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**RESTRUCTURING AND
EFFICIENCY IN THE
ESTONIAN MANUFACTURING
INDUSTRY: THE ROLE OF
FOREIGN OWNERSHIP**

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Tartu 2002

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RESTRUCTURING AND EFFICIENCY IN THE ESTONIAN MANUFACTURING INDUSTRY: THE ROLE OF FOREIGN OWNERSHIP

Helena Hannula¹, Katin Tamm²

Abstract

As a result of the recent privatisation process, a large amount of foreign direct investments have moved into the transition economies. This inflow has undoubtedly left its imprint on the restructuring process of these countries. The purpose of the present paper is empirical analysis of the role of foreign owners in the restructuring process of Estonian manufacturing enterprises and their contribution towards raising efficiency in this industry. The authors' main hypothesis is that foreign ownership is generally instrumental in increasing efficiency at company level. The second hypothesis is that enterprises representing different forms of ownership use different models for restructuring.

The authors compared the efficiency indicators of domestic and foreign-owned enterprises in the manufacturing sector, applying the pyramid of efficiency worked out by the British Institute of Management and the Centre for Interfirm Comparison. Firm-level data of the Estonian Statistical Office for the period 1995–1999 were used.

The analysis led us to the conclusion that foreign enterprises do contribute to increasing efficiency at company level. The paper indicates, additionally, that foreign enterprises are mostly engaged in strategic restructuring. The reasoning here is that during the observation period the labour productivity of foreign enterprises in-

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creased due to sales growth. Moreover, foreign enterprises are more capital-intensive, pay higher salaries, are more export-oriented, have more assets per employee and a higher investment capability. Domestic enterprises, on the contrary, are more likely to use re-active restructuring. The most essential signal of re-active restructuring is the fact that the growth of these enterprises' labour productivity is achieved owing to a reduced number of employees, decreasing costs, and low returns on capital.

However, there are some important signs, showing that domestic enterprises have also become engaged in strategic restructuring, which indicates that foreign investors motivate domestic enterprises to follow their strategy. Thus, while the use of their earlier model — re-active restructuring — can mean delays in regaining the lost advantages, then involvement in strategic restructuring will help domestic enterprises to conform to the environmental changes facing countries in transition. The results of the present paper indicate the relevance of foreign direct investment in speeding up restructuring of the manufacturing industry of Estonia.

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Introduction

Most transition economies of Central and Eastern Europe have declared as their official policy their intention to attract additional foreign direct investments. However, there is an active debate going on in the economic circles of these countries about the issues such as how extensive foreign ownership should be allowed, if it isn't the foreign investors involved who reap most of the benefits, and whether there is a risk that a large share of foreign ownership might produce some negative externalities for the economic policy and overall development of these countries.

Many authors argue that foreign direct investments played a decisive role in helping national enterprises to overcome the hardships of restructuring and in supporting economic growth. (Carlin *et al.*, 1994; Djankov, 1999; Earle *et al.*, 1996; Frydman *et al.*, 1997). Nowadays it is acknowledged that the change of ownership structure is vitally important for raising an enterprise's efficiency, however, it will merely create a possibility for growth. In order to raise efficiency, a comprehensive restructuring of the enterprise is necessary. As owing to the privatisation process large amounts of foreign direct investments have moved into the Central and East European countries, there is an upsurge of interest among researchers in the actual function of foreign direct investments in the restructuring of enterprises.

The purpose of the present authors is to empirically analyse the foreign owners' role in the restructuring process of Estonian enterprises and their contribution to raising the efficiency of the manufacturing industry. Efficiency is handled as changes in the main performance indicators of enterprises compared with the success of other enterprises in that field during the proposed period.

Inasmuch as success in restructuring is considered in terms of efficiency improvement, the current paper, in order to analyse and compare enterprises' efficiency, will use the pyramid of efficiency worked out by the British Institute of Management and the Centre for Interfirm Comparison. The pyramid approaches the efficiency analysis deeply and comprehensively, studying efficiency systematically as a set of indicators, wherein final efficiency is deter-

mined by the operating profit earned on the capital employed. It allows one to distinguish between the reactive and strategic restructuring behaviours of firms.

Therefore it is important that the change in the level of efficiency should not be viewed as a mere fluctuation of the main performance indicators (productivity, profitability), but as a result of direct and indirect factors influencing the management and overall performance of an enterprise. As a rule, the authors in recent pertaining literature use four or five performance indicators for analysing the restructuring of enterprises (Bevan *et al.*, 1999; Frydman *et al.*, 1997; Linz *et al.*, 1998). Unlike that, the current paper will examine ten enterprise performance indicators. Here it is important to emphasise that mainly the technical, not managerial performance of enterprises is under consideration. In order to study organisational restructuring of enterprises, one would need questionnaires and case study surveys, but this paper can dispense with them.

The paper is structured as follows: the first part will give the theoretical considerations about enterprise restructuring and efficiency; the second part will be dedicated to the description of methodology and data used in the empirical analysis; the third part of the paper will present the main characteristics of the Estonian manufacturing industry; and the final part will give the results of the empirical analysis.

The analysis is based on a comparison of foreign and domestically owned firms in Estonia, relying on data from their balance sheets and income statements. The available database for the period 1995–1999 enabled us to compare a number of performance indicators for foreign investment enterprises and domestically owned enterprises in general terms.

At an intuitive level, it is logical to presume that foreign investment enterprises are more successful restructurers, especially in strategic restructuring, as this needs both physical and financial capital which is scarce, especially in the transition period. Also the imperfect products, labour and capital markets tend to generate restrictions to the process of restructuring. This all seems to give a better position to foreign investors who are likely to have an impact on industrial efficiency due to their ownership-specific and internalisation advantages.

This paper contributes to a comprehensive empirical analysis which enables to indicate the effect of foreign direct investments on fastening the enterprises' restructuring process and increasing their international competitiveness and to compare the re-active and strategic restructuring in Central and Eastern European Countries. The results can be used to analyse policies and developments in the host country concerning the attraction of foreign direct investments.

1. Theoretical background

The concept of enterprise restructuring has caused much debate. Usually, in the context of transition economies, enterprise restructuring is interpreted as adjustment of a formerly state-owned enterprise to market economy requirements. The progress made in restructuring is measured by the improvement in the main performance indicators. In literature two different types of enterprises behaviour have been distinguished between, *viz.* “re-active”³ and “strategic”⁴ restructuring. The restructuring, which is undertaken to improve competitiveness of cost without major investment into the plant and equipment, and includes labour shedding, wage reductions, product decreases, changes in assortment and selling of assets and old inventory, is called re-active restructuring. In this case changes in the organisation and its scope are minimal. Strategic restructuring involves a forward-looking strategic orientation — creation of a new product mix, changes in the organisation, accounting and control systems, quality improvement, radical reorganisation of product lines and processes, investment into new technology, and research and development work. (Bonin, 1998; Carlin *et al.*, 1997; Ericson, 1998; Grosfeld *et al.*, 1995; Lieberman, 1994). (See also Figure 1).

³ Also the terms defensive and passive restructuring are used.

⁴ Also the terms active and deep restructuring are used.

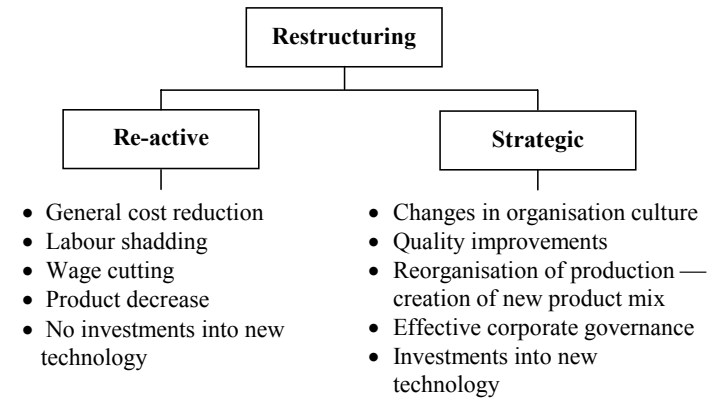


Figure 1. Characteristics of re-active and strategic restructuring. (Authors' figure derived from views of Bonin, Carlin, Ericson, Grosfeld and Lieberman)

Several authors argue that re-active restructuring is proper for all enterprises at the beginning of transition (Carlin, Landesmann, 1997). Others claim that this holds true only for domestically owned enterprises, as they do not have the necessary resources for strategic restructuring. In a similar way, it has been suggested that since strategic restructuring is very capital-consuming, an equity by foreign investors is needed. Thus, foreign-owned firms are usually more actively engaged in strategic restructuring. (Meyer, 1998; Schusselbauer, 1999).

