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INDUSTRY RESTRUCTURING AND EXPORT PERFORMANCE:

EVIDENCE ON THE TRANSITION IN HUNGARY

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ABSTRACT

Robust and numerous small and medium-size enterprises (SMEs) are a hallmark of the market economy and development of these firms is an integral part of the structural transformation of the economies of East-Central Europe (ECE). Data for Hungary on changes in the size distribution of firms and their importance for output and employment indicates that industry restructuring *is* taking place. One measure of the *success* of restructuring is export performance. That is, increased exports by those industries undergoing restructuring suggests that the process is creating firms that are successfully responding to market demand and international price signals. Disaggregated industry data from Hungary support the propositions that restructured industries and industries that have historically been important for domestic and export markets have become more important exporters. Moreover, it appears that Hungarian exporters have been effectively exploiting the switch from the CMEA market and the opening up of the border with the European Community. However, perhaps because of the short time series of the investigation, it is too early to tell whether Hungarian exports will respond systematically to standard determinants of trade, such as changes in EC income and relative prices.

Industry Restructuring and Export Performance:
Evidence on the Transition in Hungary

Valerie J. Chang and Catherine L. Mann¹

Robust and numerous small and medium-size enterprises (SMEs) are a hallmark of the market economy and development of these firms is an integral part of the structural transformation of the economies of East-Central Europe (ECE). In market economies, these enterprises produce the bulk of the output, employ most of the workers, and are key exporters. These enterprises, however, were incompatible with centrally planned systems because they made the price setting problem too complex.

The new SME sector in ECE will be created from new private enterprises, foreign joint ventures, and restructuring of the large state-owned enterprises. Data on changes in the size distribution of firms and their importance for output and employment indicates that industry restructuring is taking place. One measure of the *success* of restructuring is export performance. That is, increased exports by those industries undergoing restructuring suggests that the restructuring is creating firms that are successfully responding to market demand and international price signals.

What evidence is there that correlates export performance and industry restructuring? Using a disaggregated industry data set for Hungary, we find some support for the propositions that restructured industries and industries that have historically been exporters have become better export performers.

¹The authors were Economist and Senior Economist in the International Finance Division at the Federal Reserve Board when the paper was written. Chang is now with the Emerging Markets Group at Salomon Bros. The paper was written for the International Seminar on International Trade, co-sponsored by NBER, CEPR, and ECARE, and held in Brussels in December 1992. This paper should not be interpreted as reflecting the views of the Board of Governors of the Federal Reserve System or its staff.

Moreover, we find some support for the proposition that Hungarian exporters have been exploiting the switch from the CMEA market and the opening up of the border with the European Community. However, perhaps because of the short time series of the investigation, it is too early to tell whether Hungarian exports will respond systematically to market determinants of trade, such as changes in EC income and relative prices.

The paper proceeds as follows: The next section discusses why SMEs are important in market economies and critical to the transition from central planning. This section also contrasts data on SMEs in selected industrial market economies with data from several countries in ECE. Section III presents a profile of how Hungarian industry has changed since the country made the formal commitment to the market economy in 1989 and discusses which industry sectors might be poised to become the SME engines of growth and employment. Section IV compares and contrasts the historical pattern and composition of Hungarian exports with more recent export behavior. An important aspect is the collapse of the CMEA. Section V outlines the empirical investigation of how industry characteristics, measures of industry restructuring, and standards determinants of trade have affected Hungary's exports to the European Community. Section VI reports the results of the empirical investigation and concludes.

II. Small and Medium-size Enterprises

Small and medium-size enterprises play a key role in market economies. As manufacturers, SMEs produce intermediate inputs and niche-market final goods that increase the flexibility and efficiency of overall production (as in just-in-time inventory methods) and add to the diversity of goods in the marketplace. As distributors and wholesalers for domestic and international trade, SMEs link larger firms to each other and to the final consumers. As the competitive core of the economy, they channel and refine the price signals between producers and consumers. Chart 1 shows a stylized representation of the manufacturing sector in a market economy with a network of small and medium-size manufacturers, wholesale distributors, and retailers linking consumers and large producers.

Because SMEs increase the complexity of linkages throughout the economy, they were fundamentally incompatible with central planning. Indeed, the dotted lines in Chart 1 broadly indicate how the state-owned enterprises (SOE) in ECE absorbed smaller manufacturers into the large SOE. Because total output, not variety, was the objective function of the central planner, there was no need for small manufacturers of diversified final goods. Moreover, vertical integration of input producers into the SOE was advantageous because it reduced the number of inter-firm interactions where prices would need to be set by the state. Wholesale and retail trade in the planned economy were particularly circumscribed because their operations, according to Marxist teachings, did not add value to the economy. In addition, incorporating the distribution function into the SOE further simplified the price setting problem.²

²For more on these points see Mann 1991.

However, SMEs are particularly important for the transition to a market economy. SMEs that can respond more quickly to changes in market demand will help clarify and stabilize prices. This is particularly important since relative prices were fixed and irrational under central planning and the forces of supply and demand were consistently muted. SMEs will take up labor as large SOEs try to rationalize input ratios. Moreover, SMEs will offer a new range of products and services which should increase consumer utility and producer efficiency as well as increase competition.

While it is clear that SMEs are important, both in market economies and to the transition of centrally planned economies, it is difficult to define exactly what they are. In terms of employee size, production complexity, and economic power, they lie somewhere between the "atomistic" entrepreneurship and the large corporation. Compared to an entrepreneurship, the small or medium-size manufacturer has greater fixed investment and working capital requirements, greater demand for organized labor input (as in a team or on a production line), and requires more management. Unlike a large corporation, the small or medium-size firm has little power over prices in input markets, although it may be able to exploit the elasticity of demand in the output market, depending on the product. In the context of a market economy, such an enterprise could be a subsidiary of a larger corporation if it retains independent decision-making authority.

In the context of an economy in transition, SMEs could arise from restructured state-owned enterprises, as well as from joint ventures and new private enterprises. The key ingredient is whether the unit responds to the economic forces of demand and relative prices. We expect that joint ventures and new enterprises, because they start out privately owned, will respond to

these forces in order to maximize profit opportunities. But a significant fraction of the firms in economies in transition are still owned by the state. For several reasons, which will be discussed in greater detail in Section III, we expect that downsized state-owned enterprises also will respond to economic forces, and act as if they are private, even if they remain owned by the state.

Statisticians in market economies often use the number of employees in a decision-making unit as the measure of firm "size". (An alternative measure, for example, would be sales revenue.) Decision-making units with less than 50 or 100 employees are "small", between 50-100 and 500 or so are "medium", and others are "large". These delineations are only very rough indicators of responsiveness to market forces or degree of market power. Production and distribution technologies, lines of corporate financial and managerial control, extent of international competition, and size of domestic market will also affect the size distribution of firms in any country.

