

# **Foreign direct investment in Hungary**

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# **Foreign direct investment in Hungary:**

The effects on the modernization of the manufacturing industry  
and the demand for labor

## **Buitenlandse directe investeringen in Hongarije:**

Effecten op de modernisering van de industrie en de vraag naar arbeid

(met een samenvatting in het Nederlands)

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# Abbreviations, notes, and symbols

## Abbreviations

APV Rt.	State Holding and Privatization Company
CEE	Central and Eastern Europe
CIS	Commonwealth of Independent States
CMEA	Council for Mutual Economic Assistance
EU	European Union
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HRM	Human Resource Management
HUF	Hungarian Forint
JIT	Just-In-Time
MNE	MultiNational Enterprise
NEM	New Economic Mechanism
R&D	Research and Development
SMA	Semi-Manufactured Article
SMEs	Small and Medium-sized Enterprises
SOE	State-Owned Enterprise
TNC	Trans National Corporation
VGM	Economic Working Associations within Enterprises
n.s.	not significant
mln	million (1,000,000)
bln	billion (1,000 million)

## Notes

- Details and percentages in tables do not necessarily add to totals because of rounding off.
- Dollars (\$) refer to United States dollars.
- Central and Eastern Europe includes the following countries: Albania, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Former Yugoslav Republic of Macedonia, Hungary, Latvia, Lithuania, Poland, Republic of Moldova, Romania, Russian Federation, Slovakia, Slovenia, Ukraine, Yugoslavia.

## Symbols

The following symbols have been used in the tables:

- (..) Two dots indicate that data are not available or not separately reported.
- (-) A dash indicates that the item is equal to zero or negligible.
- () A blank in a table indicates that the item is not applicable.



# Voorwoord

Het begon eigenlijk allemaal met de tweedejaars geografie excursie. Onder leiding van Ton van Rietbergen en Kees Volkers ging ik samen met een aantal andere studenten in 1991 op studiereis naar Oostenrijk en Tsjecho-Slowakije. Gezien de recente politieke veranderingen, stond deze voornamelijk in het teken van de transitie naar een markteconomie. Al snel werd mij duidelijk dat Tsjechië meer te bieden had dan alleen *pivo*. Hoewel ik voor de 'wende' al eens achter het IJzeren Gordijn was geweest, is mijn belangstelling voor de regio vanaf dat moment pas echt gegroeid. Toen ik kort daarna moest besluiten waar ik op zou afstuderen was de keuze snel gemaakt. Sindsdien is mijn belangstelling voor Oost-Europa alleen maar toegenomen, en heeft deze geleid tot dit proefschrift. Ik hoop dat deze belangstelling, ondanks de onvermijdelijke wetenschappelijke inslag, in dit boek is terug te vinden.

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Furthermore, I would like to thank Thomas Völgyi, who helped me for three months arranging and conducting interviews. Undoubtedly, his contribution to the research has been an important one. With pleasure I look back at the times when we were driving in his Wartburg on our way to visit companies, and the numerous discussions we had.

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derzoek probeerde duidelijk te maken. Alice de Boer zorgde voor de nodige ontspanning, en was altijd op de hoogte van de laatste facultaire wetenswaardigheden.

Mijn mede-Oost-Europa-onderzoekers waren niet alleen inhoudelijk van belang, maar waren bovendien prettige collega's. Dat de samenwerking met Ruud Dorenbos anders verliep dan beoogd, had alles te maken met onderzoekstechnische zaken en zeker niet met persoonlijke. Het enthousiasme van Herman Kok had een positieve invloed op mijn onderzoek, en onze gedeelde interesse voor Hongarije zorgde voor informatieve en leuke gesprekken.

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Hans van Hastenberg  
Augustus 1999

# 1

## Introduction – The Hungarian transition

### 1.1 Introduction

On the eve of the last decade of the 20th century, the world witnessed the fall of the Berlin Wall and the collapse of the socialist system in almost all of Central and Eastern Europe (CEE). This marked not only the end of central planning, but also the beginning of the transition towards more market-based economies. A transition that appeared to be much more complicated and long-lasting than expected. Together with the collapse of central planning in 1989, CEE became an attractive destination for foreign direct investment (FDI). Foreign firms are drawn to the new untapped sales markets, as well as the favorable labor markets, characterized by low labor costs and high level of operational skills. FDI might play an important role in the transition process and hereby also in bridging the gap with Western economies. After all, foreign companies are expected to bring in modern technology, know-how, and Western management techniques.

This study deals with the effects of foreign companies on two central aspects of the transition process: the modernization of the manufacturing industry and the related changes in the demand for labor. Our focus is on Hungary, since it has been the most attractive host country for FDI in CEE<sup>1</sup>, partly as a result of active government policy that favored the sale of state-owned enterprises (SOEs) to strategic foreign investors. The effects of FDI on Hungary's industrial modernization and labor market are the most extensive and visible among CEE countries, largely due to the fact that a major share of FDI entered the country already during the first years of the transition. Hungary's experience makes it an excellent candidate to study these processes.

The modernization of production is one of the major challenges of the Hungarian manufacturing industry. In 1989, a huge technology gap existed between Hungary and the West. This was partly caused by forty years of central planning, and partly by non-system-related factors. The import of Western technology in the 1980s could not really change this situation. Therefore, one of the main challenges in 1989 was the modernization of production equipment. The more so, since it is a necessary condition for the successful integration with Western economies, especially since the break-up of the Council for Mutual Economic Assistance (CMEA) led to the collapse of export markets in CEE countries and the USSR successor states. FDI is expected to play an important role in this modernization process in view of the modern technologies and organizational know-how which foreign companies have and their financial means to restructure and modernize SOEs. But the modernization effects of FDI might not be restricted only to the foreign subsidiaries in Hungary. Even

more important might be the indirect effects of FDI on the modernization of the manufacturing industry, that is the diffusion of modern technology and organizational know-how to domestic Hungarian companies. This diffusion is mainly through backward linkages with domestic suppliers and subcontractors, and the assistance provided by foreign companies to these domestic companies. In this study we will look at both the direct and indirect effects of FDI on the modernization of the manufacturing industry in Hungary.

It goes without saying that modernization leads to far-reaching changes in the labor market, both in quantitative (employment) and qualitative (professions, skills) respects. As one of the goals of the socialist government was to abolish joblessness and ensure full employment, open unemployment practically did not exist prior to 1989. At the same time, however, unemployment on-the-job was very high, as a consequence of labor hoarding and the policy towards full employment. After the change of system, the economic value of workers in terms of productivity and value added became superior to the social imperative of employment per se. Undoubtedly, labor shedding was higher in foreign companies that followed a more radical modernization and restructuring policy. On the other hand, foreign investors have the financial means to set up new activities to generate new jobs.

What might be even more important, at least in light of the transition process, is the qualitative changes on the labor market. The modernization of production leads to the demand for different skills than those required under socialist rule. As new skills and professions emerge, other skills become less important, or even disappear, thus necessitating far-reaching adaptation of the labor market and the educational system. The reallocation of human capital is a fundamental aspect of successful modernization. Foreign companies can play a role in the transformation of the labor market, especially in the intermediate period when the education system has not fully adapted to the new requirements. They might provide in-house education and on-the-job training to fill the gap between supply and demand of labor. Besides, they might take a leading role in the change of workers' mentality and the introduction of Western work ethics.

In view of the discussion above, the following problem definition is formulated:

*What are the direct and indirect effects of foreign direct investment on the modernization of the manufacturing industry in Hungary, and what are the consequences of this modernization on the demand for labor, both in qualitative and quantitative respects?*

The objects of our study are important elements in the transformation process. At the same time, however, the transformation process sets the *context* for this study. This far-reaching transformation is a necessary consequence of the establishment of a more market-based economy, following forty years of socialist rule. The legacy of the socialist system can thus be seen as the *occasion* for both the transition process and this research. Moreover, the legacy of the socialist system might be a barrier to the modernization of the manufacturing industry, especially for foreign investors that have invested in Hungary through the acquisition of SOEs (that is in the privatization). Therefore, in the following sections (1.2 and 1.3) we set the scene, by taking a closer look at the Hungarian transition and the legacy from the past. In section 1.4 we elaborate on the possible role of foreign companies in Hungary in the transition process, taking into consideration the barriers from the inherited structures. Finally section 1.5 provides an overview of the layout of the book and the structure of the study.

## 1.2 The transformation process

Transformation from a centrally-planned to a more market-based economy, as is taking place currently in Hungary and other former socialist countries in CEE and the former Soviet Union, is an extremely complicated process. First, it entails the comprehensive change of a whole society in a limited time span, including all its political, socio-economic and legal elements. Second, the transition process is without precedent, making it a process of trial and error (SER, 1993). Third, the question about transition is 'transition to what' (Van Zon, 1996).

The change from centrally-planned to more market-based economies is a field of study in itself. Moreover, there is still a lively debate on how best to transform economies. In this section we will therefore only discuss the main elements of transition. First we discuss the transformation in Hungary and its achievements thus far (section 1.2.1). As one of the most important elements in the economic transformation, the privatization of SOEs will be discussed separately in section 1.2.2, especially since this has proven to be an important vehicle for foreign companies to invest in Hungary. Finally in section 1.2.3 we discuss the sharp increase of unemployment in Hungary as one of the dramatic consequences of the transition.

### 1.2.1 Hungary: a gradual transformation?

The transition towards more market-based economies consists of a long list of required reforms, which can be divided into four categories: stabilization, liberalization, institutional reforms, and privatization (Van Brabant, 1993)<sup>2</sup>. Stabilization means reducing inflation, that has appeared to be one of the main obstacles in the early transition years, and containing domestic and external balances. Stabilization is of vital importance, since macro-economic imbalances make it more difficult to gauge the effects of implemented reforms. But the relationship between economic transformation and macro-economic stabilization is paradoxical, since at the same time, systemic changes are destabilizing (SER, 1993). Macro-economic stabilization is strongly connected to liberalization, the second category of reforms (The World Bank, 1996; Hoen, 1996; Knot & Sipkes, 1998). The most important element is the liberalization of prices that have to reflect scarcities in markets. Together with privatization, liberalization of prices are generally seen as the cornerstones of the transition process (Van Zon, 1996). Other elements of liberalization are for instance the liberalization of foreign trade, exchanges rates, and free entry in economic activities. Through liberalization, firms are exposed to consumer demand, the profit motive and competition (The World Bank, 1996). As a consequence, prices are adjusted in line with true scarcities. A third category of reforms are institutional reforms. Institutional reforms cover the establishment of clear property rights, a sound legal and financial infrastructure, and effective government. Institution building is important in making markets work efficiently and supporting growth. So, whereas stabilization and liberalization are important in the early stages of the transition process, institution building is important in the longer term. The privatization of SOEs forms a fourth category of reforms. This process lies at the heart of the transition process. The importance of privatization lies in micro-economic restructuring and modernization. We will discuss privatization separately below.



It is generally acknowledged that the above four categories of reforms are necessary elements in the transformation towards more market-based economies. However, different countries have different ideas about how to transform their economies. In this respect, countries have been characterized as either implementing shock treatment, of which Poland and the Czech Republic are well-known examples, or taking a gradualist approach, of which Hungary is the classic example (Van der Lijn, 1993; Kosta, 1995). The difference refers mainly to different opinions with respect to the speed and sequencing of reforms. In essence it boils down to different opinions on which approach minimizes total welfare costs. It is a misconception that the adherents of the gradualist approach proclaim a slow transformation. Rather, they doubt the feasibility of a quick *successful* transformation.

Different factors might influence the path taken. Van der Lijn (1993) has pointed to the fact that in general, the gradualist reformers view the legacy of the socialist system in less negative light than advocates of shock treatment. As the 'happiest barrack' in the socialist sphere of influence in Europe, where market elements were already introduced before 1989, conditions were such that a more gradual approach was suitable for Hungary. This might have played a role in Hungary for a more gradual approach. For instance, some 80% of consumer prices were liberalized already before 1989. Likewise, the labor market in Hungary was the most liberal of all CEE countries by the end of 1989. The macro-economic situation is a case in point as well. Compared to for instance Poland, Hungary was not in a deep crisis in 1989. Either way, there has to be public support for the speed and way in which reforms are implemented. In Hungary there was definitely no public support for a big bang approach.

Table 1.1 Front-runners in the transition according to the EBRD transition indicators, 1998<sup>a</sup>

	Hungary	Poland	Czech Republic	Estonia	Slovenia
Private sector share of GDP estimate mid-98 (%)	80	65	75	70	55
<i>Enterprises</i>					
Large scale privatization	4	3+	4	4	3+
Small scale privatization	4+	4+	4+	4+	4+
Governance & enterprise restructuring	3+	3	3	3	3-
<i>Markets and trade</i>					
Price liberalization	3+	3+	3	3	3
Trade & foreign exchange system	4+	4+	4+	4	4+
Competition policy	3	3	3	3-	2
<i>Financial institutions</i>					
Banking reform & interest rate liberalization	4	3+	3	3+	3
Securities markets & non-bank finan. inst.	3+	3+	3	3	3

<sup>a</sup> The numerical indicators represent the cumulative progress in the movement from a centrally-planned to a market economy in each dimension and range from 1 to 4+, where 4+ resembles the situation we would generally find in advanced industrial economies. Pluses and minuses indicate countries on the borderline between two categories. For an exact interpretation of the numerical indicators see EBRD (1998, p. 27).

Source: EBRD (1998)

Indeed, one could label Hungary as a gradualist reformer since it was initially less far-reaching and effective in its stabilization and liberalization policy. However, Hoen (1996)

has pointed out that the Hungarian path to a market-based economy also contains elements that are generally assigned to shock therapists. For instance, Hungary applied a tough bankruptcy law (institutional reform), a typical shock therapy instrument that is an important element in micro-economic restructuring.

Either way, according to the European Bank for Reconstruction and Development (EBRD, 1998), Hungary is one of the front runners in the transition process (table 1.1). In fact, comparing Hungary's progress in transition to the other countries applying for EU membership in the first round of enlargement listed in table 1.1, Hungary has attained the most progress in transforming its economy. Moreover, currently, some 80% of gross domestic product (GDP) originates from private sector activities.

### *1.2.2 Specific characteristics of privatization in Hungary*

Privatization is a central element in the transformation towards a more market-based economy. Moreover, it appeared to be one of the most difficult elements of the transition process. Privatization, in its narrow definition, can be defined as the legal transfer of property rights from the state to private agents (Lavigne, 1995). These private owners may be individuals including employees and management of the firms, and legal persons, including local companies and foreign investors. A broader definition of privatization includes all measures contributing to the de-statization of economic activity (Lavigne, 1995). In this sense privatization may be consistent with a large state-owned sector, provided state enterprises are managed according to market rules and exposed to competition. This broad definition also includes the establishment of new private firms (greenfield), both domestic and foreign owned.

Privatization in Hungary, in its broad definition, started already in the beginning of the eighties. In 'socialist' Hungary a distinction could be made between the first economy, which covered the state sector and the second economy, covering all private initiatives. For some years already there was a large second economy in Hungary, which was estimated at close to one-quarter of the aggregate household income in 1998 (Cséfalvay & Rohn, 1991)<sup>3</sup>. Some of these private initiatives had the approval of the state, but formally they were not allowed. As these private initiatives became a more important part of the economy (they were complementary to the state sector, filling up the gaps between consumer demand and production in SOEs) in the beginning of the eighties, some of these private initiatives were legalized and even encouraged. Because they were not included in the 5-year plans however, they formally still belonged to the second economy.

Another element of privatization, starting in 1988, is spontaneous privatization which covers the uncontrolled process of the transfer of state-owned property into private hands (narrow definition<sup>4</sup>). Spontaneous privatization is inherent to the political and juridical power vacuum which existed in the first few years of the transition process. The main players in this privatization were managers with connections in the state machinery. In Hungary this 'nomenclature privatization' was relatively less scandalous compared to other countries (Bos-Karczewska, 1993). It was concerned mostly with the establishment of joint ventures with Western partners, the birth of empty state holdings and fraud within state property, rather than the transfer of state property into the ownership of managers. Spontaneous privatization came to an end in the beginning of 1990. Because the government realized that managers were an important source of capital, necessary for privatization, a legal framework

for management buyouts was set up. From the beginning of 1993 it is also possible for employees to obtain shares in a state-owned company. Only 5-10% of the shares can be allocated to employees. In smaller companies however, a larger share can be sold to employees.

At first sight, privatizing SOEs might seem an inevitable outcome of the change from a centrally-planned to a market-based economy. In fact, the aims for privatizing SOEs differ largely from country to country. These aims determine the way in which privatization actually takes place. Different aims can be identified: political, social, equity, efficiency, stabilization and financial aims. In all the countries in CEE, different approaches to privatization exist side by side. Nevertheless there are large differences between countries.

As from the early days of the transformation onwards, Hungary conducted a privatization policy that was aimed mainly at the fiscal potential of privatization and therefore favored direct sales of SOEs to foreign strategic investors. In this it differed more or less from other transition economies' policies<sup>5</sup>. Privatization of big state enterprises is through public offerings, individual sales or tenders. The latter is especially prevalent for the privatization of strategic industries. Apart from the fiscal potential of privatization, there were other factors that play a role in the preference for sale to foreign companies. First, the lack of domestic capital, as most of the limited domestic savings were quickly absorbed by the privatization of small enterprises, shops, firms, and the catering industry. Second, foreign capital was needed to acquire foreign reserves, necessary to pay off the large foreign debt that arose to finance the reforms in the 1980s (see below). Third, in implementing its privatization strategy, Hungary consistently stressed the importance of bringing in new management, technology and investment in order to revitalize privatized firms, and has therefore been very keen to attract foreign investors (OECD, 1995). Partly as a consequence of the privatization policy in Hungary, foreign direct investment has played a more important role there than in any other economy in transition. For instance, in 1991, some 80-90% of the proceeds received by the State Property Agency came from foreign companies (Lavigne, 1995).

Privatization in Hungary is led centrally, first by the State Property Agency and from June 1995 by the State Holding and Privatization Company (APV Rt). Before the companies are actually sold, they are commercialized or corporatized. This means they are transformed into a joint stock company. Furthermore, in the first four years, some pre-privatization restructuring took place. The main reasons for this were to increase the salability to foreigners and to gain a better price. However, it turned out to be a costly matter, costing more than it actually brought in extra revenues. In general, experience has shown that far from bringing revenues to the state, privatization is costly even when assets are sold rather than given away.

In the euphoric first years of the transition process, estimations about the speed of privatization were much too optimistic. It soon became clear that the privatization of the lion's share of the economy was one of the hardest parts of the transformation process and that it would take much longer than initially expected. Privatization in Hungary started already in 1988 and proceeded, compared to other countries, at a fairly brisk pace until 1994. However, the process slowed considerably in the beginning of 1994 and came practically to a standstill in the first six months of 1995. This 18-month standstill was mainly caused by the general elections and the change of government. Another reason was the delay in the new privatization law, which was implemented in June 1995 after several amendments.

In the second half of 1995 privatization regained momentum. In the last months of 1995 some of the largest privatization deals in the CEE region were concluded, including five gas

distribution companies, six electricity distributors and two power stations, 18% of the gas company MOL, and another 37% of the phone company MATÁV. Hungary was the first country in CEE to privatize part of its electrical and other (strategic) utility companies.

Concluding, we can say that privatization in Hungary has progressed well, especially when compared to other countries in CEE. The privatization process was scheduled to be completed by the end of 1998 (EBRD, 1998).

### 1.2.3 *The emergence of unemployment*

A sharp and steady increase in unemployment is one of the most critical outcomes of the transition in Hungary. According to Commander and Coricelli (1995), labor shedding in SOEs has progressed through roughly three phases along with restructuring and the output collapse. More recently a fourth phase could be identified (Allison & Ringold, 1996):

1. *Voluntary separations and 'soft' layoffs*; In the first years of the transition firms adjusted slowly to increasing fiscal constraints (i.e. the hardening of the budget constraints). This involved for example cutting employment by attrition, early retirements etc. Many people opted for early retirement, a move highly encouraged by the government. In this way the rapid increase of unemployment could be evaded somewhat, and the latent danger of social unrest could be tempered (Dorenbos & Van Hastenberg, 1998).
2. *Involuntary separations and policy-based measures*; As restructuring progressed, attempts to decrease overemployment and respond to economic contraction became increasingly involuntary and policy-based, at the enterprise, as well as government levels.
3. *Mass layoffs*; Unproductive firms were forced into hard restructuring or liquidation. Especially the introduction of a very tight bankruptcy law in 1992, which led to the liquidation of approximately 16,000 firms until 1995, left many people jobless.
4. *Employment stabilization*; Firms have adjusted to the new market circumstances, and output has started to recover again. Contrary to the developments in other countries in CEE, in Hungary the relatively modest output growth has been accompanied by large gains in total labor productivity, which suggests a deep process of labor adjustment, including labor shedding.

The emergence and sharp rise of unemployment is strongly related to the fall in output. Output fell dramatically as a result of a combination of factors. However, in the literature there is no consensus on the relevant and most important factors. The ILO (1995) refers to three competing explanations. The first is that the apparent fall in output is largely a statistical artifact. This refers to the combined effect of the overestimation of statistics under socialist rule, and the underestimation of the rapidly expanding private sector during the transition period. Until 1994 Hungarian statistics did not cover private enterprises smaller than 20 employees. Since 1994 it has been expanded to include enterprises with 10 workers or more (ECE, 1996). One might expect that many new jobs are created in the new, but small firms founded in the new economic environment. A second explanatory factor refers to the effects of the collapse of the CMEA and the Soviet Union. This caused huge decreases in exports and a sharp deterioration in the terms of trade, that were very favorable for the Soviet satellite states in CEE. However, exports shifted towards other countries, mainly in Western Europe, making up for most of the loss of exports to other CMEA countries. The

third, and according to the ILO, probably most valid explanatory factor is that the fall in output is the direct and inevitable result of the transition process. Liberalization, combined with restrictive stabilization, meant the end of the supply-constrained shortage economy. Hereby came an end to the production of unmarketable products, and it led to the reduction of stocks as hoarding became unnecessary, and the liquidation of highly uncompetitive activities (The World Bank, 1996)

The increase in open unemployment appears rather small compared to the huge loss in output. Open employment rose quickly from 0.7% in 1990 to 13.5% in 1995, and it is now rather stable at 10.4% (1997) (Allison & Ringhold, 1996; ECE, 1998a). Two factors are relevant in this respect (ILO, 1995). First, because of the low level of restructuring in many SOEs, labor hoarding is still a general practice. Second, as a result of rising unemployment, many people have withdrawn from the labor market, resulting in a decrease in participation rate (Dorenbos, 1999). Moreover, the decrease in the duration and level of unemployment benefits have discouraged the unemployed from registering, and encourages a flight into the black economy<sup>6</sup>, either in Hungary or abroad (Austria, Germany). The reduction of the (official) economically active population has strong social and fiscal implications, including an increase in dependency ratio and high premiums for unemployment benefits and pensions.

Next to the decrease in participation rates, we have to make some additional marginal notes on the accuracy of the unemployment figures. First, the local employment offices had some teething problems as they were confronted with large scale unemployment for the first time. This may have effected the accuracy of the figures presented as well. Second, continuous alterations of the unemployment definition (mainly during the first years of the transition) have made it difficult to compare figures, both for different years and between the different countries in CEE. Registered unemployment in Hungary has decreased from mid-1993 onwards. However, in view of the conclusion above, it is difficult to judge whether this is really the outcome of an increase in employment.

### **1.3 Inherited structures**

Because of the recent socialist past of Hungary, it is necessary to take into consideration the industrial legacy. This legacy of the socialist system can be seen as a starting point (or as the case may be, an obstruction) in the transition process, and therefore also in the processes under study here, namely the consequences of FDI on the modernization of production and the related changes on the labor market. For this study, a number of elements of the industrial inheritance are important: socialist production methods, pre-1989 reforms, technological development, research and development (R&D), and the socialist labor market.

#### *1.3.1 Industrial production under central planning*

For a description of the basics of the Hungarian manufacturing sector we have to go back to the Soviet Union of the late twenties. Stalin was impressed with Taylor's scientific management and its practical implementation by Henry Ford. Therefore the economic model of the Bolsheviks was very much influenced by their ideas. This in combination with the typical Soviet approach to the labor process and the scale of the management structure makes

some authors even speak of Soviet Fordism (Murray, 1992). However, this does not seem justified because of the totally different starting points. Fordist mass production in the West is profit-based, whereas in socialist countries it is resource-based. Moreover, as a consequence of the 'shortage economy' (Kornai, 1980), socialist countries had in fact problems with maintaining the constant flow in the production process (Ladó et al., 1989), a vital element of Fordist production.

In 1948, after the annexation as a Soviet satellite state, Soviet-style production methods were also introduced in Hungary. Tight policy regulations from Moscow, allowed only for very limited elbowroom for the organization of social and economic life. Therefore, after World War II, forced industrialization took place to reform the underdeveloped economy. Emphasis was on heavy industry because it was seen as the basis for further development. Moreover, production took place independently of price and market influences; production was based on meeting the goals of the plan, not to supply consumer demand. In this context a situation could develop in which companies emphasize the fulfillment of the main purpose of the plan: fulfillment or even overfulfillment of the quantitative production norms. Objectives with regard to efficiency, quality and cost reduction, and therefore the development and introduction of new technology, which were indeed included in the plan, were taken to heart less and less. This led to the production of huge stocks of a limited range of non-salable, standardized, input-consuming, qualitatively poor products, produced in long series (Berend & Ranki, 1979). This Soviet production style strongly influenced the development of the Hungarian manufacturing sector at least until 1968.

### *1.3.2 Pre-1989 reforms*

As from 1968 onwards Hungary tried to implement more market elements into the economy under the New Economic Mechanism (NEM). The NEM was introduced to ensure a more efficient use of resources (Galasi & Sziráczi, 1985) and to tackle the shortcomings of the centrally-planned economy. SOEs gained more autonomy and became less dependent on state budgets. This led to the creation of some competition between firms. Moreover, a soft bankruptcy law was introduced (Knight, 1983), prices were partly liberalized, and incentives for workers to raise productivity were implemented. However it was not until the eighties, when the reforms were given fresh impetus, that major changes in society began to take place.

The reforms opened the door for the development of an extensive second economy which was tolerated by the state and even partly legalized. The second more flexible economy could develop so prosperously because of the rigidity of the state sector, which could not compensate for shortages in production, consumer goods, services and the like. Aware of the fact that the first (state) economy could not deal with certain activities effectively, the socialist regime not only allowed the growth of the second economy, but in some cases even encouraged it. Approximately more than half of the population and more than 70% of the employees received income from the second economy before the change of system

A vital element of the legalized second economy is the Economic Working Associations within Enterprises (Vallalati Gazdasagi Munkako-Zossegek; VGM). These 'partnerships of employees', in fact functioned as subcontractors of the SOEs to which they were connected, and made use of the company's production facilities. Manufactured products were sold either to or through the state company. As opposed to the production methods in the

state sector, indications for more integrated tasks can be found in these VGMs (Pahl, 1989). In addition, employees organized their work themselves (Ladó et al., 1989). These VGMs mainly functioned after official working hours, but partly overlapped with the members' paid jobs in the first, state economy. For instance, Ellman (1989) reports that in the 1970s, when the second economy had not yet evolved to its full extent, about 17% of the total man-hours available were spent on second-economy activities.

### 1.3.3 *Technological development and R&D*

As a consequence of socialist production methods, Hungary was saddled with a huge technology gap vis-à-vis Western countries. Pre-1989 reforms could only reduce this gap in a limited way, which means that the technology backlog in 1989 was (and still is) a serious problem for Hungary. Low technological development in Hungary (as in other transition economies) is partly inherent to the system of central planning and can partly be explained by other factors. System-related factors are (Poznanski, 1985):

1. *Risk reward explanation.* In the West, technological development usually means an improvement of competitiveness and a rise in labor productivity, which in the long run results in a better profitability of the company. In a centrally-planned economy, the development and introduction of new technology only means an extra risk for companies, which can interrupt the constant flow of production. As was mentioned already, this constant flow had first priority for SOEs.
2. *Zero price explanation.* SOEs can deploy means of production against zero prices. With that a significant ground for technological development is blocked, as cost reduction is an important consideration for technological development.
3. *Closed economy explanation.* A practically closed trade system like the CMEA blocks the way for the import of technology which comes readily available as a result of integration in the world economy. However, in the case of Hungary, this explanation is not entirely satisfactory, because it opened its economy considerably before 1989.

Besides these system-related explanations, some other factors which have had a negative influence on technological development in Hungary can be mentioned. For one, the existing R&D potential was highly inefficient. R&D was carried out in separate research institutes which were connected with certain branches of industry. But a serious shortcoming was the actual use of the patent applications by innovative enterprises. This inefficiency can be illustrated by the fact that in 1990 Hungary had a proportionally equal number of researchers compared to countries like Sweden and Germany, despite the huge technology gap between Hungary and these countries. However, the gap was not so wide for certain sectors within the chemical industry and food processing in which Hungarian research has made its mark (Thanner, 1992). Another factor negatively influencing technological development was the very slow diffusion of new technologies among other companies. In such an environment companies employing the latest technology functioned alongside those which kept on producing using outdated equipment for years.

Pre-1989 reforms and the development of a second economy did not have any significant influence on the situation described above. Although characterized by a high level of product innovation, the second economy was characterized by a low technological level,

even at the level of SOEs (Cséfalvay & Rohn, 1991). The only reform that has had a positive influence on technology in pre-1989 Hungary was the opening of its borders which enabled Western technology to enter the country. Therefore, compared to other transition economies, Hungary has in fact attracted a lot of Western technology at an early stage in its attempt to improve the quality of its export industry. However, most technology entered the country in an embedded way (by way of machinery and other contributions in kind). Only a small part (to an amount of 3% of total domestic R&D expenditure) has come in the form of licenses and know-how. This percentage is much lower than in Western countries (15-45%; situation in the early eighties) (Malecki, 1991). Moreover, the maintenance of imported Western machinery was not always adequate, and the repair of machines could not be done well, resulting in only a limited use of the expensive imported machinery.

### *1.3.4 The socialist labor market*

The socialist labor market was fundamentally different from the one that is now developing. In this section we take a closer look at the socialist labor market, taking into consideration both (un)employment and the educational system.

Under socialism, labor was not a commodity, as the allocation of labor was not subject to market mechanisms (Kornai, 1993). This means that workers were allocated by planners to a job, enterprise, or region and were obliged to stay there. Bureaucratic control started with education. Scholars were denied certain opportunities for further study and channeled towards other vocations. Thereafter, they were assigned a place of work, or compulsorily posted to one. The three most important methods of labor planning in socialist countries are administrative (top-down/obedience), economic (pay) and moral ('honored workers' hero of socialist labor') (Ellman, 1989).

After the end of the Stalinist period, the labor market became more of a market in Soviet satellite states (Van Brabant, 1995; Jackman & Rutkowski, 1994; Ellman, 1989; Kornai, 1993). Except for a few jobs, which continued to be centrally allocated, workers enjoyed some freedom in choosing jobs, skills, or professions, as well as the region where they wanted to work, and were free to quit their jobs. In practice, however, bureaucratic control remained important.

Despite geographical mobility being constrained by housing and endemic administrative restrictions, labor mobility was not much lower than in Western Europe, both in terms of turnover rates and moves between regions. For instance, the Lenin Steel Works in Hungary had an annual turnover rate of more than 20% (Fretwell & Jackman, 1994). However, occupational mobility was restricted, since the system of wage-setting did not encourage workers to acquire (other) skills, and many workers only had a narrow range of technical skills (Fretwell & Jackman, 1994).

One of the goals of communist parties under socialism was to abolish joblessness and ensure full employment. Consequently, Hungary grew to a situation of full employment, in which employment was seen as a guaranteed and 'acquired right' (also called a job-rights economy)<sup>7</sup>. In fact, Hungary was characterized by a shortage of labor. Shortage of labor is inherent to every economy. Supply and demand of employees with specific skills, in towns and villages and between different regions do not always match perfectly. Although these structural shortages are found everywhere, there are some system-specific features in Hungary and CEE. As fulfillment or overfulfillment of the quantitative plan objectives was the



main goal for enterprises, additional workers were always useful. They formed a buffer for future plan increases and unforeseen calamities. In addition, more workers led to higher incomes for the managers of SOEs. Taking into account the full employment objective and the social costs of unemployment, it was entirely rational for SOEs under socialism to employ workers whose marginal product is below their wage (Ellman, 1989).

Through employment, workers enjoyed a large range of social and other benefits. Next to an extensive social security system, workers enjoyed free health care, insurance, etc. Besides, many firms provide institutionally-owned apartments, and house their own doctor's office, holiday center, kindergarten, and day nursery. SOEs in socialist countries are therefore not just economic units, but function as mini-welfare states (Ellman, 1989).

These social characteristics of the labor market had some serious negative effects on several vital elements of the economy:

1. As a result of labor hoarding, wages were very low. Although SOEs as a whole had soft budget constraints, labor costs are characterized by hard budget constraints. Employing more and more people leads therefore to low wages. As a consequence (together with social pressures), labor participation rate was high, mainly due to a high participation rate of women. For instance, in 1985 close to 85% of the Hungarian women aged 40-44 had paid jobs, compared to 55% of women in West European countries (Kornai, 1993)<sup>8</sup>. On the positive side, this resulted in a better position of women on the labor market and better career possibilities than generally found in many Western countries in the seventies and eighties.
2. A high level of unemployment on the job is another economic deficiency of the socialist labor market. Because of labor hoarding, workers did not work intensively. This has led to the strange situation where a 'chronic shortage of labor is compatible with and accompanied by (...) an internal surplus of unemployment on the job' (Kornai, 1993). This also allowed for second-economy activities during working hours.
3. As a direct effect of labor hoarding, unemployment on the job, low wages, and life-time employment, labor productivity was extremely low. Moreover, wages were not related to productivity. The fact that wages did not increase in tandem with higher productivity levels, produced a negative effect on labor incentives. Moreover, since there was no relation between skills and wage levels, workers were not encouraged to acquire more skills. Most employees were narrow specialists with nontransferable skills.

The slow softening of the command economy and the evolution of the second economy in Hungary have resulted in the emergence of a dual labor market that mainly flourished in the 1980s (Cséfalvay, 1993). Workers could choose between the state sector and the semi-private sector. But often workers held jobs in both segments of the economy. In the second economy wages tended to be higher, and were more related to productivity. Wages in the VGMs, for instance, were 1.5 to 3 times higher than wages in the state sector. For some workers their income in the second economy was even higher than what they earned from their 'normal' job (Joffe, 1988; 1990).

The education system in socialist Hungary was characterized by a high quality of basic education, resulting in high literacy rates and high levels of achievement in school mathematics and science<sup>9</sup>. Moreover, many children were placed into specialized vocational schools, that were often attached to specific enterprises, already at the very early age of fourteen<sup>10</sup>. This has led to the education of a vast number of narrow specialists, since the

Ministry of Industry determined the requirements for the skilled and unskilled workers based on production targets for their enterprises. Moreover, adult education and training was neglected, since workers were expected to remain in a certain enterprise throughout their working careers. From the point of view of the workers, additional training was not useful because of the distorted relation between skills and wages. A third feature that can be mentioned is that access to higher education was based on the students' parents' high status in the party hierarchy, rather than on the intelligence of students. Besides, a number of subjects were practically ignored or devaluated in higher education. These include economics, management sciences, law, accountancy and finance. The shortcomings of the socialist education system carry serious implications for the current economic reforms.

All in all we can say that the post-socialist government in Hungary inherited a mature education and training system which was a legacy of central planning and political control (Laporte & Schweitzer, 1994). Although many of the 'inherited skills' appeared to be unsuitable in the changing economic environment, the overall education level of the Hungarian working population – in combination with low labor costs – was one of the factors which attracted foreign investors to Hungary.

#### **1.4 The role of foreign direct investment**

From the above we can conclude that both the modernization of production and the transformation of the labor market are central elements in the successful transition towards a market economy. Moreover, as the past few years have shown, they are among the most difficult elements of the transition, and have to be seen as two integrated steps in a process leading to sustainable private sector development and successful integration with Western economies. In addition, the modernization of production and the transformation of the labor market are closely linked to other segments of the transition, like the privatization of SOEs, the reform of the educational system and the change in mentality.

Direct investments of foreign companies might contribute extensively to establishing the far-reaching changes in manufacturing production and the labor market. They have the financial means and the know-how that can bring about the required changes. Moreover, they can function as a catalyst for bringing about the necessary changes in the domestic manufacturing sector. This is especially so in a country like Hungary, where foreign capital has entered in large amounts (as compared to other countries in CEE), already from the early days of the transition.

Thus far we have spoken about foreign direct investment as a collective term for all investments entailed in obtaining a controlling share in a foreign-based production facility. In fact there are different ways to do so. In light of this research we have made a distinction between two major modes of investment: investments in the privatization of SOEs and greenfield investments. The former refers to the acquisition of an SOE, the latter refers to the setting up of a whole new plant by a foreign owner. The underlying motivation for this distinction is that investments in privatization have to cope with the inherited socialist structures directly; in contrast, the remnants of this legacy is of less (indirect) influence on greenfield investments. For instance, it is likely that privatized companies have to cope with overmanning and largely obsolete production equipment, unlike greenfield companies. However, both privatized and greenfield companies have to deal with the mentality of employees and customers, the education level, the 'quality' of domestic suppliers, the way of

doing business in Hungary and the changing economic and legal environment. This also indicates that the legacy of the socialist system, and the transition process that is currently taking place in Hungary, offer different opportunities and obstacles to foreign privatized and greenfield companies.

At the same time the mode of investment affects both the way and the extent to which privatized and greenfield companies exert influence on production modernization and labor-related changes. For example, the contribution of privatized companies towards technological modernization lies in modernizing the outdated or obsolete production equipment, whereas the contribution of greenfield investments lies in the fact that they set up their plants according to the latest technological standards. In addition, the indirect modernization effects of a privatized company might be more positive because of existing linkages with domestic companies. As for the effects of foreign investments on employment, we might expect them to be more positive in greenfield operations as they create new jobs by definition. In contrast, privatized companies have to deal with overmanning, resulting in layoffs in the first place.

## **1.5 Structure of the study**

In this overall introduction, we discussed the legacy of the socialist system and the current transition process in Hungary as both the occasion and the context of this research, and how the inherited structures may affect (or form an obstruction to) the effects of FDI on the modernization of the Hungarian manufacturing industry and the related changes on the labor market.

The following chapter, chapter 2, covers the theoretical part of this study. Here we apply theories on internationalization and FDI to the special case of foreign investment in CEE. Moreover we look at the literature about host-country effects of FDI. As the available body of literature that deals with the specific context of transition economies is limited, we will use theories that deal with host-country effects of FDI in developing countries as well as developed countries and discuss to what extent these theories can be applied to the special case of FDI in transition economies. These theories are vital for the assumptions on which the empirical study is based.

Chapter 3 provides a description of FDI in Hungary. It deals with the attractiveness of Hungary compared to other countries in CEE, the specific features of FDI in Hungary, and the effects of FDI on the Hungarian national economy (macro data). Especially, we deal with the geographical distribution of foreign companies and the sectors of investment, of which the outcomes will be used for the selection of companies for our empirical research. For the description of FDI in Hungary we use both statistical data and our own database concerning foreign manufacturing companies in Hungary.

In chapter 4 we present our empirical research. Based on our findings in chapter 3, a selection is made of the regions and sectors that are central in this study. We render an account of the samples of both foreign and domestic companies in Hungary, and the research methodology. Moreover, some basic characteristics of the companies in our survey are presented.

In the chapters 5, 6 and 7 the empirical findings of this study are presented. Each chapter respectively deals with the following central problem definition:

- I. What are the direct effects of foreign direct investment on the modernization of the manufacturing industry in Hungary? Chapter 5.
- II. What are the consequences of this modernization on the demand for labor, both in qualitative and quantitative respects? Chapter 6.
- III. What are the indirect effects of foreign direct investment on the modernization of the manufacturing industry in Hungary? Chapter 7.

Chapter 5 deals with the modernization of the manufacturing industry. Our focus here is on technological modernization, that is the modernization of production equipment. We analyze the contribution of both foreign privatized and greenfield companies to technological modernization and how this modernization process has taken place. The findings are juxtaposed with the behavior of domestic Hungarian companies as regards modernization.

Chapter 6 deals with the demand for labor. We look at this demand both in quantitative and qualitative respects, in relation to the modernization process. The main issues in this chapter are: layoffs of redundant workers, the creation of new jobs, the demand for skilled and unskilled labor, vacancies which are difficult to fill, the role of in-house education and training, recruitment and selection, the effects on labor productivity, and regional dimensions in the demand for labor.

Chapter 7 studies the indirect effects of foreign investments on modernization. These indirect effects are through the linkages with domestic companies, and the assistance provided to these domestic companies. We look at the extent of these linkages and the commodities this concerned. In addition, we locate the reasons for using domestic suppliers and subcontractors, and what these linkages mean for the diffusion of modern technologies and organizational know-how.

In chapter 8, the concluding chapter, the empirical findings of this study will be used in trying to find an answer to the question whether foreign companies contribute to bridging the gap between Hungary and Western market economies. Moreover, we elaborate on the future direction of the Hungarian manufacturing industry in both the CEE and Western European context, and the role of FDI in this.

## NOTES

<sup>1</sup> At the time when this research project started, Hungary was by far the most attractive destination for FDI in CEE, not only per capita, but also in absolute terms. In the course of 1998, Poland surpassed Hungary as the most attractive destination for FDI in absolute terms. However, per capita invested foreign capital remains higher in Hungary than in any other country in CEE.

<sup>2</sup> Privatization is often categorized under the heading of institutional reforms (see for instance The World Bank, 1996). We choose to categorize privatization separately because it is a central element in the transformation process, and because of the relevance of privatization for this study.

<sup>3</sup> The extent of second-economy activities differed largely between sectors. For a more comprehensive overview of the second economy in Hungary see also Cséfalvay and Rohn (1991).

<sup>4</sup> In this study we use this narrow definition of privatization, unless stated otherwise.

<sup>5</sup> In other countries, such as Poland, the Czech Republic and Russia, privatization is partly through mass privatization programs, that were set up out of political or social considerations. With mass privatization, shares of SOEs are distributed for free to the population.

<sup>6</sup> Where we referred to the second economy for activities that were not included in the central planning during the pre-1989 period, activities that lie outside the official economic life in the new market environment are referred to as black economy activities.

- <sup>7</sup> Some socialist countries (for instance the USSR in the 1920s and China in the 1950s) had in fact problems maintaining permanent full employment because of the large-scale influx of peasants into the towns (Ellman, 1989). However, we found no evidence for this with respect to Hungary.
- <sup>8</sup> However, compared to other socialist countries, female participation rates in Hungary are not very high. Comparative figures are for instance USSR 96.8%, Bulgaria 93.3%, Czechoslovakia 92.4%.
- <sup>9</sup> Based on the Educational Testing Service 1992. However, another study found that Hungarian thirteen-year-olds rank high on the knowledge of facts, but significantly lower on the integration and application of knowledge to new situations (Laporte & Schweitzer, 1994).
- <sup>10</sup> In 1990-91, 75% of the secondary schoolchildren were in vocational or technical streams.

# 2 FDI: theories on internationalization and the effects on the host economy

## 2.1 Introduction

Throughout the world foreign direct investment has become more and more important the last two decades, and has therefore contributed to the internationalization and globalization of the world economy extensively. According to the World Trade Organization<sup>1</sup> total FDI flows have increased ninefold between 1982 and 1993, whereas world trade of merchandise and services has only doubled in the same period (De Mello, 1997).

