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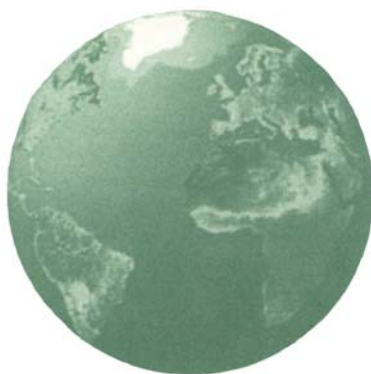
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THE COMPETITIVENESS OF HUNGARIAN COMPANIES

A comparison of domestically owned firms and
foreign-investment enterprises in manufacturing

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SUMMARY

Foreign penetration of Hungarian manu-facturing increased rapidly in the 1990s. The share of the total capital of foreign-investment enterprises (FIEs) in the nominal capital of the sector was 72.5 per cent in 1999 (as opposed to 57.9 per cent in the whole economy). The manufacturing indus-tries in which the foreign penetration is highest are motor vehicles, office machinery, tobacco, non-metallic minerals, and tele-communications equipment.

The share accounted for by FIEs is also remarkable in other respects: Their share of manufacturing employment increased from 31.6 per cent in 1993 to 46.5 per cent in 1999. (Although this was a smaller increase than in the share of nominal capital, invest-ment or exports, it was the highest of any country in the Central and Eastern European [CEE] region.) The FIEs also had a determin-ing role in 1999 in net sales revenue (71.8 per cent) and exports (88.6 per cent). In 1995, FIEs were producing 58 per cent of the value added in manufacturing, and in 1999, 71 per cent.

The rapidly increasing presence of for-eign capital and activity of FIEs in the 1990s contributed to some important structural changes in Hungarian manufacturing. The production volume of manufacturing recov-ered quite quickly after the trough of de-pression was reached in 1992. The impetus behind the growth came from machinery, with a 400 per cent production increase and the establishment of new production cul-tures. The development was induced by FIEs, especially multinational affiliates in the car-component, electronics and office-machi-nery industries. As a consequence, the pro-duction share of the so called high-technology branches of manufacturing in-creased considerably.

International experience in developed and developing countries shows that foreign affiliates are generally more efficient and profitable than domestic companies. (Previ-ous research has shown that this applies equally to the CEE countries and Hungary is no exception.) The differences between the two groups derive from several factors, such as ownership and the internationalization advantages of multinationals, bigger capital endowments, better organization, interna-tional contacts, *etc.* In Hungary there was little difference in profitability between do-mestic firms and FIEs until 1995. The bulk of the latter made trading losses, due to the costs of establishing production capacities. Since 1996, pre-tax profits have been sharply increasing at FIEs, which now pro-duce 66 per cent of the profits of all compa-nies in the economy.

FIEs gained their positions in Hungar-ian manufacturing very rapidly. The share of FIEs in net manufacturing sales revenues increased from 41.3 per cent in 1993 to 71.8 per cent in 1999. The activity of these firms, most of them affiliates of big multina-tionals, had important effects—as the structure of manufacturing production shifted towards high-tech branches Hun-garian manufacturing became increasingly export oriented. In 1993, 28 per cent of sales were made abroad, but in 1999, it was 57 per cent.

The difference between the structures of domestic sales and export sales increased significantly between 1993 and 1999. This was due to changes in the export structure, while the structure of domestic sales re-mained almost the same, with high-tech branches taking 9–10 per cent and low-tech branches dominating with 68–9 per cent. In the mean time, the share of high-tech ex-ports increased from 16.8 per cent to 37.5 per cent, while that of low-tech exports fell from 47.7 per cent to 20.7 per cent. It can be said in general that domestic manufac-turing companies are mainly oriented to-wards the local market, while FIEs tend to be oriented towards export markets. The export intensiveness of FIEs increased considerably

during the 1990s, while that of the domestic firms remained constant.

Defining competitiveness in terms that emphasize profits and market share, it can be concluded that FIEs in Hungarian manufacturing are more competitive. They earn greater profits in value and relative to sales than domestic firms do. FIEs have also gained domestic market share rapidly, although their strongest fields of activity are in exports.

If FIEs are more competitive than domestic firms, the reasons should be sought in the (i) activity, (ii) characteristics and (iii) external conditions of companies:

(i) The examination of two aspects of corporate activity—productivity and investment—leads to the conclusion that FIEs in Hungarian manufacturing are clearly more productive than domestic firms, although their superiority in this varies widely from industry to industry. Unit labour costs are far lower in FIEs. In investment, the long-term positive effect on FIEs' performance derives mainly from the large-scale investments they made in the first half of the 1990s.

(ii) It can be said that FIEs are indeed technologically more developed than domestic enterprises and this enhances their competitiveness. However, foreign investment has increased the overall adaptation level of Hungarian firms, by involving them in international networks and alliances, and technology has been developed. In the second half of the 1990s, foreign capital began to flow into R and D, with multinationals starting to use the existing human-capital pool. This period coincided with the rapid increase in the share of high-tech products and exports, established earlier.

(iii) The conclusion concerning the external conditions of a firm's activity is that FIEs were favoured by Hungarian economic policy in the early 1990s. Later, they were also able to make better use than domestic firms of the policy instruments tied to high investment size. With the infrastructure, domestic firms and FIEs face similar conditions.

INTRODUCTION[*]

Industrial competitiveness at the beginning of the new century can no longer be considered a 'national issue'. Most industries have become globalized, usually with fierce competition between firms at the global level. The internationalization of production has raised significantly the weight of intra-firm trade in the foreign trade of countries. Trade, foreign direct investment (FDI) and technology transfer are increasingly linked.

The Central and Eastern European (CEE) economies have been involved in this process since the early 1990s, moving rapidly in all fields of industrial globalization. Hatzichronoglou (1999) defines three factors or phases in the globalization of a sector: (1) internationalization of trade, (2) 'multinationalization' of production, and (3) globalization of innovation. With (1), there has been extensive analysis of the considerable geographical trade-direction and product-structure changes in CEE foreign trade. Openness has increased in the post-communist countries and foreign trade has been one vehicle for penetrating international markets and widening product choice at home, not only for consumer goods, but for intermediate goods and industrial inputs. With (2), the main means by which production has been multinationalized is foreign direct investment. Apart from greenfield investment, there has been a special vehicle for FDI in the CEE economies: the mass privatization accompanying the economic transition. The appearance and activity of foreign companies, among them several multinationals, have joined these countries' manufacturing sectors to the international production networks. In the case of (3), multinational corporations have been moving towards decentralization of their R and D around the world, to extents that are country and in-

dustry-specific. CEE countries have also been participating in the process to differing extents, with Hungary clearly a target country in this respect.

The first section of this paper gives an overview of FDI in Hungarian manufacturing and the role of foreign ownership in the various industries. Subsequent sections examine the development of competitiveness in the 1990s, at firm and industry level.

Competitiveness can be defined in several ways. For an economy, it may mean making higher-quality products yielding greater value added, to maintain or improve positions in international markets. From a microeconomic point of view, a broad definition identifies competitiveness as the totality of the activities and characteristics of a production unit that brings increasing profits and/or market shares on a specific market in a specific period (Findrik and Szilárd, 2000).