Table 1 measures the importance of SMEs in selected market economies in terms of manufacturing employment and the value of manufacturing output. Small and medium-size firms are the core of the market economy. More than 85 percent of firms are small, employing fewer than 100 people. But these small firms account for about a third of manufacturing employment and about a quarter of the value of manufacturing output. Medium-size firms (between 100 and 500 employees) account for about 10 percent of firms and an additional one-quarter to one-third of employment and output. In all, enterprises with fewer than 500 employees account for at least 95 percent of the firms and more than two-thirds of manufacturing employment, and produce between 50 and 60 percent of manufacturing output.

Moreover, data for the Netherlands indicate that small and medium-size manufacturing establishments also account for about 50 percent of manufactured export sales.³

Data in Table 2, which shows similar statistics for selected ECE economies, confirms the lack of SMEs. The CSFR, which embraced planning and state ownership most actively, started their transition with the most centralized manufacturing structure; SMEs practically did not exist. In 1987, 70 percent of enterprises were large or mega, accounting for 91 percent of employment.

Hungary's industrial structure had some SMEs because, beginning some two decades ago, the state encouraged the development of industrial cooperatives in an effort to increase productivity. The industrial cooperatives looked like SMEs: industrial cooperatives of less than 500 employees accounted for 83 percent of employment and 86 percent of output. Moreover, it appears that they were more productive. Looking at data on productivity of large firms in market economies and in Hungary, large firms in Hungary used 83 percent of the employed to produce 40 percent of total output, while in the market economies 30 percent of the employed produce 40 to 50 percent of total output. This suggests that the SMEs in Hungary were much more productive than the large firms, and confirms the extent to which the large enterprises will have to shed labor in the transition process.

However, while there were about equal numbers of cooperatives and enterprises as of 1988, the cooperatives were not very important for the manufacturing sector, accounting for only 15 percent of workers and 8 percent of the value of industrial output. Therefore despite the state-directed

³For more on the role of SMEs in the global economy, see Aharoni 1991.

Table 6

EC Imports from Hungary Ranked by Value

1989 <u>Rank</u>	<u>Category</u>	<u>Value mil ECU</u>	1991 <u>Rank</u>	<u>Category</u>	<u>Value mil ECU</u>
1	Meat	265.8	1	Apparel	331.0
2	Apparel	236.1	2	Machinery	310.0
3	Machinery	170.8	3	Meat	263.6
4	Electric machinery	130.3	4	Electric machinery	232.6
5	Iron & steel	130.1	5	Plastics	157.8
6	Organic chemicals	119.4	6	Organic chemicals	142.0
7	Plastics	80.8	7	Footwear	131.8
8	Live animals	79.6	8	Iron & steel	115.6
9	Fuel	79.4	9	Furniture, prefab buildings	114.1
10	Footwear	76.4	10	Iron & steel articles	113.0

Memo:

Total Imports from Hungary	2587.0	3624.5
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Source: EC, External Trade, Series C

Table 5

Hungarian Exports
(billions of forints)

	1987	1989	1990
TOTAL EXPORTS	450.2	571.3	603.6
Ruble exports	214.4	215.9	158.9
of which:			
machinery	100.8	100.0	69.7
raw materials & semi-finished goods	48.3	50.4	33.1
Non-ruble exports	235.8	355.4	444.7
of which:			
raw materials & semi-finished goods	94.9	157.8	195.8
agriculture & food	57.8	95.6	114.1

Sources: Statistical Yearbook, various years
Hungarian Central Statistical Office

Table 4

Profile of Hungarian Industry, 1990

Industry Group	employ/ plant	share output	share employ	share # firm	export/ sales	share FDI
Light	79	12	22	28	26	21
Engineering	84	21	33	49	39	32
Chemical	106	20	5	9	15	14
Food Process	115	20	16	8	22	13
Build.Matls	127	3	5	4	13	14
Elec. Energy	341	7	3	1	1	0
Metallurgy	374	10	5	2	35	4
Mining	379	6	6	1	4	1

Shares represent share of total industry figure.

Source: Hungarian Statistical Yearbook

Table 3

Industry Restructuring
as Measured by
Average Employees per Plant

<u>Industry Group</u>	<u>1989</u>	<u>1990</u>	<u>%change</u>
Mining	446	379	15
Electrical Energy	364	341	6
Metallurgy	703	374	47
Engineering	122	84	31
Building Materials	179	127	29
Chemical Industry	166	106	36
Light Industry	108	79	27

Source: Hungarian Statistical Yearbook.

Table 2

The Small & Midsize Manufacturing Sector in East-Central Europe:
Importance for Manufacturing Employment and Output

CSFR	<u>Size of Enterprise</u>			
	Small&Mid (1-500)	Large (500-1000)	Very Large (500-2500)	Mega (>2500)
<u>% of enterprises</u>	10	20	45	25
<u>% of employment</u>	2	7	35	56

Hungary	Small (1-100)	Medium (100-500)	Large (500-2000)	Mega (>2000)
<u>% of enterprises</u>				
1. state-owned	30	29	34	10
2. industrial cooperatives	67	31	2	0
3. overall manufacturing	50	30	16	4
<u>% of employment</u>				
1. state-owned	1	9	43	47
2. industrial cooperatives	23	60	17	0
3. overall manufacturing	4	17	39	40
<u>% of output</u>				
1. state-owned	1	9	39	52
2. industrial cooperatives	29	57	13	0
3. overall manufacturing	3	13	37	48

Note: Data are for 1988.