One of the new destinations of FDI is CEE, although FDI inflows have been relatively modest up till now. However, Hungary has been able to attract a substantial amount of FDI into its economy since the early days of the transition. In this chapter we lay the theoretical foundations for FDI in Hungary and examine the effects of FDI on the local economy.

First we look at theoretical perspectives on international production and discuss its relevance for Hungary (section 2.2). In other words: why would a foreign company locate a production facility in Hungary. Although we do not examine this question explicitly in the empirical part of this study, the basics of international production are, in our view, essential for the interpretation of the findings in this study. It may explain why foreign companies behave the way they do, why some companies have a larger effect on the host economy than others, and how investment is related to Hungary's integration within the world economy.

In close connection with the theories of international production are the foreign entry modes (section 2.3). Different motivations and corporate strategies might lead to different entry modes. The mode of entry of a foreign company is considered the more important in the case of an investment in Hungary. We argue that the foreign entry mode (that is through privatization or in greenfield plants) determines the way in which and the extent to which foreign investments exert their influence on the host economy.

These host country influences are the central theme in this study. First, in section 2.4 we look at the effects of FDI from a macro perspective. We look at the effects of FDI on economic development in the host country and what the effects of FDI are for Hungary's place in the international division of labor. Subsequently, sections 2.5 to 2.7 deal with the effects of FDI from a micro perspective, discussing the three central themes in this research as presented in the central problem definition in chapter 1:

1. the modernization of production, notably the modernization of production equipment (section 2.5);

2. the demand for labor, both in quantitative and qualitative respects (section 2.6)
3. the linkages with indigenous firms, and the diffusion of technological and organizational know-how (section 2.7).

## 2.2 Internationalization: theoretical perspectives

### 2.2.1 Market imperfections

Contemporary dynamics and variation in the process of internationalization prevent the development of an all-embracing theory. Companies have different internationalization strategies and thus decide to invest in a particular country for entirely different reasons. However, all foreign direct investments are strongly related to the existence of trade barriers or market imperfections. If these did not exist, it would be possible to confine a firm's strategy to the export of goods produced locally, i.e. in the home country. There are two types of market imperfections: those imposed by government regulations and those occurring naturally (see table 2.1).

Government-imposed market imperfections are mainly intended to protect indigenous industry from competition by foreign companies. Protection can be achieved by imposing tariffs or so-called non-tariff barriers. The latter may take the form of quantitative restrictions and safety norms, for instance. Investment resulting from government-imposed market imperfections is also referred to as tariff jumping. These foreign investments may also form a threat to indigenous companies, but they offer advantages for the host economy as well as trade, for instance by creating jobs.

Table 2.1 Reasons for internalization

Natural market imperfections	Unnatural market imperfections
<i>Structural (intangible assets)</i>	<i>Government-imposed</i>
<ul style="list-style-type: none"> <li>• e.g. knowledge, know-how</li> </ul>	<ul style="list-style-type: none"> <li>• tariffs</li> <li>• non-tariff barriers</li> <li>• foreign exchange control</li> <li>• regulations on FDI</li> </ul>
<i>Transaction costs</i>	
<ul style="list-style-type: none"> <li>• buyer uncertainty</li> <li>• difficulty in securing a contract</li> </ul>	

Source: after Rugman et al. (1985)

Natural market imperfections fall under one of two headings: firm-specific knowledge (know-how), and transaction costs. The reason for internalization of the latter is fairly straightforward. Situations in which internalization of transaction costs can be attractive are mainly related to uncertainty. This may be uncertainty about the market behavior of important suppliers, uncertainty about the quality of the goods and services to be bought, and uncertainty about agreements.

The pricing of firm-specific knowledge is a more complicated issue. Caves (1982) refers to firm-specific knowledge and know-how as intangible assets. Selling intangible assets on

an arm's-length market (that is selling them on a regular market under regular market conditions) is highly unfavorable for a company, because (Caves, 1982):

1. Intangible assets are, at least to some degree, public goods. Knowledge can be put to work elsewhere, with little extra cost. By internalizing intangible assets, an artificial scarcity is created, through which the asset becomes highly profitable.
2. Transactions in intangibles suffer from impactedness combined with opportunism. Trade in knowledge is a difficult matter because during negotiations the asset cannot be revealed entirely. This would mean that a potential buyer would get the information for free. To avoid risk, a potential buyer would underbid. Selling the asset on an arm's-length market is therefore highly unfavorable for a company.
3. One can never be sure how the knowledge will perform when the buyer uses it.

The more pronounced the market imperfections, the more reason a company has to maintain full control of its own activities. But the firm may still want to make agreements about the protection and the use of firm-specific know-how, by means of a licensing contract or a joint venture. As both options lead to a reduction of uncertainty and therefore lower transaction costs, these options might in some cases be favorable as well.

In Hungary (and other CEE countries), both structural and transactional market imperfections may be important factors in the decision to invest in these countries. An important issue on the structural side is the advantage of simply being multinational, with all that it entails in terms of capital, technology, know-how, management, and network (Hood & Young, 1994). But a transferable firm-specific advantage need not be related to large size (Dicken, 1992). Compared to CEE companies, many small and medium-sized firms may also have some ownership-specific advantages (Dunning, 1988) that are exploitable in these countries. Internalizing these structural market imperfections is an attractive option for all companies, also because they can avoid high transaction costs in this way.

These transaction costs in Hungary are high compared to those in Western countries because of market distortions, especially in the early transition years. Internalization of these market imperfections is likely to yield significantly lower transaction costs, although some are at the macro level and not readily internalized (Hood & Young, 1994).

### *2.2.2 Market orientation versus cost/supply orientation*

Up till now we have considered why a firm would engage in foreign direct investment *instead* of exports. We have not discussed why a firm would want to internationalize at all. A firm has to have a reason to invest in a foreign country. Foreign companies locate their operations in a specific geographical region for one or two major reasons: market orientation or cost/supply orientation (Dicken, 1992).

Firms open a facility in a particular overseas market to serve that market directly and to be tuned in to that market. Market potential in Hungary is supposed to be relatively high, especially in the medium and long term, when the recession has ended and consumer demand has risen. It has to be noted that besides the fairly small Hungarian market, one can also think of other markets in CEE which can be served from Hungary, where Hungary is used as a bridgehead for exports or investments in the rest of the region. The extent to



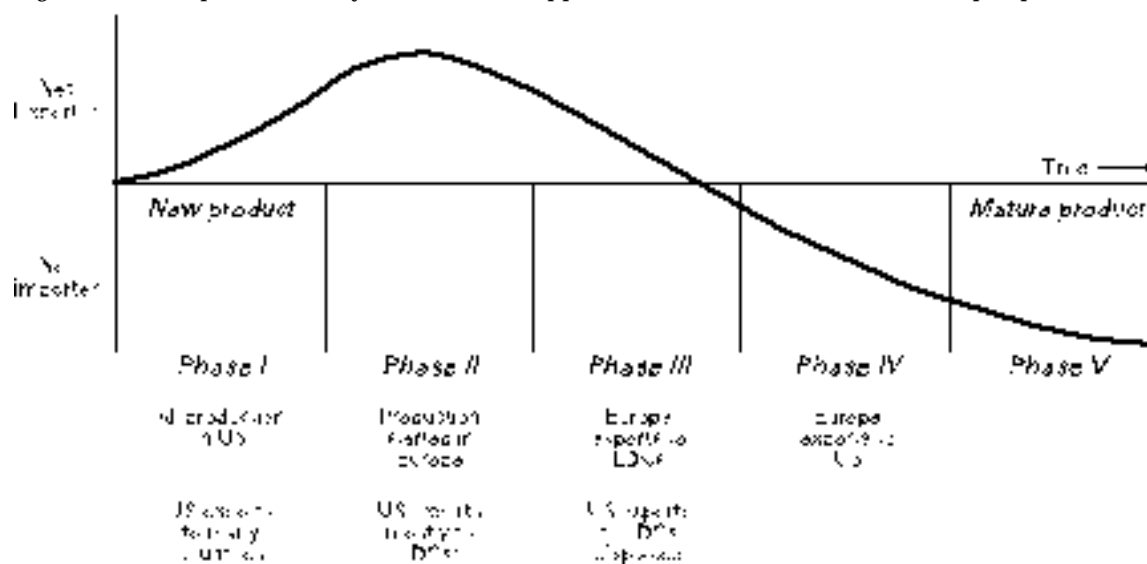
which this may occur depends not only on the companies themselves, but also on the earlier mentioned unnatural market imperfections.

Cost/supply orientation of investments in Hungary is strongly related to the availability of relatively cheap labor in combination with the relatively high level of education. Therefore it can be attractive for European companies to move labor-intensive production units to Hungary, in an attempt to improve competitiveness on Western markets. After the fall of the Berlin Wall, Western Europe obtained its own border region: an area characterized by cheap labor close to a market with great purchasing power. After all, delivery time and flexibility are decisive factors in competition these days. This means that production or assembly lines have to be situated close to sales markets. The former CEE countries that border the EU, including Hungary, are therefore favorable production locations for EU sales markets. In this, CEE has an advantage over low-cost production sites in South-East Asia.

However, the share of labor in total production costs for many industries has decreased sharply during the last 30 years. Even if a firm can achieve the same productivity in CEE as in its home country, its lower unit labor costs may easily be wiped out by other cost disadvantages. These other cost disadvantages are considered high in Hungary and CEE, for instance because of the bureaucracy, mentality of workers, changing regulations and the extra costs for setting up local production. Labor costs are, however, more important in labor-intensive industries like the clothing and footwear sector and the automotive industry. This may explain the relatively high investments in these sectors in CEE.

In fact, in many cases the distinction between market and cost considerations is not clear because both play a role in the investment. A local production facility in Hungary can for instance be attractive because it offers a foreign company better knowledge of movements on the home market and information about (potential) consumers. Because of lower production costs in Hungary on the other hand, export to more expensive Western Europe becomes an attractive option.

Figure 2.1 The product life cycle framework applied to international markets: a US perspective



<sup>a</sup> Less developed countries.

Source: Dicken (1992)

The combination of both motives of investment can also be found in the theories of internationalization of companies by Vernon (1966) and Dunning (1980, 1988). The theory developed by Vernon (1966) postulates a relation between the product life cycle and international trade on the one side and international investments on the other (see figure 2.1). Vernon developed his theory with reference to the internationalization of American industry in the postwar period. Nonetheless, elements of his theory can be applied to investments in CEE. According to Vernon, companies in the first phase of the product life cycle are capable of serving the global market only from the United States. Such companies lose this strong export position as products enter later phases of the product life cycle, as the demand outside the United States grows, and protection of firm-specific knowledge becomes more difficult. During the fifties and sixties, many American companies invested in Europe to protect their export-based market positions. They did this because, as a product matures, it can be manufactured on a larger scale and at much lower costs outside the United States. Hence, according to Vernon's theory, companies are forced to establish foreign production plants due to both market and cost considerations.

The distinction or rather the coincidence of market and cost considerations can also be found in the OLI paradigm of Dunning (1988) explaining foreign direct investments. OLI stands for Ownership-specific advantages, Location-specific factors, and Internalization-specific advantages. In fact, this theory posits that it will only be of interest for a firm to produce in a certain country when the market has something to offer, when a country offers favorable conditions for production, and when it is favorable for a company to perform activities under its own control (Wever, 1994)

Ownership-specific advantages correspond roughly to the natural market imperfections mentioned above which may be structural or transactional in nature. Location-specific factors are defined by Dunning as 'those which are available, on the same terms, to all firms whatever their size and nationality, but which are specific in origin to particular locations and have to be used in those locations' (Dunning, 1980). Location-specific factors include for instance, the abovementioned market potential and factor costs, which are both generally positive in Hungary's case. There are, however, also some negative location factors in Hungary which can cause a company to refrain from investing in the country. In this respect, one can think of political instability, the frequently changing regulations, the bureaucracy, and the poor state of communications and physical infrastructure.

Much research has been conducted into the motives of foreign companies to buy or to set up production facilities in Hungary and other countries in CEE. Although the distinction between the two considerations is not always absolute, we can conclude that market-oriented investments are the dominant form in CEE (Dirksen, 1993; Marton, 1993; Van Rietbergen & Van Hastenberg, 1993; Konings, 1996). Meyer (1998) points out that market considerations are more often the most important motive for investment, whereas costs considerations are more often the second motive for investment.

### **2.3 Foreign market entry modes**

We have already referred briefly to the different modes of entry of foreign companies (also referred to as mode of investment). In fact, companies have a wide range of possibilities for entering overseas markets, ranging from export entry modes to local production. Table 2.2

gives an overview of the different ways to enter a foreign market. It is evident that all of the modes in table 2.2 can be found in Hungary. For example, until the mid-1980s, exports and the sale of licenses constituted the dominant form of foreign involvement. This was mainly because legislation concerning FDI and the political situation made direct investment not very favorable in the pre-1989 period. Historically, however, many of the more substantial arrangements between foreign investors and governments or enterprises were variants of category 2f. Investment entry modes have become popular only after the change of system.

Table 2.2 Foreign market entry modes

- 
1. *Export entry modes*
    - (a) indirect
    - (b) direct agent/distributor
    - (c) direct branch/subsidiary
  
  2. *Contractual entry modes*
    - (a) licensing
    - (b) franchising
    - (c) management contracts
    - (d) turnkey contracts
    - (e) contract manufacturing/international subcontracting
    - (f) collaboration agreements
  
  3. *Investment entry modes*
    - (a) joint venture: new establishment/acquisition
    - (b) wholly-owned/majority-owned: acquisition
    - (c) wholly-owned/majority-owned: new establishment (=greenfield)
  
  4. *Corporate coalitions and strategic alliances*
- 

Source: Hood & Young (1994)

Instead of looking at these entry modes in a static way, a more dynamic approach seems suitable, especially when considering companies that enter a particular overseas market out of market considerations. A company may start with indirect exports, then set up a sales office or appoint a direct agent and finally choose to produce locally. In other words, foreign companies proceed from market penetration towards production space. This sequence can also be found in the spatial expansion model of international firms by Håkanson (1979).

It turns out that FDI in Hungary conforms to Håkanson's model quite well, partly because of the dominance of market-based investments in Hungary. Besides, the risks attached to direct investment were considered high during the initial years of the transition. Therefore, the overnight opening of the market in 1989 has caused many firms to serve the market initially by way of indirect exports (Van Berendonk, Oostveer & Associates, 1992; Marton, 1993; Van Hastenberg, 1993; Barta, 1994). A local trading office is mostly an expansion of these indirect export activities (Marton, 1993). In the early years of the transition the bulk of the 'investments' (by number of companies) in Hungary consisted of trade offices. Especially in the case of Hungary, this option opens up many possibilities. Their function is (or was) not only to coordinate sales and search for new clients or new markets. The establishment of a trade office also allows a firm to survey the market, get in touch with potential joint venture partners, get the feel of the investment climate, and look for possibilities for local production. Above all, this behavior shows the careful way in which Western companies set foot

in the new market. Later, when the market is considered favorable a company may decide to produce locally, either by investing in the privatization of SOEs, or by investing in a greenfield plant.

Of course not all FDI in Hungary fit in with this model. Cost-related investments do not follow the model by definition, since they do not serve the local market. But these cost-based investments generally follow a careful investment strategy as well, especially in the early years of the transition, starting with only a limited investment, and expanding their activities later. Besides, there are enough examples of market-based investments that did not start by serving the market through exports. Especially larger multinational companies have the financial means to take greater risks. When an SOE with a large market share or even a monopoly in the local market is offered for sale, it might be worthwhile to take the risk by investing right away ahead of competitors.

In the following we will shortly discuss the investment entry modes of foreign companies in Hungary. In this discussion a distinction is made between modes of investment that are related to the privatization of SOEs and greenfield entry modes. This distinction is considered an important explanatory factor in studying the effects of FDI on the modernization of production and the demand for labor. The dividing line is whether or not a foreign company has to deal with the legacy of the socialist system directly. We can distinguish five entry modes, which will be discussed separately below.

*Investment in the privatization of SOEs:*

1. Joint venture acquisition
2. Acquisition of an SOE

*Greenfield investments:*

3. 100% greenfield investment
4. joint venture greenfield investment
5. 'semi'-greenfield investment (both 100% and as a joint venture)

*JOINT VENTURE ACQUISITION*

When a foreign company buys only part of an SOE<sup>2</sup>, we speak of a joint venture acquisition. The remaining shares mostly stay in state hands, although sometimes they are sold to a private Hungarian investor. For a long time, investment by way of a joint venture with a local partner was the only way to invest in Hungary, since FDI was possible from 1972 onwards. From the beginning of 1989 (before the change of system) it has become possible for foreign companies to establish 100% subsidiaries. However, the joint venture remained the most popular mode of investment and even nowadays, a large share of foreign investments still consists of joint venture acquisitions.

The popularity of the joint venture investment mode in Hungary, especially in the early transition years, is due to a number of factors. One policy-related factor is that the government was afraid of a clearance sale to foreign companies, turning state monopolies into foreign-owned monopolies. Therefore, often a foreign company could only buy part of an SOE. Besides there are a number of reasons why foreign investors enter by way of a joint venture. A joint venture offers quick access to the market and knowledge about the local market at limited expense. Especially in the early transition years, the local partner's knowledge of the market was of great, if not decisive, value (COB/SER, 1993). For that matter, in many cases the local partner was formerly a trading partner (Van Berendonk, Oostveer &

Associates, 1992; Van Hastenberg, 1993). Limiting the (financial) risks is another reason for the choice of a joint venture. A joint venture can give an investor a foothold in the market at relatively low cost. For multinational companies, Hungary (and CEE) was a market they could not afford to ignore. However, in the early transition years, the risks attached to investment were considered high. A joint venture was therefore a suitable option. This also goes for small and medium-sized enterprises (SME) with less financial strength. SMEs are affected by the ongoing process of internationalization too. Many SMEs have invested in Hungary, mostly by way of a joint venture. As described earlier, Western SMEs have ownership-specific advantages which can be exploited in these markets. Besides, geographical proximity is a major consideration to invest in Hungary and not in, for instance, Asia (Vos, 1994). Hungary's proximity offers logistic advantages for export-based investments. Besides, it allows better control and management by the parent company over the foreign subsidiary<sup>3</sup>. And, despite more than 40 years of communism, it entails relatively few cultural differences.

With the privatization process coming to an end, only a few new joint ventures are established. Moreover, there is a tendency of foreign companies to buy out their local joint venture partners as the risks attached to the investment decrease with the continuing transformation process, and the local partner is hardly needed<sup>4</sup>. Often the buyout of the local partner is carried out in stages.

#### *ACQUISITION OF AN SOE*

When a foreign investor buys a state-owned company we speak of an acquisition. In this research we consider at least 80% foreign ownership as a benchmark because sometimes it is not possible to buy a company for 100% since part of the shares is reserved for the employees of the company. In practice, however, the foreign investor can act as if he is the sole owner of the company.

The advantages of a takeover compared to a greenfield investment are that the buyer obtains production capacity, manpower, market knowledge, a sales market, a distribution network, and possibly a trade mark. This package facilitates the firm's entrance to the market. Generally speaking, acquisition of an existing company has an advantage over greenfield investment (Wever, 1994). This seems also to be the case in Hungary. Market knowledge, a distribution network, and the possibility to enter the market quickly (reducing the risk) seem to be the most important reasons for buying an existing company in Hungary. Furthermore, by acquiring an existing company, the buyer obtains local staff members. This factor can be decisive for the success or failure of a company, as shown above in the description of the joint ventures.

#### *100% GREENFIELD INVESTMENT*

This type of investment refers to the case where a foreign company establishes a whole new plant instead of buying an existing one. This type of company is mainly to be found in the agglomeration ring around Budapest and in the northwestern counties. Greenfield investments have gained importance only from 1992 onwards, partly because of legal matters and partly because of the higher risks attached to this kind of investment.

Often a company only chooses greenfield investment when it is not possible to acquire an existing company or when there are specific reasons which deter acquisition. With regard to Hungary, deterrents might include the expense of modernizing an existing factory, a bad image (which can be a critical issue for service-oriented companies), or because the buyer

has to guarantee jobs for surplus employees. Of course, there are more creative ways to deal with redundancy. For instance, surplus employees can be transferred to a greenfield plant, preferably near the existing company, that produces raw materials, semi-manufactured articles or packaging materials for the acquired company. This strategy has been used in some PHILIPS plants in CEE.

For companies that invest in Hungary out of cost considerations, producing only for exports, these deterrents might outweigh the benefits of acquisition. They have no interest in the sales markets, distribution channels, local market knowledge and the like that come along with the acquisition. Therefore, greenfield investments are often companies seeking a cheap production location for the labor-intensive manufacturing of products or components.

#### *JOINT VENTURE GREENFIELD INVESTMENT*

In the case where a foreign investor establishes a new plant together with one or more domestic partners, we speak of a joint venture greenfield investment. These domestic partners can be either private persons, private organizations or SOEs. In this case, as in 100% greenfields, the company is established in a newly built factory. Only a minor share of FDI has come by way of joint venture greenfields.

The setting up of a joint venture greenfield instead of a joint venture acquisition might be motivated by the fact that the joint venture is engaged in an activity which is new for the local partner, or because the foreign company does not want to be involved with the state. Moreover, an important motive lies in the fact that a joint venture greenfield does not have to deal directly with problems related to the legacy of the socialist system, considered an important independent variable in our research. On the other hand a company has the advantage of incorporating local knowledge, and reducing the risks attached to the investment.

Some Japanese investments use this strategy, for instance the SUZUKI investment in Esztergom. They started operations on a former Soviet army base together with ITOCHU CORPORATION, which is a normal practice when SUZUKI invests abroad, and a small share of the International Finance Corporation. Initially they started with a 40% share of AUTÓKONSZERN, a local Hungarian company. The idea behind this is that it is always better to work together with a local company. Since then the share of AUTÓKONSZERN has decreased step by step to zero presently. Most of its shares have been transferred to small shareholders.

#### *'SEMI'-GREENFIELD INVESTMENT (JOINT VENTURE OR 100% FOREIGN-OWNED)*

As will be shown in chapter 4, where we deal with the entry modes of the foreign companies in our sample, a number of companies can not be classified under one of the above-mentioned categories within greenfield entry modes. This concerns companies which set up a new, previously non-existing company, but utilize an actual existing, but empty factory instead of building a new one. Looking at the main presupposition in this study, that is whether or not a foreign company has to deal with the legacy of the socialist system directly, this type of investment can best be classified as a 'semi'-greenfield investment. The difference with an acquisition is that they do not have to cope with existing equipment or practices. The difference with a greenfield is that these semi-greenfield companies start their production on existing premises. Most of these companies start as a joint venture, where the local partner (whether a state company or a private domestic company) provides the premises of the joint company.

A nice example is the investment of OPEL. They started as a joint venture with RÁBA, a producer of engines, trucks, trailers and the like, which was at that time still a state company. The negotiations already started in the beginning of 1989. At that time investment by way of a joint venture seemed the best (and only) way. Originally, RÁBA would get 34% of the shares and OPEL 66%. RÁBA operated a site and factory in Szentgotthard (Vas county) including infrastructure (road, rail) and power supply, which were unused. Besides this 20% in kind contribution, RÁBA had to bring in some cash into the joint venture (14%). RÁBA thought that the state would pay for this, but after the political changes at the end of 1989 the state refused. The government (by means of the State Development Institute) then stood surety for a \$ 20 million cash input during three years, equivalent to the 14% remaining shares. After the three years, OPEL would buy these shares. In practice it was a low interest loan, much cheaper than if they (OPEL) had to borrow on the capital market. So after three years the joint venture changed into a 80/20% joint venture. By the end of 1994, OPEL bought out the in kind contribution of RÁBA, changing the plant into a 100% subsidiary of OPEL. So apart from the building, which had to be refurbished to install the production line, the company was able to furnish the plant with the most modern technologies.

## **2.4 Effects of FDI on economic development in the host economy**

Before we go into detail on the effects of FDI in Hungary in a micro perspective in the following sections, this section first provides some general insights on the host-country effects of FDI. Especially in countries in transition like Hungary, these effects can be substantial and of major importance for a successful economic transformation. In fact, this has been one of the considerations for Hungary to adopt a policy that was aimed at attracting foreign investments into the country. On the other hand overall dominance by foreign firms is almost certainly undesirable from a host-country viewpoint<sup>5</sup>. There are real dangers of becoming a branch plant economy (Dicken, 1998).

In this section we first look at the relation between FDI and the overall economic development, and its implications for Hungary's integration in the world economy and place in the international division of labor. We take a general look at the effects of FDI on a micro level and present a framework for the central themes of this research that will be discussed in sections 2.5 to 2.7.

The literature on the role of FDI in the specific context of transition economies is rather limited. One of the few authors that offers some possible scenarios is Dunning. Dunning (1993) refers to three possible models or scenarios of development in CEE and the possible role of FDI: the developing country model, the reconstruction model and the systemic model.

The developing country model hypothesizes that CEE countries may develop in line with industrializing developing countries, notably Brazil, Mexico, Korea, Thailand, Taiwan and Singapore (ranking from little to substantial FDI inputs). However, one can argue whether or not the assumptions underlying the developing country model are valid in the case of transition economies, especially for the more 'developed' ones like Hungary. It could be argued that the centrally-planned economies are maldevelopped, rather than undevelopped (Kornai, 1993). The socio-economic situation in most CEE countries was substantially better than in even the most prosperous developing countries: the population of Hungary (and of most other CEE countries) was considerably better educated, medically

cared for, and housed (Dunning, 1993). Moreover, Hungary's R&D expenditure was comparatively high as we saw in the first chapter. In contrast, the commercial, transportation and communications infrastructure was not much better than many middle-income developing countries, and its industrial performance was questionable. Nevertheless, the existence of an extensive industrial sector – though in deep crisis and partly still in state hands – offers opportunities for supplier linkages and technology diffusion, as the transformation process proceeds, and indigenous companies adapt to the new situation in their country<sup>6</sup>. Besides, investments are not primarily cost-related as is the case in most developing countries: (1) the majority of foreign investments in Hungary is aimed at exploiting market potential; (2) the relatively favorable education level attracts foreign investors in need of skilled labor, unlike the developing countries where there is a large pool of unskilled labor. A final difference with general practice in developing countries that we want to mention here is that profits are reinvested in Hungary, rather than repatriated to the home country.

The reconstruction model refers to the (re)development path followed by West Germany and Japan after World War II. This model's major drawback in terms of its appropriateness to the specific situation of CEE is that CEE has a much smaller level of technological, organizational, and management capabilities than was found in West Germany and Japan in 1945. However, according to Ozawa (1994), in many respects, CEE is presently in a position similar to that of Japan at the end of World War II. Japan's experiences, in both the public and the private sectors, are therefore undoubtedly relevant and applicable in many ways to the challenge now facing CEE. According to Ozawa, Japan has gone through four basic structural transformations since 1945, 'a process greatly assisted by the Veblenian advantages of being a latecomer in industrial development, because Japan has been able to avail itself of opportunities to trade, interact with, and learn from the advanced West'<sup>7</sup>. According to Ozawa, most CEE countries are moving from the second to the third phase: from scale-based, energy/material-intensive industries, to less resource-intensive and more consumer-oriented industries. In other words, the future course of CEE lies in shifting from a supply-push to a demand-pull orientation.

The systemic model combines the more appropriate ingredients of the other two models. This systemic model suggests that the willingness and ability of foreign investors rests mainly on the speed and extent to which CEE countries can reorganize both their economic and legal systems as well as the ethos of their people.

Each of the three models indicates a different role for FDI. The reconstruction model and systemic model point to large FDI inflows, the extent to which depends on the nature of the systemic changes, and the rate and efficiency at which they are introduced. But where the reconstruction model suggests high inflows from the beginning of the transition process onwards, the systemic model suggests a much slower initial participation. The FDI inflow in the developing country model depends on the pattern of economic development, the integration within the world economy, and the kind of foreign participation it is likely to induce.

Dunning suggests that Hungary, as one of the more developed countries in CEE in 1989, will follow a course more or less in line with the reconstruction model. In terms of the inflow of FDI in Hungary, which was relatively high from the early years of transition onwards<sup>8</sup>, this seems reasonable. We argue that the systemic model could be applied as well. As one of the exceptions in CEE, the early transition years in Hungary did indeed show substantial FDI inflows, but the larger investment projects, mainly in greenfield establishments, gained momentum only from 1992 onwards, as large institutional changes were implemented and the political environment was considered more or less stable. A similar



course of business is presented by De Mello (1997), who argues that higher growth rates may attract larger FDI inflows. With particular respect to the transition countries in CEE, Michalak (1993) refers to contradictory objectives for both foreign investors and governments. For foreign investors political and economic stability is a precondition for investment. In contrast, one of the objectives of the attraction of FDI is that they may contribute to the political and economic stability in their countries.

We have already concluded that the socio-economic and political situation in Hungary differs from that in developing countries. Therefore, the developing country model as presented by Dunning would be less applicable to the specific case of Hungary. This developing country model refers to what is known as the modernization school in the literature on the effects of FDI in developing countries. The classical modernization perspective argues that export of capital to underdeveloped countries promotes economic growth by creating industries, transferring technology, and fostering a 'modern' perspective in the local population (Kentor, 1998). It therefore assumes that underdeveloped regions will follow the same path of development trodden by advanced regions. Next to the modernization school, a second, contrasting, line of thought has emerged, which is known as the dependency theory. The dependency theory states that an economy controlled by foreign interest would not develop organically. This means that linkages would not emerge spontaneously, profits are exported, income inequality would grow and the economy would stagnate. Besides, more radical movements within the dependence school, that based their ideas on the Wallerstein world-system theory of the new left, argue that developing countries might opt for discouraging development themselves (Farkas, 1997). They see technical dependence as a means of world economic integration.

Kimbell compared the conclusions of the two schools with the effects of capital investment in Hungary (Farkas, 1997). He concluded that both theories are one-sided. Foreign capital damages the potency of development and modernization by creating competitors for domestic production. On the other hand, Hungary cannot isolate itself from the world economy. The latter is unarguably true, but there are objections to the former argument as well. After all, the enhancement of competition might be considered as one of the positive contributions of FDI in the transition process.

Thus far we have only discussed the impact of FDI on overall economic development and integration in the world economy. We have not yet discussed the effects of FDI. A lot of empirical research on the effects of FDI on economic development in host economies has been conducted. They come up with a wide range of possible positive effects of foreign investment. Malecki (1997) identifies positive development effects in six areas:

1. linkages (backward and forward);
2. foreign currency earnings, reflecting higher added value retained in the host economy;
3. upgrading of personnel, including managers, technicians and skilled personnel;
4. technology transfer ('genuine' technology, as opposed to 'mere' technology relocation');
5. conditions of work (relative to those in the rest of the host society);
6. environmental impacts.

Hungary has made great strides in attracting FDI. Foreign direct investment is expected to play an important role in the new economic policy of Hungary, as well as the other former centrally-planned economies. Although the aims may vary from country to country, Welge

and Holtbrügge (1993; see also Khan, 1997) identify the following four objectives for the attraction of FDI in the former socialist countries in CEE:

1. the improvement of the foreign exchange position through expanding export-oriented industries and import substitution;
2. the achievement of spin-off effects through the modernization and restructuring of the host economy by importing capital and technology and introducing market-oriented management techniques in domestic companies;
3. the improvement of the quality and quantity of raw materials, manufactured products, consumer goods and services for the domestic market;
4. the creation of new jobs, improved productivity, training for host country's technical and managerial personnel and the transformation of the country's employment structure.

All four objectives are central elements in the transition towards a market-based economy. In contributing to these developments, FDI assist in speeding the transition and fostering economic recovery (UNCTAD, 1994). The (indirect) contribution of FDI to the transition to a market economy lies in exerting pressures for institution building, privatization and competition. Besides, all transition economies have an intense need for investment (Szanyi, 1997). The transition process, and more specifically the necessary modernization of the production structure, requires large capital inputs. Because of the lack of indigenous capital, foreign investments are an important source of capital.

However, the calculation of effects of foreign direct investments on the host economy is fraught with difficulties, because it is a counterfactual situation. Moreover, the impact of FDI on host economies is a dynamic process, which involves not only direct effects but also indirect (multiplier) effects. Nevertheless, it is important to study these processes, as is also acknowledged by Smith and Ferenèiková (1998)<sup>9</sup>.

The extent to which a foreign investor exerts influences on these four elements of the host economy depends on both the nature of the foreign-controlled plant and the nature of the host economy (Dicken, 1998). The former depends on the mode of entry, the motives for investment, and the operational attributes of the plant. The latter is defined by for instance the level of economic development, the size of the economy, technological base, and social, political and cultural characteristics.

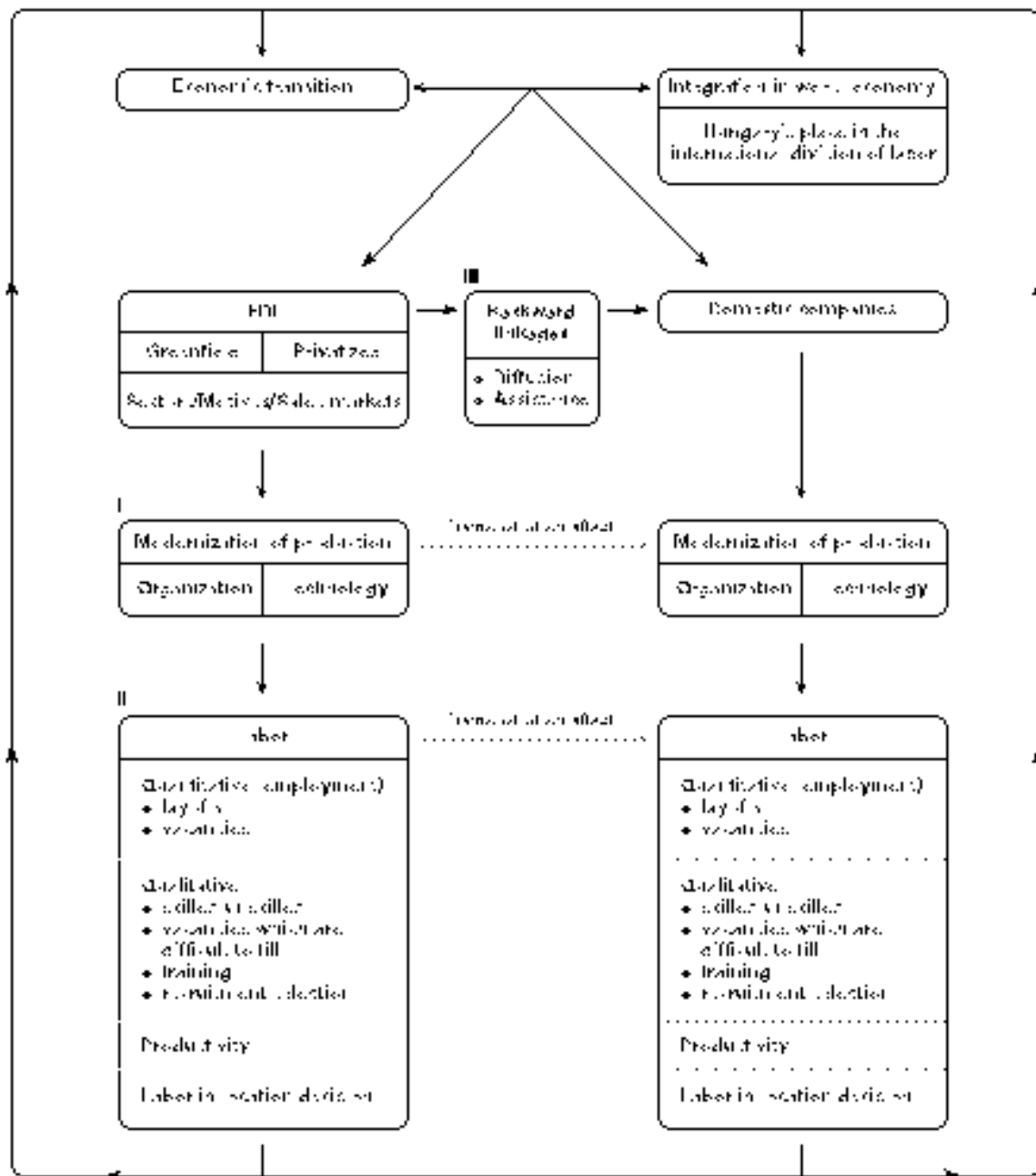
The following subsections provide for a theoretical discussion on three of the above-mentioned areas in which the contribution of FDI is expected to be of great importance. Recapitulating the problem definition presented in Chapter 1, we can divide it into three parts:

- I. What are the direct effects of foreign direct investment on the modernization of the manufacturing industry in Hungary? (section 2.5)
- II. What are the consequences of this modernization on the demand for labor, both in qualitative and quantitative respects? (section 2.6)
- III. What are the indirect effects of foreign direct investment on the modernization of the manufacturing industry in Hungary? (section 2.7)

A schematic presentation of the different effects of FDI on the Hungarian local economy and their interrelation, discussed below in sections 2.5 to 2.7, is presented in figure 2.2. The

figure shows the three central elements in our problem definition in the context of the economic transition and Hungary's integration process in the world economy.

Figure 2.2 Host-country effects of FDI in Hungary; a conceptual framework



## 2.5 Modernization of production

This section deals with the direct effects of FDI on the modernization of production, i.e., the modernization taking place inside the foreign-owned manufacturing facilities in Hungary (part I of the central problem definition and figure 2.2). Although one might have a fairly good picture of what 'modernization' refers to when related to foreign direct investments in the manufacturing industry in Hungary, it is often not defined in the literature concerning

the consequences of FDI in transition economies. Besides, modernization and FDI are often treated as synonyms. Moreover, where some authors speak about modernization, others (mainly economists) use the term (enterprise) restructuring to describe seemingly similar processes.

One of the few definitions of (enterprise) restructuring which refers to the specific situation in CEE is given by Carlin et al. (1994). They define the term restructuring in a broad way, to refer to actions taken to change the structure of the enterprise along the following four dimensions:

1. internal organization (e.g., unbundling, shedding social assets);
2. employment (e.g., labor shedding, wage differentiation);
3. output (e.g., marketing, product mix);
4. investment (e.g., in wholesale networks, capital equipment).

In their case-study review, the authors refer to a company as 'restructuring' if it is undertaking actions in the abovementioned fields which appear to be broadly consistent with the development of a competitive market economy.

The European Bank for Reconstruction and Development (EBRD, 1995) discriminates between different 'types' of restructuring. *Reactive restructuring* is a reaction to the hardening of budget constraints and is most clearly reflected in the form of labor shedding and real wage cuts. *Strategic restructuring* refers to a change in export orientation, changes in the mix of products and changes in management structures. Finally, *deep restructuring* generally involves new investment that can deliver large improvements in enterprise behavior and growth in the long run. This also involves the investment in new technology. Szalavetz (1996) makes a distinction between defensive and offensive restructuring. The main difference between both strategies is that defensive restructuring has a static and once-and-for-all character, whereas offensive restructuring is dynamic as it leads to continuous changes and adaptations to the market environment. Moreover, as opposed to the former, in the latter, the modernization of capital equipment has high priority.

As there is no proper definition of modernization of production in the literature, we propose the following definition. With modernization of production we refer to:

*any actions taken to bring about technological and organizational changes in a plant that lead to a situation that is more in line with that known in Western companies, in order to become competitive by international standards.*

These technological changes refer to production technology and production equipment. The organizational changes refer to changes in the organization of labor, the organization of production, accountancy (finance), internal organization (including the introduction of new departments like logistics, marketing, sales etc.), computerization/automation of production and administration, etc.

Our above definition of modernization of production is more far-reaching than that of enterprise restructuring. After all, enterprise restructuring does not by definition involve major adaptations in the corporate organization and investment in new more modern technology. Because of the far-reaching character of the many changes that are required, we prefer using the term modernization of production in this study, rather than enterprise restructuring.

Several authors have referred to Schumpeter's concept of creative destruction when dealing with modernization of production, the destruction of institutional structures in post-socialist countries and the collapse in output (see for instance Barta et al., 1997; Stark, 1993). But destruction and creation in Hungary (and other CEE countries) is on a much larger scale than Schumpeter ever envisaged (Barta et al., 1997). However, according to Swaan (1996) the processes now taking place in CEE, differ fundamentally from the ideas of Schumpeter and creative destruction witnessed in developed countries. In CEE, the destruction of inefficient state enterprises is only partly related to the entry of new ones. It is much more closely related to the disintegration of the institutional structure in which they used to operate. As a consequence, destruction is not necessarily related to efficiency.

Much more than in developed countries, the entry mode of foreign investments in Hungary is expected to be a crucial factor in modernization, as is also stated by Farkas (1997). As greenfield investments start from scratch, foreign owners can fit out and organize the plant according to their own specification, using the latest technological and organizational innovations. They are expected to organize their facilities like their plants in other parts of the world, apply Western accountancy standards, and strive for flexibility in their organization and production output. Moreover, they might apply leading edge technology, although this need not always be the case. It might be suggested that a great deal of the investments in Hungary is the result of a *relocation* of production capacity from a Western country towards low-labor-cost Hungary. In this case, the investment might induce a physical transfer of production equipment as well. Therefore, not all the greenfield investments might use leading edge technology in their Hungarian plants<sup>10</sup>. Indeed, greenfield companies have to cope with the legacy of the socialist system as well, though to a much lesser extent than privatized companies. The legacy of the past has only an indirect influence on greenfield investments, by way of bureaucracy, the direction and level of education, and the quality of local suppliers.

Privatized companies have to cope with the inherited structures directly. This includes largely obsolete production equipment, old or deviant technological standards, overmanning, personnel with limited range of skills, low productivity, long hierarchical lines and top-heavy management, inflexible production methods, incompetent management, old practices, incorporated structures and the like. It goes without saying that it is impossible to modernize all departments of the company at once. For instance, Kiss (1997) found that in the Hungarian food and beverages industry, companies generally first started to reorganize accounting and management systems, computerize the management of stocks and materials, and modernize handling. The second step is to modernize production equipment, by applying automation and computer technology and introducing production technologies new to Hungarians. This finding shows clearly that modernization of production is a dynamic process, rather than a static given.

All the elements of change presented in our definition of modernization above are important in the process of economic transition towards a market economy, as is currently taking place in Hungary. But it seems valid to conclude that it is impossible to investigate all the elements of production modernization in a single study. Especially, since in this research, the study of modernization of production in foreign-owned companies is not only a goal in itself, but also serves as an explanatory factor in the changes taking place with respect to the demand for labor. Moreover, we want to shed light on the diffusion of this modernization towards indigenous companies as well.

Therefore we choose to restrict the part of our research on modernization to technological modernization. This does not mean, however, that organizational modernization is neglected in our research. The organizational changes will be dealt with indirectly, in the part of this research on labor, and, to a lesser extent, in the part about linkages with domestic companies. Moreover, there is no way that technological modernization can pay off, with the simultaneous implementation of proper organizational changes (Jacobs, 1998).

