3. RESTRUCTURING OF THE ESTONIAN ECONOMY AND THE ROLE OF FDIs IN IT

By Helena Hannula

Introduction

Almost ten years have passed since the beginning of Estonia's transition to market economy. The accompanying liberalization of foreign trade and capital flows has aroused growing interest among foreign investors towards the markets of the transition countries. On the one hand, confusion has arisen in the host countries where foreign investors are considered to be responsible for capital outflows and hence for lowering profit sources. On the other hand, experience of the western countries has shown that foreign direct investments (FDIs) develop international trade and increase competitiveness of individual states.

The above-mentioned attitudes have inspired economists to study how FDIs influence the host country's competitiveness. A majority of them have attempted to explain the relationship between FDIs and their impact on economy at the macro level, whereas few have been interested in micro level studies. Adjustment of enterprises to market economy has become the focus of interest together with the rapid development of the private sector. In the early years of transition, it was argued

that fast privatization would contribute to fast development of the private sector. Nowadays it is acknowledged that the change of ownership structure is crucial for raising enterprises' efficiency, however, it will only create a possibility for growth. In order to improve efficiency, a comprehensive restructuring of enterprises is necessary. Restructuring is at the core of enterprises' progress. As large amounts of FDIs have moved into the Central and East European countries through the privatization process, interest has grown in the role played by FDIs in the restructuring of enterprises.

The concept of enterprise restructuring has caused much dispute, being diverse and costagestagemplex. The restructuring of enterprises is interpreted as adjustment of formerly state-owned enterprises to market economy. Improvement in the main indicators of enterprises will show the progress made in that field. One has to note that restructuring is quite a time-consuming process whose positive results may not show immediately. Therefore it is reasonable to study the restructuring and enterprises' efforts towards restructuring at the present moment, when already several years have passed since the transition process began. For this reason, this chapter attempts to look at the problem from the viewpoint of how the structure of the manufacturing sector has changed and how much FDIs have contributed towards raising the efficiency of enterprises.

The present study aims at showing that in the manufacturing industry FDIs will contribute to macro-economic restructuring and raising productivity at company level in general. In the first section, the major issues of restructuring in the context of transition economies are studied. Afterwards the process of privatization and its impact on restructuring are addressed since privatization is considered as a precondition for successful restructuring. In the third section, the impact of FDIs on restructuring is studied on the basis of research results. The fourth section presents an empirical analysis of the restructuring of the Estonian manufacturing industry. Under consideration are the rate of penetration of investing foreign enterprises,

and changes in manufacturing structure in terms of comparative advantages and improvements in the efficiency of firms. Some results of the Estonian manufacturing industry are compared with those of Hungary, the Czech Republic, Slovakia and Slovenia. The period of analysis is 1996–1998 in Estonia, 1993–1998 in Hungary, 1993–1998 in the Czech Republic, Slovakia and Slovenia.

3.1. Major issues of restructuring in the context of transition economies

As a term, restructuring is widely used in literature about transition economies. Its concept has caused much confusion, being directly related to the concept of transition. Therefore the relationship between the two needs to be clarified. It can be done by means of Soumitra Sharma's definitions of restructuring and transition. Sharma has defined restructuring as a process which provides a new structure, rebuilding or changing from within the already existing one, and transition as passing from one set of circumstances to another (Sharma, 1997, p. 1). Based on those two definitions, one can understand restructuring as a means which is necessary for undergoing the transition. In other words, it means embodying such political measures, which will create the necessary grounds for restructuring of economy (Ericson, 1998, p. 1).

In recent literature enterprise restructuring has been determined in many ways. Bonin has characterised enterprise restructuring as good corporate governance that you know when you see it, but which is difficult to define (Bonin, 1998, p. 3). Djankov and Pohl have characterised restructuring as the transformation process from a highly distorted economy with many loss-making firms to a normal economy in which the overwhelming majority of the firms are profitable (Djankov *et al*., 1998a, p. 69). The broadest definition to restructuring has been given by Hunya: "Restructuring includes all policy measures and economic processes, which increase the efficiency of an

economy or of a company (including its international competitiveness)". (Hunya, 1997, p. 275).

Common to the above-mentioned definitions are the concept of adjustment process, the measures of economic policy, and economic efficiency. Consequently, restructuring can be defined in the context of transition as an adjustment to market economy, for which the political measures taken by the government are necessary. They enable enterprises to operate for the purpose of profit maximization and improving economic efficiency to gain increasing international competitiveness for the enterprises and economy as a whole. Therefore one can distinguish between macro- and micro-level restructuring. We can also speak about meso-level restructuring between them. Before discussing the relationship between those three levels, one can contemplate two different approaches explaining the ways to bring to pass restructuring.

At the outset of transformations, there were two different approaches to restructuring. Firstly, a group of US economists (J. Sachs, R. Dornbush) proposed the so-called "shock therapy" or quick reform approach. They insisted on launching a rapid and overwhelming set of reforms, covering all main aspects of macroeconomic policies. They proposed to quickly replace the system of central planning with principles of market economy. The list of required reforms involved price liberalization, elimination of foreign trade barriers, demonopolisation of economy, privatization of state-owned firms, implementation of new legal and tax system, etc. (Sharma, 1997, p. 4). The reason for quick reforms was the idea that in this case the economic and social costs would be smaller than with the slow and partial approach.

Secondly, the other approach consisting in the so-called "evolutionary" way, was proposed as early as in the 1970s by Hungarian economists, particularly J. Kornai (Kornai, 1990). Its actual implementation started in the late 1980s and was directed towards step-by-step replacement of centrally planned

economy with market economy. The proponents of that approach (Kornai, Koves) were certain that during the initial period of transformation planned economy and market economy should exist together (Koves, 1992, pp. 13–36; Kornai, 1992). They believed that structural reforms could not be carried out by means of shock therapy measures, because of the too serious social costs involved. They proposed tentative use of reforms to a limited extent; after those had proved to be successful, the reforms could be extended to the whole economy.

As a conclusion to the discussion about these two methods, one can say that in reality countries have used various combinations of these two approaches, depending heavily on their economic and social preconditions. For example, Poland and Estonia used policy mix at the beginning of their transition, which was more shock therapy oriented, while Hungary and Slovenia supported a more gradual approach. But in the course of reforms this has changed and thus it is impossible to classify transition economies clearly on the basis of these two approaches. The policies designed to speed up restructuring by mass privatization, bankruptcy and rearranging company structures proved to be more time consuming and more cumbersome than envisaged by creative minds (See more about it in Hunya, 1997).

In what follows the above-mentioned levels of restructuring will be looked at more closely. Restructuring at the macroeconomic level means that the government adopts such national policies which will cause structural changes in the way that enables implementation of market economy. It includes various measures, such as stabilization, price and trade liberalization, privatization of state-owned enterprises, and institutional reforms. Macroeconomic restructuring should prepare the environment in transition economies for the functioning of the market. Meso-level restructuring involves changes in the composition of sectors of industry. Restructuring from the microeconomic point of view refers to actions

taken in order to change the existing structure of enterprise along five dimensions: general business philosophy, internal organization, employment, growth of output and increase/ decrease in investment. (Roe, 1984, p. 3; Sharma, 1997, p. 1) The relationship between these levels is described in figure 4.1.

Stabilization policy consists mainly in balancing the budget and a restrictive monetary policy (Sharma, 1997, p. 4). More precisely, it will require that inflation be brought down to much lower levels, that hard budget constraints be effected, that financial sector reforms and interest rate would reflect the real cost funds, so that resources are utilized efficiently and the exchange rate would encourage exporting (Lieberman, 1994, p. 189).

Liberalization consists of price and trade liberalization. Above all it will mean that price control is mislaid, that is, primarily markets set prices. Another aspect is a trade regime that allows free flow of goods and services within the region and creation of a viable trading regime between the Eastern and Central European countries. It will also require the opening of Western markets in preferential or favourable form. (*Ibid.*, p. 190)

The development of the private sector is the basis of market economy. In case of privatization it is very important that a critical mass of private enterprises is created that are ready to compete under market conditions. It is also crucial to attract FDI, which would reinforce foreign competition and increase international competitiveness. Enforcement of competition and bankruptcy law will also speed up that process. (*Ibid*., p. 190)

Institutional reforms consist of institutional services and infrastructure. It means that there should exist institutions which collect and transmit information about the development of the state and enterprise sectors. Such institutions are statistical offices, research and development centres, etc. Principally it is the state’s contribution to create a competitive economy and social environment. It also involves information services, physical infrastructure, and human resources development,

marketing, consulting and accounting services. (Lieberman, 1990, p. 4–5)

The above-mentioned macroeconomic measures are the foundation for successful microeconomic restructuring. Richard Ericson has characterized the relationship between macro- and micro-economic restructuring briefly and clearly as follows.

Stabilization is to provide the appropriate macroeconomic environment, liberalization – the opportunity, and privatization – the high-powered incentives to undertake the painful, risky and difficult task of restructuring market-oriented and viable agents, organizations and institutions (Ericson, 1998, p. 1). Thus successful macroeconomic restructuring is a precondition for satisfactory microeconomic restructuring.

Meso level restructuring involves changes in the composition of industry structure. Such changes include efforts to amend the size distribution of firms within the sector, and efforts to introduce new firms and lines of activity (Roe, 1984, p. 3). The purpose is to raise allocative efficiency through better adjustment to changing preferences and utility structures (Schusselbauer, 1999, p. 3).

Microeconomic restructuring involves three different components: financial, organizational and technological restructuring. The main reason for financial restructuring is that the capital structure of former state-owned enterprises is non-rational and the debts and debt-equity ratio needs to be rearranged. (Bonin, 1998, p. 1). Another object is to achieve financial autonomy, including the ability to borrow from commercial banks (Lieberman, 1990, p. 19).

Organizational restructuring (also called managerial restructuring) includes all aspects related with management of an enterprise. It involves measures to revise the organization, improve the capacities and adjust human resources so as to guarantee production, marketing and financial gains. Compared with the other components, it is the most important component of enterprise restructuring because of the created

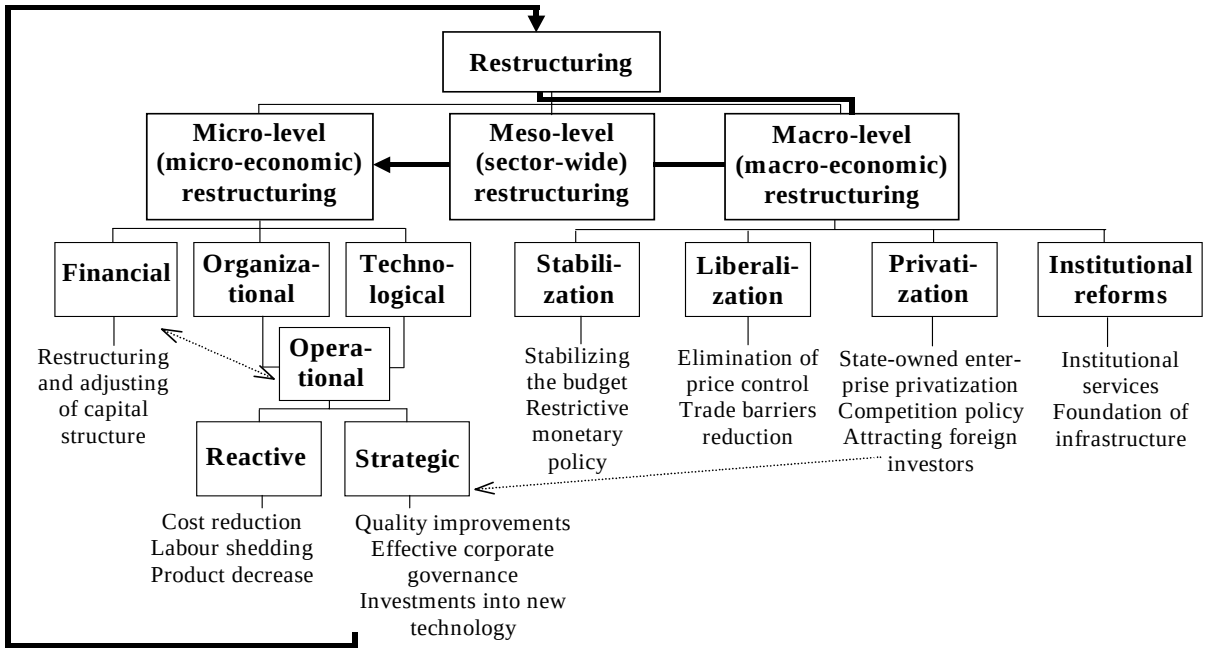

Figure 3.1. Theoretical model of restructuring in transition economies (author's composition based on views of Sharma, Lieberman, Ericson, Bonin and Roe).

value (Lieberman, 1990, p. 18).

The aim of technological restructuring is to improve the production process and the quality of products. It encompasses replacement of obsolete plant and equipment, introduction of new technological processes, investments to improve capacity utilization and energy efficiency, including investment to improve workers' safety (Lieberman, 1990, pp. 17–19; Lieberman, 1994, p. 188).

Organizational and technological restructuring are also treated under one term — operational restructuring. In that case two different types of enterprise behaviour are distinguished between, *viz*. "reactive[1]" and "strategic[2]" restructuring (Bonin, 1998, p. 3).

This type of restructuring, which is undertaken to improve competitiveness of cost without major investment into plant and equipment, and includes labour shedding, wage reductions, product decreases, changes in assortment, and selling of assets and old inventory, is called passive restructuring. In case of that type changes in the organization and its scope are minimal. (see Bonin, 1998, p. 3; Carlin *et al.*, 1997, p. 1; Ericson, 1998, p. 2; Grosfeld *et al.*, 1995, p. 6–7; Lieberman, 1994, p. 185; Roe, 1984, p. 4). Many authors have argued that such behaviour is proper for all enterprises at the beginning of transition (Carlin *et al.*, 1997, p. 1). Others have claimed that the same holds in case of domestic-owned enterprises which do not have the necessary resources for strategic restructuring (Meyer, 1998, p. 8; Schusselbauer, 1999, p. 6).

Deep restructuring involves a forward-looking strategic orientation — creation of new product mix, changes in organization, accounting and control systems, quality improvement, radical

---

[1] Also the terms defensive and passive restructuring are used.

[2] Also the terms active and deep restructuring are used.

reorganization of product lines and processes, investment into new technology, and research and development work (see Bonin, 1998, p. 3; Carlin *et al.*, 1997, p. 1; Ericson, 1998, p. 2; Grosfeld *et al.*, 1995, p. 6–7; Lieberman, 1994, p. 186; Linz *et al.*, 1998, p. 5). Since it is very capital-consuming, equity by foreign investors is needed. Foreign-owned firms are more actively engaged in it (Meyer, 1998, pp. 8–9).

More types of enterprise restructuring have been brought out, such as negative and positive, short-term and long-term, first and second phase restructuring (Earle *et al.*, 1996b, pp. 209–212; Linz *et al.*, 1998, p. 5; Roe, 1998, p. 4). The most uncommon among them is the last approach, which has been described by Linz and Krueger. According to them, the first stage of restructuring encompasses finding of a market niche, recycling of assortment, and improvement of product quality. In the second phase, the efforts of enterprises comprise efficiency improvement and cost reduction, mainly on account of labour shedding and reorganizing physical capital. (Linz *et al.*, 1998, p. 6) Both phases lack investments into new technology and production capacity. Therefore such an approach does not cover the essence of the whole restructuring process.

Generally speaking, restructuring is a diverse and complex process. Its depth and speed depend on the operation of various economic processes. It is largely affected by what the general economic situation is like at the beginning of transition. A better position will enable the country to undergo the process more painlessly. Instrumental in successful restructuring is the absence of economic and political constraints that distort the natural behaviour of the markets. The current chapter will not concentrate on those macro-economic measures, but will only observe their consequences.