Table 1

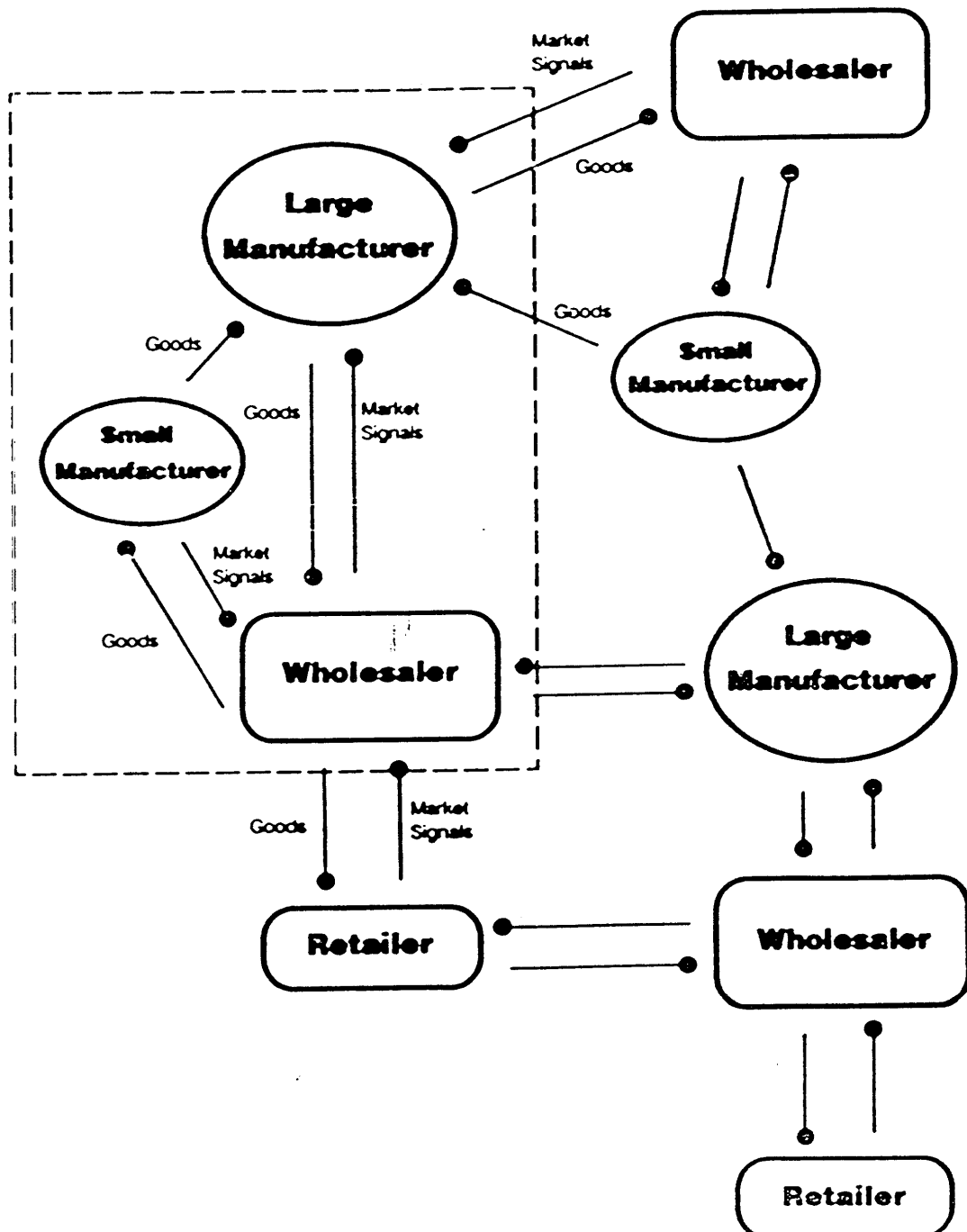
The Small & Midsize Manufacturing Sector in Market Economies:
Importance for Manufacturing Employment, Output, and Exports

	<u>Size of Establishment</u>			
	<u>Small</u>	<u>Medium</u>	<u>Large</u>	<u>Mega</u>
	(# of employees)			
<u>United States</u>	<u>(1-100)</u>	<u>(100-500)</u>	<u>(500-2500)</u>	<u>(>2500)</u>
% of establishments	90	8	2	<1
% of employment	28	34	24	14
% of output	21	32	31	16
<u>United Kingdom</u>	<u>(1-100)</u>	<u>(100-500)</u>	<u>(500-1000)</u>	<u>(>1000)</u>
% of establishments	95	5	1	<1
% of employment	34	35	13	19
<u>Japan</u>	<u>(4-100)</u>	<u>(100-500)</u>	<u>(500-1000)</u>	<u>(>1000)</u>
% of establishments	97	3	<1	<1
% of employment	56	30	7	14
% of output	34	40	13	26
<u>Korea</u>	<u>(5-100)</u>	<u>(100-500)</u>	<u>(>500)</u>	
% of establishments	91	8	2	
% of employment	33	29	40	
% of output	16	26	57	
<u>Netherlands</u>	<u>(10-100)</u>	<u>(100-500)</u>	<u>(>500)</u>	
% of establishments	86	12	2	
% of employment	32	26	42	
% of output	15	26	59	
% of exports	25	27	48	

Note: Data are for 1982 for the United States; 1988 for the United Kingdom, 1983 for Japan; 1982 for Korea, and 1986 for Netherlands.