Technological modernization is one of the main challenges of the Hungarian manufacturing industry and therefore often referred to as one of the major positive contributions of FDI in Hungary and CEE. As we referred to already in the first chapter, the technological backlog with Western countries was one of the outcomes of forty years of central planning. For the recovery of the Hungarian economy and the successful integration within the world economy, technological modernization is a prerequisite. Transfer of technology by means of FDI may take place in different forms. According to Witkowska (1997), this may take place:

1. in an embodied form, that is in the form of goods which are imported by foreign investors to the host country;
2. in the form of intangible assets if technology is a free good in the relations between the parent company and its subsidiary;
3. through the human factor in the form of know-how when the foreign investor brings specialists from abroad to carry out the investment project and to manage the firm.

FDI has traditionally been one of the most important channels of technology transfer as it involves the physical relocation of entire production systems, combined in a single package of capital goods and a number of the forms of disembodied technology<sup>11</sup>. Transfer of technology in CEE may take place in all of the abovementioned ways. In our empirical research concerning technological modernization in chapter 5, however, we restrict ourselves to the modernization of production equipment as this is the core element of the transfer of technology. Often, the modernization of production equipment is accompanied by a transfer by means of intangible assets and through the human factor. We will examine the latter partly in chapter 6, which deals with the demand for labor.

Because of the totally different starting conditions, it might be expected that in the case of privatized companies, the contribution to the modernization of production differs largely from that in greenfield investments. Where in greenfield plants the contribution to the technological modernization seems to coincide with the investment as such, in privatized companies the contribution to the technological modernization refers to a more dynamic process. Often not all obsolete machinery will be replaced with modern ones all at once. The foreign companies where all production equipment is replaced by new equipment shortly after the takeover in one single move are also referred to as brownfield investments (Meyer, 1998)<sup>12</sup>. So, actually, they only use the building and the brand names of the acquired company<sup>13</sup>.

This process of technological modernization might differ between companies active in different sectors. For instance, modernization in labor-intensive industries might be lower, than in capital-intensive industries. Taking into account the low wages in Hungary, the returns on investment in more modern machinery might be a hindrance to modernization in labor-intensive industries. In addition, the low labor costs in Hungary have a negative effect on the time of return on investments in automation, which might keep the foreign owner

from investing in the automation of some parts of the production. This was for instance found by Smith and Ferenèiková (1998) in the VOLKSWAGEN auto-assembly plant in Bratislava (Slovak Republic), and by Farkas (1997) for assembly plants in Hungary. Considering that there might be differences between companies in the level of technological modernization and the speed at which the modernization process is taking place, their motives for modernization probably differ as well.

Besides, technological modernization is a *relative* variable. Not all investment in new technology and machinery might be leading edge technology. One might also expect foreign investors to invest in used machinery from Western subsidiaries. This goes for both greenfield and privatized operations. The crucial point here is that what leads to modernization of production equipment in one firm may not in another. There might be large differences between different SOEs as to the 'modernity' of the installed machinery at the time when the foreign partner invests in the company. Hence, we asked the companies whether the newly invested technology was new for the firm, the industry, the region, Hungary, or international standards (see also Kleinknecht, 1996; Brouwer, 1997).

Nevertheless, foreign capital has been especially attracted to industries where the technological standard is higher than the Hungarian average (Kiss, 1997). Therefore, it is important to take into account this point of reference as well. Hence, in the empirical research the companies were asked to classify their production equipment ranging from totally obsolete (archaic) to state-of-the-art, both at time of entry and at present. This is also the consideration for incorporating domestically owned firms in our study. By doing so, modernization can not only be studied relative to the situation in the initial phase of investment in foreign companies, but also relative to the developments taking place in domestic companies. In other words, we can put the technological modernization in foreign companies in perspective.

These observations and assumptions have resulted in the following three research questions concerning (technological) modernization of production within the company:

1. To what extent do foreign and domestic companies contribute to the technological modernization of the Hungarian manufacturing industry?
2. What are the motives for technological modernization, how is the modernization process taking place, and what are the plans for future investments?
3. Is there a difference in modernization between companies active in different sectors and companies located in different regions?

## **2.6 FDI and the demand for labor**

This section deals with the changes with respect to labor, in relation with the modernization of production, that is the second part of the central problem definition. Our main focus is on foreign companies. Although we restricted ourselves in the preceding section to technological modernization, this section on labor is related to both technological and organizational modernization (see also II of figure 2.2).

The quantitative and qualitative changes on the labor market are both an inevitable outcome of the transition, as well as a precondition for a successful transition. Both aspects are central in the modernization process of companies (see also Szanyi, 1997). We will discuss



the quantitative and qualitative demand for labor separately in sections 2.6.1 and 2.6.2 respectively.

### 2.6.1 FDI and the quantitative effects on labor (employment)

The quantitative effects of FDI are of great social importance. First, there is the steep rise in unemployment in Hungary, as one of the tragic outcomes of the 1989 change of system. In the course of the first six years of the transition a quarter of all jobs have been lost (1.4 million) as the job market continues to contract (Barta et al., 1997), especially the manufacturing sector – the scope of this study – has been hard hit by the loss in employment. Second, the impact of FDI on employment in absolute terms is considerable, as more than 20% of Hungary’s working population is employed at firms with foreign capital participation<sup>14</sup>.

Table 2.3 The range of potential effects

Area of impact	Direct		Indirect	
	Positive	Negative	Positive	Negative
Quantity	Adds to net capital and creates jobs in expanding industries.	Foreign direct investment through acquisition may result in rationalization and job loss.	Creates jobs through forward and backward linkages and multiplier effects in local economy.	Reliance on imports or displacements of existing firms results in job loss.
Quality	Pays higher wages and has higher productivity.	Introduces practices in, e.g., hiring and promotion that are considered undesirable.	Spill-over of ‘best practice’ work organization to domestic firms.	Erodes wage levels as domestic firms try to compete.
Location	Adds new and perhaps better jobs to areas with high unemployment.	Crowds already congested urban areas and worsens regional imbalances.	Encourages migration of supplier firms to areas with available labor supply.	Displaces local producers, adding to regional unemployment, if foreign affiliates substitute for local production or rely on imports.

Source: UNCTAD (1994)

The impact of FDI on local employment is frequently regarded as being the most important potential impact of all (Dicken et al., 1994). Foreign companies do not only create jobs directly inside their own foreign plants, but also indirectly through forward and backward linkages and multiplier effects in the local economy (see table 2.3). On the other hand, foreign firms might push indigenous firms out of the market through their more efficient production methods, access to cheaper sourcing and because they can hold out longer due to better access to capital. Hence, the net creation of jobs by foreign firms can be defined as

the number of jobs created directly and indirectly minus the number of jobs displaced in indigenous enterprises (Dicken, 1998).

In this research, however, we restrict ourselves to the direct employment effects of FDI. First of all because it seems impossible to determine the net employment effects, for reasons that were mentioned in section 2.4, and second, because we study them in relation to the modernization process inside the foreign companies.

The literature on the impacts of FDI on host country employment is substantial. However, most of the studies treat FDI as a homogeneous entity. In a recent study on the impact of FDI in the USA, Pigozzi and Bagchi-Sen (1995) concluded that the impact is at least specific to entry mode. Generally, the impact on employment of acquisitions is not positive, unlike greenfield investments that tend to generate more positive effects.

A similar assumption is made in this study. But we expect the differences between acquisitions and greenfields to be even more pronounced in the case of Hungary than FDI in more developed countries. Foreign companies that invested in the privatization of SOEs, by acquiring part or whole of an SOE, have to cope with overmanning at the start of their operations (see chapter 1). Labor shedding, as a result of organizational modernization, is expected to be one of the first measures of the foreign management. This tendency is borne out by a number of studies on FDI in Hungary (see for instance, Barta, 1994; Kiss, 1997; Welge & Holtbrugge, 1993). For instance at the Hungarian light bulb manufacturer TUNGSRAM, employment fell from 17,000 to 13,000 in the year following the acquisition by GENERAL ELECTRIC. Currently, the company's staff remains at 10,000 employees.

In order to limit the effects of employment restructuring, some privatization contracts contain employment obligations to preserve employment levels or to decrease them only gradually. However, Kiss (1997) found penalty clauses in only 270 out of 2,000 privatization contracts in the food and beverages industry. A different situation occurs when a foreign investor buys only part of an SOE, that results in a joint venture with the state. As Carlin et al. (1994) show when referring to a Hungarian case study, the joint venture route allows the selection of the best employees from the SOE without the burden of layoffs or debts. In the same manner some pre-privatization restructuring occurred in some SOEs (including labor shedding), in order to get a better price for the company on privatization.

Although a negative effect on employment can be found in developed countries as well, one wonders whether foreign investors in Hungary are to be fully blamed for firing redundant employees when that surplus was caused by the artificial full employment inherited from the socialist system. The layoffs are, in fact, a delayed outcome of the socialist system, rather than the result of the foreign investors' policy. In many cases, selling the company to a foreign investor might have saved jobs for the remaining employees.

This legacy of the socialist system might not be the whole explanation for the negative employment effects at privatized companies. As we concluded in the preceding section we expect to find technological modernization in the foreign privatized companies. The effects of FDI on employment are not only related to overmanning, but also to the introduction of new, more modern equipment (Kiss, 1997). Therefore, we would expect to find a relation between technological modernization and employment. After all, more modern equipment is generally more automated with higher output, also known as the job-killer hypothesis (Ewers et al., 1990). This will exert a negative effect on employment, assuming constant output levels. But here again, we question whether the new foreign owners are to be blamed

for this, since the transfer of modern technologies and equipment is one of the reasons why the Hungarian government attracts foreign investors.

Consider, on the other hand, the case of a greenfield investment. The effects on employment are clearly positive, since the principals start from scratch and set up a new company. Some major new employers in Hungary are MAGYAR SUZUKI (1,400 employees), UNITED TECHNOLOGIES (1,600), IBM (3,000), OPEL (930), and FORD (1,190). However, greenfield companies generally tend to carry out cautious investment strategies in Hungary. After the initial (rather small) investment, many greenfield firms make additional investments leading to job creation. This somewhat cautious investment strategy is related to the greater risks connected to greenfield investments<sup>15</sup>. These risks are considered relatively high in Hungary as opposed to investments in developed countries.

Greenfield companies are expected to utilize modern or even state-of-the-art technologies. This modern equipment often stands for capital-intensive production, as the degree of automation is high. Especially the introduction of computer-aided technologies has a negative effect on job creation and/or employment. On the other hand one can argue that the favorable labor costs are one of the comparative advantages of Hungary, indicating that Hungary would attract companies in sectors that are characterized by labor-intensive production processes, thus exerting a more positive effect on the creation of jobs.

### *2.6.2 FDI and the qualitative effects on labor*

Where the quantitative effects of FDI on labor are important from a socio-political point of view, the qualitative effects are of vital importance for the transition process taking place. Next to modernization of industrial production, this transition process leads to a shift within manufacturing industries and the emergence of a services sector. In response, there will be a shift in the qualitative demand for labor, which in turn has implications for the work ethic, vocational training, and education in general. The transformation of the labor market is thus a lengthy process. Along with our empirical study, this section elaborates on some aspects of this process.

We examine the qualitative aspects of the transformations on the labor market by looking at the changes in the demand for labor within the companies studied, and the concomitant problems. Besides, we relate the changes in the qualification structure within both foreign and domestic companies in Hungary to the technological modernization studied in chapter 5. We suggest that the in-depth character of our study – in which we relate the developments concerning labor to other company characteristics – sheds an interesting light on the transformation of the labor market. For a comprehensive study of the transformation of the labor market, looking at a supply side, we refer to Dorenbos (1999). Specifically, we deal with the kind of labor foreign companies are looking for (skilled and unskilled labor), the shortage of people with specific education or certain qualifications, the role of in-house education and on-the-job training, and the recruitment policy and selection criteria used for hiring employees.

#### *THE DEMAND FOR SKILLED AND UNSKILLED LABOR*

FDI is expected to play an important role in the transformation of the labor market. The extent of this transformation depends largely on Hungary's place in the international division of labor. Does Hungary only attract companies that are looking for cheap, unskilled

labor? Or does the relatively well-educated workforce play a role as well? The former would eventually lead to an unbalanced division of labor. Skilled work would increasingly be concentrated in certain (Western) European locations, while CEE (including Hungary) would become centers of routine, non-skilled work (Penn & Sleightholme, 1995). In that event, foreign companies would have short-term strategies. The latter would lead to a much more positive situation. Foreign companies' contribution to the economic transformation in general and the modernization of production in particular would be much greater. Moreover, foreign companies would work out more long-term strategies.

The motives for investment form a starting point from which to study the effects on worker qualifications. While discussing the motives for FDI above, we found that foreign companies locate their facilities in a specific geographical region for one of two major reasons (or both): market orientation and cost/supply orientation. It seems valid to conclude that while looking at the demand for skilled or unskilled labor and its implications for the European division of labor, only companies that invested because of the low labor costs are of interest. The central question here is whether foreign companies only seek cheap *unskilled* labor, or look for cheap *skilled* labor? Of course this question will have different outcomes for different sectors, or may even differ within sectors.

The above treats the skilled/unskilled issue from a more or less static viewpoint. But it might be interesting, especially in the light of the modernization process under study, to look at the changes in the relative shares of unskilled and skilled labor in foreign companies. The introduction of modern technologies might require a higher or differently qualified workforce. Moreover, organizational changes, like the increase of the flexibility of the organization and the introduction of teamwork, might lead to the demand for higher qualified staff. The changing demand for labor as a result of both technological and organizational changes might be dealt with in two different ways: (1) a company may decide to fire unskilled workers and hire new skilled personnel; (2) a company may decide to train the existing staff. We will deal with in-house training in more detail below.

#### *LABOR SHORTAGE*

Obviously, a change in economic orientation such as what Hungary is experiencing currently leads to a different demand for labor. Especially in foreign enterprises, one might expect the changes to take place at a much faster pace, than what the education system in Hungary can cater for. This might lead to vacancies that are hard to fill. In this study we consider these hard to fill vacancies as one of the indicators for the changing demand for labor in a qualitative respect.

These shortages for certain types of qualified labor might indeed be a problem for foreign companies, especially since foreign companies tend to be highly geographically concentrated (see chapter 3) and workers geographically not very mobile. Moreover, creaming off qualified workers from domestic companies is becoming more and more of a problem, as many have left the state sector to work for foreign companies. These shortages might be either among the skilled manual workers and management positions. Where the first is related to the technological modernization, the second relates to changes in the organization of the company. These shortages in managerial positions might be an indication of the organizational modernization.

#### *TRAINING*

Above, we already referred to the fact that the quality of the labor force in Hungary is an attraction to foreign investors (Csáki et al., 1996). But we also mentioned that in-house training of shop-floor and managerial personnel is one of the objectives of the Hungarian government to attract FDI. Indeed, the relatively high education level of the Hungarian workforce refers to the base educational level, especially in the technical professions. However, the introduction of new, more modern technologies requires new skills. Besides, organizational changes as a result of the introduction of Western management techniques will demand different, often previously non-existing, skills from both shop-floor and white-collar workers. Thus a change in work ethics is necessary. It might be expected that these changes in foreign-owned companies take place at a much faster pace than adaptations in the education system in Hungary. Therefore, the extent of in-house education and on-the-job training is expected to be high in foreign-owned companies. In fact, most FDI in CEE introduced ambitious training programs (Svetlièè & Rojec, 1994). Between 50% and 100% of the foreign companies in different CEE countries train their employees in the host country. Moreover, companies that train employees abroad range from 25-79%, depending on the country concerned. Let us now briefly go into the three different 'areas' of training, that is, technology-related, organization-related and work ethics-related.

In general, training in foreign-owned companies, and mainly transnational corporations (TNCs) is closely related to the transfer of technology, and the introduction of computer-aided technologies (UNCTAD, 1994; Ewers et al., 1990; De Mello, 1997). The UNCTAD report refers to the transfer of soft technologies in this respect. In general, workers are not familiar with modern equipment such as CNC machine tools, lasers, or with production logistics (Welge & Holtbrugge, 1993)<sup>16</sup>. For instance Farkas (1997) found that THYSSEN has not found it easy to recruit staff skilled in operating CNC equipment for their plant in Hungary. So, along with the modernization of production equipment in foreign privatized companies, workers have to be trained in order to operate the equipment. Even when a company turns to the labor market, it is very hard to find employees with the required skills. This also holds for greenfield investments, especially when they are in sectors that were previously not found in Hungary. Most of the training of shop-floor workers will be on-the-job, either in Hungary, or abroad at other subsidiaries of the firm.

Organization-related training refers to training that is addressed to the organizational modernization in foreign-owned companies. Organization-related training refers to both training of people in management positions, and training of shop-floor workers, in order to bring about the required skills to operate in more flexible organizations and additional skills for teamwork.

The problem of finding suitably qualified managers for their projects in CEE has been identified by Western companies as a main factor preventing the speedy and effective implementation of their business plans in CEE (Welge & Holtbrugge, 1993). However, unlike the situation in developing countries, Western investors face no shortage of managers in Hungary. What is lacking, however, is particular skills (Csáki et al., 1996). First, these concern certain skills that were absent during the socialist era (for instance marketing and sales, logistics). Second, the large majority of managers are accustomed to orthodox management techniques. Only a few managers in foreign trade organizations, firms with foreign trade rights or science-based cooperatives have sufficient knowledge of Western management techniques. Management training involves imparting the required management skills. Or in the terminology of Vaessen (1993): by taking the training of people for management positions upon themselves, foreign companies can immunize themselves against inadequacies or

deficiencies of the external labor supply. Often, mainly within the larger multinational companies, this training also includes on-the-job training in Western subsidiaries, as application-oriented knowledge is especially needed and since they have no experience or training of how to run a business in a competitive market environment (Welge & Holtbrugge, 1993). Because of the acute shortages of suitable managers, Western companies have used expatriates and biculturally qualified staff<sup>17</sup> to a large extent in the early transition years. However, expatriates are very expensive, and the pool of biculturally qualified staff is not inexhaustible.

Training that is addressed to bring about the required skills in order to function in a more flexible working environment is conducted for both shop-floor workers and people in management positions. In international business it has become more and more important for a firm to be able to react to changes in the company's environment quickly (consumer demand, consumers preferences etc.), and to keep stocks on a low level. This requires multiple skills of employees as they are expected to work in flexible teams. Training to acquire these multiple skills tends to be relatively firm-specific and is performed mostly on-the-job (Oman, 1994). So, human resources play a crucial role in flexible organizations. A complicating factor in the case of Hungary is that, probably due to the past, Hungarians are unfamiliar with co-operation in teams (Dander, 1993). So before training employees in multiple skills, employees first have to get acquainted with the concept of teamwork.

A third area of training that can be identified in the case of Hungary is related to changing work ethics and attitude of workers. To begin with, morale at work was terribly low in centrally-planned CEE. Welge and Holtbrugge (1993) refer to three main sets of factors that can explain work outcomes and job dissatisfaction: (1) macro-environmental factors, for example obsolete central planning, waste and misallocation of human resources, and the counterproductive wage system; (2) micro-environmental factors, for example technological backwardness of machines and tools, discontinuities of the production process because of missing supplies, faulty work organization, low workers' participation; and (3) intra-personal factors, for example lack of work ethics, low state or the misconceived nature of training, or even passive attitudes towards work. Training of employees is one of the possible measures foreign companies use to increase workers' motivation and their commitment to the company.

Closely related to the work ethics in particular and training in general is the issue of tacit or uncodified knowledge, that is hardly transferable unconscious knowledge. Swaan (1995) argues that the skills that are lacking in former socialist economies are exactly the ones that have developed in Western market economies in the form of tacit knowledge. This low level of tacit knowledge is compensated in Hungary, as one of the more developed socialist countries, by a relatively high level of codified knowledge, that is work/skill-related, technical knowledge. Swaan has pointed out that a lot of education in foreign companies is geared to matters that employees are already acquainted with. This is because companies perceive workers' low level of skills as a lack of codified knowledge. However, workers' biggest defect is a lack of tacit knowledge. Of course it is very difficult to test that type of knowledge empirically. Foreign investments in Hungary play a major role in transmitting tacit knowledge, first and foremost out of self-interest, since it might be a decisive factor in exploiting a company's profitability.

The costs of training staff are often referred to as sunk costs. Sunk costs can be defined as those costs that do not vary with output (unlike variable costs) and do not vary directly with scale (unlike fixed costs). Hence, sunk costs represent a non-recoverable commitment

to production in an industry (Clark & Wringley, 1997; Meyer, 1996). Clark and Wringley refer to the costs of training as setup sunk costs<sup>18</sup>. One might argue that sunk costs attached to an investment in Hungary are relatively high because of considerable training efforts. Here we can link up with our earlier discussion where we related the demand for skilled and unskilled labor to the short and long term strategies of FDI in Hungary. We concluded that branch plants that mainly seek cheap, but also skilled labor are expected to carry out more long term strategies in Hungary. The irrecoverable costs of training their staff in case of sale or relocation of the subsidiary, provides an extra argument to support that conclusion.

#### *RECRUITMENT AND SELECTION*

In general, foreign companies tend to be very careful in selecting new employees (Dicken, 1998). This observation might be especially applicable to Hungary, where the economic environment and related requirements of employees are rapidly changing. Employees' value in terms of output and value added have become more important with the creation of a competitive market environment. Workers react differently to these changes, both with respect to codified skills and uncoded tacit knowledge. Hence, the recruitment and selection of new employees form interesting objects of study in transition economies.

Like everywhere else, foreign companies in Hungary tend to pay higher wages than indigenous companies. Therefore they may well cream off workers from domestic firms and possibly threaten their survival, a tendency that can be found in foreign subsidiaries all over the world (Dicken, 1998). We do not expect our own research in Hungary to be any different. First because of the large differences in the supply of labor, and the general shortage of specialists and highly motivated people, and second, because foreign companies pay higher wages, offer better career prospects and have a good image as employer. Earlier research has come up with results that verify a brain drain of skilled labor from SOEs to foreign companies (Carlin et al., 1994; Welge & Holtbrugge, 1993). Welge and Holtbrugge also found indications that a large number of employees in foreign companies do not come from SOEs, but from the second economy. The brain drain is thus compensated by a more efficient use of the domestic intellectual potential. These findings indicate that the creation of job opportunities in foreign companies might not have a (direct) positive effect on the decrease of unemployment in Hungary.

The selection criteria for new employees are important to indicate the preference of foreign companies for employees in the context of the transition. Do they make a selection according to the attitude of candidates or education or experience? Or, to put it differently: do companies find it more problematic to educate personnel for a specific job themselves, or do they find it more problematic to bring about the 'westernization' of workers' mentality. Case-study evidence at some larger foreign greenfield investments in Hungary has shown that attitude is an important selection criterion, not only for unskilled workers. For instance, at the FORD plant in Székesfehérvár, considerable stress was laid upon workforce recruitment (Sadler & Swain, 1994). The first 120 employees were selected from 7,500 applicants via a complex multi-stage selection process. Attitude, rather than technical ability, was a prime requirement. In general we can say that foreign companies have a preference for young employees (see for instance Kiss, 1993; Sadler & Swain, 1994; Makó et al., 1997), probably because of their pliability and because they have not worked under the old regime.

#### *2.6.3 Productivity*

One of the central goals of companies, especially in former SOEs, is the increase of labor productivity, that was terribly low during the socialist era. Labor productivity is strongly related to the processes that we look at in this study. It refers to both technological modernization, organizational modernization (including labor shedding), the change of workers' mentality and the training of employees. An increase in labor productivity is a necessary precondition for improving the competitiveness in privatized companies. As we have already discussed these processes extensively above, we will not further dwell on them here.

These observations and assumptions have resulted in the following five research questions concerning the consequences of modernization on the demand for labor:

4. What are the effects of the modernization within both foreign and domestic companies on the quantitative demand for labor?
5. What are the effects of the modernization within both foreign and domestic companies on the qualitative demand of labor?
6. In what way and through what channels are new employees recruited, and what are selection criteria used?
7. What are the effects of modernization and training on labor productivity?
8. Are there differences for different regions, and what role did the regional supply of labor play in the location decision?

## **2.7 Linkages and the diffusion of technology and know-how**

In political and scientific circles in both Western countries and CEE countries, there has been much attention for the supposedly positive effects of FDI in transition economies. However, they all mainly focus on the direct effects, that is the effects within the foreign subsidiary. In fact this covers only part of the positive effects of FDI. The indirect effects, that is the diffusion of technical and organizational know-how towards domestic companies, might be much greater than the direct effects, and might be even more important for the (transition of the) Hungarian economy as a whole. These indirect or spin-off effects are first of all seen through the demonstration effect. This means, by just 'being there' foreign companies demonstrate a more modern style of business (see the dotted lines in figure 2.2). In this study, however, we concentrate on these spin-off effects through the linkages with domestic companies (see III in figure 2.2).

In this section we first look at some general concepts regarding linkages between companies. Subsequently, we take a closer look at local linkages of foreign companies in the specific Hungarian context. Finally, we deal with the implications of these linkages for the diffusion of technological and organizational know-how to domestic companies.

We restrict ourselves to the backward linkages of foreign companies<sup>19</sup>. Backward linkages refer to linkages with companies lower down the product value chain. Two reasons can be given for our focus on backward linkages. First, backward or supply linkages are the most important linkages in the case of foreign investments (Dicken, 1992). This counts pre-eminently for Hungary and other transition economies, where the existing industrial structure is rather weak and undergoing transition. Therefore, it does not seem logical to look for forward linkages to domestic Hungarian companies. Second, backward linkages are the



only ones where we can find transfer of technology from a foreign to a domestic company. Other linkages that might involve the transfer of know-how and technology are co-makership relations<sup>20</sup>. As these linkages are of minor importance in our empirical study, we will not deal with these linkages here.

Backward linkages can be either supplier or subcontracting relations. Supplier linkages are linkages where one firm supplies fairly standardized commodities to another firm. Subcontracting can be defined as 'a situation where the firm offering the subcontract requires another independent enterprise to undertake the production or carry out the processing of a material, component, part or sub-assembly for it according to the specifications or plans provided by the firm offering the contract. Thus, subcontracting differs from the mere purchase of readymade parts and components from suppliers in that there is an actual contract between the two participating firms setting out the specifications for the order.' (Holmes, 1986). This also has implications for the duration of the relationship (Bije, 1994). Close 'synergic' relations between firms and their suppliers and subcontractors do not only affect flexibility but also enhance the process of continuous innovation. Both are key factors in the competitive strength of companies nowadays.

Although outsourcing of activities is not a new phenomenon, it is generally believed that it has increased markedly in the 1980s and that it is a more important part of modern corporate strategy than ever. The main advantages of subcontracting and local supplies are usually phrased in terms of flexibility and low costs (Bije, 1994). Suppliers offer the customer (in our case the foreign company) lower production costs than that sustained in in-house production, and the customer remains more flexible, because the customer does not need to make additional investments. Moreover, a subcontractor or supplier might realize scale effects when delivering or producing a certain product for more than one customer.

In order to benefit fully from these flexibility and costs advantages, geographical proximity of suppliers and subcontractors is important (Oman, 1994). Proximity is an important factor in realizing just-in-time delivery (JIT). The cost advantages of proximity are in the reduction of transportation expenditure and savings on import duties. An additional advantage in the case of Hungary lies in the generally lower prices of raw materials and semi-manufactured articles in Hungary than in Western countries.

From the above it may appear to be beneficial for foreign investors in Hungary to purchase from local suppliers and subcontractors. However, the actual incidence of local linkage formation by foreign companies depends on three major influences (Dicken et al., 1994):

1. the particular strategy being followed by the parent company and the role played by the foreign plant in that strategy;
2. the characteristics of the host economy itself;
3. time.

We will now look at these three factors in more detail, applying them to the specific context of Hungary.

#### *STRATEGY*

Where strategy is concerned, we consider three elements important: size, sales markets, and the mode of investment.

Large multinational companies are not very likely to develop local supply linkages. They are often highly vertically integrated, or they use worldwide suppliers because of cost benefits. A large share of the investments in Hungary comes from these large multinational companies. On the other hand, many SMEs have invested in Hungary. They are more likely to use local sourcing. However, as these SMEs mostly originate from Austria and Germany, they might well stick to their suppliers from the home country.

Besides, foreign firms that serve the host market are more likely to develop local supply linkages than export platform plants. This holds especially for Hungary where production costs tend to be lower than in Western countries. Serving the local market and using supplies from the more expensive Western countries would have a negative effect on the local competitiveness of the foreign company. In contrast, export platform firms tend to act more like 'cathedrals in the desert'. Often this involves greenfield assembly plants located in customs-free zones or export processing zones (Malecki, 1997). Research at 117 foreign firms in CEE and the Commonwealth of Independent States (CIS) seems to support this hypothesis (Szanyi, 1997). Export platform firms purchased on average 31% locally, as opposed to firms serving the host market (42%).

Finally, companies that invested in the privatization of SOEs are expected to have more local supply linkages than greenfield investments. Greenfield investments have to build up a local supplier network from scratch. On the other hand, with the acquisition, a foreign company also obtains a local supplier network<sup>21</sup>. However, these existing linkages in acquisitions may well have been passed over by the new foreign owner and be replaced by imports as reported by Geenhuizen and Nijkamp (1998). In a study among 24 foreign firms in the Székesfehérvár region, Makó et al. (1997) found that on average close to one-third of supplies comes from Hungary-based companies. For greenfield companies this share was a mere 22%, in contrast with privatized companies (77%)<sup>22</sup>. The difference between greenfield and privatized companies concerning local sourcing was also found in other studies. Éltető and Sass (1998) report that privatized foreign companies have established strong links with the domestic economy. Greenfields act more like islands, especially when located in customs-free zones<sup>23</sup>. A major exception to the rule are greenfield investments in the food and beverages sector. These firms appear to have many linkages in the local economy (Institute for Privatization Studies, 1996b), probably due to the fact that they often serve the host market.

#### *CHARACTERISTICS HUNGARIAN ECONOMY*

Generally, foreign companies tend to develop more local linkages in developed countries than in developing countries. Government intervention is an important factor that can influence local sourcing. At first sight, Hungary seems to occupy an intermediate position. However, there is a large difference between local companies, in terms of their adaptation to the new situation, the quality of their products, and the terms of delivery. The home industry can only partly guarantee the required quality and price (Barta, 1994). This is also stated by Hood and Young (1994), who contend that many companies are readily categorized as 'value subtractors'. This means that at world prices, the resources they consume are worth more than what they produce. Moreover, JIT delivery might constitute a problem in the case of Hungary, as this requires organizational skills that were absent before the change of system. Things may have changed for the better now, but these changes take time.

Mainly as a result of greenfield investments in activities new to Hungary, it might be that companies find it impossible to acquire certain components or semi-manufactured articles

in Hungary. In this respect, one phenomenon that can be witnessed in Hungary and other countries in CEE is that of suppliers following a multinational company in their investment in the region. This does have a positive effect on the reduction of imports, and local multiplier effects, but it is disastrous for domestic companies that offer similar products.

The search and maintenance of good suppliers and subcontractors goes along with transaction costs for the foreign company (Nelson & Winter, 1982). First, these involve not only the establishment of contacts with potential suppliers. Once a potential supplier or subcontractor is found, a foreign firm has to be able to make clear what skills are needed to manufacture a certain product. Moreover, a foreign company has to be vigilant about the quality of the supplies and the compliance with the agreements made. Swaan (1996) has argued that these costs are high in former socialist countries, mainly due to the lack of tacit knowledge in domestic Hungarian companies.

However it seems that foreign investors do not have a very negative opinion of local suppliers. Research among British and German investors in CEE has shown that only 14% of the cost-oriented investors mention unsuitable local suppliers as a barrier to investment. Among market-oriented investors it is not listed among the 10 most important barriers (Szanyi, 1997).

#### *TIME*

Time is a critical variable in establishing local supply linkages. First, it takes time for a foreign investor to identify appropriate domestic suppliers. Second, domestic suppliers and subcontractors have to 'tune in' to the new customers' needs. Especially in the case of Hungary, time might be an important factor in local sourcing, since the country opened up for business overnight, and most FDI entered the country relatively recently. Furthermore, as the (local) business environment is changing rapidly, business people are confronted with more uncertainty.

The linkages between foreign and domestic companies are the vehicles for the diffusion of technology and know-how. This diffusion can be either passive or active. In passive diffusion the existence of contacts with domestic companies allows diffusion of modern technologies etc. to take place. Here we can think of the normal exchange of information, know-how, quality standards etc. that are necessary for the establishment of a normal supplier or subcontracting relation. Especially in the latter case, the 'normal' exchange of information can be substantial, for instance, when a foreign company is engaged in the joint development of a new component together with a domestic company.

With active diffusion we refer to the situation where a foreign company provides some kind of assistance to a domestic company that goes beyond the normal exchange of information, for instance by making modern machines available to the domestic company. It is mainly the latter, the active diffusion, that we are interested in because of its much greater impact as compared to passive diffusion.

There might be several reasons why foreign companies provide assistance to domestic suppliers. Because of the generally favorable prices of commodities in Hungary, it might be beneficial to provide technical assistance to a local supplier, as this may result in the purchase of qualitatively good products at low prices. Organizational assistance might for instance be attractive when trying to realize JIT delivery.

There are different sorts of assistance a foreign company can provide. Dander (1993) refers to three main forms of assistance: (1) capital inputs (grants, concessional loans, debt relief and commercial facilities); (2) assistance in goods/machinery; and (3) technical assis-

tance (investment-related as well as free standing). Organizational assistance could be a fourth form of assistance. As already pointed out above, modernization involves both technological modernization and organizational modernization. It might be difficult for domestic companies to modernize the orthodox management techniques themselves. A foreign company might therefore consider the provision of organizational assistance to a potential supplier, thus guaranteeing constant quality and terms of delivery.

These observations and assumptions have resulted in the following three research questions concerning modernization of production in an indirect manner (through the linkages with domestic companies and the assistance provided to these companies):

9. Do foreign companies in Hungary maintain linkages with domestic companies via supplier or subcontracting relations, and if so, what is their purchase from domestic Hungarian companies?
10. For what reasons do foreign companies in Hungary maintain linkages with domestic Hungarian companies, and what are the future prospects?
11. What are the effects of these linkages on the diffusion of modern technologies and organizational and technical know-how to domestic companies?

## **2.8 Conclusion**

In this chapter we have laid out the theoretical foundation for studying the direct and indirect effects of FDI on the modernization of the Hungarian manufacturing industry and the related changes in the demand for labor. We have argued that the main explaining variable for these processes is the entry mode of foreign companies. The entry mode in its turn is the outcome of a mix of strategic choices of the firm, including the motives for investment, the sales markets of their products and the sectors they are active in.

The differences between the effects of FDI for both privatized and greenfield companies are expected to be higher than in developed countries. This is caused by the legacy of the socialist system, and the fact that Hungary is undergoing an economic transition. At the same time however, the situation in Hungary differs fundamentally from those in most developing countries. We expect that effects of foreign investments on the modernization of the manufacturing industry and its diffusion to the local economy are potentially higher in Hungary than in developing countries generally. Where privatized companies have to deal with this legacy directly, greenfield investments are affected only indirectly. This has its effect on the way in which both types of companies contribute to the technological modernization and the transformation of the labor market. Furthermore privatized companies are expected to have a higher radiation effect than greenfield companies because of existing contacts and a better knowledge of the local Hungarian economy.

## **NOTES**

<sup>1</sup> The successor organization of the GATT (General Agreement on Tariffs and Trade).

-1960s):

Expansion of labor-intensive, low-skill manufacturing in textiles, toys, and other low-wage goods. Rising wages and labor shortages soon made these industries less competitive.

*Phase 2 'Non-differentiated Smithian' industries (late 1950s to early 1970s):*

Scale economy-based modernization of heavy and chemical industries producing non-differentiated products. Environmental costs of these pollution-prone, resource/energy-consuming industries became socially intolerable.

*Phase 3 'Differentiated Smithian' industries (late 1960s to present):*

Assembly-based mass production of consumer durables. Its export dependency came to cause trade friction.

*Phase 4 'Schumpeterian' industries (early 1980s onwards):*

Mechatronics-based flexible manufacturing, small-lot, multi-variety production, along with new innovations.

<sup>8</sup> A comprehensive overview of FDI in Hungary is provided in the following chapter.

<sup>9</sup> Smith and Ferenèiková (1998) stress the need to examine the locally and nationally specific impacts of FDI in transition economies along a number of trajectories that largely coincide with the objectives for the attraction of FDI listed above.

<sup>10</sup> The relative character of foreign investors' contribution to technological modernization is discussed in more detail below.

<sup>11</sup> UNCTC (1983): *Transnational corporations in world development: Third survey*, United Nations, New York. Quoted from Dicken (1992, p. 391).

<sup>12</sup> Others use the term brownfield for all foreign investments in Hungary (and CEE) in the privatization of SOEs. See for instance Mako et al. (1997).

<sup>13</sup> These brownfield investments differ from the semi-greenfield investments above, in that they have to cope with the obsolete equipment, although they deal with it in a drastic manner.

<sup>14</sup> See chapter 3.

<sup>15</sup> This cautious investment strategy can also be found in the case of investments in privatization. This was shown above in section 2.3 where we dealt with companies that start as a joint venture and later buy out the local partner. Overall one can say, however, that ten years after the change of system, investment risks are considered much lower than during the initial years of the transition.

<sup>16</sup> For example, in some branches of industry of the former USSR, the supply of personnel that is able to work in computer-aided automated production falls short of the requirements by more than 40% (Welge & Holtbrugge, 1993).

<sup>17</sup> This refers to managers who left the country in their youth and have acquired managerial business experience in the West.

<sup>18</sup> They further distinguish accumulated sunk costs (or 'normal' costs of doing business), for example the seniority of business, and exit sunk costs, for example early retirement pension entitlements of labor.

<sup>19</sup> That is backward linkages from the viewpoint of foreign companies. From the viewpoint of domestic companies this refers to forward linkages.

<sup>20</sup> Co-makership refers to a situation where two separate economic entities work together on the development and production of a new product, part or component.

<sup>21</sup> However, the large state conglomerates were largely vertically integrated, as (practically) all stages of the product value chain were incorporated within one single large SOE. Therefore, the local supply linkages of

these privatized foreign companies are mainly with other parts of the former SOE that were privatized and sold to other agents.

<sup>22</sup> Some caution has to be borne in mind when interpreting this figure, as only 4 privatized companies participated in the research.

<sup>23</sup> In their sample, 17% was located in a customs-free zone. In Hungary, any firm can establish its own customs-free zone, which entitles it to preferential tax and customs treatment. Currently there are about 200 such zones.

# 3 Foreign direct investment in Hungary: an overview

## 3.1 Introduction

In the previous chapter we referred to FDI as being one of the most important elements in the ongoing global internationalization. Moreover, we discussed in detail the impacts of FDI on host economies. When looked at from a macro perspective we might argue that these host country effects are, potentially, dependent on the magnitude of foreign involvement in a certain country or region.

In this chapter we take a closer look at the developments in FDI in CEE, and more specifically in Hungary. To that end we first give a general overview of FDI in CEE, first to put FDI in CEE in a global perspective and second to put the investments in Hungary in a regional perspective (that is compared to other countries in CEE) (section 3.2). Section 3.3 follows up with a more detailed overview of FDI in Hungary. We shed light on the development and magnitude of FDI inflows from 1988 onwards, the source countries, the sectors of investment and the regional distribution of FDI. Finally in section 3.4 we concentrate on investments in the Hungarian manufacturing sector, which is the main focus of this study. The selection of companies for empirical research presented in chapter 4 is based on the findings in this chapter concerning the geographical and sectoral spread of foreign manufacturing companies in Hungary.

## 3.2 FDI in Central and Eastern Europe

FDI in CEE is a relatively new phenomenon. Up to 1989 FDI was negligible. From 1989 onwards, FDI has entered the region in more substantial proportions, though initially not at the anticipated amount (see for instance ECE, 1995; Gibb & Michalak, 1994; Meyer, 1998). Indeed, many companies were attracted to the region already during the early years of the transition, but the average amount of investment in these companies was rather small. Foreign investors generally chose a cautious investment strategy, dictated by unstable political and legal circumstances and a transition-related recession. This has also been the reason that FDI in the region is largely concentrated in the countries that have made serious efforts at reform and the introduction of market elements in their economies. The Czech Republic, Estonia, Hungary, Poland and Slovenia have been the front runners in the transition to a market-based economic system, according to the transition indicator of the EBRD (1998). Not surprisingly, these are also the countries that are eligible for EU membership in the

first round of enlargement. Using the average transition indicator, UNCTAD (1998) found a strong relationship between progress in transition and FDI for 17 countries in the region. They found an overall rank correlation coefficient between FDI and the average transition indicator of 0.91 for FDI stocks (as of end 1997) and 0.85 for 1997 inflows.

Although FDI in CEE has become more important in recent years, its share in worldwide inflows and inward stock is still moderate (table 3.1). According to UNCTAD (1998), in 1997 CEE received a record of \$ 19 billion in FDI inflows. This is 44% more than in 1996, when FDI inflows stagnated, partly reflecting declines in privatization-related investments in Hungary and the Czech Republic (UNCTAD, 1997). In 1997, the Russian Federation was the leading recipient of FDI in the region, mainly in natural resources and infrastructure development. Despite increasing annual inflows, CEE's share in world inward stock is still low, at \$ 62.4 billion (1.8%).

Table 3.1 Share of FDI in CEE in worldwide FDI inflows and inward stock (%)

	1990	1994	1995	1996	1997
Inflows	..	2.4	4.3	3.7	4.6
Inward stock	0.1	..	1.3	..	1.8

Source: UNCTAD (1998)

Before going into more detail on FDI in CEE, some comments have to be made on the data. According to UNCTAD (1998), 'FDI [...] comprise[s] capital provided (either directly or through other related enterprises) by a foreign direct investor to an FDI enterprise, or capital received from an FDI enterprise by a foreign direct investor.' According to the IMF balance of payments definition, there are three components in FDI: (1) equity capital, that is the foreign direct investor's purchase of shares of an enterprise, (2) reinvested earnings, and (3) intra-company loans or intra-company debt transactions. Not all countries record all three components of FDI flows. Moreover, it is much more difficult to find out the extent of FDI components (2) and (3).

This may have been the reason why different sources report different data. The FDI data from UN/ECE as presented in table 3.2 are based on balance of payment accounts. They provide only a limited picture of foreign investment, since they cover only cash inflows. The figures exclude investment goods and other contributions in kind, as well as re-investment of profits by foreign partners. Of course, this caveat pertains to most official investment figures worldwide. However, in the case of CEE, investments in the form of machinery, technical assistance, and know-how are thought to make up a large share of total investment. When using other sources for FDI figures, the outcome can differ considerably. For instance, the figures presented by *Business Central Europe* (BCE)<sup>1</sup> are generally higher than the ones derived from balance of payments statistics, as the former try to take into account reinvested profits and distributions in kind (table 3.2)<sup>2</sup>. However, when studying trends in foreign investment, or when comparing FDI in different countries in CEE, these differences in data and/or definitions become less problematic.

We already referred shortly to the differences in inward FDI flows for different countries in CEE. In fact, the bulk of FDI in CEE has flowed into just a handful of countries (table 3.2). The Central European countries and more recently the Russian Federation were the most important host countries for investment, as their stock figures end 1997 indicate. For a long time Hungary has by far been the most important recipient of FDI in the region.



More recently, Poland, the Czech Republic and the Russian Federation have caught up. The figures from BCE even show a higher stock figure for Poland than for Hungary<sup>3</sup>. More recent figures from BCE report an inward FDI stock of \$ 26.6 billion for Poland (as of September 1998) and \$ 22.5 billion for Hungary (as of June 98).