This paper deals with the main aspects of competitiveness in Hungarian manufacturing companies in relation to a comparison of the performances of domestic firms and foreign-investment enterprises (FIEs). The comparison is made possible by sectoral data from the Hungarian Central Statistical Office (CSO), aggregated from a company balance-sheet database compiled by the Tax Office. The performance of FIEs (with more than 10 per cent of foreign ownership) and of domestically owned firms can be followed separately in each industry.

However, the database has two shortcomings. One derives from the definition of FIEs, which places minority and majority foreign-owned firms together, so that a domestically controlled firm with some foreign ownership is also registered as an FIE. In general, this does not cause big distortions, because most manufacturing FIEs in Hungary are majority foreign-owned (76.2 per cent in 1999). Nonetheless, the paper also gives data for majority foreign-owned firms (above 50 per cent), provided by the CSO for this research.[1]

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[*] The study was prepared in the framework of ACE Project No. 97–8112–R: 'The impact of foreign direct investment on the international competitiveness of CEEC manufacturing and EU enlargement.'

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[1] Not even this majority-minority differentiation is perfect, because foreign control may apply in some

The other shortcoming is that the membership of the domestically owned and FIE groups changes year by year. They are not panels of the same companies, since they are affected by intervening ownership changes, entries, insolvencies, changes of corporate form, and so on. These kinds of event were frequent in the 1990s (see *Table 10* at the end of the study) so that significant changes occurred in a group within periods of about three years. It was not possible to construct a panel database because the divulging of company-level data is forbidden by law in Hungary. The best that could be done was to analyse the performances of the groups of firms in the last three years available (1997–9) and draw cautious conclusions when a longer period was considered.

1. FDI IN HUNGARIAN MANUFACTURING

Foreign penetration of Hungarian manufacturing (defined as the pure foreign share in the sector's total nominal capital) increased rapidly in the 1990s. The share of foreign capital in manufacturing as a whole was 59.7 per cent in 1998 (as opposed to 37.8 per cent in the whole economy). Taking the total capital of the FIEs, their share in the nominal capital of the sector is even higher: 72.5 per cent in 1999 (57.9 per cent in the whole economy). Another approach to foreign penetration is to count only majority FIEs, in which case the penetration rate in manufacturing was 63.6 per cent in 1999. The manufacturing industries in which the foreign penetration is highest are motor vehicles, office machinery, tobacco, non-metallic minerals, and telecommunications equipment.

The share accounted for by FIEs is also remarkable in other respects. Their share of manufacturing employment increased from 31.6 per cent in 1993 to 46.5 per cent in 1999. Although this was a smaller increase than in the share of nominal capital, investment or exports, it was the highest of any country in the CEE region. The FIE employment share increased most in motor vehicles, tanning and dressing, chemicals, basic metals, office machinery, and radio and TV sets. In some industries (tobacco, motor vehicles, office machinery, chemicals, coke, and petroleum), the FIEs' share of employment was over 70 per cent.

The FIEs also had a determining role in 1999 in net sales revenue (71.8 per cent) and exports (88.6 per cent). Only in three manufacturing industries (fabricated metals, furniture, and recycling) was the share of FIEs in net sales revenue less than 40 per cent. The export shares of FIEs were high everywhere, except in publishing and printing, which are strongly domestically oriented. The share of FIEs in exports increased by 64 per cent between 1993 and 1999 in manufacturing as a whole, but in some industries (basic metals and chemicals) the increase was much greater.

In 1995, FIEs were producing 58 per cent of the value added in manufacturing, and in 1999, 71 per cent. (The share was a somewhat lower 64 per cent for majority FIEs.) The highest FIE shares of value added were found in the strongly penetrated industries mentioned already.

The rapidly increasing presence of foreign capital and activity of FIEs in the 1990s contributed to some important structural changes in Hungarian manufacturing. The production volume of manufacturing recovered quite quickly after the trough of depression was reached in 1992. The impetus behind the growth came from machinery, with a 400 per cent production increase and the establishment of new production cultures. The development was induced by FIEs, especially multinational affiliates in the car-component, electronics and office-machinery industries.

As a consequence, the production share of the so called high-technology branches of manu-facturing increased considerably. The

cases even with as little as 30 per cent ownership, and conversely, a domestically (especially state) controlled company may have more than 50 per cent of its equity in foreign hands.

industry classification system of the OECD (1993), set out in the ISIC classification,[2] allows three groups to be distinguished: industries with high, medium and low degrees of technology intensiveness.[3] *Table 1* shows the development of the manufacturing production structure in this respect.

The table shows a strong increase in the production share of the high-tech industries between 1993 and 1999, with some increase in the medium-tech share and a marked fall in the low-tech share. Structural changes of this kind have helped Hungarian manufacturing to improve its sectoral and macro-economic levels of competitiveness, through performance improvements on a microeconomic level. The next section looks at the performance of the company groups in this respect.

Figure 1
The shares of the ownership groups in manufacturing in 1999, %

Source: Own calculations from data in Pitti (2000).

Table 1
The structure of manufacturing production according to technology intensiveness (%)

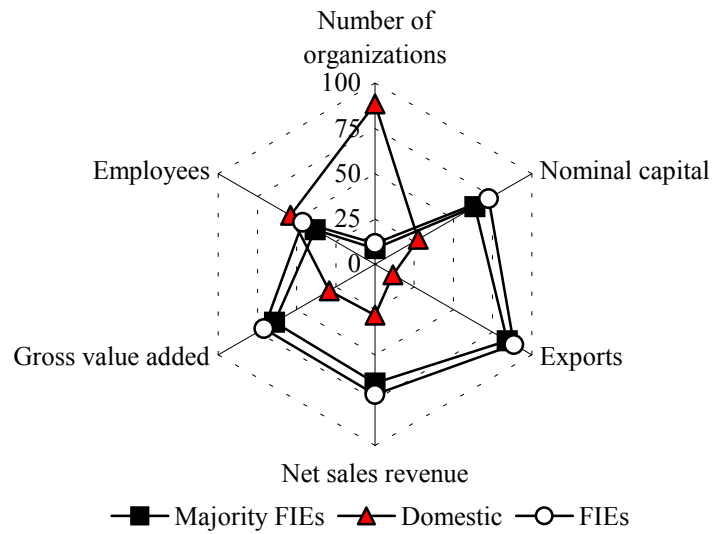|	1993	1999
High-tech	11.41	26.41
Medium-tech	25.25	32.61
Low-tech	63.34	40.98
Manufacturing	*100*	*100*

Note: High-tech industries: 2423, 30, 32, 31 and 33. Medium-tech industries: 241, 242-2423, 251, 252, 274, 29, 352, 34, 353, 359, 36 and 37. Low-tech industries: 15, 16, 17, 18, 19, 20, 21, 22, 231, 232, 26, 271, 272, 273, 28 and 351.

Source: Own calculations based on CSO data.