In general, both types of restructuring will help raise the level of efficiency. The difference lies only in the types of means used for that purpose, and how the desired result is achieved. Many studies claim that foreign investment enterprises bring along an increase in the level of efficiency faster than domestic enterprises (Carlin *et al.*, 1994; Djankov, 1999; Frydman *et al.*, 1997). The rationale behind it is that foreign investment enterprises can affect efficiency by raising productivity owing to their own activities and via the spill-over effect on domestic enterprises. This relates to the concept of ownership-specific advantages of foreign investors as a precondition to investing abroad, and to the concept of internalisation advantages, originating from being part of a multinational enterprises (MNE) network (Dunning, 1993; Rojec, 1998). The current paper

looks at the impact of foreign direct investments on efficiency from one side, that is, their impact owing to their own activities, but not on domestic enterprises through spill-over effect.

The key role of privatisation in the process of enterprise restructuring has been widely acknowledged (Pohl *et al.*, 1997). However, it has been argued that privatisation itself does not cause a rapid restructuring process. Additionally, it is necessary to carry out other political reforms, such as the liberalisation of prices and trade, the creation of an attractive climate for foreign direct investment, and the implementation of antitrust policy (Rausser, 1992). Despite that, clarity and transparency of the privatisation policy and the choice of the privatisation methods have an essential role in determining the nature of the restructuring process (Ekedahl, 1997). Furthermore, it has been suggested that the success of restructuring depends on when (year) and to whom (ownership type) the enterprise is privatised (Purju *et al.*, 1998).

Broadly speaking, transition economies use three methods of privatisation — sales to outside owners, equal access through voucher privatisation, and management-employee buy-outs (Transition Report, 1999). In the period 1990–1996, the sales method or outside privatisation was more an exception than rule in the transition economies. In the Czech Republic, Lithuania, the former Republic of Yugoslavia, Poland, and Russia, privatisation was mainly accomplished by privileged insiders, either by means of voucher privatisation with significant concessions to insiders or through management-employee buy-outs. The complex design of the Polish mass-privatisation plan, especially the need to set up state-appointed investment funds, implied that delays and more time would be blocking the privatisation process. In most privatised Russian firms, insiders have either a large minority or a majority stake in the firm, which has also led to delays in privatisation. This evolution is justified with the risk of major rationalisation and reorganisation that is an unattractive option for insiders. Thus, employees perceived privatisation and subsequent restructuring as putting their jobs at risk and implying a potential wage cut for those who remained employed (Blanchard, 1997). The difficulties lie in the fact that whilst deep restructuring seems to require concentrated outside ownership, *ex ante* political constraints appear to dictate the dominance of insider privatisation (Carlin *et al.*, 1996).

The drawbacks of voucher privatisation, particularly those experienced by the Czech Republic, forced the governments of some transition countries to change their privatisation policy. For example, Poland, the Czech Republic, and Lithuania shifted away from management and employee buy-outs, and mass voucher programmes to sales to outsiders and international tenders. This trend was accompanied by increasing openness towards foreign participation in the privatisation process (Transition Report, 1998).

Each method has its own advantages and disadvantages. But if the objective is strategic restructuring, the probability of a positive impact on privatisation is greater in the case of using the direct sales to outsiders method. According to the theory of transition, strategic restructuring requires additional capital and expertise, which only an outside investor can bring (Carlin *et al.*, 1996). Furthermore, it has been suggested that foreign capital is a necessary condition for strategic restructuring. Aghion and Carlin have proposed more reasons for that: Firstly, the main reason appears to be the inability of firms to raise the required amount of capital and pay for expertise in the conditions of inside ownership that prevails in the case of voucher privatisation. Secondly, with inside ownership it is difficult to protect outside minority interests and thus raise minority equity capital. Thirdly, access to debt finance is limited. Finally, the expertise, which is needed for restructuring, is too expensive to be bought and the experts cannot be rewarded with minority equity positions (Carlin *et al.*, 1996). At the same time, it has been mentioned that such sales can work when market institutions are in place, but they are problematic when such institutions are in their infancy (Gray, 1996).

Hence, a large majority of studies have confirmed the hypothesis that outsider ownership, compared to insider ownership, contributes more to strategic restructuring and an increase in the economic efficiency of enterprises (Carlin *et al.*, 1994; Djankov, 1999b; Earle *et al.*, 1996; Hunya, 1999). In the case of outsider ownership, there is a difference between foreign investors and local outsider owners. Usually the positive impact on restructuring is larger in the case of foreign investors, although there is some evidence to support the opposite as well (Pihlak *et al.*, 1996). For instance, Djankov and Pohl studied the restructuring of Slovak enterprises and did not find considerable disparity between ownership types

and their impact on restructuring. Some firms with manager ownership were engaged in strategic restructuring despite the absence of foreign ownership (Djankov *et al.*, 1998). There are also other studies, whose findings suggest that foreign investment enterprises have not performed better than firms with insider owners (Estrin *et al.*, 1999; Roberts *et al.*, 1998).

The above evidence demonstrates that it is not always that foreign investment enterprises are more successful than domestic enterprises in the restructuring and efficiency enhancing process. Despite that, in recent literature, several aspects have been brought forth, which further elucidate the role of foreign direct investment in enterprise restructuring. These are as follows:

1. Foreign direct investments mediate capital transfer which involves investments and physical assets. Foreign investments have more financial resources, which enable them to invest in the restructuring process. Also, they have better access to international capital markets and new technology (Bellak, 1998; Estrin *et al.*, 1999; Hunya, 1998).
2. Foreign investors can establish effective corporate governance (Duponcel, 1998).
3. Foreign direct investments create transfer of knowledge in the form of management, know-how and technology. Foreign investors are very supportive of human capital development. They know how to manage enterprises in market economy conditions. Access to technology and knowledge is often considered to be even more important than the amount of invested capital (Hunya, 1998; Meyer, 1998).
4. Foreign investors have international relationships and they create linkages between domestically owned enterprises. The success of an enterprise largely depends on how well it can integrate into the business network. Foreign investors can fill the gap between the transition countries and the rest of the world. They can create linkages between domestic-owned enterprises, which causes a spill-over effect (Schusselbauer, 1999; Varblane, 1997).
5. Foreign direct investments rearrange the industrial structure and hence the specialisation patterns of a country. Reallocation of

resources according to comparative advantages to the country will bring along general growth (Hunya, 1999).

All these aspects can be considered as reflections of efficiency improvement and growth stimulation exercised through foreign direct investments.

John Dunning has proposed that the impact of foreign direct investments depends on the type of investment, the conditions that prompted it, the existing competitive advantage of the host country, and the economic policy pursued by the host and other governments. He has brought out four different investment types: natural-resource-seeking, market-seeking, efficiency-seeking and strategic-assets-seeking investments. The impact of the first two types is expressed by a potential to raise the productivity of indigenous resources and capabilities, improve quality standards, and stimulate economic growth. Foreign direct investments orientated to efficiency improvement can assist the host country in restructuring its economic activities in line with the dynamic comparative advantages, reducing the costs of structural adjustment. Such investments are thus most appropriate for restructuring the manufacturing sector. Strategic-assets-seeking investments can help integrate the competitive advantages of the acquired firm with those of the acquiring firm and increase competition between domestic firms (Dunning, 1994).

According to Ozawa (Ozawa, 1992), the MNE supporting paradigm and the general product's life cycle theory, foreign direct investments have an impact on the structure and growth of the economic sectors. Ozawa asserts that foreign direct investments increase the host country's existing or potential comparative advantage. He has claimed that multinational enterprises tend to invest in the manufacturing sector, where the abundant production factors are intensively used. Here it is important that the host country should follow the open economy and export-oriented development policies. According to Meyer's theory, foreign direct investment takes place because of cost pressure from the home country. In that case enterprises will use industry-specific assets as before, replacing, however, the home country's labour force with that of the host country. In that way they can combine their ownership-specific advantages with the host country's local-market advantage (Meyer, 1995).