CHART 1

Stylized Representation of the
Manufacturing Sector in a Market Economy



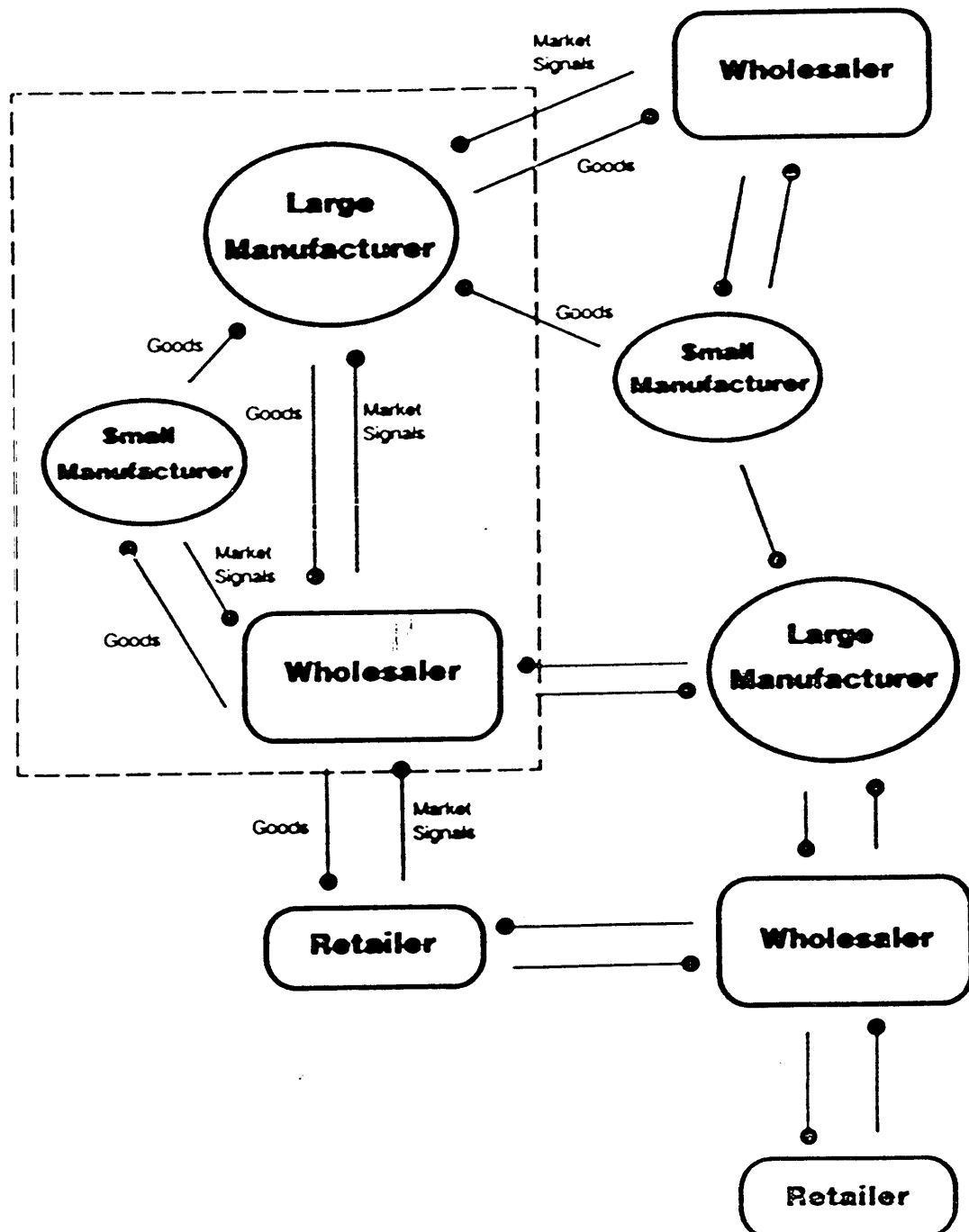
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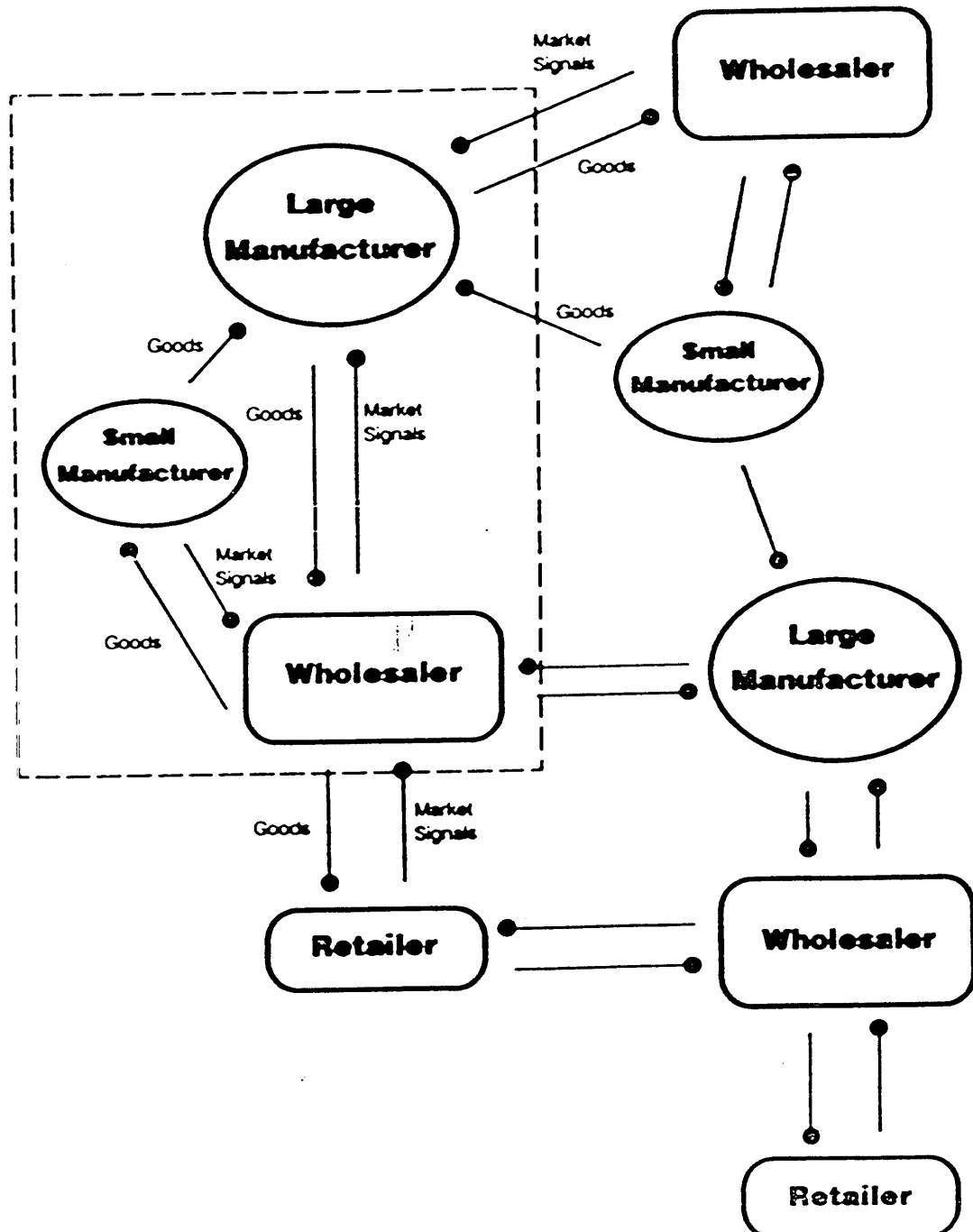
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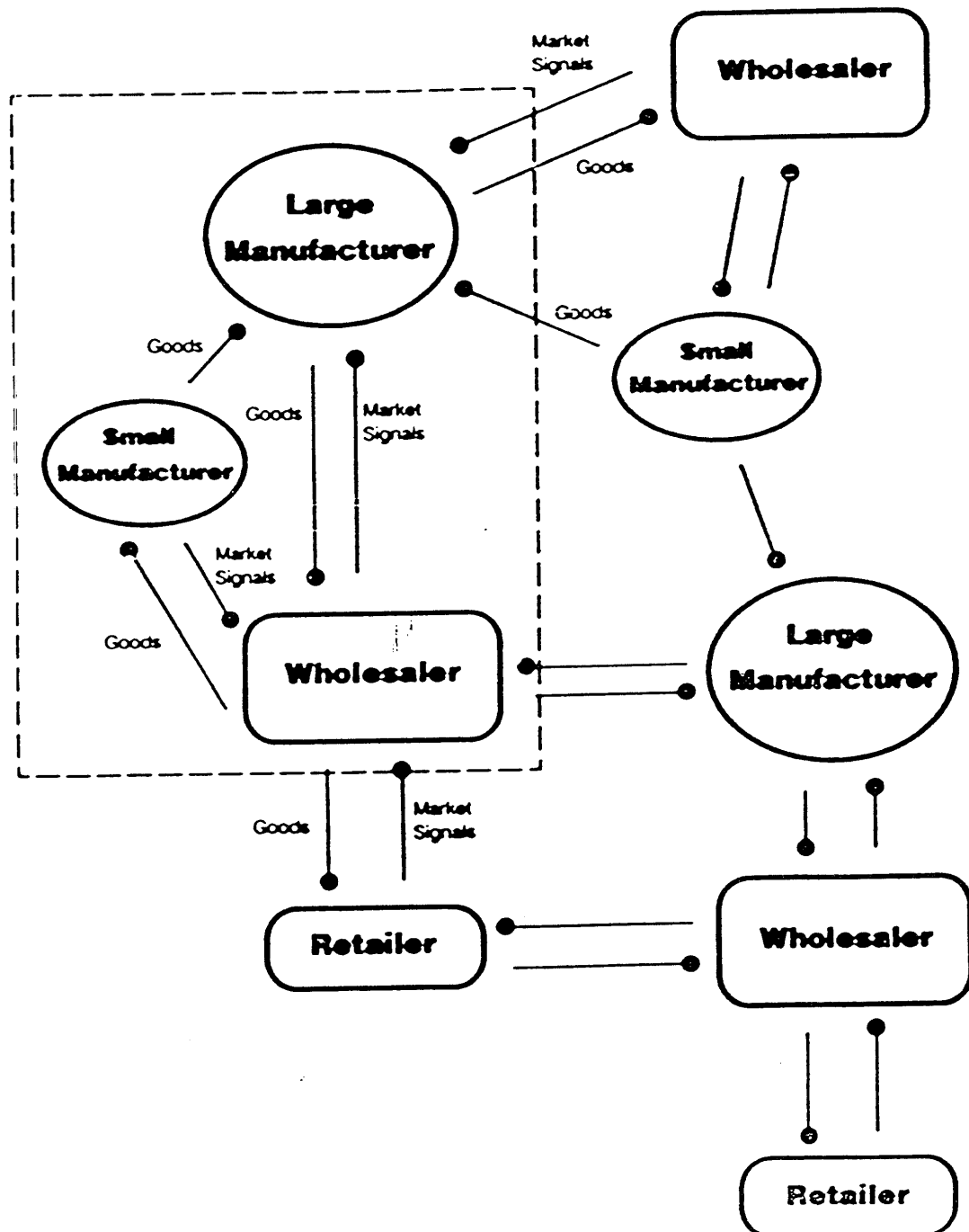
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VI. Results of the Empirical Investigation