3.2. Privatization as a precondition of restructuring in transition economies

3.2.1. Privatization efforts in transition economies

The change of ownership structure is an important criterion in improving an enterprise's efficiency. Privatization may be regarded as the key condition for enterprise restructuring. Whether privatization or restructuring takes priority has been a matter of much debate. In some cases restructuring occurred before privatization, but then a new owner was expected to emerge who would introduce corporate governance and restructuring with no delay (Hunya, 1997, p. 280). It has been noted that restructuring before privatization is needed more in manufacturing than in the service sector (shops, *etc*.). At the same time, in the context of transition economies it is quite difficult to adopt because of limited resources and the danger that restructuring may take a form that is incompatible with the buyer's business idea (Terk, 1999, p. 47). Several studies have indicated that the efforts in restructuring largely depend on the speed and method of privatization, which allows external sources to flow into enterprises.

Now, with ten years of experience from transition one can say that microeconomic restructuring started mainly after privatization. Before privatizing the state-owned enterprises, the government limited its actions to only preparations for direct sales or voucher privatization. This was mainly executed by dividing large state-owned firms into smaller subparts. The passive role of the government in the restructuring process has been found to have been one of the major reasons for a dramatic drop in the production capacities and a quick decline in employment. Very often intervention of the state into the process of restructuring (particularly in the banking sector) took the form of case-by-case method, which did not produce long lasting effects and was related to covering the costs associated with inefficiency and not creating competitive busi-

ness units (See Hunya, 1997). Therefore it has been argued that privatization does not bring along rapid restructuring; for this it is relevant to carry out other political reforms, like for instance, liberalization of prices and trade, foreign direct investments and anti-monopolistic policy. It is also relevant to diminish government interference in supporting enterprises. (Bevan *et al.*, 1999, p. 22; Rausser, 1992, pp. 3–4)

The role of privatization in future restructuring seems to be related with the form of privatization used by transition economies. An interesting attempt to distinguish between two stages in privatization was done by Hunya who called the first stage primary or "deetatisation" (corporatisation, voucher distribution), and the second stage final privatization. The difference between these two methods is derived by implementing the definition by which "privatization is final, when non-public owners interested in the long-term value of the company assume full ownership rights over a former state-owned enterprise and impose corporate governance over the management" (Hunya, 1997, p. 280). According to that classification, the countries that followed the voucher privatization methods have only completed the first stage of privatization, and to the capital market has been left the task to create strong owners satisfying the requirements of final privatization.

Studies about the impact of privatization on the behaviour of enterprises have been controversial. Generally the conclusion is that privatization itself does not change much in enterprise behaviour (see Ekedahl, 1997, p. 366; Estrin *et al.*, 1995, p. 152; Terk, 1999, p. 160). Important are the method, strategy, and transparency of privatization. It has been claimed that the success of restructuring depends on at what time (year) and to whom (ownership type) the enterprise has been privatized (Purju *et al.*, 1998, p. 37).

The importance of privatization in the restructuring process has been emphasized by many scholars. Broadly speaking, transition economies use three methods of privatization — sales to

outside owners, equal access through voucher privatization, and management-employee buy-outs. Table 3.1 shows the priority of different methods in the selected countries. The sales to outside owners method has been most popular in Estonia, Hungary, Poland and Slovakia. The Czech Republic has mostly used voucher privatization, whereas Slovenia has preferred selling of enterprises to former employees and managers.

Table 3.1

Priority list of privatization methods in the CEE countries

Country	Method		
	Sales to outside owner	**Equal access through voucher**	**Management-employee buy-outs**
Estonia	**Primary**	Secondary	
Czech Republic	Secondary	**Primary**	
Hungary	**Primary**		Secondary
Poland	**Primary**		Secondary
Slovakia	**Primary**	Secondary	
Slovenia		Secondary	**Primary**

Source: Transition Report, 1999, p. 32.

In the period 1990–1996, the sales method or outside privatization was more an exception than rule in the transition economies. In the Czech Republic, Lithuania, former Yugoslavia, Poland and Russia, privatization was carried out mainly by privileged insiders, either through voucher privatization with significant concessions to insiders, or through management-employee buy-outs. The complex design of the Polish mass-privatization plan, especially the need to set up state-appointed investment funds, implied delays and more time to block privatization. In most privatized Russian firms, insiders have either a large minority or a majority stake in the firm, which has also led to delays in privatization. This evolution is justi-

fied with the risk of major rationalization and reorganization that is an unattractive option for insiders. Thus, employees perceived privatization and subsequent restructuring as putting their jobs at risk and implying a potential wage cut for those who remained employed (Blanchard, 1997, pp. 80–81). 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 privatization (Carlin *et al.*,1996, p. 381).

The drawbacks of *voucher* privatization, particularly learned in the Czech Republic, pushed the governments of some transition countries to changing their privatization policy. Poland, the Czech Republic and Lithuania have shifted away from management and employee buy-outs and mass voucher programmes towards sales to outsiders and international tenders. This trend has been accompanied by an increasing openness towards foreign participation in the privatization process (Transition Report, 1998, p. 31).

Each method has its own advantages and disadvantages. But if the objective is deep restructuring, the probability of a positive impact on privatization is larger in case of the direct sales to outsiders method. According to the transition theory, the deep restructuring requires additional capital and expertise which only an outside investor can bring (Carlin *et al*., 1996, p. 383). 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, p. 185). Nevertheless, in Estonia and Hungary that programme has worked better than expected. Privatization has been surprisingly successful. In 1995, 60% of former state-owned enterprises in Estonia and 40% in Hungary were sold by way of direct sales, while in Poland 14% of former state-owned firms were sold by management-employee buyouts and 54% of enterprises were still in the hands of the state (*Ibid*., p. 184).

The advantages of voucher privatization are: the speed, which is especially important in case of industrial restructuring, elimination of the problem of capital, and fairness (Duponcel, 1998, p. 6; Gray, 1996, pp. 189–190). The programme involves creation of large and powerful finance intermediaries and development of market institutions. The vouchers, which were used to purchase shares in companies involving both outsiders and insiders, raised the question about the "real owner". Studies confirm that comprehensive restructuring has sometimes stalled because of ownership uncertainty (Carlin *et al.*, 1996, p. 381). Another outcome of voucher privatization as an incomplete form of privatization is that due to dispersed ownership and ineffective control the real mechanism for the restructuring did not take effect. Managers of these firms may follow their own objectives that may diverge from profit maximization and will not increase economic efficiency. It could be very harmful in enterprises where major restructuring is required, such as the reduction of overemployment or the need to upgrade the power of finance, accounting and marketing departments (Meyer, 1998, p. 18).

The method of management-employee buyout has been the primary method in Slovenia. An important advantage of this method is its feasibility and political popularity. Problems arise if insiders maintain a veto power over privatization decisions and block or sabotage outsider privatization, either at the firm's or political level. The question is, how to go from insider privatization (imposed by political constraints) over to outsider ownership (required for comprehensive restructuring). Aghion and Blanchard have tried to explain that in their "resale to outsider" model (see Garlin *et al*., 1996, p. 382; Gray, 1996, p. 187).

Thus, the most favoured privatization programme should promote direct sales to outsiders. Foreign capital is the necessary condition for deep restructuring. Aghion and Carlin have proposed more reasons why outside ownership obtained by the sales method of privatization might be a necessary condition

for deep restructuring. 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 case of voucher privatization. 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, expertise, which is needed for restructuring is too expensive to buy and experts cannot be rewarded with minority equity positions (Carlin *et al.*, 1996, p. 381).

After a serious analysis, Blanchard concluded: “Consequently, outside ownership is the best of other forms typically needed for full restructuring to take place. As many shares as possible should be given or sold to outsiders at the initial privatization stage. It is important to design privatization to prevent collusion in resale. Outside ownership leads to the existence of a market for shares where insiders can sell their shares more easily, making anonymous selling easier, and thus making collusion harder. It is also important that shares not be put in funds under the control of managers, who can more easily organize collusion then.” (Blanchard, 1997, p. 87).

3.2.2. Privatization in Estonia as a precondition for future restructuring

In the case of Estonia, it is quite improbable to manage only with own resources, because the amount of natural resources is petty and limited. Therefore in most cases the only way to become competitive is by attracting foreign investors to participate in the privatization process, thus making progress in the enterprise modernisation process. Of course, much depends on the activities of the state: how the economic reforms are carried out and which methods of privatization are applied.

Estonian economy was quickly opened in the short period between 1990 and 1992. It was a combination of a very liberal trade regime with rapid liberalization of almost all prices, which ended with the introduction of convertible currency in

the form of currency board. The transition process in Estonia mostly followed the “shock therapy” approach, covering many macroeconomic reforms within a short period of time.

The privatization of state-owned enterprises (SOE) started as early as in 1991 with the so-called pilot privatization on the case-by-case basis. However, privatization on a much broader scale was launched only after the monetary reform in June 1992. It was followed between 1993 and 1996 by the very intensive programme of privatization of medium and large-size enterprises.

The Law on Privatization adopted in 1993 regulates the current privatization of state-owned firms in Estonia. Privatization is carried out centrally by the Estonian Privatisation Agency (EPA), which has authority to conclude sales contracts on behalf of the Republic of Estonia. Estonian privatization has followed the German Treuhand model, which gives a vast authority and independence to the EPA. The main privatization methods are tenders with preliminary negotiations, public auctions, and public offering of shares. Privatization-related transactions are exempt of all state taxes and fees. Estonian success in attracting FDIs could also be explained by its privatization policy.

After the preliminary attempts to use the voucher system, Estonia decided to use the sales method and ask support from the German Privatization Agency (Treuhand). Privatization was launched in the form of international tenders giving equal access to all bidders, including foreign investors. It means that enterprises were sold to either Estonian or foreign buyers on the condition that the buyers would be able to guarantee a certain amount of investments during a fixed period of time and to maintain a certain number of jobs. Western economic analysts looked at this radical approach to privatization as very time-consuming and were highly sceptical about the potential interest of foreign investors in buying Estonian state-owned firms.

In comparison with other transition economies, the Estonian approach to privatization seems to be similar to that of Hungary. Both have benefited from the conditions of privatization opened for investors from abroad and have altogether been more successful in attracting FDIs than other transition countries. Surprisingly, the sales method has been less time-consuming than expected and Estonia expects to complete privatization in 2001.

As a result of the privatization programme, the biggest share of FDIs is located in industry, facilitating co-operation of Estonian firms with several European industrial countries. Wholesale and retail trade, transportation and communication have also been notable recipients of investments. The distribution of FDIs across sectors of economy in other CEE countries is not radically different from the distribution in Estonia, as shown in Table 3.2. The cumulative share of FDIs is smaller in Estonian manufacturing. FDIs into manufacturing have decreased since 1994 continuously and formed in 2000 only 21.8 per cent from the total FDI inflow into Estonia. On the one hand, it shows that the manufacturing sector is weak in Estonia and not so attractive to foreign investor. On the other hand, however, it means that Estonia is more the centre of regional transportation and finance. Another reason for a decrease in FDIs is the completion of privatization. Estonia's approach to privatization by selling to strategic outside investors was a very natural way to integrate the Estonian economy with its European neighbours. Integration has happened at the level of businesses. The largest FDI flows into Estonia originate from the EU member countries — Finland, Sweden, Denmark, Germany, UK and USA. The Nordic countries predominate as foreign investors in Estonia and Latvia. Finland is the most important source of FDIs for Estonia and Denmark for Latvia, while Sweden is the second most important source both for Estonia and Lithuania. Russia is also one of the leading investors in Estonia and Latvia. Therefore in receiving investments the pattern of proximity has appeared for the host countries.

Estonian capability for integration and the competitiveness of its whole economy are at stake. Increased efficiency is essential for the development of competitive economic structures. There has been a noticeable positive trend in structural transformation and privatization in Estonia. In terms of economic growth, the country has been one of the leaders among the transition countries. Between 1995 and 1997, it showed a 5.4% average rise of GDP (World Investment Report, 1998, p. 277). There is a clear link between the high ratio of FDIs and fast growth of real GDP. From this point of view, privatization-related FDIs are important, leading to the restructuring of inefficient state-owned enterprises.

There has been a significant increase in the private sector in the GDP and employment in Estonia. By mid-1998 the private sector's share of GDP formed 70% (Transition Report, 1998, p. 26). The sale of the large-scale infrastructure companies is the last phase of privatization in Estonia. This phase will include companies from the areas of energy, oil shale, rail transport, and telecommunications. The main privatization perspectives of Estonia are to continuously raise the efficiency of infrastructure enterprises through restructuring and attracting private investments.

3.3. Some theoretical aspects of the impact of FDIs on the restructuring of enterprises

A large majority of studies have confirmed the hypothesis that outsider ownership, compared to insider ownership, contributes more to strategic restructuring and increase in the economic efficiency of enterprises (see Carlin *et al*., 1994, pp. 59–61; Djankov, 1999b, p. 2; Earle *et al.*, 1996a, p. 18; Frydman *et al*., 1997, p. 23). In the case of outsiders, there is a difference also between foreign investors and local outsider owners. Usually the positive impact on restructuring is larger in the case of foreign investors, although there are evidences for the opposite as well (see Pihlak *et al*., 1996, p. 23–24).

Table 3.2

Structure of FDI stock by type of activity in selected CEE countries (%)

Type of activity	Estonia 1998	Hungary 1997	Czech R 1997	Slovakia 1998	Slovenia 1997
Agriculture, hunting, forestry, fishing	1	1	…	…	…
Mining	1	1	1	1	…
Manufacturing	**30**	**39**	**45**	**47**	**38**
Energy, gas and water utility	1	14	4	…	10
Construction	1	2	2	2	…
Whole and retail sale	23	13	14	19	13
Hotels, restaurants	1	2	1	1	2
Transport, storage, communication	10	8	9	4	2
Finance	22	11	11	22	14
Real estate, renting and business activities	7	8	1	2	11
Public administration and defence; compulsory social security	1	1	…	…	1
Other	2	…	11	2	8
Total	**100**	**100**	**100**	**100**	**100**

Source: World Investment Report, 1999, p. 435.

Also in the case of insider privatization, the performance of enterprises with managers as owners has been better than that of enterprises acquired by workers (see Aukutsionek *et al.*, 1998, p. 511; Djankov, 1999a, p. 476; Earle *et al.*, 1997; Jones, 1998, p. 11). Of course, it would be wrong to determine that evidence so evenly and always have stage for contrary situations. For instance, Djankov and Pohl studying the restructuring of Slovak enterprises did not find such a big disparity between different ownership types and their impact on restructuring. The firms with manager ownership were engaged in strategic restructuring without foreign ownership (Djankov *et al.*, 1998, p. 68). Not many authors have found that foreign investment enterprises' performance is better in comparison with insider owners (see Earle *et al.*, 1996b, p. 245; Estrin *et al.*, 1999, p. 1126, Roberts *et al.*, 1998). Nevertheless, this is still the most general viewpoint in that problem.