Based on the above-mentioned theories, the impact of foreign direct investments on allocative and technical (or industrial) efficiency has been distinguished between. The changes in allocative efficiency derive from reallocation of investments in the industry's structure. Rojec has identified it as the macro-economic restructuring of the manufacturing industry according to the host country's actual relative set of production factors. Proceeding from that, he has explained the role of foreign direct investments in the restructuring of manufacturing as such investments that are orientated towards factor-cost advantages, a large part of their production being exported. In other words, it means that in order to restructure manufacturing, foreign direct investments have to be efficiency-oriented. (Rojec, 1999).

Foreign investment enterprises can affect industrial efficiency by raising productivity either due to their own activities or the spillover effect on domestic enterprises. The theoretical background of that relates, firstly, to the concept of ownership-specific advantages of foreign investors as a precondition for investing abroad, and secondly, to the concept of internalisation advantages originating from being part of a multinationals' network (Rojec, 1999). Rojec has argued that this pertains even more to factor-cost advantages motivated (or export-oriented) foreign direct investments, where the efficiency of a foreign investment enterprise affects the efficiency of both other foreign-owned enterprises belonging to the same MNE system and the parent company itself (Rojec, 1998).

The authors of this paper believe that these foreign direct investments that enter the transition economies should be channelled into increasing efficiency, in order to contribute to the process of restructuring. According to the theoretical examination, two hypotheses will be tested in the paper:

Hypothesis 1: In general, foreign ownership in the manufacturing industry contributes to increasing efficiency at company level.

Hypothesis 2: Enterprises of different ownership forms use different models for restructuring.

The hypotheses are based on the assumption that in general foreign direct investments contribute to increasing efficiency at enterprise level; the conjecture is based on theoretical evidence of superior ef-

efficiency of multinational enterprises (Rojec, 1999). Another assumption is that the production of foreign investment enterprises is mainly export-oriented, which calls for higher efficiency. The higher or improved efficiency is achieved by engaging these enterprises in strategic restructuring, because of their ownership-specific and internalisation advantages. Foreign investment enterprises have better access to international capital markets and new technology. They know how to manage enterprises in market economy conditions. All the above-mentioned features will foster their adjustment in a host country and enable them to withstand the possible external shocks in the transition period, thus bringing along the overall growth of their efficiency and competitiveness.

2. Methodology and description of data

As a methodology for analysis, the pyramid of efficiency worked out by the British Institute of Management and the Centre for Inter-firm Comparison is used. The pyramid consists of three ratios and the factors affecting them (see Figure 2). The main indicator is the return on assets, which is determined by the relationships between profit and sales as well as sales and the capital employed. The value of the profit and sales ratio is determined by cost factors (costs structure, labour productivity, the capital to labour ratio and average wage). The return on assets is determined by sales income (including export performance), and capital structure and utilisation (assets per employee).

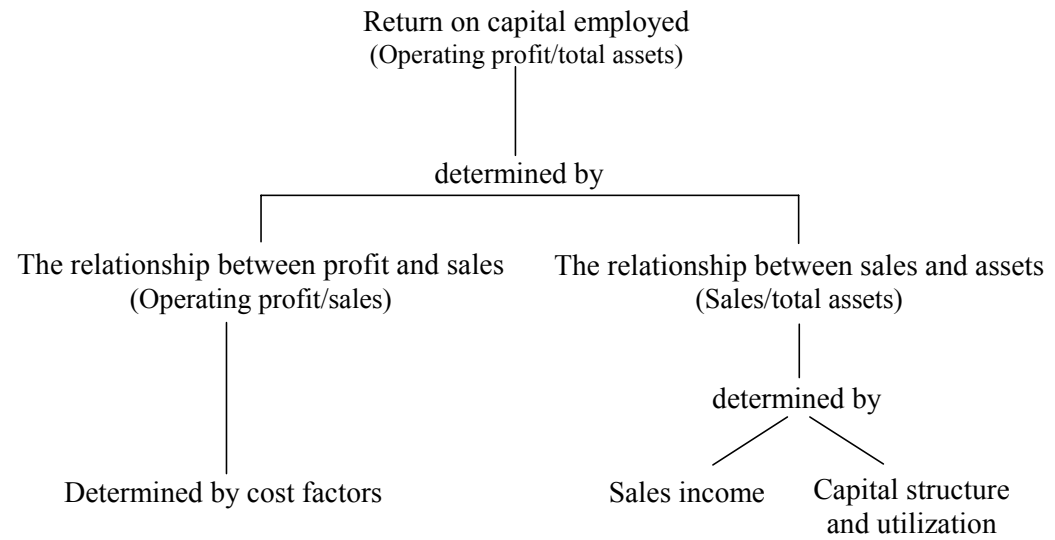


Figure 2. Pyramid of efficiency. (Efficiency comparison within large organisations..., 1962)

It is possible to determine the models of restructuring with help of the pyramid of efficiency. Because of the cost reducing aim of the left-hand part of the pyramid it is treated as a model of re-active restructuring. The right-hand ratio and the factors affecting it express the change in investments and sales, reflecting the strategic behaviour of the firm and can thus be viewed as a model of strategic restructuring.

For the empirical analysis we used annual financial data of enterprises of the manufacturing industry, collected by the Estonian Statistical Office (ESO). The analytical period was 1995–1999. The observation period began with the year 1995, because in that year Estonia adopted a new accounting law and introduced the International Accounting Principles. The period ended with the year 1999 because of the lack of data for the subsequent years. The analysis was mainly based on 330 enterprises, which were present throughout the whole period. All the enterprises were privately owned. The enterprises, which were in state ownership at the beginning of the period, were removed from the sample.

The main problem in the context of the present paper was to determine, which enterprises in the sample were foreign owned. An enterprise was considered to be in foreign ownership when the share of foreign capital exceeded 10%.

All the enterprises in the sample were divided into four groups:

- 1) Enterprises in domestic ownership during the observed time period (DE);
- 2) Enterprises in foreign ownership during the observed time period (FIE);
- 3) Enterprises with an ownership change from domestic to foreign ownership (DE to FIE);
- 4) Enterprises with an ownership change from foreign to domestic ownership (FIE to DE).

This division served as the basis for both the analysis of ownership dynamics in the Estonian manufacturing industry and the comparison of efficiency of different enterprise groups. The problem was that the groups were quite different, considering the number of enterprises belonging to them, which could have produced some distortions. Another problem derived from the fact that the sample included enterprises of different sizes. This may have caused some-

what biased results, which must be taken into account when drawing conclusions.

3. Characteristics of the Estonian manufacturing industry and the position of foreign enterprises

The Estonian manufacturing industry has experienced many structural changes during the transition period. They started at the beginning of the 1990s, when Estonia's economy was opened to western countries. The transition process in Estonia mostly followed the "shock therapy" approach, covering many macroeconomic reforms within a short period of time. It was a combination of a liberal trade regime and liberalisation of almost all prices, followed by the introduction of own convertible currency.

The first important factor causing changes in the manufacturing industry as well as in the economy as a whole was the privatisation of state-owned enterprises, which started in 1991. Foreign investors have shown up rather keen interest in buying Estonian enterprises both during and after the privatisation process. Among the other Central and Eastern European countries, Estonia ranked third in 1999, after Hungary and the Czech Republic by the level of foreign direct investments per capita (Transition Report, 2000). As a result of the privatisation process, the largest amount of foreign direct investments was located in the manufacturing industry (Table 1).

As far as the importance of the manufacturing industry in the Estonian economy is concerned, the share of manufacturing in the GDP was around 20–21% at the beginning of the privatisation process, after which it decreased to 17% in 1999 and stabilised in 2001 at the level of 18% (Estonian Statistical Office, 2001). Despite the slight decline, the manufacturing industry is still playing an important role in the Estonian economy.