2. FIELDS OF COMPETITIVENESS

The definition of competitiveness as the activities and characteristics of a firm that increase profits and/or market shares on a specific market in a specific period can be expressed in a simplified way as

$$P, MS = f (A, C, E)$$

where profits (P) and market shares (MS) depend on the activity (A) and characteristics (C) of the firms, and on external conditions (E). The main features of 'activity' are development of sales, productivity and investment, while 'characteristics' means technology level, (innovation, research and development) company strategies and internal management organization. The external conditions cover a range of factors ranging from economic policy (tax, regulations, macroeconomic stability, *etc.*) to infrastructure. The aim in this paper is to examine certain elements of this equation (in descriptive and statistical form, because of the mentioned shortcomings of the database) for domestic firms and for FIEs in Hungarian manufacturing.

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[2] The indicator of technology intensiveness (weighted according to sectors and countries) is R and D expenditure as a proportion of production or value-added.

[3] Experience led the OECD, at the end of the 1990s, to revise the grouping (Hatzichronoglou (1997) and divide the medium-technology group into medium-high and medium-low groups, with precision instruments and electrical machinery in the former. However, the traditional grouping is applied in this paper.

2.1 Development of profits and the components of them

International experience in developed and developing countries shows that foreign affiliates are generally more efficient and profitable than domestic companies (Blomström and Kokko, 1996; Dunning, 1993). Previous research has shown that this applies equally to the CEE countries (Rojec, 2000; Hunya 1999). The differences between the two groups derive from several factors, such as ownership and the internationalization advantages of multinationals, bigger capital endowments, better organization, international contacts, *etc.*

Real differences in profitability between FIEs and domestic firms in Hungarian manufacturing began to appear in 1994–5 and became more pronounced in 1996 (Éltető, 1998). *Table 2* shows the latest developments. Taking the whole manufacturing sector, FIEs are 4–5 times more profitable than domestic firms are (in terms of the profit/net sales ratio).[4]

Profits result from successfully recovering costs from sales revenues. Two main cost components are material and labour costs. (Lesser components are depreciation and other costs.) It is instructive to look at the differences between FIEs and domestic firms in the dynamics and structure of their costs. *Table 3* shows that costs increased more rapidly at FIEs than at domestic firms. The difference in pace is bigger in material costs than in wage costs. It is a favourable development to find that sales increased faster than costs in both groups.

Turning to the cost structure, material costs represent the biggest part in both the domestic and FIE groups. However, the cost structures changed in opposite directions between 1997 and 1999. At domestic firms, the share of wage costs increased from 17.3 per cent to 19.9 per cent, while at FIEs, it decreased slightly from 11.9 per cent to 10.7 per cent. This was due to wages and to another, smaller component of labour costs – 'indirect personal payments'. The share of these increased much more rapidly at FIEs than at domestic firms, which decreased the weight of wages. Other costs (publicity, services) are generally higher at FIEs than at domestic firms. FIEs increasingly buy services from abroad and spend more on marketing and publicity.

As mentioned earlier, there was little difference in profitability between domestic firms and FIEs until 1995. The bulk of the latter made trading losses, due to the costs of establishing production capacities. Since 1996, pre-tax profits have been sharply increasing at FIEs, which now produce 66 per cent of the profits of all companies in the economy (Pitti, 2000).

Table 2
The profitability of domestic firms, FIEs and majority FIEs

	FIEs	Majority FIEs	Domestic	FIEs/Domestic
Profit/net sales	0.085	0.093	0.019	4.5
Results after tax (HUF mn)	381.0	305.1	43.8	8.7
Material costs (HUF mn)	2130.2	1644.8	1027.7	2.0
Wage costs (HUF mn)	287.4	215.3	215.2	1.3
1998				
Profit/net sales	0.079	0.083	0.023	4.0
Results after tax (HUF mn)	453.5	424.0	57.1	7.9
Material costs (HUF mn)	2816.5	2458.8	1190.7	2.3
Wage costs (HUF mn)	370.3	288.6	271.6	1.3
1999				
Profit/net sales	0.062	0.064	0.026	2.4
Results after tax (HUF mn)	429.2	400.8	71.6	5.9
Material costs (HUF mn)	3517.7	3238.1	1133.5	3.1
Wage costs (HUF mn)	420.0	362.5	281.5	1.5

Source: Own calculations based on CSO data.

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[4] Several domestic firms are not interested in declaring profits, because although corporate profit tax is a relatively low 18 per cent in Hungary, it becomes worthwhile to do so only if the profits are reinvested.

Table 3
The dynamics and structure of costs at FIEs and domestic firms
in manufacturing

1999/1997	Material costs	Wage costs	M + W costs	Sales
Domestic firms	1.10	1.31	1.14	1.19
FIEs	1.65	1.46	1.63	1.66
Majority FIEs	1.68	1.97	1.93	1.90
Structure of costs, 1997 and 1999, %				
Domestic firms 1997	82.69	17.31	100	
Domestic firms 1999	80.11	19.89	100	
FIEs 1997	88.11	11.89	100	
FIEs 1999	89.33	10.67	100	

Source: Own calculations from data in Pitti (2000)

From a firm's point of view, the second biggest item of payment to the state after social-security contributions (around 67 per cent), is profits tax (around 15 per cent). The general impression is that FIEs pay hardly any taxes because of the concessions they receive. However, as time passes, this becomes less and less true, so that the fiscal contribution of FIEs increases. In 1995, FIEs paid 36.2 per cent of all the profits tax collected by the state, but in 1999, they paid half of it (49 per cent). *Table 4* shows that the amount of tax actually paid differed significantly from the calculated tax in most majority FIEs in 1997, they paid only 45 per cent of the tax calculated. In 1999, they paid 53 per cent, so that the importance of tax concessions is still high, but decreasing. Ninety-six per cent of the tax concessions benefit FIEs, which demonstrates that most domestic firms are unable to benefit from them, for lack of capital. FIEs make biggest use of the 10-year tax breaks

Table 4
Calculated tax (before concessions) and tax paid,
in HUF billion, for the whole economy

1997	FIEs	Majority FIEs	Domestic	FIEs/domestic
Calculated tax	124.6	105.4	91.9	1.35
Tax payable	67.8	47.8	83.4	0.81
1999				
Calculated tax	195.3	167.1	117.6	1.66
Tax payable	110.4	88.5	114.4	0.96

Source: Own calculations from data in Pitti (2000).

awarded before December 31, 1993, which account for 80 per cent of all the concessions they receive.[5] This shows that the newer

policy tools, benefits offered by the Hungarian government in the second half of the nineties (bound to regions, sectors or high amount of investments) have not raised much interest among FIEs so far.

Some of the after-tax profits are paid as dividends. Data for recent years show that dividend payments have been increasing. In 1999, FIEs awarded about 62 per cent of the total amount of dividend paid in the economy. However, the beneficiaries of 65 per cent of the dividends were *domestic* persons or firms (Pitti, 2000). Another part of the profits is reinvested. There are no precise figures on profit reinvestment in Hungary, only some estimates.[6]

Based on this information, it can be stated that FIEs are more profitable than domestic firms and have different cost structures.

2.2 Development of domestic and foreign market shares

FIEs gained their positions in Hungarian manufacturing very rapidly. The share of FIEs in net manufacturing sales revenues increased from 41.3 per cent in 1993 to 71.8 per cent in 1999. (The share of majority FIEs was 65.6 per cent in 1999). The activity of these firms, most of them affiliates of big multinationals, had important effects.