The above-said shows that not always are foreign investment enterprises more successful in the restructuring and efficiency enhancing process than domestic enterprises. Despite that, in recent literature several aspects have been pointed out, which explain the role of FDIs in enterprise restructuring. These are as follows:

1. Through FDIs capital transfer takes place, which includes investments and physical assets. Foreign investors have more financial resources, which enables them to invest in the restructuring process. Also, they have better access to international capital markets and new technology. (Bellak, 1998, p. 8; Ekedahl, 1997, p. 362; Hunya, 1999, p. 10)
2. Foreign investors can establish effective corporate governance. (Duponcel, 1998, p. 14).
3. FDIs create transfer of knowledge in the form of management, know-how and technology. Foreign investors are very supportive in the case of human capital development. They have knowledge about the management of enterprises in market economy. The access to technology and knowledge are considered even more important than the amount

of invested capital. Those components can create the ground for microeconomic restructuring. (Hunya, 1998, p. 70; Meyer, 1998, p. 9)

4. Foreign investors have international relationships and 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 domestically owned enterprises, which cause the spillover effect. (McMillan, 1993, p. 110; Varblane, 1997, p. 2).
5. FDIs rearrange the structure of industry and hence the specialization patterns of a country. Reallocation of resources according to comparative advantages to the country will bring along general growth. That explains the impact of FDIs on manufacturing macroeconomic restructuring (meso-level restructuring). (Hunya, 1999, p. 10).

All these aspects are the subject of efficiency improvement and stimulate growth.

In spite of that, there exist many factors which can diminish the positive impact of FDIs. Firstly, the foreign investors have a stronger power in certain markets, which enables them to displace the local enterprises (Bellak, 1998, p. 10). Secondly, it may happen that foreign-owned enterprises are not capable to adjust to the local conditions and requirements. Thirdly, they can restrict the restructuring of local resources and production capacities, directing local production to low value-added sectors and importing high value-added subproducts. (Dunning, 1994, p. 46) Fourthly, foreign-owned enterprises may not be free in their use of profit and choice of development strategy, which reduce their sovereignty (Hunya, 1999b, p. 17). Lastly, they do not always invest into high-quality technology, but they transfer technology, which is better than that of the host country (Hunya, 1999a, p. 11).

John Dunning has proposed that the impact of FDI 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. FDIs oriented to efficiency improvement can assist the host country in restructuring its economic activities in line with its dynamic comparative advantages; reduce the costs of structural adjustment. Thus such investments are most appropriate for restructuring the manufacturing sector. Strategic-assets-seeking investments may help integrate the competitive advantages of the acquired firm with those of the acquiring firm and increase competition between domestic firms (Dunning, 1994, pp. 35, 38).

According to Ozawa, the multinational enterprises (MNEs) supporting paradigm and the product's life cycle theory proposed by Meyer, FDIs impact on the structure and growth of the economic sectors. According to the theory proposed by Ozawa**,** FDIs increase the host country's existing or potential comparative advantage. He has claimed that MNEs invest in manufacturing sectors, 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 the theory proposed by Meyer, FDIs are made 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 enterprises will combine their ownership-specific advantage with the host country's local-market advantage (Meyer, 1995, p. 7; Ozawa, 1992, pp. 27–54).

Based on the above-mentioned theories, the impact of FDIs on allocative and technical (or industry) efficiency has been distinguished. The changes in allocative efficiency derive from reallocation of investments in industry structure. Rojec has identified it as macro-economic restructuring (here meso-level restructuring) of manufacturing industry according to the host country's actual relative equipment of production factors. Proceeding from that, he has explained the role of FDIs in restructuring manufacturing as investments that are oriented towards the cost-factor advantage and from which a large part of production is exported. In other words, it means that for manufacturing restructuring the FDI has to be efficiency oriented (Rojec, 1999, pp. 1–5). This is similar to the efficiency-oriented investment type proposed by Dunning.

The impact of foreign investment enterprises on technical (or industrial) efficiency has referenced as foreign investment enterprises may affect efficiency by increasing productivity through their own activities and through the spillover effect on domestic enterprises. The theoretical background of that relates to the concept on ownership-specific advantages of foreign investors as a precondition to investing abroad and to the concept of internationalization advantages originating from being a part of a multinational enterprises network (see Rojec, 1999, p. 1–2).

Altogether, FDIs bring along macro-economic restructuring of manufacturing industry only if they are export and cost-factors oriented. By that they improve the existing or potential comparative advantage of the host country. The impact of FDIs on technical efficiency becomes apparent through their direct and indirect influence. The current paper looks at the FDI impact on industrial efficiency from one side, that is, their impact through their own activities, but not on domestic enterprises.

3.4. Comparison of domestic and foreign capital enterprises' performance in restructuring the Estonian manufacturing industry between 1996 and 1998

3.4.1. Data and method

The data about the Estonian enterprises stem from the Estonian Statistical Office (ESO) database on the manufacturing industry. The period of analysis in Estonia was 1996–1998. The data about the other countries have been drawn from the Vienna Institute for International Economic Studies (WIIW) database and cover the period 1993–1996. Only in case of Hungary, the 1997 and 1998 data are also available. The ESO database includes the manufacturing industry balance sheet and income statement data. The WIIW database comprises the main economic indicators and financial ratios of the manufacturing industries involved.

In 1996, there were 352 foreign investment enterprises in the Estonian sample, which formed 10% of the whole (domestic and foreign) sample. In Hungary, the number of foreign investment enterprises was 4312, which formed 21.6% of the whole. In the Czech Republic, Slovakia and Slovenia the respective numbers were 284 (12.5%), 272 (15.5%), and 286 (4.9%).

Estonian and the other countries' data are not fully comparable because of the divergent periods. Since in the Central European countries the development of the private sector had already started before the transition, it is presumed that Estonian enterprises entered the same restructuring phase only in 1996–1998 that Hungarian, Czech, Slovakian and Slovenian enterprises had undergone already between 1993 and 1996. Also the deeper decline of Estonian enterprises after the collapse of the Soviet Union, which took more time to recover,

gives reason for that assumption. Therefore the emphasis is laid more on comparing the dynamics of the process than on describing the current situation. It is done on the basis of qualitative indicators, such as dynamic indexes and comparative indexes.

A problem is caused by different accounting methodologies of foreign ownership used. ESO include foreign investment enterprises which have at least 50% foreign ownership. In the case of Hungary and Slovenia, on the other hand, inclusion has been limited to enterprises with at least 10% foreign ownership. The Czech and Slovakian samples again include enterprises where foreign ownership is minimal. In that case it is also presumed that even with minor foreign ownership foreign investors still control the management of the enterprises.

The sample includes enterprises of different sizes. The Estonian database incorporates enterprises with 20 and more employees. Hungary and Slovenia have left out only very small enterprises. The Czech data involve firms with 25 and more employees until 1994, whereas from 1995 on the data include only firms with 100 and more employees. The data for Slovakia cover firms with 25 and more employees. Different size of enterprises causes biased results, which must be taken into account when interpreting them.

To analyze allocative efficiency (macro-economic restructuring), the author applied the method worked out by B.–Y. Koo, which he used for analyzing Korean enterprises (see Koo, 1993, pp. 288–313). At first the allocation diversity ratios were calculated, which explains the difference of distribution of investments between domestic and foreign-owned enterprises. Next the revealed and dynamic comparative advantage criterion was calculated for testing the industrial distribution of foreign-owned enterprises in accordance with any individual country’s comparative advantages.

In technical efficiency analysis, the financial indicators are based on the main enterprises. The changes in the performance

of domestically owned enterprises (DE) and foreign direct investment enterprises (FIEs) are analysed and the gap between DEs and FIEs is compared. The analysis is based on the average and comparison indexes, which are calculated on the basis of the balance sheet and income statement data. For each manufacturing industry the changes in labour productivity, capital intensity, wages, production cost structure, export performance and tangible assets are measured.

3.4.2. Foreign penetration to the Estonian manufacturing industry compared with some other transition economies

In the second part of the current chapter the structure of foreign direct investments is given by different sectors of economy. The data revealed that the manufacturing industry is not the major target for FDIs in Estonia. The first three sectors with the highest foreign penetration are the wholesale and retail trade, banking, and transportation. In order to get a clearer understanding of foreign penetration, Table 3.3 was constructed, which describes the share of foreign capital in the nominal capital of firms in the Estonian manufacturing industry in 1996–1998.

The results shown in Table 3.3 indicate that in the total Estonian manufacturing industry the foreign share in nominal capital was 44% in 1998. Since 1996, it had increased 3.1%. The highest foreign share is in the paper and paper products industry.

Table 3.2 helps understand the rate of foreign penetration measured by the share of nominal capital separately in the group of domestic and foreign firms (terms used by ESO). The foreign share in the nominal capital of firms classified by ESO as foreign firms was 91.2% in 1998. Hence the foreign firms group is really very strongly controlled by foreign capital. At the same time, foreign capital is also involved in the group of firms classified by ESO as domestic firms. In 1998 the share of

Table 3.3

The share of FDIs in the nominal capital of firms in Estonia's manufacturing industry (%)

NACE code	Industries	Share of FDIs in total nominal capital			Share of FDIs in dom. firms group			Share of FDIs in foreign firms group		
		1998	1997	1996	1998	1997	1996	1998	1997	1996
15, 16	Food products, beverages	43.8	31.0	29.7	26.8	7.2	1.3	91.2	92.3	93.0
17	Textiles	85.6	86.1	68.6	6.0	6.7	2.7	99.6	99.6	92.4
18	Wearing apparel, dressing	13.3	7.6	7.2	7.6	1.7	1.4	92.7	92.5	79.4
19	Tanning and dressing of leather	79.1	75.1	77.3	12.0	6.5	6.1	99.9	93.6	92.2
20	Wood	21.6	25.0	22.4	10.0	11.5	17.2	97.0	97.4	58.6
21	Paper and paper products	93.8	94.4	90.7	0.0	0.0	3.5	99.9	99.9	97.4
22	Publishing, printing	28.2	27.1	22.0	12.0	12.9	17.2	84.0	86.8	79.5
23, 24	Chemicals and coke	50.5	64.0	60.5	2.7	3.8	0.7	95.6	93.1	98.5
25	Rubber and plastic	29.2	32.3	36.9	4.7	6.6	7.0	53.9	54.1	79.0
26	Other non-metallic minerals	63.4	49.7	36.9	9.5	0.0	7.0	78.3	63.6	79.0
27, 28	Metals and metal products	9.3	11.1	22.8	5.0	6.9	7.3	41.2	37.4	63.9
29	Machinery and equipment n.e.c.	7.6	7.1	10.3	1.1	1.2	3.0	77.9	69.1	58.7
30–33	Office, electrical, radio and medical	47.1	45.2	45.7	13.6	13.5	33.8	93.0	92.1	78.4

NACE code	Industries	Share of FDIs in total nominal capital			Share of FDIs in dom. firms group			Share of FDIs in foreign firms group		
		1998	**1997**	**1996**	**1998**	**1997**	**1996**	**1998**	**1997**	**1996**
34, 35	Motor vehicles and transport equipment	29.8	30.5	13.8	0.4	0.5	0.3	100.0	100.0	100.0
361	Furniture	13.5	14.8	18.5	6.2	4.5	2.7	84.9	91.4	83.2
D	**Total Manufacturing**	**44.0**	**42.3**	**40.9**	**12.7**	**6.4**	**6.2**	**91.2**	**88.1**	**86.5**

* – not elsewhere calculated.

Source: Author's calculations from the database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

foreign capital in this group was 12.7%, and it had grown 6.3% during the period 1996–1998. The branches of manufacturing industry, where the foreign share is significant, in the domestic firms group are food (26.8% of the total nominal capital is foreign), office and equipment (13.6%), paper and publishing (12%). Therefore in these industries the real FDI penetration is higher than revealed by the data about the foreign majority group. As a major conclusion from the discussion above one can say that foreign penetration rates are around 13% higher than the share of firms with foreign capital majority.

Keeping that conclusion in mind, the following Table 3.4 presents the share of foreign-owned firms (majority FIEs only) in Estonian manufacturing industry by six indicators: number of firms, nominal capital, own capital, net sales, employment, and exports.

Table 3.4 confirms the idea that foreign-owned firms are significantly bigger and their productivity is higher. The share of FDI firms in the total number of firms was only 9.5%; at the same time, they accounted for 28% of net sales, 35% of export, 20.8% of total employment and 38% of own capital. The strongest position of FDI firms was in the paper (77.5% of total sales in 1998), textiles (70.5%), and chemical industries.

The following Tables 3.5–3.8 compare foreign penetration measured in Estonia's manufacturing industry with similar data from Hungary, Slovenia and the Czech Republic. To begin with, the share of FIEs in own capital of Estonia's manufacturing industry between 1996 and 1998 is described (Table 3.5).

Foreign share in own capital has not changed significantly in the period covered by the table. In Estonia it was 38% in 1998, which is lower than in Hungary and higher than in Slovenia. In general Estonian domestic firms started to increase their own capital rapidly during the period 1996–1998, so that the growth rate was 40.5%. In the same period, foreign-owned firms relied more on the increase of loan capital (growth rate 50%) and did

not increase their own capital so quickly. This is the reason why the share of foreign capital in the total own capital stagnated during the period covered by the report.

In the formation of total employment foreign-owned firms tend to play a smaller role than own capital. In Estonia FIEs provided 20.8% of all jobs and their share grew only 2% during the period 1996–1998. Similarly, quite a low level of total employment was owned by the FDI firms in Slovenia and the Czech Republic (see Table 3.6).

The importance of FDI firms in total net sales is around 28% in the Estonian manufacturing industry, which accords with Slovenia and the Czech Republic. Table 3.7 shows industries with the highest foreign share in net sales: paper (77.5% of total sales in 1998), textiles (70.5%); chemicals (44.4%) and leather products (45.5%).

Table 3.8 presents data about the role of FDI in exports of manufacturing industry. In 1998 the total share of FDIs in the exports of the Estonian manufacturing industry was 35.2%. The leading export sectors for FIEs were paper, non-metallic materials, electrical machinery, and textiles. Actually that ratio is quite modest and turned out to be lower than expected. The positive feature is that the above-mentioned share has increased. This shows that Estonian FIEs are largely oriented to the local market. The same cannot be said about Hungary where the share of FDIs in export already in 1993 made up over half of the total manufacturing export and in 1996 exceeded 70%. Also the share of FDIs in Slovenian export is worth mentioning, having better results and more dynamic development in foreign investment enterprises than in domestic ones.