Table 1

Foreign direct investment flows in Estonia by economic sectors in 1993–1999 (%)

	1993	1994	1995	1996	1997	1998	1999
Manufacturing	45	51	45	24	36	19	25
Wholesale and retail trade	26	15	24	36	9	12	8
Transportation and communication	0	21	11	3	25	4	25
Agriculture	0	3	5	0	0	1	3
Finance	8	2	7	27	16	53	21
Real estate, rental and business activities	7	3	0	0	5	5	8
Other	14	5	8	10	9	6	10
Total	100	100	100	100	100	100	100

Source: Bank of Estonia, 2001

The structure of the Estonian manufacturing industry is traditional. The majority of value added is produced in the food products, textile and wood industries. One important feature characterising the manufacturing industry is a rather low value-added, because a large amount of products is produced by contract work. Therefore it is quite difficult to compare the performance of the Estonian manufacturing industry with that of the other transition countries of Eastern and Central Europe, where the share of the manufacturing sector in the GDP is many times larger than in Estonia. For this reason, the comparison with other transition countries will not be done. However, the attractiveness of the Estonian manufacturing industry, similarly to the other Eastern and Central European economies, consists in cheap production factors such as raw material and labour force.

In order to examine the role of foreign investors in the Estonian manufacturing sector, at first the number of foreign owned enterprises and its change during the observed period will be given. As will be evident from Figure 3, the share of foreign investment enterprises has been fluctuating between 24 and 28% of the total number of manufacturing enterprises, not showing any tendencies to change radically.

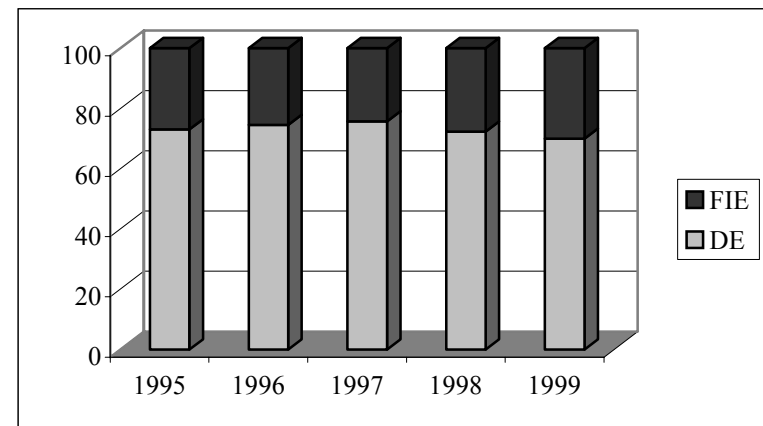


Figure 3. Share of domestic and foreign owned enterprises in the manufacturing industry (%). (Authors' calculations based on the ESO database on the Estonian Manufacturing Industry 1995–1999)

Figure 4 indicates the division of enterprises according to the ownership dynamics during 1995–1999. The largest group of enterprises (225) was in the hands of domestic owners all the time, while 72 enterprises used to be foreign owned, 19 domestic enterprises were bought by foreign investors and 14 enterprises moved from foreign into domestic ownership.

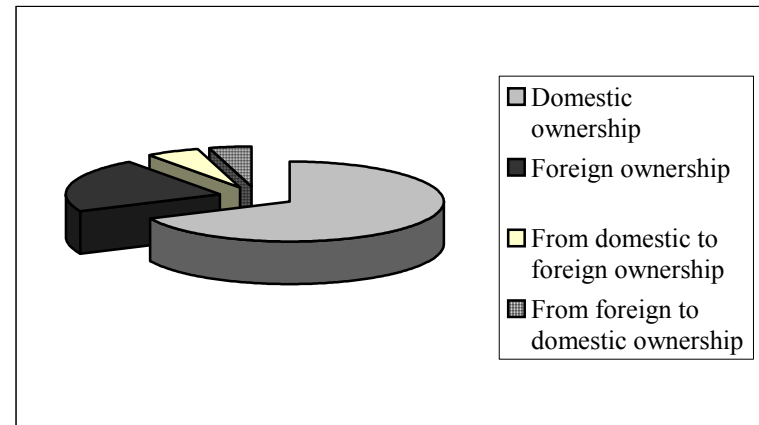


Figure 4. Ownership forms of manufacturing enterprises in 1995–1999. (Authors' calculations based on the ESO database...)

Although the number of foreign owned enterprises is almost four times smaller than that of domestically owned enterprises, foreign enterprises have had a larger share of capital in the total capital of the manufacturing industry throughout the observed period (see Figure 5). However, in the last year of observation the share of domestic enterprises amounted to 58%, reflecting the ability of domestically owned enterprises to grow.

A comparison of foreign and domestic enterprises by their number of employees (see Figure 6) shows that in domestic enterprises this number remained almost unchanged in 1995–1997, but in the last two years it declined considerably. At the same time, foreign owned enterprises appear to have increased the number of employees throughout the whole period of observation. In 1999 they were already employing 39% more people. This indicates that foreign enterprises are able to produce with higher economies of scale and satisfy the needs of wholesale and retail firms better.

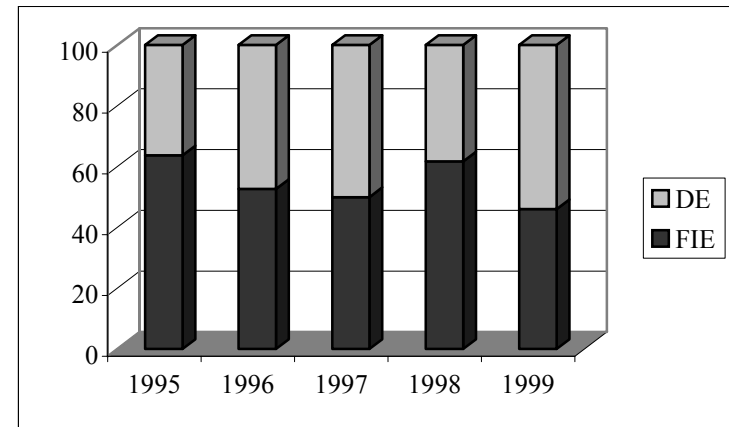


Figure 5. Division of total capital in the manufacturing industry (%). (Authors' calculations based on the ESO database...).

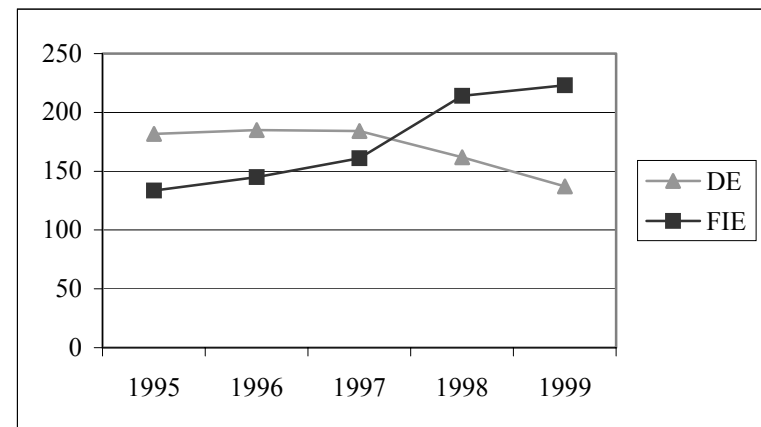


Figure 6. The number of employees in domestic and foreign owned enterprises. (Authors' calculations based on the ESO database...)

One possible explanation to the changes in employment can also be that employees of domestic enterprises have moved to foreign enterprises. However, the number of employees in industry as a whole also declined in the observed period. Now it is beginning to increase again, despite the relatively high unemployment rate.

4. Comparative efficiency analysis of domestic and foreign owned enterprises

The following analysis will be divided into three parts, in accordance with the nature of the methodology used (see Figure 2). In the first part, the factors indicative of re-active restructuring (profitability and the factors affecting it) will be analysed. The second part will be dedicated to the analysis of factors typical of strategic restructuring (assets turnover). In the last part, return on assets as a final indicator of the efficiency of different enterprise groups will be compared.