It has already been shown how the structure of the Hungar-

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[5] For companies established before the end of 1993, there was a tax concession of 60 per cent in the first five years and 40 per cent for the next five years, provided the total base capital exceeded HUF 25 (later

50) million and at least 30 per cent was foreign-held. These concessions increased to 100/60 per cent for companies engaged in priority activities, such as electronics, car and machinery components, machine tools and pharmaceuticals.

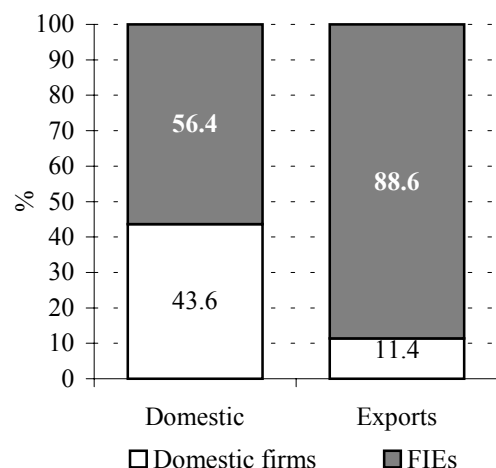[6] A National Bank estimate puts total reinvestment at USD 1.8 billion in 1990–97.

ian manufacturing production changed in the 1990s. This applies even more to the structure of sales, as Hungarian manufacturing became increasingly export oriented. In 1993, 28 per cent of sales were made abroad, but in 1999, it was 57 per cent. *Table 5* illustrates this general shift towards sales abroad (exports) and towards high-tech branches in the manufacturing structure.

that the vast majority of the products from high and medium-tech industries were exported, while the situation was the opposite in low-tech industries. These structural changes are caused by the FIEs. *Figure 2* shows how they dominate exports (with 84.3 out of the 88.6 per cent from majority FIEs).[7] To a lesser extent, FIEs are important in domestic sales as well – 56.4 per cent, up from 38 per cent in 1993, so that the FIEs have gained domestic market share as well.

Table 5
The geographical and technology structures of Hungarian manufacturing

	1993			1999		
	Domestic	Export	Total sales	Domestic	Export	Total sales
High-tech	56.62	43.38	100	17.16	82.84	100
Medium-tech	60.57	39.43	100	27.94	72.06	100
Low-tech	78.77	21.23	100	71.15	28.85	100
	Domestic	Export		Domestic	Export	
High-tech	8.64	16.79		10.37	37.53	
Medium-tech	21.49	35.46		21.63	41.81	
Low-tech	69.87	47.75		68.00	20.67	
Total sales	100	100		100	100	

The difference between the structures of domestic sales and export sales increased significantly between 1993 and 1999. This was due to changes in the export structure, while the structure of domestic sales remained almost the same, with high-tech branches taking 9–10 per cent and low-tech

It can be said in general that domestic manufacturing companies are mainly oriented towards the local market, while FIEs tend to be oriented towards export markets. The latter is illustrated by the fact that 59.3 per cent of their sales are exports, as opposed to 19.5 per cent in the case of domestic firms.[8] The export intensiveness of FIEs increased considerably during the 1990s, while that of the domestic firms remained constant *(Figure 3)*.

Figure 2
Shares of FIEs and domestic firms in domestic and export manufacturing sales, 1999

Figure 3
The trends in export intensiveness in manufacturing, exports as a % of total sales
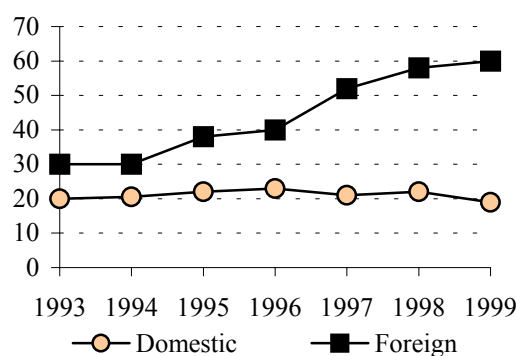

branches dominating with 68–9 per cent. In the mean time, the share of high-tech exports increased from 16.8 per cent to 37.5 per cent, while that of low-tech exports fell from 47.7 per cent to 20.7 per cent. Seen from a different angle, Table 5 also shows

[7] Characteristics of the big exporter companies are regularly analysed. The latest questionnaire survey, by Tóth (2000), covered 313 of these in the year 1999, as a representative sample of the top 1500 exporter companies. FIEs accounted for 82 per cent of the total sales and 80 per cent of the exports of the biggest exporters. The main direction of the exports was towards the EU.

[8] The data are for 1999.

Defining competitiveness in terms that emphasize profits and market share, it can be concluded that FIEs in Hungarian manufacturing are more competitive. They earn greater profits in value and relative to sales than domestic firms do. FIEs have also gained domestic market share rapidly, although their strongest fields of activity are in exports.

3. THE REASONS FOR THE DIFFERENCE IN COMPETITIVENESS BETWEEN FIEs AND DOMESTIC FIRMS

If FIEs are more competitive than domestic firms, according to the definition advanced in this paper, the reasons should be sought in the activity, characteristics and external conditions. The first sub-section examines the developments in productivity and investment in the two groups. In view of the shift of Hungarian manufacturing towards high-tech products, the technology level and innovation strategy of firms is also observed. Finally, elements of external conditions, such as government-policy tools and infrastructure, are considered.

3.1 Productivity and investment

There are various measures of productivity, of which labour productivity (value added or output per employee or working hour) and total factor productivity (the ratio of output to an index of various types of inputs) are the most commonly used. Output measures are revenue based, which assumes that the relative value of various types of outputs can be measured by their relative

prices.[9] There can be wide annual fluctuations in a plant's productivity, so that it is better to analyse performance over a longer period.

Table 6 shows the performance of FIEs and domestic firms in three consecutive years. Labour productivity is measured by the value added and net sales per employee. FIEs are clearly around three times as productive. It is also clear from the table that the real sources of this superiority are the majority FIEs. Domestic firms are far behind in labour productivity. FIEs function with fewer employees than domestic firms do.

Table 6
Productivity and investment patterns in manufacturing company groups

| 1997, mn HUF	FIEs	Majority FIEs	DEs	FIEs/DEs
Value added /employee	3.46	3.30	1.08	3.2
Net sales /employee	13.69	13.18	4.91	2.8
Value added/nominal capital	1.12	1.07	1.19	0.9
Net sales / nominal capital	4.43	4.29	5.40	0.8
Investment/nominal capital	0.29	0.30	0.19	1.5
1998				
Value added /employee	3.90	4.19	1.41	2.7
Net sales /employee	15.99	17.37	5.58	2.8
Value added/nominal capital	1.26	1.29	1.49	0.8
Net sales / nominal capital	5.14	5.34	5.88	0.8
Investment/nominal capital	0.38	0.40	0.28	1.3
1999				
Value added /employee	4.13	4.49	1.45	2.8
Net sales /employee	18.68	20.57	6.24	2.9
Value added/nominal capital	1.29	1.33	1.40	0.9
Net sales / nominal capital	5.85	6.09	6.03	0.9
Investment/nominal capital	N/A	N/A	N/A	N/A

Source: Own calculations based on CSO data.

