Dual economy, the role of the MNC-s in Hungary and the EU-accession

JUDIT HAMAR

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Introduction

The paper – by summarising our research results proceeded in 2000-2001[1] – gives some answers to the question whether the fast increasing presence of multinational companies (MNC-s) did and would increase the gap between development prospects of indigenous and foreign owned firms in Hungary, or not? Whether the negative effects of a dual-type of economic development could be revised (at least moderated) by the economic policy or not?

The analytical methods were to measure performance differences (and similarities) among company groups selected by the main ownership pattern. By using mathematical-statistical methods, the cross-section and factor analyses of the main economic indicators try to answer whether the MNC-s have typical or rather specific firm-attributes, or not?

Research results proved that in Hungary ten years were enough to the foreign investors to reach almost the same dominant shares in most industrial sectors as in the Irish economy during a much longer time. But the first signals of a dual type of economic development (a clear advantages of the foreign owned firms compared to the indigenous ones) also emerged sooner (already in 1996) than in the other countries (such as in Ireland, Portugal, or Spain).

The international comparison of earlier experiences of some peripheral countries (such as Ireland, Portugal, and Spain) revealed that the sudden huge FDI-inflows in a country would increase differences among the indigenous and foreign firms' prospects. This pattern was general especially if the country offered large tax- and other incentives to attract foreign investment. Foreign investment by nature went on the activities where profitability was higher, and the better conditions of the foreign owned firms were multiplied not just by granted tax exemption and investment support, but by the fact, that foreign owned firms could employ skill-labour much easier even if there were shortages of them at the labour market.

The Irish example, however, also proved that if the problem of the dual type of economic development could be detected in time, economic policy could lessen its negative effects by supporting education and home capital accumulation by offering positive discrimination to the indigenous firms (SME sector). An opposite example of Greece – where the EU-accession was accompanied with an economic policy which did not helped FDI-inflows for decades – provided arguments, that the problem of dual economy could emerge even without FDI, but parallel with the decline of the overall economy.

Hungary followed the pattern of the those countries where economic liberalisation let a sudden and huge inflows of the FDI. But as the whole process went on faster than in those countries, a turning point of the trend seems to appear earlier, too. Since the first signals of dual economy emerged, indigenous firms also had produced a rapid improvement in performance, in export-ability and productivity, but the gap in some

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[1] Hamar, J:[2000] "Multinationals in Hungary and the expected effects of the EU-accession", and Hamar, J.-Nagy, Á.:[2001] "The role of the FDI in the Hungarian economic development" (KOPINT-DATORG). .

important economic indicators between indigenous and foreign owned companies had not diminished by 1999, even increased in some respects.

The detailed mathematical-statistical analyses proved, that the clear advantages of foreign firms over indigenous ones exist at the group-aggregate level, but this is partially due to the increasing and newly emerging investment of the MNC-s, rather then their significantly different behaviour or factors. Inside each company group the variances were at least as large as among the different groups. Profitability linked more to export-orientation than to FDI. Since 1996, credits for investment have gained significant role, and the type of activity had become a determinant factor by 1999. FDI in food industry for example produced much less rate of return than in engineering, while earlier, location by sectors had no significant effects (opposite to the experiences before 1996, when the effects of sectors hardly could be observed).

For policy conclusion, it is important, that those firms (even belonging to large global multinationals) which produced the most dynamic development, were not the same in 1999, than in 1996 or 1992. For future development the success of preparation for the EU-accession (the balance of gains and losses) will depend much more on the ability of indigenous firms to close the gap and to overcome their disadvantages compared to the foreign owned firms. Both the central government and local policy-makers must focus on harmonising their wishes for attracting further FDI by offering generous preferences and the aims of fostering the development of local indigenous enterprises and capital accumulation (even by positive discrimination given to local SME sector).

The FDI-inflows, economic development and the EU-accession

The high level of FDI-attractiveness of Hungary is well-know. It is due partially to the "first-comer advantages" (that is the political, and legal conditions for FDI-inflow were formed first in the region), besides the importance of relative political and economic stability and the Hungarian way of privatisation. The main lessons of the ten year experiences in Hungary can be, that economic policy changes and investment worthiness of the host country could mainly determine the activities and results of the MNC-s (Marcusen's theses). Trade- and FDI liberalisation has been identified as the necessary first conditions for fostering competitiveness, changing market structure and export-orientation. The stabilisation process (introduced in 1995) was inevitable for closing the gap in export-ability and import-intensity of the country, as the overall results of the foreign trade (its dynamics, and its changing market- and product structure) proved it.

The sudden huge FDI-inflows (altogether with some scandalous privatisation cases) caused also negative side effects (and sentiments), but finally, to some up the results of the FDI-inflows, we can conclude, that the transitional crises would have been deeper and longer, the unemployment level higher, and the salary and wage level certainly would be lower without foreign investment. As a consequence of the higher than average export- and investment-intensity of the foreign owned firms, they speeded up the structural changes and they became the "engine" of the export-led economic growth. The high level of economic openness and the dominant shares of the foreign owned firms in several economic activities and in foreign trade certainly have increased the sensitivity of the Hungarian economy on foreign changes in demand, prices, and capital market, but as the Russian financial crises proved it, it's ability for standing and

overcoming the crises improved much during the past decade. In this development the presence and the increasing investment activity of the MNC-s had important role. For future prospects, there are views, that as the privatisation process in Hungary has almost ended, a turn in the FDI-trend could be expected, but the real tendency has not proved it yet. (See the Chart 1. in the Appendix. *Next we will refer as chart or table A*.)

Charts 2-4/A. illustrate the economic development and the structural changes: the GDP growth and production by the main economic activities, the changing structure of the use of GDP, and structural changes in industry in last decade compared to the 80-s.

As the time of the EU-accession of Hungary is coming closer, a new wave of FDI can be expected. The fact, however, that the economic liberalisation (of trade and FDI-inflows) happened already ten years ago, will result, that the expected changes (the gains and also the loses) will be much less, than in the countries entered earlier to the EU (such as in Spain, Portugal, or Ireland). The economic openness reached by now much higher level, and the FDI has about the same share than in the above mentioned countries.

- The openness of the Hungarian economy (export-orientation and the import-penetration) can be illustrated by the fact: that the share of exports (54%) and that of the imports (56%) of goods and services to the GDP are much higher than they were in Spain (exports and imports together were 44%), or Portugal (69), and Greece (55) in 1985. The EU average was 61% that time.

- The FDI-inflows (with the exception of 1993-1994) helped to finance the deficit necessary to modernise the Hungarian economy and since the economic stabilisation (1995) the export-led economic growth became determinant. (Chart 1./A.)

- The fast market reorientation and restructuring of production and exports were speeded up much by the firms operating with foreign capital.

Table 1. The role of foreign firms* in the Hungarian Foreign Trade
at dollar base, percentage

Share of foreign firms to the total	1992	1993	1994	1995	1996	1997	1998	1999	2000
Exports	30,4	38,1	39,5	55,2	68,3	73,4	74,4	74,0	77,3
Imports	32,8	38,7	43,7	61,0	70,1	72,9	71,8	71,2	74,8

* Partially or totally foreign owned (double accounting) firms.
Sources: Ministry of Economics (GM), Custom statistics, the author's calculations

- The market structure of the Hungarian foreign trade is characteristically concentrating on the EU already now, at a higher degree than the countries entering earlier the EU had reached by 1995 (with the exception of Portugal).

Table 2. The share of the EU in the foreign trade of the countries
in 1988 and in 1995

Countries	Exports		Imports	
	1988	1995	1988	1995
Spain	68	71	60	65
Portugal	78	82	70	75
Greece*	68	57	67	68
Ireland	77	72	71	56
Hungary**	51	76	45	64

* Data for Greece: 1988 and 1994 ** for Hungary: 1992 and 1999.
Source: Hamar: 'Hungarian Foreign Trade and the EU-accession' (*Külgazdaság*, 2000/6.)

- The FDI share in the Hungarian economy reached the same level during a decade than in Ireland for more decades. (Table 3-4.)

Table 3. The share of the foreign firms in the Hungarian economy
All double accounting firms of the national economy = 100%

	Number of firms	Assets (AC)	FDI/ AC	Investment	Net income on sales (NIS)	Exports*	Employment capita	Wages
	Percentage							
1989	9,3	7,1	1,7	11,0	4,7	10,0	No data	3,9
1992	21,4	17,8	10,1	30,2	24,4	37,3	15,3	19,1
1995	21,1	47,0	28,3	61,8	45,0	66,0	33,0	37,1
1998	16,2	49,1	37,6	61,1	51,6	79,0	31,7	45,3
1999	15,4	58,2	49,9	71,0	53,4	82,2	31,6	46,0

Notes: * Export-shares here are different from those of the previous table, because here the 100% is the exports data of all double accounting firms, while in the previous table all firms data are included in the custom statistics
Source: Ministry of Economics (GM) – APEH (Tax-office), Double accounting firms tax reports, the author's calculations.

Table 4. The role of foreign firms in the Hungarian and the Irish manufacturing

	Output	Employment	Exports/output	
			Indigenous companies	Foreign firms
Ireland 1996	77,1	46,6	48,0	91,0
Hungary 1999	73,2	48,2	20,7	59,7

Source: the same as at the earlier tables and *Forfás Employment Survey*

The actual level of the economic openness and the presence of globally integrated firms in Hungary will give important advantages, but also disadvantages to the economic actors and policy makers, when Hungary will joint to the EU.

The fact, that the Hungarian economy already has succeeded to overcome huge structural changes inevitable to adjust to the fast increasing competition, will produce *advantages* at the time of the EU-accession. The actors of the micro-sphere have already get accustomed to the presence of the MNC-s, to the competition raised by them at global and local markets. Those companies which could not adjust to the radically changing conditions have already bankrupted, or by becoming partially or totally foreign owned firms, they succeeded to restructure their production and markets. More and more indigenous private firms also could enter global markets, however, they still

suffer from clear disadvantages (such as in capital strength and credit-worthiness). The presence and the extend of the foreign owned firms in Hungary certainly will ease the accession to the EU, several already work as an integrated part of a global MNC or its networks. However, as the previous table (4.) shows, there are further space for increasing export-orientation even for the foreign owned company groups, too.

Disadvantages of the presence of the MNC-s are expected mainly from the fact, that their high dominance in certain economic activities must impede the others to enter even local markets, and the dependence of strategy formed abroad by the headquarters of the MNC-s will narrow the room for Hungarian economic policy, too. An increasing dependence on the international capital markets and on global strategy of the MNC-s is the price of the possibility of a faster catch-up process. Policy makers, however, should calculate that to finance further the modernisation deficit by outside sources will be more and more difficult and costly.

