	0.08	0.10	1	0
246	Prod. of grindstones	0.01	0.01	0.00	0.00	1	0
247	Man. of glass and glassware	1.73	1.31	1.47	1.60	8	8
248	Man. of ceramic goods	0.70	0.76	0.79	0.76	5	4
252	Man. of petrochemicals and coal-s	8.65	11.28	8.10	8.20	3	2
253	Man. of other ind. chemicals	3.02	4.10	1.80	0.78	5	5
255	Man. of paints	0.01	0.01	0.03	0.03	3	1
256	Man. of other chemical products (a	0.37	0.95	0.62	0.66	4	3
257	Man. of pharmaceutical products	0.41	0.45	0.54	0.73	5	4
258	Man. of soap, s. detergents, perfu	0.11	0.15	0.08	0.05	2	0
259	Man. of other chemical products (h	0.13	0.07	0.20	0.31	3	1
260	Man-made fibres industry	0.13	0.28	0.47	0.42	6	6
311	Foundries	0.31	0.31	0.42	0.50	2	1
312	Forging	0.12	0.10	0.17	0.14	2	1
313	Secondary transf. of metals	0.10	0.07	0.15	0.15	2	1
314	Man. of structural metal products	0.18	0.19	0.75	1.14	2	1
315	Boilermaking	0.16	0.10	0.40	0.51	5	4
316	Man. of tools, finished metal good	1.75	1.56	2.32	2.64	3	2
321	Man. of agr. machinery	0.80	1.19	1.25	0.98	3	2
322	Man. of machine tools	1.30	0.62	0.96	0.94	4	3
323	Man. of textile machinery	0.04	0.06	0.07	0.06	4	3
324	Man. of mach. for food, chemical i	0.23	0.27	0.50	0.59	3	2
325	Man. for mines, iron and steel indu	0.48	0.86	1.57	1.69	4	3
326	Man. of transmission equipment fo	0.55	0.65	0.77	0.61	5	4
327	Man. of other mach., for specific in	0.15	0.19	0.30	0.21	3	2
328	Man. of other machinery	1.13	1.53	1.86	2.21	4	3
330	Man. of office machinery and data	0.93	0.28	0.30	0.60	5	4
341	Man. of insulated wires and cables	0.04	0.06	1.51	2.82	5	3
342	Man. of electrical machinery	1.13	1.07	1.97	2.41	6	5
343	Man. of electrical apparatus for ind	0.23	0.41	0.54	0.63	2	1