However, with the ratios where nominal capital is in the denominator, values for the two groups are similar or those of domestic firms may even be higher. This may derive, however, from the pronounced under-capitalization of domestic firms. FIEs are much better endowed with capital – the average capital endowment per company is about 20 times greater for FIEs than for domestic firms, the exceptions being the publishing, medical, precision-instrument, furniture, and other transport industries. (On

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[9] However, in oligopolistic or monopolistic branch structures, relative prices may not reflect relative values, because of mark-ups.

the other hand, the mass production of large multinationals requires a different magnitude of capital endowment from that of domestic firms, which have another kind of production culture. With a small, domestic firm, the optimal amount of capital employed may be quite small.)

Taking a longer perspective, the gap between domestic and foreign firms in labour productivity steadily widened in the 1990s.[10] *Figure 4* shows a dynamic increase in the case of FIEs and much smaller labour-productivity growth for domestic firms.

Figure 4
The development of net sales per employee
in the two groups of manufacturing firms
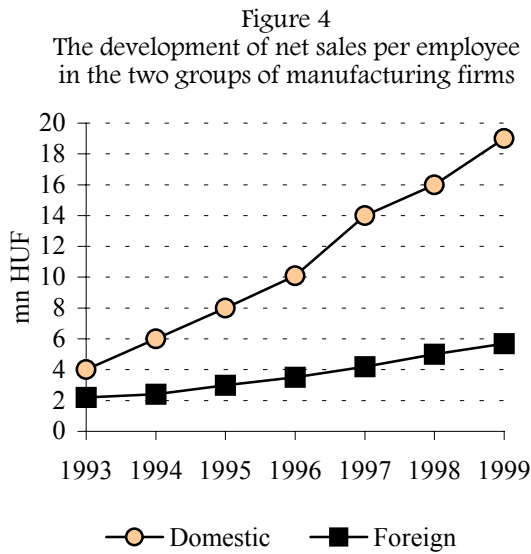
The situation is different with the net sales/capital ratio, where the two groups move more or less together, but the line for domestic firms is consistently above the one for the FIEs. This illustrates the under-capitalization of domestic firms, just mentioned.

Having noted the significant differences in performance between industries, it is time to consider whether those differences have been lessening over time – whether the Hungarian manufacturing industries have been converging in the productivity differences shown between FIEs and domestic firms. One possible measurement of convergence (generally applied for regions or countries) is sigma (σ) convergence, named

after the sign for standard deviation.[11] Convergence takes place when the standard deviation of the data set declines. This method is applied here to the 22 manufacturing industries ISIC 15–37.[12] The data set is the following:

$$D_i = [\ R^{FIE}_i - R^{DE}_i\ ]$$

where R is a performance indicator (here net sales/employee or net sales/capital ratio) and i the manufacturing industry concerned, and n = 22.

Figure 5
The development of net sales per nominal capital
in the two groups of manufacturing firms
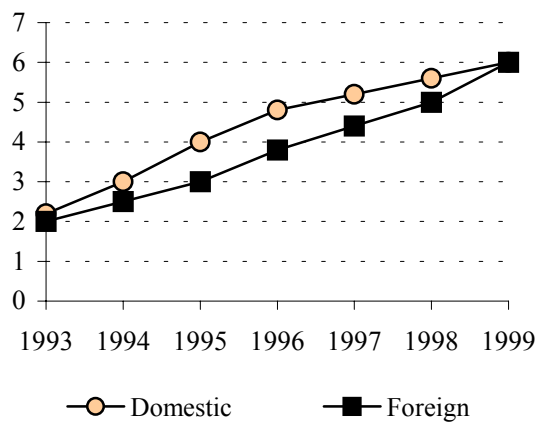
Results are shown in *Figures 6* and *7*. It is at first sight obvious, that σ_{Di} has increased, so we can speak about a clear divergence. In Figure 6 we can see a huge 'jump' after 1996, which is the „IBM effect". This was the first year of the mass production of computer storage units in the local IBM affiliate. The high amount of capital and mass sales make the office machinery sector an outlier. The situation is different if we omit this branch (Figure 7). Then the lines are much smoother, but the divergence still persists, which means that the difference between FIEs and domestic firms has been growing. In case of net sales per capital, we can rather speak about stagnation.

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[10] Here it should also be considered that the content of the foreign and domestic groups of manufacturing firms changes year by year.

[11] On this, see, for example, Raymond and Greciano (1996).

[12] Coke and petroleum are omitted.

Figure 6
Standard deviation of productivity differences among
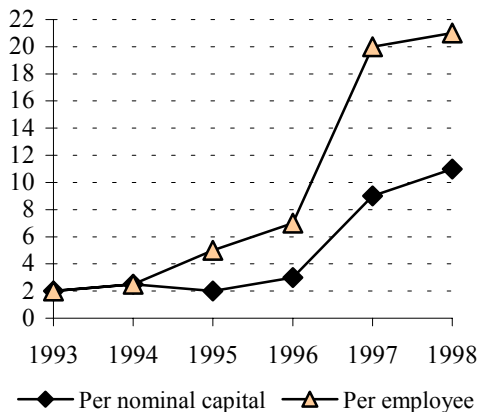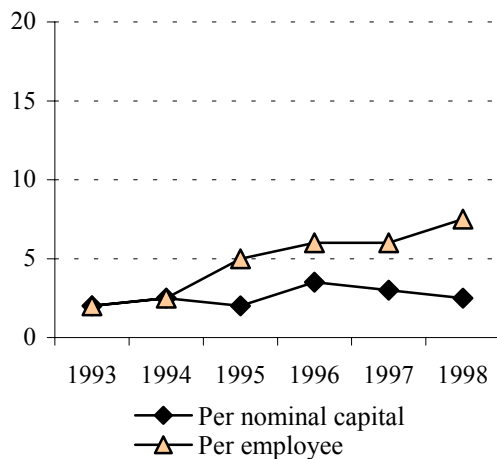manufacturing industries
(ISIC 15–37)

Per nominal capital   Per employee

Figure 7
Standard deviation of productivity differences among
manufacturing industries
(ISIC 15–37 ex office machinery)

Per nominal capital
Per employee

This means that the importance of 'sectoral effects' in productivity differences increased during the period observed, due to the strong presence of FIEs in certain manufacturing industries.

Productivity affects the development of unit labour cost (ULC), which is a more important factor than labour (wage) cost itself. The fact that FIEs again perform better than domestic firms, is shown in *Table 7*. In almost all manufacturing industries, unit labour costs are lower in FIEs than in domestic firms. (The few exceptions are shaded in the table.) With the whole of manufacturing, the ULC of the FIEs was only 60 per cent of that of the domestic firms in 1998, having decreased significantly from 1993 and a little from 1997. The difference is most striking in

office machinery, radio and TV sets, and motor vehicles. Here scale-intensive, mass-producing multinationals dominate.

The FIEs employ highly qualified workers. Recently, a shortage of qualified labour has begun to develop in Western Hungary. Because of low labour mobility, multinationals have had to organize commuting from Eastern Hungary or nearby regions of Slovakia.

Apart from sales, or rather to increase sales, another important segment of a firm's activity is investment. Generally, investment brings a firm a yield in profitability and market position in the medium and long term. The investment intensity of FIEs is higher than that of domestic firms, as *Table 8* shows.