Looking at per capita investment, the picture is totally different. Hungary clearly appears to have attracted most FDI by far, notwithstanding the high BCE figure for Poland<sup>4</sup>. In fact, size-adjusted figures for Hungary per capita and according to GDP, are among the highest in the world (Meyer, 1998). Measured per capita, FDI in the Russian Federation is very modest. Other, notably smaller countries fare better. Especially Slovenia has attracted a relatively high amount of investment per capita.

Table 3.2 FDI in CEE, 1997

	UN/ECE <sup>a</sup>		Business Central Europe (BCE)	
	Stock 1997	FDI per capita 1997 <sup>b</sup>	Stock 1997	FDI per capita 1997 <sup>b</sup>
	bln \$	\$	bln \$	\$
Albania	0.3	102	..	..
Belorussia	0.3	30	..	..
Bulgaria	0.9	114	1.3	156
Croatia	1.1	250	1.3	284
Czech Republic	8.7	842	6.8	660
Estonia	0.9	634	1.2	823
Hungary	15.5	1,523	17.5	1,724
Latvia	1.4	547	1.8	729
Lithuania	6.5	176	1.0	270
Poland	8.6	222	20.6	533
Republic of Moldavia	0.2	37	..	..
Romania	2.5	109	2.8	124
Russian Federation	14.3	97	10.3	70
Slovakia	1.0	195	1.4	260
Slovenia	1.1	557	2.4	1,208
The FYR of Macedonia <sup>c</sup>	0.1	28	..	..
Ukraine	2.0	39	..	..

<sup>a</sup> Stock figures calculated from stock end 1995 (1998-1995) (ECE, 1997) added with flow figures for 1996 and 1997 (ECE, 1998b). All figures are on cash basis, derived from national balance of payments statistics.

<sup>b</sup> Population data per July 1997.

<sup>c</sup> Population in 1996 (KSH, 1998).

Source: own calculations based on ECE (1997, 1998b); Business Central Europe (1998); <http://www.unece.org/stat/trend> (population data)

A better picture of the local impact of FDI is provided in table 3.3, where we present the share of foreign companies according to selected economic indicators for five countries in CEE. Although the Czech Republic, Poland, Slovakia and Slovenia are among the leading recipients of FDI in the region, the economic impact of companies with foreign capital participation is by far the highest in Hungary for all five indicators. Overall, the impact of foreign companies is higher in the manufacturing sector than for the economy as a whole, indicating the large amount of FDI in this sector. Here, the difference between Hungary

and the other countries is even more striking. Foreign manufacturing companies appear to have a dominant share in the nominal capital, output levels, export sales and investment. However, they employ 'only' 37% of the working population in manufacturing, indicating higher productivity levels in foreign companies compared to domestic companies. Measured in terms of output levels, productivity in foreign manufacturing companies in Hungary is more than twice that of domestic companies<sup>5</sup>.

*Table 3.3* Share of companies with foreign capital participation<sup>a</sup> in the whole economy (1) and manufacturing (2), 1994 (%)

	Hungary		Czech Rep.		Poland		Slovakia		Slovenia	
	1	2	1	2	1	2	1	2	1	2
Nominal capital (equity)	31.9	60.8	7.4	11.8	24.8	36.9	5.0	12.2	6.6	11.5
Employed persons	22.6	37.2	6.0	7.5	7.0	12.2	3.8	9.7	5.3	7.8
Output	38.6	55.4	9.4	11.2	12.4	18.7	7.0	12.8	10.7	16.9
Export sales	50.6	65.5	..	16.4	22.7	29.1	..	15.7	19.1	21.1
Investment	38.0	79.0	16.5	24.8	11.7	30.9	11.8	36.0	..	..

<sup>a</sup> This includes all companies with a foreign capital share. Normally a 10% minimum capital share qualifies as direct investment. However, according to the source, there are only a few exceptions to the 10% rule.

*Source:* Hunya (1996)

### **3.3 Main trends in FDI in Hungary 1988-1997**

Hungary has thus been the most successful of the CEE countries in attracting FDI. In this respect, three factors are of major importance. From the start of the 1989 transition process, Hungary has conducted a privatization policy which was aimed at increasing the fiscal advantages of privatization. To that end, the government favored direct sales of companies to foreigners. Hard currency is important to the government, as Hungary still has a large foreign debt. Besides the privatization policy, the exceptional position of Hungary within the CMEA has played an important role. By 1968, Hungary had already introduced market elements into its the economy. According to many authors (see, for instance, Boote & Somogyi, 1991), the direct effects of the many reforms have been relatively limited. Nevertheless, 'goulash communism' has apparently had a great influence on FDI, both in terms of actual developments (before and after 1989) and the perception of potential foreign investors. This exceptional position within the CMEA and the international orientation – not only towards CMEA countries but also more and more towards Western Europe – laid the foundation for clear and relatively liberal laws on FDI. The legislation, which was introduced in 1972 already, was amended (liberalized) significantly in 1988, i.e. before the 1989 change of system. This, of course, had a positive effect on investors' confidence and their perception of the risks of investing there.

Next to these three factors accounting for Hungary's attractiveness as an FDI destination country we might mention a forth factor, that is not directly related to Hungary per se, but is more of a general nature. The presence of a large number of foreign companies is in itself a factor in the attraction of new investments. In other words, investment breeds investment (Csáki et al., 1996). In a similar respect, Geenhuizen and Nijkamp (1998) refer to two critical thresholds in attracting FDI in the first years of the transition. One is a first

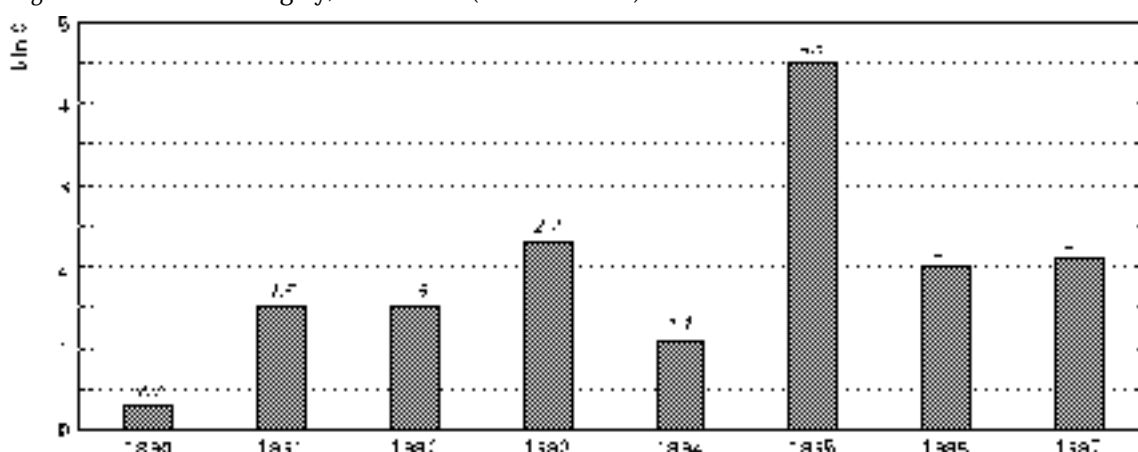
investment by a forerunner, after which the country appears interesting and safe enough to attract various followers, and the other is a point above which agglomeration economies arise, causing FDI to increase rapidly. It might suggest that early FDI inflows in Hungary as reported above have had a positive effect on subsequent FDI inflows in Hungary.

In this section we take a closer look at FDI in Hungary. We start by giving an overview of FDI in Hungary from 1988 to 1997 (section 3.3.1). Next we look at the source countries of FDI in Hungary (section 3.3.2), after which we examine the sectors of investment (section 3.3.3) and the geography of investment (that is, the regional distribution of FDI) (section 3.3.4).

### 3.3.1 FDI 1988-1997

Hungary already had a law which allowed foreign companies to establish a subsidiary in the country from as early as 1972 (Kuiper, 1991). However, up to the 1989 change of system, FDI in Hungary was rather limited. At the end of 1988 some 208 foreign companies were registered, of which half entered the country in 1988 alone (Hamar, 1992). In contrast to other countries in CEE, Hungary has attracted relatively high amounts of FDI in the first years of the transition. At the end of 1989, 1,349 foreign companies were registered in Hungary (Hamar, 1992) and the inward stock was \$ 387 million (in cash) (Csáki & Macher, 1998).

Figure 3.1 FDI in Hungary, 1990-1997 (billion dollars)



Source: ECE (1998b)

In 1990, the first full year after the change of system, FDI was at \$ 311 million still relatively modest<sup>6</sup>. It is only after 1991 that substantial amounts of FDI flowed into the country annually (figure 3.1). Although the FDI figures in figure 3.1 cover both investments in privatization, greenfield investments and supplementary investment projects, we can conclude that the course of the annual investment flows is dictated by the annual differences in privatization revenues.

Privatization in Hungary started already in 1988 and proceeded comparatively smoothly until 1994. However, the process slowed considerably in the beginning of 1994 and came practically to a standstill in the first six months of 1995. This 18-month hiatus was mainly

caused by the general elections and the change of government, as well as the delay in the new privatization law, which was implemented in June 1995 after several amendments<sup>7</sup>. In the second half of 1995 privatization regained momentum. In the last months of 1995 some of the largest privatization deals in the region were concluded. This included five gas distribution companies, six electricity distributors and two power stations, 18% of gas company MOL, and another 37% of the phone company MATÁV.

After the low FDI inflow in 1994 and the record high inflow in 1995 (\$ 4.45 billion), annual FDI in Hungary has stabilized in 1996 and 1997. By the end of 1996 a total of 26,130 companies with foreign capital participation were registered in Hungary. Of these, 47.4% were 100% foreign subsidiaries and 52.6% had both foreign and domestic capital (KSH, 1997). By the end of 1995, among the 200 largest companies in Hungary, 98 had a majority foreign ownership (Institute for Privatization Studies, 1996a).

As the privatization in Hungary is drawing to a close, future FDI has to come from greenfield investments and the expansion of existing establishments. Figures about the shares of foreign capital that have entered Hungary through privatization and greenfield projects are not readily available. Swain (1998) reports that investment in greenfield projects has been more important in Hungary than in other countries in CEE between October 1991 and March 1993. During that period, 29% of invested capital in Hungary was in greenfield projects, compared to 13% for Poland and 5% for the Czech Republic. In absolute numbers, the impact of greenfield investments in Hungary is even more pronounced, considering that investments in privatization were much higher during that period than elsewhere in CEE. The investment in greenfield projects is highly geographically concentrated in the Budapest agglomeration, and the northwest of Hungary, notably Győr, Székesfehérvár and Szentgotthárd (Rechnitzer, 1998).

### 3.3.2 *Source countries of FDI*

As for the source countries of investment, geographical proximity and historical links appear to be key factors<sup>8</sup>. Germany is the number one investor in Hungary (table 3.4). Austria, not a key player in global investment, is another important source country. Measured by the number of establishments (as opposed to the measurement in capital inflows as in table 3.4), Austria's position is probably stronger, as Austrian investments are generally relatively small involving multiple investments of less cash-rich medium-sized enterprises. This is confirmed by Meyer (1998) who points out that proximity is generally more evident in the number of projects than in the contribution of capital because proximity is more important for small business than for large multinational enterprises. Both Germany and Austria are also major players where the whole of CEE is concerned. In the period 1992-1994, FDI in CEE accounted for close to 30% of Austrian outward FDI flows and 13% of German outflows (Hunya, 1996). Next to geographical proximity and historical links mentioned above, political factors might also be of some relevance; especially in the case of Germany for which CEE forms a prominent part of its periphery<sup>9</sup>.

In general we can conclude that West European countries account for the bulk of foreign capital, not only in Hungary but also in other countries in the region. A major exception is the United States, which is among the main source countries in several CEE countries. Investments from the United States are characterized by their size, i.e. mainly large scale projects by multinationals.

Table 3.4 Source countries of FDI in Hungary and selected CEE countries (stock end 1997) (%)

	Hungary	Czech Rep.	Poland	Slovenia <sup>a</sup>
Germany	22	28	12	14
United States	20	13	23	1
The Netherlands	13	14	7	2
Austria	10	7	4	34
France	8	8	9	7
Italy	6	1	9	7
United Kingdom	4	3	7	5
Belgium	4	..	1	..
Switzerland	3	11	3	4
Japan	2	..	..	..
Rep. of Korea	1	..	6	..
Others	9	15	18	25
Total	100	100	100	100

<sup>a</sup> End 1996.

Source: UNCTAD (1998)

One of the major FDI contributors in the world, Japan, is almost absent in CEE. From the four host countries considered in table 3.4, only Hungary hosts some Japanese FDI. SUZUKI accounts for a large share of Japanese FDI in Hungary.

### 3.3.3 Sectors of investment

As for the spread of FDI in Hungary across the various sectors of the economy, large differences are found between the number of organizations and the amount of invested capital (table 3.5). By the end of 1996, almost half of the companies were active in trade. This clearly shows the interest of foreign companies in entering the Hungarian market. Other sectors in which many foreign companies operate are manufacturing, real estate, rental, and business activities. The sectoral division of foreign investments measured by foreign capital inflow gives the opposite picture as far as trade and manufacturing are concerned. Close to 40% of all foreign capital went to manufacturing, while the trade sector received 'only' 12% of capital investment. The recent privatization of some public utilities has attracted a large amount of foreign capital in the electricity, gas, steam and water supply sector (14.3%). The difference between trade and manufacturing, as far as the number of investments and the amount of invested capital are concerned, shows that the average amount of capital invested in trade is much lower than in manufacturing. This is hardly surprising because it takes more money to set up or take over a production plant than to establish a trade office, the cautious investment strategy of foreign companies in manufacturing in the early transition years notwithstanding.

A closer look at foreign investment in different branches of manufacturing reveals that foreign investment is found in all branches (figure 3.2). Machinery and equipment is the most important branch: more than one-quarter of all foreign manufacturing companies is engaged in the engineering sector. This is not at all remarkable as the engineering sector is important in the Hungarian economy as a whole. However, it does show that foreign companies are attracted to the high technical skills of Hungarians, one of the country's comparative advantages.

Table 3.5 FDI in Hungary by economic activity, 1996 (%)

Sector	Number of companies	Foreign capital
Agriculture, hunting, forestry & fishing	3.2	1.2
Mining & quarrying	0.3	1.2
Manufacturing	16.5	39.2
Electricity, gas, steam & water supply	0.2	14.3
Construction	4.7	3.8
Wholesale, retail trade & repair	48.9	11.9
Hotels & restaurants	4.3	2.5
Transport, storage, post & telecommunication	3.1	8.9
Financial intermediation	0.6	9.0
Real estate, rental & business activities	14.9	7.4
Education	0.6	-
Health & social work	0.6	0.1
Other community & social activities	2.2	0.5
Total	100.0 <sup>a</sup>	100.0 <sup>b</sup>

<sup>a</sup> 26,130 companies.

<sup>b</sup> HUF 1,602.2 billion.

Source: KSH (1998)

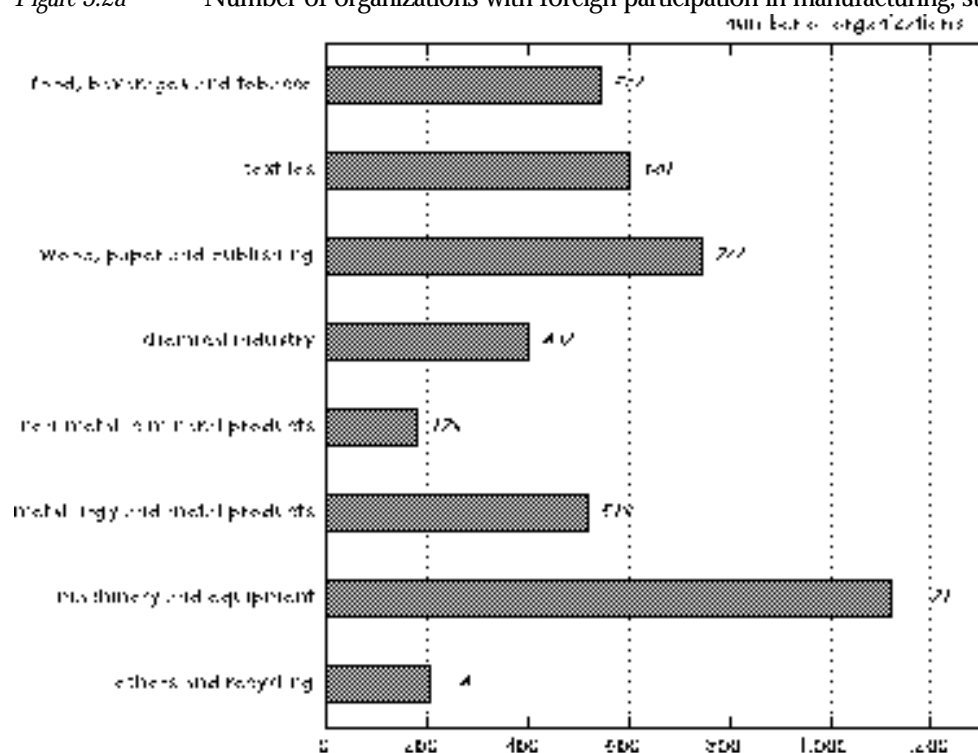
With regard to foreign capital investment, the picture is somewhat different. Here too, the engineering sector appears to be the most important. Next to the high number of foreign establishments, investment in the automotive industry is mainly responsible for the expansion of this sector. AUDI, SUZUKI, OPEL and FORD belong to the top ten foreign investors in Hungary. Though only moderate in terms of the number of foreign organizations, a large share of the foreign capital in manufacturing went to the chemical industry. The food and beverages sector has received a substantial share in capital investment as well with the highest average investment per company found in this sector. For a long time food and beverages has been the most important as regards foreign capital investment. Privatization has been more rapid here than in other sectors, with majority foreign ownership in all main branches as of 1995. Foreign ownership is almost total in confectionery, vegetable oil production, soft drinks production and the tobacco industry. The foreign interest in the privatization of the food sector has been strong in branches with (1) stable domestic markets, (2) monopolistic or oligopolistic markets, (3) relatively cheap production technology, and (4) production technology that is 'synoptic', and easily reduced to repetitive patterns and automated (Farkas, 1997).

Foreign capital investments in the manufacturing industry in CEE as a whole resembles the picture as outlined for Hungary above. The main sectors of investment in manufacturing in CEE are food and beverages, machinery and equipment and the chemical industry (UNCTAD, 1998).

### 3.3.4 The geography of FDI

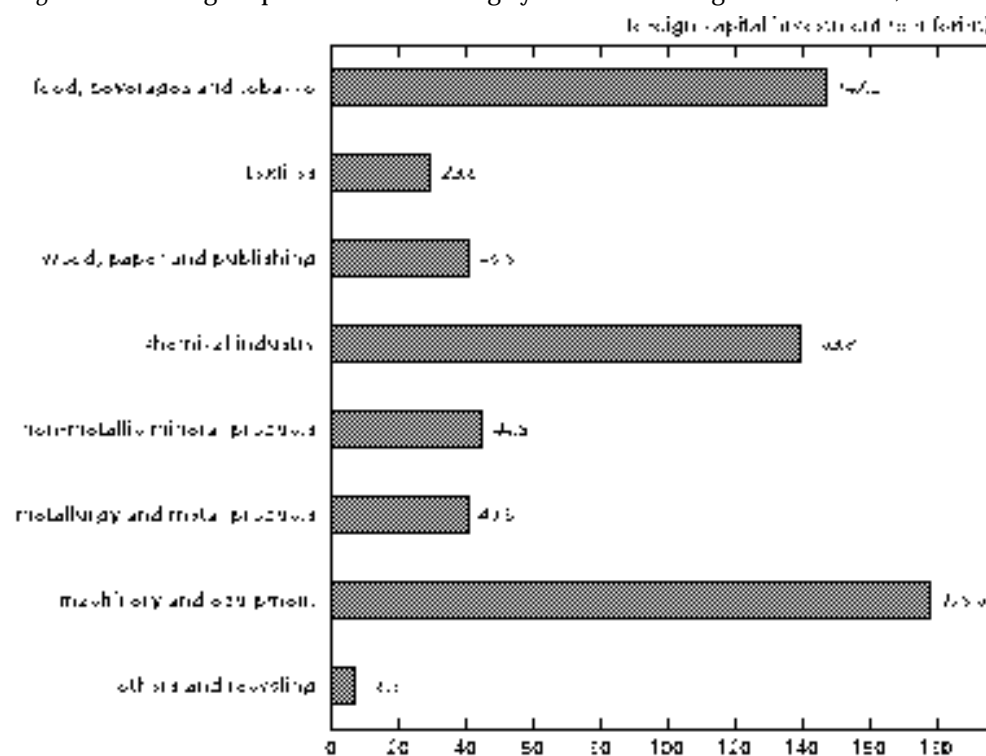
Foreign direct investment in Hungary has a very uneven geographical distribution, both by the number of foreign establishments and invested capital (figure 3.4). Budapest has captured by far the biggest share of foreign capital invested in Hungary. By the end of 1996, Budapest alone has received 54% of all capital investments, and almost half of all foreign companies

Figure 3.2a Number of organizations with foreign participation in manufacturing, stock end 1996



Source: KSH (1998)

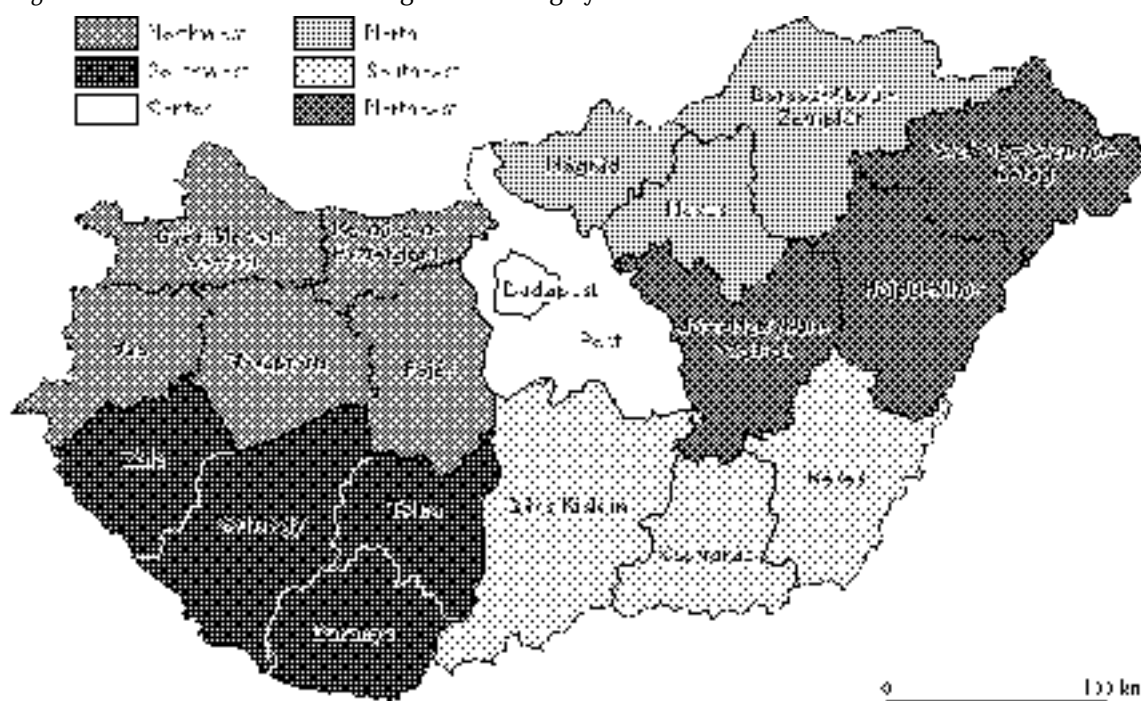
Figure 3.2b Foreign capital invested in Hungary in manufacturing in billion forint, stock end 1996



Source: KSH (1998)

were based there. Ever since the early days of the transition Budapest has attracted the lion's share of FDI. More recently, there has been a shift favoring the other regions in the country. Investment in Pest county, which attracted the second highest amount of capital investment, is very unevenly dispersed (figure 3.3 provides a map with the counties and macro regions in Hungary). The lion's share is found in a ring around Budapest (in the urban agglomeration). The southeastern part of Pest did not gain much foreign investment. That area resembles the southeastern part of the country, both regarding economic structure and FDI. The northwest of Hungary is also one of the more favorable locations for foreign companies. More specifically this includes Vas and Zala (especially the western parts bordering Austria), Győr-Moson-Sopron, areas along the Győr-Budapest corridor and Fejér. Especially the capital of Fejér, Székesfehérvár, is developing as one of the major locations for greenfield establishments. These favorable locations for FDI are largely located on what is known as the innovation axes in Hungary, which runs from the northwest to the southeast along Győr, Budapest, Szeged and from Budapest to the Lake Balaton<sup>10</sup>.

Figure 3.3 Counties and macro regions in Hungary



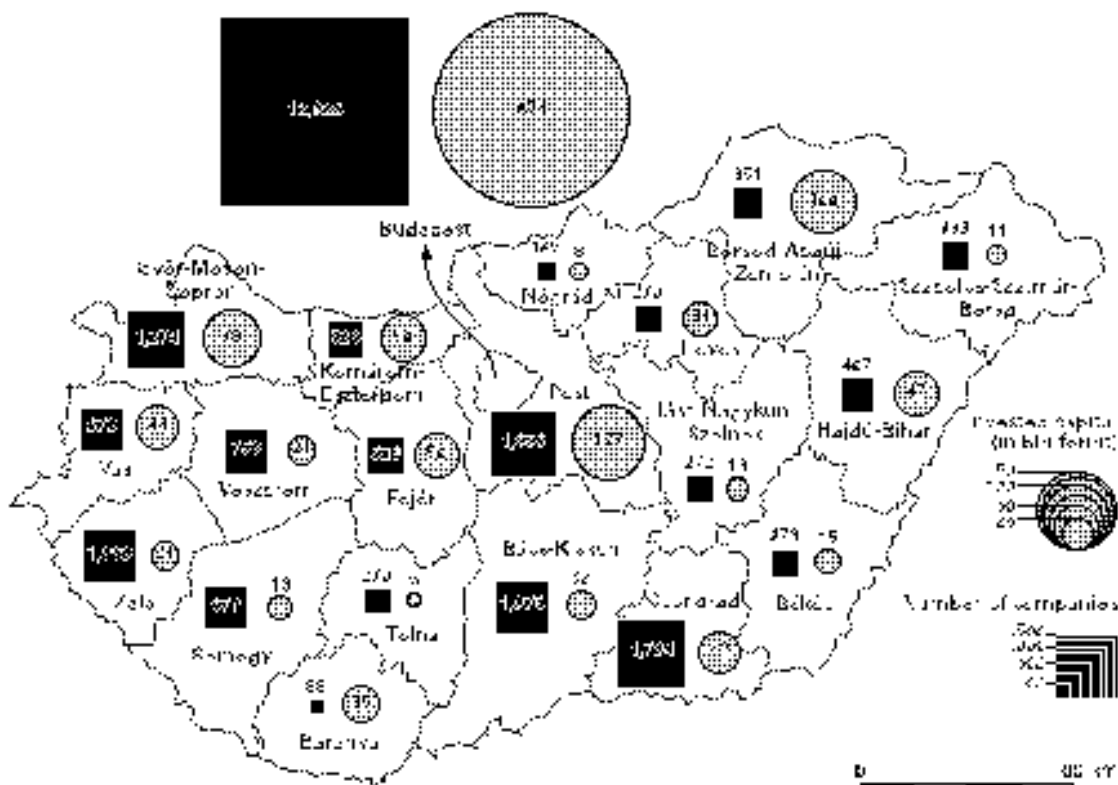
The exceptional position of Budapest in Hungary, in relation to FDI deserves added commentary. Foreign companies which invest in a certain country for the first time, often start their activities in the capital city as a sales office. From there they expand their (production) activities to other parts of the country. In Hungary, where foreign companies started to enter the country in great numbers only after 1989, this can be an explanation for the concentration of FDI in Budapest. Next to this general factor, four reasons specific to Hungary can be given for the attractiveness of Budapest as an investment location. First, the infrastructure (both physical and communications) is much better than in the rest of the country, especially in the early days of transformation. Second, the wish of foreign companies to locate (headquarters) in the proximity of the decision making centers and domestic organi-



zations which are important for foreign investors. Especially in the early days of the transition, when the future held more uncertainties and investment risks were regarded to be relatively high, this was a major consideration for companies to invest in or near to the capital city.

The third factor why Hungary attracts investments in the manufacturing sector is related to the already existing concentration of the domestic manufacturing sector and the preference of foreign companies to invest by way of a joint venture or acquisition of an SOE above the setting up of greenfield establishments. Budapest has always been the largest single industrial agglomeration in Hungary, both for headquarters and branch plants (Barta, 1996), despite efforts since the 1960s to move industry away from the capital and the prohibition to locate new branch plants in the agglomeration ring<sup>11</sup>. The policy had some effect, since between 1970 and 1985 the number of branch plants in Budapest decreased, but started to grow again between 1985 and 1989. Paralleling this development was a sharp increase in the number of industrial headquarters since 1980. This can be explained by the disintegration of big enterprises, as a result of which branch plants became headquarters. In 1996, Budapest accounted for approximately 28% of Hungary's industrial production. This far exceeds its share in the industrial employment structure (16% of all industrial jobs can be found in Budapest), indicating that the productivity in Budapest is higher than the national average (Barta, 1998).

Figure 3.4 Regional spread of invested capital (in billion forint) and number of companies in 1996



Source: KSH (1998)

Closely connected to the dominance of Budapest in the national economy is the fact that it has a broad and diversified labor market, and the highest educated labor force in the coun-

try. The capital hosts a large share of the country's universities, institutes for higher education and vocational schools. Moreover, as all ministries and other government institutions, as well as a great number of company headquarters are located in Budapest, it is here that we can find the largest pool of people with management and organizational experience.

Some of the factors explaining the attractiveness of Budapest for the location of FDI are applicable to the northwest of Hungary as well<sup>12</sup>. The northwest of Hungary has always been among the more prosperous regions in Hungary, with a relatively good infrastructure. Here too we can find a concentration of manufacturing companies. Győr was, after Budapest, second in Hungary in the number of company headquarters it accommodated. Thus, through the investment in privatization the northwest has an advantage above the southwest and east Hungary. In relation, the labor force is well educated. The labor market is especially favorable for skilled manual workers. Finally, the northwest of Hungary is geographically well located in international respect, as it borders Austria, and thus the EU. This is an important asset for medium sized Austrian (and German) companies that prefer to invest close to the parent company, and for export-based investments in general.

Finally, we would like to stress that it is the combination of the factors mentioned that contributed towards the prosperous development of the center and northwest of Hungary during the transition and these regions appear to be the most favorable locations for foreign investment. Or, in the words of Ehrlich and Révész (1995): 'the reason is not simply that Budapest as the center, and the western periphery as the areas most directly linked to developed Europe, are exploiting these features to meet the challenges of the transition. They are historically the areas of Hungary whose inhabitants have the highest levels of culture, flexibility and multiple working skills.'

Comparing foreign investment figures with domestic data, a different picture emerges. When the number of companies with foreign capital participation is related to the total number of companies per county (situation in 1993)<sup>13</sup>, the differences between the various parts of the country appear to be much smaller than they seemed at first. In itself, this is not surprising following our earlier statement that investment in privatization is the most important entry mode in Hungary. Only northeastern and northern Hungary host a relatively small number of foreign companies. In comparison, Budapest is still one of the major hosts for foreign investment, but not the most important one. The uneven spread of investment is partly due to the concentration of economic life and population in Budapest and its surroundings. This is because economic life in Hungary is highly concentrated in Budapest. With 41% of all companies in Hungary, Budapest has by far the highest number of companies per capita: 23 per 1,000 inhabitants, compared to 8 per 1,000 for the rest of the country (1993 situation) (Nemes-Nagy, 1995). Surprisingly, Vas county hosts relatively more foreign companies than any other county. This reflects the small number of domestic companies in the county as well as its favorable location bordering Austria.

All in all we can conclude that FDI in Hungary is geographically concentrated. At the end of 1996, three-quarters of the foreign companies and invested foreign capital were in the center and northwest of Hungary. Given the exceptional position of Hungary within CEE, we can conclude that this area hosts the highest concentration of FDI in CEE. FDI contributes to the regional inequality in Hungary, although the FDI pattern only reflect regional disparities in Hungary. In 1997, the government came up with incentives for foreign companies to invest in less developed areas where unemployment has been more than 15% for one of the two years before investment (Éltető & Sass, 1998)<sup>14</sup>.

### **3.4 FDI in the Hungarian manufacturing industry: analyzing the Hoppenstedt database**

After this general overview of FDI in CEE and Hungary, we narrow our focus to FDI in the Hungarian manufacturing industry. As the available statistical data fail to provide a more detailed analysis, we will use our own database. This database allows us to give a more detailed picture of the sectoral and geographical distribution of FDI and the related employment (sections 3.4.2 and 3.4.3). But first we render an account of the setting up of this database and its representativeness.

#### *3.4.1 The Hoppenstedt database*

In order to focus on foreign investments in manufacturing, data was obtained from the company directory 'Major Companies in Hungary 1995', published by Hoppenstedt Bonnier (1995). The directory lists 6,400 of the biggest companies in Hungary. From these, we selected 905 companies with a foreign capital share of at least 10%. Of these 905 companies, 460 are engaged in manufacturing, which represents 12% of the foreign companies in manufacturing. These 460 have a joint foreign capital of HUF 193 billion<sup>15</sup> and employ 104,000 people<sup>16</sup> as of end 1993. The database was set up for the following reasons:

1. Reliable statistics concerning foreign direct investment in Hungary are difficult to find. This problem becomes even more serious as the geographical or thematic level of analysis becomes smaller. For instance, regional data about FDI in different industrial sectors are not available. The new database gives information on the regional distribution of FDI in manufacturing, which is not available from other sources. Moreover, using the database we are able to generalize about regional specialization of foreign investments within manufacturing in Hungary.
2. The database gives information about employment levels in companies with foreign capital participation as well as its regional spread.
3. Last but not least, the database was set up to access information to be used for inquiries and interviews with companies in the database. To our knowledge, there is no company directory in Hungary that is suitable for making a selection of companies with foreign capital participation. Therefore, it was necessary to compile one ourselves. The database provides not only names and addresses of companies with foreign capital participation in Hungary, but also the names of key persons in the companies.

For the geographical analysis, we divided Hungary into six macro regions instead of making a division at the county level because of the relatively small number of companies and the relatively large number of counties (19 and Budapest). The six macro regions are center, northwest (or North Transdanubia), southwest (South Transdanubia), northeast (North Alföld), southeast (South Alföld), and north (see also figure 3.3).

The database does not give information at the settlement level but at the company level. Companies are assigned to the county where their headquarters are located. In itself, this might be a disadvantage, but the same disadvantage also applies to the other data presented above. It is actually a general problem with data about the geographical spread of companies. In the case of Hungary, this means that the macro regions, center, and to a lesser extent, northwest, are

overestimated in this database. During the socialist period the lion's share of headquarters was situated in these parts of the country. Furthermore, our earlier finding showed that foreign investments are mainly acquisitions of SOEs that were concentrated in center and northwest Hungary. Finally, the existing regional characteristics of the manufacturing sector make the center and northwest favorable locations for foreign companies to set up their headquarters for greenfield investments.

As the database was constructed from a directory of the biggest companies in Hungary, it may be assumed that the data would include the biggest and most important foreign investments. For that reason, the database may give a somewhat different picture than the one presented above, which is based on total investment figures. With respect to the use of the database to select companies for inquiries and interviews, this is certainly not a disadvantage and could even be an advantage, since it excludes P.O. Box companies and other pseudo-investments that were set up only out of tax considerations. Regarding the usefulness of the database to describe foreign investments according to their geographical and sectoral characteristics, however, this might be a problem. Therefore, in order to make a comparison with the secondary data presented above, and to evaluate the representativeness of the database, table 3.6 includes figures about the regional division of investments. The regional distribution of FDI across all sectors (905 companies) resembles the picture presented in figure 3.4 above. The dominance of Budapest is also revealed by this database. We may conclude that the database is representative of the whole population as far as the regional distribution of foreign investments is concerned.

*Table 3.6* Regional distribution of FDI in Hungary by number of foreign investors

	All sectors		Manufacturing	
	Absolute	%	Absolute	%
Budapest	546	60.3	187	40.7
Bp Agglomeration	590	65.2	213	46.3
Center	607	67.1	227	49.3
Northwest	121	13.4	87	18.9
Southwest	47	5.2	38	8.3
Northwest	37	4.1	30	6.5
Southeast	45	5.0	37	8.0
North	48	5.3	41	8.9
Total	905	100.0	460	100.0

*Source:* Hoppenstedt database

When considering investments in manufacturing only, the picture brightens up for the other parts of the country. The explanation lies in the extreme concentration of non-manufacturing activities in Budapest. More than 80% of investments outside manufacturing are located in Budapest (compared to about 40% when only manufacturing is considered). The Budapest agglomeration hosts a mere 46% of the number of investments in manufacturing, while the joint share of central and northwest Hungary is 68%.

### 3.4.2 Sectors of investment

Above, we have already discussed the distribution of investments in manufacturing across various branches of industry. In this section, we will briefly discuss the sectors of investment as well because first it will shed light on the general characteristics of the database, and second, the branch structure used in the Hoppenstedt company directory differs from the one used by the Hungarian Central Statistical Office (KSH).

Table 3.7 Number of companies and capital investments (in million forint) in manufacturing by sector

	Companies		Capital investment		
	Abs.	%	Abs.	%	Average
1. Chemical industry	45	9.8	12,672	6.4	282
2. Non-metallic mineral products	27	5.0	20,242	10.3	750
3. Basic industries, steel & light metal working	50	10.9	5,704	2.9	114
4. Mechanical engineering & construction of vehicles	84	18.3	26,766	13.6	319
5. Electrical & precision engineering & optics	75	16.3	53,511	27.1	713
6. Ironmongery, musical instruments, sports, toys, etc.	30	6.5	4,900	2.5	163
7. Paper, wood & printing	41	8.9	11,360	5.8	277
8. Textiles	52	11.3	6,218	3.2	120
9. Food & beverages	56	12.2	55,750	28.3	996
Total	460	100.0	197,123 <sup>a</sup>	100.0	419

<sup>a</sup> The figure differs from the one presented above in section 3.4.1 where we described the main characteristics of the database. This figure is also corrected for 460 cases (42 missing cases). The difference is a consequence of the correction on different divisions (macro regions versus sectors).

Source: Hoppenstedt database

Most foreign investments measured by the number of companies are engaged in mechanical engineering and construction of vehicles (84), followed by electrical engineering (75) (table 3.7). Together, they account for more than one-third of the number of companies with foreign capital participation. In terms of invested capital their share in total investments is even larger (more than 40%). It is noteworthy that capital investments in electrical and precision engineering are twice as high as in mechanical engineering, mainly due to some large investments. Capital investments in food and beverages, accounting for almost 30% of total investments, are the highest although the sector received only a moderate number of investments. Average capital investment is therefore highest in food and beverages.

### 3.4.3 The geography of FDI in manufacturing

Above we have already discussed the geographical distribution of FDI by number of establishments in the manufacturing industry using the Hoppenstedt database. Measuring the

geographical spread of foreign investments by the number of establishments is only one approach. A better way, and of more importance for their local impact, is to measure the geographical distribution by the spread of invested capital and employment levels. As table 3.8 suggests, this gives a somewhat different picture. When measuring FDI by capital investments, it appears that they are highly concentrated in the center macro region and to a lesser extent in the northwestern part of the country. Together they make up 80% of the invested capital. Moreover, the table shows a large difference in the average invested capital, ranging from HUF 500 million in the center to HUF 205 million in the southeastern part of Hungary. This can be explained by the abovementioned relative concentration of headquarters in the center and northeast macro regions. Employees working in companies with foreign capital participation are more evenly spread, mainly due to a lower concentration in the center. This means that employment effects of foreign investments, at least as far as manufacturing is concerned, are not as concentrated in the center and northwest macro regions as is often thought, especially when taking into account that some of the employees assigned to the center macro region work in branch plants located in other parts of the country.

*Table 3.8* Capital investment (in million forint) and employees in manufacturing by macro region, 1993

	Foreign capital			Employees	
	Absolute	%	Average	Absolute	%
Center	113,460	58.8	500	50,728	48.8
Northwest	40,805	21.2	469	20,917	20.1
Southwest	11,990	6.2	316	9,852	9.5
Northeast	6,951	3.6	232	7,095	6.8
Southeast	7,588	3.9	205	5,472	5.3
North	12,128	6.3	296	9,879	9.5
Total	192,923	100.0	419	103,943	100.0

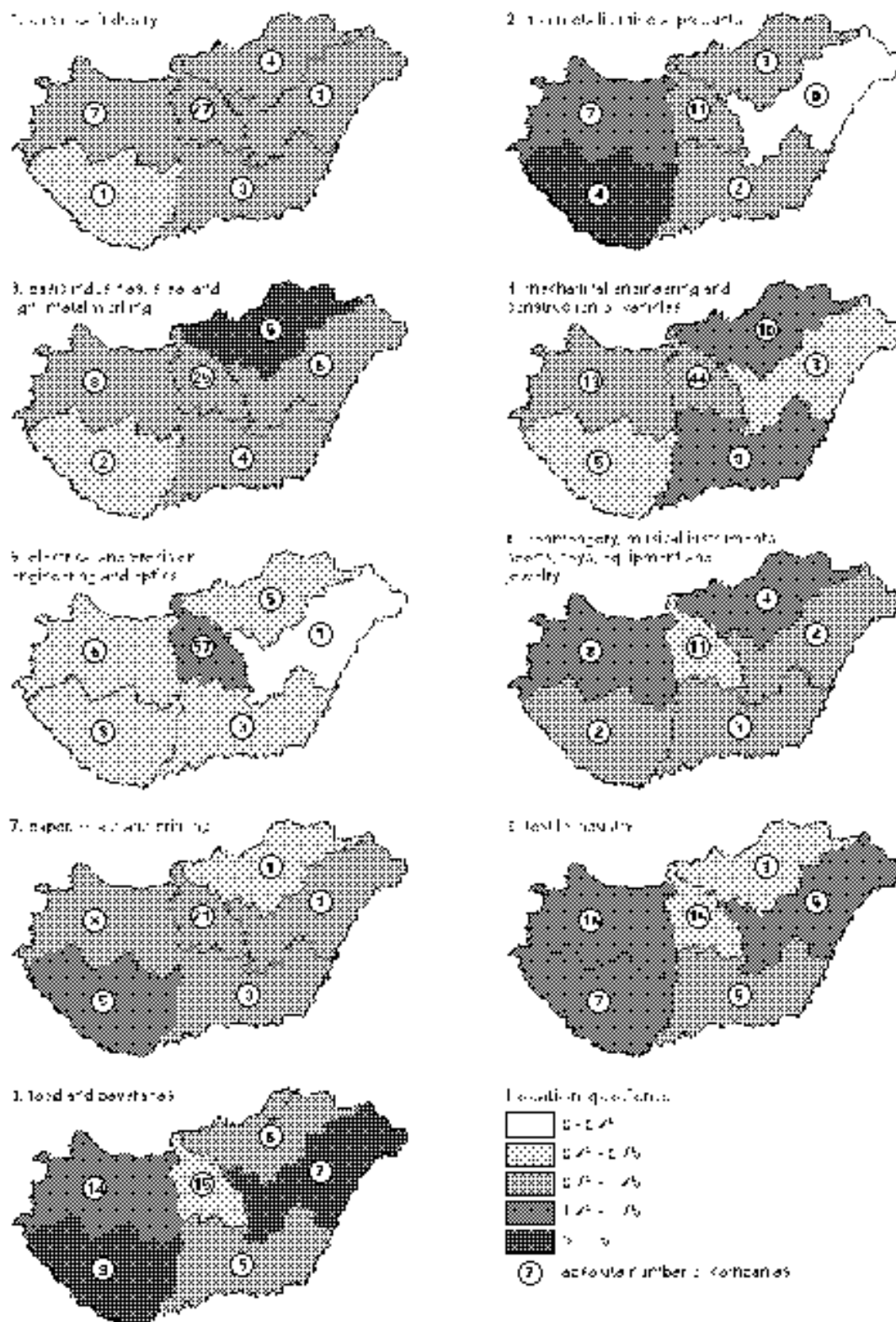
*Source:* Hoppenstedt database

In order to get a picture of the regional spread of foreign investments for each of the nine sectors of manufacturing, location quotients<sup>17</sup> were calculated for each of the six macro regions (figure 3.5). To give a more complete picture, the figure also shows the absolute number of companies<sup>18</sup>. The central part of the country hosts the highest number of foreign companies in all nine sectors. The northwest ranks second for all sectors. The chemical industry, basic and steel industries, and paper industry show a fairly equal relative spread among the macro regions.