The above data show that a large amount of FDIs has moved into manufacturing industry everywhere, except in Estonia. Despite that the share of FIEs in a number of firms and employment are quite small. Yet the FIEs are significantly larger both by the number of employees and own capital

Table 3.4

Foreign share in the Estonian manufacturing industry measured by various indicators in 1998 (%)

NACE code	Industries	Number of firms	Nominal capital	Own capital	Employ-ment	Net sales	Exports
15, 16	Food products and tobacco	6.9	26.4	33.6	10.4	19.3	18.0
17	Textiles	16,7	85.0	63.1	55.9	70.5	60.7
18	Wearing apparel, dressing	10.0	6.7	4.2	14.2	9.8	8.3
19	Tanning and dressing of leather	16.4	76.3	57.4	26.2	45.5	53.8
20	Wood	5.6	13.4	13.7	11.7	16.3	24.9
21	Paper and paper products	24.1	93.9	93.8	64.8	77.5	94.6
22	Publishing, printing	7.5	21.0	30.7	12.6	19.7	1.5
23, 24	Chemicals, coke and petroleum	20.0	51.5	58.4	26.9	44.4	57.2
25	Rubber and plastic	17.9	49.8	52.2	14.4	26.3	45.8
26	Other non-metallic minerals	14.8	78.4	74.3	38.1	61.0	84.5
27, 28	Basic and fabricated metals	8.4	11.9	7.4	14.3	10.6	15.1
29	Machinery and equipment n.e.c.	11.4	8.5	9.3	8.2	20.3	30.7
30–34	Office and electrical machinery, precision equipment	14.6	42.2	37.0	50.1	42.7	63.5

NACE code	Industries	Number of firms	Nominal capital	Own capital	Employ-ment	Net sales	Exports
35	Other transport equipment	8.3	29.5	16.1	20.2	13.7	14.1
36	Furniture, manufacturing n.e.c.	7.6	9.3	13.4	13.2	19.6	28.7
37	Recycling	4.1	2.8	21.8	3.9	15.1	10.3
D	**Total Manufacturing**	**9.5**	**40.1**	**38.1**	**20.8**	**28.2**	**35.2**

Source: Author's calculations from the database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

Table 3.5

Foreign share in own capital in manufacturing industries (%)

NACE code	Industry	Estonia		Hungary*		Czech R.		Slovenia*	
		1996	1998	1993	1996	1993	1996	1995	1996
15, 16	Food products and tobacco	31.0	33.6	59.6	66.3	15.8	29.7	5.3	12.5
17	Textiles	60.4	63.1	35.9	53.6	2.4	4.9	2.4	2.5
18	Wearing apparel, dressing	4.7	4.2	40.0	47.2	0.9	3.8	2.1	2.3
19	Tanning and dressing of leather	65.1	57.4	38.5	79.6	0.4	1.2	*	*
20	Wood	3.7	13.7	25.1	59.3	1.0	6.1	0.7	0.1
21	Paper products	92.8	93.8	55.2	45.7	6.8	9.9	44.9	48.4
22	Publishing, printing	32.6	30.7	36.4	45.9	21.3	21.6	4.3	4.9
23	Coke and petroleum	In 24		0.4	100	0.0	0.0	*	*
24	Chemicals	65.7	58.4	45.0	83.2	5.2	14.5	15.0	20.0
25	Rubber and plastic	56.3	52.2	61.0	69.4	35.9	41.6	6.5	8.4
26	Other non-metallic minerals	73.1	74.3	62.2	80.9	29.7	54.1	11.0	14.2
27	Basic metals	In 28		26.3	44.9	1.9	2.0	0.6	1.3
28	Fabricated metals	9.4	7.4	48.8	40.9	5.9	19.4	1.3	3.8
29	Machinery and equipment n.e.c.	10.3	9.3	36.6	56.4	3.1	5.9	16.9	18,7

NACE code	Industry	Estonia		Hungary*		Czech R.		Slovenia*	
		1996	1998	1993	1996	1993	1996	1995	1996
30	Office machinery	32.4	37.0	65.5	79.6	0.0	1.5	3.9	*
31	Electrical mach. and app.	In 30		84.5	93.9	13.0	27.5	16.4	15.3
32	Radio, TV sets	In 30		24.4	51.1	1.6	20.8	3.1	3.3
33	Medical, precision, optical instruments	In 30		26.7	44.5	6.4	12.0	24.7	24.0
34	Motor vehicles, trailers	In 35		51.4	76.1	58.7	64.3	47.4	52.8
35	Other transport equipment	8.6	16.1	56.7	59.5	1.7	0.1	*	*
36	Furniture, manufacturing n.e.c.	12.3	13.4	29.9	34.6	1.9	5.1	1.6	1.6
37	Recycling	18.5	21.8	43.0	19.8	0.0	29.4	*	*
D	**Total Manufacturing**	**38.6**	**38.1**	**45.1**	**67.4**	**12.5**	**21.5**	**11.2**	**14.5**

* – nominal capital

Sources: Author's calculations from the databases "Foreign Investment Enterprises", Vienna, 1998, and "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

Table 3.6

Foreign share in employment in manufacturing industries (%)

NACE code	Industry	Estonia		Hungary		Czech R.		Slovenia	
		1996	1998	1993	1996	1993	1996	1995	1996
15, 16	Food products and tobacco	11.1	10.4	36.6	36.2	13.3	17.3	5.7	7.8
17	Textiles	58.8	55.9	28.8	29.1	0.4	8.8	5.6	6.2
18	Wearing apparel, dressing	13.3	14.2	29.4	28.5	1.7	5.9	1.2	1.1
19	Tanning and dressing of leather	21.4	26.2	24.1	39.2	2.6	3.1	*	*
20	Wood	9.8	11.7	17.6	22.4	2.9	8.7	1.7	0.8
21	Paper products	54.4	64.8	52.8	43.6	5.6	11.1	18.4	26.6
22	Publishing, printing	5.7	12.6	23.8	24.8	3.6	19.1	6.4	7.3
23	Coke and petroleum	In 24			5.5	99.8	0.0	0.0	*
24	Chemicals	65.7	26.9	43.6	69.3	5.9	8.6	10.1	12.8
25	Rubber and plastic	56.3	14.4	33.0	34.8	12.6	31.1	13.5	16.4
26	Other non-metallic minerals	73.1	38.1	40.4	41.6	11.8	23.1	4.6	6.7
27	Basic metals	In 28		11.4	21.3	0.9	1.6	4.1	5.3
28	Fabricated metals	6.4	14.3	24.4	23.9	4.8	11.8	1.4	3.0
29	Machinery and equipment n.e.c.	7.3	8.2	24.4	20.8	2.1	6.2	13.5	17.6

NACE code	Industry	Estonia		Hungary		Czech R.		Slovenia	
		1996	1998	1993	1996	1993	1996	1995	1996
30	Office machinery	21.2	50.1	54.7	35.2	0.0	19.7	8.8	*
31	Electrical mach. and app.	In 30		66.0	72.2	4.6	24.2	11.8	9.7
32	Radio, TV sets	In 30		28.1	44.3	0.8	20.2	22.5	30.7
33	Medical, precision, optical instruments	In 30		1.6	35.6	9.5	18.1	14.8	14.0
34	Motor vehicles, trailers	In 35		36.3	43.4	27.9	39.9	36.6	41.4
35	Other transport equipment	15.6	20.2	48.2	57.0	2.0	2.3	*	*
36	Furniture, manufacturing n.e.c.	10.5	13.2	20.9	20.4	0.9	8.8	2.1	3.3
37	Recycling	2.3	3.9	26.9	22.0	0.0	25.4	*	*
D	**Total Manufacturing**	**16.8**	**20.8**	**31.7**	**36.1**	**5.9**	**13.1**	**8.5**	**10.1**

Sources: Author's calculations from the databases "Foreign Investment Enterprises", Vienna, 1998, and "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

Table 3.7

Foreign share in net sales of manufacturing industries (%)

NACE code	Industry	Estonia		Hungary		Czech R.		Slovenia	
		1996	1998	1993	1996	1993	1996	1995	1996
15, 16	Food products and tobacco	20.0	19.3	49.9	51.1	13.9	24.7	7.2	10.0
17	Textiles	78.4	70.5	38.9	49.6	0.5	9.2	7.1	8.4
18	Wearing apparel, dressing	10.5	9.8	39.6	35.2	1.6	5.5	2.0	1.4
19	Tanning and dressing of leather	43.5	45.5	34.0	46.1	2.3	3.9	*	*
20	Wood	11.5	16.3	31.8	42.6	4.7	11.5	2.5	0.9
21	Paper products	62.5	77.5	66.8	66.9	8.9	16.9	41.0	35.4
22	Publishing, printing	9.7	19.7	42.6	73.7	1.8	29.0	4.9	5.9
23	Coke and petroleum	In 24		2.1	99.2	0.0	0.0	*	*
24	Chemicals	37.0	44.4	47.4	78.7	8.5	11.3	14.4	17.4
25	Rubber and plastic	28.0	26.3	58.1	54.6	21.8	43.8	13.6	16.0
26	Other non-metallic min.	53.5	61.0	53.5	63.5	23.4	45.6	8.5	13.3
27	Basic metals	In 28		14.6	34.7	1.3	3.1	2.4	5.0
28	Fabricated metals	5.7	10.6	43.5	33.2	3.9	26.5	2.0	4.4
29	Machinery and equipment n.e.c.	16.9	20.3	32.9	45.1	2.0	8.1	20.4	21.3
30	Office machinery	45.4	42.7	51.5	19.1	0.0	9.3	18.3	*

NACE code	Industry	Estonia		Hungary		Czech R.		Slovenia	
		1996	1998	1993	1996	1993	1996	1995	1996
31	Electrical mach. and app.	In 30		71.8	82.7	6.8	32.0	15.2	14.4
32	Radio, TV sets	In 30		53.5	79.0	2.5	35.9	39.6	40.4
33	Medical, precision, optical instruments	In 30		47.7	45.8	9.4	21.6	11.9	10.9
34	Motor vehicles, trailers	In 35		64.0	84.8	58.5	66.9	72.3	82.3
35	Other transport equipment	10.6	13.7	60.1	71.8	2.2	1.9	*	*
36	Furniture, manufacturing n.e.c.	17.7	9.6	26.2	29.6	1.5	26.5	2.9	5.6
37	Recycling	3.5	15.1	27.9	42.4	0.0	36.8	*	*
D	**Total Manufacturing**	**26.6**	**28.2**	**41.3**	**61.4**	**11.5**	**22.6**	**17.6**	**19.6**

Sources: Author's calculations from the databases "Foreign Investment Enterprises", Vienna, 1998, and "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

Table 3.8

Foreign share in exports of manufacturing industries (in %)

NACE code	Industry	Estonia		Hungary		Czech R.		Slovenia	
		1996	1998	1993	1996	1993	1996	1995	1996
15, 16	Food products and tobacco	19.3	18.0	60.4	6.2	23.2	21.0	10.0	13.4
17	Textiles	72.0	60.7	57.7	67.7	1.0	6.7	10.4	10.5
18	Wearing apparel, dressing	8.5	8.3	51.7	51.7	2.8	3.2	2.6	1.5
19	Tanning and dressing of leather	57.6	53.8	53.6	63.5	2.0	1.5	*	*
20	Wood	14.4	24.9	45.9	69.0	9.6	9.9	3.3	1.0
21	Paper products	81.8	94.6	80.5	75.9	5.4	9.2	47.0	41.0
22	Publishing, printing	9.2	1.5	37.7	83.1	0.3	15.3	28.7	36.3
23	Coke and petroleum	In 24		5.0	100.	0.0	0.0	*	*
24	Chemicals	51.0	57.2	47.3	89.3	6.5	6.6	12.7	17.1
25	Rubber and plastic	34.5	45.8	62.8	60.9	32.8	54.6	19.1	24.4
26	Other non-metallic min.	91.0	84.5	63.2	71.7	25.4	26.4	9.5	17.1
27	Basic metals	In 28		15.4	50.6	1.6	2.9	3.2	6.5
28	Fabricated metals	7.7	15.1	63.2	50.9	3.3	8.6	2.6	5.4
29	Machinery and equipment n.e.c.	28.0	30.7	48.5	71.5	1.4	4.3	24.9	25.3
30	Office machinery	49.3	63.5	83.4	22.2	0.0	0.0	12.5	*

NACE code	Industry	Estonia		Hungary		Czech R.		Slovenia	
		1996	1998	1993	1996	1993	1996	1995	1996
31	Electrical mach. and app.	In 30		92.4	96.3	9.0	25.5	18.1	178
32	Radio, TV sets	In 30		61.0	91.3	3.7	3.1	45.5	46.5
33	Medical, precision, optical instruments	In 30		56.6	72.3	18.0	18.5	14.6	12.4
34	Motor vehicles, trailers	In 35		67.7	90.4	67.6	74.1	80.8	86.3
35	Other transport equipment	10.9	14.1	78.3	90.1	4.3	2.4	*	*
36	Furniture, manufacturing n.e.c.	26.3	28.7	44.0	54.4	2,1	5.9	3.5	5.4
37	Recycling	4.4	10.3	51.4	66.8	0.0	0.0	*	*
D	**Total Manufacturing**	**32.0**	**35.2**	**52.2**	**73.9**	**14.9**	**15.9**	**23.2**	**25.8**

Sources: Author's calculations from the databases "Foreign Investment Enterprises", Vienna, 1998 and "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

capacity. It indicates that foreign investment enterprises are able to produce with return to scale, offering bigger consignments and satisfying the demand of large wholesale and retail enterprises better than domestically owned firms. Through that they have quite a big influence on the real value and competitiveness of the manufacturing industry.

3.4.3. Macroeconomic or allocative efficiency of FDIs in Estonia

Intensive restructuring of the Estonian manufacturing industry did not start until after the 1992 monetary reform, which, combined with widespread price liberalization and the concept of total openness of economy, very quickly led to changes in relative pricing of production factors, thus pushing the economy to seek new areas of comparative advantage. This process was strongly supported by FDIs, which were distributed quite differently from domestic firms.

Industrial distribution of assets of FIEs and DEs in the Estonian manufacturing sector has varied. The assets of FIEs have mainly concentrated into five or six sectors of the manufacturing industry. At the same time, the distribution of DEs assets has been quite even across the sectors. Estonia has followed a change in the distribution between 1996 and 1998 (see Tables 3.9–3.11).

The biggest share of investments, both foreign and domestic, has moved into the food products industry. Leaving out the share of the food products industry assets, one can see that in 1996 the share of assets in foreign-owned non-metal minerals, chemicals, textiles, office, etc. industries made up 51.2% of the total foreign firms investments into the assets. The share of DEs assets in the same industries was only 18.4%. No significant changes occurred in that field for three years.

Comparing the cumulative shares of six industries, where FIEs have been invested most with the same DEs shares over three years it can be noted that the discrepancy in the distribution of

assets between two ownership types has decreased significantly. While in 1996 the group of first six foreign industries formed 79.6%, and that of domestic firms only 46.3% of all assets, then by 1997 the situation had changed so that the leading group of six manufacturing industry branches held 76.4% of all assets of foreign firms and 48.6% of domestic firms. In 1998, food, chemicals, non-metal materials (construction materials), textiles, wood, office and electrical goods absorbed 76.3% of all FIEs assets in manufacturing and 60.4% of corresponding assets of DEs. The difference had diminished from 34.4% to 19%. This means that domestic firms started to move into the same industries where foreign investors are active. The reallocative aspect of FDI is evident in the total structure of the Estonian manufacturing industry.

On the basis of the previous aspect that the distribution of FIEs' assets is different from that of DEs it is crucial to learn what causes such a difference. Finding an answer to the question, the allocative diversity ratios (AD) are calculated (Rojec 1999, p. 9):

$$AD = \sum_{i=1}^{23} \left(\frac{p_i}{P} \cdot \frac{a_i}{A} \right); \text{ in per cent; } i = 1 \ldots 23,$$

where

- i – individual manufacturing industry; the total number of manufacturing industries according to the NACE classification of activities being 23,
- p_i – performance indicator p in industry i,
- P – average performance indicator p for the manufacturing sector,
- a_i – assets in industry i,
- A – total manufacturing sector assets.