Empirical evidence (Hunya, 1997; Szanyi, 1997) indicates that the involvement of foreign capital acts as a catalyst, triggering substantial investments in joint ventures. Hungarian owners (mostly organizations of the state) have hardly shown activity in any aspect of corporate governance, leaving foreign partners to their own devices. Investment has often been financed by a capital injection from the foreign partner, which was even stipulated in the privatization agreement in some cases.

Official figures show that manufacturing investment was already being influenced strongly by FIEs in 1992, when they accounted for 50.8 per cent of the total. This share rose steadily in subsequent years, reaching 78.6 per cent in 1998. Almost all the investment in the tobacco, paper, chemicals, office machinery, electrical machinery and motor-vehicle industries was made by FIEs. The lowest proportions of investment by FIEs were in wood, publishing, rubber and furniture, at around 50 per cent.

It is interesting to see whether FIE participation in manufacturing investments corresponds to FIE penetration (share of nominal capital). Table 8 shows the trends in this respect in manufacturing, by comparing net-sales, exports and investment shares with shares of nominal capital.

Table 8
The unit labour cost ratios of FIEs and domestic firms

ISIC	ULC FIE/DE	1993	1997	1998
15	Food products, beverages	0.82	1.00	0.90
16	Tobacco	0.16	0.87	1.05
17	Textiles	0.64	0.85	0.82
18	Wearing apparel, dressing	0.81	1.17	0.83
19	Tanning and dressing of leather	1.05	0.92	0.88
20	Wood	0.73	0.80	0.71
21	Paper and paper products	0.84	0.79	0.79
22	Publishing, printing	0.69	0.86	0.85
23	Coke and petroleum	1.77	0.91	1.57
24	Chemicals	0.99	0.92	0.90
25	Rubber and plastic	0.57	0.81	0.85
26	Other non-metallic minerals	0.64	0.67	0.70
27	Basic metals	0.78	0.80	0.82
28	Fabricated metals	0.59	0.92	1.05
29	Machinery and equipment n.e.c.	0.77	0.79	0.80
30	Office machinery	0.98	0.09	0.23
31	Electrical machinery and appliances	1.01	0.89	0.80
32	Radio and TV sets	0.51	0.26	0.29
33	Medical, precision, optical instruments	0.63	0.89	0.96
34	Motor vehicles, trailers	0.43	0.23	0.21
35	Other transport equipment	1.04	1.02	0.66
36	Furniture, manufacturing n.e.c.	0.90	1.00	1.04
37	Recycling	1.07	0.93	1.14
D	*Manufacturing*	*0.85*	*0.63*	*0.60*

Note: ULC is calculated here as the ratio of average wages and net sales per employee.

Table 7
The shares of FIEs and domestic firms in net sales, exports and investment relative to their shares of nominal capital, in manufacturing

	FIEs			Domestic firms		
	Net sales	Exports	Investment	Net sales	Exports	Investment
1993	0.92	1.16	1.31	1.07	0.87	0.75
1994	0.91	1.08	1.30	1.14	0.88	0.54
1995	0.88	1.08	1.26	1.20	0.87	0.55
1996	0.91	1.10	1.22	1.18	0.80	0.54
1997	0.94	1.18	1.11	1.15	0.57	0.73
1998	0.96	1.18	1.08	1.10	0.52	0.78
1999	0.99	1.22	1.03*	1.02	0.42	0.76*

Note: * Estimate.

It is clear that the FIEs' investment in manufacturing in the first half of the 1990s was more intensive than their penetration of nominal capital. However, the overrepresentation eased from 1995–6 onwards. By 1998, their investment activity was tracking the overall growth of the economy and corresponded with their share of nominal capital. Meanwhile the trend was the reverse in the FIEs' share of exports: the ratio was above unity in every year, but increased steadily over time. With sales, the FIEs' share was lower than for nominal capital, but the gap narrowed in the second half of the 1990s, approaching unity.

The trends observed reflect the effects of the big greenfield investments made in the period. Investment by FIEs (notably multinational affiliates) was especially intensive in the first half of the 1990s, as they established their production capacities. As the same export-oriented firms settled into normal functioning in the second half of the 1990s, their investment intensity decreased, but their export intensity increased. Meanwhile the participation of domestic firms in manufacturing exports decreased drastically compared with their share of nominal capital. Domestic firms also performed more weakly in investment intensity, but to a lesser extent than in exports.

Examination of two aspects of corporate activity – productivity and investment – leads to the conclusion that FIEs in Hungarian manufacturing are clearly more productive than domestic firms, although their superiority in this varies widely from industry to industry. Unit labour costs are far lower in FIEs. In investment, the long-term positive effect on FIEs' performance derives mainly from the large-scale investments they made in the first half of the 1990s.

3.2 Technology, innovation, management

As mentioned earlier, competitiveness and profitability are also influenced by firm-specific characteristics such as strategy,

management and organization. This sub-section concentrates on the technology level and innovation activity of the two groups. The general pattern in developing countries is for FIEs to be technologically more advanced than domestic firms. The main question this raises is how the domestic ownership sector benefits from this. New technologies have been vital to CEE countries, after decades in which they were isolated from the main processes of modernization.

The issue of technology spillover has interested several scholars in recent decades, to an extent that takes even an overview of the huge literature beyond the bounds of this paper. However, some points of particular importance to the question of competitiveness need to be mentioned.

Many studies stress that a firm's ability to absorb and adapt foreign technology depends on its existing level of technology and learning efforts (Cantwell, 1993). The recipient side has also been emphasized at the country level. Lall (1990) claims that countries differ in their technological capabilities, which directly affects their success in industrial productivity and their competitive position in international trade. A country's existing technological capability supported by specific policy measures will also determine its ability to cope with future new technologies. These technological capabilities are present on the national and microeconomic levels. The determinants of national technological capabilities are the rate of growth of physical capital, human capital, technological effort and policies, trade and competition policies and macro-economic environment. Firm-level technological capabilities depend on entrepreneurial, managerial and technical capabilities.

The technological capacity of the host country is also crucial, according to Cantwell and Dunning (1991). Where this capacity is weak, investments by multinationals may drive out local competition in an industry, gaining markets from local firms that lack the resources to invest in R and D. Local technological capacity may then be reduced even further, creating a vicious circle of de-cline. However, if the local environment is innovative and the technological capacity adequate, foreign investment may act as a catalyst, bringing about a virtuous circle, as multinational affiliates increase local technological dissemination and increased competition induces local rivals to innovate further.

Technology can take different forms. Teece (1977) differentiated between embodied knowledge (physical items) and unembodied knowledge (information). This differentiation between tacit and implicit, physically embedded knowledge was retained and developed in works analysing the costs, methods and mobility of technology transfer (Kogut and Zander, 1993; Sölvell and Zander, 1998). The costs depend on the type of knowledge and method of transfer. The more tacit the technology is, the more likely it is to be transferred to a wholly owned subsidiary. With mobility, recently skilled human capital is more mobile than before, but there is still an important part of formal and informal tacit knowledge that cannot be extracted from local systems without loss of value. Knowledge embedded in machinery is more mobile than tacit knowledge.

The types of technology influence technological upgrading, which is essential for competitiveness. This upgrading can take place using existing facilities and equipment or by purchasing new technologies and equipment. In sectors where technologies are highly embodied in equipment, upgrading may not require so much local technological effort. Where tacit knowledge is involved, a longer learning period is needed (Lall, 2000).