Fast improving company performance, but first signals of a double faced economy

The massive FDI-inflows had significant effects on this development: on the improvement of the company performance, and (especially since 1995) on closing the gap between export-ability and import-intensity. But as a result of the dominant foreign equity relations, the Hungarian manufacturing industry showed alarming signals of a doubled faced economy (highly preferential position of foreign owned firms compared to the clear disadvantages of the indigenous private firms) already in 1996.

Analysing the factors of improving export-ability and competitiveness of the Hungarian manufacturing industry, a clear improving tendency could be revealed in productivity and company performance (according to all economic indicators) already between 1992-1996. The better performance linked mainly to increasing export-orientation of the firms. In this process, firms (mainly with foreign capital) with higher capital strength, and investment-ability (and more possibilities for getting investment credits) had determining role.

It is also worth to recognise the fact, that the share of the indigenous private ownership, which increased almost in the same pace during 1989-1992 as the foreign share, had lost the rhythm by 1995 and even decreased in 1996. The lack of capital, the modest (even decreasing) investment activity, and against their limited credit worthiness, the fast increasing level of debt in this company group proved clearly the indigenous private firms' disadvantages position. (The proportion of short run credit to their statuary capital doubled in four years, and in 1996, it was higher than the value of their total own capital-stock.)

- Out of the total (double accounting) manufacturing firms, every fifth had foreign equity relation in 1996 (the same share as in 1992). But while in 1992, the 2,548 partially or totally foreign owned firms controlled only one-third of the total and a smaller part of the fixed assets in the manufacturing industry, employed only one-fifth of the labour force, produced 27% of the total output, 32% of the exports[2], and

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[2] The share in exports here differs from that of the table 1, which is based on the foreign trade statistics. Several, non double accounting firms and also individuals participate in the foreign trade, therefore the total sum of exports and imports are different.

invested 43% of the total. By 1996, the FDI had reached a share of 68% to the all assets in manufacturing. (Out of this, 70% had more than 90% of FDI, and an other 18% had majority foreign ownership.) The 3,893 foreign owned firms exported 79%, invested 83% of all double accounting manufacturing firms, and out of the total profit before taxes, 86% originated from this company group (after taxation their share reached 91%). Each out of four employees worked to these firms, and they paid 55% of wages and salaries of the all in manufacturing. (See Table 2./A.)[3]

The growth rates of foreign controlled firms have also been extraordinary, especially relative to the indigenous manufacturing firms. (Table 3./A.)

- The first group increased both the exports and investment by six times between 1992-1996, their assets and production factors grew two times faster than in the indigenous firms. Their contribution to the employment illustrated by an increase of more than 45%, while the total number of labour-force employed in manufacturing industry still decreased in the four years (by 13% as average, and by 21% in the indigenous firms).

Disadvantages of the indigenous companies are evident (caused mainly by their poor level of capital, assets, and insufficient possibilities for investment). It is worth referring, however, to the fact, that each company group (as average) could improve their performance much during the period of 1992-1996 (they all reached positive results before and after taxation, increased exports and their total outputs, too). It must also keep in mind, that the relatively poor performance of the indigenous companies were partially due to the fact that this group included the still existing loss-maker state companies, the shrinking activities, besides the fast growing new kind of firms and activities. But, the group of foreign controlled firms is also full of extreme cases. (See the next part.)

- The indigenous company group improved their productivity also at a spectacular way: in four years, with half of the number of employment, they doubled their output and exports (as average by firm). The rate of return (profit/capital) increased several times (compared to the significant losses in 1992). Investment also increased fast (the proportion of investment to the all assets per firm was less by 4-5% lower than in the foreign owned firm groups.) (Table 4./A.)

Data of the tables (2-4/A.) revealed, that the expansion of the foreign owned firms slowed down after the recovery from the transitional crises, however their exports and profits more than doubled again between 1996-1998. A relatively decreasing number of firms belonged to this group, but they further increased their determining position in manufacturing (except in the profit after taxation, where their proportion decreased by one percent point in two years).

- The dominant position of the foreign owned firms are confirmed by their share of 87% in profit (before taxation) and 90% (after tax-payment) compared to the all

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[3] Table 1. in the Appendix shows the changing distribution and shares of foreign owned firms by economic sectors

manufacturing firms data in 1998.[4] Foreign firms invested 85% of the total and exported more than 86% of all, but their domestic sales also reached almost 60%. Every second employment belonged to this company group, and got 60% of all salary and wages paid in manufacturing.

- As average of the manufacturing sectors, a half or two-third of employees worked for foreign owners (in petrol industry almost 100%). In wood-processing, publishing, printing, and in the furniture industry every third or fourth workers were employed by them. Almost half (at least third) of the labour force belonged to this company group in office and computer industry, in engineering, in transport equipment, or in the clothing industry.

The most important – for future the most encouraging – changes, however, happened in the indigenous company group.

- The 100% Hungarian owned firms doubled their profits before taxation and tripled after taxation, in spite of the fact, that their assets and employment further decreased (however at slower space than earlier). Their exports also increased by 40%, and investment by 37% between 1996-1998. That means, that the general view stating that productivity growth was due only to some (few) multinational companies cannot be maintained.

The productivity and profitability indexes also indicated important improvement in the indigenous company group. But the gap between the two groups remained significant for the sake of the foreign owned firms. In the case of some indicators, the differences even further increased. (Table 3-4./A.)

- Per capita income (output/employment) differences between the two groups for instance increased from two and half times (in 1996) to three times by 1998, and the gap in exports to the total output grew from two times to 2,6 times. The per capita exports in the two groups indicated a nine time difference in 1996, but this ratio diminished to 6-7 times, and investment ratios to the capital also converged. In spite of the spectacular profitability improvement in the indigenous company group, the foreign owned firms could maintain their clear advantages in the rate of return, and in the ratios of profit after and before taxation.

Changing trend?

The improving export-ability of the indigenous firms (since 1997) could be seen, if we follow the changing shares of the foreign owned firms in the Hungarian foreign trade. As the table 1 in the previous chapter indicated, that the share of the foreign owned firms hardly increased in 1998, and in 1999 – both their export- and import shares –

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[4]   The convergence between the proportion of profit before and after taxation since 1996 could be interpreted, that the tax-allowances of the foreign firms supposedly diminished in these two years. (Or, that of the indigenous firms increased.)

diminished, contrast with the earlier year tendency (especially with the fast increase since 1995)[5]

This changing trend was partially due to the fact, that the Russian financial crises in 1998, and the increasing protectionism of some CEFTA countries effected some large multinationals, too, but partially due to the increasing export-ability of a growing number of the indigenous firms.

Data for 1999 (table 3. in the previous part) show that the number of foreign firms diminished further but first not just in relative term (relative to the all double accounting firms), but in absolute term also (from 21 thousand to 20,6 thousand). The proportion of FDI-stock to all assets, however, grew by more than 12 percent point, parallel with their investment increase (ten percent point) just in one year. The share of the foreign owned firms in exports further increased, while their relative position in output and in wages grew only at a modest rate. Their share in employment even decreased. That is, in 1999-ben, the improving trend in employment was supported much more by the indigenous firms than by the foreign ones.

The tendency of relatively decreasing number of foreign firms characterised practically all activities in the national economy. This was the most explicit in trade, where the extension of large malls certainly resulted a much more concentrated company structure than earlier. In manufacturing, the changing statistics and accounting regulation gave incentives to the MNC-s to merge their Hungarian joint ventures. Opposite to the general trend, the expansion of foreign firms was significant in real-estate, in consulting, and especially in financial sectors in 1999. (See Table 1./A.)

- A similar tendency featured the activities of foreign firms in manufacturing, too. In 1999 a relatively decreasing number of foreign firms increased further their position in exports, in output, and in invested capital, but at a modest rate than earlier. A new phenomenon, however, emerged that year: that the relative share of this company group hardly increased in the all assets and in the statuary capital, and their share in investment – first in 1999 – diminished (however it was still remarkable, 85%). Their profits (before and after taxation) relatively also decreased (to 84, and to 86,5%, respectively). The foreign firms exported already 89% of the total exports of manufacturing, but their domestic sales grew only at a similar way as that of the indigenous group. Almost half of the employment worked for foreign owners, but this meant only a very modest increase (only 0,7 percent point) in their shares in employment. (Table 2./A.)

First in 1999, the investment activity of the 100% Hungarian firms passed over that of the foreign owned group. They reached a spectacular improvement in profitability (the increase in their profit before taxes was 24% and after taxation 31%), while the foreign owned group as average had worsening results compared to the earlier year tendencies. In spite of this, their most economic indicator (as unit values) still remained superior to the indigenous group (even if some convergence could be detected.) (See Table 2-3./A.)

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[5] 2000 data show again an increase export- and import-share of the foreign owned firms, but this was due to the newly established firms with new export capacity. (Without them, their shares would be only 68,9% in exports and 67,9% in imports of 2000).

FDI in the Hungarian and the Irish manufacturing: a brief comparison

Without a detailed explanation, some important results of a comparison – between the distribution and shares of the FDI by industrial sectors in Hungary and in the Irish manufacturing industry –, are worth mentioning. As we stated already, ten years in Hungary was enough for foreign investors to reach almost the same level than in the Irish manufacturing. The comparison also revealed several similarities according to the structure and shares of the foreign owned firms.

- There were some important differences between the general structure of the Hungarian and the Irish manufacturing: that is, the Hungarian chemistry, paper and the food industries had smaller (the clothing and leather industries, as opposition, had higher) weight in 1999, than in the Irish manufacturing (in 1996). The electric and precision engineering had similar proportion, while the metal and transport equipment industry had much higher shares in Hungary, than in the Irish economy.

- The shares of the foreign owned firms in industrial sectors were very similar in the two country. And as an average tendency we could recognise, that those sectors had reached a higher share in Hungary, where FDI had more dominant position, than in Ireland. (With the exception of engineering, and at a smaller rate, chemistry.)

The fast speed of the Hungarian structural changes is illustrated by the fact, that the output and exports of the traditional 'labour-intensive' activities lost their weight, while the modern, mainly 'knowledge-intensive' activities gain room fast. (The structural changes according to the employment was much less explicit between 1996-1999.)

- The food industry decreased its share from 25% to 17% in the total manufacturing output in 1996-1999 period, and in exports from 14% to 7%. (While its share in employment diminished only by 1.3 percentage point, from 18% to 16.7%.)