An AD ratio for an individual performance indicator above 100 means that this group of firms (domestic or foreign) tends to locate in industries with an above average value of that indicator and opposite. If FIEs' performance indicators are above

Table 3.9

Comparative distribution of FIEs' and DEs' assets in the Estonian manufacturing industry in 1996

Industries	Share of FIEs	Cumulative share of FIEs	Share of DEs	Cumulative share of DEs
Food and tobacco	23.1	**23.1**	26.8	**26.8**
Non-metal minerals	18.9	**42.0**	3.4	**30.2**
Chemicals and coke	17.4	**59.4**	8.7	**38.9**
Textiles	8.4	**67.8**	2.7	**41.6**
Office, electrical, radio and medical	6.5	**74.3**	3.6	**45.2**
Paper products	5.3	**79.6**	1.1	**46.3**
Wood	4.7	84.3	11.3	57.6
Furniture	3.0	87.3	8.7	66.3
Leather	2.7	90.0	1.1	67.4
Rubber and plastic	2.5	92.5	2.2	69.6
Other machinery	2.1	94.6	5.1	74.7
Motor vehicles and transportation	2.1	96.7	6.3	81.0
Metals and products	1.4	98.1	6.0	87.0
Publishing	1.1	99.2	5.1	92.1
Wearing apparel	0.7	99.9	6.0	98.1
Other products	0.1	100.0	1.9	100.0

Source: Author's calculations from the database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

Table 3.10

Comparative distribution of FIEs' and DEs' assets in the Estonian manufacturing industry in 1997

Industries	Share of FIEs	Cumulative share of FIEs	Share of DEs	Cumulative share of DEs
Food and tobacco	19.8	**19.8**	28.7	**28.7**
Chemicals and coke	17.4	**37.2**	9.6	**38.3**
Non-metal minerals	17.0	**54.2**	2.7	**41.1**
Textiles	11.2	**65.4**	2.1	**43.2**
Office, electrical, radio and medical	5.6	**71.0**	4.7	**47.8**
Paper products	5.4	**76.4**	0.8	**48.6**
Wood	5.4	81.8	12.6	61.2
Furniture	3.6	85.4	6.3	67.5
Publishing	2.9	88.3	7.2	74.7
Rubber and plastic	2.9	91.2	1.9	76.6
Other machinery	2.2	93.4	4.2	80.8
Motor vehicles and transportation	1.8	95.2	6.2	87.0
Metals and products	1.8	97.1	6.3	93.4
Leather	1.8	98.9	0.9	94.3
Wearing apparel	0.6	99.5	4.3	98.6
Other products	0.5	100.0	1.4	100.0

Source: Author's calculations from the database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

Table 3.11

Comparative distribution of FIEs' and DEs' assets in the Estonian manufacturing industry in 1998

Industries	Share of FIEs	Cumulative share of FIEs	Share of DEs	Cumulative share of DEs
Food and tobacco	20.0	**20.0**	28.9	**28.9**
Chemicals and coke	16.4	**36.4**	8.4	**37.3**
Non-metal minerals	15.4	**51.8**	2.8	**40.1**
Textiles	10.8	**62.6**	2.8	**42.8**
Wood	7.1	**69.6**	13.8	**56.6**
Office, electrical, radio and medical	6.7	**76.3**	3.7	**60.4**
Paper products	5.7	82.0	0.6	60.9
Furniture	3.4	85.5	6.6	67.5
Publishing	3.4	88.8	6.6	74.1
Rubber and plastic	2.7	91.6	2.2	76.3
Motor vehicles and transportation	2.2	93.8	6.3	82.6
Leather	2.0	95.7	0.9	83.4
Metals and products	2.0	97.7	6.9	90.3
Other machinery	1.3	99.0	4.1	94.4
Wearing apparel	0.6	99.6	4.3	98.7
Other products	0.4	100.0	1.3	100.0

Source: Author's calculations from the database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

100%, it can be concluded that foreign direct investments have contributed to macro-economic restructuring in the manufacturing sector.

Table 3.12 shows that foreign investors in Estonia tend to invest in manufacturing sectors with above-average profitability, above-average value added per employee, above-average export propensity, and in bigger firms with more own capital. The relative position of domestic firms *vis-a-vis* foreign ones has not been changed much by value added per employee or by export propensity. The AD by profit per own capital has decreased in domestic firms and increased in FIEs. At the same time, profitability is still under 100 but has been growing year by year. While in 1996 the AD ratio by profit per own capital was –89, the next year it was 57, and in 1998 already 68.

Table 3.12

Allocative diversity (AD) ratio in the Estonian manufacturing industry

	1996		1997		1998	
	DEs	**FIEs**	**DEs**	**FIEs**	**DEs**	**FIEs**
Value added/ employee	105.1	204.0	105.4	202.9	100.1	177.6
Own capital/ firm	145.0	1455.8	146.5	1118.9	135.3	990.5
Export/Sales	98.4	133.6	101.1	133.2	95.7	131.1
Profit/ own capital	136.6	–89.9	87.3	57.1	75.4	67.7
Assets/ employee	107.5	474.0	118.6	370.5	117.8	312.5

Source: Author's calculations from the database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

It seems natural that during the initial stage of investing into Estonia, profit was not the major target to foreign investors, but now it is gradually rising. The higher ratio of profit per

own capital of domestic firms during the whole period is not surprising, as long as a more thorough analysis of the structure of own capital revealed completely different financing options for the two groups of firms. Domestic firms have fewer opportunities to get loan capital and need to be short-run oriented. All capital turnover indicators of the domestic firms were better than those of the foreign firms, which could use access to relatively cheap financing by their mother companies and are therefore more long-term oriented.

As a preliminary result, one can conclude that FIEs tend to locate in industries with relatively high indicators of efficiency. The next problem is how the different distribution of FIEs affects the growth of comparative advantage of Estonia. Bernard has suggested use of two indicators, namely, the classical revealed comparative advantage (RCA) index and the dynamic comparative advantage index (DCA) in individual industries (Bernard, 1996). To calculate the RCA ratio, one needs import indicators at the level of the manufacturing sector. Those indicators not being available for the Estonian manufacturing industry, only the ratios of DCA are calculated herein. It is done according to the following formulas (Rojec 1998, p. 53):

$$DCA_i = \left(\frac{x_{i,t}}{X_t} \div \frac{x_{i,t-2}}{X_{t-2}} \right); \text{ in per cent; } i = 1 \ldots 23,$$

where

i – individual manufacturing industry,
$x_{i,t}$ – exports of industry i in year t,
$x_{i,t-2}$ – exports of industry i in year $t–2$,
X_t – total manufacturing sector exports in year t,
X_{t-2} – total manufacturing sector exports in year $t–2$.

According to this, a particular industry owns a dynamic comparative advantage if the DCA index is above 100. But in order to obtain a summary indicator of industrial distribution of FIEs and DEs relative to the dynamic comparative advantage of

Estonia, the synthetic DCA (SDCA) is calculated (see Rojec 1998, p. 54):

$$SDCA = \sum_{i=1}^{23} \left(DCA_i \cdot \frac{a_i}{A} \right); \text{ in per cent; } i = 1 \ldots 23,$$

where
i – individual manufacturing industry,
a_i – assets in industry i,
A – total assets of the manufacturing sector.

The SDCA ratio above 100 shows that the industrial distribution of a particular group of firms (DE or FIE) is superior to the existing distribution of assets in manufacturing with respect to its dynamic comparative advantage. The same ratio below 100% highlights the opposite behaviour. Table 3.13 presents the SDCA indexes of DEs and FIEs groups in Estonia during the 1996–1998 period.

The results which are similar to Slovenian ones (see Rojec 1998) do not confirm the hypothesis that FIEs promote shifts within the manufacturing industry towards the comparative advantage. The group of DEs has a higher value for the SDCA index during the whole period and the FIEs group has a lower value of the ratio. But the SDCA index of the FIEs group is improving faster than that of the domestic firms,which means that the FIEs are beginning to be more in line with the comparative advantage of Estonia.

Table 3.13

Synthetic dynamic comparative advantage (SDCA) ratio in Estonian manufacturing

Ownership type	1996	1997	1998
Domestic	104.3	104.3	105.9
Foreign	99.1	99.6	102.0

Source: Author's calculations from the database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

Here it is appropriate to mention that Estonia is a country with an open economy and the main aim of its economic policy is to promote export. Therefore it can be claimed that export-oriented foreign direct investments will increase in the future, which will accordingly improve the comparative advantage of the country. The low level of FDIs in the sectors owning a comparative advantage may derive from the fact that foreign investors fail to see the comparative advantage of the country in the cheapness of cost-factors.

3.4.4. Comparative analysis of technical efficiency of manufacturing enterprises with foreign and domestic capital

The analysis concentrates on the main indicators characterizing the efforts taken in restructuring enterprises. Changes in the performance of both domestically owned and foreign investment enterprises are analysed. The analysis of efficiency shows whether the efficiency of the manufacturing industry has risen because of improved of allocative or technical efficiency.

In the beginning, labour productivity in the two groups of firms was compared by using two indicators: net sales per employee and value added per employee.[3] The results (see Table 3.14) indicated quite a significant gap in favour of FIEs. In some industries it exceeded DEs' productivity 2–3-fold (in tanning and dressing of leather, chemicals, rubber and plastic, non-metal minerals, and other machinery industry). Productivity is higher only in three domestic industries: wearing apparel, metal products, and motor vehicles and transportation. In 1998 the industry of office machines and electronic components also surpassed that of the FIE group. The difference in net sales per employee between FIEs and DEs in the manufacturing in-

[3] Value added was calculated by a relatively simple method: net sales minus total costs plus labour costs.

dustry as a whole has shrunk from 1.85 to 1.5 times.

At the same time, it has to be pointed out that measured by added value the difference in labour productivity between FIEs and DEs is smaller. This indicates lower added value of FIEs, which is explained by their higher depreciation rate to total costs because of higher capital life. It also shows that FIEs invest more into new technology and equipment and make more changes in the existing ones.

The productivity growth analysis showed two important trends: first, in the majority of DEs the productivity has increased; second, in several industries the productivity of FIEs has decreased or increased less than in DEs. The first tendency may imply that the better results of FIEs motivate DEs to follow foreign firms' business philosophy, attitudes to employees, investments into new technology (spillover effect). The stunt of FIEs' productivity may be due to the following circumstances.

First, in the FIEs group with higher productivity further increase is slower than in enterprises with lower productivity. Second, the inhibited productivity growth is due to increasing employment in some sectors. For example, productivity in FIEs of the office machinery and electronics industry decreased because of a very strong job creation effect.

Table 3.15 shows that FIEs are significantly larger and more capital-intensive than DEs. In the paper products industry, the FIEs' capital and employee ratio exceeded the same DEs' ratio 13 times in 1997.

A big difference also occurred in the tanning and dressing of leather, chemical, rubber and plastic, and non-metal minerals industries. Such a difference also arises in case of labour productivity analysis. The positive correlation between productivity and capital intensity has been confirmed by many studies. As seen from table 3.15, the capital-labour ratio is higher in the domestic wearing apparel, metals and motor vehicles industries. A similar trend was apparent in the labour productivity

analysis. This is also explained by those industries that are not so attractive for foreign investors. At the same time, in all the DEs capital productivity has increased. That speaks of improvement in DEs' investing capability. At the same time, in six foreign industries the capital to labour ratio has not changed or has diminished.

Now, after concluding that foreign firms are more productive than domestic, the next problem is if they pay accordingly higher wages. Table 3.16 provides comparative data about the wage levels in FIEs and DEs. The first conclusion from the table is that FIEs pay around 25% higher wages than DEs. This ratio has been quite stable over the last three years. There are still major differences by branches of the manufacturing industry. In machinery, wood, food, and publishing sectors FIEs pay wages that are more than 50% above the DEs level. Wages in DEs grew at a higher speed than in FIEs during 1996–1998 and the wage differential decreased. But according to case studies with managers from FIEs, they follow the basic strategy to pay slightly more than domestic firms with the aim to keep skilled labour and avoid tensions. Therefore one can expect a further discrepancy in the wage levels of the two groups of firms.

The above analysis indicates that the production process of FIEs is more effective and their restructuring process has been faster than those of DEs. The production units' cost analysis confirms that statement. It shows that material assumptions for efficiency improvement are more valid in case of FIEs than DEs.The production cost analysis shows that DEs have tried to raise efficiency with diminishing the unit labour cost. Unit labour costs have decreased in all domestic industries except in the rubber and plastic industry (see Table 3.17) The unit labour cost is an important indicator, which gives signals about productivity growth *versus* wage growth and serves as an important guideline for foreign investors who assess the potential of the host country's labour force. Table 3.17 clearly indicates that, compared with DEs, the level of unit labour cost is

Table 3.14

Ratio of labour productivity levels between foreign and domestic firms in Estonian manufacturing

(FIE/DE, ratio in times)

NACE code	Industry	Net sales per employee			Value added per employee		
		1996	**1997**	**1998**	**1996**	**1997**	**1998**
15, 16	Food products and tobacco	2.11	2.00	2.07	1.62	2.31	2.00
17	Textiles	2.55	2.68	1.89	0.86	1.30	0.98
18	Wearing apparel, dressing	0.76	0.72	0.65	1.04	0.93	0.88
19	Tanning and dressing of leather	2.82	2.35	2.35	2.00	1.51	1.01
20	Wood	1.20	1.26	1.47	0.40	0.99	1.29
21	Paper and paper products	1.40	1.71	1.86	1.29	1.74	1.17
22	Publishing, printing	1.69	2.43	1.66	2.20	1.89	0.96
23, 24	Chemicals and coke, petroleum	3.15	2.76	2.17	3.64	3.61	2.11
25	Rubber and plastic	1.99	3.20	2.12	4.35	4.00	2.43
26	Non-metal minerals	2.52	2.58	2.54	2.00	2.34	1.59
27, 28	Metals and products	0.88	0.58	0.71	1.08	0.78	0.95
29	Other machinery	2.57	2.87	2.86	2.14	2.73	2.41
30–33	Office, electrical, radio and medical	3.02	1.31	0.74	1.49	1.33	0.99
34, 35	Motor vehicles and transportation	0.61	0.56	0.63	0.76	0.62	0.74
361	Furniture, manufacturing n.e.c.	1.83	1.49	1.60	1.91	1.04	1.44
362–37	Other products	1.51	1.08	4.35	1.72	0.75	3.82
D	**Total**	**1.85**	**1.59**	**1.50**	**1.41**	**1.51**	**1.32**

Source: Author’s calculations from the database “Estonian Manufacturing Industries 1995–1998”, Tallinn: ESO, 2000.

Table 3.15

Capital to labour ratio between foreign and domestic capital firms (ratio in times)

NACE code	Industry	Comparison index FIE/DE			Change index 98/96	
		1996	1997	1998	DE	FIE
15, 16	Food products and tobacco	5.09	4.40	4.38	1.40	1.20
17	Textiles	0.67	2.09	1.35	1.14	2.30
18	Wearing apparel, dressing	0.15	0.26	0.26	1.49	2.54
19	Tanning and dressing of leather	7.51	4.65	3.78	1.43	0.72
20	Wood	0.27	0.77	1.20	1.61	7.09
21	Paper and paper products	10.87	13.11	8.23	1.33	1.00
22	Publishing, printing	2.88	5.31	3.02	1.58	1.65
23, 24	Chemicals and coke, petroleum	9.82	5.66	3.82	2.45	0.95
25	Rubber and plastic	6.23	8.50	6.49	1.46	1.52
26	Non-metal minerals	6.69	4.86	4.70	1.58	1.11
27, 28	Metals and products	1.17	0.40	0.48	1.82	0.74
29	Other machinery	1.29	1.34	1.16	1.34	1.20
30–33	Office, electrical, radio and medical	2.01	0.94	0.58	2.04	0.59
34, 35	Motor vehicles and transportation	0.53	0.84	0.76	1.78	2.54
361	Furniture, manufacturing n.e.c.	1.61	0.83	1.02	1.30	0.82
362–37	Other products	1.59	1.35	6.84	1.45	6.26
D	**Total**	**3.39**	**2.56**	**2.42**	**1.54**	**1.10**

Source: Author’s calculations from the database “Estonian Manufacturing Industries 1995–1998”, Tallinn: ESO, 2000.