Table 8 shows the result of this cross-section time-series regression. On balance, we find evidence that restructured industries are exporting more to the EC, although the response of exports to the standard determinants of trade is mixed.

We find support for proposition (1) that industries that are important domestic producers have superior export performance, and (2) that industries that depend more on exports for sales have increased exports more, and (3) that those industries that were less dependent on the ruble market have increased their exports more. Moreover, we find support for proposition (4) that down-sized industries have increased exports more, although (5) foreign investment does not appear to be a good indicator of export competitiveness.¹¹ These results taken together tend to support the proposition that industry restructuring has positively affected exports.

The lack of significance of (6) the ECU price suggests that exporters are not yet fully responsive to market forces, although the sign of this variable is as expected. The negative and significant correlation between (7) EC income and Hungarian exports should be seen in the positive light of Hungarian exporters exploiting the switch from the CMEA and the opening up their border with the negotiation of EC Association agreements. A longer time series should provide greater insight as to whether Hungarian exports will respond to the familiar market forces of demand and relative prices.

¹¹Alternative forms of this variable, including the share of foreign investment in owner's equity and the level of foreign investment did not produce better results.

price index divided by the forint/ECU exchange rate. A fall in the ECU price should be associated with an increase in real exports.

(7) EC GDP in 1989 and 1990.

We expect a positive correlation between income and exports.

Industry restructuring variables include:

- (4) Number of employees per plant by specific industry for 1989 and 1990.

We expect this variable to be negatively correlated with export performance. We have argued in this paper that a key part of making industry act more competitively is down-sizing, and that one measure of competitiveness is export performance. So, decreasing plant size should be positively correlated with exports.

- (5) Change in foreign investment by specific industry between 1989 and 1990

We expect this variable to be positively correlated with export performance for two reasons. First, foreign investors may be more attracted to those firms that are competitive; increasing foreign investment might signal those industries. Second, if foreign market contacts are important aids to exporting, then increasing foreign investment would increase exports.

Standard determinants of exports include:

- (6) ECU price of exports, by specific industry in 1989 and 1990.

We expect a positive correlation between the ECU price of exports and the volume of exports. The ECU price is defined as the forint export

We expect this variable to be positively correlated with export performance using both Hecksher-Ohlin and intra-industry trade stories. That is, industries that are important producers in the domestic market point to those sectors where the country has internationally competitive costs of production, and therefore may be able export. Moreover, if there are economies of scale in production, the industry can exploit them by producing for both the domestic and export markets.

- (2) Ratio of industry exports to industry sales by specific industry in 1990.

We expect this ratio to be positively correlated with exports to the EC market. Industries that have high export to sales ratios are more likely to have been exposed to international market discipline. The changes in price, exchange rate, and trade regimes under the new Hungarian policies give them greater opportunity to respond to market forces and export more.

- (3) Percent of industry exports sent to the non-ruble market by specific industry in 1989.

We expect this variable to be positively correlated with exports to the EC market. Exports to the ruble area are less likely to be internationally competitive, and are more likely to come from firms that have not been responding to market forces, but only to State directives.

V. Industry Restructuring and Export Performance

Export performance, particularly new products to new markets, is an important indicator of the success of the structural transformation of the economy. Has the industry restructuring in Hungary positively affected export performance? This section of the paper uses a disaggregated industry data set covering 26 industries to examine the effect on exports to the European Community market in 1989 and 1990 of (1) certain industry characteristics, (2) certain measures of industry restructuring, and (3) standard determinants of exports.⁹ 1989 is the starting point because this date represents when Hungary initiated a significant break in policies toward both SMEs and the macroeconomic environment of prices, exchange rate, and trade liberalization.¹⁰

- (0) The dependent variable is the volume of exports of 26 industries to the European Community for 1989 and 1990. This variable is defined as the ECU value of exports translated into forint at the annual rate of exchange, and deflated by the industry-specific export price index.

For industry characteristics, we include:

- (1) The share of specific industry output in total industry output in 1990.

⁹For another approach to the issue of the relationship between exports and restructuring, see Rodrik, 1992.

¹⁰An Appendix lists all the data.

headgear, and umbrellas. Categories within the chemical and metallurgical sectors also showed large gains. These areas of strong growth may provide clues to follow as more data become available to determine whether Hungarian exporters developed new markets for their goods.

considerable downsizing, and this, combined with their traditional strengths in this market may have contributed to continued export success. Of the top 10 categories of EC imports from Hungary in 1991, only two categories, ranked ninth and tenth, were new to the list compared with 1989. This suggests that in many of its traditional important export categories, Hungary remains a competitive producer.

However, as the emergence of two new categories in the list of top 10 EC import categories also implies, Hungary is also discovering markets for other products in the EC. EC imports of furniture, furnishings, lamps, and prefabricated buildings from Hungary increased 95 percent between 1989 and 1991. This category of imports, which ranked ninth in 1991, ranked 14th in 1989. Table 7 shows other categories of Hungarian exports to the EC that have displayed growth of more than 95 percent between 1989 and 1991.