When we look at the relative representation of the sectors in the different macro regions (location quotients), we see that only in the case of electrical engineering, the center macro region has attracted an above-average share of investments. Investments in ironmongery, textile industry, and food and beverages (sectors 6, 8, and 9) are relatively underrepresented.

Because of the presence of natural resources, the southwest macro region has an overrepresentation of non-metallic mineral products, while the (basic) steel industry is overrepresented in the north. Northeast and southwest macro regions attracted a relatively large number of foreign companies in food and beverages. In both parts of the country almost one-quarter of the foreign companies invested in this sector. The northeastern part of the country attracted a relatively low share of foreign companies manufacturing non-metallic mineral prod-

Figure 3.5 Location quotients and absolute number of investments in manufacturing by macro region



Source: Hoppenstedt database

ucts. Likewise, the northern part attracted a fairly low share of electrical engineering companies.

### 3.5 Conclusion

FDI in CEE is still moderate when viewed from a global perspective. Nevertheless, its share in worldwide inward FDI stock is growing. Factors that play a role are the recent opening of the region to FDI and the cautious strategy of foreign companies. The latter is caused by the transition-related recession in the whole of CEE, unclear and weak legislation on FDI, and the meager transition efforts of many CEE countries. There appears to be a strong relation between the differences in the progress in transition between countries and the inflow of FDI.

As one of the countries that already has progressed a long way on the transformation path, Hungary has emerged as the main destination for foreign capital in CEE. More specifically we found three transition-related factors that may explain the country's attractiveness to foreign companies: (1) the privatization policy that favored direct sales to foreigners; (2) the market-oriented 'goulash communism' before 1989; and (3) relatively clear and liberal laws on FDI, already from 1988 onwards.

One of the aims of this chapter was to provide an overview of the sectoral and geographical characteristics of FDI in Hungary. Next to its general relevance for this study, this overview provides information that will be used in the following chapter where we deal with the data collection for the empirical research. The outcomes of this chapter are used for selecting regions and sectors for the study. Budapest is no doubt the main destination area of foreign capital. The northwest of Hungary is a second major area that has attracted relatively large amounts of FDI, especially where investments in the manufacturing industry are concerned. In fact we might conclude that Budapest and the northwest of Hungary host the largest concentration of FDI in the whole of CEE.

In terms of foreign capital the manufacturing industry is the most important within which the food and beverages sector, the engineering sector and the chemical industry are the main destinations. However, the chemical industry has become more important only recently. FDI in this sector was only moderately important in our own database based on 1993 data (compare also KSH, 1994; Van Hastenberg, 1996b).

### NOTES

<sup>1</sup> A monthly publication from The Economist Intelligence Unit.

<sup>2</sup> For an overview of fallacies and methodological problems with FDI, see Van Rietbergen (1994), UNCTAD (1998) and EBRD (1998).

<sup>3</sup> The figure for Poland from BCE (\$ 20.6 bln) is more than twice that from UN/ECE (\$ 8.6 bln). Another remarkable difference between the two sources is that the figures for the Russian Federation and the Czech Republic quoted in BCE are lower than the ones presented by the UN/ECE, whereas the figures for all other countries are higher.

<sup>4</sup> This is also indicated by the FDI stock as a percentage of gross domestic product, which is highest for Hungary (33%). That is notably higher than the figure for Estonia, the second runner-up with 20%. The average for CEE is less than 6% (UNCTAD, 1998).



- <sup>5</sup> As companies with foreign capital participation account for 37.2% of employment and 55.4% of output, domestic companies employ 62.8% of the employees and produce 44.6% of output. So,  $(37.2 : 55.4) : (62.8 : 44.6) = 2.1$ .
- <sup>6</sup> Relative to the inward flows in the following years in Hungary. Compared to other countries in CEE and the then USSR the figure is high. Total inflows in 1990 in CEE were \$ 461 million, leaving a mere \$ 150 million that was invested in all other countries in CEE. Besides, the USSR was hit by \$ 400 million of de-investments (ECE, 1998b).
- <sup>7</sup> One of the major changes in this law is the establishment of a new privatization agency, the Hungarian Privatization and State Holding Company (APV Rt) under direct control of the Ministry of Finance. In the APV, the two former privatization agencies were joined together: The State Property Agency (SPA), which was in charge of the sale of state-owned enterprises to third parties and the Hungarian State Holding Company (HSHC), which was set up for the administration of companies in strategic sectors which would stay under state control, and those which were only to be privatized in the long term.
- <sup>8</sup> This goes not only for Hungary, as we will see below. Moreover, the Scandinavian countries have been important source countries for foreign direct investment in the Baltic states (Meyer, 1998).
- <sup>9</sup> However, the political argument is important only in an indirect way, as it can not be a relevant factor for single investors. Ever since the fall of communism, the German government has made great strides in putting CEE on the EU agenda. Moreover, Germany is the leading country in providing financial and other support. It might be suggested that these political actions have had some effect on the investment behavior of German companies.
- <sup>10</sup> Originally, Cséfalvay (1994) refers to the innovation axes as the areas along which the greatest number of private companies with limited liability per capita are located. The geographic location of these new innovation axes is molded by the fact that today's sector of private owners has evolved, to a large extent, out of the stratum of early entrepreneurs established during the era of the liberalized command economy which was strongest in Budapest and in the Northern Transdanubian region in the 1980s. The author continues by noting that the establishment of foreign companies follows a similar geographical pattern. These innovation axes contrast with the energy and heavy industry axis in the pre-1989 era, which ran from the northeastern regions through Budapest towards the southwestern regions covering Miskolc, Salgótarján, Budapest, Tatabánya, Székesfehérvár, Veszprém and Zalaegerszeg. In contrast, Barta (1989) refers to an industrial axis, including Győr-Moson-Sopron, Veszprém, Komárom, Pest, Nógrád, Heves, and Borson-Abauj-Zemplén). For more information on regional differentiation in Hungary, see for instance, Nemes-Nagy (1994; 1995), Nemes-Nagy and Ruttikay (1994) and Kennis and Schluter (1994).
- <sup>11</sup> To compare, in 1940, the dominant position of Budapest was even more pronounced, as two-thirds of industrial production came from Budapest (Barta, 1989). Moreover, by 1970, half of the industrial workers in Hungary were employed in plants with headquarters in Budapest (Barta & Conti, 1994).
- <sup>12</sup> Here we only discuss the factors in the attractiveness of the whole northwest to FDI. In later chapters we will discuss the location-specific advantages of different cities/agglomerations in more detail.
- <sup>13</sup> For a more elaborate analysis see Van Hastenberg (1996b)
- <sup>14</sup> Despite a general policy of the Hungarian government to decrease tax holidays for foreign companies, so as to create equal opportunities for both domestic and foreign companies.
- <sup>15</sup> There are 42 missing values. The figure of HUF 193 billion is corrected for 460 companies.
- <sup>16</sup> Figure is corrected for 460 companies (25 missing values).
- <sup>17</sup> A location quotient is a measure of the relative representation of a particular sector in a particular area, compared to the relative representation of that sector in the whole area. When the location quotient is 1, the sector in question is equally represented in the area concerned as in the whole area. When the location quotient is 2, the sector in question is represented twice as much in the area concerned than in the whole area.
- <sup>18</sup> Location quotients for the distribution of invested capital are not calculated. The low number of companies in some sectors in a number of areas, combined with the fact that for 42 cases no figures for invested capital are available, would lead to an inaccurate presentation.

# 4 Data collection and basic company characteristics

## 4.1 Introduction

Available data do not allow for an in-depth analysis of the effects of FDI on the modernization of production (both direct and indirect) and on the demand for labor. In order to find answers to the research questions posted in the second chapter we had to collect our own data. We chose to interview staff at both foreign firms operating in Hungary and domestic Hungarian companies. By conducting interviews, we did not only obtain insight into these issues but we were also able to study the relation between modernization and labor on the company level. As was already pointed out in the preceding chapter, the selection of companies for the interviews was one of the reasons for setting up a database of foreign manufacturing establishments in Hungary.

This chapter starts with a description of the fieldwork, including the selection of the companies (section 4.2), and the organization of the interviews (section 4.3). In section 4.4 we give a brief description of some basic characteristics of the companies in the sample, such as entry modes, motives for investment, source countries, year of establishment, company size, and profitability.

## 4.2 Selection of companies

### 4.2.1 *Foreign companies*

The Hoppenstedt database that we referred to for a description of the foreign companies in the manufacturing sector in the previous chapter was used to select the companies for the interviews. We focused on a limited number of the foreign companies. First, we selected all the foreign manufacturing companies with at least 20 employees. A minimum staff of 20 employees suggests that companies are seriously committed to their manufacturing undertaking in Hungary as regards organization of production and labor, in contrast to companies of say 5 employees.

The remaining companies were selected on the basis of two criteria: location (region), and sector of activity. In setting these criteria, two guidelines were followed. First, there was the need to select a sufficient number of foreign companies for interview. Second, there had to be enough diversity between the companies active in different sectors and located in different regions. Consequently, the following selections were made concerning:

1. *Location (region)*: the companies had to be located in the center or northwest macro region. This includes Budapest and the counties of Pest, Győr-Moson-Sopron, Vas, Veszprém, Komárom-Esztergom, and Fejér. The motivation behind the selection of companies in central and northwest Hungary is threefold. First, these regions host the lion's share of foreign investment in Hungary as seen in the previous chapter. This was an important consideration since we had to be able to select enough foreign companies for the interviews, all the more reason in view of more selection criteria. The second motivation was that, despite this concentration in FDI, there had to be enough diversity between these regions. The unique position of Budapest and its surroundings has already been discussed. The border regions (Győr-Moson-Sopron and Vas) have also attracted a lot of FDI compared to the rest of the country. In contrast, the counties of Veszprém and Komárom-Esztergom did not attract a lot of foreign capital. A third consideration was more of a practical nature. During the limited time we were in Hungary we wanted to conduct as many interviews as possible. This could best be done by limiting the geographical scope of our study.
2. *Sector of activity*: the companies had to be active in mechanical engineering, electrical engineering or the food and beverages sector. Here again, the main motivation was to find enough companies in our database and enough diversity between the three sectors. The three selected sectors are the ones most endowed with FDI (see chapter 3). Moreover, these three sectors within the manufacturing industry are sufficiently different in terms of the nature of activities. This goes also for mechanical and electrical engineering. Whereas the first is mainly labor intensive and producing in small batches, the second is mainly capital intensive, engaging in mass production.

Taking into account the abovementioned criteria 110 foreign companies were selected from the database (table 4.1). Next to the selection criteria mentioned above, we wanted to select companies by their mode of investment because this is the most important explanatory variable in our research. We expected to find different outcomes regarding technological modernization, the demand for labor, and the intensity and nature of contacts with domestic companies for foreign privatized companies and greenfield investments. Consequently, entry mode would be an important and legitimate selection criterion. However, the Hoppenstedt company directory did not contain this information. Besides, as we will see below (section 4.4.1), the mode of investment is not a static issue. Therefore, in most cases the mode of entry could only be ascertained during the interviews.

Our aim was to carry out 50 interviews with foreign companies. Rather than give a representative picture of foreign companies in these sectors and regions in Hungary, the aim of this study was to conduct a satisfactory number of interviews at companies active in different sectors, located in different regions and with different modes of investment, enabling us to compare the outcomes for each of these three variables both qualitatively and quantitatively. Therefore, from these 110 companies, we took a disproportionate stratified sample<sup>1</sup>. Looking at the outcome in table 4.1, this means that our sample would have an overrepresentation of companies in mechanical engineering and the food and beverages sector, and companies located in the northwest of Hungary. Moreover, as most companies invested by means of an acquisition of an SOE (see chapter 3), this means that there would be relatively many greenfield companies in our sample. We figured that these 110 companies would be enough to get a satisfactory number of companies in each subgroup.

Table 4.1 Selected population of foreign companies from the Hoppenstedt database

	Sector			Total
	Mechanical engineering	Electrical engineering	Food & beverages	
<i>Region</i>				
Center	20	45	17	82
Northwest	10	7	11	28
Total	30	52	28	110

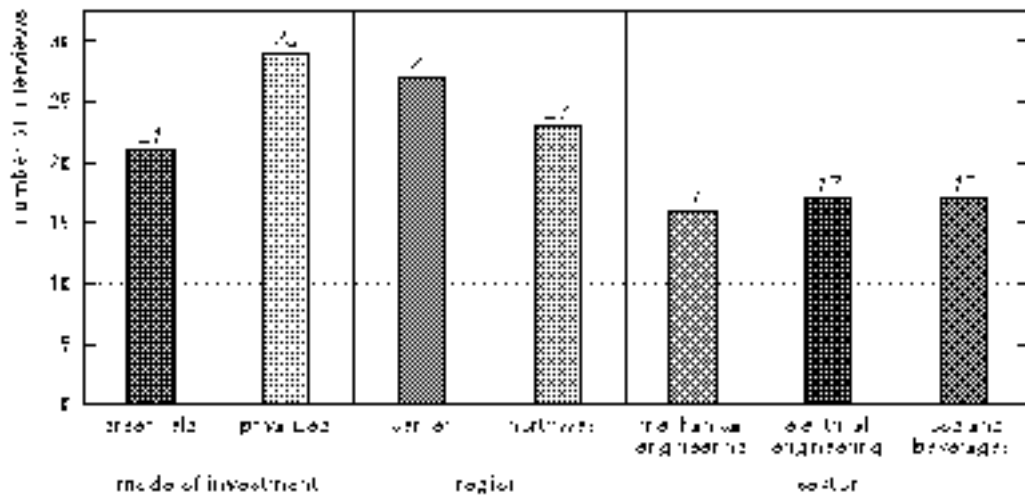
*SAMPLE OF FOREIGN COMPANIES*

In the last few years, a lot of foreign companies have been inundated with queries and visits from foreign researchers, students, and journalists. The Budapest-based companies have been the most affected, since these foreign ‘information seekers’ generally choose the line of least resistance. As Budapest is the pulsating center of Hungary, where most foreign companies are located, or at least their headquarters or representation offices<sup>2</sup>, there is no real need to go into the countryside in order to get information. The same goes for some large greenfield production plants of multinational companies in the northwest – like SUZUKI, OPEL, AUDI and IBM – that have gained a lot of attention in the Hungarian and international media, and are the subject of study in a lot of scientific work. We expected that both Budapest-based foreign companies and large foreign greenfield investments in the northwest would have developed some aversion to giving interviews.

Nevertheless, we were able to fulfill the targeted number of 50 interviews. Contrary to our assumptions, there were only a handful foreign companies that would not participate in the research. Because we had set a target of 50 interviews, and because our selection of companies was disproportional, statistically response levels could not be calculated. Nevertheless, the willingness of companies to cooperate in our research, and the number of interviews conducted allowed us to meet each of the set criteria. We were able to carry out enough interviews in Budapest and at the large greenfield production plants as mentioned above. Contrary to smaller companies in Budapest, most smaller companies located in the northwest of Hungary – though taken by surprise when we approached them for an interview – were actually very pleased to participate in our research.

We were able to carry out a somewhat equal number of interviews according to all three selection criteria (figure 4.1). As for sectors, the numbers are fairly equal. With respect to region, there is a small difference between the number of interviews conducted in the center region and the northeast of Hungary. Considering the geographical spread of the companies in our first sample (table 4.1) this is not that surprising. With respect to mode of investment, we were able to hold more interviews at privatized companies than at greenfield companies. Several reasons can be given for this. First, since the Hoppenstedt database does not provide this information, we were not able to select companies by mode of investment beforehand. Second, in terms of the number of establishments, there are far more foreign privatized companies in Hungary than greenfield companies. Nevertheless, in order to carry out enough interviews at greenfield investments, during the final stage of the fieldwork we directed our attention on arranging interviews at companies which we knew from other sources (newspapers, other studies etc.) were greenfields.

Figure 4.1 Number of interviews at foreign companies by mode of investment, region, and sector



#### 4.2.2 Domestic companies

Besides foreign companies, we held interviews at domestic companies. Our aim was to study the domestic companies as a control group for the foreign companies. By questioning domestic companies as well, we are able to compare our findings from both foreign and domestic companies and to put them into perspective. To achieve this purpose we planned 20 interviews at domestic companies.

The same selection criteria were used for domestic companies. Only the criterion concerning mode of investment was modified. Three types of domestic companies were identified: privatized domestic companies, greenfield domestic companies, and state-owned companies. However, as with foreign companies, this information was unavailable in the Hoppenstedt company directory. At the time the interviews were conducted (the beginning of 1997), privatization was almost completed. The companies which were at that time still in state hands, would either be privatized in the near future, stay in state ownership or would be liquidated shortly. Therefore it was not realistic to include these companies in our research. Hence, a distinction between privatized and greenfield domestic companies was used.

In selecting domestic companies from the Hoppenstedt company directory, we selected at random domestic companies that followed our criteria about size, location and sector. Next, we verified by telephone whether they met our criteria. Moreover, during the later stage of the fieldwork these criteria were narrowed to those regions and sectors for which we did not have a satisfactory number of interviews. Despite a slightly different selection method than that for foreign companies, the domestic companies in our research were taken from a disproportional stratified sample as well.

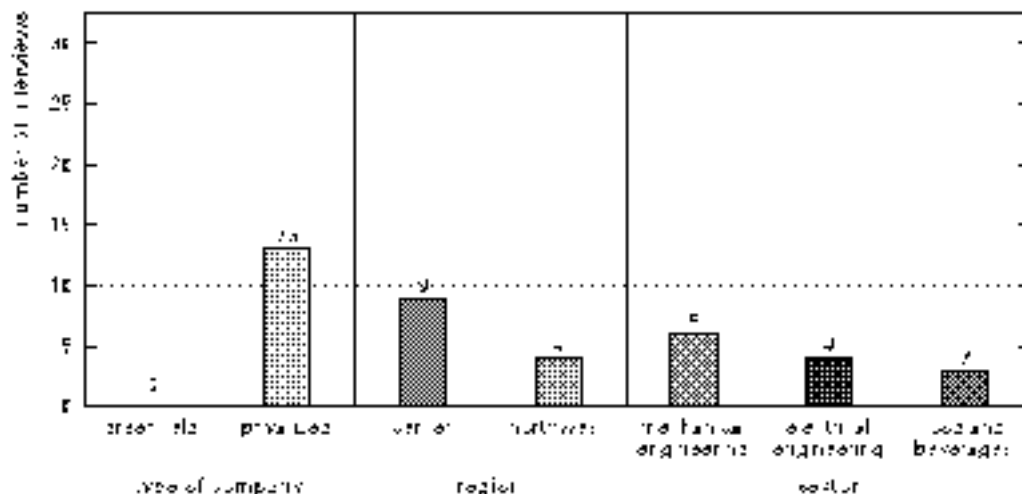
#### SAMPLE OF DOMESTIC COMPANIES

We were only able to hold 13 interviews at domestic companies during our fieldwork, partly because it was difficult to find companies that satisfied our selection criteria, and partly because of the refusal of many companies to participate in the research. The failure of companies to meet our selection criteria was due to the following: a) a recent staff reduction

through which a company no longer met the minimum of 20 employees; b) the company closed down recently; c) during the phone call it appeared that the company was either in the hands of the state or recently sold to a foreign strategic investor; d) the company was undergoing privatization.

As for the unwillingness of companies to participate in the research, some companies gave reasons, others did not. With others, it was so difficult to make an appointment, that is was clear that they did not want to participate in the research. Some other companies had recently undergone a tedious privatization. These companies were finally privatized and sold to Hungarian owners, but for a long time it was not clear if these companies were to be sold to foreign strategic investors. Under those circumstances, the management did not find it appropriate to have a foreigner visit the company, envisaging that it would only ferment trouble among the employees. More in general for many companies we simply had the disadvantage of being a foreign researcher from a foreign university, despite the fact that contacts with these companies were made by a Hungarian student and despite our cooperation with a Hungarian research institute (for further details on the organization of the interviews see section 4.3).

Figure 4.2 Number of interviews at domestic companies by region and by sector



Because of the low response levels, it was not possible to interview an equal number of companies in each of the selected regions and sectors (figure 4.2). Moreover, we were not able to interview any domestic greenfield company, probably due to a combination of the following 3 reasons: 1) the low response levels; 2) the limited number of domestic greenfield companies in Hungary; and 3) the high likelihood that domestic greenfields are still very small and therefore do not meet the minimum requirement of 20 employees.

#### 4.2.3 Implications of the foreign and domestic samples for the research

Both the method of sampling used, and the number of cases (interviews) have repercussions for the analyses in the following chapters, and the interpretation of the results. We will shortly discuss these repercussions here.

First of all we have to state that the research is intended to be primarily qualitative. During the interviews we were first of all interested in the processes under study, and the surrounding circumstances. However, the number of interviews, 50 at foreign companies and 13 at domestic companies, allows for some simple quantitative analysis as well. Especially since we used a disproportionate stratified sample, we are able to make comparisons between companies operating in different sectors, located in different regions, and in the case of foreign companies different entry modes. However, by diversifying more than two of these variables, the number of cases in each cell becomes too low to allow any firm conclusions.

Moreover, we are not able to relate our findings to the whole of northwest and central Hungary or the whole of Hungary (as for the three sectors). In this respect, this study is exploratory in nature, not only because of the rather limited number of cases in our sample. The main reason is the disproportionate sample comprising foreign privatized and greenfield companies. First, there are no figures on the number of privatized and greenfield companies in Hungary, let alone for the manufacturing sector. Second, we used our own definition of greenfield companies (and therefore also for privatized companies), in relation to whether or not they have (had) to deal with the legacy of the socialist system directly.

Finally, since we were unable to conduct interviews at domestic greenfield companies, the foreign and domestic companies in our survey can only be compared to a limited extent. Strictly speaking, we are only able to compare foreign privatized with greenfield companies, and foreign privatized companies with domestic ones:

Foreign greenfield ←————→ Foreign privatized  
 Domestic privatized ←————→ Foreign privatized.

The mode of investment (by foreign companies) and the type of company (where domestic companies are concerned) are the main explanatory variables in our research. However, as these variables do not have a bearing on all the issues under study in this research, we can (also) make a comparison between foreign (greenfield and privatized) and domestic companies.

Summarizing, we can conclude that the research is mainly qualitative in nature. The method of disproportional stratified sampling allows for some simple statistical analysis. However, the quantitative analysis is mostly only indicative in nature.

### **4.3 Organization of the interviews**

The interviews were taken during a 3-month visit to Hungary from February till April 1997. We were based at the Center for Regional Studies of the Hungarian Academy of Sciences in Budapest. From there, the companies were approached for an appointment by telephone. This seemed to be the fastest and most convenient way to approach the companies. A Hungarian student from the Economic University in Budapest was hired to assist with arranging the appointments and if necessary to carry out the interviews in Hungarian. In some cases, where the managers asked for additional information about the research and the questionnaire before agreeing to an interview, we send it to them.

For the interviews we used a structured questionnaire with both open and classified questions (see annex 1 and 2). For reasons of comparison, the questionnaires for foreign

and domestic companies were practically the same. The questionnaire consisted of 6 separate parts:

1. a checklist containing some basic information from the Hoppenstedt company directory to be verified with the interviewee;
2. a section with some general questions about the company and the background of the investment (or in the case of domestic companies the privatization of the company or the motives for establishment);
3. a section with questions on technological modernization;
4. a section with questions on labor;
5. a section with questions on contacts with domestic companies (in the case of FDI) or contacts with foreign companies (in the case of domestic companies);
6. some concluding statements on the central topics in this study.

Considering the themes of our research, it was preferable to speak with the general manager, production manager, personnel manager, or if this was not possible with the PR manager. Since in most cases the names of key managers were listed in the Hoppenstedt company directory, it was fairly easy to get in touch with the right person. At foreign companies, we preferred to speak to a foreign manager, because they were expected to have a more objective opinion about the (changes in the) company, and be more able to relate the situation in the Hungarian plant to their companies in the West. However, in a large number of the foreign companies, the management is largely or fully Hungarian.

Interviews were conducted in English, German or Hungarian. Therefore a total of six different questionnaires were used: in three different languages for both foreign and domestic companies. Whenever possible, the interview was conducted in English or German. An additional Hungarian questionnaire or an oral explanation by the Hungarian student was used sometimes. In a limited number of cases, mainly with domestic companies, the interview had to be held in Hungarian, since the interviewee was unable to speak English or German. The interview was then translated by the student into English. On average the interviews took about 1 hour and 15 minutes. A fast interview would take about 45 minutes, a slow one 2 hours or longer.

#### **4.4 Basic characteristics of foreign and domestic companies in the survey**

In this section we provide some basic characteristics of the companies in the survey using information from the checklist and the first section of the questionnaire dealing with some general information about the companies. First, we deal with the entry modes in more detail. Second, we look at foreign investors' motives for investment. Third, we look at the source countries of investment (for foreign companies only) and the year of establishment / privatization. Fourth, we deal with the size of the companies, both by their number of employees and annual sales. Fifth, we discuss the profitability of the companies in the survey, and their ranking among other firms.



#### 4.4.1 Entry modes of foreign companies

In section 4.2 we already gave a description of the mode of investment of the foreign companies in our survey. In this section we look at the mode of investment on the basis of the more detailed classification used in section 2.3. In addition, we look at the dynamics in the mode of investment of foreign companies. After all, a foreign investment is not a static phenomenon, although the relatively short time that foreign companies are operational in Hungary has brought about relatively modest changes up till now. To clarify the dynamics in the investment modes of foreign companies we distinguished between the type of investment at time of the establishment of the company and the type of investment at the time the interviews were held (table 4.2). Most changes in the mode of investment are *within* the two broad modes (privatized and greenfield companies). The table shows a shift from joint ventures to fully foreign-owned companies, both in privatized and greenfield companies. This is an indication for the cautious but aggressive investment strategy of foreign companies in Hungary. Moreover, it shows a growing trust in the transition process and the macro-economic developments in Hungary. For example, from the 17 foreign investors in our research that started as a joint venture acquisition, 6 have been transformed into a 100% acquisition. From the 11 companies which remained joint ventures, 4 have increased their equity share since the establishment.

Table 4.2 Mode of investment of surveyed foreign companies at time of establishment ( $t_0$ ) and at the time the interviews were held ( $t_1$ )

	Mode of investment	
	$t_0$ (establishment)	$t_1$ (interview)
<i>Privatization</i>	31	29
Acquisition	14	18
Joint venture acquisition	17	11
<i>Greenfield</i>	19	21
Greenfield investment	6	10
Joint venture greenfield investment	6	4
'Semi'-greenfield investment	7	7
Total	50	50

At the time of establishment, 31 companies in our survey can be characterized as an investment in privatization. Currently this number has changed to 29. Apparently, two companies have changed from a privatized company to a greenfield company. The first is ESKIMO, a UNILEVER investment in Veszprém. They bought a state ice cream factory. Within one year the old building was replaced by a new one, and the plant was furnished with equipment using the latest technologies. The company was mainly interested in acquiring a local brand. Besides, proximity to a dairy (supply) and the main sales market for ice cream in Hungary (Lake Balaton) has played a role in the acquisition. So where the initial entry mode was an acquisition, the current entry mode can be characterized as a greenfield investment. The second is the investment of DR. OETKER which started as an acquisition, having bought a subsidiary of GYÖRI KEKSZ. Actually, the brand name of GYÖRI KEKSZ was bought for baking additives, together with the license for the production of DR. OETKER

products and the sales markets and the like, but they leased the plant with the machines. After some time they decided to build a greenfield plant on the other side of the street where there was a vacant field, keeping the same employees. Unhygienic circumstances in the old leased building prompted the move.

In the following chapters, where we present our empirical findings, we will not deal with the five different entry modes as presented in table 4.2, but use the broader distinction between privatized and greenfield foreign companies. First, because based on the main assumption – that is whether or not companies have (had) to cope with the legacy of the socialist system directly – we expect the differences between the two main entry modes to override differences between their respective sub-categories. The second reason is of a methodological nature. The rather limited number of companies under survey forces us to work with as few as possible separate categories in the analyses. Otherwise, it will not be possible to do any quantitative analysis, next to our qualitative findings.

The above has shown that the entry modes of foreign investments in Hungary can not be treated as a static issue. However, for reasons of comparison we consider the entry mode – which is the most important independent variable – in the following empirical chapters a constant factor. The situation at  $t_1$  was used, that is the situation at the time the interviews were conducted<sup>3</sup>. This requires an adjustment for the two companies that were described above, that started as privatized companies, but are currently greenfield plants. Therefore, for these two companies, we consider the moment of the establishment of the greenfield company as  $t_0$  in our analyses. Accordingly, where we refer in this study to entry mode or mode of investment of the companies under survey, we refer to the situation at the time the interview was held ( $t_1$ ), unless stated otherwise.

#### 4.4.2 *Foreign companies' motives for investment*

In the survey we asked companies why they decided to invest in Hungary. Next to the two main motives mentioned in chapter two, we added 'strategic reasons' as a third motive. However, when a strategic reason appears the main motive for investment, it is always connected with either market or cost considerations. Strategic reasons may in that case be the cause for precipitating the actual investment. For instance, when related to market considerations, the willingness to be 'in the market' and to gain a position in Hungary ahead of other competitors might be a valid motive for an investment in Hungary, especially since the country opened up overnight, and SOEs with a monopoly position in the Hungarian market are put up for sale. When related to cost considerations, the possibility of buying a company that is suitable for outward processing might quicken the actual investment.

Table 4.3 shows that both market considerations and low production costs are important motives to invest in Hungary. The Hungarian market was most frequently mentioned as the most important motive. Low production costs was mentioned more often as a second motive of investment. Therefore, our findings are in line with earlier research. Moreover, table 4.3 shows clearly that for the majority of the foreign investors, there is more than one motive that plays a role in the investment. This is especially valid for companies for which strategic reasons or the Hungarian market is the main motive.

Table 4.3 Motives of foreign companies to invest in Hungary

<i>Most important</i>		<i>Second most important</i>	
Hungarian market	24	Production costs	12
		Strategic reasons	6
Production costs	19	Hungarian market	2
		Strategic reasons	7
Strategic reasons	7	Hungarian market	5
		Production costs	2
Total	50		34

We found that the motives for investment differ from one sector to another (table 4.4). As for food and beverages, the prospect of tapping the local market is by far the main reason for investing in Hungary. However, for companies engaged in mechanical or electrical engineering the picture is more diverse. In electrical engineering, both market and cost considerations are important. In mechanical engineering, the main motive is related to production costs.

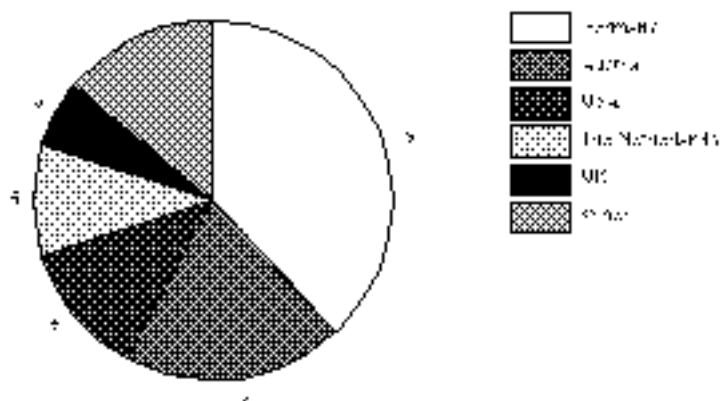
Table 4.4 Main motive for investment by sector

	Mechanical engineering (N=16)	Electrical engineering (N=17)	Food & beverages (N=17)
Hungarian market	18.7	41.2	82.4
Production costs	56.3	52.9	5.9
Strategic reasons	25.0	5.9	11.7
Total	100.0	100.0	100.0

#### 4.4.3 Source countries and year of establishment

The source countries of the foreign investors in the survey more or less follow the general picture of total FDI in Hungary. Most companies in our survey are German, followed by Austrian investors (figure 4.3). Apart from some large multinationals (like STOLLWERCK, TEMIC TELEFUNKEN, SIEMENS, OPEL, AUDI and DR. OETKER), investments from these two countries also include a relatively large number of medium-sized companies. Investors from the USA are smaller in number, though their average invested capital is expected to be much higher (it includes for instance large investments of GENERAL ELECTRIC, IBM and UNITED TECHNOLOGIES). However, we did not ask the companies for the amount of capital invested. Investments of Dutch companies are ranked fourth, including UNILEVER, AMSTEL, and PHILIPS. From the United Kingdom, which is the home base of a lot of multinational companies, 4 investments are included in our survey. Investments from other countries include Japan, Switzerland, Italy, Sweden, Belgium and Cyprus.

Figure 4.3 Source countries of foreign companies in the survey (numbers in brackets refer to the number of companies)

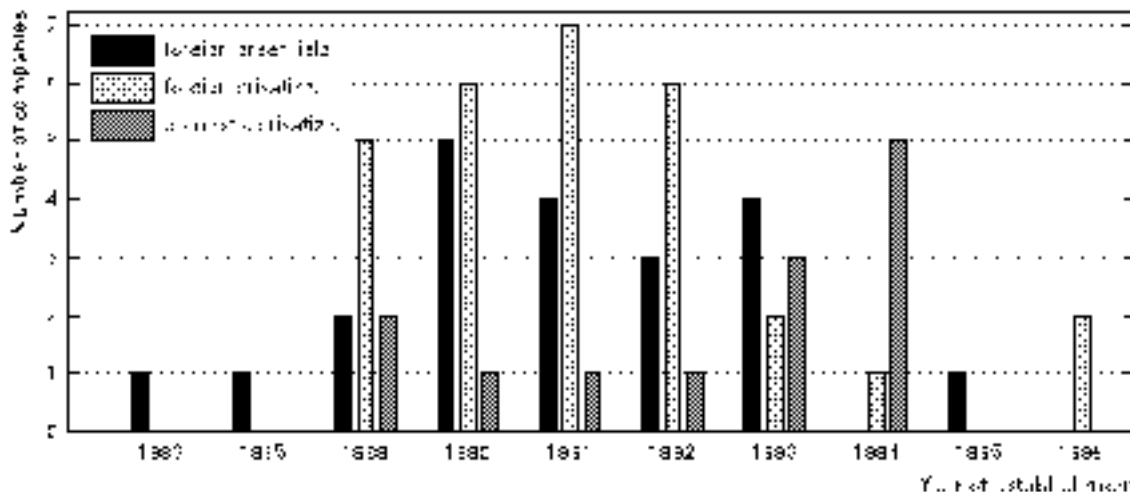


In light of the present study, the year of establishment is important. Especially in the case of privatized companies (both foreign and domestic), the year of establishment determines the period a company has had to modernize production and to bring about changes related to labor.

The majority of the foreign companies in our 1997 survey were established between 1989 and 1993: 18 out of 21 greenfields and 26 out of 29 privatized companies (figure 4.4). For privatized companies this means that they have had enough time to modernize their plants, or at least have made a good start with it<sup>4</sup>.

Two greenfield plants were set up already before the changes in 1989: one in 1983 and the other in 1985. Both investments are joint venture greenfields, that is newly established companies together with one or more local partners.

Figure 4.4 Year of establishment of surveyed companies



Overall, the domestic companies in the survey were established somewhat later than foreign companies. From the 13 domestic companies in our survey, 5 were privatized only in 1994. Another 3 were privatized in 1993. Two reasons explain why for privatized companies, domestic companies were established later than foreign companies. First, the privatization policy in Hungary favored the sale of SOEs to foreign strategic investors. Second, the ne-

negotiations for privatization generally took longer in the case of privatization by domestic owners.

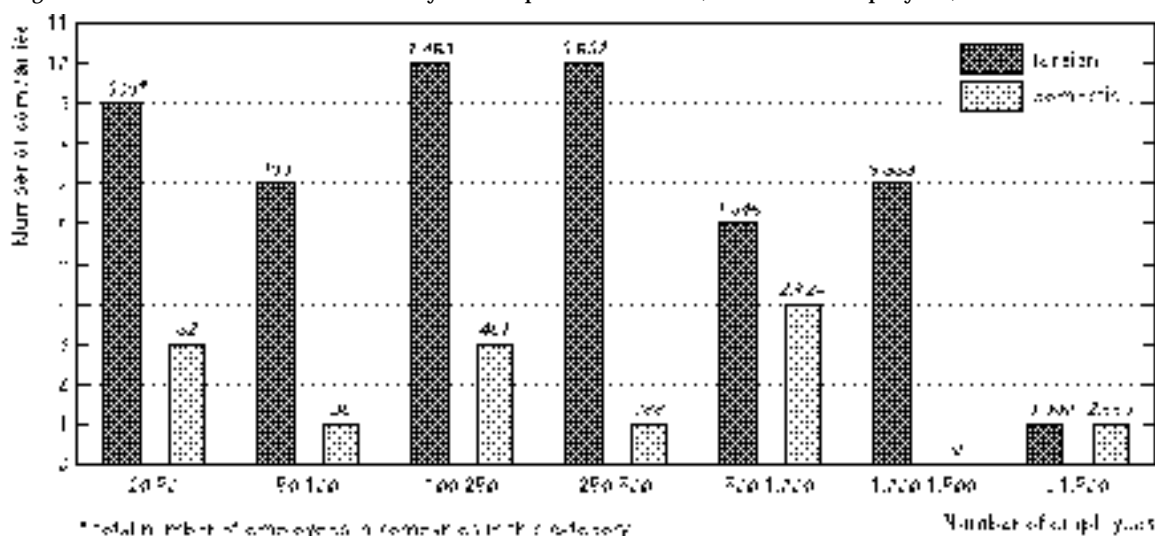
What does this mean for the analyses of modernization and labor in the following chapters? In general there has been enough time for the companies in the survey to modernize production, or at least make a good start with it (as might be the case for companies established after say 1993). The year of establishment does not constitute a problem for the analyses, although we have to remember that domestic companies, in general, are established a little later than foreign companies.

#### 4.4.4 Size of the companies

We measured the size of the companies both by their number of employees and their annual sales in 1996. The establishment is the unit of measurement<sup>5</sup>. The companies in our survey together employ 36,300 people: 30,196 in foreign companies (of which 10,000 alone are employed by GE TUNGSRAM), and 6,104 in domestic companies. On average, a foreign company employed 604 people, while a domestic company employed 470 people.

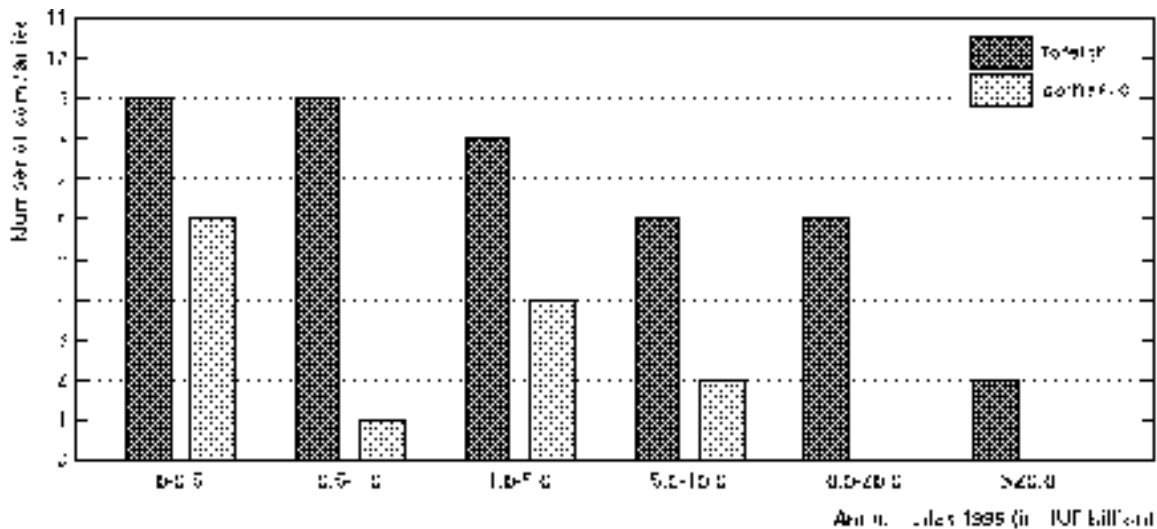
Looking at the breakdown of employment by company in different classes we see large differences in size (figure 4.5). The survey contains companies with 20 employees, as well as some major employers that engage 1,000 people or more. A somewhat equal number of companies (both foreign and domestic) were questioned in each of the classes presented.

Figure 4.5 Size distribution of surveyed companies in 1996 (number of employees)



Another way of determining the size of companies is their annual sales figures (figure 4.6). Here also, we see a somewhat equal number of companies in each category. We have to note here, however, that not all foreign companies were willing to reveal their sales figures for one reason or another. Among these are some of the larger investments in our survey (that are also among the largest investors in Hungary). Most of them would probably be classified in the higher classes (more than HUF 5 billion). For domestic companies there were no missing data.

Figure 4.6 Annual sales in 1996 of surveyed companies (in HUF billion<sup>a</sup>)



<sup>a</sup> N=40. 10 companies would not give their sales figures. These included some of the major investors in Hungary, including GE TUNGSRAM, OPEL, and AUDI. The average exchange rate in 1996 was \$ 1 = HUF 151.85. This means that HUF 1.0 bln is equivalent to \$ 6.6 mln.

Among the foreign companies, large differences are found. The smallest foreign companies reported annual sales of equal to, or less than HUF 100 million (equal to \$ 6.6 million). In contrast, two companies reported annual sales of more than HUF 20 billion. This includes MAGYAR SUZUKI (HUF 30.0 bln) and IBM (HUF 60.7 bln). In general, the domestic companies under survey are smaller than foreign companies. Half of them are to be found in the smallest class (up to \$ 3.3 million).

#### 4.4.5 Profitability and ranking

##### FOREIGN COMPANIES

In the early transition years, investments in CEE including Hungary were characterized by a relatively large number of companies seeking short term profits. These companies were mainly active in vague trade activities, and profited from the very favorable tax holidays that were introduced by the government to attract foreign companies. In a number of cases these investments were even not more than a P.O. Box company (Van Hastenberg, 1993). In recent years, these kinds of activities have come to an end, as their aim was either fulfilled or their activities were not profitable anymore.