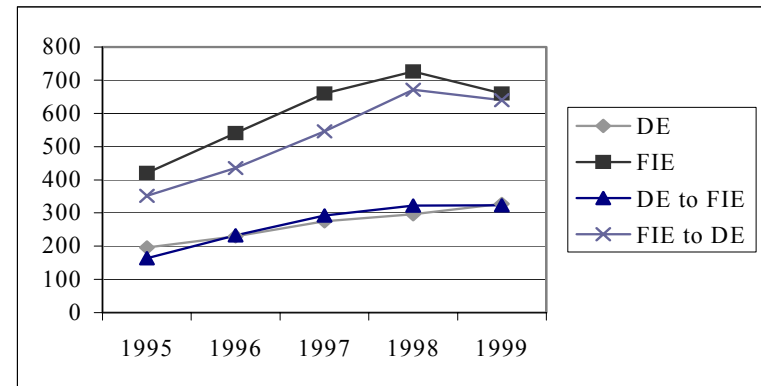


Figure 7. Labour productivity (computed as the ratio of net sales to employees, %) in different enterprise groups. (Authors' calculations based on the ESO database...)

One of the first signs of restructuring of an enterprise is the change in its labour productivity, resulting from the reorganisation of resources. From Figure 7 it is evident that foreign enterprises' labour productivity (calculated as the ratio of net sales and the number of employees) is about two times higher than that of domestic enterprises. This indicates that foreign enterprises use the available labour force more efficiently, which also makes one think that the employees of foreign owned enterprises should presumably be more motivated, better qualified and trained. At the same time, if we look at the number of employees (see Figure 6), it is evident that much of the increase in domestic enterprises' labour produc-

tivity results from reduction of labour force. It is appropriate to mention that the change of ownership form during the period has not played any role in determining the ratio. In comparison with foreign enterprises, a somewhat faster increase in labour productivity can be noticed only in the group of enterprises that have undergone an ownership change from foreign to domestic. It is also worth mentioning that the transfer of ownership rights from domestic to foreign owners has not had any considerable positive impact on the labour productivity of these enterprises. In the first four years of the period, the ratio increased a bit faster than in case of domestic enterprises, but in 1999 the ratio of domestic enterprises was higher again. Consequently, the foreign owners did not succeed in increasing the labour productivity ratio of the enterprises they acquired during the observation period.

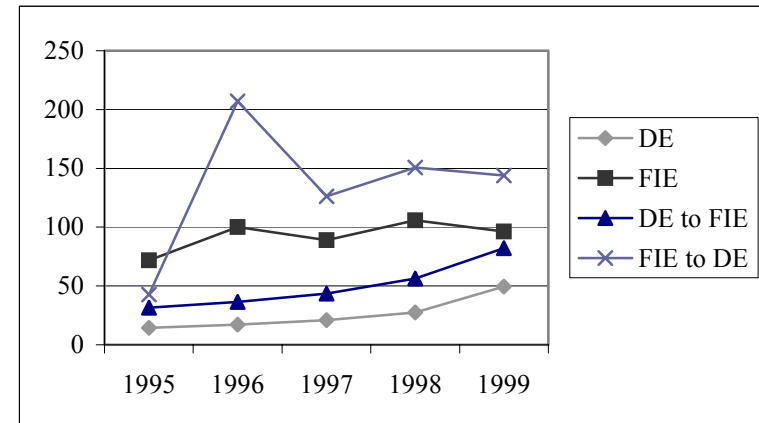


Figure 8. Capital productivity (computed as the ratio of total capital to employees, %) in different enterprise groups. (Authors' calculations based on the ESO database...)

The positive correlation between labour productivity and capital intensity has been confirmed by many studies. Figure 8 further corroborates that circumstance, as foreign enterprises additionally appear to have a higher capital-to-labour ratio. Despite the tendency for the ratio of total capital per employee to increase in all the observed categories of enterprises, in 1999 there was still an almost two-fold difference between domestic and foreign owned enter-

prises. As can be seen from the Figure, the group of enterprises that switched from foreign to domestic ownership differs radically from all the other groups. At the beginning of the period, when these enterprises were in foreign ownership, there was a steep increase in capital productivity, whereas after transferring the ownership to domestic hands, the ratio decreased, although it remained higher than that of foreign owned enterprises. One possible reasoning for the decrease could come from the fact that enterprises have lost in their external financing after foreign owners' leave and therefore the capital size has declined. However, as new technologies and know-how transferred by foreign owners still exists, enterprises are able to continue their development at the more or less same level. These conclusions are only hypothetical, because on the basis of the present analysis it is not possible to find any deeper implications of the mentioned relationship.

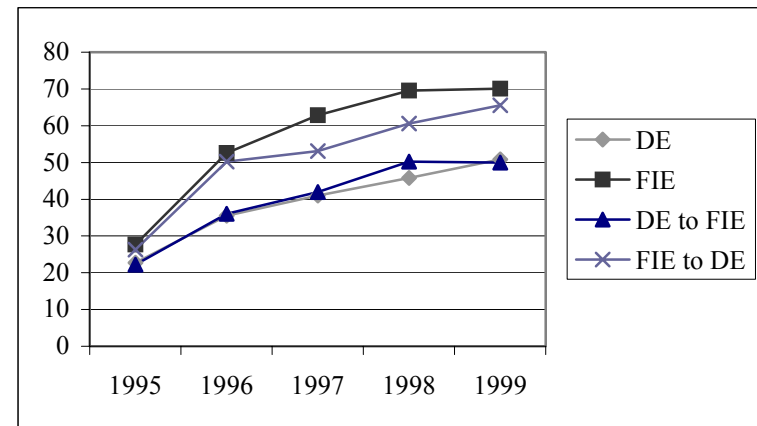


Figure 9. Wage per employee (in thousand EEK) in different enterprise groups. (Authors' calculations on the basis of the ESO database...)

The analysis of wage differences indicates that foreign enterprises can pay considerably higher wages per employee than domestic ones. Figure 9 shows that while there were almost no wage differences in 1995, during the observed period the discrepancy grew, amounting to 30% in 1999. However, since 1998 the wages in domestic enterprises have tended to increase more than those in for-

eign investment enterprises, thus diminishing the existing wage differential. The ability of foreign owners to pay higher wages is likewise evidenced by the figures of both groups that changed ownership, making us infer that the labour force of foreign enterprises is more motivated, which is also mirrored by their higher labour productivity. This fact additionally leads us to believe that foreign enterprises pay higher wages with full awareness that in this way they can attract more qualified labour and avoid tensions. Hence, the conclusion can be drawn that foreign enterprises are more productive than domestic ones.

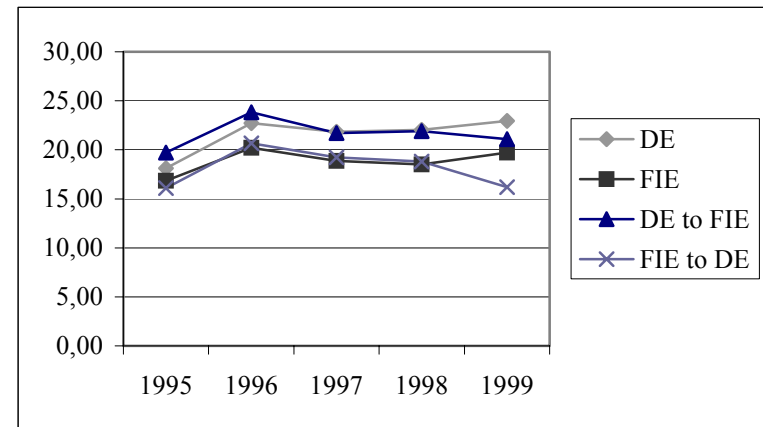


Figure 10. Unit labour cost in different enterprise groups (computed as the ratio between wage per employee and labour productivity, %). (Authors' calculations on the basis of the ESO database...)

The analysis of unit costs confirms that material assumptions about productivity improvement of the production process are more valid in the case of foreign than domestic enterprises, because foreign investment enterprises' costs are lower (see Figure 10). If we analyse the change of unit labour cost, we find that the situation is quite similar in three groups of enterprises, the only exception being the enterprises whose ownership changed from foreign to domestic. For most enterprises the ratio remained relatively stable throughout the whole period of observation, whereas domestic enterprises had a tendency towards higher unit labour cost.