Although some categories showed substantial gains from already large bases--plastics, furniture and prefabricated buildings, and iron and steel articles--table 7 shows that most of the categories registering large percentage increases in fact grew from small bases. Although not easily characterized, the categories are largely agricultural and food products, and various light industry products. Increased EC imports of these goods may reflect new product categories in which small and medium sized enterprises have been able to adapt to demands in the EC market.

Of the 26 categories registering growth of 95 percent or more between 1991 and 1989, seven were agricultural and food products, a traditional strength. Several categories of light industry goods grew sharply in the two-year period as well: knitted or crocheted fabrics,

data from the EC in order to present a consistent series of products over a specified time period for a well-defined export market. The 2-digit level chapters of EC's harmonized system of combined nomenclature are used to trace broad changes in the EC's pattern of imports from Hungary; more detailed levels of the EC's nomenclature are used in an attempt to match EC imports from Hungary with a profile of Hungarian industry for the regression in Section V. Nominal EC imports from Hungary grew from ECU 2.6 billion in 1989 to ECU 3.6 billion in 1991, an increase of almost 40 percent between 1989 and 1991.

Two observations can be made based on the limited information spanning three years of export performance. First, Hungary's top four export categories to the EC in terms of value in 1989 continued to be important categories in 1990 and 1991 (see Table 6). This would suggest that Hungary's traditional exports to the EC may have reflected the country's comparative advantage. Established marketing channels and buyers, as well as price competitiveness may have enabled these products to continue to sell well in the EC. Second, some product categories have experienced large percentage increases in growth (often from small bases), which implies that Hungarian producers are responding to market incentives and discovering new markets in the EC for products not historically exported there. Each of these cases is detailed below.

The 10 largest categories of EC imports from Hungary in 1989 and 1991 are detailed in Table 6. The top four categories of Hungarian exports in 1989--namely, meat, apparel, and two categories of machinery--remained the top four categories in 1991, albeit in somewhat different order. As shown later in the appendix, all these industries have undergone

IV. Hungarian Trade in Transition

The collapse of CMEA trade beginning in 1990 forced Hungary to seek new markets for its products. Trade with Western partners, especially the European Community (EC), has grown dramatically. In 1987, according to Hungarian trade data, exports to the EC accounted for about 20 percent of Hungary's total ruble and non-ruble exports. By mid-1992, the EC's share of Hungary's exports had risen to 47 percent. Total exports grew 80 percent between 1987 and 1991.

Even before the demise of the CMEA trading system, the composition of Hungary's exports to CMEA trading partners was significantly different from its exports to market economies. Traditionally, Hungary's exports to its CMEA partners were predominantly machinery, which accounted for 47 percent of ruble exports in 1987. Raw materials and semi-finished goods were a distant second, amounting to 22.5 percent of ruble exports to CMEA partners. Exports to non-CMEA partners, however, were dominated by raw materials and semi-finished goods, followed by agricultural products and food (Table 5).

By 1990, two trends are noteworthy. First, the share of ruble exports to total exports has shrunk considerably, from almost 50 percent in 1987 to about 25 percent by 1990. Non-ruble exports have grown from about 50 percent of total exports to about 75 percent in this period. Ruble exports continued to be led by machinery, although the value had fallen from that in 1987. Raw materials and semi-finished goods, and agriculture and food still led nonruble exports, with both categories doubling their 1987 levels by 1990.

In examining products by export category, we have chosen trade

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data from the EC in order to present a consistent series of products over a specified time period for a well-defined export market. The 2-digit level chapters of EC's harmonized system of combined nomenclature are used to trace broad changes in the EC's pattern of imports from Hungary; more detailed levels of the EC's nomenclature are used in an attempt to match EC imports from Hungary with a profile of Hungarian industry for the regression in Section V. Nominal EC imports from Hungary grew from ECU 2.6 billion in 1989 to ECU 3.6 billion in 1991, an increase of almost 40 percent between 1989 and 1991.

Two observations can be made based on the limited information spanning three years of export performance. First, Hungary's top four export categories to the EC in terms of value in 1989 continued to be important categories in 1990 and 1991 (see Table 6). This would suggest that Hungary's traditional exports to the EC may have reflected the country's comparative advantage. Established marketing channels and buyers, as well as price competitiveness may have enabled these products to continue to sell well in the EC. Second, some product categories have experienced large percentage increases in growth (often from small bases), which implies that Hungarian producers are responding to market incentives and discovering new markets in the EC for products not historically exported there. Each of these cases is detailed below.

The 10 largest categories of EC imports from Hungary in 1989 and 1991 are detailed in Table 6. The top four categories of Hungarian exports in 1989--namely, meat, apparel, and two categories of machinery--remained the top four categories in 1991, albeit in somewhat different order. As shown later in the appendix, all these industries have undergone

IV. Hungarian Trade in Transition

The collapse of CMEA trade beginning in 1990 forced Hungary to seek new markets for its products. Trade with Western partners, especially the European Community (EC), has grown dramatically. In 1987, according to Hungarian trade data, exports to the EC accounted for about 20 percent of Hungary's total ruble and non-ruble exports. By mid-1992, the EC's share of Hungary's exports had risen to 47 percent. Total exports grew 80 percent between 1987 and 1991.

Even before the demise of the CMEA trading system, the composition of Hungary's exports to CMEA trading partners was significantly different from its exports to market economies. Traditionally, Hungary's exports to its CMEA partners were predominantly machinery, which accounted for 47 percent of ruble exports in 1987. Raw materials and semi-finished goods were a distant second, amounting to 22.5 percent of ruble exports to CMEA partners. Exports to non-CMEA partners, however, were dominated by raw materials and semi-finished goods, followed by agricultural products and food (Table 5).

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In examining products by export category, we have chosen trade

The table indicates that the two industry groups -- engineering and light industries -- characterized by small plants (100 and fewer employees per plant) account for 76 percent of all firms, and form both the productive core of the economy, accounting for 33 percent of total industry output, as well as being key employers, accounting for 55 percent of employment. These statistics indicate that the Hungarian size distribution of firms is approaching the market economy distribution. Moreover, it appears that these smaller firms use their flexibility to access foreign markets through increased exports. Exports account for a large share of sales: 39 percent for engineering and 26 percent for light industries. Finally, these are also the two industry groups that have attracted the most foreign investment, as a share of total foreign investment in industry. This is consistent with foreign investment being attracted to smaller firms that are easier to purchase, as well as to firms that have an export focus. Thus it appears that firms in the engineering and light industry groups would form the foundation for the SME sector.

Three other industry groups, chemicals, food processing, and building materials, have only slightly larger plants, but are less important in contributing to the SME sector: while their plant size is relatively small, the share of the industry in the total number of firms is also small, indicating that these are multi-plant firms. The food processing industry is the only one of the three that has other characteristics similar to those of the engineering and light industry groups: the importance of this industry to overall production and employment is significant (20 and 16 percent respectively), and the share of exports in sales is also large at 22 percent.