Table 3.16

Ratio of wage levels between foreign and domestic firms in Estonian manufacturing (FIE/DE, ratio in times)

NACE code	Industry	Wage growth 1998/1996		Wage level ratio (FIE/DE)			
		FIE	DE	1995	1996	1997	1998
15, 16	Food products and tobacco	1.24	1.31	1.37	1.51	1.51	1.54
17	Textiles	1.19	1.42	1.48	1.10	1.10	1.04
18	Wearing apparel, dressing	1.27	1.38	0.93	0.99	1.02	0.93
19	Tanning and dressing of leather	1.26	1.35	N/A	1.35	1.41	1.26
20	Wood	1.66	1.38	1.50	1.31	1.27	1.51
21	Paper and paper products	1.57	1.07	N/A	1.01	1.15	1.13
22	Publishing, printing	1.30	1.40	N/A	1.66	1.71	1.50
23, 24	Chemicals and coke, petroleum	0.95	1.20	1.67	1.82	1.52	1.42
25	Rubber and plastic	1.20	1.58	N/A	1.55	1.85	1.28
26	Nonmetal minerals	1.50	1.53	1.22	1.46	1.41	1.37
27, 28	Metals and products	1.37	1.32	N/A	1.08	1.06	1.13
29	Other machinery	1.46	1.18	2.11	1.82	2.03	2,.7
30–33	Office, electrical, radio and medical	1.20	1.79	N/A	1.30	1.18	1.05
34, 35	Motor vehicles and transportation	1.33	1.41	N/A	1.13	1.02	1.08
361	Furniture, manufacturing n.e.c.	1.39	1.25	N/A	1.11	1.12	1.21
362–37	Other products	1.75	1.40	N/A	1.76	0.84	2.12
D	**Total**	**1.29**	**1.39**	**1.77**	**1.27**	**1.26**	**1.24**

Source: Author's calculations from the database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

lower in FIEs. It was higher only in four FIE industries. From the point of view of attractiveness of Estonia as a location, a decline in unit labour costs has a major importance for foreign investors. Curiously enough, the general trend in Estonia's manufacturing industry has been equalization of unit labour cost levels among foreign and domestic-owned firms. In 1996 the unit labour costs in FIEs formed 69% of the domestic costs level. In 1998 this ratio increased and reached 83%.

The material intensity (share of material costs to sales) has increased almost in all domestic enterprises (see Table 3.18). The biggest growth has occurred in the office, electrical, radio, medical (17.7%), rubber and plastic (13.3%) industries. The most material intensive sectors are food, wood, paper, rubber and plastic, metals and furniture industry. In FIEs the same ratio has increased only in the leather, paper, publishing and electrical industry. The leather industry has become the most material intensive foreign industry.

Table 3.17

Unit labour cost between foreign and domestic firms
(ratio in times)

NACE code	Industry	Comparison index FIE/DE		
		1996	**1997**	**1998**
15,16	Food products and tobacco	0.72	0.76	0.74
17	Textiles	0.43	0.41	0.55
18	Wearing apparel, dressing	1.30	1.42	1.43
19	Tanning and dressing of leather	0.48	0.60	0.54
20	Wood	1.09	1.01	1.03
21	Paper and paper products	0.72	0.67	0.61
22	Publishing, printing	0.98	0.70	0.90
23, 24	Chemicals and coke, petroleum	0.58	0.55	0.65
25	Rubber and plastic	0.78	0.58	0.60

NACE code	Industry	Comparison index FIE/DE		
		1996	**1997**	**1998**
26	Non-metal minerals	0.58	0.55	0.54
27, 28	Metals and products	1.23	1.83	1.59
29	Other machinery	0.71	0.71	0.76
30–33	Office, electrical, radio, medical	0.43	0.90	1.42
34, 35	Motor vehicles and transportation	1.85	1.82	1.71
36	Furniture, manufacturing n.e.c.	0.61	0.75	0.76
37	Other products	1.17	0.78	0.49
D	**Total**	**0.69**	**0.79**	**0.83**

Source: Author's calculations from the database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

The domestic enterprises' share in electric power costs to sales has not changed and is quite modest, except in the chemical, non-metal minerals, and other machinery industry. In comparison with FIEs it is seen that foreign investment enterprises are more capital intensive than DEs. The share of electric power costs to sales is above average in foreign textile, paper, chemical, non-metal minerals, and motor vehicles industries. Domestic enterprises' share of energy costs to sales has increased only in the chemical industry (3.6%) while in all the other industries it has decreased (see Table 3.19). In FIEs the share of energy costs has grown only in the paper products industry. In general, it can be observed that FIEs are more energy saving and their production process is less costly.

The share of depreciation in total costs has increased in almost all the domestic industries, except in the wearing apparel, wood, paper, other machinery and electrical industry (see Table 3.18). It shows that DEs are still engaged in the reorganization of production process, continuously acquiring new production techniques. Likewise does it confirm the idea

Table 3.18

The structure of production costs in domestic and foreign firms in Estonian manufacturing (%)

Industry	Material cost						Electric power cost					
	DEs			FIEs			DEs			FIEs		
	96	98	Ch.	96	98	Ch.	96	98	Ch.	96	98	Ch.
Food products and tobacco	58.2	55.7	–2.5	45.9	48.5	2.6	1.3	1.3	0.1	1.2	0.9	–0.3
Textiles	44.2	44.8	0.6	70.7	65.6	–5.1	1.9	2.0	0.1	3.0	3.3	0.3
Wearing apparel, dressing	32.3	34.2	1.9	20.8	20.7	–0.2	1.3	1.2	–0.1	1.8	1.5	–0.3
Tanning and dressing of leather	42.9	46.6	3.7	59.0	74.9	15.9	1.8	1.9	0.1	1.4	1.6	0.2
Wood	49.6	52.8	3.2	53.6	55.6	2.1	2.8	2.5	–0.2	2.0	2.0	0.0
Paper and paper products	51.8	58.4	6.6	40.6	47.2	6.6	2.8	1.7	–1.1	5.2	3.4	–1.8
Publishing, printing	23.0	29.4	6.3	15.4	23.5	8.1	0.5	0.6	0.0	0.2	0.3	0.1
Chemicals and coke, petroleum	41.1	43.8	2.8	37.2	42.6	5.4	3.6	3.6	0.0	7.7	6.5	–1.2
Rubber and plastic	39.5	52.6	13.1	48.5	43.1	–5.4	1.1	1.6	0.5	1.1	1.1	0.1
Non-metal minerals	33.7	38.2	4.5	34.3	28.0	–6.3	3.4	3.0	–0.4	7.9	5.5	–2.4

Industry	Material cost						Electric power cost					
	DEs			FIEs			DEs			FIEs		
	96	**98**	**Ch.**	**96**	**98**	**Ch.**	**96**	**98**	**Ch.**	**96**	**98**	**Ch.**
Metals and products	47.2	50.4	3.2	41.7	38.7	–2.9	1.9	1.4	–0.5	2.6	2.3	–0.4
Other machinery	36.0	40.6	4.6	32.1	38.1	6.0	3.4	3.0	–0.5	2.0	1.2	–0.8
Office, electrical, radio, medical	25.0	42.7	17.7	33.6	44.6	11.0	2.7	1.3	–1.4	0.6	1.5	0.9
Motor vehicles and transportation	24.2	23.9	–0.4	32.8	27.0	–5.8	2.2	2.2	0.1	5.7	4.7	–1.0
Furniture, manufact. n.e.c.	45.4	49.0	3.6	48.7	56.4	7.7	2.7	2.7	0.0	1.4	1.8	0.4
Other products	32.1	36.9	4.8	40.3	50.8	10.5	2.8	2.6	–0.2	0.5	0.4	–0.1
Total	**45.3**	**47.4**	**2.1**	**46.6**	**47.0**	**0.5**	**1.8**	**1.9**	**0.0**	**3.3**	**2.9**	**–0.5**

Source: Author's calculations from the database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.

Table 3.19

The structure of energy costs in domestic and foreign firms in Estonian manufacturing (%)

Industry	Energy cost to sales					
	DE			FIE		
	96	98	Ch.	96	98	Ch.
Food products and tobacco	3.5	2.2	–1.3	2.0	1.4	–0.6
Textiles	3.1	2.3	–0.8	3.5	3.3	–0.2
Wearing apparel, dressing	1.7	1.3	–0.4	1.1	0.9	–0.1
Tanning and dressing of leather	2.1	1.1	–1.0	1.6	1.7	0.0
Wood	4.5	2.4	–2.1	2.3	1.9	–0.4
Paper and paper products	4.1	1.2	–2.9	3.9	6.1	2.2
Publishing, printing	0.9	0.7	–0.2	0.7	0.6	0.0
Chemicals and coke, petroleum	10.0	13.6	3.6	3.1	1.6	–1.5
Rubber and plastic	1.4	1.3	0.0	1.0	0.8	–0.2
Non-metal minerals	6.0	3.6	–2.4	8.4	5.1	–3.4
Metals and products	1.1	0.9	–0.3	1.2	0.7	–0.4
Other machinery	3.5	2.4	–1.2	1.3	0.9	–0.4
Office, electrical, radio, medical	1.8	0.6	–1.1	0.6	1.0	0.4
Motor vehicles and transportation	1.6	1.0	–0.6	1.7	0.2	–1.5
Furniture, manufact. n.e.c.	2.8	2.1	–0.7	0.8	0.8	0.0
Other products	2.8	2.0	–0.8	1.6	0.2	–1.4
Total	**2.9**	**2.6**	**–0.4**	**2.8**	**2.3**	**–0.6**

Source: Author’s calculations from the database “Estonian Manufacturing Industries 1995–1998”, Tallinn: ESO, 2000.

mentioned in labour productivity analysis: FIEs have increased their investments into tangible assets, which has caused an increase in depreciation share. Conversely to domestically owned enterprises, the share of depreciation of FIEs in most cases has decreased, only in chemical, rubber and plastic, metals, other machinery, electrical and motor vehicles industries has taken place increasing. That explains why the difference between the domestic and foreign-owned enterprises labour productivity in rubber and plastic industries (measure by value added) has decreased so much. That means that the share of depreciation in foreign rubber and plastic industry has increased 15.5%.

The analysis of production costs shows that FIEs have better control of their costs than DEs. This is above all expressed in their profitability, which has increased (see Table 3.20). In 1996, FIEs had actually a worse starting position than DEs, which indicates that earning profit was not their primary aim. On the other hand, the reason for their low profitability may derive from hiding earnings by transfer pricing and transferring management costs to the mother company. At the same time, it is seen that the level of profitability between DEs and FIEs had equalized by 1997. However, the economic depression in Estonia and the crisis in Russia had a bigger impact on those domestically owned enterprises, which exported a large share of their production to the Russian market. In 1997–1998 the profitability of domestic-owned enterprises was declining in 75% of the enterprises. Thus, the low profitability of DEs may derive from external factors rather than from inefficient cost management. Another frequently referred to positive impact of FDIs is the high export propensity of investors. Hereby it is necessary to mention that this largely comes from the FIEs' internationalization advantage. They have better access to foreign markets and belong to international business networks. The share of export to sales testifies the higher export orientation of the foreign-owned firms. Table 3.21 indicates that predominantly in all FIEs the shares of export in

Table 3.20

Profitability (net sales/profit) of domestic and foreign firms in Estonian manufacturing (%)

NACE code	Industry	DEs			FIEs		
		1996	**1997**	**1998**	**1996**	**1997**	**1998**
15, 16	Food products and tobacco	2.6	3.0	0.9	2.5	5.0	4.0
17	Textiles	1.3	6.5	5.2	–3.0	5.3	1.8
18	Wearing apparel, dressing	2.3	3.1	2.7	3.9	–0.7	1.8
19	Tanning and dressing of leather	1.7	4.1	4.3	2.6	–1.6	–1.6
20	Wood	0.0	6.5	3.3	–10.3	0.5	0.4
21	Paper and paper products	–4.6	2.0	2.6	–2.4	4.0	4.3
22	Publishing, printing	5.2	6.9	4.6	9.8	3.7	–8.7
23, 24	Chemicals and coke, petroleum	0.3	–0.2	–3.1	8.5	8.3	–1.2
25	Rubber and plastic	3.0	7.9	4.2	13.5	15.6	16.8
26	Non-metal minerals	3.0	4.2	4.7	–0.3	8.1	10.4
27, 28	Metals and products	3.6	5.0	4.7	–2.2	–4.5	3.9
29	Other machinery	0.0	3.0	2.1	8.0	7.4	5.6
30–33	Office, electrical, radio, medical	–0.4	3.6	2.8	1.9	3.2	0.9
34, 35	Motor vehicles and transportation	15.7	21.8	15.7	–0.2	5.5	6.0
36	Furniture, manufacturing n.e.c.	0.1	4.1	1.7	5.3	–1.3	7.5
37	Other products	2.2	7.4	4.0	–4.8	4.0	13.1
D	**Total**	**2.7**	**4.8**	**2.7**	**1.9**	**5.1**	**3.2**

Source: Author’s calculations from the database “Estonian Manufacturing Industries 1995–1998”, Tallinn: ESO, 2000.

Table 3.21

Share of export in net sales in Estonian manufacturing (%)

NACE code	Industry	Domestic capital			Foreign capital		
		1996	**1997**	**1998**	**1996**	**1997**	**1998**
15, 16	Food products and tobacco	31.1	37.3	28.9	28.0	27.7	26.5
17	Textiles	47.7	53.0	53.4	33.7	36.3	34.5
18	Wearing apparel, dressing	59.6	61.2	61.5	47.2	56.4	51.0
19	Tanning and dressing of leather	51.2	51.9	65.8	90.3	92.2	91.6
20	Wood	34.6	53.3	46.7	38.4	68.9	79.4
21	Paper and paper products	25.2	20.3	14.5	67.7	74.4	73.6
22	Publishing, printing	3.6	3.0	4.3	3.3	1.5	0.3
23, 24	Chemicals and coke, petroleum	40.5	42.5	39.3	71.9	73.1	66.0
25	Rubber and plastic	40.6	28.2	24.5	55.2	55.0	58.0
26	Non-metal minerals	6.9	17.3	12.2	58.9	59.8	42.5
27, 28	Metals and products	37.8	33.8	34.9	52.2	59.3	52.5
29	Other machinery	33.6	37.1	36.7	64.3	53.0	64.0
30–33	Office, electrical, radio, medical	40.3	35.7	34.2	39.2	55.7	80.1
34, 35	Motor vehicles and transportation	69.1	72.8	67.8	69.2	70.8	70.4
361	Furniture, manufacturing n.e.c.	49.8	51.0	56.5	82.9	90.5	93.1
362–37	Other products	41.4	49.5	52.0	52.8	33.2	33.8
D	**Total**	**36.4**	**40.4**	**36.9**	**46.7**	**50.6**	**50.9**

Source: Database “Estonian Manufacturing Industries 1995–1998”, Tallinn: ESO, 2000; author’s calculations.

sales are larger than in DEs. The industries with highest export shares are furniture (93.1% in 1998), followed by leather (91.6% in 1997), office machinery and electronic components (80.1%) and wood products (79.4%) industries. The biggest export share in domestic industries is in transportation equipment (65.8%), wearing apparel (61.5%), and furniture (56.5%). The share of export is very low in the publishing and printing industry, and that is valid for both ownership types.

Export per employee is also without exception higher in FIEs. Table 3.22 shows that in 1998 it exceeded DEs even 9.5 times in the paper products industry or 8.8 times in the non-metallic minerals industry. Only in the wearing apparel and transportation equipment industries is export per employee higher in DEs than in FIEs. That is explained by the large share of contract work in these sectors. At the same time, there is a weak tendency towards reduction of differences, as far as in 1996 the average ratio of export per employee in FIEs to that in DEs was 2.33 and in 1998 2.06.