- The output of electrical machinery increased by more than three times, and its share in manufacturing grew from 12% to 21%, in exports from 20% to 33%. The output and the export-share of the transport equipment industry at least doubled (in output from 6% to 14%, and in exports from 13% to 26%) in 1996-1999. Meantime, the traditional (mechanical) engineering lost its weight by 1.9 percent point, in employment by 6 percent point, and in exports shrank to the half (from 9.4% to 4.5%).

As an overall results of the FDI, the role of the firms operating with foreign capital is evident: they speeded up the output-growth and structural changes, improved much the employment level, and in the dynamic growth of exports, they became the 'engine' of the growth. A more detailed picture, however, shows a much more sophisticated view.

- The share of the foreign owned firms increased in output, in employment and in exports even in those activities, which lost their weight in manufacturing between 1996-1999. Food industry produces the best sample for this: foreign firms increased their shares in output by 7 point, in employment by 3 point, and in export by almost 9 percentage point. (Table 5./A.) Out off the food industry, the foreign firms in

tobacco industry increased their production only by 64% in three years, while their shares in exports shrank to the third, and their employment by 13%. The indigenous tobacco firms meantime increased their output by more than five times, and their exports by 43 times, and their employment also doubled.

- The role of the foreign and the indigenous firms had specific features in the most dynamic industrial sectors, too. The foreign owned firms increased output by three times in the electric engineering (and exports more than four times). But few attention accompanied the fact, that the wholly Hungarian owned firms in this sector increased their output by two times, and their exports had grew to 226% by 1999-re. The export-oriented green-field investment of the multinationals in office and computer machinery multiplied the output and exports of these sectors. But the indigenous firms also increased their output by three times, employment by almost five times, and exports by ten times in three years.

- The spectacular increase of the transport equipment in manufacturing happened also by the increasing dominance of the foreign firms. But, while these changes in the road vehicle production linked to the appearance of the foreign producers and to the shrink of domestic ones, in the production of the other transport equipment, the indigenous companies developed at a much more dynamic way: their exports grew by eight times, their output increased five times, their employment tripled contrast to the doubled export-volume of the foreign owned firms with a growth rate of 24% in output, and a shrinking employment level (by 4%).

Factors for development: 'dynamic', or 'surviving-declining' groups of firms

As it turned out from the previous part, the foreign (and increasingly the 100% foreign) owned firms are evident to have had important effects on the dynamic growth of the Hungarian economy. Their expansion happened on the expenses of the majority Hungarian and the majority foreign owned company groups: by further investment into already existing joint ventures, by buy-out of state or indigenous private equities, mergers and acquisitions. Food industry proved, that even with increasing dominance of FDI a whole sector could shrink. It turned out also, that indigenous firms could develop fast, with improving company performance even in the most dynamic sectors. Analysing aggregated data by company groups, however, the means overlook the effects of structural changes, and not let determine whether the extreme cases, or rather the changing average features of the companies in a group caused the significant changes by groups.

Next we summarise the results of more detailed mathematical-statistical (cross-sector)[6] analyses. By studying systematically and at a many sided way the company data, the aims were to determine the essential variables of economic performance of companies, to define specific and general features, and to determine the essential links among

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6 Long time-series analyses with some time-lag variables (at least for investment) would be necessary to determine the factors of different type of development by ownership pattern, but actually, the ten year history with FDI itself is too short, and the several technical changes – such as the changing base of foreign trade statistic in 1991, and 1996, the changing accounting law, and that of the industrial nomenclature in 1992 and 1998 –, data are not consistent enough for this.

variables.[7] Primer descriptive statistics, correlation, variances and relative variances (for effects by sectors) analyses were used, and factor analyses to select the most important factors for development.

By mathematical-statistical methods the general features of a group can be examined. To detect the effects of structural changes needs especially corrected samples. But to avoid false economic conclusions, it is necessary to study whether the average or the deviating cases are determining? In an earlier study, the analyses of standard deviations according to each company group for several economic indicators clearly revealed that the extreme cases were so dominant in each group (even in the foreign owned firms group), that to select them out would lead us to conclude false economic results.[8]

Sample-correction

To select all important, but a rational number of variables featuring company performance[9], that is to correct the sample, the analyses of the primer descriptive statistics served the base. By analysing means, variances and relative variances for all variables of the double accounting manufacturing firms in 1996 and in 1999, we got extreme values. The high values of relative variances for all variables could be interpreted, that the sample includes extreme outliners, therefore frequency distribution of the total sample cannot be handled rationally.

- The highest value for relative variances practically is 2, while we got as average 23 for 1996, and 24 for 1999. The smallest values for wage-costs and the average number of employees were 8-9 (5 for employees in 1999). The most extreme values reached 57 for investment in research, and 46-43 for consolidated profits and subcontracting. Relative variances of investment and exports increased from 22, or 16 (respectively) to 32 by 1999, for fixed assets from 17 to 19. The relative variances for profit (before taxes and after it) had 30 value both in 1996 and in 1999, while for tax-payments it diminished from 16 to 13, for all assets from 13 to 12, and for FDI from 14 to 13. These results were very similar to those of the analyses of 1994 data. Since then, however, the extremities even have increased by 1999.

Our attempt to omit the extreme cases to form statistically rational sample did not succeed.

- This was possible in the middle of the eighties for 1000 industrial companies by cutting the number of firms only by 2-10%.[10] Now, by omitting more than half of the firms, the sample still included extreme cases.

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[7] Data for analyses included all double accounting firms in manufacturing between 1996-1999, with the exception of those which had zero employees, zero income and assets. The four ownership groups were: 1. = 100% indigenous, 2 = majority Hungarian, 3. = majority foreign owned, and 4. = 100% foreign owned firms. For export-orientation, also four groups: 1. = no exports, 2. = < 30% export to the output, 3. = 30-70% export-ratio, and 4. = firms with > 70% exports/ output.

[8] See Hamar: Multinationals in Hungary, 1997

[9] For 1996 28, for 1999 26 absolute, and 22 derivative variables are named in the Appendix

[10] Temesi, Jné – Törökné, Matits Á.[1984]: „A modellezhetőség feltételeinek elemzése az iparvállalatok mutatói alapján. (Sztochasztikus módszerek a döntés-előkészítésben)". (Tankönyvkiadó)

The frequency distribution of profits by firm groups in 1996 and in 1999 (Chart 5./A.) illustrates, that the average performance in each company group was very similar, except, the frequency of extreme cases was higher in the groups as the FDI ratio to the assets increased and as the time passed.

It can be clearly seen, that profitability increased in each group from 1996 to 1999 (see scale differences on the category axle). While in the first and the second (the indigenous and the majority Hungarian owned) groups there were some improvement in homogeneity from 1996 to 1999, in the third and fourth groups (the majority and total foreign owned firm groups) the frequency and the weights of the extreme cases increased. It is worth mentioning, that generally not the same firms produced the extreme results in 1999, than in 1996. This also refers to the difficulty of a sample correction. These results suggest, that omitting the extreme cases would lead us to get false economic conclusions, since the extremities seem to be the dominant.

Variable distribution

To determine the type of distribution of variables is important to decide the appropriate analytical methods. In our cases, all (except the profit variable according to the balance sheets) showed very strong left-scale skewness. Therefore, those methods, which are based on normal distribution, cannot be used, just at a highly circumspect way. The stability of the distribution in time however refers that significant structural changes did not happened in the time period. There were few differences in this respect between the all and the foreign owned firms, too.

Charts 6-7 in the Appendix illustrate the distribution of firms by size and by export-orientation in the four company groups selected by ownership pattern. It can be seen, that small firms determine each group, but the medium and especially the large firms appeared more frequently in the majority foreign owned (3. group) and in the 100% foreign (4.) owned firm groups. This did not changed much between 1996 and 1999. The Chart 7/A. shows, the more the ratio of the FDI in a firm, the higher the export-orientation. This link became stronger in the time-period. This suggests, that foreigners bought out more export-oriented firms, or/and they increased their equity relations rather in this kind of firms.

Correlation links among variables

To determine the nature of links (not casualty, but stronger or weaker moving together tendencies) between variables by pair-case linear correlation and correlation matrix, the strong parameters (>0.7, or frequently >0.9 values) suggested that much smaller number of variables could also produce sufficient information.

Main results for manufacturing industry are the following:

- Similarly to the previous years, strong (>0.9) correlation parameters emerged in 1996 between the endowments of fixed assets (material assets, stores, all assets) and the capital-stocks (own and equity capital), credits for investment, short run liabilities, domestic sales and output, material costs and depreciation. This was the

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first year, when R&D appeared in this group.[11] By 1999, the strong correlation links remained the same, however links between output, domestic sales, material costs and cash flow became weaker (>0.8 instead of >0.9 in 1996).

- Investment variables followed an interesting changing pattern in time: correlation with the assets, capital-stocks, output and material costs became much weaker in 1996 (about 0.75), than earlier (in 1994-1995), or latter. In 1999, however, it moved again very strongly together with all factor-endowment variables.

- An important change could be registered in 1999, that credits for investment moved strongly together only with the domestic sales, but did not have any relation to the exports. Investment also related mainly to the domestic sales (0.75), while with exports it moved together just by chance.

- Wage cost correlated strongly with the all assets, while it had only 0.8 parameters with fixed assets, depreciation, material costs, output, and domestic sales. Its relation was larger than 0.7 to FDI, R&D, tax-payment, and credit for investment in 1996. By 1999, links between profitability and wage costs became stronger (from >0.7 to >0.8).

- Subcontracting also lost the strong links with dividend payment (from 0.91 to 0.76) between 1995-1996, and became totally unimportant by 1999. Dividend-payment moved weakly together with exports in 1999 (0,64), and a little bit stronger links appeared with short run liabilities, with other income and profitability (>0.7).

- The different profitability variables (profit before and after taxation, profit on the own activities) moved totally together (the parameter was 0.99) in 1996. By 1999, the profit according to the balance sheets also had some links with fixed assets and investment (>0.72). This improvement related mainly to the exports (0.84), while there was no link at all to domestic sales (0.35)

- Tax-payments had no link to any of the profitability variables in 1996, opposite to the result in the previous year, when the parameter of the profit on own activities was 0.96. In 1999, taxes moved together with domestic sales (0.88) – similarly to 1996 (0.8) –, but in 1999 a weak but significant correlation could be registered with exports, too (0.59 parameter opposite to the 0.4 in 1996).

- FDI correlated strongly only to the assets variables (0.84), and somehow with material and wage costs (0.73, and 0.77) in 1996, a little stronger than in the previous year. With the fix assets, exports and output FDI hardly reached 0.7, similar to the earlier years. By 1999, FDI became more dominant in the formation of all assets (0.94 in 1999, instead of 0.84 of 1996), and a stronger link could be registered with credits for investment, also (>0.8).