Foreign investors in the CEE countries brought developed technologies and tried to make use of local capacities and capabilities. The most important factor here is human capital. In their human-capital endowment, the CEE countries, including Hungary, have peculiarities deriving from the old regime. Despite the distortions of the system, its collapse left a substantial human-capital endowment.[13] As case studies show, Western

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[13] According to Dyker (1997, p. 447), 'However dis-

engineers coming to Hungary after the systemic changes discovered outstanding capabilities and creativity among the workforce. High levels of creativity had been 'forced' on them by the industrial shortcomings, for without modern tools and machines, good ideas became indispensable. Individual achievements, however, were been synthesized or summed up at firm level because of organizational problems (Szalavetz, 1999). This compounded the impetus to productivity increases obtainable with privatization and foreign ownership.

There are signs that the development of human capital is also assisted by FIEs. Already, some students are being put through university courses tailored to the needs of multinationals, with their financial support.

Let us look at the experiences with the technological development and research activity of FIEs in Hungary over the past decade. Information available on R and D and technology transfer made by foreign investors is rather scarce. Inzelt (1998) points out that case studies in themselves cannot provide an overall picture. Szalavetz (1999) argues that statistical indicators strongly undervalue the quantity of technology transfer accepted by Hungarian companies because of not measurable knowledge and because of neglecting the wide application of new technologies in certain joining areas (services, packaging industry, etc). Apart from that, as the technological capabilities of the country improve, the characteristics of technology transfer, innovation-cooperation also change. A thorough analysis of technology-transfer, absorption, innovation, horizontal and vertical contacts is made by Szalavetz (1999) using case studies of German-owned manufacturing companies.

There has undoubtedly been a modernization of the technological and technical level of manufacturing. One important aspect has been modernization of the machinery stock. 'Imported machines' were still the most important component of investment in 1998 (see *Table 7*). FIEs invest the most in machine imports – 81 per cent of all the machinery imported for the manufacturing sector.

Table 9
Imported machinery and total investment in manufacturing in 1998, by ownership groups of companies, HUF billion and % (shaded)

	Imported machinery	*As a % of total*	Total investment
Total imported machinery investment	218.2	*39.7*	548.5
Machinery investment by FIEs	177.9	*42.3*	420.2
FIEs as a % of total	*81.5*		*76.6*
Machinery investment by majority FIEs	157.9	*42.0*	375.5
Majority FIEs as a % of total	*72.3*		*68.4*

Source: CSO data and calculations.

Based on survey results, OM (2000) concludes that the level of technology is higher and equipment and machinery is better if (a) the company size is larger, (b) the firm has foreign owner, and (c) the firm is in one of certain industries, such as telecommunications or the innovative segment of engineering. Thus FDI has strongly contributed to the modernization of production tools. The participation of foreign capital in innovation and R and D is important to long-term development and utilization of the human-capital endowment.

Inzelt (2000) distinguishes two FDI periods in R and D: 'acquaintance' and 'feeling at home'. The first period lasted from 1992 to 1995, when foreign owners were not taking the risk of investing in leading research fields. They paid attention to R and D fields close to the competition, and to the industries in which the critical mass of R and D expenditures and personnel is low. (They spent only on introducing quality-control systems and ISO standards, *etc.*) The highest proportion of R and D expenditures to sales by FIEs were found in food and beverages, chemicals, and machinery and equipment. These (apart from pharmaceuticals) are mature industries, in which only small incre-

torted the science and technology systems of the socialist countries may have been, they did train millions of men and women to a high level of scientific and technical knowledge.'

mental innovations usually occur and radical innovations are rare. Foreign investors used existing laboratories or recently acquired firms in a limited manner and did not develop new local R and D and design capabilities.

The second period started about 1996–7 and continues today. The R and D expenditures of FIEs in 1997 made up 45 per cent of the total R and D expenditures of all firms. The expenditures are growing much faster in FIEs than in domestic firms.[14] Hungarian experience shows that the R and D intensity of FIEs is much higher than that of the domestic firms (see Inzelt, 1998 and Szalavetz, 1999, for example). In this phase, new behaviour by multinationals emerges. Investment in R and D starts to increase. Although comprehensive statistics are not available, news reports and case studies show that some multinationals have acquired or set up R and D laboratories in Hungary, with or without connections to their Hungarian manufacturing activities. Several multinationals, with or without a production line in Hungary, are becoming active partners of Hungarian universities and research institutions.

The Hungarian government has taken direct measures to encourage FDIs to perform R and D, including public-private R and D collaboration schemes linked to tax concessions and co-financing for establishing competence centres and university-industry cooperative research laboratories.[15] This policy results from feedback from multinational corporations, which, having completed their period of 'acquaintance', evaluated the knowledge base of the country and found it suitable for investment. Audi, Knorr-Bremse and Nokia invested at once using these incentives. There are others in the waiting room.

To sum up, it can be said that FIEs are indeed technologically more developed than domestic enterprises and this enhances their competitiveness. However, foreign investment has increased the overall adaptation level of Hungarian firms, by involving them in international networks and alliances, and technology has been developed. In the second half of the 1990s, foreign capital began to flow into R and D, with multinationals starting to use the existing human-capital pool. This period coincided with the rapid increase in the share of high-tech products and exports, established earlier.

3.3 External conditions (policy and infrastructure)

The final cluster of factors mentioned as influencing competitiveness consists of the external conditions. Of these, this sub-section focuses on government policy and infrastructure.

Policy of host countries towards multinational companies and FDI is a debated issue since the sixties. Several aspects of host government policies are treated in Dunning (1993), under location-specific advantages. Globalization and the concentration tendencies in world business have enhanced the importance of policies towards FDI and incentives designed to attract it. Countries and regions are competing for FDI and regulations have become increasingly liberal. The investment-policy framework has been extended to other policy fields that may also affect the activity of foreign investment companies (macro-economic and macro-organizational policies). These factors contribute to the level of the 'country risk'.

Brewer (1993) argues that government policies affect FDI and FIEs via their effects on market imperfections. Some policies increase market imperfections while tending to increase FDI (protectionist import policies, undervaluation of the currency, subsidies for inward FDI, *etc.*) Likewise, some policies increase market imperfections but decrease FDI (price controls, restrictions on inward FDI,

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[14] In 1997, the following FIEs spent most (over HUF 2 billion) on R and D: GM, Ford, Siemens, IBM, Hitachi, Toyota and Matsushita Electric (Horváth, 1999).

[15] Firms that set up R and D laboratories employing at least 30 researchers and invest at least HUF 500 million are supported by state grants of up to 25 per cent of the value of their investments.

trade restrictions of the inputs and outputs of FDI projects, *etc.*) On the other hand, some policies may decrease market imperfections and increase FDI (liberalization, privatization, currency convertibility, etc) or (in a very few cases) decrease market imperfections and decrease FDI (vigorous enforcement of antitrust policies). The effects of policies on FDI also depend on their scope (selective or general), on the relative position compared with other countries, and on the relation between the FDI host and the country of origin.