APPENDIX - Table 3

NACE CODE	INDUSTRY	STRUCTURE OF EXPORTS TO EC (%) 1980	1985	1988-1992	1992	Index of trade protection 1991	1992*
344	Man. of telecomm. equipment, ele	0.26	0.46	0.32	0.35	5	3
345	Man. of radio and tv. receivers, so	0.76	0.71	1.08	0.97	5	3
346	Man. of domestic type electric appl	1.90	1.86	2.00	2.04	4	3
347	Man. of electric lamps and lighting	2.12	2.05	1.77	1.91	4	3
351	Man. and assembly of motor vehicl	0.28	0.05	0.50	1.18	5	4
352	Man. of bodies for motor vehicles	0.03	0.07	0.54	1.16	2	1
353	Man.of parts of motor vehicles	0.31	0.33	0.72	0.99	2	1
361	Shipbuilding	0.03	0.04	0.06	0.00	4	3
362	Man. of railway rollingstock	0.01	0.30	0.12	0.12	5	4
363	Man. of cycles and motor-cycles	0.16	0.00	0.02	0.04	3	0
364	Aerospace equipment manufacturi	0.00	0.12	0.03	0.02	3	2
365	Man. of transport equipment, other	0.00	0.01	0.03	0.05	2	1
371	Man. of measuring and precision i	0.17	0.16	0.11	0.13	2	1
372	Man. of medical and surgical eqiup	0.15	0.21	0.27	0.37	5	4
373	Man. of optical instruments and ph	0.12	0.15	0.08	0.14	4	3
374	Man. of clocks, whatches and part	0.01	0.05	0.07	0.10	2	0
411	Man. of vegetable and animal oils	0.18	0.12	0.15	0.14	3	n.a.
412	Slauhtering, prep. and preserv. of	15.63	20.10	13.09	10.21	7	n.a.
413	Man.of diary products	0.10	0.06	0.29	0.12	6	n.a.
414	Proc. and pres. of fruit and vegeta	2.26	2.75	3.32	3.07	9	n.a.
415	Proc. and pres. of fish and other s	0.00	0.00	0.00	0.00	4	n.a.
416	Grain milling	0.03	0.25	0.05	0.01	6	n.a.
417	Man. of spagetti, macaroni	0.00	0.00	0.00	0.00	9	n.a.
418	Man. of starch and starch products	0.09	0.15	0.19	0.05	6	n.a.
419	Bread and flour confectionery	0.00	0.00	0.02	0.05	6	n.a.
420	Sugar manufactury and refining	0.16	0.02	0.14	0.13	3	n.a.
421	Man. of cocoa chocolate and suga	0.11	0.16	0.21	0.24	9	n.a.
422	Man. of animal and poultry foods	1.28	0.65	0.57	0.48	6	n.a.
423	Man. of other food products	0.53	0.68	0.93	0.98	7	n.a.
424	Distilling of ethyl, spirit distilling an	0.02	0.03	0.05	0.02	4	n.a.
425	Man. of wine of fresh grapes and b	0.03	0.01	0.01	0.01	9	n.a.
426	Man. of cider and of wines, bevera	0.00	0.00	0.00	0.00	3	n.a.
427	Brewing and malting	0.00	0.00	0.02	0.02	9	n.a.
428	Man. of soft drinks, bottling nat. sp	0.00	0.00	0.00	0.01	6	n.a.
429	Man. of tobacco products	0.00	0.01	0.00	0.00	3	n.a.
43A	Yarns	0.44	0.72	0.75	0.48	7	7
43B	Woven fabrics	1.28	1.35	0.97	0.67	8	9
436	Knitting industry	6.30	2.78	3.32	4.01	6	6
438	Man. of carpets	0.34	0.42	0.38	0.22	8	8
439	Miscellanious textile industries	0.16	0.21	0.30	0.31	6	6
441	Tanning and dressing of leather	0.41	0.40	0.53	0.40	4	4
442	Man. of products from leather	1.48	0.89	0.90	0.92	5	4
451	Man. of mass produced footware	1.88	3.22	4.03	4.74	7	7
453	Man. of ready-made clothing	12.29	10.61	11.38	11.95	9	9

APPENDIX - Table 3

NACE CODE	INDUSTRY	STRUCTURE OF EXPORTS TO EC (%) 1980	1985	1988-1992	1992	Index of trade protection 1991	1992*
455	Man. of household textiles	0.85	0.64	0.86	0.94	8	7
456	Man. of furs and fur goods	0.97	0.52	0.30	0.19	5	4
461	Sawing and processing of wood	0.81	0.83	0.75	0.77	1	1
462	Man. of semi-finished wood produ	0.26	0.23	0.26	0.24	3	2
463	Man. of carpentry, joinery, parquet	0.28	0.23	0.38	0.50	2	1
464	Man. wooden containers	0.03	0.01	0.04	0.03	2	1
465	Other wood manufactures	0.79	0.65	0.74	0.53	2	1
466	Man. of art. of cork, straw, plaiting	0.66	0.30	0.16	0.17	3	2
467	Man. of wooden furniture	2.27	1.49	2.06	2.43	3	2
471	Man. of pulp, paper and board	0.10	0.13	0.39	0.43	3	2
472	Processing of paper and board	0.02	0.03	0.18	0.25	3	2
473	Printing and allied industries	0.44	0.57	0.57	0.55	1	0
481	Man. of rubber products	1.58	1.46	1.40	1.30	7	5
482	Retreading and repairing of rubber	0.01	0.06	0.03	0.01	2	1
483	Processing of plastics	0.36	0.57	1.31	1.44	4	3
491	Man. of jewellery, gold- and silver	0.54	0.38	0.23	0.15	5	4
492	Man. of musical instruments	0.05	0.02	0.02	0.01	5	4
493	Photographic and cinematog. labo	0.03	0.02	0.02	0.02	4	2
494	Man. of toys and sport goods	0.86	0.29	0.35	0.43	7	6
495	Miscellaneous manufacturing indu	1.43	1.76	1.43	1.48	4	1
	Total manufacturing industry	100.00	100.00	100.00	100.00		