Next we will analyse costs. Table 2 indicates that the share of material costs in sales is higher in foreign enterprises than in domestic ones. Also, it can be seen that during the period 1996–1999 this ratio increased. The same tendency characterised domestic enterprises. Formerly, the change in both types of enterprises has never been as significant. The share of electricity costs in sales is also higher in foreign enterprises, but the difference between domestic and foreign enterprises has diminished from 1.5 to 1 per cent point in favour of the latter. However, the table indicates that foreign enterprises consume more energy and electricity than domestic enterprises, but their consumption has declined. The latter can be explained by the more capital-intensive production process of foreign owned enterprises. Of course, it should be mentioned that the level of energy and electricity costs depends on the industry sector, which is not to be determined by the present analysis.

The share of labour costs in sales is smaller in foreign enterprises, but during the period 1996–1999 it increased by nearly 1.5 per cent points, which is quite a large change. It can be explained by the high productivity level of foreign enterprises, which enables them to raise wages more rapidly than the earned sales would permit. Otherwise it is a sign of losing competitiveness in terms of labour costs. The share of depreciation in total costs is larger in foreign enterprises, which is explained by their large share of fixed assets (see Figure 13). The low level of R&D costs both in domestic and foreign enterprises confirms that enterprises are not actively engaged in R&D work. Hence, foreign enterprises probably transferred R&D work to their parent companies. To conclude, one can say that foreign enterprises put more efforts on human capital, while investing into fixed assets and energy saving, which is an important precondition for sustainable development.

Table 2

Structure of production costs (costs/sales) in the manufacturing industry (%)

Indicator	Ownership, year									
	Domestic enterprises					Foreign enterprises				
	1996	1997	1998	1999	Change 1996–99	1996	1997	1998	1999	Change 1996–99
Material costs	45.3	46.8	47.4	45.5	0.2	46.6	45.0	47.0	47.0	0.4
Electrical costs	1.8	1.9	1.9	2.0	0.2	3.3	3.1	2.9	3.0	-0.3
Energy costs	2.9	3.2	2.6	2.0	-0.9	2.8	2.7	2.3	2.3	-0.5
Labour costs	20.2	16.9	16.9	17.9	-2.3	15.0	14.4	15.0	16.5	1.5
Depreciation*	3.3	3.0	3.5	4.2	0.9	4.9	4.6	5.0	5.7	0.8
R&D costs	0.3	0.2	0.3	0.2	-0.1	0.5	0.3	0.3	0.2	-0.3

* Share in total costs

Source: Authors' calculations on the basis of the ESO database...

All the indicators analysed above determine the profit ratio of an enterprise. Figure 11 serves to compare profitability. Herein profitability is considered as the main factor indicative of re-active restructuring. The figure shows that foreign enterprises' more effective performance has fostered the increase in their profitability. During the observed period, the profitability of foreign enterprises grew from -12% to 2.5%. This indicates that foreign enterprises can afford losses and that earning profit has not been the target of primary importance for foreign owners in the Estonian manufacturing sector. Another reason for quite low profits of foreign enterprises might be related to the fact that a big part of their earning was reinvested during the period. At the same time, it may be a sign of hiding returns as foreign enterprises have the possibility to transfer their costs in the form of management rewards and transfer pricing.

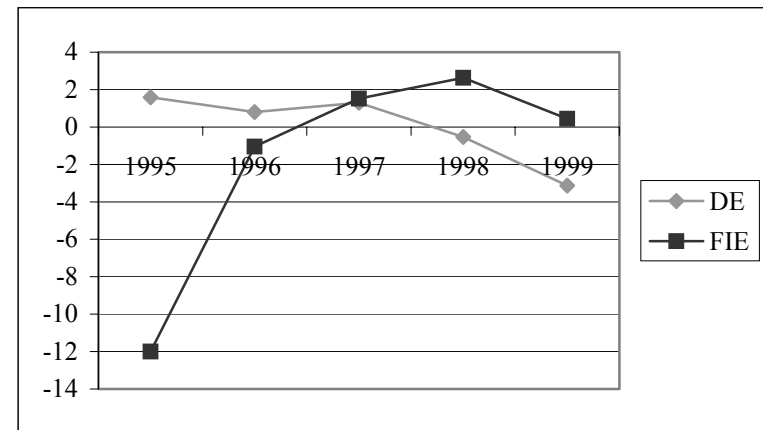


Figure 11. Profitability (computed as the ratio of profits to net sales, %) of different enterprise groups. (Authors' calculations on the basis of the ESO database...)

The profitability of domestic enterprises has declined considerably during the period. Consequently, they have failed to achieve progress in their profit level despite the downsizing of employees and the decrease in unit labour cost between 1996 and 1999. One reason for the unchanged profitability may be the general economic recession and the Russian crisis in 1997. The Russian crisis had a

harder impact on domestic enterprises because of their larger share of trade with Russian firms. The results for enterprises with an ownership change have not been included into Figure 11, because the initial data within the groups were too heterogeneous and therefore a biased interpretation might have arisen.

The first part of the analysis will be the basis for investigating whether manufacturing enterprises use re-active restructuring models. With regard to domestic enterprises, there are more signs of re-active restructuring such as downsizing labour force and decreasing labour costs, as well as lowering other costs. In contrast, foreign enterprises do not seem to consider the lowering of costs as one of their main tasks. They presumably use more strategic firm behaviour. Next, the factors affecting assets turnover will be analysed, in order to find some signs of strategic restructuring.

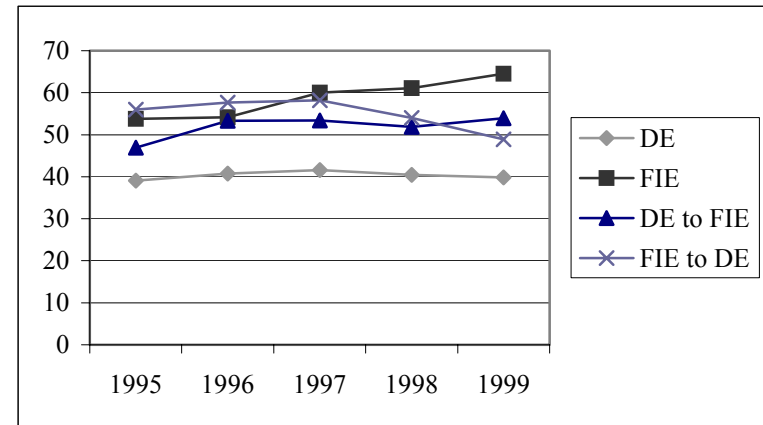


Figure 12. Exports as percentage of net sales (%) in different enterprise groups. (Authors' calculations based on the ESO database...)

The growing share of exports in their net sales testifies to the higher export orientation of foreign enterprises (see Figure 12). It appears that the indicator has increased from 54 to 64% in the case of foreign enterprises, but has remained almost unchanged at the 40% level in domestic enterprises. As for the enterprises that have undergone an ownership change, the results are logical as well: with the transfer of ownership from foreign to domestic hands the

export share has decreased, and *vice versa*. Thus, foreign owners seem to have raised the export competitiveness of enterprises in the Estonian manufacturing sector. At the same time, one has to note that those enterprises, which were bought by foreign investors during the observation time, had a higher export share already at the beginning of the period. Hence, foreign investors seem to have taken account of this indicator before making their investment decisions.

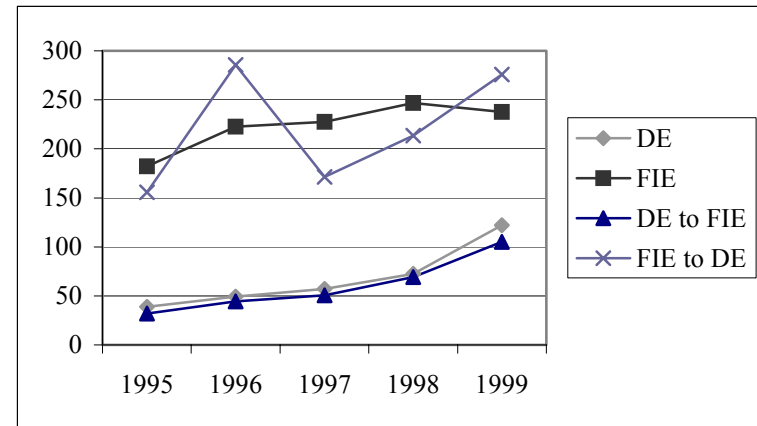


Figure 13. Fixed assets per employee (in thousand EEK) in different enterprise groups. (Authors' calculations based on the ESO database...)