Nowadays, most investments in Hungary are of a different nature. Investors no longer seek short term profits per se. Improvements have been introduced in the organization. Investors appear to have mid-term or even long-term goals.

Assuming that the majority of the companies under survey are of the latter kind, we expect a vast number of these companies to be still in the investment phase. This, in its turn, would have a negative effect on operating profits. Moreover, companies that sell a major share of output on the Hungarian domestic market have to cope with an economic recession and falling consumer demand that are a direct result of the transformation<sup>6</sup>.

The surveyed foreign companies were asked if their Hungarian establishment was profitable, breaking even or loss making. Despite our assumptions, over three-quarters of the establishments in the survey appeared to be profitable at the time of the interviews. One factor is that most companies under survey have been in Hungary for several years already. Close to one-fifth of the companies was breaking even. For some of them, it is the companies' policy to produce break even figures in the Hungarian subsidiary. These investments, that are the result of a transfer of labor-intensive production units, produce solely for the parent company. Profits are made at the parent company, not at the Hungarian subsidiary. For some other companies, the fact that they are still in the investment phase is the reason for not being profitable (yet). This also goes for the three companies that are producing at a loss. High investments in expansion of production capacity and/or upgrading of the production lines, often lead to a negative company result. However, these companies expect to become profitable in the near future.

Only one company indicated that the market is another factor in point. It might be assumed, however, that this counts for more companies in the survey that sell on the domestic market. This particular company had to cope with a declining market, and as a result its price setting did not incorporate inflation. Moreover, because of inflation, the production costs are increasing, leading to margin erosion. Under such conditions, growth of the company can only be achieved with high capital expenditure.

We also asked the companies how they judge the present situation in their company compared to other companies in the same branch in Hungary. From the 50 foreign companies in our survey, 42 indicated that they are among the better companies. For a number of these companies this is hardly surprising, since they are the only ones active in a certain branch. In general one could say that this outcome may be very positive, but on the other hand it is also logical. As we already found in our theoretical chapter, a foreign company has to offer something special, to counterbalance the natural advantage of domestic companies.

Another 8 companies see themselves as an average company in the branch concerned. These are mostly smaller investments from medium-sized foreign companies that have to compete with foreign investments by large multinational companies in Hungary.

#### *DOMESTIC COMPANIES*

From the 13 domestic companies in our survey, 9 indicated that they were profitable. Another 4 were breaking even. This is similar to our findings at foreign companies. Besides, 6 companies indicated to be among the better companies in the particular branch in Hungary, and 7 companies see themselves as an average company. Therefore, in their eyes, their position is only slightly less favorable than foreign companies.

Nevertheless, one has to admit that these findings are somewhat surprising. After all, the general idea about domestic Hungarian companies is that they are less competitive than the foreign companies that invested in their country, that they use obsolete equipment to a large extent, and that they have not adopted a Western style of entrepreneurship yet.

## **4.5 To conclude**

This chapter gave a description of the fieldwork in Hungary, rendered an account of the choices made, and gave a brief description of some basic characteristics of the companies under survey. We held interviews at 50 foreign companies and 13 domestic companies. The

companies in our survey engage in mechanical engineering, electrical engineering or food and beverages, and are located in the northwest or central part of Hungary. By using the method of disproportionate stratified sampling, we are able to compare the findings for different modes of investment, different sectors, and different regions not only qualitatively, but also quantitatively. However, the research is primarily qualitative in nature; quantitative results are mostly indicative in nature.

In the following three empirical chapters we try to find answers to the research questions raised in chapter two, using information from the interviews at the survey companies. Chapter 5 deals with technological modernization, chapter 6 sheds light on the demand for labor and in chapter 7 we study the linkages between foreign and domestic companies and its effects on the transfer of technology and know-how.

## NOTES

<sup>1</sup> For a description of taking stratified samples see for instance Moors and Mulwijk (1975) or Blalock (1981).

<sup>2</sup> For instance OPEL, that has a production plant in Szentgotthard, has an (representative) office in Budapest, covering both Hungary and Southeast Europe. The same goes for other large multinationals, like PHILIPS and UNILEVER, that have production plants in several locations in Hungary, but with their headquarters located in Budapest.

<sup>3</sup> In the following chapters we study the processes taking place in the companies between the time of establishment ( $t_0$ ) and the time of the interviews ( $t_1$ ).

<sup>4</sup> This also goes for the two privatized foreign companies that were established only in 1996. In fact, these two companies were in majority foreign ownership already in 1988 and 1992 respectively, while the current sole owners had only a minority equity share at that time. Apart from this, we have to mention that these two companies have undergone far-reaching organizational and technological changes between 1996 and the time of the interviews.

<sup>5</sup> For domestic companies this often coincides with the size of the whole enterprise.

<sup>6</sup> Only recently have the first countries shown a growth in their national products. However, at the end of 1997, Poland was the only country in the region that was expected to boast a gross national product (GNP) greater than in 1989. Although one of the better countries in the region, Hungary's GNP in 1997 was expected to reach only 90% of its 1989 level (*The Economist*, 1997). Moreover, by the end of 1998, Hungary and Poland were the only two countries in the region where gross industrial production was above its 1989 level (BCE, 1999).



# 5 Technological modernization

## 5.1 Introduction

One of the profound positive effects of FDI is in their contribution to the modernization of the production structure. This is especially valid in the case of the transition economies in CEE and therefore also for Hungary. As a consequence of forty years of communism, Hungary was saddled with a huge technology gap compared to Western countries. Pre-1989 reforms (which started in 1968 under the New Economic Mechanism) could only reduce this gap in a limited way. However, there were some positive exceptions among the SOEs, since Hungary imported Western technology in relatively great numbers (as compared to other socialist countries) in the eighties. But at the time of changeover to a market-based economy the general picture was one of a somewhat obsolete manufacturing sector.

By using the empirical evidence provided by the interviews, we will study the contribution of foreign companies to the technological modernization of the Hungarian manufacturing industry in this chapter. We will give answers to the following three research questions of this thesis:

1. To what extent do foreign and domestic companies contribute to the technological modernization of the Hungarian manufacturing industry?
2. What are the motives for technological modernization, how is the modernization process taking place, and what are the plans for future investments?
3. Is there a difference in modernization between companies active in different sectors and companies located in different regions?

In order to answer these questions, the following outline is used in this chapter. After a short introduction on the methodology used, a general comparison is made pertaining to technological modernization in foreign privatized, foreign greenfield and domestic privatized companies shortly (section 5.2). Next technological modernization in all three types of companies is dealt with in separate sections in more detail (sections 5.3 to 5.5). In the concluding sixth section, we summarize the main conclusions in this chapter.

## 5.2 Methodology and general findings

### 5.2.1 Methodology

In our research on technological modernization, we asked the respondents to classify their production equipment both at time of establishment<sup>1</sup> and at present. Four classes were selected beforehand: totally obsolete (archaic), somewhat obsolete, accepted international standard and state-of-the-art. The managers we spoke to, did not have any problems with the classification of their company's production equipment according to the selected classes. In our analysis of technological modernization we derived the percentage of obsolete equipment by lumping together totally and somewhat obsolete equipment. By comparing the outcome both at time of establishment and at present we can say something about the technological modernization. Moreover, we calculated the decrease in obsolete equipment between the two points in time. This figure, however, can not give more than a rough indication of modernization. After all, a company that started with a high percentage of obsolete equipment can register a higher decrease than a company that started with only a limited proportion of obsolete production equipment.

Besides, the managers were asked for the current average age of the main production equipment. This way the other three measures can be put in perspective. The four chosen indicators together give a good picture of the state of a company's equipment at time of establishment and at present, and consequently of the contribution to technological modernization.

In order to determine the differences in technological modernization for different types of companies, companies in different sectors and located in different regions, different statistical analyses were used. First in our general comparison between the three types of companies we used one-way analysis of variance. However, since the sample is rather limited, analysis of variance becomes unreliable when we analyze the differences across the different types of companies, by sector and in different regions. For instance, as regards privatized companies in different sectors, the sample of 29 privatized companies is split in three groups. Moreover, all three sectors contain a different number of companies. In these cases the F-curve becomes unreliable. Therefore, two other statistical tests were used to calculate differences: the Mann-Whitney test for two independent samples (as in macro regions) and the Kruskal-Wallis test for three independent samples (as in sectors). Both tests are reliable in analyzing smaller samples of differing size.

Since our sample of domestic companies is very small (13 companies) we did not apply statistical tests to show up differences between companies operating in different sectors and located in different regions. For domestic companies we only used the four indicators described above.

In our statistical analysis we use three significance levels:

- $p \leq 0.10$  (°)
- $p \leq 0.05$  (\*)
- $p \leq 0.01$  (\*\*)

### 5.2.2 Foreign and domestic companies: general findings

Let us start by presenting some general findings on technological modernization, and analyzing the indicators as represented in the preceding section. We compare our findings for foreign privatized and greenfield companies, and for foreign privatized and domestic privatized companies.

In chapter 2 it was stated that we expected to find large differences between foreign privatized and greenfield companies. Privatized companies have to cope with the socialist inheritance to a much larger extent than greenfield plants, with largely obsolete production equipment as one of the main elements. For both greenfield and foreign privatized companies, we calculated the percentage of obsolete equipment (comprising totally obsolete and somewhat obsolete) both at the time of establishment and at present. Besides, we calculated the decrease in obsolete equipment between the two points in time, and the current average age of the main production equipment. Differences between foreign privatized and greenfield companies are analyzed using analysis of variance.

Table 5.1 Technological modernization in foreign companies by mode of investment

	N	% Obsolete equipment			Current average equipment age
		Foundation	Present	Decrease	
Foreign sample total	50	38.6	19.4	19.2	6.9
Privatized companies	29	56.4	28.4	28.0	8.5
Greenfield investments	21	14.0	7.1	6.9	4.7
<i>Difference</i>					
Analysis of variance		**	**	**	*

Our statistical analysis confirms the initial hypothesis that foreign companies can not be seen as a homogeneous group with respect to their contribution to technological modernization. Significant differences were found for all four indicators (table 5.1). The starting levels of privatized and greenfield companies differ significantly from one another. Privatized companies have to cope with on average 56.4 % obsolete equipment when they start their operations in Hungary. In contrast, greenfield companies start with 'only' 14% obsolete equipment. But privatized companies have done a lot to modernize their plants, resulting in a sharp decrease in the percentage of obsolete equipment. Nevertheless, at present there is still a difference between privatized and greenfield companies. On average, privatized companies still make use of 28.4% obsolete equipment compared to 7.1% for greenfield companies. Besides, the average age of the main equipment in privatized companies is almost twice that of greenfield companies.

The age of equipment in greenfield companies is a somewhat misleading measure, since it largely depends on when the investment was made. For instance the average age of equipment in the IBM plant – founded in 1995, and enlarged with a second much larger factory building where started production only in November 1996 – is 1 year. In contrast, the average age in the AUER plant, an Austrian candy manufacturer which set up a production plant in Budapest in 1989 is 6 years.

In general, managers found it more difficult to give an estimation of the average age of equipment than to classify equipment in the four selected categories. Especially in the case

of privatized companies, the new owners were mostly unaware of the exact age of the acquired machines. Besides, the big difference in the age of the different machines is a complicating factor. Many privatized companies work with brand-new equipment and equipment which is 10 years or 20 years old, or even older.

Next, our sample allows for a comparison between foreign and domestic privatized companies. We assumed that they both have to cope with obsolete equipment at the start of their operations to a large extent. Besides, we expected to find more technological modernization in foreign-owned companies than in domestic-owned companies.

Our analysis largely confirmed our assumptions (table 5.2). Significant differences were found for all four indicators. Both foreign and domestic privatized companies have to cope with largely obsolete production equipment at the start of their operations. However, our findings show that domestic privatized companies started with more obsolete equipment than foreign privatized companies, the difference between them is almost 20 percentage points. This finding confirms the often-heard remark that the best SOEs are sold to foreign investors, leaving the companies in a worse condition in state hands or for privatization to domestic owners.

Table 5.2 Modernization of production in privatized companies

	N	% Obsolete equipment			Current average equipment age
		Foundation	Present	Decrease	
Foreign privatized	29	56.4	28.4	28.0	8.5
Domestic privatized	13	75.9	71.6	4.3	14.6
<i>Difference</i>					
Mann-Whitney U		*	**	**	**

The gap between foreign and domestic companies has widened further after operations began. In contrast with foreign privatized companies, domestic privatized companies have hardly been able to decrease their share of obsolete equipment. As a result, at present the average age of the main equipment is almost twice as much in domestic companies as in foreign privatized companies (14.6 versus 8.5 years old).

In this first analysis we found significant differences between all three types of companies in our survey with respect to their contributions to the modernization of production in Hungary, and between the share of obsolete equipment at present. Privatized companies have to cope with obsolete equipment at the start of their operations. But where foreign privatized companies have managed to decrease the share of sub-international standard equipment considerably, domestic companies have not. Foreign greenfield companies are in a totally different situation as they can furnish their plants according to their own wishes, using the latest technologies. Therefore, we can conclude that foreign greenfield and foreign privatized companies both contribute to the technological modernization considerably, though in a totally different way.

With this in mind, we will discuss the technological modernization in all three types of companies separately and in more detail below. For each of the three types of companies we deal with issues related to research questions 2 and 3. That means that we will discuss how this modernization process is taking place, what the motives are for investing in more

modern production equipment, and what the plans are for future investments. Moreover, we look for differences in technological modernization for companies operating in different sectors, and located in different regions.

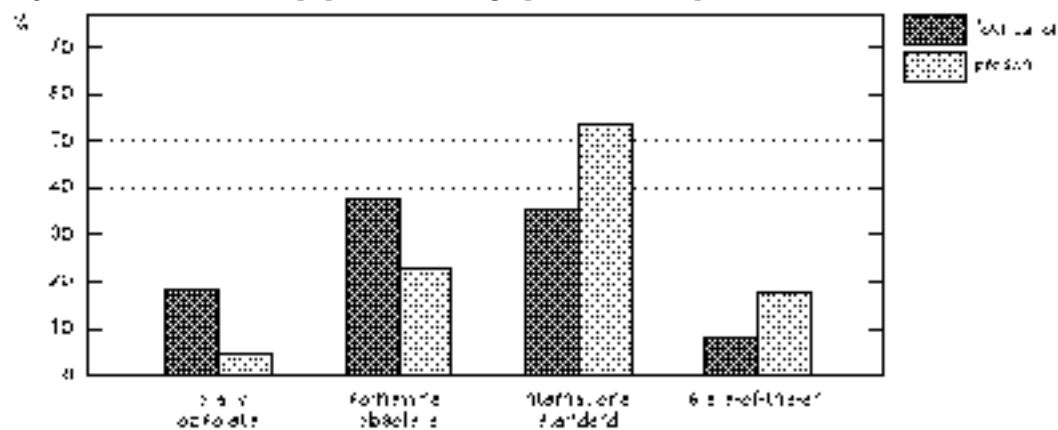
### 5.3 Technological modernization in foreign privatized companies

#### 5.3.1 Technological modernization

Privatized companies have to cope with on average 56.4% obsolete equipment at the start of their operations: 38.3% somewhat obsolete and 18.1% totally obsolete (archaic) (figure 5.1). But most privatized companies have done a lot to modernize their plants, resulting in a major reduction of obsolete equipment. From the 29 foreign privatized companies in our sample, 28 have invested in new equipment after establishment. At the time the interviews were held 'only' 28.4% of equipment was obsolete: the stock of somewhat obsolete equipment reduced to 23.5% and totally obsolete to 4.9%. The new investments have resulted in both an increased share of equipment of international standard and state-of-the-art equipment.

Foreign investors that invested in the privatization deal with obsolete equipment in different ways. The way they do can be deducted from the combination of investors' differing strategies and differing technological starting levels, as is illustrated in the following cases. A foreign investor may for instance (have to) opt for a gradual but steady technological modernization (see the example of UNILEVER below), replace the existing technology all at once (SCHÖLLER and ESKIMO) or hardly change anything at all (KRACHT).

Figure 5.1 Production equipment in foreign privatized companies



UNILEVER bought a major share in a margarine factory in Budapest in 1992<sup>2</sup>. The company was owned by UNILEVER before it was nationalized in 1948, and it produced under the license of UNILEVER afterwards. UNILEVER's policy is one of taking over local brands whenever possible. Besides, along with the local margarine brand Delma, UNILEVER started the production of Rama (the same brand name UNILEVER uses to sell margarine on the German and Austrian markets). Production is aimed solely at the local Hungarian market. After the acquisition the company invested heavily in new equipment. Half of the investment was allocated to increase production capacity. The other half was for the replacement of obso-

lete equipment: to improve efficiency and the quality of the products, modern machines were necessary. The Budapest-based plant has now become one of the better UNILEVER plants in the world. However, the company still uses some of the old machines. For instance although the wrapping machine for the cubes of Rama margarine is 40 years old, it still works very well. This strategy, where the new foreign owner modernizes production at a steady pace, but to some extent still makes use of the acquired machinery can be found in the majority of the foreign privatized companies.

A totally different case is the investment of the German company SCHÖLLER that replaced all the existing equipment shortly after the acquisition. Therefore, it can be characterized as a brownfield investment (see chapter 2). They bought an ice cream factory in Törökbálint (a town near Budapest), which produced the local brand Leo, the market leader at that time. It was the brand and the market share of Leo that they were interested in, and not the company as such. Looking back it would probably have been better to invest in a greenfield plant as the interviewee stated: “we took over many bad things which we still have to cope with, like for instance the structure of the building”.

A different strategy was followed by another ice cream producer. ESKIMO, a UNILEVER plant, too bought an existing factory in Veszprém (near Lake Balaton which is the most important sales market). Already at the beginning it was clear that the factory would be replaced by a greenfield plant. But because of the strong competition from SCHÖLLER they had to bridge over one season. If they had not done so, they would have missed peak sales in the summer, and probably some of their stake in the market. Therefore, in this first year, they replaced only some of the worst machines. At the end of the summer of 1992 the factory was demolished completely and on the same location a new greenfield plant was established. The local brand name, the adjacent dairy and the proximity to the main sales market in Hungary were important factors in the investment decision, and not the building or the technology which were totally obsolete.

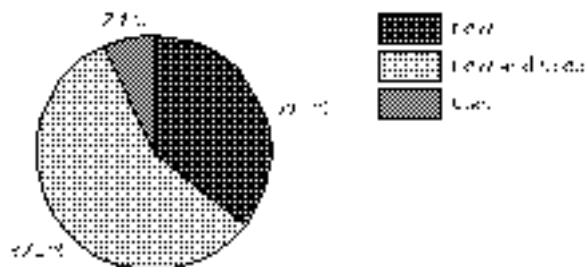
In contrast to the examples above, a limited number of companies made hardly any investments in the modernization of production equipment, although the state of the equipment was found wanting. One example is the German KRACHT, which bought a Hungarian company manufacturing hydraulic pumps, electric gears and machine parts. The company produced for the German parent company under license from 1983 onwards and was involved in outward processing. When the state company was liquidated in 1992, the German company decided to buy it. At that time all the machines were more than 10 years old. In the meantime only limited investments have been made: to achieve greater accuracy, for noise reduction and to replace dilapidated obsolete machines. The main reason for the restrictive policy and the limited modernization is the lack of money. The plant is kept short by the parent company, which prefers to invest in Germany rather than in Hungary. The Budapest-based plant is partly involved in outward processing for the company which means that labor-intensive production is transferred from the German company to the plant in Hungary. The low labor costs more than compensate for the lower productivity of the old machines. The plant manager indicated, however, that more replacements should be made in the near future.

#### *FOLLOW-UP INVESTMENTS: NEW OR USED EQUIPMENT?*

Thus far we have only discussed whether or a not a company has invested in new equipment after the establishment and the motives for doing so. Here, ‘new’ means ‘new for the subsidiary’. In fact this can either mean entirely new equipment, or used equipment that was

bought from other companies, or that came from other (Western) subsidiaries of the company. The latter is referred to often in the case of FDI in CEE. Through the transfer of production (equipment) they could extend the life cycles of products for which there is no longer any market in the West. In our research we found no evidence for this phenomenon. Nowadays competition in Hungary is tough and consumer demand has become more discerning in the post-socialist period (pertaining quality), matching Western standards.

Figure 5.2 Follow-up investment in foreign privatized companies (N=28)



However, investment in used equipment is a common phenomenon in privatized foreign companies (figure 5.2). For 'only' 35% of the companies was follow-up investments in new equipment. But the number of companies that have invested *only* in used equipment is limited to two companies. Most companies (57%) invested in both new and used equipment. However, the extensive investment in used equipment does not imply that a large share of the equipment is obsolete. For instance, the equipment in the two companies that invested solely in used equipment was of international standard. Overall, investment in state-of-the-art and international standard equipment is predominant.

New equipment was mostly bought abroad, although some was bought in Hungary. The price difference with equipment made in Western countries is enormous. For instance, one of the companies in our sample gave a domestic company the task to develop a new machine for producing wrapping material. The locally manufactured machine was only 10% of the price of a German-made machine and of the same quality.

As regards follow-up investments, foreign privatized companies (notably the larger multinational companies) make use of their international network to a large extent. This might explain the high rate of used equipment in follow-up investments as noted earlier. The equipment used is from either the parent company or other Western subsidiaries. In the case of a transfer of production capacity this is clear. Moreover, multinational companies use equipment from their European subsidiaries which became available after rationalization of production and/or overcapacity in the West for the Hungarian plant. It should be pointed out that this does not concern written-off machinery, but often relatively new machines. In the case of a big multinational in the food industry, a more aggressive strategy was followed. The company bought an almost new, but bankrupt plant in Spain, and closed it immediately because of overcapacity in the West. The equipment went to subsidiaries in several Central European countries, where they could start producing immediately for the local markets. Normally it takes about nine months to have new machines at one's disposal.

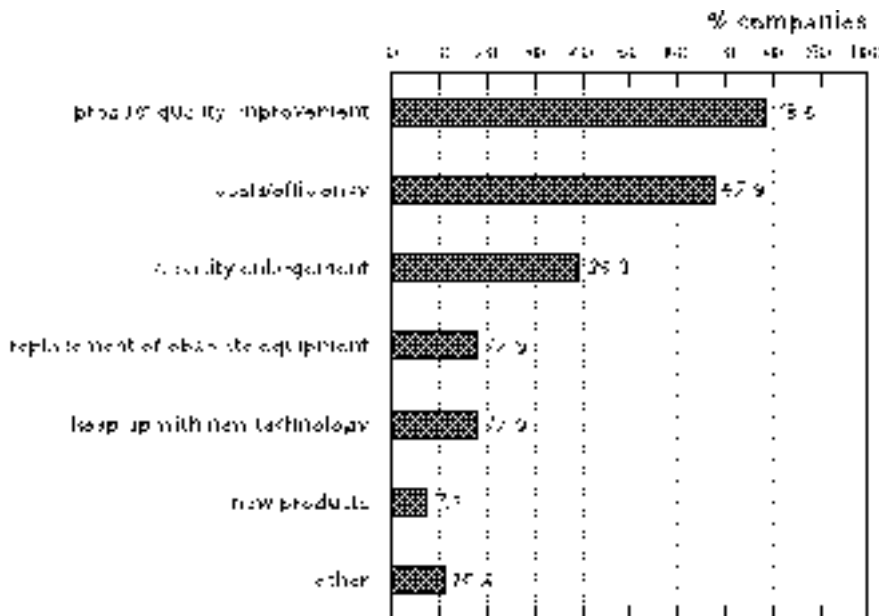
Some managers indicated that they invested in used machinery which they bought from bankrupt SOEs. As we stated above, equipment in SOEs was not always obsolete. Liquidation of an SOE offers the opportunity to buy relatively good machinery at bargain prices.

MOTIVES FOR AND RESTRICTIONS TO MODERNIZATION

Considering the high proportion of obsolete equipment found, one would expect that the replacement of obsolete equipment would be an important argument for investing in new machinery. However, a quick look at figure 5.3 does not verify this assumption. The replacement of obsolete equipment was mentioned by only 5 foreign privatized companies (17.9%). The necessity to replace old machinery may be due to several reasons. In a number of cases managers indicated that the equipment was so obsolete that they could not work with it, as we found for instance in the example of SCHÖLLER. Besides, obsolete equipment needs a lot of maintenance and the risk of it falling apart is so high that it makes economic sense to replace them. Others indicated that obsolete machines were not able to produce the large quantities required: in these cases replacement is often preferred above investment in additional capacity.

In fact, the motives for investment are very much interrelated. The replacement of obsolete equipment can be a reason in itself, but it can also be a *means* to improve efficiency and to improve the quality of the products. Both these last two motives were mentioned by the majority of the managers.

Figure 5.3 Motives for follow-up investments in foreign privatized companies<sup>a</sup>



<sup>a</sup> N=28. Managers could give more than one motive. For instance, 78.6% of the managers of foreign privatized companies that invested in new equipment after establishment indicated that higher quality was an important argument for investment.

Even in Hungary where labor costs are relatively low, the cost/efficiency argument is important. This is an indication of the inefficient production in SOEs and high costs connected to this. But it is also an indication of the tough competition, not only in export markets, but also on the domestic market, since a lot of the companies in this research sell a major part of their products on the local Hungarian market. Fierce rivalry is also reflected by the need to improve quality, a point mentioned by almost 80% of the privatized foreign companies. In the sectors studied, product quality is often directly related to the equipment



used. In mechanical and electrical engineering, accuracy is an important element in the quality of the products. For instance, in the production of small electrical instruments, surface mounted device technology (SMD) enables precision manufacturing. In fact, the use of SMD is a prerequisite for the competitive production of small modern electronic instruments. But also in the food industry there is a direct link between the technology used and the taste (read quality). For instance a process leading computer (PLC) is used to mix the exact proportion of the different ingredients, add ingredients at the right time and to control the whole production process in for instance chocolate or ice cream production.

Capacity expansion was mentioned by nearly 40% of the companies, an indication of the active investment strategy of foreign companies in Hungary and their optimistic sales projections. This is also reflected in the turnover, which grew sharply in foreign privatized companies<sup>3</sup>.

But there are in the specific case of Hungary also factors that make companies refrain from investing in more modern equipment. One reason, mentioned by only a few managers at foreign privatized companies is that investment in automation is not profitable because of low labor costs. A case in point is for instance the investment of UNITED BISCUITS in Győr<sup>4</sup>. The manager reported that they have not invested in automation, since labor costs are low and the costs of investment in capital equipment are high, because they are bought in the West. Therefore, it is hard to recover the costs in investment, especially since labor costs make up only 10% of the cost price. However, in contrast, there are other companies which invest in automation. In two companies the foreign owner or foreign partner (as in joint ventures) is the one who blocks investments in technological modernization.

#### *FUTURE INVESTMENTS*

Although foreign privatized companies have done a lot to modernize their plants thus far, the vast majority indicated that they were planning further investments in the near future (two years following the interviews). From the 29 companies in our sample, 26 planned further investments. For 2 other companies, future investments in extra capacity will depend on market developments. Only 1 company had no plans to invest in new equipment in the next two years. The manager of this company indicated that they have made enough investments to get by for the coming years, but they intend to invest in brand-new technology after 2000.

Future investments are often a continuation of the (necessary) technological modernization, aimed at an improvement of their competitiveness both in domestic and export markets. Besides, in one-third of the companies future investments are in extra capacity, which is an indication of the optimistic outlook, further intensifying the company's involvement in Hungary.

#### *5.3.2 Differences: sectors and regions*

Thus far we have dealt with the impact on the modernization of production in Hungary for all foreign privatized companies. However, it might well be that there are differences between the starting levels of companies and the ensuing technological modernization between companies operating in different sectors and companies located in different regions.

As for sectors, it turns out that mechanical engineering companies on average have the worst starting level (table 5.3). But what is more important, they modernized the equipment

to a much smaller extent than companies in the other two sectors. The result is that at present, mechanical engineering companies have more than twice the amount of obsolete equipment than companies in the food and beverages sector, and three times more than electrical engineering companies. Hence, we found a significant difference with the other two sectors at the 0.01 level. Not surprisingly, the main equipment is much older.

The reason for the relatively poor condition of production equipment in privatized mechanical engineering companies probably lies in the labor-intensive nature of the production, where handwork is an important element, and where single piece production and production in small batches are the prevailing production forms. As a result, most foreign companies in this sector came to Hungary because of the large savings in labor costs that could be made (in relation to high professional skills). Investments in new technology and automation can only partly reduce the labor intensity of production. Combined with low labor costs, returns on investment take a long time, and therefore investments in new technology are financially rather unattractive. The example of MTD HUNGARIA is a good illustration in this respect. The company relocated the assembly of small agricultural machines from Germany to Hungary, where wages are still at one-tenth the level in Germany. The assembly is done by hand, which takes three times as long as in Germany where the assembly is automated. Since it is still cheaper to do it manually, investment in automation is not profitable. Nevertheless, most companies indicated that some investments have been made, as indicated in table 5.3. First, because they had to give in to market demand, which requires higher accuracy and more flexible responses to fluctuations in demand. Second, because the dilapidated machinery was no longer functioning.

Table 5.3 Technological modernization in foreign privatized companies, by sector and by region

	N	% Obsolete equipment			Current average equipment age
		Foundation	Present	Decrease	
<i>Sector</i>					
Mechanical engineering	10	61.0	44.2	16.8	11.5
Electrical engineering	6	49.2	14.2	35.0	5.6
Food & beverages	13	56.2	19.5	36.7	7.4
<i>Difference</i>					
Kruskal-Wallis		n.s.	**	n.s.	o
<i>Region</i>					
Center	16	59.4	26.1	33.3	6.8
Northwest	13	52.7	28.0	24.7	10.7
<i>Difference</i>					
Mann-Whitney U		n.s.	n.s.	n.s.	n.s.

The production equipment in companies in electrical engineering and the food and beverages sector is less obsolete than in mechanical engineering companies. But what is more important, is that they have managed to decrease the share of obsolete equipment considerably. In contrast to mechanical engineering, production in these sectors is mostly in larger batches, and the role of technology is more important, or even a prerequisite for competitive production (for instance through SMD technology, see above).

As for regions we expected to find some differences between the center and the northwest regions, at least with respect to the starting positions of companies. The manufacturing sector in Hungary has been dominated by Budapest from the early years of the twentieth century onwards. However, the manufacturing sector in the northwest of Hungary is also generally considered to be of a relatively high level. Therefore, we would expect the starting levels of privatized companies in the center region to be slightly better than those of companies that bought an SOE in the northwest.

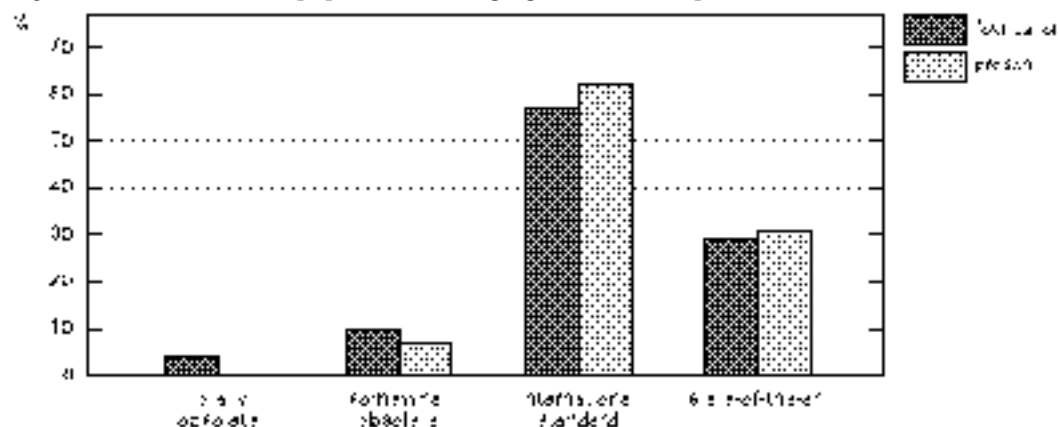
However, we could not find any significant differences between companies located in the center region or the northwest of Hungary. In fact, the differences between the shares of sub-international standard equipment are very low. Only the present age of equipment differed to a certain extent, though it is not supported statistically.

## 5.4 Technological modernization in foreign greenfield companies

### 5.4.1 Technological modernization

In contrast to privatized companies, greenfield investments do not have to cope with largely obsolete equipment that accompany the acquisition. Therefore, one might conclude that greenfield companies contribute to the modernization of production by definition. However, as we found in section 5.2.2, greenfield companies use obsolete equipment as well. When operations began they utilized on average 14% obsolete equipment: 10% somewhat obsolete and 4% totally obsolete (figure 5.4). The equipment in one company accounts for the latter figure (see the example of APV below). This indicates that not all plants were furnished with the latest new technology. Of the 21 greenfield plants in our research, 14 solely utilized equipment which match or surpass international standard. The other seven greenfield plants in our survey, to some extent, make use of sub-international standard equipment. Of these 7 companies, 4 have made further investments in improving their equipment since establishment. Overall, 19 of the 21 greenfield companies in our survey invested in new equipment after the setting up of the plant. As a consequence, the share of obsolete equipment decreased to 7% at the time when the interviews were conducted. Totally obsolete equipment was no longer used.

Figure 5.4 Production equipment in foreign greenfield companies



Within greenfield investments, a distinction can be made between plants that only make use of new equipment and are mainly set up for an *expansion of production capacity*, and plants that make use of used equipment, whether or not with supplementary new equipment. These investments mainly involve a *transfer of production capacity* from the West. We will illustrate these different types of greenfield investments shortly on the basis of selected cases.

Some good examples of new modern technologies which entered the country in greenfield plants that are set up with the aim of an *expansion of production capacity* are found in the automotive industry. Although the production of passenger cars was absent in Hungary before 1989, 4 major worldwide manufacturers have set up production and assembly plants in the northwest of Hungary: OPEL in Szentgotthard (Vas), SUZUKI in Esztergom (Komárom-Esztergom), AUDI in Győr (Győr-Moson-Sopron) and FORD in Székesfehérvár (Fejér). All these companies work with the latest technologies. OPEL, for instance, set up a plant for the production of engines for several car models and the assembly of the Astra for the local market. Between 1991 and 1997, OPEL invested DM 750 million in the Hungarian plant, which makes OPEL one of the major foreign investors in the country. Currently the plant produces more than 300,000 engines and assembles over 11,200 cars per annum<sup>5</sup>. At the start of production in July 1992 the engine plant was the most modern OPEL engine plant in the world. Additional investments after its establishment were all in the engine plant, further increasing its capacity and flexibility. Furthermore, a new cylinder plant was established which uses a technique which was new in Europe. This plant was built to eliminate the bottlenecks at the first plant. The production line is able to produce 4 types of cylinders at the same time and it can change in one second from the production of one type to another.

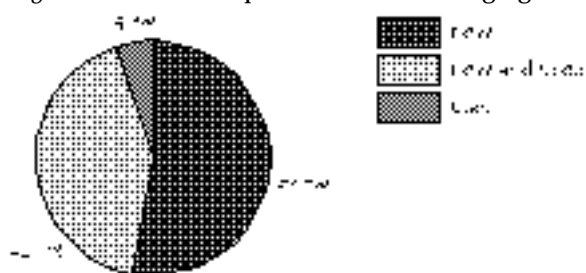
Another greenfield company using state-of-the-art technology is IBM STORAGE PRODUCTS in Székesfehérvár. IBM started its production of hard disk drives only in November 1995. The factory was built by VIDEOTON (a large state-owned enterprise which was privatized and taken over by Hungarian owners) on the VIDEOTON INDUSTRIAL PARK. Hardly a year later a second factory was built by VIDEOTON next to the first one. Besides, IBM invested \$ 110 million in the production lines. The production of hard disk drives requires the use of state-of-the-art technology. Besides, since every 4-5 months a new product is launched, the technology needs to be renewed or changed continually.

Another type of greenfield investment is induced by a *transfer of production capacity* because of the lower production costs in Hungary. Mostly this concerns the shift of production processes which are labor-intensive from Western Europe to Hungary. Since the investment in Hungary coincides with the closure of a plant or production unit in the West, often (some of) the machines are physically transferred to the new plant. Therefore this 'type' of greenfield investment differs from that of OPEL and IBM in the way that they make use of existing (used) machines to a large extent. This explains the use of obsolete equipment in greenfield companies as we found in figure 5.4 above. FISHER-ROSEMOUNT<sup>6</sup>, part of the American multinational EMERSON ELECTRIC, transferred production from Germany and the Netherlands to Székesfehérvár, where they started as a greenfield in a renovated building on the VIDEOTON INDUSTRIAL PARK. At the start almost all equipment came from Western European plants, but all the machines were less than one and a half years old. In addition, some new CNC layers were bought in Hungary. Some extra equipment was bought, since they needed a buffer: They had to build up production capacity in Hungary before they could close their West European premises. The company is still expanding its activities in Székesfehérvár, paving the way for further new investments.

#### *FOLLOW-UP INVESTMENTS: NEW OR USED EQUIPMENT?*

In studying the contribution of foreign companies to the technological modernization, the issue of follow-up investments is less important in the case of greenfield investments than for privatized companies. Nevertheless, we found that the vast majority of the greenfield companies invested in new equipment after their foundation. In more than half of these companies, this involved only new equipment (figure 5.5). But, as in privatized companies, investment in used equipment is common also in greenfield companies. In more than 42% of the companies, follow-up investments were both in new and used equipment. In one company, investment was only in used equipment. It concerns an investment of a German company, that bought an empty, but already existing factory. The plant is furnished with equipment from the parent company only, as the investment is a transfer of labor-intensive production processes to low-labor-cost Hungary. Some 90% of the Hungarian plant's production is in outward processing for the parent company.

Figure 5.5 Follow-up investment in foreign greenfield companies (N=19)



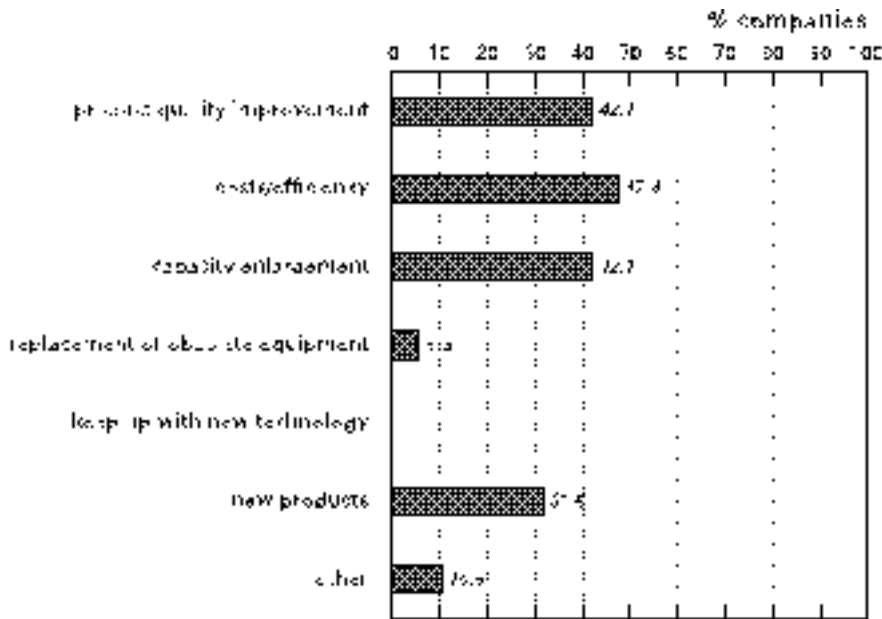
These follow-up investments are mainly in state-of-the-art and international standard equipment (as we also found at privatized companies above). However, greenfield companies invested more often solely in state-of-the-art equipment.

Used equipment came generally from other Western subsidiaries or the parent company. This equipment became available either because the greenfield plant in Hungary is the result of a transfer of production capacity to Hungary, or because of overcapacity in the West, or because of rationalization in Western subsidiaries. Only one greenfield company reported that they bought some equipment from a liquidated SOE in Hungary.

#### *MOTIVES FOR AND RESTRICTIONS TO MODERNIZATION*

From the 21 greenfield companies in our research 19 indicated that they invested in new equipment after their establishment in Hungary. Because of a totally different starting position as compared to privatized companies, one might expect that different motivations play a role in follow-up investments. As figure 5.6 shows, we found similar motives as with foreign privatized companies, but the frequencies of each motive differed. The active investment strategy of most greenfield companies is reflected by the fact that both capacity expansion and the production of new products are important motives for the investment in new equipment. Surprisingly, the improvement of quality and the costs/efficiency argument are mentioned often as well. Tough competition on both domestic and export markets forces the companies to improve the quality of the products and reduce cost constantly. In this respect, they do not differ from any other company in the West.

Figure 5.6 Motives for follow-up investments in foreign greenfield companies<sup>a</sup>



<sup>a</sup> N=19. Managers could give more than one motive. For instance, 42.1% of the managers of foreign greenfield companies that invested in new equipment after establishment indicated that higher quality was an important argument for investment.

Restrictions to follow-up investments were not reported frequently, since most companies made a lot of extra investments. Some managers at greenfield companies indicated that there was no need for technological modernization, since the company was producing with state-of-the-art or international standard equipment already.

#### FUTURE INVESTMENTS

As we already referred to above, a lot of greenfield companies are still in the investment phase. This explains why we found the large share of the companies planning future investments. From the 21 greenfields in our sample, 13 were planning future investments. This can be interpreted in two ways. Either it is an indication of the careful strategy related to higher risks in setting up greenfield plants, or it is an exponent of their positive expectations, which exceeded their initial projections. For another 4 companies future investments depend on the outcome of sales. In this light, it may not come as a surprise that the main motives for future investments are an increase in capacity and the extension of the product range. Moreover, a further improvement of efficiency and product quality is of some importance as well.

#### 5.4.2 Differences: sectors and regions

As we found above when discussing privatized companies, the mechanical engineering sector also takes an exceptional position within greenfield investments, positively and negatively. At the time of establishment almost one-quarter of the production equipment in this

sector was obsolete (table 5.4). At present this share has diminished to 3.3%, making it the 'best' sector according to our mode of assessment.

*Table 5.4* Technological modernization in foreign greenfield companies, by sector and by region

	N	% Obsolete equipment			Current average equipment age
		Foundation	Present	Decrease	
<i>Sector</i>					
Mechanical engineering	6	24.2	3.3	20.8	5.4
Electrical engineering	11	11.8	10.0	1.8	3.6
Food & beverages	4	5.0	5.0	-	6.3
<i>Difference</i>					
Kruskal-Wallis		n.s.	n.s.	n.s.	°
<i>Region</i>					
Center	11	13.2	4.5	8.6	3.9
Northwest	10	15.0	10.0	5.0	5.6
<i>Difference</i>					
Mann-Whitney U		n.s.	n.s.	n.s.	n.s.

But where we found sector-specific reasons at privatized companies, at greenfield companies the low starting level as compared to companies in the other two sectors is caused by two companies which dramatically influence the general average of the six companies in this category. The first is APV UK. They invested already in 1985 by establishing a greenfield joint venture representative office with some smaller independent Hungarian groups, because they did not want to cooperate with an SOE<sup>7</sup>. Local production started in 1988, mainly with very old machines which they got from the British parent company. They had to buy some 'normal' additional equipment to be able to produce at a reasonable level. Therefore, the setting up of the production line in Hungary (before the change of economic systems), has to be seen as a trial project of the British investor. Since then, a lot of additional investments have been made resulting in an average age of equipment of 3-4 years at the time the interview was held. The other company in this category is FISHER-ROSEMOUNT (see also section 5.4.1). Although the manager indicated that at the start of production all machinery was less than one and a half years old, he classified a substantial proportion of this equipment below the international standard. Further investments in new equipment after their foundation has improved the capital stock in these two companies considerably.