- Links between FDI and the different profitability variables became stronger than earlier, in 1996: (>0.73 instead of 0.56 in 1995). While in 1999, strange changes

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[11] Unfortunatly, this very important variable of R&D is absent from the data-base in the next years.

happened: the parameters became weaker than 0.5 (except the 0.54 parameter for profit on the own activities).

- Correlation between FDI and dividend, and investment hardly passed the link by chance in 1996. The link of FDI to human capital investment also disappeared. In 1999, FDI and investment had still a very weak correlation (0.66, 0.59 in 1996), while correlation between FDI and exports disappeared (0.23, instead of the 0.72 parameter in 1996), and relaxed to the domestic sales also (from 0.74 to 0.52).

- Exports linked much less to the fix assets in 1996 than earlier (from 0.83 to 0.6). Stronger parameters appeared for material costs, output and FDI (>0.7). In 1999, exports moved strongly together only with the material costs (>0.9, instead of 0.7 in 1996). (While domestic sales had an opposite trend: correlation with material costs diminished from 0.92 to 0.59).

- R&D and credit for investment – interestingly enough – practically did not have any links with exports, opposite again to the domestic sales, where strong correlation (to human capital investment 0.89, and to credit 0.9) could be registered (just in 1996).

- Correlation improved between exports and the different profitability variables by 1996 (>0.8, instead of 0.7 in 1995). (In opposite to the domestic sales variables, which did not have links at all to the profitability variables.) Correlation between exports and wages was weak in 1996 (as regularly, 0.66), similarly to the investment (0.65), while the parameter of domestic sales and wages was much stronger (0.83). This changed radically by 1999: wage cost linked much less to the domestic sales (but still remained 0.8), while to exports disappeared (from 0.67 to 0.38).

- Variables of employment (except with salary payment of 0.52 parameter) did not show any links with any of the variables, similarly to most derived variables.

- All (except the cash flow) derived variables were uncorrelated. While the cash flow turned out the most integrated variable and moved strongly together with almost all absolute data.

Since only one-fifth of the manufacturing companies had FDI, we repeated the calculation to this group of firms. The results were very similar as we got for the whole sample. Profitability, exports, FDI and investment variables followed almost the same pattern in the group of foreign firms as in the whole sample. Out of this, we can draw the conclusions, that foreign firms had so dominant position in exports (and obviously in FDI), that they determined the parameters of the whole sample, while the general features of export-activities and profitability turned out to be very similar to the whole manufacturing company group.

- The only differences were, that the correlation parameters increased further in the foreign firm group by 1999 compared to the whole sample, or to those of 1996. Shortly, we can summarise, that even in this group, those firms which had high capital-stocks and production factors invested heavily, but this linked more to the local markets than to the exports. Links between investment, FDI and exports were hardly higher than they would be by chance (only 0.54). Exports moved strongly

together with material costs (0.9) as in the whole sample. And, as in the whole sample, the more exports, the better performance. However, links between exports and profits (before and after taxes) loosened a little bit from 1996 to 1999 (0.83 to 0.75). While FDI did not have any links to exports (0.2), and to profitability it was less than 0.5 (except profit on own activities, where it was 0.54).

Factor analyses

To group the data (to select out the redundant variables, having strong correlation parameters, at least to determine uncorrelated groups of variables), we used the factor analyses. As a result, we got well isolated and stabile groups of variables for 1994-1996. It is interesting enough, that this stabile structure of variables became very changeable since 1997. (See the tables 5 and 6 in the Appendix.)

The main lesson of the factor analyses, that despite the dominance of significantly high correlation, it does not pick up a main factor. The moving together of domestic sales and cost variables refers to the latter's price-determining role at least between 1994-1996. Since 1997-1998, however, this has been under changes, material costs link to the output, rather than to the domestic sales, while wage costs moved together (obviously with the employment) and with FDI. The emergence of exports and dividend data in a separated variable group, indicates their 'independent' life, their importance. Exports and profitability variables in a common factor could be the consequence of the improving profitability on exports after the stabilisation process. Since 1997, dividend-payments have formed a common – but in 1999 very changeable – factor with exports and profitability, which might due to the high volatility of the stock exchange.

The same analyses to foreign owned company group produced practically the same results. The only differences came out from the fact, that the first factor had larger but decreasing weight in time in this group. It is remarkable, however, that some variables (such as wage cost, depreciation, fixed assets, all profitability variables, and the number of employees) varied much more among factors in this group than in the whole sample. It is interesting, that FDI appears parallel in more than one factors.

The factor-analyses of the derived variables produced the totally similar results. The stability of these factors, however, were higher, than those of the absolute variables.

On the bases of this analyses it is evident that much less variables could determine the company performance and the parameters of factors let already to formulate the necessary regression equations. But to determine the best fitted parameters would need time-series analyses with time-lag variables (at least for investment, and FDI) (Step-wise regression)

Analyses of variances: effects of sectors

Theoretically, we can expect that repeating the same analyses by industrial sub-sectors, we could get better results, because firms in the same sectors must have similar technology and productivity, while firms in different activities could have characteristically different feature. (Sectorial effects). Our analyses for 1999 proved, that sectorial effects became determinant, while for earlier year data, hardly could be found any of these effects.

- By variance-analyses the differences and the specific features for selected company groups (the measurable effects of the concepts for selection, and their significance or non-important characters) could be revealed. (Because of the non-normal distribution of the examined variables, the variance-analyses cannot be applied in the strict statistical sense, since it will not give any information about the significance of the conclusions.) But at the bases of the values of the variances between groups (outside variances) and in the groups (inside variances), we can determine, whether the concept for selection had no effects, or in contrary, had important ones? (Its effects are unimportant, if the proportion of the outside and the inside variances <2.5 times, moderate, if it is between 2.5 and 10-times, and significant, if it is more than ten times.)

The analyses for 1995 and 1999 (for the all manufacturing and for four selected sectors, such as food, engineering, chemicals and textile-clothing industries) gave quiet interesting and surprising results.

- Shortly, for 1995 data, the calculation of variance-differences revealed, that the sectorial effects of chemistry were unimportant for all variables, while the clothing industry had significant effects on more than one variables (such as on fixed assets, investment, stores, capital, human capital, credits, domestic sales). Engineering showed strong sectorial effects on dividend payment and credits for investment. Moderate sectorial effects could be registered on profitability (before and after taxation) in all selected sectors (except chemistry), on tax-payments (with the exception of engineering), on dividend and exports, and (with the exception of clothing industry) on fixed assets, investment and on own capital-stocks. In food industry, some moderate effects emerged on credits for investment, and in engineering on the domestic sales. While all other variables turned out to be unimportant.

- Opposite to our expectations, that multinationals would produce specific features, the same analyses on the selection of the multinationals[12] in the four sectors resulted totally different picture. In 1995, this group of firms had significant sectorial effects only on state ownership (in food and engineering industries) and on private ownership (in engineering and in clothing industry). The MNC-s had significant effects also on the R&D in chemistry. Otherwise, any other variables MNC-s had unimportant effects (except a moderate one in chemistry for dividend, and credits for investment).

In contrary to the results of 1995, interestingly enough, in 1999, for several variables significant (even for the textile and food industries extreme) effects could be registered.

For the absolute variables:

- The sectorial effects of chemistry turned out in 1999 to be negligible for all variables, except exports with a moderate effects (6.5-times), and subcontracting with an extremely strong value (the variance differences reached a 138-times value).

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[12] As, there was no other possibility, firms with higher FDI proportion than 90% were supposed to be multinationals in the calculation for 1995.

- The engineering industry had significant (15 times) effects on domestic sales, and (12 times) on credits for investment, and a moderate value for long run liabilities.

- The rate of outside and inside variances in food and textile industries got extreme values for several variables. Subcontracting had a value of 96-times (in textile industry even 500!-times), credits (90-, or 124-times), exports (77, or 97-times), investment (34, and 278), and long run liabilities (26, and 57-times).

- Food industry had strong effects (11-times) on fixed assets, deprecation, output, and on the material costs variables. Moderate effects were found for factor-endowments (both fixed and capital), for profitability variables, and for tax-payment.

- Textile and clothing industry (mainly because of the dominance of the Inward Prosseccing Trade), the most variables showed extreme values. Moderated effects emerged only for dividend and wage-costs. This was the only industrial sector, where FDI and assets had significant effects. (19, and 28-times, respectively).

For the derived variables:

- In engineering, there was extreme effects only for profit remaining in the firm, and a moderated effect on the profit after taxes compared to the all fixed assets.

- Chemistry (similarly to the textile and food industries) had extreme values for wage costs per output variables (var12), cash flow per output (var1). Profit remaining in the company (var11) and profit on the own activities to the output (var5) variables also produced extreme values. Strong sectorial effects could be registered for profit after taxation to the fixed assets (var8), for tax burden (var9), for the debt to the assets (var3) and for the depreciation/investment (var17) variables.

- The textile industry differed extremely in the rate of debt to the assets, in profit (on own activities) to the output, and in the proportion of material costs to the output.

- Food industry – similar to the chemistry – had significant effects on the rate of profit (after taxation) to the fixed assets, on the tax-burden variables, and the output related material costs variables.

Opposite to the all previous results, the analyses of variances for the group of foreign owned firms by the selected sectors produced quite different results. The foreign owned engineering firms had highly significant effects almost in all variables (except the dividend and the tax-payment variables). It is interesting, that chemistry had only effects on subcontracting (with extreme value), and on exports (36-times). The food industry had more significant effects in the group of foreign firms: strong values emerged for exports, investment, credits and liabilities, output, material costs, fixed assets, and depreciation. In the textile industry only the employment and the dividend variables were unimportant, while all others had significant, or even extreme values.

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IDB: Pathfinder Document [1987] IDB.