Table 3.22

Export per employee in Estonian manufacturing
(FIE/DE, in times)

NACE code	Industry	Comparison index (FIE/DE)		
		1996	1997	1998
15, 16	Food products and tobacco	1.896	1.489	1.89
17	Textiles	1.801	1.832	1.22
18	Wearing apparel, dressing	0.604	0.664	0.54
19	Tanning and dressing of leather	4.978	4.167	3.27
20	Wood	1.329	1.629	2.50
21	Paper and paper products	3.769	6.264	9.48
22	Publishing, printing	1.518	1.201	0.09
24	Chemicals	5.597	4.742	3.64
25	Rubber and plastic	2.707	6.249	5.01

NACE code	Industry	Comparison index (FIE/DE)		
		1996	1997	1998
26	Other non-metallic minerals	21.62	8.912	8.83
28	Fabricated metals	1.222	1.016	1.07
29	Machinery and equipm.	4.922	4.094	4.98
30	Office machinery	2.937	2.046	1.73
35	Other transport equipment	0.613	0.543	0.64
36	Furniture, manufact. n.e.c.	3.053	2.644	2.63
37	Recycling	1.928	0.723	2.83
D	**Total Manufacturing**	**2.33**	**2.026**	**2.06**

Source: Database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000; author's calculations.

Next, we compare DEs and FIEs by the inflow of tangible assets. One important feature of FIEs is thought to be the transfer of technology and equipment. The validity of that thesis is proved by the indicator of tangible assets per employee (see Table 3.23). It shows that the volume of tangible assets per employee is many times higher in FIEs than in DEs. FIEs are more capital-intensive and DEs are running labour-intensively. The biggest difference is in the non-metallic minerals and chemical industry. At the same time, the difference has decreased, which indicates that the investing capability of DEs has improved. Thereby in many FIEs the growth of tangible assets per employee has been dragged. The reason for that can be their large capital stock, which was aquired at the beginning of the restructuring process. The latter should show in their growing productivity.

In the next section it will be considered in more detail how firms have used their capital: how much they have invested into new technology, what kind of technology has been pro cured the most, and how productive are their assets. The more firms have invested into new technology, the more it can be argued that deep restructuring has taken place or that they have created preconditions to being engaged in it.

Table 3.23

Tangible assets per employee in foreign and domestic firms in Estonian manufacturing (in times)

NACE code	Industry	Comparison index FIE/DE			Change index in 98/96	
		1996	1997	1998	DE	FIE
15, 16	Food products and tobacco	4.66	4.11	3.97	1.608	1.368
17	Textiles	0.35	3.03	1.86	1.271	6.744
18	Wearing apparel, dressing	0.63	0.48	0.55	1.127	0.982
19	Tanning and dressing of leather	7.00	5.19	3.59	1.629	0.836
20	Wood	2.88	2.03	2.21	1.876	1.439
21	Paper and paper products	3.27	4.22	3.82	1.028	1.201
22	Publishing, printing	1.14	0.73	0.41	3.061	1.092
23, 24	Chemicals and coke, petroleum	8.64	3.60	5.93	1.540	1.057
25	Rubber and plastic	4.85	4.11	3.73	1.194	0.920
26	Non-metal minerals	10.11	9.05	5.89	1.634	0.952
27, 28	Metals and products	3.04	1.39	1.12	1.914	0.706
29	Other machinery	2.54	2.27	1.42	1.541	0.866
30–33	Office, electrical, radio and medical	3.26	1.67	1.13	2.197	0.759
34, 35	Motor vehicles and transportation	1.75	1.15	1.01	2.236	1.287

NACE code	Industry	Comparison index FIE/DE			Change index in 98/96	
		1996	1997	1998	DE	FIE
361	Furniture, manufacturing n.e.c.	1.99	2.36	1.90	1.077	1.031
362–37	Other products	0.45	1.32	2.97	1.249	8.236
D	**Total**	**3.39**	**2.56**	**2.40**	**1.698**	**1.087**

Source: Database “Estonian Manufacturing Industries 1995–1998”, Tallinn: ESO, 2000; author’s calculations.

Table 3.23 analyzes the inflow of tangible assets in the period 1996–1998, paying special attention to the share of new assets in the total inflow. The first conclusion from the table is that the total inflow of tangible assets to Estonia's manufacturing industry increased rather quickly. While in 1996 the total inflow was 3.398 million EEK, then in 1997 it reached to 5.012 and in 1998 already to 6.313 million EEK. The relative importance of FDIs in the total inflow of tangible assets dropped from 41.8% in 1996 to 32.9% in 1998. This supports the idea of DEs'growing investing activity, which is necessary in order to survive in the very liberal economic environment of Estonia.

Another conclusion that can be drawn on the basis of Table 3.24 concerns the structure of incoming assets and is linked with the idea about the positive impact of FDIs on the future growth of Estonia's manufacturing industries. The share of new capital in the total inflow of tangible assets was larger in FIEs during the whole period. The share of new assets in the total increased rapidly in both groups of firms. In the FIEs the share of new assets was 61.6% in 1996 and reached 87.9% in 1998. Throughout the same period, DEs had a permanently lower level of new assets in the total, but their share was also rising. An especially large share of new assets (over 95%) was in the foreign office machines and electronic components sector, also in the paper, publishing, wood and textiles industries.

Observing in which type of assets the firms have invested, one can notice an interesting trend. Starting from 1996, DEs invested more into machinery and equipment than FIEs. In 1997 their investments into new plant and equipment were only a little smaller than those of FIEs. Nevertheless, in 1996 new machinery and equipment formed 81.5% of fixed assets in the domestic wearing apparel industry. This suggests that the gap between the DEs' and FIEs' capital to labour ratios may decrease in the future.

The share of new buildings without any exception is several times higher in case of FIEs. On average 96.5% of investments to buildings were classified as new in the foreign textiles industry. At present domestic-owned firms have started to restructure old production lines or/and the whole production process. Thus, it can be concluded that FIEs have made bigger efforts in the deep restructuring process, but the gap with DEs in capital intensity will decrease.

The last Table 3.25 shows the productivity of the invested fixed assets, indicating how the firms have used their fixed assets. Net sales per tangible assets show how many units of sale are produced by every invested unit of tangible assets. The level of capital intensity and the sales growth are major factors influencing it. Accordingly FIE firms could be with a lower level of net sales per tangible assets, because their capital intensity is so high that even a larger sales increase will not cover it. At the same time, it is apparent that FIEs' assets productivity has increased because of decreasing investments into the tangible assets and fast net sales growth. However, the net sales per tangible assets have declined in half of the domestic industries. This is due to their growing investing activity.

Considering all the indicators analysed above one can bring forth the following differences in the behaviour of domestic and foreign-owned enterprises. First, foreign investment enterprises have higher labour productivity, but their productivity has increased less than that of domestic-owned enterprises. Second, they are more capital intensive. At the same time, in all domestic-owned enterprises the capital to labour ratio has increased. Third, foreign-owned enterprises pay higher salaries, therefore their labour force is better motivated and more qualified. Fourthly, they have better cost management. It shows that material assumptions for efficiency improvement are more valid in case of FIEs than DEs. Fifthly, foreign-owned enterprises are more export-oriented. Their production

Table 3.24

Growth of tangible (fixed) assets in domestic and foreign firms in Estonian manufacturing

NACE code	Industry	1996				1998			
		Growth of fixed assets (m EEK)		Share of new (%)		Growth of fixed assets (m EEK)		Share of new (%)	
		DE	FIE	DE	FIE	DE	FIE	DE	FIE
15, 16	Food products and tobacco	639.4	174.5	56.1	75.6	1116.9	445.8	72.0	93.9
17	Textiles	94.7	86.5	11.1	94.0	135.2	354.1	40.5	98.2
18	Wearing apparel, dressing	88.4	8.1	53.8	30.1	117.2	13.8	56.7	86.1
19	Tanning and dressing of leather	11.7	11.8	44.6	36.2	21.1	10.5	57.6	73.6
20	Wood	217.1	189.2	49.4	44.3	920.2	366.1	86.4	96.6
21	Paper and paper products	55.7	22.5	30.9	83.5	14.8	113.7	69.6	41.1
22	Publishing, printing	127.5	9.9	81.6	50.7	374.4	24.4	93.1	96.7
23, 24	Chemicals and coke, petrol.	228.4	82.6	50.1	56.4	100.4	181.6	57.8	93.9
25	Rubber and plastic	47.6	95.6	29.6	2.0	91.7	17.5	75.7	82.9
26	Nonmetal minerals	56.2	432.9	39.1	63.6	125.0	248.5	61.1	64.9
27, 28	Metals and products	127.3	21.2	53.7	46.3	246.6	25.3	60.5	64.1
29	Other machinery	68.9	0.0	34.5	0.0	164.1	10.8	48.5	70.0

NACE code	Industry	1996				1998			
		Growth of fixed assets (m EEK)		Share of new (%)		Growth of fixed assets (m EEK)		Share of new (%)	
		DE	FIE	DE	FIE	DE	FIE	DE	FIE
30–33	Office, electrical, radio, med.	76.8	157.1	43.0	75.0	126.5	130.0	48.0	97.6
34,35	Motor vehicles and transport	194.9	65.9	73.9	93.9	411.9	55.3	74.4	94.7
361	Furniture, manufacturing n.e.c.	120.5	36.5	41.2	49.3	259.8	74.3	60.6	81.8
362–37	Other products	20.9	0.5	37.0	66.4	32.7	8.4	38.1	94.7
D	**Total**	**1978.5**	**1419.7**	**52.9**	**61.6**	**4232.7**	**2080.1**	**72.1**	**87.9**

Source: Database “Estonian Manufacturing Industries 1995–1998”, Tallinn: ESO, 2000; author’s calculations.

Table 3.25

Net sales per fixed assets in domestic and foreign firms in Estonian manufacturing (in units)

NACE code	Industry	Domestic capital			Foreign capital		
		1996	1997	1998	1996	1997	1998
15, 16	Food products and tobacco	4.67	5.33	4.28	2.11	2.60	2.23
17	Textiles	2.86	6.16	4.04	20.78	5.43	4.11
18	Wearing apparel, dressing	3.95	4.97	5.15	4.78	7.45	6.12
19	Tanning and dressing of leather	5.81	6.69	5.37	2.35	3.03	3.51
20	Wood	2.51	2.60	2.25	1.04	1.62	1.50
21	Paper and paper products	2.65	4.17	3.50	1.14	1.69	1.71
22	Publishing, printing	5.18	2.72	2.40	7.71	9.12	9.82
23, 24	Chemicals and coke, petroleum	4.44	2.39	4.27	1.62	1.83	1.57
25	Rubber and plastic	3.85	3.41	3.99	1.58	2.66	2.27
26	Non-metal minerals	2.72	3.66	3.09	0.68	1.04	1.33
27, 28	Metals and products	5.64	5.01	5.26	1.64	2.09	3.34
29	Other machinery	2.34	2.54	2.09	2.37	3.20	4.20
30–33	Office, electrical, radio, medical	3.61	3.99	5.26	3.34	3.12	3.46
34, 35	Motor vehicles and transportation	3.54	3.25	2.34	1.24	1.58	1.46
361	Furniture, manufacturing n.e.c.	2.83	3.80	3.68	2.61	2.40	3.10

NACE code	Industry	Domestic capital			Foreign capital		
		1996	**1997**	**1998**	**1996**	**1997**	**1998**
362–37	Other products	4.10	5.04	5.19	13.78	4.11	7.61
D	**Total**	**3.81**	**3.82**	**3.57**	**1.88**	**2.32**	**2.24**

Source: Database “Estonian Manufacturing Industries 1995–1998”, Tallinn: ESO, 2000; author’s calculations.

is more qualified and internationally competitive. Sixthly, foreign investment enterprises have used their assets more effectively. The share of new assets in the total is bigger than that in domestic-owned enterprises.

It is noteworthy that Estonian domestically owned enterprises have significantly increased investments into assets, which indicates that Estonian domestic-owned enterprises have started moving from the re-active restructuring phase to the strategic restructuring phase. At first sight this is surprising, but can be explained. First, Estonia's economy has been open since the beginning of transition. The liberal economic policy has exerted rather much pressure on local enterprises whose options have been either to leave or restructure. Second, the state bank's control was stopped quite quickly; and the hard budget constraint was carried into effect. Discontinuation of subsidies made enterprises to decrease costs and act more efficiently. Third, the real revaluation of Estonian kroons, which has also increased the pressure to decrease costs.

Conclusions

Defining the concept of restructuring enterprises has not been an easy task. The main problems result from the fact that restructuring includes several differing aspects. In the context of transition restructuring can be defined as adjustment to market economy, for which political measures used by the government are necessary. They enable enterprises to operate for the purpose of profit maximization and improving economic efficiency to increase international competitiveness of this particular enterprise and the economy as a whole.

There are several methods for dealing with restructuring. Macro-economic and micro-economic restructuring are distinguished between. Meso-level restructuring between those two is brought out. Macro-economic restructuring refers to the governmental measures adopted at the national level for making general structural changes. These include measures such as

macro-economic stabilization, liberalization of prices and foreign trade, privatization of state enterprises, and institutional reforms. Micro-economic restructuring means changes in enterprise structure along five dimensions: general business philosophy, internal organization, employment, production, and investment. Meso-level restructuring includes changes in the structure of industrial sectors.

In the case of micro-economic restructuring, financial, organizational and technological restructuring are distinguished between. The last two together are treated as operational restructuring. According to operational restructuring, re-active and strategic approaches are distinguished. Re-active restructuring is defined as improvement of cost competitiveness without major investments in plant and equipment. Strategic restructuring involves a forward-looking strategic orientation – new investment, reorganization of product lines and processes.

Privatization is a necessary, but not sufficient condition for restructuring. It creates incentives to undertake the risky and difficult task of restructuring, but its impact on restructuring depends on the development of other political reforms, applicable methods of privatization, and the resulting ownership type.

Foreign investors' share is most relevant in case of strategic restructuring. The role of foreign direct investments in enterprise restructuring has five important aspects:

a) it is through them that capital transfer takes place which includes investments and physical assets,
b) foreign investors can establish effective corporate governance,
c) foreign direct investments create transfer of knowledge in the form of management, know-how and technology,
d) foreign investors have international relationships and create linkages between domestically owned enterprises,
e) foreign direct investments rearrange the industry structure and hence the specialization patterns of a country.

In the present research paper two methods for analyzing restructuring were used. For analysing macro-economic restructuring, the method worked out by B.–Y. Koo was applied. At first the allocation diversity ratios were calculated, which explains the difference between distribution of investments among domestic and foreign-owned enterprises. And then the revealed and dynamic comparative advantage criterion was calculated; for testing the industrial distribution of foreign-owned enterprises in accordance with each individual country's comparative advantages. For analyzing enterprise efficiency, efficiency analysis based on main enterprises financial indicators was used.

Empirical analysis proved that foreign direct investments cause macro-economic restructuring of manufacturing and the growth of efficiency at enterprise level in general. Foreign direct investments improve the host countries' comparative advantage by changing the distribution of industrial investments, thus bringing along an increase in allocative efficiency. Meanwhile they impact on industrial efficiency, increasing productivity through micro-economic restructuring, and through spillover effects. Five main conclusions can be drawn:

1. The distribution of assets between foreign-owned enterprises and domestically owned enterprises is significantly different. It shows that foreign direct investments cause the change of structure in the host countries' manufacturing sectors. Only in Slovakia was the difference not so significant.
2. The analysis of revealed and dynamic comparative advantage showed that foreign direct investments foster shifts of assets from those manufacturing industries where countries have no or little comparative advantages towards the industries where they have some or considerable comparative advantages. As a result of revealed comparative advantages, analyses of foreign direct investments have been made according to the comparative advantages of Hungary, the Czech Republic, and Slovakia. And according to the dy-

namic comparative advantage analyses, of Estonia and Slovenia.

3. Foreign-owned enterprises show more signs of strategic restructuring than domestically owned ones. Domestically owned enterprises are more engaged in re-active restructuring, except those Estonian domestic enterprises where there was no such difference. For example, labour productivity in domestic enterprises has increased because of the drop in the number of employees and in foreign-owned enterprises because of sales growth.