Not surprisingly, as for regions, we found no differences between the greenfield companies in our sample.

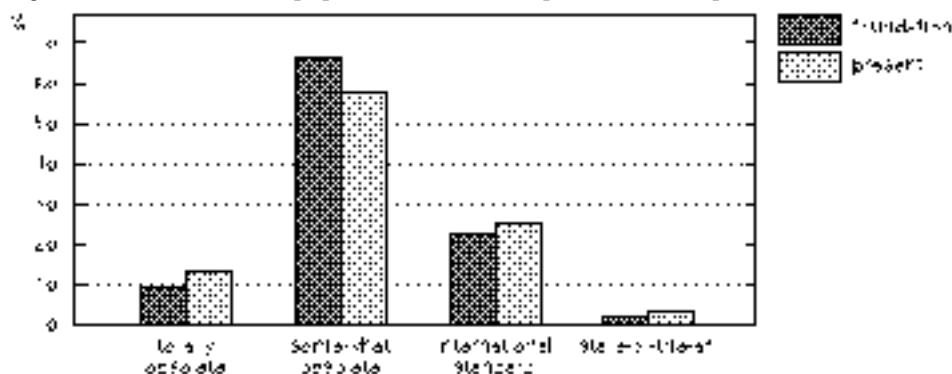
## **5.5 Technological modernization in domestic privatized companies**

### *5.5.1 Technological modernization*

In contrast to both foreign privatized and greenfield companies, the contribution of domestic privatized companies to the modernization of production is extremely modest (figure 5.7). Domestic companies were only able to decrease the share of below international

standard equipment by 4.3 percentage points. At present, 71.6% of production equipment is below international standard. Of this, 58.1% is somewhat obsolete and 13.5% totally obsolete. Not surprisingly, the average age of production equipment is high (14.6 years). These findings do not only indicate that technological modernization at domestic companies is low. It also puts the contribution of foreign privatized companies in sharp relief.

Figure 5.7 Production equipment in domestic privatized companies



Nevertheless, 10 of the 13 domestic companies in our survey reported that they have invested in new equipment after the privatization of the company. This can mean two things: Either the companies have made only limited investments, or their new investments were in obsolete equipment as well. A closer look at figure 5.7 reveals that the first statement is a valid one. The share of somewhat obsolete equipment decreased by 8.2 percentage points. But apparently they were unable to make sufficient investment in new equipment, since the share of totally obsolete equipment increased because of the further aging of some of the obsolete equipment. Therefore, on average, the domestic companies show a slight increase in both international standard equipment and state-of-the-art equipment. But one has to admit that the latter is extremely low compared to foreign privatized companies (2.8% compared to 17.5%).

*FOLLOW-UP INVESTMENTS: NEW OR USED EQUIPMENT?*

From the 10 domestic companies that have invested in new equipment after the privatization, 5 invested solely in new equipment. In the other 5 companies, follow-up investments were both in new and used machinery. In contrast to foreign companies, domestic companies could not invest in used equipment from their subsidiaries. For 3 domestic companies, the used equipment came from liquidated SOEs. In general the follow-up investments were less modern than at foreign privatized and greenfield companies. Equipment was most often up to international standard and modern compared to other equipment in the subsidiary. This might be another explanation for our finding above that the decrease in obsolete equipment was rather limited, despite the large number of companies that made follow-up investments.

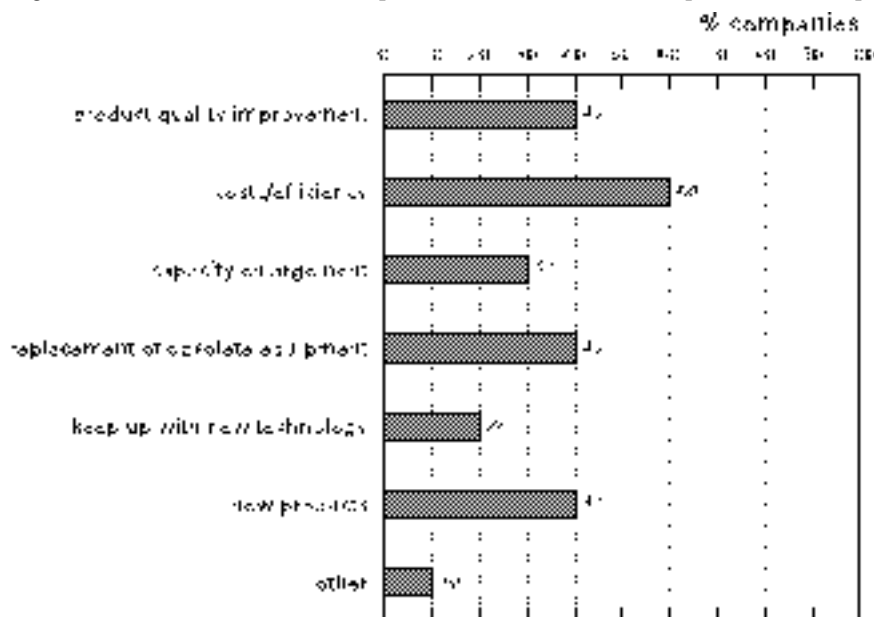
*MOTIVES FOR AND RESTRICTIONS TO MODERNIZATION*

Because investments in technological modernization have turned out to be rather limited, we have to interpret the motives, as presented in figure 5.8, with caution. It would for in-



stance be wrong to conclude that 60% of these companies have achieved a major increase in efficiency and a reduction of costs.

Figure 5.8 Motives for follow-up investments in domestic privatized companies<sup>a</sup>

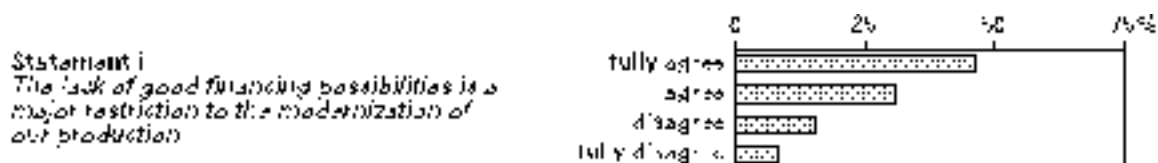


<sup>a</sup> N=10. Managers could give more than one motive. For instance, 40.0% of the managers of domestic privatized companies that invested in new equipment after establishment indicated that higher quality was an important argument for investment.

It would be most appropriate to compare the domestic companies with the foreign privatized companies. Strangely enough, 40% of the managers indicated that the replacement of obsolete equipment was an important motive for follow-up investments. Obviously this concerned only very limited investments, since it is not reflected in a high decrease in obsolete equipment. The introduction of new products was mentioned by managers at domestic companies much more often than at foreign privatized companies. In contrast, improvement of the quality was mentioned by only 40% of the managers at domestic companies as opposed to almost 80% at foreign privatized companies. This might indicate that domestic companies try to outstrip their competitors by a strategy of market diversion, whereas foreign privatized companies focus more on an improvement of the quality of their products.

Concerning the limited technological modernization, there are more restrictions to technological modernization in the case of domestic companies. The main and only restriction cited was the lack of money, which was mentioned by only 4 out of 13 companies. This is, more convincingly, supported by the reaction of managers at domestic companies to the statement: *The lack of good financing possibilities is a major restriction to the modernization of our production.* More than 75% of the managers agreed with this statement, with 46.2% fully agreeing (statement i)<sup>8</sup>. As for the lack of good financing possibilities two different interpretations are valid. For some companies it refers to the high interest rates in Hungary and other unfavorable factors. For other companies it refers to the fact that banks are not willing to give them a loan. However, concerning the latter, one can ask if the cause lies in the banks

or in the companies themselves, whose equipment is for a large part obsolete. From the point of view of financial institutions the medium and long-term profitability of these companies is questionable.



The other interpretation of high interest rates and other unfavorable factors is a valid argument indeed. As opposed to companies with foreign capital participation, domestic companies are generally not able to finance their investments on Western capital markets where interest rates are much lower. One can bring in the argument here that the cause for high interest rates in Hungary is high inflation. But for a company that takes out a loan, this is hardly a mitigating circumstance. With interest rates between 22 and 30% and profit rates on equity of on average 10-12%, it is still far too expensive to finance investments on the Hungarian capital market.

Our emphasis here was on the financial restrictions to technological modernization in domestic companies, partly since this was the only restriction indicated by the managers we spoke to. However, our general impression was that technological modernization in particular, and company restructuring in general was not a high priority in domestic companies. This contrasts with foreign privatized companies where both issues have top priority, as was also indicated by our findings above.

#### *FUTURE INVESTMENTS*

From the 13 domestic companies in our sample, 9 have plans for future investments. The replacement of obsolete equipment was the most important motive for these investments as mentioned by managers at 4 companies. Other factors are capacity expansion (3 companies) and improvement of product quality (2 companies).

Three others have no intention to invest, although for 2 of them the state of equipment requires upgrading with respectively 100% and 80% obsolete equipment. The company with 100% obsolete equipment explained that they have already made the necessary/planned investments in the past, when they bought new and used machines from bankrupt SOEs. However, this did not lead to a decrease in obsolete equipment. According to the manager of the company that produces open and covered stairs for airplanes, it is not necessary to use modern machines since it concerns single-piece production, involving much handwork and general tools. The second company, using 80% obsolete equipment, is not planning future investments since orders are decreasing. Future market developments are also relevant in the case of the domestic company that is still unsure about future investments.

#### *5.5.2 Differences: sectors and regions*

Looking at the technological modernization in domestic companies by sector we found some remarkable differences. In line with findings in foreign privatized companies, the mechanical engineering sector is the worst sector according to our classification: both at the

time operations began and at present around 90% of production equipment is obsolete (table 5.5). Electrical engineering fares slightly better. The present share of obsolete equipment in both sectors is still higher than that of foreign privatized companies at the commencement of their operations (compare table 5.3).

The starting level of the domestic companies in the food and beverages sector is remarkably good. Not only compared to the other sectors, both also compared to the proportion of obsolete equipment in foreign privatized companies at the time of establishment. In fact, of the 3 domestic companies in this sector, only 1 started with a substantial share of obsolete equipment. The other 2 started with only a very limited share of obsolete equipment, for instance, PANNON GABONA in Győr, that produces flour and grain mainly for the Hungarian market. According to the deputy general manager they owe their good starting position to the fact that a lot of investments have been made already before the privatization. The company had a very dynamic management that was able to secure a lot of money from the state budget to invest in new equipment.

*Table 5.5* Technological modernization in domestic privatized companies, by sector and by region

	N	% Obsolete equipment			Current average equipment age
		Foundation	Present	Decrease	
<i>Sector</i>					
Mechanical engineering	6	92.8	89.1	3.7	14.3
Electrical engineering	4	81.3	74.8	6.5	14.0
Food & beverages	3	35.0	32.3	2.7	15.8
<i>Region</i>					
Center	9	87.4	82.1	5.3	14.7
Northwest	4	50.0	48.0	2.0	14.4

Nevertheless, one has to place these findings in perspective. First the number of companies in the food and beverages sector is limited (3). Second the equipment is almost 16 years old, making it older than the ones used in mechanical and electrical engineering.

These two food companies located in the northwest of Hungary are also responsible for regional differences (table 5.5). The four domestic companies we interviewed in the northwest accounted for three companies in the food and beverages sector, which operated a surprisingly low percentage of obsolete equipment<sup>9</sup>. Looking at the average age of equipment, one sees that they are practically the same.

## 5.6 Conclusion

In this concluding section the most important findings in this chapter are:

- Both foreign greenfield and privatized companies contribute to the technological modernization of the Hungarian manufacturing industry in their own specific ways. However, in general, production equipment in greenfield investments was and still is superior to that in privatized companies.

- Foreign privatized companies have done a lot to replace obsolete production equipment in their acquired plants. Most of them take a gradual but steady course in replacing equipment. Some replace all the acquired equipment shortly after the investment with new equipment, so-called brownfield investments. In only a few companies we found only limited technological modernization. These companies are involved in labor-intensive production aimed at outward processing to other subsidiaries in Western Europe.  
Some 90% of the privatized companies are planning to invest more in technological upgrading in the years to come. When modernizing production equipment, foreign privatized companies make use of their international network of subsidiaries extensively. As a result technological modernization often involves already used equipment of accepted international standard.
- Production equipment in greenfield investments set up as a result of an expansion of production capacity is more modern than those in greenfields where the investment in Hungary was the result of a transfer of production capacity from the expensive EU to low-labor-cost Hungary. Here the investment coincides with a physical transfer of production equipment from Western subsidiaries as well, whereas greenfields that involve an expansion of capacity more often use new, state-of-the-art equipment.
- Companies involved in labor-intensive production have invested less in technological modernization because the effects on cost savings are limited due to low labor costs. Thus, investment returns take a long time to materialize. In our survey this mainly goes for companies in mechanical engineering, where handwork is an important element in production.
- There are no regional differences in the extent of technological modernization at foreign companies.
- Domestic privatized companies have seen their position worsen as opposed to foreign companies, because of a higher share of obsolete production equipment than in foreign privatized companies at the start of their operations, and their very limited investments in technological modernization afterwards. Technological modernization at domestic companies is seriously hampered by financial restrictions (that is high interest rates in relation to profit expectations), and (too) high risks for financial institutions, because of the largely outdated production equipment. Besides the impression given was the low propensity of domestic companies to modernize their plants.

## NOTES

<sup>1</sup> In the case of foreign investments this refers to the date the foreign company actually started operations in Hungary (time of entry). In the case of domestic companies this refers to the date the company was actually privatized. The present situation refers to the time the interviews were conducted (February - April 1997).

<sup>2</sup> The other 20% is owned by an Italian company. The management is fully in the hands of UNILEVER.

<sup>3</sup> In this study the development in turnover is not discussed in detail.

<sup>4</sup> See also the example of MTD HUNGARIA below.

<sup>5</sup> That is at the beginning of 1997. OPEL will stop assembling the Astra model in the course of 1999.

<sup>6</sup> The company produces control valves and flow measurement equipment.

<sup>7</sup> 100% foreign ownership was not possible at that time.

<sup>8</sup> For an overview of the reactions to all statements see annex 3.

<sup>9</sup> The food and beverages sector in Budapest is dominated by foreign investors which acquired practically all the SOEs. Therefore it is not surprising that we were not able to find domestic companies in this sector here.

# 6 FDI and the demand for labor

## 6.1 Introduction

Labor market transformation is one of the central features in the transition from a centrally-planned to a more market-based economy. Foreign companies are regarded as active participants in this transition process. After all, they take a leading position in the technological modernization, as shown in the preceding chapter. Moreover, they are expected to introduce Western working methods and management techniques. All these elements of modernization have their effect on the demand for labor, both in quantitative and qualitative respects.

This chapter deals with the demand for labor in foreign companies in the context of the transition process. Moreover, we look at the demand for labor in domestic companies so as to place our findings about foreign companies in perspective. Answers to the following research questions will yield insight in the issues under discussion.

4. What are the effects of the modernization within both foreign and domestic companies on the quantitative demand for labor? (section 6.2)
5. What are the effects of the modernization within both foreign and domestic companies on the qualitative demand of labor? (section 6.3)
6. In what way and through what channels are new employees recruited, and what are selection criteria used? (section 6.4)
7. What are the effects of modernization and training on labor productivity? (section 6.5)
8. Are there differences for different regions, and what role did the regional supply of labor play in the location decision? (section 6.6)

## 6.2 Quantitative effects on labor in foreign and domestic companies

After the 1989 change of system, Hungary was confronted with a steady growth in unemployment. The increase was high in the more remote regions in the northeast, which are characterized by heavy industry, and the southeast, which is mainly an agricultural region. However, unemployment rates are relatively low in the northwestern part of the country, including Budapest.

Where labor market opportunities in the state sector declined, new openings were offered through FDI. Research by Kopint Datorg (Papp, 1995) shows that foreign firms (in

all sectors) in 1993 accounted for almost one-third of all employment in Hungary: 5% in greenfield plants, 26% in joint ventures and acquisitions by foreign companies. These figures roughly correspond with the ones presented in table 3-3 which shows employment shares in foreign companies of 23% and 37% for the whole economy and the manufacturing sector respectively (1994 data).

In this section we will discuss the developments in employment at the company level (section 6.2.1), as well as the employment effects for different departments within the company (section 6.2.2).

### *6.2.1 Employment effects*

In our research we studied the development of employment in both foreign and domestic companies in our survey from 1990 onwards (table 6.1). Since not all the companies in our survey were present in Hungary from the beginning of the transition process, the employment figures are classified by the year of establishment. Our assumption was that in the case of foreign companies, different modes of investment would have different effects on employment. Greenfield investments were expected to have a positive effect on employment, since firms start from scratch. Investments in the privatization of SOEs, however, were expected to have a negative effect on employment, since they generally had to deal with excess employment. This also counts for domestic privatized companies. However, where domestic privatized companies are concerned, the decrease in employment was expected to be less dramatic than in foreign privatized companies, because the former have made far less progress in the modernization process, as seen in chapter 5.

Our survey shows that greenfield investments indeed have a strong positive effect on employment. In total, the greenfield companies in our survey have created close to 9,000 jobs (table 6.1). Most of these jobs (more than 6,000) were not created at the time of foundation, but afterwards. Some greenfield companies started with only a handful of employees that were responsible for the setting up of the production facilities. However, most greenfield companies showed a significant expansion of their production capacity since their first entry. After an initial investment, many greenfield firms made additional investments, leading to job creation.

This somewhat cautious, albeit aggressive investment strategy, in connection with growing employment can be illustrated by the example of IBM which started making hard disk drives in Székesfehérvár (Fejér) in November 1995. The newly built factory is owned by VIDEOTON (a large state-owned enterprise, privatized and sold to Hungarian owners) at the VIDEOTON INDUSTRIAL PARK. IBM invested \$ 110 million in the production lines. As this was the first investment in a production facility in CEE, the modest scale worked in IBM's favor. It enabled the company to leave with minor losses if production in Hungary turned out to be less profitable than initially expected. In the same vein, another deal with VIDEOTON was made concerning labor. The first 300 shop-floor workers were employed by VIDEOTON. VIDEOTON was willing to take this responsibility, as long as they were contracted to provide new employees in case of expansion. By November 1996, a second production facility was finished. Employment at IBM rose from 800 (end 1995) to 1,800 (end 1996) and grew to 3,000 in April 1997. Of these, some 2,500 workers are on the payroll of VIDEOTON and 500 people in management positions are directly employed by IBM HUNGARY. Besides, another 100 expatriates work at the Székesfehérvár plant.

Table 6.1 Employment developments in foreign and domestic companies in Hungary<sup>a</sup>

Foreign greenfield	1990	1991	1992	1993	1994	1995	1996	Growth/ decrease <sup>b</sup>
90 <sup>c</sup>	123	173	206	273	396	494	724	601
91		482	841	1,068	1,280	1,436	1,670	1,188
92			719	1,137	1,462	2,059	3,180	2,461
93				90	85	85	78	-12
94					212	410	1,216	1,004
95						905	1,960	1,055
Total	123	655	1,766	2,568	3,435	5,389	8,828	6,297
Foreign privatized <sup>d</sup>	1990	1991	1992	1993	1994	1995	1996	Growth/ decrease
90	3,616	3,232	2,997	2,943	2,980	2,883	2,535	-1,081
91		1,999	2,612	2,597	2,544	2,604	2,276	277
92			4,813	3,275	2,934	2,879	2,652	-2,161
93				1,988	1,843	1,842	2,240	252
94					2,163	2,003	1,665	-498
Total	3,616	5,231	10,422	10,803	12,464	12,211	11,368	-3,211
Domestic privatized	1990	1991	1992	1993	1994	1995	1996	Growth/ decrease
89	.. <sup>e</sup>	..	..	41	41	48	44	3
90	1,028	1,062	957	727	674	780	715	-313
91		790	710	620	501	427	388	-402
93				1,072	1,029	1,035	882	-190
94					3,946	4,008	4,075	129
Total	1,028	1,852	1,667	2,460	6,191	6,298	6,094	-773

<sup>a</sup> The figures presented in this table exclude seasonal labor. This can be substantial, especially in the food and beverages sector. For instance, ice cream producer ESKIMO in Veszprém employs more than 200 seasonal workers and 180 regular employees.

<sup>b</sup> The difference between employment in the first year of operation (that is 1990, 1991, 1992, 1993, 1994 or 1995) and 1996. The total in this column is the sum of this column.

<sup>c</sup> Year of establishment/privatization.

<sup>d</sup> GE TUNGSRAM is excluded from this table because of the great number of employees of this company. When the American multinational GENERAL ELECTRIC bought TUNGSRAM, the company employed 17,000 people. Since 1992, after major restructuring, the company has a constant number of 10,000 employees.

<sup>e</sup> This concerns two companies for which no employment figures for 1989-1992 were available.

Foreign privatized companies show a different picture (table 6.1). They are often confronted with huge overstaffing at the time of the establishment. In some cases, the acquired property includes some supporting services<sup>1</sup>, like kindergartens and hotels, characteristic of SOEs. After the acquisition, the foreign company usually sells or closes these supporting facilities, resulting in a drop in the number employed (at least for the privatized company). Overstaffing can reach very high levels, up to three or four times the required labor. The AMSTEL brewery in Kómarom is a case in point. The brewery, which was founded in 1984, was part of the state oil company MOL. It was set up as an



employment project. When AMSTEL bought the company, there was only enough work for two to three hours a day for each employee.

However, from the 29 foreign privatized companies in our sample, only 15 showed a decrease in the number of employees between the time of entry and 1996. Contrary to our general assumption, 14 privatized companies have witnessed an increase in the number of employees following the initial investment. Nevertheless, overall, the foreign privatized companies in our sample show an aggregate decrease in the number of employees of more than 3,200<sup>2</sup>. The differences between the employment effects within foreign privatized companies seem to result from the combined effects of (1) the expansion of physical production capacity, and (2) differing circumstances related to overstaffing at the time the operations started. The following explain what some of these circumstances are:

- a) Some foreign privatized companies, that entered the country by way of a joint venture with the state, could have started with a limited number of the best workers at the SOE. Therefore they did not have to cope with excess employment.
- b) Privatized companies might have been bound by contract with the state to (largely) maintain employment for a set period of time. Making the assumption that a privatized company has to cope with overstaffing, this might have forced them to expand capacity or set up new activities.
- c) As reported above, in a limited number of cases, the acquisition included supporting services, that were typical of SOEs (like kindergartens, hotels etc.). The sale of parts of the acquired property decreases employment.
- d) Pre-privatization restructuring might be of major influence on the subsequent development of employment. As already stated in chapter 1, mainly in the first years of transition some restructuring took place before the company was put up for privatization to a foreign owner, in order to get a better price for the company.
- e) Apart from the points mentioned above, there are differences between companies as such with respect to the extent of overstaffing in the SOEs that were targeted for privatization.

These differing starting points may exert major influence on employment developments after privatization. However, it is not possible to ascertain the combined effects of all the abovementioned factors on the actual level of overstaffing at the time of foundation. But we might conclude that companies that have shown an increase in employment have expanded their physical production capacity or have started new production activities. However, it should be noted that this must have been far more easy for companies that started with less excess employment.

The above observations also make it difficult, if not impossible, to relate employment developments to technological modernization. Moreover, the effects of technological modernization are double-edged: Investments that are aimed at increasing efficiency, generally lead to labor shedding, whereas investments in extra capacity creates new jobs.

For domestic privatized companies we found, similar as for foreign privatized companies, a decreasing number of employees (table 6.1). In 5 companies, employment increased moderately, and in 8 companies employment decreased. Overall, employment in domestic companies in our survey decreased by 773. Most of the abovementioned observations (points a-e) are valid for domestic privatized companies as well. For example, also in domestic privatized companies some restructuring might have taken place before the

company was sold to private owners. Consider MMG AUTOMATIKA, a Budapest-based company producing industrial instruments, automatic elements, process control systems etc., that was sold to employees and domestic financial institutions. As a result of pre-privatization restructuring, employment decreased from 4,100 in 1990 to 2,442 in 1994, the year when the company was privatized. Under private ownership employment at the company increased moderately to 2,553 by the end of 1996.

To sum up, the figures in table 6.1 have to be read as a description of the actual employment developments that have taken place in the survey companies between the time of setting up operations and 1996. However, what can be concluded, is that greenfield investments show a positive effect on employment. Large greenfield plants that have created jobs for many people can be of major importance for the city or region where they are located. The employment effects of foreign privatized companies are not negative per se (notwithstanding the marginal notes presented in chapter two as well as above). Contrary to our expectation, half the foreign privatized companies have shown an increase in employment.

### 6.2.2 *Employment effects for different company departments*

Next to the overall employment figures presented above, we looked at the development in employment in different departments over the last three years, that is 1993-1996 (table 6.2).<sup>3</sup> Not surprisingly, in greenfield plants the general tendency is one of expansion in the departments of production, management and administration, and support services departments (sales, R&D, distribution and the like). As for support services departments, more than 90% of the greenfields reported an employment increase, indicating that foreign investors follow a cautious strategy in the setting up of these departments: Only when the investment in Hungary proves to be a good decision, are sales, distribution or in some cases even R&D activities transferred from the parent company to the Hungarian plant.

Table 6.2 Changes in the number of employees in different departments (1993-1996) (%)

	Foreign greenfield	Foreign privatized	Domestic
privatized			
<i>Production</i>			
Decrease	14.3	51.7	38.5
Equal	14.3	6.9	15.4
Increase	71.4	41.4	46.2
<i>Management/administration</i>			
Decrease	-	51.7	76.9
Equal	28.6	13.8	7.7
Increase	71.4	34.5	15.4
<i>Support services departments</i>			
Decrease	4.8	35.7	53.8
Equal	4.8	10.7	23.1
Increase	90.5	53.6	23.1

Looking at foreign privatized companies the picture is more diverse. We already concluded above that half of the foreign privatized companies in our survey show a growing number of employees, while in the other half their number has decreased. These findings are also reflected in an analysis per department. In more than half of the companies, the number of production workers has decreased over the last three years. However, in more than 40% of the companies their number has increased. The same goes for the number of employees in management and administration departments. It seems that whereas some companies are still in a process of restructuring and modernizing their acquired plants, others have left this stage and are even in an expanding phase now. However, it is a different picture with respect to employment development in support services departments. In the majority of companies (54%) an increase in the number of employees was found. The setting up of new departments for sales and distribution, that were non-existent under central planning, is mainly responsible for this. This can be seen as an outcome of the positive experiences of these companies, where more and more supporting tasks are decentralized from the parent company to the Hungarian subsidiary. Hence, the setting up of these new departments might be another explanatory factor for the total increase in employment in half the foreign privatized companies as found above.

The setting up of sales and distribution departments and the like can be seen as another contribution of foreign companies to the modernization process. Before 1989, companies that produced for the local market did not have any marketing or sale strategy or a distribution network, as for instance indicated by the general manager of margarine producer UNILEVER. He pointed out that when they bought the company, they were not selling margarine but only distributing it. Every day a 2-kilometer queue of small trucks and vans (without cold storage facilities) lined up at the entrance of the plant to pick up the products and to bring them to the 15,000 customers, mostly small grocery stores. Now the situation has totally changed: 70% of the products is sold to the 10 biggest customers (supermarket chains) and the company has its own sales department. For companies that produced for export to CMEA countries, export was carried out by separate export trading companies. These exports were mainly involved in barter trade. Therefore, one could say there was no relation with either demand or supply, and therefore no sales, marketing or distribution policy unlike the practice in Western companies.

Some domestic privatized companies show a moderate increase in the number of employees between privatization and the present, as shown in the preceding section. However, employment developments differ in different departments as compared to foreign companies. The biggest differences are found in the management and administration departments and support services departments. More domestic than foreign companies show a decrease in management/administration over the last three years. Where many foreign companies have passed the stage of reducing the number of people in management and administration in their plants, domestic companies seem to be still in the middle of this process. Besides, the majority of the domestic companies show a decrease in employment in support services activities. The difference with foreign companies might be that they have not yet set up departments for sales, expedition and the like. The pitfalls inherent to generalizations aside, it is another indication of our earlier finding that they have not adopted the capitalist style of doing business yet.

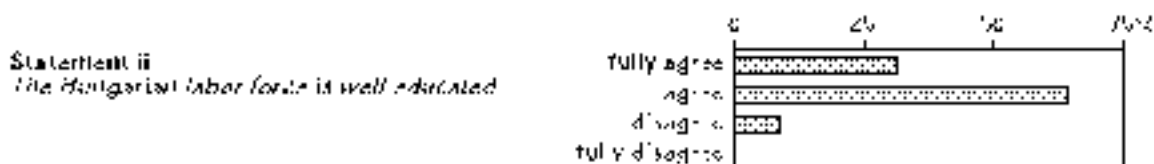
### 6.3 The qualitative demand for labor

In 1989, Hungary set a new course towards a more market-based economy. Apart from the modernization of industrial production, this process leads to a shift within manufacturing industries and the emergence of a separate services sector<sup>4</sup>. In response, there is a shift in the qualitative demand for labor, which in turn has implications for vocational training and education in general. The qualitative transformation of the labor market is thus a lengthy process, but the first signs of this process are already evident. This section elaborates on various aspects of the transition of the labor market in a qualitative respect.

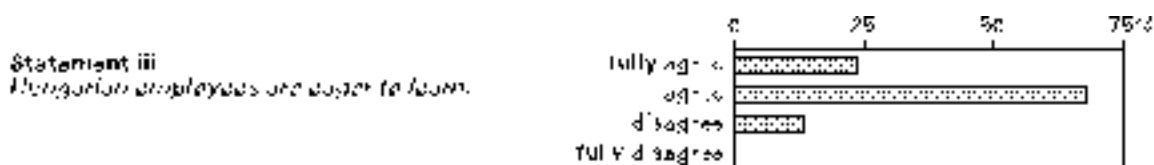
First, some general impressions of managers at foreign companies on the education level of the Hungarian labor force are presented. We do this by looking at their responses to some statements (section 6.3.1). Next, in section 6.3.2, we deal with the demand for unskilled and skilled labor in relation to the transition process. Section 6.3.3 discusses the problems that companies have in appointing people to certain positions. We look at the extent of this problem, the kind of professions involved, the competition between foreign and domestic companies, and companies' assessment of the course of future developments. Section 6.3.4 discusses the role of in-house education and on-the-job training.

#### 6.3.1 Foreigners' impressions of the education level of the Hungarian labor force

It has been mentioned several times that the Hungarian labor force is well educated, and that the cost of labor is low. But we wondered if the foreign investors are of the same opinion. We found that 92% of the foreign managers agree to the statement '*The Hungarian labor force is well educated*' (statement ii). Of these, 30% even fully agree.

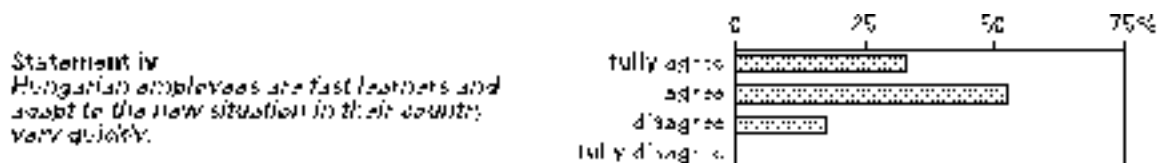


Apart from this generally high education level, the shift from a centrally planned to a more market-based economy requires skills which are different and new, and a change in mentality and work ethics. Therefore, we asked the managers if they are of the opinion that Hungarian employees are eager to learn. The vast majority (88%) agree to that statement (statement iii). It is surprising that the managers at foreign companies were more positive about this statement than those at domestic companies<sup>5</sup>.

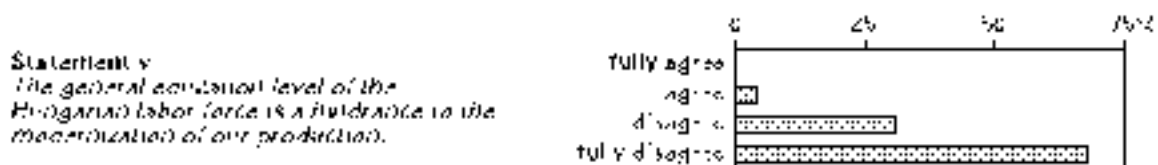


Likewise we asked the managers for their response to the statement: '*Hungarian employees are fast learners and adapt to the new situation in their country very quickly.*' Here too, we found that the

vast majority (83%) agree (statement iv). What is striking is the high percentage of managers that fully agree (32%).



Considering the above, it might not come as a surprise that all but two of the managers are not of the opinion that the general education level of Hungarian employees is a hindrance to the modernization of production (statement v). The responses of the managers were even more convincing, since 66% fully disagree.



So we can conclude that the education level of the Hungarian labor force, in combination with a willingness and ability to learn are characteristics that are highly appreciated by foreign managers. The following quotation seems to illustrate this point<sup>6</sup>: 'Labor costs will rise over time as Hungary's economy modernizes, but that doesn't trouble me. The quality and productivity here is such that we can compete with plants anywhere in the world. (...) With many countries we have to educate the workers to a certain level, but the Hungarians are well educated, which is a credit to their education system.'

### 6.3.2 Foreign direct investment and the demand for skilled labor

In chapter 4 we looked at the motives for investment. An important motivation for investing in Hungary is low production costs (notably low labor costs), especially for mechanical or electrical engineering companies. However, a closer look reveals that these low labor costs do not stand on their own: For most companies in the engineering sectors, the 'optimum of labor costs' appeared to be the main motive for investment. They are looking for a combination of low labor costs and a relatively high level of education, especially in the technical professions. Therefore, it is probably no coincidence that the engineering sectors are highly favored by foreign investment.

In this section our aim is to see whether this finding is borne out by the share of skilled and unskilled labor in the companies. Companies were asked for the proportion of unskilled and skilled workers in production, and the change in numbers over time. An overall share of 38% unskilled workers at entry, indicates that it was not (primarily) the low labor costs that foreign companies were interested in (table 6.3). In companies that invested in Hungary mainly because of the low labor costs, the share of unskilled workers is the lowest (29%). Especially in mechanical engineering the share of unskilled workers is low. This sector is generally characterized by labor-intensive production in small batches or single piece production, where handwork is important. Moreover, on average, companies showed a

decrease in the share of unskilled workers. Therefore we conclude that, based on our survey, the emergence of Hungary as a center for routinized, unskilled work, is not very likely.

*Table 6.3* Percentage of unskilled workers in foreign companies, by sector and motive of investment

	Mechanical engineering		Electrical engineering		Food & beverages		Total	
	Entry	Present	Entry	Present	Entry	Present	Entry	Present
Hungarian market	57	34	26	20	55	38	46	32
Production costs	11	8	45	45	50	70	29	29
Strategic reasons	21	27	85	70	41	21	36	31
Total	22	17	40	36	53	38	38	31

A further analysis of the differences in the share of unskilled employees by sector shows more remarkable differences. However, the figures in table 6.3 have to be interpreted with care, because of the small number of companies in each cell, and the large differences between individual companies.

The smallest share of unskilled workers is found in mechanical engineering. A relatively high share of skilled manual work is inherent in practically all the activities in this sector, as we already found in the previous chapter on technological modernization. This characteristic was found to be also responsible for the limited investments in more modern machinery in privatized companies in this sector, since investment costs do not outweigh benefits in terms of production costs.

Within the automobile industry large differences can be found, depending on the type of activity that is set up in Hungary. SUZUKI, for instance, employs solely unskilled people for the assembly of the Swift model. Two other two car manufacturers in our sample, OPEL and AUDI, largely depend on skilled workers. At OPEL, that assembles cars for the local market, but that is mainly involved in the production of engines, nearly all shop-floor workers are skilled. AUDI manufactures engines exclusively, and employs only skilled workers.

In electrical engineering, the share of unskilled workers is much higher. Because of the high savings in automation, companies are forced to automate production to a large extent, in order to secure or improve their competitiveness. Therefore, this sector is characterized by more unskilled jobs on average. Nevertheless the differences are high, because of the different types of activities within this sector. For the assembly of electronic appliances or computer parts (like PHILIPS CAR SYSTEMS, TEMIC TELEFUNKEN and IBM), unskilled labor is needed to a large extent. On the other hand, companies which are involved in the production of technological equipment for industrial application for instance, largely depend on skilled work.

In the food and beverage sector we find the most unskilled work. However, this is not caused by their search for low-cost unskilled labor, since we established in chapter 4 that market considerations are dominant in investing in Hungary. Nevertheless, the share of unskilled work has decreased to a large extent. This sector is increasingly dominated by computer technology, which requires skilled labor. UNILEVER in Budapest for instance no

longer hires any unskilled workers. The unskilled workers in this sector are mainly to be found in packaging.

*Table 6.4* Percentage of unskilled labor in foreign and domestic companies and changes in this percentage between time of foundation and present

	Foreign greenfield	Foreign privatized	Domestic privatized
Foundation	39	38	34
Present	35	29	25
	Change <sup>a</sup>	Change	Change
Decrease	25	52	62
Increase	30	7	-
Equal	45	41	38

<sup>a</sup> Percentage of companies in which we found a decrease, increase, or an equal share of unskilled workers between foundation and present.

A breakdown by different entry modes does not reveal large differences (table 6.4). Nor did we find large differences between foreign and domestic companies, although we found that the share of unskilled workers in greenfields is 10 percentage points higher than in domestic companies. For all three types of companies we found that the share of unskilled workers is decreasing. However, these aggregate figures mask the large differences that were found in individual companies, as indicated under 'change' in table 6.4. For instance some greenfield companies had a high share of unskilled workers in the first year after foundation. By training employees and by encouraging them to educate themselves, the number of unskilled workers decreased. An example is AUER, an Austrian chocolate manufacturer in Budapest, where the share of unskilled workers in 7 years has decreased from 80% to 20%. At other greenfield companies, the number of unskilled workers in the first year is very low, since for the start-up of their activities mainly skilled people are needed. Once production starts to grow, more unskilled people are hired. The Gödöllő-based (near Budapest) greenfield plant of UNITED TECHNOLOGIES for instance started with one employee with a high level of education for every two low or unskilled workers. Six years after the establishment of the company, the situation has changed to one skilled for every 23 unskilled. This practice, which can be found in more greenfield companies, explains the relatively high number of greenfield companies that reported an increase in the share of unskilled employees.

Nevertheless, the number of companies which reported an equal or diminishing share of unskilled workers is dominant. This counts even more for foreign privatized companies, where the number of unskilled workers has decreased in more than half the companies under survey. The decrease in the number of unskilled workers is due to several reasons. The most important reasons are training and in-house education (see section 6.3.4), and the dismissal of mainly unskilled employees because of excess employment (in privatized companies). One other factor might be that the activities of foreign companies change over time. INDA HUNGARIA, for instance, started manufacturing simple products. But in the course of time, they started producing more and more complicated products, which required more skilled workers. Now they have reached the limits of what is possible in Hungary at this point in time. They want to produce in smaller batches, but they have

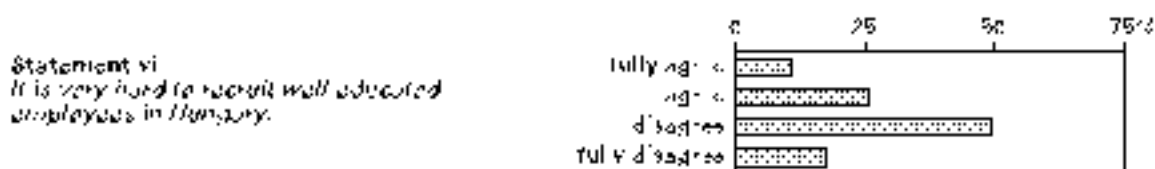
reached the point were workers' lack of experience and inability to work on their own constitute stumbling blocks.

### 6.3.3 Vacancies which are difficult to fill

Technological and organizational modernization lead to a different demand for labor in a qualitative respect. One might expect that the modernization process in foreign companies takes place at a faster pace than what the labor market (including the educational system) can cope with. Therefore, one of the indicators for a shift in the demand for labor (and the ongoing modernization process) is in vacancies for which companies have problems filling. In this respect we studied three related issues. First, we asked the companies whether they had vacancies for which they had difficulty filling and the kind of jobs this concerned. Second, we made an inventory of how companies cope with this problem. Finally, we asked the companies for their assessment of developments in the future.

#### FOREIGN COMPANIES

The contribution of foreign companies to the technological modernization is obvious. Therefore, one can expect them to have problems in filling jobs with certain requirements. Indeed, more than three-quarters of the foreign companies in our survey indicated that they had some problems in filling vacancies. However, only 35% of the managers indicated that 'It is very hard to recruit well-educated employees in Hungary' (statement vi). This low score might have to do with the ambiguity in the statement that refers to both the difficulty of recruiting people and the education of workers. We saw above that managers are very positive about the latter.



In describing vacancies that are hard to fill, we distinguish between vacancies involving skilled manual work and management positions. Contrary to what we expected, foreign companies did not have that many problems with vacancies involving skilled manual work. Indeed, as a result of investments in new equipment, the requirements for workers' qualifications have changed, in some cases even dramatically, but the high base level of education made it easy to train the current or newly hired employees in the skills required (see also statements ii and v above).

Therefore, among the skilled manual workforce, there are long-standing vacancies for a limited number of jobs. In the food and beverage sector, there was no shortage of manual workers. Some companies in the mechanical engineering sector reported that they had problems in finding good welders. Welding has not been a very popular profession in Hungary after the change of system. Besides, the good welders tend to leave for much better-paid jobs in Germany. As a result, wages for welders in Hungary are relatively high. Perhaps a bigger problem is the shortage of NC (numerical control) and CNC (computer numerical control) operators in the engineering sectors. Many companies said they had



major problems in finding employees with these qualifications. The main cause seems to be the educational system in Hungary. CNC machines are rather expensive. Vocational schools do not have the financial means to buy these machines because of the ongoing austerity measures imposed by the government on education. In some areas, like Székesfehérvár, the rising demand among foreign companies for NC/CNC operators is another factor in the shortage of these skills.

Better pay or overtime appeared to be short-term solutions to this problem. But some companies are working on more structural solutions. In Székesfehérvár, for instance, where CNC operators are scarce, some companies, including FISHER-ROSEMOUNT and VIDEOTON, have agreed not to compete with each other in hiring CNC operators. Instead, they cooperate. These firms give financial support to the vocational schools. After their regular education, the graduates get a three-month training as a CNC operator. FISHER-ROSEMOUNT, which is expanding its activities in the region at a rapid pace, draws more than half of its new employees from these training programs.

During the interviews, it appeared that there was a shortage of personnel in management positions. This counts for both greenfield and privatized companies, and for all three sectors in our study. The shortages mentioned by numerous companies were in: human resource management (HRM), logistics, (middle-level) production management, sales and marketing, finance, project management, and quality assurance. All shortages in the white-collar positions can be traced to the absence of such professions during the era of central planning, the slow adjustment of the educational system, and the fact that people still have difficulty taking responsibility in their work. An additional factor causing problems in filling the abovementioned vacancies lies in the requirement of English or German for most jobs in management positions (see section 6.4.3).