Appendix: Charts and tables

Chart 1. The economic openness: export-orientation, import-penetration, FDI and the Current Account Deficit
GDP = 100%

	1991	1992	1993	1994	1995	1996*	1997	1998	1999	2000**
GEX/GDP	32,8	31,4	26,4	28,9	36,9	38,9	46,5	50,6	52,8	54,2
GIM/GDP	33,7	31,7	34,6	35,4	38,2	39,9	46,9	52,7	55,3	56,0
GTB/GDP	-1,0	-0,3	-8,2	-6,5	-1,3	-1,1	0,0	-2,1	-2,5	-1,8
FDI/GDP	4,4	3,9	6,1	2,8	10,0	4,4	4,6	4,1	4,0	4,3
CAB/GDP	0,0	0,9	-9,0	-9,4	-5,6	-3,7	-2,1	-4,9	-4,3	-3,9
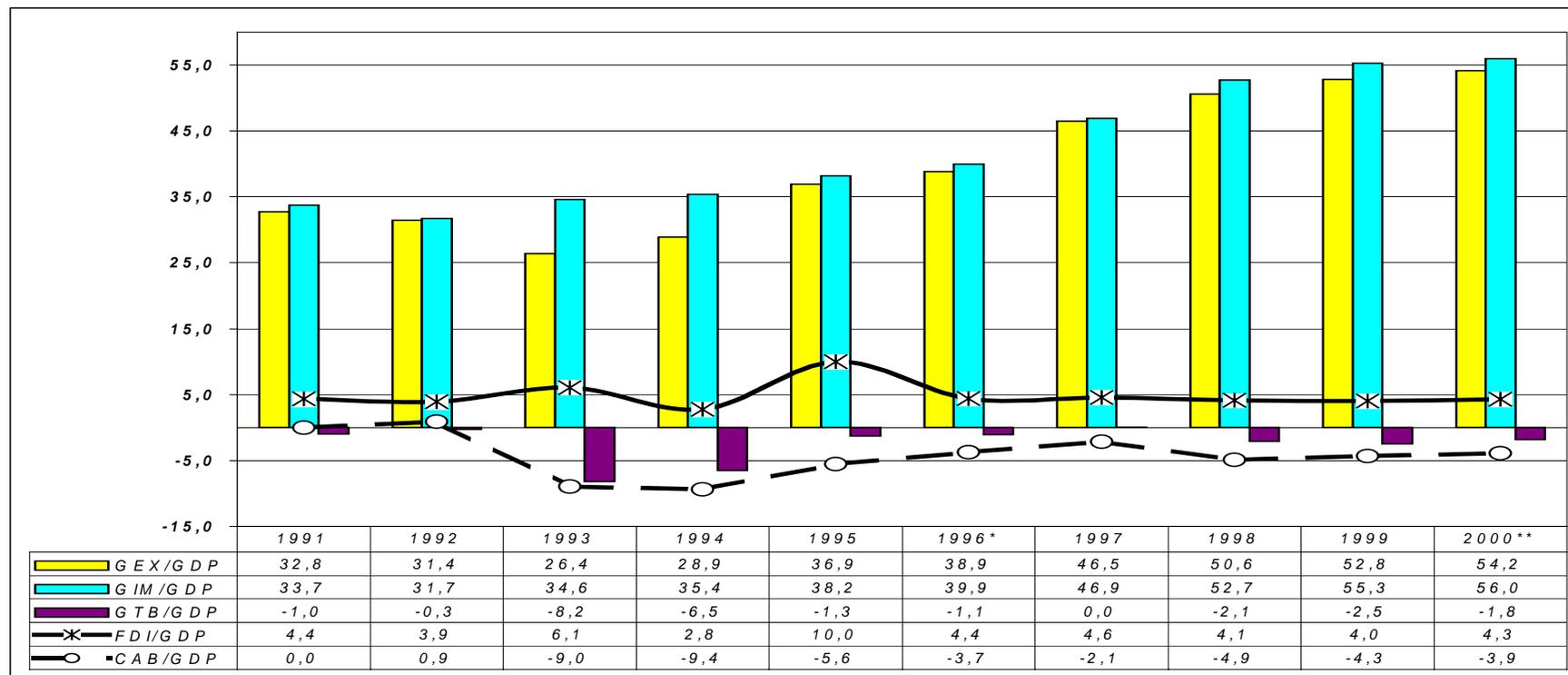
Notes: preliminary GDP data for 2000, GEX, GIM, GTB = Exports, imports and trade balance of goods and services according to the GDP statistics. FDI = Foreign Direct Investment inflows, and CAB = Current Account Balance
Sources: CSO, National Accounts and Hungarian Statistical Yearbook, and HNB, Monthly Reports.

Chart 2. Volume indices of GDP production)

% previous year = 100

Legend: Agriculture, Industry, Construction, Trade, Manufacturing, Services, GDP, Polinom. (GDP)
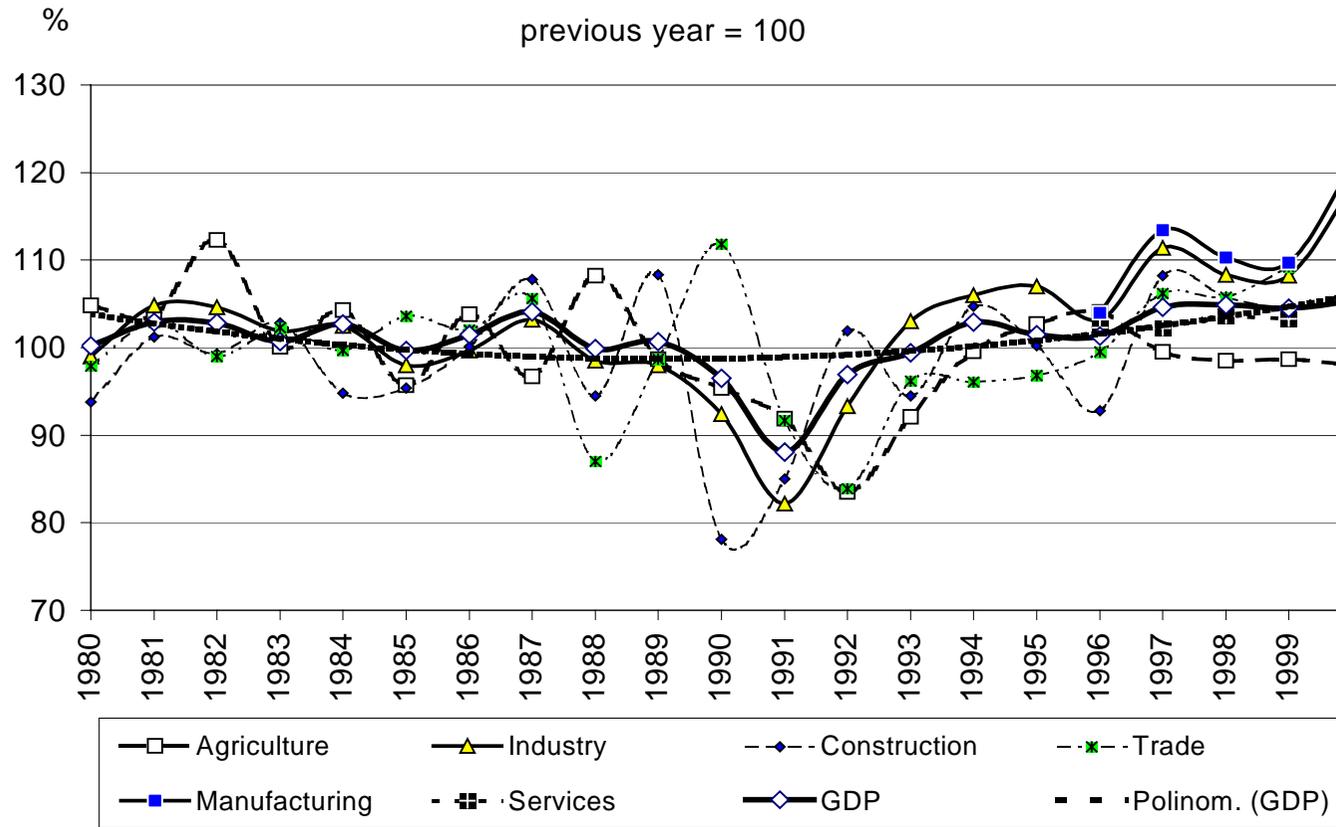
Chart 3. Volume indices of GDP: consumption and investment
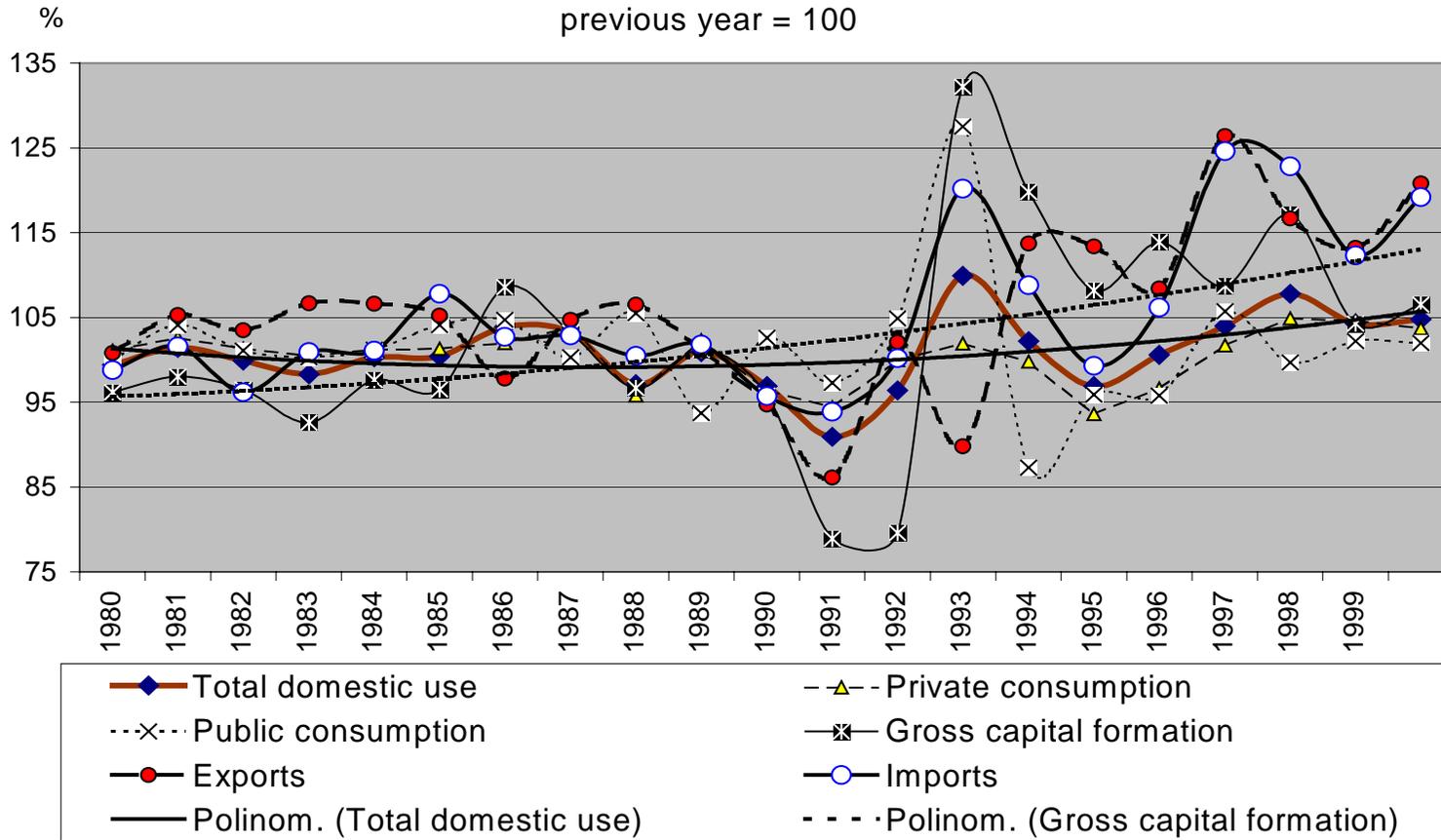
previous year = 100