Joint ventures are a third way to build the SME sector, and some 13,000 joint ventures have been registered in Hungary -- most of them SMEs. Joint ventures may be the best way to obtain the technology, management expertise, and Western market contacts that the ECE economies need to prosper.⁸ In particular, the joint venture may be a key way to bolster the overall structural transformation by improving external performance. Combining the Hungarian investor's knowledge of the domestic market and the foreign investor's knowledge of the international market increases the chances that a new export to a new market will sell. Foreign direct investment into Hungary totalled nearly \$5 billion, and the pace of the inflow increased from \$900 million in 1990 to \$1.7 billion in 1992.

How successful have these policies been in creating an SME sector in Hungary? Data present a mixed picture. Aggregate data suggest that substantial change has occurred in the overall structure and ownership of Hungarian industry after the government made the commitment to the market economy in 1989. The number of organizations more than doubled from 1989 to 1990 from 2933 to 7351, and most of the new entrants were small organizations. The size distribution of firms changed from about 78 percent SMEs to 87 percent SMEs. Consistent with the development of the service sector, about 30 percent of GNP in 1990 was generated by the private sector, although only about 20 percent of industrial production was private.

Table 4 exhibits somewhat more disaggregated data. The table shows various statistics for industry groups on the share of that industry in total firms, output, employment, and exports, ranked by average employees per plant.

⁸See Mann 1991.

respects, the State's approach may make sense. First, spinning-off and selling separately such auxiliary pieces of the SOE, such as the cafeteria function, or the retail and wholesale distribution facilities, is an uncontroversial form of restructuring. But Hungary is also splitting multi-plant SOEs into separate firms and giving greater autonomy to management of each of the production units to act independently of each other and of the State.⁷

Splitting multi-plant SOEs automatically creates smaller economic units, yielding two advantages: each unit is more likely to be privatized faster, and each is more likely to act like a private enterprise until it is privatized. The smaller units are better targets for privatization for reasons that ultimately come down to considerations of cost and coordination. It is easier to find a buyer when the required financial investment to buy a plant is smaller. Privatization-from-within is more likely with a smaller firm since getting a core group of internal investors together is less difficult. Moreover, the prospect of being privatized quickly, particularly via internal investor buyout, will induce the smaller production unit to act like a private enterprise, responding to market forces and trying to maximize profits. Finally, the smaller enterprises are likely to have greater flexibility to restructure production to better use labor and to more effectively target a product market, foreign or domestic. Table 3 shows how the average number of employees per plant has changed partly on account of this restructuring.

⁷See Szabo 1992.

not expect these firms to be the main contributors to improved export performance.

Restructuring state-owned enterprises so that they respond better to market forces is integral to the transition to the market economy. So far, about one-half of Hungary's state-owned enterprises (representing about 35-40 percent of state-owned assets) has begun the restructuring and privatization process. About 10 percent of state assets are now privately owned, of which about 8 percent is foreign owned.

Hungary has chosen not to use a mass privatization approach to changing ownership of firms in the state sector, although this approach has not been ruled out for the future.⁵ Instead, it is now using several market-based methods of auction and insider or outsider buyout schemes to transfer ownership to a strategic investor who will undertake the restructuring necessary to create more efficient units. These case-by-case methods may take more time than the mass privatization methods, although the reward should be a tighter relationship between ownership and control, and therefore superior economic performance of the firm.⁶ However, because a case-by-case approach takes time, it is important to make the state firms as efficient as possible, pending their sale. One approach the State has been taking is direct restructuring of some enterprises.

Should the State restructure an SOE to improve its operation pending a future sale? During the central planning regime, the State showed little ability to create economically rational production units. However, in two

⁵See Csepi and Lukacs, 1992 and Gatsios, 1992 for more on Hungary's privatization programs.

⁶See Mann, Lenway, and Utter, 1993.

III. Hungarian Industry in Transition

In 1989, Hungary began a multi-pronged approach to structural transformation of its industry and economy. Policies to encourage the development of the SME sector were needed. However, as the experience of the industrial cooperatives shows, a robust SME sector also requires the replacement of a state-regulated macroeconomy with an endogenously stable and competitive economic environment. This latter transition requires a clear legal framework of property rights, balanced fiscal and monetary policies, competition policy (particularly price and trade liberalization), financial market reforms, and business information and education. Numerous papers have been written on these requirements.⁴ This paper focuses on the government policies to encourage the SME sector and the consequences for export performance.

New private enterprises are a key component of the SME sector. Legalizing private ownership of the means of production and the hiring of labor, as well as legalizing the concept of profit are prerequisites. Hungary eliminated limits on the ownership of capital and on the number of employees an entrepreneur could hire in 1989. Data suggest that private entrepreneurs have exploded with some 60,000 new private enterprises as of 1991. Most of these firms are the very smallest, and are concentrated in the service sector of the domestic economy. This makes sense given the lack of service sector establishments under centralized planning. Moreover, as a source of employment for labor released from down-sizing SOEs, these establishments are very important. However, because they are concentrated in services, we would

⁴See, for example, Blanchard, et al.

effort to develop SMEs through industrial cooperatives, the manufacturing sector as a whole remained dominated by the large and mega enterprises, which accounted for 18 percent of firms, 83 percent of employment, and 40 percent of output.

Why did the cooperative movement not have a greater impact on the industrial structure in Hungary? The government gave these firms greater decision-making autonomy regarding labor inputs and production technology. However, the overall economic environment exhibited few of the characteristics of a market economy. In particular, prices were still regulated. Consequently, cooperative managers, in fact, had few decisions to make in response to market forces. This suggests that the SME sector could not develop until the country made a commitment to market economy, particularly to free prices and liberalize trade.

Table 7

EC Imports from Hungary Ranked by Growth

<u>Rank</u>	<u>% change</u>	<u>Category</u>	<u>Value mil ECU</u>	
	<u>1991/89</u>		<u>1989</u>	<u>1991</u>
1	1920.3	Cereals, flour, starch	0.1	2.7
2	559.4	Ships, boats	0.5	3.3
3	516.9	Knitted/crocheted fabrics	1.1	6.5
4	500.0	Headgear	0.1	0.7
5	450.2	Railway related	3.6	20.1
6	449.6	Lead and lead articles	0.2	1.2
7	320.8	Misc. edible preparations	1.8	7.4
8	304.1	Umbrellas and parts	0.1	0.6
9	264.9	Pharmaceuticals	3.1	11.3
10	209.9	Tools, tableware of metal	3.5	10.8
11	182.5	Wood pulp, scrap paper	0.2	0.5
12	180.6	Misc. base metal articles	2.4	6.6
13	176.4	Clocks, time switches	1.1	3.0
14	153.7	Non-rail vehicles & parts	22.1	56.2
15	133.2	Edible fruit & nuts	30.2	70.3
16	123.0	Glass & glassware	24.2	53.9
17	121.7	Arms, ammunition, & parts	1.1	2.5
18	119.2	Prepared fruits & vogs.	39.1	85.6
19	112.6	Tobacco	2.1	4.4
20	99.0	Iron and steel articles	56.8	113.0
21	98.3	Matches, pyrotechnics	1.1	2.1
22	98.2	Cocoa and cocoa products	2.3	4.5
23	97.7	Misc. small manufactures	2.3	4.5
24	95.7	Meat & fish preparations	39.6	77.4
25	95.2	Plastics	80.8	157.8
26	95.1	Furniture, prefab buildings	58.5	114.1