APPENDIX - Table 4

TRADE COVERAGE RATIO

NACE CODE	INDUSTRY	1980	1985	1988-1992	1992
211	Extr. iron ore	0.00	0.00	0.00	0.00
212	Extr. non-ferrous metal	0.01	0.09	0.55	1.56
221	Iron and steel industry	2.98	1.01	2.25	2.46
222	Man. of steel tubes	0.50	0.48	1.35	1.64
223	Cold rolling of steel	0.40	0.21	0.71	0.71
224	Prod. of non-ferrous metals	1.09	1.37	3.32	2.93
231	Extr. of building materials	0.10	0.18	0.28	0.19
232	Mining of potassium			0.00	
233	Salt extraction	0.00	0.00	0.00	0.00
239	Extr. of other minerals	0.30	0.23	0.89	0.86
241	Man. of clay products	1.25	0.11	0.96	1.63
242	Man. of cement, lime and paper	0.00	0.40	2.37	0.11
243	Man. of concrete	0.68	1.34	1.81	1.20
244	Man. of asbestos products	0.16	0.03	0.71	3.00
245	Working of stone and non-metallic	0.18	0.12	0.47	0.47
246	Prod. of grindstones	0.02	0.04	0.02	0.03
247	Man. of glass and glassware	2.84	1.06	2.37	2.63
248	Man. of ceramic goods	0.81	0.93	0.77	0.84
252	Man. of petrochemicals and coal-s	0.57	0.76	1.20	1.87
253	Man. of other ind. chemicals	0.65	1.16	1.23	1.00
255	Man. of paints	0.00	0.01	0.03	0.03
256	Man. of other chemical products (a	0.05	0.15	0.16	0.22
257	Man. of pharmaceutical products	0.45	0.21	0.22	0.24
258	Man. of soap, s. detergents, perfu	0.18	0.29	0.10	0.04
259	Man. of other chemical products (h	0.06	0.03	0.14	0.31
260	Man-made fibres industry	0.04	0.08	0.49	0.92
311	Foundries	0.85	0.62	1.51	1.55
312	Forging	0.73	0.41	1.28	1.27
313	Secondary transf. of metals	0.21	0.17	0.48	0.57
314	Man. of structural metal products	0.51	0.68	1.90	1.95
315	Boilermaking	0.70	0.35	1.08	1.25
316	Man. of tools, finished metal good	0.62	0.51	1.02	0.96
321	Man. of agr. machinery	0.30	0.34	0.90	1.88
322	Man. of machine tools	0.37	0.21	0.39	0.36
323	Man. of textile machinery	0.03	0.03	0.05	0.07
324	Man. of mach. for food, chemical i	0.07	0.06	0.13	0.20
325	Man. for mines, iron and steel indu	0.15	0.20	0.60	0.80
326	Man. of transmission equipment fo	0.49	0.46	0.78	0.87
327	Man. of other mach., for specific in	0.08	0.08	0.16	0.16
328	Man. of other machinery	0.14	0.17	0.26	0.35
330	Man. of office machinery and data	0.44	0.18	0.13	0.23
341	Man. of insulated wires and cables	0.09	0.14	2.34	2.79
342	Man. of electrical machinery	0.47	0.47	0.68	0.93
343	Man. of electrical apparatus for ind	0.11	0.17	0.41	0.63