4. In foreign-owned enterprises the performance indicators are much better than in domestically owned enterprises. Compared to domestic enterprises, foreign-owned enterprises have better labour productivity, are more capital-intensive, pay higher salaries, have better cost management, are more export-oriented, have more productive assets and can also use their assets more effectively. They contribute to micro-economic restructuring by increasing industrial efficiency more than domestically owned enterprises.

5. Estonian manufacturing analysis showed that domestically owned enterprises have developed further as compared to other countries. The development concerns mostly their higher investment activity. Their investments to assets have increased significantly, therefore the share of new machinery and equipment is similar to the respective investments made by foreign-owned enterprises. It shows that Estonian domestically owned enterprises start moving from the re-active restructuring phase to the strategic restructuring phase.

The analysis of allocation diversity ratio showed that the impact of allocative efficiency concerning foreign direct investments is due to the fact that foreign-owned enterprises invest into firms which have above-average profitability, labour productivity, are much larger in size, more capital-intensive and more export-oriented. The impact of industrial efficiency

is due to the same aspects, but is related to ownership-specific and internationalization advantage. Here it is important to point out that the difference of export orientation can be attributed to the fact that they are a part of larger multinational enterprises systems. This gives them better access to foreign markets. The size of foreign-owned enterprises, capital-intensity and more intensive investment activity are characteristic of almost all foreign subsidiaries worldwide.

Foreign direct investments are one of the most important factors of successful enterprise restructuring. Most foreign direct investments are still more local-market-oriented than export-oriented. Therefore it is important to make those areas more attractive in which the state has comparative advantage. It is relevant to attract export-oriented investments. Foreign direct investments do not only contribute to the growth of an enterprise's efficiency, but also have a significant impact on the host country's existing and potential comparative advantages. Additionally, the strategic activity of foreign investors motivates domestic enterprises to follow their strategy, which finally increases efficiency.

Although in Estonia, Hungary and Slovakia the main privatization method has been sales to outside owners, their industrial development has not been the same at all. The best success in manufacturing restructuring has been accomplished by Hungary. And then Estonia and Slovakia can be considered. Neither has the restructuring of the Czech Republic enterprises been successful, although the great part of enterprises was sold by using the method of equal access through voucher privatization. The lower development of Slovenian manufacturing is due to the non-friendly foreign direct investment policy and passive industrial policy. It means privatization does not bring along rapid restructuring; for this it is relevant in establishing other political reforms, such as liberalization of prices and trade, working out foreign direct investments and anti-monopolistic policy. It is also relevant that government interference in supporting enterprises has been cancelled. Only then will

privatization result in the increase of efficiency and successful restructuring.

References

1. **Aukutsionek, S., Filatotchev, I., Kapelyushnikov, R., Zhukov, V**. Dominant Shareholders, Restructuring and Performance of Privatised Companies in Russia: An Analysis and Some Policy Implications. – Communist Economies & Economic Transformation, 1998, Vol. 10, No. 4, pp. 495–517.
2. **Bellak, C**. Lessons from Austria's Post-War Pattern of Inward FDI for CEEC's. – Vienna Institute for International Economic Studies Research Reports, November 1998, No. 251, 54 p.
3. **Bevan, A.A., Estrin, S., Shaffer, M.E**. Determinants of Enterprise Performance During Transition. – Center for Economic Reform and Transformation Discussion Papers, Heriot-Watt University, London Business School, Faculty of Economics, Edinburgh, January 1999, No. 3, 40 p.
4. **Blanchard, O**. The Economics of Post-Communism Transition. Great Britain: Oxford University Press, 1997, 149 p.
5. **Bonin, J**. Enterprise Restructuring: What Is It? Paper presented at the 1st International Workshop on Transition and Enterprise Restructuring in Eastern Europe, Center for East European Studies, Copenhagen Business School, August 20–22, 1998, 26 p.
6. **Carlin, W., Van Reenen, J., Wolfe, T**. Enterprise Restructuring in the Transition: An Analytical Survey of the Case Study Evidence from Central and Eastern Europe. – EBRD Working Papers, July 1994, No. 14, 91 p.
7. **Carlin, W., Landesmann, M**. From Theory into Practice? Corporate Restructuring and Economic Dynamism in Transition Economies. – The Vienna Institute for Comparative Economic Studies Research Reports, August 1997, No. 240, pp. 1–37.
8. **Carlin, W., Aghion, P**. Restructuring Outcomes and the Evolution of Ownership Patterns in Central and Eastern Europe. – The Economics of Transition, 1996, Vol. 4 (2), pp. 371–388.
9. Database "Estonian Manufacturing Industries 1995–1998", Tallinn: ESO, 2000.
10. Database on Foreign Direct Investment Enterprises in Central European Manufacturing: Austria, the Czech Republic, Hun-

gary, Slovakia, Slovenia 1993–1996, Vienna: WIIW, 1998, 202 p.

11. **Djankov, S**. The Restructuring of Insider-Dominated Firms: An Empirical Analysis. – The Economics of Transition, 1999a, Vol. 7, No. 1, pp. 467–479.
12. **Djankov, S**. Ownership Structure and Enterprise Restructuring in Six Newly Independent States. – Comparative Economic Studies, Spring 1999b, Vol. 41, Issue 1, pp. 75–96. (referenced by http://ehostweb.epnet.com/ehost1.asp?…, pp. 1–19)
13. **Djankov, S., Pohl, G**. Restructuring of Large Firms in the Slovak Republic. – The Economics of Transition, 1998, Vol. 6, No. 1, pp. 67–85.
14. **Dunning, J.H**. Re-evaluating the Benefits of Foreign Direct Investment. – Transnational Corporations, February 1994, Vol. 3, No. 1, pp. 22–49.
15. **Duponcel, M**. Restructuring of Food Industries in the Five Central and Eastern European Front-Runners Towards EU Membership. A Comparative Review. – Center for Economic Reform and Transformation, Heriot-Watt University, Edinburgh, July 1998, 36 p.
16. **Earle, J., Estrin, S**. After Voucher Privatisation: The Structure of Corporate Ownership in Russian Manufacturing Industry, mimeo, 1997, referenced by: Bevan, A.A., Estrin, S., Shaffer, M.E. Determinants of Enterprise Performance During Transition. – Center for Economic Reform and Transformation Discussion Papers, Heriot-Watt University, London Business School, Faculty of Economics, Edinburgh, January 1999, No. 3, pp. 24–25.
17. **Earle, J., Estrin, S**. Privatization versus Competition: Changing Enterprise Behaviour in Russia. – Centre for Economic Performance Discussion Papers, LSE/E.S.R.C, December 1996a, No. 316, 35 p.
18. **Earle, J., Estrin, S., Leshchenko, L.L**. Ownership Structures, Patterns of Control, and Enterprise Behaviour in Russia. – Edited by Commander, S., Fan, Q., Schaffer, M.E. Enterprise Restructuring and Economic Policy in Russia. Economic Development Institute Development Studies, Washington, D.C: World Bank, 1996b, pp. 205–251.

19. **Ekedahl, V**. Restructuring of Enterprise in CEE. – Edited by Ševic, Ž., Wright, G. Transition in Central and Eastern Europe. Belgrade: Yasf Student Cultural Centre, 1997, pp. 362–377.
20. **Ericson, R.E**. Restructuring in Transition: Conception and Measurement. – Comparative Economic Studies, 1998, Vol. 40, No. 2, pp. 103–108. (referenced by http://www.umi.com/hp/Support/Titles, pp. 1–4)
21. **Estrin, S., Rosevear, A**. Enterprise Performance and Ownership: The Case of Ukraine. – European Economic Review, 1999, Vol. 43, pp. 1125–1136.
22. **Estrin, S., Gelb, A., Singh, I**. Shocks and Adjustment by Firms in Transition: A Comparative Study – Journal of Comparative Economics, 1995, Vol. 21, No. 2, pp. 131–153.
23. **Frydman, R., Gray, C., Hessel, M., Rapaczynski, A**. Private Ownership and Corporate Performance: Evidence From Transition Economies. Working Paper, October 1997, No. 26, 29 p.
24. **Gray, C.W**. In Search of Owners: Privatization and Corporate Governance in Transition Economies. – The World Bank Research Observer, 1996, Vol. 11, No. 2, pp. 179–197.
25. **Grosfeld, I., Roland, G**. Defensive and Strategic Restructuring in Central European Enterprises. – CEPR Discussion Papers, March 1995, No. 1135, 56 p.
26. **Hunya, G**. The Role of FDI in Industrial Restructuring in CEECs. Paper presented at the Workshop on "Poland and the Transformation in Europe: The Role of Foreign Direct Investment", University College London, School of Slavonic and East European Studies, Department of Social Sciences, London, 26 November 1999b, 18 p.
27. **Hunya, G**. Foreign Direct Investment in Central and Eastern Europe, A Challenge of Globalization and Factor of Stabilisation. Paper prepared for the Club of Rome Symposium "How to Ride the Global Wave", Bucharest, September 1999a, 21 p.
28. **Hunya, G.** Integration of CEEC Manufacturing into the European Corporate Structures by Direct Investments. – MOST-MOCT: Economic Policy in Transitional Economies. 1998, Vol. 8, No. 2, pp. 69–90.
29. **Hunya, G**. Large Privatisation, Restructuring and Foreign Direct Investment. Edited by Zecchini. Lessons from the Economic Transition. Kleuver, 1997, pp. 275–300.

30. **Jones, D**. The Economic Effects of Privatization: Evidence from A Russian Panel. – Comparative Economic Studies, 1998, Vol. 40, Issue 2, pp. 75–103. (referenced by http://ehostweb.epnet.comehost1.asp?..., pp. 1–20.)
31. **Koo, B.-Y**. Foreign Investment and Economic Performance in Korea. – Edited by Sanjaya, L. Transnational Corporations and Economic Development (United nations Library on Transnational Corporations), London and New York: Routledge, pp. 288–313, referenced by Rojec, M**.** Restructuring and Efficiency Upgrading with FDI. Vienna: WIIW, 1999, mimeo, p. 6.
32. **Kornai, J**. The Road to a Free Economy, WW. Norton, N.Y, 1990, 248 p.
33. **Kornai, J**. The Socialist System: The Political Economy of Communism. Princeton: Princeton University Press, 1992, 644 p.
34. **Lieberman, I.W**. Industrial Restructuring: Policy and Practice. – World Bank Policy and Research Series: Industry and Energy Department, March 1990, No. 9, 27 p.
35. **Lieberman, I.W**. Restructuring of Enterprises in Eastern and Central Europe. – Edited by Böhn, A., Korže, U. Privatization Through Restructuring. CEEPN Workshop Series No. 4, Ljubljana: CEEPN, 1994, 242 p. (pp. 183–193)
36. **Linz, S.J., Krueger, G**. Enterprise Restructuring in Russia's Transition Economy: Formal and Informal Mechanism. – Comparative Economic Studies, Summer 1998, Vol. 40, No. 2, pp. 5–52. (referenced by http://www.umi.com/hp/Support/Titles, pp. 1–27)
37. **McMillan, C.H**. The Role of Foreign Direct Investment in the Transition from Planned to Market Economies. – Transnational Corporations, 1993, Vol. 2, No. 3, pp. 97–119.
38. **Meyer, K.E**. Direct Foreign Investment, Structural Change and Development: Can the East Asian Experience be Replicated in East Central Europe. – Middle Europe Centre Discussion Papers Series, London Business School, 1995, No. 16, referenced by Rojec, M. Restructuring and Efficiency Upgrading with FDI. Vienna: WIIW, 1999, mimeo, pp. 1–2.
39. **Meyer, K.E**. Foreign Direct Investment and the Emergence of Markets and Networks in Transition Economies. – CEES Working Papers, Copenhagen Business School, June 1998, No. 12, 26 p.

40. **Ozawa, T**. Foreign Direct Investment and Economic Development. – Transnational Corporations, 1992, Vol. 1, No, 1, pp, 27–54, referenced by Rojec, M. Restructuring and Efficiency Upgrading with FDI. Vienna: WIIW, 1999, mimeo, p. 1.
41. **Pihlak, Ü., Terk, E**. Privatized Enterprises: What Has Become of Them? – The Baltic Review, Summer 1996, pp. 23–24, referenced by: Terk, E. Erastamine Eestis: ideoloogia, läbiviimine, tulemused. Tallinn: Vaba Maa, 1999, lk. 161–162l.
42. **Purju, A., Teder, J**. Company Adjustment and Restructuring Problems in Estonia Between 1992–1995. – Working Papers in Economics (TTUWPE), Tallinn Technical University, Faculty of Economics and Business Administration, March 1998, No. 11, 67 p.
43. **Rausser, G**. Lessons for Emerging Economies in Eastern Europe. – Edited by Clauge, C; Rausser, G. C. The Emerging of Market Economies In Eastern Europe. UK: Blackwell, 1992, pp. 313–322, referenced by: Wojtyna, A., Hausner, J. Privatization as a Restructuring Device: Can it subsitute for Industrial policy in the Transforming Economies? Some Lessons from Poland. – Journal of Socio-Economics, 1993, Vol. 22, No. 4, pp. 417–444. (referenced by http://ehostweb.epnet.comehost1.asp?..., pp. 1–8)
44. **Roberts, B., Gorkov, Y., Madigan, J**. Is Privatisation a Free Lunch? New Evidence on Ownership Status and Firm Performance, 1998, mimeo, University of Miami, referenced by: Bevan, A.A., Estrin, S., Shaffer, M.E. Determinants of Enterprise Performance During Transition. – Center for Economic Reform and Transformation Discussion Paper, Heriot-Watt University, Faculty of Economics, London Business School, Edinburgh, January 1999, No. 3, p. 25.
45. **Roe, A.R**. Industrial Restructuring: Issues and Experience in Selected Developed Economies. – World Bank Technical Paper, 1984, No. 21, 52 p.
46. **Rojec, M**. Foreign Direct Investment's Effects on Restructuring and Upgrading Efficiency in Slovenia's Manufacturing Sector. – Journal on International Relations and Development. Special Issues on Foreign Direct Investment and Industrial Modernisation in Central Europe, July 1998, Vol. 1, No. I–2, pp. 46–64.
47. **Rojec, M**. Restructuring and Efficiency Upgrading with FDI. Vienna: WIIW, 1999, mimeo, 23 p.

48. **Schusselbauer, G**. Privatisation and Restructuring in Economies in Transition: Theory and Evidence Revisited. – Europe-Asia Studies, 1999, Vol. 51, No. 1, p. 65. (referenced by http://www.umi.com/hp/Support/Titles, pp. 1–14)
49. **Sharma, S**. Major Issues in Restructuring and Transition in Eastern Europe. – Edited by Sharma, S. Restructuring Eastern Europe. The Microeconomics of the Transition Process, Cheltenham: Edward Elgar, 1997, pp. 1–13.
50. **Terk, E**. Erastamine Eestis: ideoloogia, läbiviimine, tulemused. Tallinn: Vaba Maa, 1999, 222 lk.
51. Transition Report 1998: Financial Sector in Transition, EBRD, 1998, 234 p.
52. Transition Report 1999: Ten Years of Transition, EBRD, 1999, 288 p.
53. **Varblane, U**. Välisinvesteeringute mõju riigi konkurentsivõimele ja ekspordile. – Eesti Välismajanduse Teataja, 1997, nr. 5, lk. 1–7.
54. World Investment Report 1998: Trends and Determinants. New York: United Nations 1998, 428 p.
55. World Investment Report 1999: Foreign Direct Investment and the Challenge of Development, United nations, 1999, 541 p.