Hungarian government policy towards foreign investors has been one of the most favourable in the CEE region.[16] A generous legal framework for foreign investors (including liberal tax allowances) was introduced in the early 1990s as part of a liberal economic and trade policy. The most important of the special opportunities offered to foreigners was the chance to create customs-free industrial zones. FIEs were able to establish customs-free zones, within which they are regarded as foreigners for exchange-control and trade purposes. They keep their books in foreign currency, but they are subject to Hungarian taxation, except VAT. Around 100 such zones exist, including several large, greenfield investments by multinational affiliates.[17] These accounted for 43 per cent of Hungary's exports and 30 per cent of its imports in 1999. In 1996, these areas produced a USD 318-million trade surplus, and in 1999, one of USD 2091 million. These zones will have to be 'internalized' when Hungary joins the EU.

In the second half of the 1990s, government incentives and allowances were made to benefit FIEs and domestic firms equally. However, the conditions for them (such as the capital requirement) mean that the beneficiaries are mostly FIEs.[18] Activity by local-

government authorities, in attracting FDI by providing subsidies, infrastructure, allowances, industrial parks *etc.*, will become increasingly important. Hungarian municipalities seem to have been early to begin such activity, by regional standards.

Another important condition for the business environment for firms is a developed infrastructure, including public utilities (energy, water, telecommunications, wastewater treatment), public works (roads and dams) and other forms of transport (railways, ports, waterways, airports and urban public transport). The importance of the infrastructure in increasing growth and productivity was first emphasized by Aschauer (1989). Based on econometric analysis of data for 1949–85, he found that public capital stock was important in determining productivity, with the 'core' infrastructure (roads, airports, electricity and water) having the greatest explanatory power. Kessides (1993) argues that infrastructure contributes to reducing production costs, giving better access to modern technology, and increasing productivity.[19] All the direct effects of the infrastructure and public capital can be complemented by an indirect impact of fostering private investment.

The general picture of the state of the infrastructure in Hungary is rather disappointing. The rail, road and water-management systems are obsolete compared with the EU average, despite the investment made in them. There are also big regional differences, with Budapest and Western Hungary continuing to have a relatively developed infrastructure.

However, certain fields of the infrastructure have been successful, such as telecommunications, where the rate of catching up has been spectacular. As Ehrlich (2000) points out, Hungary has undergone a telecommunications revolution since the systemic changes. In 1990, only 18 per cent of

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[16] For a detailed analysis of FDI policy, see Éltető (1998a).

[17] The investors concerned include Audi, IBM, Opel, Philips, Nokia, Flextronics, Ford and Sony.

[18] On Hungary's policy towards FDI at the end of the 1990s, see Antalóczy (2000), prepared under the same research programme as this paper.

[19] However, these beneficial effects are realized only under certain conditions: an adequate macroeconomic climate, a sufficient complement of other resources, the existence of a reliable, good-quality infrastructure, and low user charges.

homes had fixed telephone lines, while in 1999, the proportion was already 70 per cent. Mobile-telephone density and usage have also developed rapidly to a level somewhat higher than the EU average.

With the transport infrastructure, the present government seems to be emphasizing motorway construction. In April 2000, the Ministry of the Economy published a national development plan that envisaged considerable spending on this (HUF 120 billion in 2001–2). The development of the transport infrastructure can prove attractive to investors as economic literature and international experience show. In Hungary's case, there have also been some studies of the effects of motorways on business activity. Bartha-Klauber (2000) examined the economic-development and multiplier effects of the M5 motorway between Budapest and South-East Hungary, based on interviews and data analysis. The results showed that the motorway was being used for goods transportation (one of its prime purposes) only by some highly profitable companies because the tolls charged were thought too high for small delivery firms to afford. The general practice is that firms use motorways only for long-distance, urgent and overweight deliveries. In spite of this, motorways attract foreign investors, because existing motorways are basic elements of investor decisions. Experience shows that motorways are also important for facilitating passenger travel for employees and managers, which is not a negligible factor in business negotiations, for example. They also make it easier to reach important services necessary for the quality of life. According to the study, the existence or absence of a motorway has been crucial to investors in machinery and much less important to those in other industries.

The conclusion concerning the external conditions of a firm's activity is that FIEs were favoured by Hungarian economic policy in the early 1990s. Later, they were also able to make better use than domestic firms of the policy instruments tied to high investment size. With the infrastructure, domestic firms and FIEs face similar conditions, as the development of motorways or telecommunications benefit both.

4. CONCLUSION

By the end of the 1990s, FIEs were playing a determining role in the Hungarian economy. They strongly dominate sales, exports, investment and performance in the manufacturing sector. This paper has emphasized microeconomic competitiveness, examining the characteristics of FIEs and domestic firms. From a firm's point of view, competitiveness has been defined as enhancement of profits and market share. These are influenced by the firm's activity (notably productivity and investment), by its characteristics (technical and technological superiority and innovation activity) and by external conditions (government policy and the infrastructural environment).

FIEs are more competitive than domestic firms. Furthermore, they are four or five times more profitable, pay less tax, and spend relatively less on wages. They were able to increase their market share rapidly at home and still more in foreign sales, on which FIEs have tended to concentrate.

The productivity of labour is higher in FIEs and rising faster than it is in domestic firms. There is a detectable divergence in this respect among manufacturing industries. FIEs work with much lower levels of unit labour cost than domestic firms, but again there are industry differences as well. Although FIEs invest more than domestic firms, this activity was superior to their weight in terms of nominal capital only at the beginning of the 1990s, when the big greenfield investments were being made. In the second half of the 1990s, this 'investment-intensity' ratio declined to close to unity. At the same time, the export share of FIEs rose well beyond their weight in terms of nominal capital.

With investment, FIEs have taken the lead in importing machines, which has improved the technical level of production.

They contribute to the technological development of manufacturing and participate in the R and D process. In this respect, two periods can be discerned, in the second of which, multinational corporations have become more involved in R and D, investing in their own laboratories. FIEs have shown themselves able to utilize the good human-capital endowment of the country and helped to maintain and develop it.

The involvement of FIEs in R and D has been encouraged by state incentives. Apart from these, FIEs received other kind of generous allowances. A special tool for promoting FDI was the chance to establish customs-free industrial zones, which have become determining parts of the Hungarian economy. As a consequence of these and other functioning FIEs, the production and sales structure of Hungarian manufacturing has changed considerably.

Hungary's manufacturing industries have given the impetus to the economy to catch up and join the globalizing world economy, via alliances with multinational corporations. For Hungarian companies, the real question that determines their competitiveness is not foreign or domestic ownership, but the participation in global networks.

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Table 10
Fluctuations in the foundation and closure of business firms

	1993	1994	1995	1996	1997	1998	1999
1. No. of firms at end of previous year	108791	161295	185901	195550	226984	227064	255433
2. No. of firms founded in the year	74315	54220	43588	53873	45430	38871	37498
2a. Nominal capital of 2*	310697	230048	174061	241467	247701	260891	1602837
2b. Nominal capital of FIEs within 2a*	76424	68792	46143	48684	84785	113463	1438349
2c. Proportion of FIEs (%, 2b/2a.)	24,60	29,90	26,51	20,16	34,23	43,49	89,74
3. No. of closures	21811	29614	33939	22439	45350	10502	30493
4. No. of firms at the end of the year (1 + 2 - 3)	161295	185901	195550	226984	227064	255433	262438

Note: * HUF million.
Source: Pitti (2000).