Chart 4. Volume indices of Industrial Production by sectors

previous year = 100
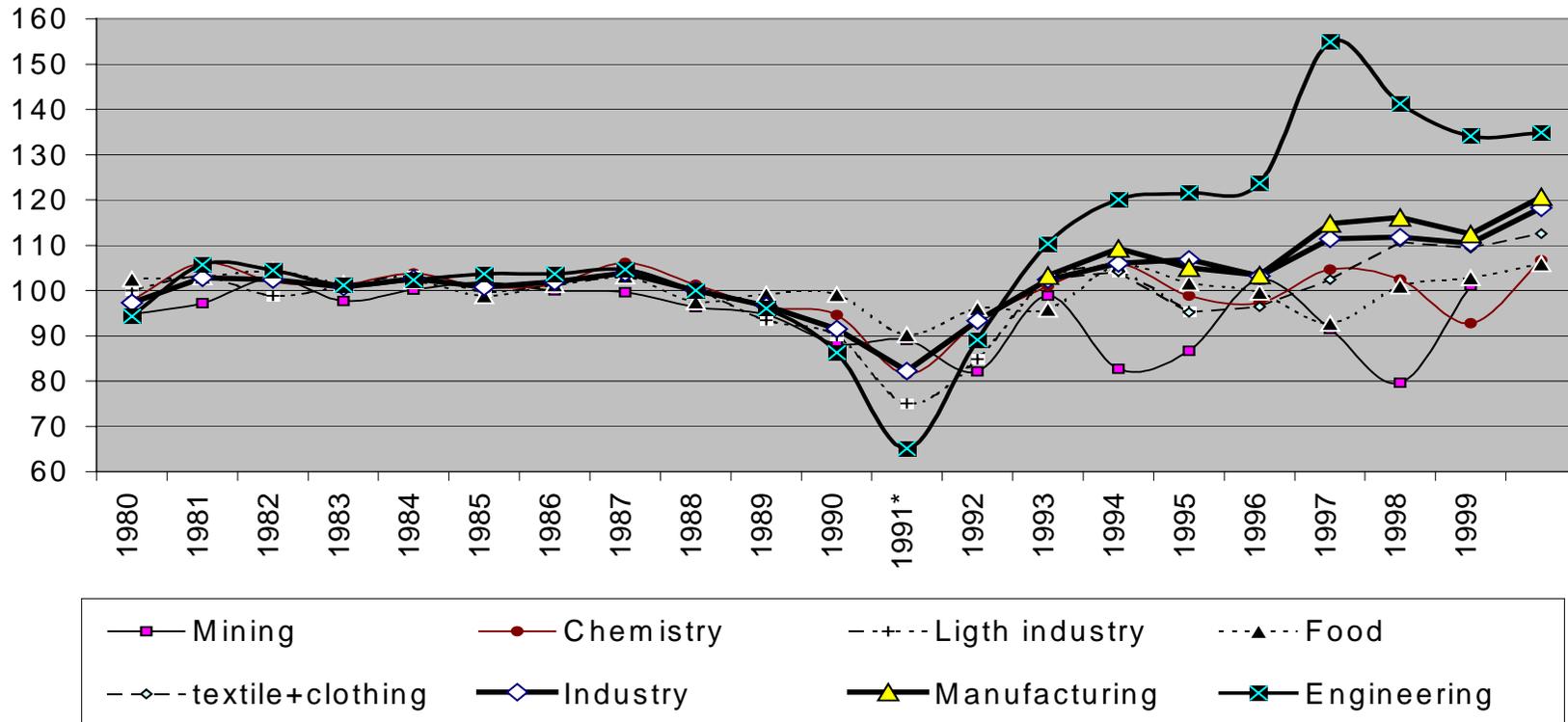
Chart 5. Profit after taxation by company groups selected ownership structure. 1996 and 1999
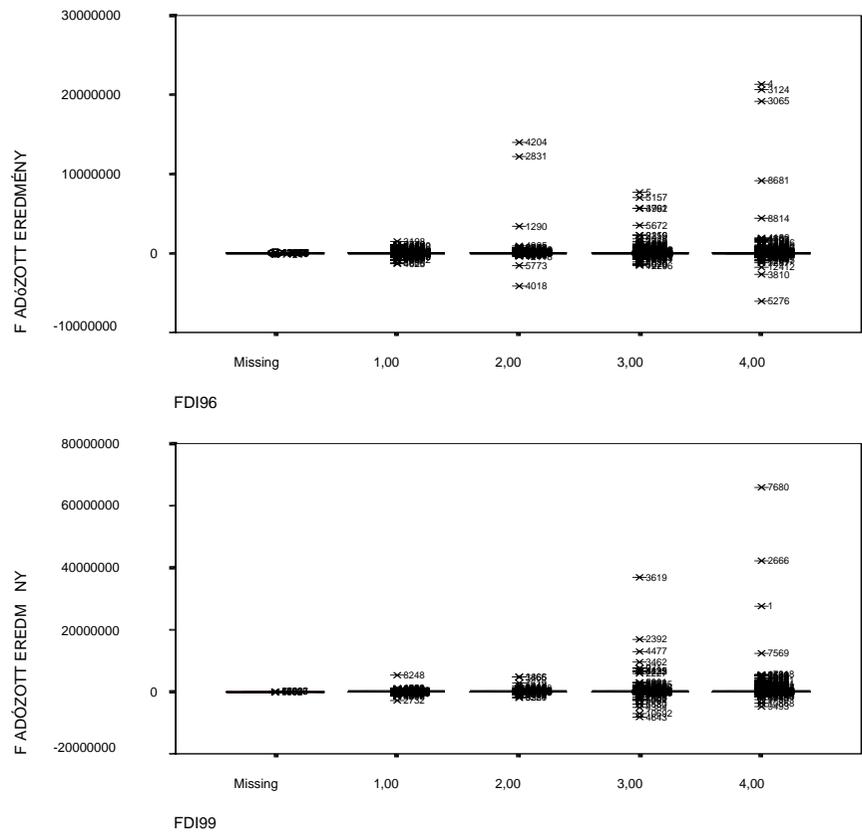
Note: only a minority of the extreme cases could be drawn because of the memory shortage

1. company group = 100% indigenous firms, 2. = majority Hungarian owned, 3. = majority foreign owned, 4. group = 100% foreign owned firms.

Chart 6. Distribution of firms by size-groups according to the main ownership pattern, 1996-1999
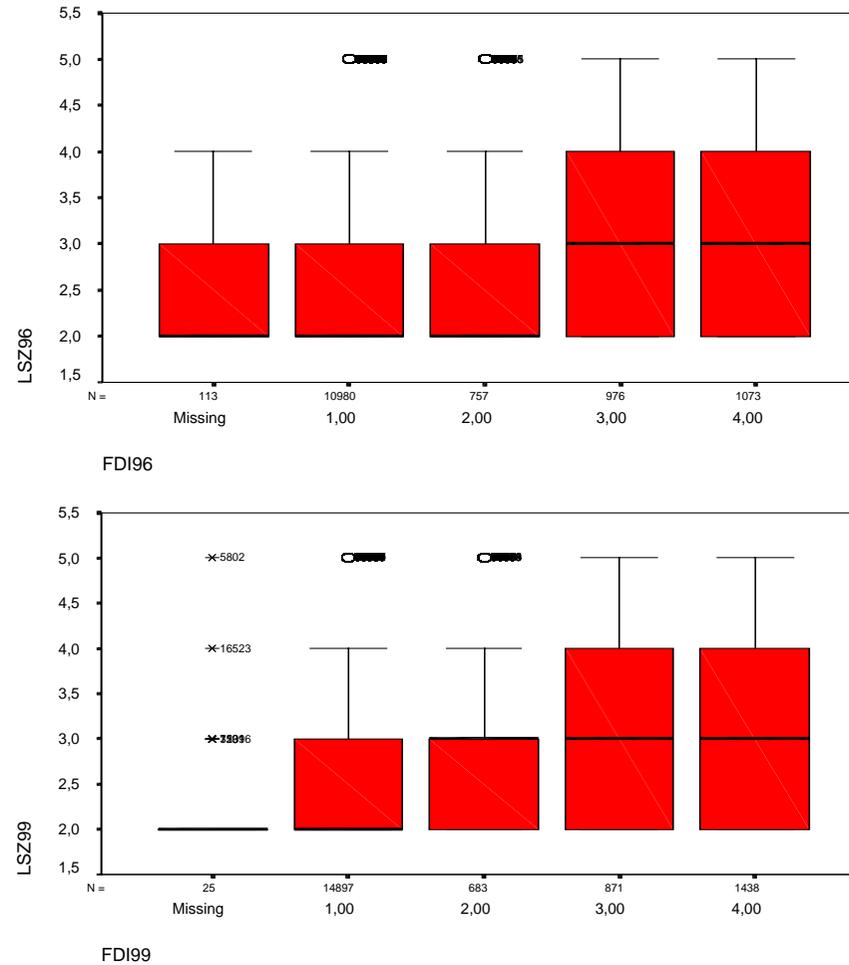
Notes. LSZ 1 = mini firms with 1-10 employees, 2 = small firms, with 10-50 employees, 3 = medium- size companies, 50-250 employees, 4 = large firms with more than 250 employees. The company groups according to the ownership structure are the same as at the previous chart.