Foreign enterprises also prove to have a bigger capacity of assets, as seen from Figure 13. Fixed assets per employee are several times higher in foreign than domestically owned enterprises. This refers to their better financial position, implying that they are able to make investments. At the same time, it appears that the fixed assets to employee ratio has improved much more in domestic enterprises (68%), compared to foreign enterprises (24%), which is a sure sign of their increasing investment capability. However, in 1999 there was a two-fold difference between the two. The situation was fairly similar with those enterprises which were domestically owned either only at the beginning or throughout the period of observation, whereas a steep decrease of the ratio can be noticed in the fourth group, after the change of ownership from foreign to

domestic. This leads us to conclude that domestic owners are even unable to keep the ratio at the level once achieved. The authors have also analysed the ratio of total assets per employee and found that the results are principally the same.

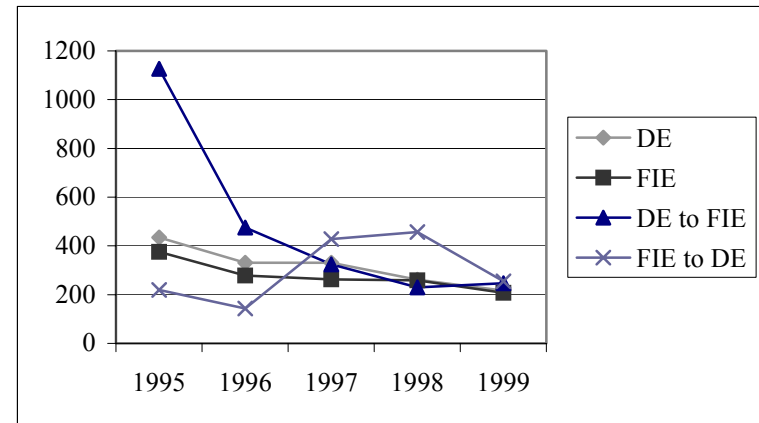


Figure 14. The ratio of net sales to total assets (%) in different enterprise groups. (Authors' calculations based on the ESO database...)

The ratio of sales to assets was higher in domestic enterprises during 1995–1997, but since 1998 there have been almost no perceivable differences any more between foreign and domestic firms (see Figure 14). This indicates that domestic enterprises have used their assets more efficiently, presumably having a higher proportion of productive assets, and higher quality machinery, equipment, and production process. The same tendency is apparent in the case of enterprises with changed ownership. Hence, the turnover of assets was faster in domestic enterprises, but at the end of the period there were no differences. An explanation to this relatively incomprehensible result could be the fact that the better financial position of foreign enterprises has enabled them to have delays with assets. On the one hand, they have better conditions for loans and on the other, they have no pressure for sales turnover.

To sum up the second part of the analysis, there is some evidence that foreign enterprises are more likely to use strategic restructuring models. The latter can be explained by a remarkable growth in

their net sales, a high share of exports in net sales and a high ratio of assets per employee. Only the sales to turnover ratio was higher in domestic enterprises, but it changed.

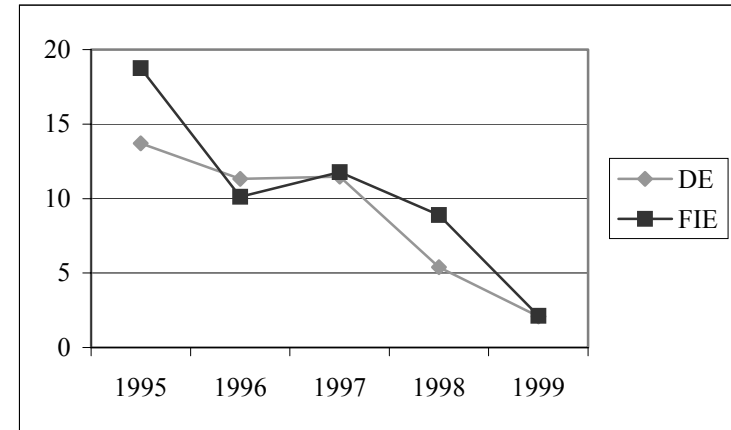


Figure 15. Return on assets (computed as the ratio of profits to total assets, %) in different enterprise groups. (Authors' calculations based on the ESO database...)

Finally, domestic and foreign enterprises are compared by the return on assets. Enterprises with changing ownership forms have not been included because of difficulties with interpretation. From Figure 15 it is evident that the ratio has a tendency to decrease in both domestic and foreign enterprises. Nevertheless, the ratio seems to be higher in foreign owned enterprises, indicating their higher efficiency in comparison with domestic enterprises. However, we can say that on the top of the efficiency pyramid the comparative results of foreign and domestically owned enterprises are more similar than expected, and even appear to be contradictory (look at the results of 1996 and 1999, where the ratio is higher in domestic enterprises). We might suppose that even if foreign owned enterprises were able to earn higher returns per assets, the pressure from foreign owners to do so is not as strong as in case of domestic enterprises.

Conclusions

The analysis leads us to conclude that in general terms foreign owned enterprises contribute to increasing industrial efficiency at company level, since they have especially high labour and capital productivity, they pay higher wages and have a several times higher ratio of fixed assets per employee. Only the assets turnover in domestically owned enterprises is higher. Thus, the main hypothesis of the present paper has been proved.

In order to summarize the results about the two groups of enterprises whose ownership changed, it is first of all important to point out that with respect to most indicators, the initial situation of these enterprises was similar to either domestic or foreign owned enterprises, respectively. Then, after the transfer of ownership rights, the ratios started to change. In the case of the group of enterprises with an ownership change from domestic to foreign, the ratios became more similar to those of foreign owned enterprises, and *vice versa*. There are only two exceptions, in the case of which it seems that foreign investors bought such enterprises which had shown better results than other domestic enterprises. These are the capital to productivity ratio and the share of exports in net sales. Although the aforementioned enterprises were in domestic hands at the beginning of the observed period, their respective ratios were higher than those of other domestic enterprises.

Concerning the hypothesis about the models of restructuring, the answer is not very easy. On the one hand, there is evidence that foreign enterprises are more engaged in strategic restructuring and domestically owned enterprises in re-active restructuring. On the other hand, there are deviations from that as well.

The strategic behaviour of foreign owned enterprises appears from the following aspects. Foreign enterprises' labour productivity has increased because of sales growth; they are more capital intensive, pay higher salaries, are more export-oriented, have more assets per employee, and have a high investment capability. The re-active behaviour of domestically owned enterprises is reflected by the growth of labour productivity on account of the lessening number of employees, decrease in costs, and low return on assets.

However, there are some important signs for domestic enterprises to be engaged in strategic restructuring as well. For example, high

profitability as one of the signs of re-active restructuring, is not the case for domestic enterprises. At the same time, the ratio of sales to assets tends to be higher in domestic enterprises, thus indicating a more efficient use of assets and a more strategic behaviour of these firms. Hence, enterprises in domestic ownership seem to start moving from the re-active restructuring phase to the strategic restructuring phase.

Altogether, foreign direct investments are among the most important factors of successful enterprise restructuring. The present analysis suggests that it is relevant to attract foreign direct investments to speed up restructuring in the manufacturing industry. Additionally, the strategic activity of foreign investors motivates domestic enterprises to follow their strategy, which eventually leads to increasing efficiency. It can be concluded that foreign owned enterprises contribute to micro-economic restructuring by increasing industrial efficiency more effectively than domestically owned enterprises.

Admittedly, the present study has several limitations, one of the most relevant among them being related to the methodology, which was worked out already 50 years ago. Therefore the model employed lacks some indicators that are important for enterprises operating in modern society, such as investment in human capital and other related indicators, which would have enabled the researchers to assess the growth potential of enterprises more precisely. There is a space for doing further analysis in the future.