APPENDIX - Table 4

TRADE COVERAGE RATIO

NACE CODE	INDUSTRY	1980	1985	1988-1992	1992
344	Man. of telecomm. equipment, ele	0.07	0.11	0.11	0.10
345	Man. of radio and tv. receivers, so	0.60	0.30	0.43	0.46
346	Man. of domestic type electric appl	8.88	8.81	2.36	1.82
347	Man. of electric lamps and lighting	13.61	10.26	6.00	4.02
351	Man. and assembly of motor vehicl	0.36	0.03	0.09	0.16
352	Man. of bodies for motor vehicles	0.08	0.10	0.74	0.95
353	Man.of parts of motor vehicles	0.14	0.20	0.72	0.75
361	Shipbuilding	7.40	2.38	2.16	0.08
362	Man. of railway rollingstock	0.05	1.13	1.53	2.02
363	Man. of cycles and motor-cycles	2.67	0.02	0.15	0.16
364	Aerospace equipment manufacturi	0.01	3.57	0.25	0.33
365	Man. of transport equipment, other	0.08	0.08	0.74	1.52
371	Man. of measuring and precision i	0.20	0.18	0.16	0.19
372	Man. of medical and surgical eqiup	0.30	0.24	0.33	0.44
373	Man. of optical instruments and ph	0.20	0.21	0.13	0.20
374	Man. of clocks, whatches and part	0.13	0.72	0.48	0.66
411	Man. of vegetable and animal oils	1.04	1.61	0.78	0.50
412	Slauhtering, prep. and preserv. of	8.32	13.17	16.15	15.79
413	Man.of diary products	1.96	3.38	1.86	0.35
414	Proc. and pres. of fruit and vegeta	94.56	11.69	21.29	19.95
415	Proc. and pres. of fish and other s	0.00	0.01	0.02	0.05
416	Grain milling	0.18	1.55	4.55	0.92
417	Man. of spagetti, macaroni			0.10	0.01
418	Man. of starch and starch products	1.75	3.63	5.43	1.23
419	Bread and flour confectionery	0.18	0.24	0.30	0.38
420	Sugar manufactury and refining	90.00	1.08	4.72	4.36
421	Man. of cocoa chocolate and suga	1.31	0.97	0.53	0.35
422	Man. of animal and poultry foods	0.65	0.38	0.72	0.71
423	Man. of other food products	1.40	0.84	1.63	1.21
424	Distilling of ethyl, spirit distilling an	0.17	0.13	0.21	0.11
425	Man. of wine of fresh grapes and b	0.95	0.16	0.41	0.58
426	Man. of cider and of wines, beverages			0.45	0.00
427	Brewing and malting	0.00	0.07	0.21	0.10
428	Man. of soft drinks, bottling nat. sp	1.50	0.57	0.17	0.17
429	Man. of tobacco products	0.00	0.11	0.00	0.00
43A	Yarns	0.14	0.26	0.86	0.77
43B	Woven fabrics	0.20	0.20	0.15	0.10
436	Knitting industry	1.70	1.19	1.28	1.28
438	Man. of carpets	0.53	0.94	0.56	0.28
439	Miscellanious textile industries	0.18	0.16	0.26	0.33
441	Tanning and dressing of leather	0.57	0.14	0.20	0.17
442	Man. of products from leather	11.33	6.09	5.35	3.75
451	Man. of mass produced footware	8.95	3.17	2.53	2.40
453	Man. of ready-made clothing	9.95	7.08	6.48	5.38

APPENDIX - Table 4

TRADE COVERAGE RATIO

NACE CODE	INDUSTRY	1980	1985	1988-1992	1992
455	Man. of household textiles	3.48	3.03	5.70	4.94
456	Man. of furs and fur goods	5.65	1.86	1.36	1.36
461	Sawing and processing of wood	45.55	16.27	6.62	12.93
462	Man. of semi-finished wood produ	1.77	1.74	2.60	2.16
463	Man. of carpentry, joinery, parquet	22.93	1.15	7.16	6.30
464	Man. wooden containers	31.00	3.67	5.85	2.50
465	Other wood manufactures	24.19	40.69	16.53	8.41
466	Man. of art. of cork, straw, plaiting	8.38	1.30	0.99	1.07
467	Man. of wooden furniture	54.62	7.57	3.89	2.26
471	Man. of pulp, paper and board	0.06	0.08	0.43	0.61
472	Processing of paper and board	0.02	0.02	0.11	0.15
473	Printing and allied industries	0.60	1.14	0.90	0.74
481	Man. of rubber products	0.90	0.89	1.31	1.52
482	Retreading and repairing of rubber	0.23	1.38	0.86	0.47
483	Processing of plastics	0.15	0.22	0.51	0.48
491	Man. of jewellery, gold- and silver	2.63	1.10	0.63	0.50
492	Man. of musical instruments	1.28	0.32	0.40	0.25
493	Photographic and cinematog. labo	0.46	0.52	0.70	0.73
494	Man. of toys and sport goods	5.28	0.98	0.52	0.39
495	Miscellaneous manufacturing indu	2.44	0.72	0.57	0.67
	Total manufacturing industry	0.79	0.72	0.93	0.95