Chart 7. Export-orientation by the main ownership pattern
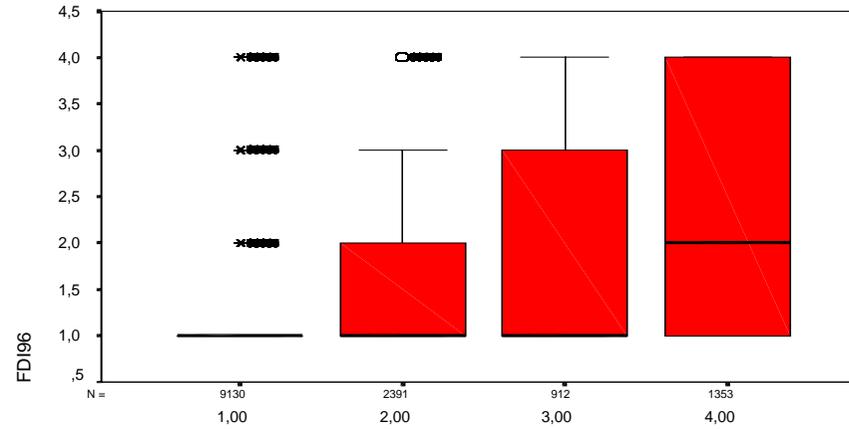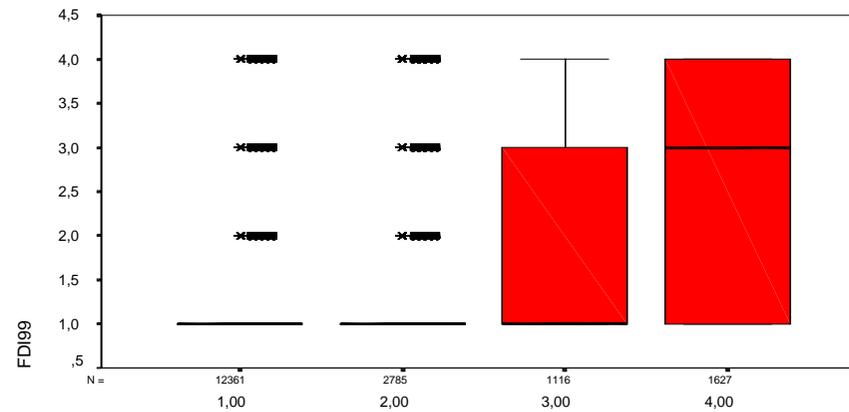
Notes: EXAB = exports to the output in percentage, 1 = no exports, 2 = the ratio of the exports to the output is less than 30% 3 = the export/output ratio is between 30-70%, 4 = the export-orientation is higher than 70% of the output.

Table 1. Changing role of the foreign owned firms by economic sectors
1992-1996-1998-1999

Sectors	Number of foreign firms pieces				Share of foreign firms in all by number percentage				FDI share in the assets of the sector percentage			
	1992	1996	1998	1999	1992	1996	1998	1999	1992	1996	1998	1999
A.	164	677	734	735	5,3	9,4	11,3	10,9	0,8	6,1	7,2	9,8
B.	2	12	16	12	4,7	13,2	14,8	11,4	1,5	12,3	12,9	5,9
C.	45	74	75	67	32,8	31,8	27,0	22,3	15,0	34,9	27,0	28,6
D.	*2548*	*3893*	*3962*	*3800*	*21,9*	*21,3*	*18,5*	*17,7*	*20,5*	*51,1*	*59,8*	*60,2*
E.	13	37	50	52	8,6	10,8	11,9	11,9	0,3	21,4	31,2	28,4
F.	693	928	859	799	12,5	10,6	7,9	7,3	16,8	41,5	28,5	24,8
G.	*5422*	*9271*	*9324*	*8600*	*27,5*	*25,2*	*21,6*	*20,1*	*14,9*	*36,2*	*46,2*	*70,2*
H.	433	739	809	764	23,7	21,4	18,3	16,3	15,9	38,6	31,2	30,1
I.	516	698	724	707	23,1	17,4	14,6	13,5	2,6	22,9	22,6	29,2
J.	*110*	*213*	*208*	*231*	*17,9*	*15,8*	*12,7*	*14,1*	*22,1*	*43,6*	*48,2*	*65,5*
K.	*1923*	*3064*	*3851*	*4283*	*19,7*	*14,7*	*13,1*	*13,4*	*5,6*	*20,5*	*25,3*	*55,8*
M.	91	101	80	79	24,8	15,0	9,5	8,3	30,6	12,7	11,2	9,2
N.	334	128	115	103	19,8	12,0	6,8	5,6	7,3	45,6	28,1	27,3
O	69	442	436	398	20,4	11,0	8,2	7,3	6,6	5,2	18,7	18,4
Total	12363	20278	21244	20632	21,6	19,2	16,2	15,4	10,1	31,6	37,6	49,9

Notes: A. Agriculture, wild animal and forestry, B. Fishing, C. Mining, D. Manufacturing, E. Electric-energy, gas-, stem-, water supply, F. Construction, G. Trade, H. Hotel, and catering, I. Transportation, warehousing, post, and telecommunication, J. Financial services, K. Real-estate, consulting, M Education, N. Health and social care, O. Other public services.

Source: KOPINT-APEH, The double accounting firms' balance sheets. the author's calculation

Table 2. The role of the FDI* in manufacturing industry 1992-1999
1992-1996-1998-1999, proportion, percentage

Manufacturing	The share of the foreign firms to the total number of companies, percentage			
Percentage				
	1992	1996	1998	1999
Number of companies	21,9	21,3	18,4	17,7
A. Gross fixed assets	29,2	71,4	76,9	77,2
Investment	42,5	82,5	85,3	84,7
D. Statuary capital	28,0	72,3	78,0	78,3
I. Net Income on sales	27,4	64,3	71,0	73,2
Net income on domestic sales	25,7	56,5	58,1	58,3
Net income on exports	31,7	78,8	86,4	88,7
IV. Expenditure on material inputs	26,5	62,5	70,7	73,4
V. Wages and salary type costs	26,6	55,1	59,9	61,0
VI. Depreciation	28,5	76,6	78,8	78,5
A. Profits (own activities)[a]	-25,2	78,8	84,2	83,7
E. Profits before taxation [a]	+18,0	85,8	87,3	84,3
F Profits after taxation [a]	+19,9	91,0	89,9	86,5
Assets	34,9	68,0	73,7	73,6
Out off it: state ownership	13,7	49,8	55,0	52,7
Average number of employees	24,5	40,6	47,5	48,2
Average number of employees				

Notes: * Partially or totally foreign owned firms compared to all and to the indigenous firms. * In the first column, the negative sign is due to the fact that the results in the total manufacturing industry as average were negative, while the foreign firms as average produced positive ones in 1992. The + signs show the percentage rate of the negative results of the foreign firms compared to the total.

Source: KOPINT-APEH, The double accounting firms' balance sheets.

Table 3. The role of the FDI* in manufacturing industry 1992-1999

1992-1996-1998-1999, dynamic growth, percentage

Manufacturing	Foreign firms				Indigenous firms				All companies			
Percentage	Growth rate, 1992 =100, 1996 = 100%, and 1998 = 100%											
	1996/ 1992	1998/ 1996	1999/ 1998	1999/ 1996	1996/ 1992	1998/ 1996	1999/ 1998	1999/ 1996	1996/ 1992	1998/ 1996	1999/ 1998	1999/ 1996
Number of companies	168.6	100,0	97,6	97,6	163,8	120,9	101,3	122,5	164.8	116,4	100,7	117,2
A. Gross fixed assets	400,3	161,3	118,9	191,8	63,1	120,7	117,1	141,4	158,3	149,7	118,5	177,4
Investment	611,1	168,2	124,2	208,9	95,6	137,3	129,8	178,2	314,5	162,8	125,0	203,5
D. Statuary capital	419,9	131,3	150,7	197,9	62,3	123,8	115,7	143,2	162,2	155,9	117,2	182,8
I. Net Income on sales	666,8	183,7	117,1	215,2	139,8	134,8	104,9	141,4	284,1	166,2	113,6	188,8
Net income on domestic sales	612,3	142,3	106,6	151,7	163,2	133,5	105,8	142,3	278,8	138,5	106,2	147,1
Net income on exports	1078,5	239,7	125,6	301,0	134,8	140,0	101,7	141,2	434,3	218,6	122,3	267,4
IV. Expenditure on material inputs	690,3	191,3	117,8	225,4	149,5	132,4	102,9	136,2	293,0	169,2	113,5	192,0
V. Wages and salary type costs	429,0	162,4	112,0	182,0	127,0	133,0	107,3	142,7	207,3	149,2	110,1	164,3
VI. Depreciation	490,2	166,4	123,4	205,4	59,5	146,7	125,7	184,5	182,3	161,8	123,9	200,5
A. Profits (own activities)[a]	4833,8	215,8	100,1	216,1	-261,7	150,5	104,2	156,9	-1545,6	201,9	100,8	203,5
E. Profits before taxation [a]	-1265,8	233,3	96,2	224,4	-46,0	204,8	123,6	253,1	-265,8	229,3	99,6	228,5
F Profits after taxation [a]	-910,0	240,0	94,5	226,7	-22,3	273,0	131,4	358,9	-198,9	242,9	96,2	238,6
Assets	256,1	131,3	102,1	134,0	64,8	99,3	102,8	102,1	131,5	121,1	102,2	123,8
out off it: state ownership	125,1	41,0	101,4	41,6	19,9	33,3	111,4	37,1	34,3	37,2	105,7	39,3
FDI	327,9	141,6	103,0	145,9	0	0	0	0,0	327,9	141,6	103,0	145,9
Average number of employees	144,9	122,1	99,9	122,0	68,8	92,0	97,1	89,3	87,5	104,2	98,5	102,6

Notes: * Partially or totally foreign owned firms compared to all and to the indigenous firms. [a] In the first column, the negative sign is due to the fact that the results in the total manufacturing industry as average were negative, while in 1996, each group had positive results.

Source: KOPINT-APEH, The double accounting firms' balance sheets.