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KOKKUVÕTE

Restruktureerimine ja efektiivsus Eesti tööstussektoris: välisosalusega ettevõtete roll

Erastamisprotsessi algusest alates on Eesti tööstusettevõtetes toimunud põhjalikud muutused, mis seonduvad eelkõige tööstussektori restruktureerimisega. Restruktureerimises on küllaltki olulist osa etendanud otsesed välisinvesteeringud, mille roll on oluline mitmes aspektis. Esiteks toimub läbi otseste välisinvesteeringute kapitali ülekanne sihtriiki nii investeeringute kui ka füüsiliste varade vormis. Teiseks kujuneb läbi otseste välisinvesteeringute teadmiste ülekanne juhtimise, oskusteabe ja tehnoloogia vormis. Kolmandaks omavad välisinvestorid rahvusvahelisi sidemeid ja arendavad neid edasi koos investeeringute sihtriigi firmadega. Neljandaks korraldavad otsesed välisinvesteeringud ümber haru tootmisstruktuuri. Vaatamata varasemate uuringutega kinnitust leidnud seisukohale otseste välisinvesteeringute positiivsest mõjust siirderiikide majandusele, ei ole senistes uurimustes väga põhjalikult analüüsitud seda, kas välisomanike poolt ostetud ettevõtted hakkavad efektiivsemalt töötama ning kas välisosaluse kasv tööstussektoris toob kaasa efektiivsuse suurenemise antud sektoris. Käesoleva artikli eesmärgiks on empiirilisel analüüsida välisosalusega ettevõtete rolli Eesti tööstussektori restruktureerimisprotsessis ning nende panust sektori efektiivsuse tõstmisel. Artiklis kontrollitakse ka väidet, et olenevalt omandivormist kasutavad ettevõtted erinevaid restruktureerimise mudeleid.

Otsesed välisinvesteeringud avaldavad nii otsest kui ka kaudset mõju tööstuslikule ehk tehnilisele efektiivsusele. See tähendab, et otsesed välisinvesteeringud toovad kaasa ettevõtte tootlikkuse kasvu ja avaldavad läbi ülekandeeffektide mõju ka kohalike ettevõtete arengule. Need mõjud tulenevad eelkõige välisinvestoritega seotud ettevõtete omandi-spetsiifilistest ja siseturu loomise eelistest. Otsesed välisinvesteeringud parandavad sihtriigi olemasolevat või potentsiaalset suhtelist eelist, tuues kaasa tootmisvarade umberjaotamise vastavalt sihtriigi suhtelisele tootmisteguritega varustatusele.

Restruktureerimise analüüsimiseks on võimalik kasutada juhtumite ja statistiliste andmete analüüsi meetodeid. Käesolevas artiklis rakendati analüüsimetoodikat, mis baseerub Suurbritannia Juhtimisinstituudi ja Ettevõtetevahelise Võrdlemise Keskuse (*British Institute of Management and Centre for Interfirm Comparison*) poolt välja töötatud efektiivsuse püramiidile, mida on kohandatud autorite poolt vastavalt käesoleva analüüsi spetsiifikale ja kättesaadavatele andmetele. Püramiid põhineb ettevõtte kolmel tegevusnäitajal ning neid mõjutavatel teguritel. Lõppefektiivsust väljendavaks näitajaks on kapitali tootlikkus, mis on määratletud rentaabluse ja põhivara kordaja korrutisega. Rentaabluse kujunemisele avaldavad mõju erinevad kulutegurid. Varade käibekordajat mõjutavad käibe kasv ning kapitali struktuur ja kasutamine.

Empiirilises analüüsis kasutati Eesti Statistikaameti poolt kogutud töötleva tööstuse ettevõtete paneeländmeid perioodi 1995–1999 kohta. Kahjuks ei olnud hilisemad andmed kättesaadavad. Analüüsi teostamiseks jagati ettevõtted gruppidesse vastavalt omandivormile vaatlusalusel perioodil (kohalikul kapitalil põhinevad ettevõtted, välisosalusega ettevõtted, kohalikust omandist välisomandisse liikunud ettevõtted ning välisomandist kohalikkude omandusse liikunud ettevõtted). Analüüs teostati ettevõtete nelja grupi võrdlusena.

Empiiriline analüüs kinnitas, et otsesed välisinvesteeringud toovad kaasa töötleva tööstuse ettevõtete efektiivsuse kasvu. Analüüsist võib välja tuua järgmised järeldused:

- Välisosalusega ettevõtete tegevusnäitajad on märkimisväärselt paremad kui kohaliku kapitaliga ettevõtetel. Välisosalusega ettevõtetes on kõrgem tööviljakus, nad kasutavad kapitalimahukat tehnoloogiat, maksavad kõrgemaid palku, on efektiivsemad kulude kontrollijad ja juhtijad, on enam ekspordile orienteeritud, neil on rohkem tootmisvara ning nad oskavad efektiivsemalt oma vara kasutada.
- Välisosalusega ettevõtetes tuleb esile rohkem märke strateegilise restruktureerimise kohta kui kohalikes ettevõtetes. Eesti kapitalil põhinevad ettevõtted tegelevad enam reageeriva restruktureerimisega. Näiteks on kohalike ettevõtete tööviljakus kasvanud töötajate arvu vähenemise arvel, välisosalusega ettevõtetes aga käibe kasvu arvel.
- Vaatamata eelmises punktis välja toodud üldisele seaduspärale ilmnisid mõningad olulised märgid strateegilise restruktureeri-

misprotsessi alustamisest ka kohalikul kapitalil põhinevates ettevõtetes. Seda tõestab näiteks asjaolu, et kõrge kapitali tootlikkus kui reageeriva restruktureerimise üks näitajaid, ei ole Eesti ettevõtete puhul prioriteediks. Samas, varade käibekordaja on sellistes ettevõtetes suhteliselt kõrge, andes tunnistust varade efektiivsest kasutamisest ja strateegilisest restruktureerimisest.

Kokkuvõtteks võib öelda, et otsesed välisinvesteeringud toetavad küllaltki olulisel määral Eesti töötleva tööstuse ettevõtete restruktureerimist. Analüüs kinnitas, et otseste välisinvesteeringute kaasamine on vajalik tööstussektori efektiivsuse tõstmisel. Lisaks välisosalusega ettevõtete otsesele panusele konkreetsete ettevõtete efektiivsuse suurendamisel, ilmneb ka nende kaudne panus, mis seisneb kohalike ettevõtete kaasatõmbamises strateegilise restruktureerimise faasi.

Kahtlemata on käesoleval uurimusel ka mitmeid puudusi, mis eelkõige tulenevad kasutatud meetodika vananemisest. Analüüsis rakendatud efektiivsuspüramiid on välja töötatud juba 50 aastat tagasi ega sisalda seetõttu tänapäeva ühiskonnas tegutsevates ettevõtetes märkimisväärse tähtsuse omandanud inimkapitali näitajaid, mis võimaldaksid täpsemini hinnata ettevõtete arengupotentsiaali. Sellest tulenevalt kätkeb uurimisvaldkond mitmeid edasise analüüsi võimalusi tulevikus.

Key indicators used in empirical analysis

1. Fixed assets					
	1995	1996	1997	1998	1999
Domestic enterprises	6 547	8 085	9 465	11 689	17 572
Foreign enterprises	25 868	33 166	38 434	44 932	46 599
Domestic to foreign ownership	8 722	11 515	13 282	18 008	31 671
Foreign to domestic ownership	13 538	25 127	18 689	26 478	34 214
2. Net sales					
	1995	1996	1997	1998	1999
Domestic enterprises	31 494	37 445	47 675	48 395	48 783
Foreign enterprises	54 339	69 320	94 327	107 892	106 710
Domestic to foreign ownership	49 357	74 183	95 521	96 235	105 101
Foreign to domestic ownership	28 489	39 871	68 061	80 129	72 397
3. Total assets					
	1995	1996	1997	1998	1999
Domestic enterprises	29 126	29 639	40 352	46 831	31 440
Foreign enterprises	57 006	65 581	76 353	83 011	89 702
Domestic to foreign ownership	56 887	31 432	36 654	60 868	63 088
Foreign to domestic ownership	22 708	68 042	29 688	58 090	56 700

Source: Authors' calculations from ESO database Estonian Manufacturing Industry 1995–1999.