Source: EC, External Trade, Series C

Table 8

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Real exports	Share prod. 1990	exports/ sales 1990	% non ruble 1989	# empl/ plant 89&90	for inv. change 89-90	ECU price 89&90	EC GDP bil ECU
X Coefficient(s)	12567.86	170586.4	162262.7	-116.96	-2.96011	-23694.3	-17.2788
Std Err of Coef.	3950.106	29494.02	30241.57	24.48335	6.103562	24157.5	7.49016
Constant		0					
Std Err of Y Est		30633.85					
R Squared		0.508293					
No. of Observations		52					
Degrees of Freedom		45					

Profile of Hungarian Industry, 1989 and 1990

Serial No.	Branch	Real exports	(1) Share prod. 1990	(2) exports/sales 1990	(3) % non ruble 1989	(4) # empl/ plant 89&90	(5) for inv. change 89-90	(6) ECU price 89&90	(7) EC GDP current bil ECU
11	machine and mach ind	66156.78	6.1	36.6%	44.8%	112	2499	1.8045	4382.3
11	machine and mach ind	97080.42	6.1	36.6%	44.8%	74	2499	1.6604	4728.1
12	ind for transport veh.	16482.86	4.0	48.4%	22.3%	206	45	1.7723	4382.3
12	ind for transport veh.	23121.65	4.0	48.4%	22.3%	129	45	1.5246	4728.1
13	electrical eng.	62475.21	3.0	28.0%	64.5%	163	613	1.7047	4382.3
13	electrical eng.	89609.23	3.0	28.0%	64.5%	104	613	1.5616	4728.1
14	telecomm & vacuum eng	21603.07	3.4	52.8%	32.7%	159	1656	1.7170	4382.3
14	telecomm & vacuum eng	37995.66	3.4	52.8%	32.7%	127	1656	1.4340	4728.1
15	precision eng	10017.60	2.2	45.3%	25.3%	74	1180	1.6571	4382.3
15	precision eng	12226.73	2.2	45.3%	25.3%	56	1180	1.3705	4728.1
16	metal mass prods	17595.14	2.5	18.2%	61.8%	90	1776	1.7538	4382.3
16	metal mass prods	33961.72	2.5	18.2%	61.8%	62	1776	1.6123	4728.1
27	crude oil process	26515.01	5.7	23.4%	98.1%	1002	0	1.9627	4382.3
27	crude oil process	26352.11	5.7	23.4%	98.1%	851	0	1.9108	4728.1
29	in/organic chem	78222.94	1.1	12.4%	85.0%	160	1015	1.7277	4382.3
29	in/organic chem	89233.43	1.1	12.4%	85.0%	55	1015	1.5366	4728.1
30	fertilizers	15818.38	1.8	31.0%	80.8%	959	272	1.7861	4382.3
30	fertilizers	20574.01	1.8	31.0%	80.8%	553	272	1.6608	4728.1
31	plastic & chem fibers	41853.01	3.0	40.0%	92.8%	934	346	1.8967	4382.3
31	plastic & chem fibers	56290.51	3.0	40.0%	92.8%	801	346	1.6485	4728.1
32	synthetic matrl proc	19281.10	1.4	16.0%	69.8%	58	1367	1.7139	4382.3
32	synthetic matrl proc	30716.98	1.4	16.0%	69.8%	37	1367	1.5188	4728.1
33	rubber ind	18618.60	0.8	57.1%	69.4%	506	88	1.7462	4382.3
33	rubber ind	24231.64	0.8	57.1%	69.4%	165	88	1.5544	4728.1
34	pharmaceuticals	1646.82	2.7	50.3%	50.4%	536	560	1.8721	4382.3
34	pharmaceuticals	3297.31	2.7	50.3%	50.4%	411	560	1.6741	4728.1
42	wood processing	41252.50	2.0	15.3%	76.9%	101	938	1.6448	4382.3
42	wood processing	58188.85	2.0	15.3%	76.9%	66	938	1.4549	4728.1
43	paper ind	6551.79	1.5	9.0%	70.4%	206	2482	1.7846	4382.3
43	paper ind	10146.59	1.5	9.0%	70.4%	146	2482	1.6377	4728.1
44	printing	7617.74	1.4	6.6%	91.7%	82	787	1.6939	4382.3
44	printing	6725.34	1.4	6.6%	91.7%	44	787	2.1180	4728.1
51	textile ind	35038.46	3.7	28.7%	68.3%	283	2725	1.7354	4382.3
51	textile ind	52060.57	3.7	28.7%	68.3%	112	2725	1.5392	4728.1

Profile of Hungarian Industry, 1989 and 1990

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55	lthr/fur/shoe ind	75077.49	1.6	40.9%	57.2%	113	423	1.7047	4382.3
55	lthr/fur/shoe ind	101733.19	1.6	40.9%	57.2%	84	423	1.5244	4728.1
56	textile clothing	160935.70	1.4	53.7%	80.2%	72	637	1.7938	4382.3
56	textile clothing	189519.50	1.4	53.7%	80.2%	59	637	1.8203	4728.1
57	handicrafts	6214.00	0.4	38.8%	36.4%	62	4	1.6172	4382.3
57	handicrafts	5889.07	0.4	38.8%	36.4%	58	4	1.3715	4728.1
61	meat	102690.30	4.4	33.0%	82.3%	552	301	2.1055	4382.3
61	meat	82439.59	4.4	33.0%	82.3%	298	301	2.2356	4728.1
62	poultry/egg process	78901.60	1.5	62.6%	86.1%	656	235	1.8291	4382.3
62	poultry/egg process	76727.16	1.5	62.6%	86.1%	422	235	1.8295	4728.1
63	dairy	9162.24	2.8	6.5%	94.4%	225	20	1.9903	4382.3
63	dairy	8547.65	2.8	6.5%	94.4%	208	20	1.8523	4728.1
64	canning	22515.26	2.0	48.8%	62.2%	270	599	1.7032	4382.3
64	canning	27693.39	2.0	48.8%	62.2%	207	599	1.5575	4728.1
65	milling	2185.89	2.7	1.9%	32.7%	81	41	1.5358	4382.3
65	milling	1703.36	2.7	1.9%	32.7%	77	41	1.2428	4728.1
72	beer	30.60	0.8	0.7%	100.0%	299	443	1.5358	4382.3
72	beer	9.66	0.8	0.7%	100.0%	343	443	1.2428	4728.1

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