Table 4. The main economic indicators by company groups in manufacturing
1992-1996-1998-1999

Main economic indicators	Foreign firms				Indigenous firm				All companies			
Percentage and billion HUF	1992	1996	1998	1999	1992	1996	1998	1999	1992	1996	1998	1999
Number of employees per companies (capita/pieces)	89	76	92	95	72	30	23	22	75	40	36	35
Net income on sales per capita (billion HUF/capita)	2,3	10,6	16,0	18,7	2	4	5,9	6,4	2,1	6,7	10,7	12,3
Exports/capita (billion HUF/capita)	0,6	4,5	8,9	11,1	0,4	0,8	1,3	1,3	0,5	2,3	4,9	6,1
Exports to the output (%)	26,3	42,5	55,5	59,5	21,3	20,6	21,3	20,7	22,7	34,7	45,6	49,1
Gain or losses to the statuary capital (Profit on the own activity in the percentage of the own capital stock) (%)	1,5	17,6	22,6	19,3	-3	12,4	15,1	13,6	-1,7	16,2	21,0	18,0
Profit (own activity) to the assets (%)	1,4	27,2	44,7	43,8	-3,8	15,5	23,5	23,8	-2,0	23,4	39,1	38,5
Investment/statuary capital (%)	6,8	9,9	9,9	10,5	3,6	5,5	6,1	6,8	4,5	8,7	9,1	9,7
Investment to the all assets (%)	7,2	15,3	19,6	23,8	4,8	6,9	9,5	12,0	5,6	12,6	16,9	20,7
Investment to the FDI-stock (%)	10,9	20,3	24,1	29,1	0	0	0	0	25,7	24,6	28,3	34,4
Profit after taxation to the profit before taxes (%)	-126,8	91,2	93,7	92,1	-112,2	54,5	72,6	77,3	-114,8	86	91,1	89,8
Long run liability to the statuary capital (%)	22,8	24,3	20,8	21,4	10	17,5	19,6	18,8	14	22,5	20,6	20,8
Short run liability to the statuary capital (%)	62,3	69,2	67,9	68,8	56,2	101,1	98,9	96,5	57,9	78	74,7	74,8

Notes: since in 1992 both company groups as average had negative results before and after taxation, the negative sign here, means, how mush taxation increased the losses. In the next years, both groups as average had positive results, the indexes show, how much the taxation decreased the gain.
Source: the same as at the previous tables.

Table 5. The role of the foreign owned firms in manufacturing by sectors
1996-1999

D	A3	Output (Net income on sales)				Number of employees			
		Distribution by sectors		Share of the foreign firms in the sectors		Distribution by sectors		Share of the foreign firms in the sectors	
		1996	1999	1996	1999	1996	1999	1996	1999
DA	Food, drink and tobacco	24.5	17.4	53.5	60.5	17.9	16.7	39.9	43.1
DB	Textiles	3.7	3.6	47.9	56.4	12.6	13.7	35.6	39.6
DC	Leather and footwear	0.9	0.8	47.1	64.4	3.1	3.2	44.8	57.5
DD	Wood products	1.6	1.5	47.9	45.8	2.7	3.2	27.3	21.4
DE	Paper, printing and publishing	7.0	5.3	63.7	50.5	5.0	5.1	33.7	31.0
DF	Mineral products.	9.7	7.3	99.2	99.9	2.3	2.0	99.8	99.5
DG	Chemicals	9.6	7.1	79.9	84.6	5.9	5.2	71.5	73.9
DH	Rubber and plastic	3.4	3.4	56.0	59.3	3.4	4.4	39.0	50.3
DI	Non-metallic minerals	3.2	2.8	64.0	71.0	4.5	3.9	44.8	49.5
DJ	Metal products	9.8	9.2	38.8	47.6	10.5	11.7	28.2	36.8
DK	Machinery and equipment	7.2	5.3	55.9	56.7	14.2	8.4	23.0	43.6
DL	Electric equipment	12.0	20.6	77.6	88.0	11.1	14.4	59.4	65.7
DM	Transport equipment	5.9	14.3	81.4	94.7	3.5	4.7	44.9	67.4
DN	Other manufacturing	1.4	1.6	34.4	37.9	3.2	3.4	25.4	27.8
	Total	100	100	64.3	73.2	100	100.0	40.6	48.2

Source: the same as at the previous tables

Table 5. (cont.) The role of the foreign owned firms in manufacturing by sectors

1996-1999

distribution and shares in percentage

D	A3	Exports				Exports to the output (%)			
		Distribution by sectors		Share of the foreign firms in sectors		Foreign firms	Indigenous firms	Foreign firms	Indigenous firms
		1996	1999	1996	1999	1996		1999	
DA	Food, drink and tobacco	13.7	6.5	62.6	71.0	22.7	15.6	21.4	13.4
DB	Textiles	5.1	4.1	58.9	72.0	58.2	37.2	71.9	36.2
DC	Leather and footwear	1.3	1.0	65.3	84.9	71.7	34.0	85.3	27.3
DD	Wood products	1.5	1.1	71.3	70.3	49.8	18.5	58.2	20.8
DE	Paper, printing and publishing	4.8	1.4	93.6	71.7	35.0	4.2	19.0	7.7
DF	Mineral products.	4.2	2.1	100.0	100.0	15.0	0.3	13.9	0.0
DG	Chemicals	10.2	6.3	89.5	91.3	41.3	19.3	47.3	24.7
DH	Rubber and plastic	3.6	2.9	61.6	70.6	40.3	31.9	50.3	30.5
DI	Non-metallic minerals	1.9	1.3	74.3	79.9	23.9	14.7	25.5	15.7
DJ	Metal products	10.4	8.5	54.2	65.0	51.9	27.8	62.1	30.4
DK	Machinery and equipment	9.4	4.5	81.6	81.5	66.8	19.1	59.7	17.8
DL	Electric equipment	19.9	33.2	93.9	96.9	69.7	15.8	87.4	20.4
DM	Transport equipment	12.5	25.8	87.7	98.3	78.3	48.2	92.3	27.9
DN	Other manufacturing	1.4	1.2	61.3	65.8	58.0	19.3	64.5	20.4
	Total	100	100.0	78.8	88.7	42.5	20.6	59.5	20.7

Source: as at the previous tables.

Table 6. Percentage weigths of the factors for the absolute variables

Years	1. factor		2. factor		3. factor		4. factor	
	A	B	A	B	A	B	A	B
1996	49.4	53.0	24.5	24.5	11.5	10.3		
1997	43.5	44.0	23.0	23.4	21.7	22.3		
1998	41.0	42.1	30.0	29.2	14.1	13.9	5.9	5.8
1999	38.2	39.4	32.0	32.4	12.2	10.9	6.3	6.7

Notes: A = all manufacturing firms, B = firms with foreign capital.
Varimax rotation by Kaiser Normalisation, in 1996 5, in 1997-1998 6, and in 1999 after 14 iterations.

Table 7. Factors of the absolute variables

Rank of order	1996		1997		1998		1999	
	A	B	A	B	A	B	A	B
Credit for investment	1	1	1	1	1	1	1	1
01 Net income on domestic sales (output)	1	1	1	1	1	1	1	1
07 Input value of sold goods	1	1	1	1	1	1	1	1
VI Depreciation	1	1	1	1	1	1	1	1-2
II. Fixed assets	1	1	1	1	1	1	1	1-2
All capital-stock	1	1	1	1-2	1-3	1-3	1	1
All ASSETS	1	1	1	1	1-2	1-2-3	1-2	1-2
D Statuary capital	1	1	1	1	1-2	1-3-2	1-2	1-2
IV Material costs	1	1	1	1-2	2-1	2-1-4-3	2-1-3	2-1-3
I. Output	1	1	1	1-2-3	2-1	2-1-4-3	2-1-3	2-1-3
II. Short run liabilities	1	1	2-1	2-1-3	2-1-3	2-1	2-3-1	2-3-1
I. Stores	1	1	1	1	1-2	1-2-3	2-1-3	2-1-3
I. Long run liabilities	1-2	1-3	1-4	1-4	1-2	1-2	1-2	1
XIII Tax-payment	1-2	1-2	1	1	1	1	1	1
V Wage and salary costs	1-2	1-2	3-1	3-1-2	1-3	1-3-2	1	1-2
Investment	1-2	1-2-3	1	1	1-2-3	1	1-2	1-2
Average statistical number of employees	1-2	1-2	3-1	3-1-2	3-1	3-1-2	3-1	1-3-4-2
FDI	2-1-3	2-1-3	3	3-1-2	3-1	3-1	1-4-3	1-3
O2 Exports	2-3	2-3-1	2	2-3	2	2	2-3	2-3
F Profits after taxation	2	2	2	2-3-1	2-1-3	2-1-3	2-1-4	2-4-1
E Profits before taxation	2	2	2-3	2-3-1	2-1-3	2-1-3	2-1-4	2-1-4
A. Profits on the own activities	2	2	2-3	2-3-1	2-1-3	2-1-3	2-1-3-4	2-1-3
VI. Profits according to the balance sheets	2	2	3	3-1-2	1-2-3	1-2-3	2-1	2-4-1
II. Other incomes	2	2	3	3-2-1	3	3	3-1-4-2	3-4-1-2
19 Dividend-payment	3	3-2	2	2	2	2	3-2-1	3-2-1
08 Value of subcontracting activities	3	3-2	2	2	4	4	4	4

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.
Notes: A = the whole manufacturing, B = The foriegn owned manufacturing firms. Each group of variables is seperated by lines: the contious line means a new group, while the dotted lines illustrate separation inside a group

Tabel 7. Percentage weights of factors for the derivated variables

	1 factor	2. factor	3. factor	4. factor	5. factor	6. factor	7. factor	8. factor
1996	21.5	11.4	8.3	6.7	5.0	4.7	4.6	
1997	25.7	10.9	8.5	8.0	5.4	4.9	4.6	
1998	22.8	10.4	8.5	8.5	5.9	4.8	4.7	
1999	18.4	11.4	9.0	8.8	8.4	5.1	4.6	4.6

Table 8. Factors of the derivated variables

	Rank	1996	1997	1998	1999
Indices to the output					
Cash flow/output	VAR1	1	1	1	1
Profit before tax to output	VAR6	1	1	1	3
Profit after tax to output	VAR7	1	1	1	3
Profit (own activity)/output	VAR5	1	1	1	1
Wage costs to output	VAR12	-1	-1	-1	-1
Material costs to output	VAR13	-1	-1	-1	-1
Indices to emploment:					
Output/employees	VAR14	2	2	2	2
Brutte profit/employees	VAR2	2	2	2	2
Assets/employees	KL	2	2	2	2
Wages/employees	VAR16	2	2	2	2
Exports/employees	VAR15	2	2	5	2
Grouping chategories					
Export/output	EXAB	3	3	3	4
Employees/firm	LSZ	3	3	3	4
FDI/all assets	FDI	3	4-3-2	3	4
Indices to the assets					
Profit after tax/all assets	VAR8	-4	3 (-4)	4	5
Debt/all assets	VAR3	4	4	-4	-5
Rate of return					
Profit remaining in the firm	VAR11	5	-5	-7	With negative values in the all 7
Dividend/statuary capital	VAR10	-5	5	6	
Depreciation /investment	VAR17	6	7	6	7
Tax-burden: taxes/profit before taxation	VAR9	7	5	7	8
Cash Flow (CF) to the assets	VAR4	7	6	-6	5
Output + other income – material costs - wage costs	CF	With negative values in the all 7	6	5	7

Note: the same as at the previous table.

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