These shortages in management positions differ across the regions selected for study. In this respect, the difference between Budapest and the northwest is striking. There even appears to be a strong contrast between Budapest and the larger towns in northwest Hungary like Győr (Győr-Moson-Sopron), Székesfehérvár (Fejér) or Szombathely (Vas). But especially in the smaller, more remote towns and villages, companies had difficulty finding qualified staff. The problem becomes more serious for these companies, since it involves finding applicants who are willing to move from Budapest to the countryside. For instance, PHILIPS CAR AUDIO in Sárbogárd, a small town some 30 kilometers south of Székesfehérvár has run into major problems in employing HRM and logistics managers. The same goes for OPEL in Szentgotthárd (Vas), which has problems hiring managers in financial positions. On top of the general problem of scarcity on the labor market for people with the required skills, these companies have to cope with the fact that many are not willing to leave Budapest, where the largest pool of professionals for higher management functions are to be found. The problem is aggravated by the fact that there are enough jobs in Budapest itself. Therefore, they are not willing to move or to commute to the countryside, despite the fact that both are well-known multinationals, which Hungarians are normally eager to work for.

In contrast there was no shortage of personnel for certain types of jobs. In this respect, IT (information technology) specialists were mentioned several times<sup>7</sup>. Recruiting engineers for technical positions is not much of a problem either. In general we may conclude that people with good technical skills are abundant in Hungary. The comparative advantage this offers for Hungary is an important factor in the attractiveness of the engineering sector for FDI. This is also the reason why managers indicated that the introduction of new

technology in their companies was not much of a problem in general and that it did not lead to vacancies which are hard to fill. Because people have a solid basic education, it is fairly easy to get them acquainted with new technologies.

As problems need to be solved, it is interesting to look at how foreign companies cope with these hard-to-fill vacancies. More than half of the companies indicated that training or in-house education is a way of coping with this problem. For a more detailed description of training we refer to the next section that deals with this subject exclusively. Better pay is the second most important option, mentioned by every fifth company. This option, however, is only valid when it is a matter of scarcity in a particular profession on the labor market and not total absence. Nevertheless, this option was regarded an unsuitable solution by some companies. For smaller companies it is much too expensive. Although most foreign firms pay higher salaries than domestic companies, the excessive salaries we are talking about here are too high for them. Moreover, since most smaller companies are not as attractive an employer as the big multinationals, higher remuneration is not a solution. But even multinational companies are not eager to pay high salaries unconditionally. For instance, at UNITED TECHNOLOGIES AUTOMOTIVE, the starting salaries for people in key positions are not extremely high. But if someone has proved to be the right person in the right place, the reward is double the salary in half a year, an incentive to stay with the company.

Another option, mentioned by every fifth company as well, is to improve or change the recruitment methods used. In particular, this means obtaining the services of a recruitment agency or a headhunter. Only a limited number of companies reported that they have strengthened their ties with vocational schools and universities. One strategy in this respect is to get scholars acquainted with the company even before they graduate. Employing expatriates is not a frequently mentioned option either. It is only seen as a final solution, since the costs are high and it can not be more than a temporary solution to the problem. Other solutions mentioned, by only one or two companies, include for instance overtime and hiring temporary personnel.

#### *DOMESTIC COMPANIES*

Almost all the domestic companies in our survey indicated that they have vacancies which are difficult to fill. Therefore, domestic companies appeared to have even more problems than foreign companies. As opposed to foreign companies, most jobs that are difficult to fill are among the skilled manual workers. The vacancies reported are partly similar to the ones we found for foreign companies. Welders and CNC operators, are mentioned several times.

Contrary to foreign companies, domestic companies did not have problems in finding employees for HRM, logistics, sales, marketing, and quality assurance. This is another indication which concurs with our earlier findings that domestic companies are not very much involved in modernizing their plants. After all, these professions are all relatively new in Hungary, and the need for these professions might therefore be seen as an indicator of the modernization of the corporate organization and the way of doing business. Nevertheless, a few companies reported problems in finding (middle-level) production managers and people for financial functions.

In coping with hard-to-fill vacancies, domestic companies opt for more or less similar solutions as we found above when we dealt with foreign companies. In-house education or on-the-job training is the most common solution. One-third of the companies mentioned this. Better pay, contacts with schools and other search mechanisms are important as well.

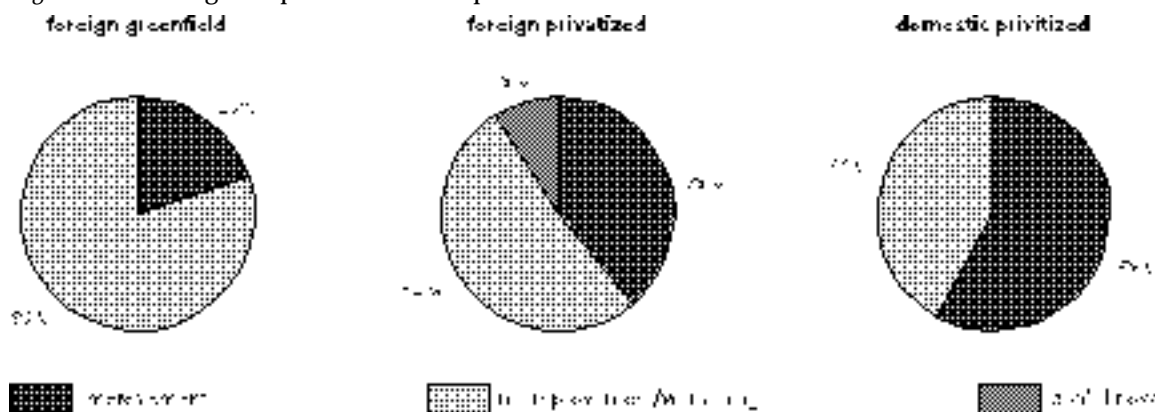
With respect to the other search mechanisms, however, we have to add that in contrast to FDI, this does not refer to roping in recruitment agencies and headhunters. In conclusion we can state that in the search for good employees, competition with foreign companies seems to be an important factor. We will deal with this competition in more detail in section 6.4.1.

*FUTURE PROJECTIONS*

The managers at the foreign companies in our survey appeared to be very pessimistic about an improvement in the situation surrounding vacancies which are hard to fill. Managers at foreign greenfield companies are more pessimistic than managers at foreign privatized companies (figure 6.1). No conclusive explanation was found for this difference. It might have to do with the kind of activities companies are involved in – whereby the expertise present in Hungary is more suited to the need of privatized companies – or with the better access to and knowledge about the Hungarian labor market which privatized companies have.

Domestic companies are the least pessimistic. In fact, 58% of the companies that indicated problems with filling certain vacancies, expect the situation to improve in the near future. This is remarkable, since, apart from the same problems as in foreign companies, they have to compete with these foreign companies for good, skilled employees. The competition is very uneven since foreign companies are able to pay higher salaries and have a better image as employer. A possible reason for their optimism, at least for the 58% of the companies that expect vacancy problems to diminish, might be the fact that they have not really started to modernize their plants' production and their way of doing business. Therefore, their current demand for labor is hardly different from pre-1989 days.

Figure 6.1 Managers' opinions on an improvement in the hard-to-fill vacancies in the near future<sup>a</sup>



<sup>a</sup> Foreign greenfield N=15; foreign privatized N=23; domestic privatized N=12.

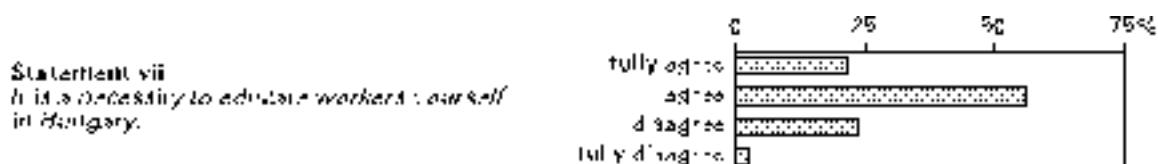
One of the points brought up in support of a positive future outlook (both foreign and domestic companies) lies in the observation that changes in the education system are beginning to pay off because of the growing number of young people with a good education. The same goes for in-house training, not only in their own company, but also in other (foreign) companies. Besides, more and more people are learning English and German in school, which is an important issue for many foreign investors. This not only

concerns people in key positions, but also shop-floor workers in some companies since manuals are often not in Hungarian.

Points brought up which indicated a pessimistic outlook are more diverse. Several managers pointed at the lack of language skills and the lack of experience. They expect that these will improve only very slowly. Others referred to the geographical aspect. But taking into account that this refers to both companies located in Budapest and in the northwest, this might not be valid argument. Or perhaps it is, but for different reasons. Some companies located in Budapest or its surroundings reported that the vast and increasing number of foreign companies in the capital city, puts a lot of pressure on the labor market. This would especially have an effect on the smaller firms. Besides, since most foreign companies are looking for similar workers' qualifications, companies' problems with certain vacancies would not decrease in the short term. On the other hand, some companies in the northwest are pessimistic about the future since they do not expect people with management capabilities who are mainly found in Budapest to move to the countryside. For some companies close to the Austrian border, an additional problem lies in the difference in the salary level with Austria.

#### 6.3.4 *In-house education and training*

In-house training of employees has been already mentioned several times in this study. Obviously, there is a close relation with technological modernization and corporate organizational changes. New technologies require new, or at least different, skills. Besides, as a result of organizational modernization, companies require skills that were absent during the old times (like logistics, sales) or largely underdeveloped (like the ability to work in flexible teams). Moreover, along with the economic and political changes, a change in work ethics and mentality is required. In bringing the 'new demand' and the 'current supply' together, in-house education and training might be a valid instrument. A first indication of these frictions on the labor market is provided by the managers' responses to the necessity to educate workers themselves (statement vii). Three-quarters of the managers agree<sup>8</sup>.



Moreover, respondents were asked whether and how they train their employees. They were also asked for their reasons for doing this. From the 50 foreign companies in our sample, 46 train their employees. From the interviews we got the impression that the big multinational companies put most effort into training their employees and spend the largest amount of money on this. As such this is a positive finding, as it might be an exponent of the modernization process going on. Moreover, it might be an indication of the foreign companies' need for skilled labor, and not for unskilled labor and may therefore strengthen our earlier conclusion that foreign companies will not leave Hungary for other, cheaper countries as labor costs rise. This is especially relevant when considering the sunk character of the costs of training. When a company closes a plant, or moves a certain production

facility to another low-cost country for instance Romania, there is no way these sunk costs can be retrieved. Especially with respect to FDI in Hungary, as one of the more expensive countries in CEE in terms of labor costs, this is a relevant issue.

When asking for the motives for training employees, a broad range of motives were forwarded which could be classified in three categories.

1. *Training employees to operate (new) machines, or for the production of new or firm-specific products.* This kind of training refers to two sets of training. First, training for (new) employees to work with the new, more modern, machines. Second, training to get employees acquainted with firm-specific knowledge and products. Both have one thing in common. There is a direct relation to the investment in Hungary and technological modernization in the first years of a company's presence in Hungary. Foreign companies have done much to modernize production equipment, both when investing in privatization and greenfield operations, as shown in chapter 5. As a result, at most companies, additional training was necessary to get employees acquainted with handling the new equipment. However, the high education level of the employees made it easy to train them. Therefore, training was only given for special skills that were needed to operate the new machines. Most training was done by the company itself.
2. *Training that is necessary to increase the competitiveness of the firm.* Training implemented to increase the competitiveness of the firm consists of several sorts of training. For instance, training to keep up with new (technological) developments<sup>9</sup>, to prepare employees for the ISO quality standards, to increase quality and efficiency, to motivate people and increase employees' commitment to the company or to improve their flexibility. Such training is interrelated and shares the same aim: to increase the competitiveness of the firm. In this regard, the companies do not differ from their Western counterparts, but it is in fact a major change compared to the situation before 1989.

We found that almost all of the companies are engaged in this kind of training. Only a few companies do not train their employees in this way. Those that do not are mainly privatized companies that have moved labor-intensive production lines to Hungary, producing for and supplying only to the parent company. These investments tend to result from former contacts in the pre-1989 period. In these companies, no investments of importance have been made after the (partial) acquisition.

3. *Training employees in professions which experience scarcity on the labor market.* As we found in the previous section, foreign companies in Hungary have to cope with labor shortages with regard to certain qualifications. One way of dealing with this problem is to take the task of training employees in these skills upon themselves. Half the companies with hard-to-fill vacancies are engaged in this kind of training. They can either train members of the staff, or hire someone new who will then be trained. The latter solution is found mainly among the larger foreign companies. The practice can be seen as a positive contribution of foreign companies to the ongoing economic restructuring process. Their contribution is greatest when it concerns training for people in key positions, like general company management, human resource management, logistics, quality control, sales, and marketing.

This type of training also refers to training which is necessary because the company is the only one of its kind in Hungary. Such is the case with some greenfield investments which set up types of activities that were up till then not present in Hungary. One can

for instance think of the investments in the automotive industry<sup>10</sup> or the computer industry. This also refers to foreign companies that acquired an SOE with a national monopoly. This way, the state monopoly is transferred into a privately-owned monopoly. Foreign investors have been keen on buying these state monopolies. Since there are no other companies involved in the same kind of activities, employees have to be trained by the company in question.

There is one major disadvantage of training employees in skills which are characterized by a shortage on the labor market, however. Once they are fully trained, there is a good chance they will leave for another company. Headhunters in Hungary know exactly where to find the right people. Some of them get a new job offer almost every week, according to one of the interviewees. Some Hungarian employees are very immobile geographically (see below in section 6.6). Others turn out to be real job hoppers. This is especially true for people with skills that are in acute shortage. Those with the required skills get opportunities in Hungary, that others in the West can only dream of. In search of the best salary and the best conditions, they change jobs almost overnight. In this way, the company loses a great deal of knowledge. It becomes more difficult to keep investing in someone. The problem is that companies do not really have a choice. The alternatives – not being able to fill a slot or employing expatriates – are either not acceptable or too expensive.

#### METHODS OF TRAINING

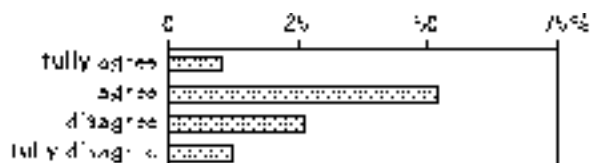
A large number of the foreign companies do put a great deal of effort in training their employees. This can be either in-house or external courses, or training on the job, either in Hungary or in some cases abroad.

On-the-job training is mainly addressed to the types of training mentioned under categories (1) and (3) with respect to manual workers. Mostly this involves a practical training stint at the Hungarian plant. Sometimes on-the-job training is abroad at the foreign parent company. Especially in the early years of investment, training abroad was common. Sometimes training was conducted for foremen or shift leaders, who later passed on their knowledge to the rest of the workers. Sometimes, all the workers are sent abroad for training.

In-house and external courses are an important way of training employees as well. As opposed to on-the-job training, that is directly linked to working skills, courses cover a wide range of areas that are not always directly related to skills needed to carry out a profession. Examples are language courses, that are sometimes compulsory and sometimes voluntary, courses necessary for the ISO quality standard, and in relation to this, courses in hygiene, security, environment and health etc.

Several companies reported that they give team training, so as to improve teamwork and therefore productivity and profitability. These courses are aimed at improving the flexibility of the workers (for instance by training them to become multi-skilled) and to improve cooperation. Hungarian (or more general CEE) employees have difficulty in cooperating at work, something which emerged from foreign managers' responses to a statement (statement viii). A small majority of the managers (62%) agreed with this statement<sup>11</sup>.

Statement viii  
Hungarian employees still have difficulties  
with cooperation in their work.



External courses are also used by some companies to educate potential employees before they start working at the company. In the preceding section we mentioned the example of FISHER-ROSEMOUNT, that offers scholars an additional three-month post-graduate course, before they begin working at the company. The same goes for GE TUNGSRAM that organizes 2-year post-graduate courses at the technical university. Graduates are selected by TUNGSRAM, as are the courses. After 2 years, graduates are offered a job at TUNGSRAM, though they are not obliged to take it. The reason they offer these post-graduate courses lies in the fact that they are the only lamp manufacturer in Hungary and because there are hardly any electrical engineering courses that are relevant for the company in the regular courses offered by the universities.

In chapter 2, we referred to Swaan (1995) who pointed out that a lot of education in foreign companies is geared to matters that employees are already acquainted with. This is because companies perceive workers' low level of skills as a lack of codified knowledge, whereas their biggest weakness is a lack of tacit knowledge. What we did find in our survey, however, was a very high opinion of the education level of Hungarian personnel. This is also supported by the outcomes on some statements we already presented above. Generally foreign managers think that the labor force is well educated, that employees are eager to learn, and that they adapt quickly to the new situation (statements ii, iii, iv). This suggests that foreign companies have correctly assessed the skill level of their employees and had not been training them for nothing. However, it cannot be excluded that some training may have been redundant. Understandably, the foreigners may not have had any point of reference or insight into the real skills of their employees, especially in the early years of transition.

Our survey showed evidence for our suggestion in chapter 2, that foreign investments in Hungary play a major role in transmitting tacit knowledge. Foreign companies generally spend a great deal of time and effort in changing their employees' way of thinking and their working methods. It should be noted that some managers have found more effective ways to do this than others.

## **6.4 Recruitment and selection**

Recruitment and selection of new employees forms an interesting object of study in transition economies. For one, employees' value in terms of output and value added has become more important with the transition from a socialist to a market economy. Therefore it has become of utmost importance to hire the best employees. Besides, recruitment and selection are of special interest as a research topic in transition economies, since it is a rather new phenomenon.

In this section we will discuss three related items. Section 6.4.1 discusses the labor market status of the new recruits. Section 6.4.2 deals with the way in which companies recruit new employees. Finally 6.4.3 examines the selection criteria used in hiring new personnel.

### *6.4.1 Labor market status*

In our survey we asked companies about the labor market status of the new employees they hired in 1996. It is interesting to see what the preferences of the foreign (and domestic) companies are, and thereby, which segment of the labor market they tap the most. We selected 5 categories beforehand (table 6.5). Within the working population we made a distinction between people working at local companies and people working at foreign companies. Besides these two categories, we selected recent graduates, formerly unemployed and re-entrants on the labor market. The last category includes people who finished their military service or housewives who start to work again.

In 1996, the foreign companies in our sample hired close to 4,900 people (table 6.5: 3,916 + 968). Not surprising, the lion's share is to be found among the greenfield companies. However, not all companies could give a detailed breakdown of the labor market status of newly hired employees. The second total in table 6.7 refers to the companies that could give this information. The large difference between the two figures for the greenfield companies is due to the lack of knowledge of some major employers about the activities of their new employees prior to their appointment<sup>12</sup>.

Foreign companies prefer to hire school-leavers and people that worked at domestic companies. However, there is a difference between greenfield and privatized companies. Greenfield companies generally prefer to employ people who used to work at domestic Hungarian companies (71%), as is, although to a lesser extent, also the case with foreign privatized companies (41%). The latter tend to employ school-leavers to a large extent as well (41%). The outcome of the interviews did not provide an explanation for this difference. A possible explanation lies in the fact that privatized companies do have in-house experience, as opposed to greenfield investments. Therefore, they can afford to hire school-leavers, who have no experience under the socialist system and are cheaper to employ. Greenfield companies, on the other hand, do not have this in-house experience. For those companies, it is more important to gain this experience, by employing people who have been working at domestic companies for a number of years.

Table 6.5 The labor market status of the employees who were hired in 1996

	Foreign greenfield		Foreign privatized		Domestic privatized	
	Number	% <sup>a</sup>	Number	% <sup>a</sup>	Number	% <sup>a</sup>
School-leavers	70	11.9	644	41.4	51	18.3
Other local companies	1,076	70.5	232	40.9	307	57.5
Other foreign companies	42	4.3	24	6.7	6	1.5
Formerly unemployed	77	12.9	40	10.6	56	21.0
Re-entrants labor market	4	0.4	3	0.3	50	1.7
Total <sup>b</sup>	1,269	100.0	943	100.0	470	100.0
Total <sup>c</sup>	3,916		968		490	
Number of companies	19		29		13	
Average per company	206		33		38	

<sup>a</sup> Unweighted average of the percentage in each company for each of the categories. Therefore, the percentages do not refer to the numbers in the columns on the left of the percentage columns.

<sup>b</sup> Total number of newly hired employees in 1996 at companies that could give a detailed breakdown of the labor market status. Foreign greenfield: N=16; foreign privatized: N=28; domestic privatized: N=12.



<sup>c</sup> Total number of newly hired employees in 1996 at companies that could indicate how many new people they hired last year.

It is striking that, despite the relatively high unemployment figure in Hungary, foreign companies in our survey recruited only a limited number of previously unemployed people. Two factors are relevant in this respect. First, unemployment levels in most selected regions for our survey are relatively low. This is especially true for Budapest, Székesfehérvár and the towns near the Austrian border, like Sopron, Győr and Szombathely. Second, foreign companies are not very eager to employ previously unemployed people. One could argue that they are seen as the 'losers of the transition'. So, foreign companies do not contribute to a reduction in unemployment figures *directly*. However, this can, though to a lesser extent, also be argued for domestic companies, that tend to employ only slightly more unemployed persons than foreign companies.

Notwithstanding, these findings show once more the impact of foreign companies on the Hungarian labor market. By offering a higher salary and better fringe benefits, they are able to get the best employees. Besides, they have the advantage of a better image as employers, where there are more opportunities for career advancement. One could speak of a brain drain from the state and domestic private sector to foreign companies. In line with this we asked the managers at domestic companies whether there is, in their view, a strong competition with foreign companies for the best employees. From the 13 companies, 10 indicated this to be the case. Some of them indicated that because of the big difference in salary, there is actually no competition. If a foreign company wants to hire someone, they can. In areas where relatively few foreign companies are located, the competition is not that high, which is an indication of the rigidity of the labor market in Hungary, a topic to be discussed in more detail in section 6.6. Competition might also explain why domestic companies tend to employ more formerly unemployed workers than foreign companies.

#### 6.4.2 Recruitment

In the search for new employees, advertising in a newspaper is most commonly used by both foreign and domestic companies (table 6.6). One could conclude that it is also a very effective way to recruit new staff, a situation which does not differ much from Western countries. However, the growing pressure on the labor market in certain regions forces companies to look for more effective ways to find the people they need. At ERICSSON (Budapest) for example, an advertisement in the newspaper has always been the most effective way to find suitable employees. But as this became less effective recently, hiring the services of a recruitment agency became necessary. This might be seen as an indication of the tough competition between (foreign) firms for the best employees in the capital city. Actually, a lot of companies use recruitment agencies or headhunters, although these are not one of the two most important means in most cases, since their services are needed only/mainly for the recruitment of middle and high-level management or people with specific skills. Roping in a recruitment agency is much less important in domestic companies. Apart from the fact that this is a rather new and unknown phenomenon in Hungary, it is also rather expensive. Besides, because of limited modernization and related lower demand for 'new' – and as we have seen also scarce – management positions, there might be less need for the services of recruitment agencies.

Maintaining contacts with (vocational) schools in order to recruit new employees is of some importance as well. This can be found mainly within some subsidiaries of larger foreign multinationals. We already mentioned the examples of FISHER-ROSEMOUNT and GE TUNGSRAM. The same goes for instance for the Győr-based AUDI subsidiary, that has good contacts with local vocational schools. They offer AUDI engines to a vocational school for practical training. This way, graduates gain some basic knowledge of AUDI engines and familiarity may foster some affinity with the company.

Table 6.6 Means of recruitment of new employees

	Foreign companies (abs.)		Domestic privatized (abs.)	
	Most important	Second most important	Most important	Second most important
Recruitment agency	2	7	1	1
Labor office	4	3	1	4
Advertisement	26	18	6	2
(vocational training) Schools	6	11	1	2
In a roundabout way	8	4	4	1
Government job creation schemes	-	-	-	-
Other	3	-	-	-
Total	49	43	13	10

Recruitment in a roundabout way is important especially in some smaller plants of foreign investors in remote areas. Moreover, it is the second most important recruitment strategy in domestic companies.

The labor office is not an important recruitment source for foreign companies, which is also reflected in the limited share of formerly unemployed among the new recruits as found above (see table 6.5). Job transition patterns are causing a growing pool of long-term unemployed as is also indicated by Dorenbos (1999). Allison and Ringold (1996) state that individuals are more likely to be hired from the public sector into the private sector, or between firms, than from the pool of unemployed, or right out of school<sup>13</sup>. The increase in duration of unemployment represents the most serious labor market development in the transition, not only in Hungary, but in all transition economies (Allison & Ringold, 1996)<sup>14</sup>.

#### 6.4.3 Selection criteria

In the second chapter, it was reported that case study evidence suggested that foreign firms select personnel less for their education and experience, than for their mentality and attitude. Our own empirical findings are not entirely in line with this. We found that, overall, education, experience, and attitude/mentality are of equal importance in selecting shop-floor employees (table 6.7). This indicates that attitude/mentality is in fact an important selection criterion at foreign companies, but not for all kinds of jobs and all companies.

First, attitude/mentality is the prime selection criterion for (foreign) firms that consider team spirit and the ability of teamwork key values for their organizations. As table 6.7 shows, domestic companies do not share this view, as attitude/mentality did not surface as

the most important selection criterion in any company. The focus on these skills might be strengthened by the perception that the ability to work in a team is more or less a problem for Hungarian employees (see statement viii), although it is very dangerous to generalize.

Second, mentality was the main selection criterion for unskilled jobs. In companies that employ mainly skilled workers, mentality appeared the main selection criterion only in a limited number of cases. For skilled manual workers, experience and education are generally the most important selection criteria. Sometimes experienced people are wanted, but since it is hard to find qualified people anyway, those who are qualified *and* experienced are even much harder to find. For companies that are the only ones engaged in a specific activity in Hungary, it is not possible by definition to recruit experienced people. This holds for some greenfield plants and for privatized companies that originated from state monopolies for instance GE TUNGSRAM.

Table 6.7 Selection criteria for hiring new employees on the shop-floor

	Foreign companies			Domestic companies		
	Most important	Second most important	Third most important	Most important	Second most important	Third most important
Education	17	14	7	6	6	-
Experience	15	12	8	7	3	1
Attitude	16	15	11	-	3	3
Other	2	4	-	-	-	1
Total	50	45	26	13	12	5

Moreover, our survey showed that the ability to speak English or German is still an important factor for most administrative or (middle) management positions. People working at that level have to be able to communicate with the foreign management or the parent company. But there are also foreign managers who regret selection by language skills. One such example is Robin Muir from the Győr-based . He now realizes that it is illogical to select people on their language skills and then train them in the skills needed for the job. The opposite is in fact more logical. Anyway, because of the size of the country and the need to integrate in the world economy, foreign language skills will continue to be important in Hungary.

## 6.5 Labor productivity

As already noted in the first two chapters of this study, the countries of CEE, including Hungary, were characterized by their low levels of productivity. After the 1989 change of system, productivity levels were expected to rise significantly. There was an absolute need for foreign and domestic privatized companies to increase labor productivity, in order to survive in the new economic environment. Thus, there is a strong relation between productivity and the modernization process, as we will see below.

The role of foreign companies might be an important one. Not only in a direct way, but also indirectly, through the demonstration effect on domestic suppliers and subcontractors and by forcing indigenous competitors to increase labor productivity. But obviously as for

productivity increase inside their own plants (direct), we have to make a distinction between privatized and greenfield companies. As we have come across several times already in this study, the difference lies in the fact that where privatized companies have to cope with the problems of the legacy of the socialist system directly, greenfield companies do not. Therefore, we expected to find higher productivity increases in foreign privatized companies than in greenfield plants. Due to the limited progress in the modernization process, as chapters 5 and 6 show, we expected productivity increase to be lower in domestic privatized companies, at least compared to foreign privatized companies.

We asked the managers in our survey to indicate the changes in productivity levels between time of foundation and present in general rather than in absolute terms (table 6.8). This gave us the opportunity to compare our findings for separate companies, and between the three different types of companies in this study, especially since all companies started operating in different years.

*Table 6.8* Change in labor productivity between foundation and present (%)

	Foreign greenfield (N=20)	Foreign privatized (N=29)	Domestic privatized (N=13)
Increased significantly	60.0	69.0	38.5
Increased moderately	40.0	24.1	46.2
Equal	-	6.9	7.7
Decreased moderately	-	-	7.7
Total	100.0	100.0	100.0

We found a major productivity increase in both privatized and greenfield companies (table 6.8). In close to 70% of the privatized companies productivity increased significantly between the time of entry and present, compared to 60% of the greenfield companies. A moderate increase was found in a quarter of the privatized companies and 40% of the greenfields. Another two privatized companies (7%) indicated that productivity has not changed. Productivity increase in domestic privatized companies is lower than in foreign companies (both privatized and greenfield). Nevertheless, in close to 40% of the domestic companies productivity increased significantly.

For both privatized and greenfield companies, different factors influence productivity increase. Productivity increase in greenfield companies is closely related to start-up problems. There tends to be a number of start-up problems in Hungary<sup>15</sup> (and CEE) because of the rapidly changing economic environment, the cautious investment strategy of foreign companies<sup>16</sup>, and the fact that greenfields too have to cope with problems related with the old socialist system, though more indirectly (for instance the mentality of employees). As time goes by, and workers get more acquainted with machines, gain more experience and education, productivity will increase (also referred to as economies of learning). A good example of start-up problems in greenfield plants is exemplified by the IBM-plant in Székesfehérvár. The company expects to have improved output from 4.1 million hard disk drives at the end of 1997 to 11 million in 1999 without increasing the number of employees and with similar equipment.

For privatized companies, the low productivity level at time of entry, due to the socialist legacy, made it not only possible but also necessary to increase productivity dramatically.

After all, they had to contend with old practices, excess employment, obsolete equipment and the like.

The broad range of reasons the managers offered to explain labor productivity growth in their companies can be classified into four groups. Although they mainly refer to privatized companies, they are to some extent also applicable to greenfield companies.

1. *Better production equipment.* The use of better equipment was mentioned by the managers as one of the important factors behind productivity increase. This appeared all the more valid in the case of privatized companies, which concurs the results mentioned in chapter 5: Investments by way of a joint venture or acquisition of a state company started on average with a large share of obsolete equipment. Investments in new technology can lead to high improvements in productivity. This phenomenon also applies to greenfield projects, although to a lesser extent.

We have already mentioned that investments in automation are not always profitable in Hungary, since the accompanying costs do not match the benefits, as labor costs are still low. But of course, in companies where production is automated, this does have a positive effect on labor productivity.

2. *Training of employees.* The training of employees, which is a normal practice in most companies (see section 6.3.4), has a positive effect on productivity. Not only directly (better skills), but also indirectly, since training has a positive effect on workers' motivation and involvement with their work. The requirements expected of employees have changed and they have to adjust to these requirements. Training is an important element in accomplishing this change. The change towards more Western work ethics, the idea of making profit, and the change in attitude are influencing productivity in a positive way. Moreover, this results in a more problem-solving instead of problem-avoiding attitude. Furthermore, due to training, employees are able to make small repairs to machines, enabling a more constant flow in production when machines break down. Especially in the plants of larger multinationals, team spirit and team building are important elements in training which have an overall positive effect on productivity. Workers are expected to contribute their ideas about ways and means to increase productivity and to propose for more efficient working methods. Finally, mainly in some greenfield companies, experience partly induced by on-the-job training leads to productivity increase as well.
3. *Staff reduction.* Staff reduction as a means to deal with excess employment has a positive influence on labor productivity. This goes for both blue and white-collar workers. In most manufacturing SOEs, the high number of white-collar workers imposed a retarding effect on productivity levels. Therefore, by decreasing their number and by the replacement of incompetent staff members (which is a general practice in the bigger multinationals) they have improved productivity. For example, in a big multinational in the food industry that invested in privatization, in five years, the number of employees was reduced to one-third of its former level and the output was doubled, resulting in a productivity increase of 500%. Staff reduction was only in the management and administration and in other support services departments, which is currently at only 20% of its former level. For instance the staff in the financial department was reduced from 100 to 12. The number of shop-floor workers actually increased by 20%. At the moment the company is one of the better plants of the multinational worldwide.

In addition, the effects of layoffs boost productivity, for the best workers stayed with the company and the less qualified were fired. In several cases, staff reduction for shop-floor workers is linked to the implementation of new technology. Furthermore, layoffs have a positive effect on other workers' motivation, especially in companies that are located in areas that have a relatively high unemployment rate.

4. *Organizational changes.* Changes in the organization can lead to increased labor productivity, especially for privatized companies where labor and production tended to be organized very inefficiently. However, the managers were not very specific about the actual reorganizations implemented. Where labor is concerned, job combination is perhaps the most simple but most effective change leading to productivity increase. In the strive for full employment in pre-1989 Hungary, every worker was given a single task. This has had a positive effect on employment, but a negative effect on labor productivity. The introduction of new work practices, like job rotation, is another change in the organization of labor that can increase productivity. Changes in the organization of production may involve changing the line-up of the machines. We visited several companies where machines used to be placed in a long queue, resulting in a production line of 1 kilometer or more, hardly an effective organization of production. By placing machines in a circle or an oval, workers were able to work more efficiently.

Besides the reorganization of labor and production, a wide range of other organizational changes were mentioned, for instance production targets. This can be illustrated by the example of GANZ-HUNSLET. The company, currently 43% owned by a Cypriot company, was part of one of the largest SOEs in pre-89 Hungary. The company produces underground trains, electric trains and diesel engines for the Hungarian market and exports 55% of its production to other CEE countries, Western Europe, Tunisia and Malaysia. Under socialist rule, the company used a piece work system. The planning department calculated for instance that it would take 200 hours to produce a certain product. In reality it took maybe only 100 hours. However, nobody reported this to the department. In this way employees could have a lot of spare time during working hours (that they could use for second economy activities). Nowadays, the hours needed to produce a certain product are reduced to half its former level, due to the introduction of better work supervision.

Other reorganizations mentioned are for instance better cost management, a leaner organization structure (GYÖRI KEKSZ, for example, reduced the number of levels in the organization considerably, by removing 4 management levels), removal of bottlenecks in capacity, the reduction of the number of departments, production in larger batches, producing a wider range of products, and stopping the production of unprofitable items.

A better organization of work between the parent company and the Hungarian plant can lead to a higher labor productivity. This is especially valid for foreign investments in Hungary that are set up to produce components for the parent company. Productivity in the Hungarian plant can be increased by fine tuning these activities to match the capabilities of the Hungarian plant, something that is not always the case.

Table 6.9 Projected productivity increase in the next two years (%)

	Foreign greenfield (N=18)	Foreign privatized (N=26)	Domestic privatized (N=13)
No increase	11.1	7.7	15.4

Up to 30%	72.2	80.8	61.6
30-60%	11.2	11.5	23.1
More than 60%	5.6	-	-
Total	100.0	100.0	100.0

Despite the impressive increase in labor productivity thus far, it is still not up to Western standards in most companies. This is illustrated by the companies' expectations for their productivity increase in the two years following the interviews (table 6.9). An increase of 10-30% seems to be the norm. Foreign privatized companies had the highest expectations where productivity was concerned. The expectations of domestic companies are positive too, though a little less than the foreign privatized companies. Taking into account that they have made fewer improvements in productivity prior to the interviews (table 6.8), their marginal results in technological modernization (chapter 5), and their limited adaptation to the Western way of doing business (section 6.3.3), it seems unlikely that the gap between domestic and foreign companies in Hungary will decrease in the near future.

## 6.6 Regional impact of FDI on the labor market

The preceding sections of this chapter dealt with the effects on the labor market in a thematic way. In this section we deal with the effects of FDI on the labor market from a geographical perspective. Our attention is on three areas in the research area that attracted many foreign companies: Budapest, Székesfehérvár, and the northern border regions with Austria. First an examination of the role of the regional supply of labor in the location decision of foreign companies.

### 6.6.1 *The role of labor in the location decision*

The regional supply of labor might be an important factor in the location decision of foreign companies. For companies that need specific skills, a location that offers a pool of proper qualified workers is of vital importance. Going by our classification of sectors and regions, this means that companies generally prefer a location in or near Budapest, or one of the bigger cities with an industrial tradition like Győr or Székesfehérvár.

Companies that need a lot of unskilled labor prefer a location where the quantitative supply of labor is sufficient. A location in a more remote area where unemployment is relatively high and wages tend to be lower (because of less competition between firms for labor) then seems to be the best option<sup>17</sup>.

Besides the regional supply of labor there are a great many other factors that can influence the location decision of foreign companies. This can for instance be proximity to clients, suppliers or subcontractors, the physical infrastructure or the presence of raw materials. Moreover, in the specific case of Hungary one can for instance think of the proximity to the EU or the telecommunication infrastructure.

In our research we asked the managers how important the regional supply of labor was in their location decision. They had to select one of five options, ranging from determining importance to negligible importance (table 6.10). In analyzing the results we made a distinction between greenfield and privatized companies. After all, in the case of the former,

labor supply could be an important factor in the location decision, since they were free in locating their premises on the optimal location; in the case of the latter, labor can indeed be an important factor, but the location of the acquired company is the determining factor<sup>18</sup>.

We conclude that the supply of labor is an important factor in the location decision of foreign companies. In 19% of the greenfield investments, the regional supply of labor was of determining importance in the location decision. For another 48% of companies, it was very important. The supply of labor can be important both in terms of the qualifications (skills) of the labor force in a certain town or region, and the availability of a sufficient number of workers. The latter is becoming more and more important in Hungary, as the concentration of FDI is imposing more and more pressure on the labor market in certain areas, as we will see below. SUZUKI, for instance, which needs no specific skills for the assembly of the Swift model, chose Esztergom for its relatively high unemployment rate. In 1993, Esztergom had an unemployment rate of 20% against a national average of 14%. All employees get a basic education at the company. The company prefers to employ males between 19 and 40 years old who are willing to work hard, preferably after they have finished military service. Apart from Esztergom, there were offers from Székesfehérvár, Budapest and Pécs. But the local government of Esztergom offered the best conditions, including land. The site which was formerly a Soviet army base where 1,000 soldiers were stationed was targeted by the local government for an industrial park. The company which gives work to 1,400 people is the major employer in the region.

*Table 6.10* The importance of the supply of labor in the location decision of foreign companies in Hungary

	N	Determining importance	Very important	Average importance	Minor importance	Negligible importance
Greenfield	21	19.0	47.6	9.5	23.8	-
Privatized	29	17.2	20.7	20.7	31.0	10.3
<i>Center</i>	27	14.8	22.2	22.2	33.3	7.4
Greenfield	11	18.2	36.4	18.2	27.3	-
Privatized	16	12.5	12.5	25.0	37.5	12.5
<i>Northwest</i>	23	21.7	43.5	8.7	21.7	4.3
Greenfield	10	20.0	60.0	-	20.0	-
Privatized	13	23.1	30.8	15.4	23.1	7.7

In the specific case of Hungary, employees' language skills are sometimes an important factor in the location decision. This is one of the explanations for the fact that the border regions with Austria, where German is the second or sometimes first language for many people, attract relatively many foreign companies, especially small and medium-sized Austrian companies. Language ability was also the determining factor in the location of the German company INDA HUNGARIA in Taksony, a small town only a few kilometers south of Budapest, where the majority of the inhabitants speak German as their first language.

Also for privatized companies, for which the location of the acquired company was given, we found that they highly appreciated the skills and experience of the companies' employees. In several cases (17%) this was even a determining factor in acquiring this specific company. For another 21% labor supply was considered very important. These findings are an indication of foreign investors' appreciation of the skills of the employees.



Moreover, the regional supply of labor might be important in case of expansion or when existing employees need to be replaced (because of retirement, dismissal or a new job elsewhere). In some cases the acquired company is the only or one of the few in this specific branch in Hungary, and the expertise in a specific field of work is restricted to this specific region.

If the labor supply was not of determining importance in the location decision, we asked the managers to name the most important. In the case of acquisitions and joint venture acquisitions it is obvious that the location of the company which they acquired was of determining importance. Some managers of Austrian investors that invested in the privatization mentioned that they deliberately searched for an investment near the Austrian border. For instance BRAU UNION bought a major share in SOPRONI SÖRGYÁR, a Hungarian brewery in Sopron, a town 8 kilometers from the Austrian border. Besides the 25 years of contacts between the two companies, the location close to Austria was important in investing in this particular brewery.

However, for greenfield companies there are other factors (apart from the supply of labor) that have played an important role in the location decision because they were free to choose the optimal location. For some greenfields, established before or shortly after the 1989 change of system, the physical and telecommunication infrastructure in Budapest – which surpasses the rest of the country – was of determining importance in locating their production facilities in or near the capital city. Moreover, in the early days of transition, when the legal and political structure of the country was changing rapidly and was rather unstable, foreign companies preferred to locate in the proximity of decision making centers and other relevant organizations, all located in Budapest. However, the need to locate in or near the primate city is considerably less urgent these days. In recent years, the exceptional position of Budapest has changed somewhat in favor of other parts of the country, as the path of transition has become much more defined, and the legal framework much more stable.

So next to the presence of a highly skilled workforce, these special positive assets of Budapest might be one reason for our findings in table 6.10, that the supply of labor is judged more important in regions outside Budapest. The share of greenfield companies that characterized the supply of labor as determining or very important is 80% for companies located in the northwest of Hungary compared to 55% for Budapest-based companies. Other (negative) factors of influence might be the relatively high wages in Budapest (which is especially valid for companies that are mainly looking for unskilled labor), and the fierce competition among foreign companies for the best employees.

### *6.6.2 The regional demand for labor*

Partly because of the geographical concentration of foreign investment, there are large differences in the regional demand for labor. This is exacerbated by the immobility of the Hungarian labor force. Several reasons explain this immobility:

1. (public) Transportation problems, especially to and from the smaller towns, cause long commuting times;

2. Private transport is scarce and expensive. Car ownership is not widespread outside the big cities. Driving a car is becoming more and more expensive, with gasoline prices almost as high as in Germany;
3. There is a housing shortage. Even before 1989, Hungary was characterized by a high rate of private homeownership. After 1989 most state-owned flats and houses have been privatized under very favorable conditions (Douglas, 1997). The result is that the market for rental dwellings is one of the smallest among developed countries in Europe;
4. Traditions play a major role. Hungary is a very family-oriented society. For that reason, people are not willing to move.

Therefore it seems appropriate to take a closer look at the relation between FDI and labor within different regions in our survey. Three regions, that are endowed with a relatively high share of foreign companies, will be discussed here in more detail: Budapest and its agglomeration, Székesfehérvár, and the border area with Austria. Concerning the border area, our emphasis is on the western parts of the counties of Győr-Moson-Sopron and Vas. Furthermore, we look at Veszprém and Komárom-Esztergom, where the labor markets are not very tight, partly because these counties do not host a great many foreign investors. The discussion includes a partial summary of the above.

#### *BUDAPEST*

Budapest has by far attracted most foreign investments in Hungary. One of the reasons for the attractiveness of Budapest as a location for foreign investments lies in the fact that Budapest hosts the best qualified labor. Especially for people in key positions, who as shown cause the most serious problems for foreign companies, Budapest is the best location in Hungary.

The presence of a great many foreign companies in Budapest is one of the reasons for the fierce competition for the best employees. This is also one of the factors responsible for high wages in the capital city. We got the impression from the interviews that the establishments of smaller foreign companies (that have less financial strength) face more problems in finding suitable employees.

Despite this tight labor market, Budapest still offers most qualified staff for key positions. However, one can imagine that Budapest is becoming less attractive for production facilities. Especially for activities that require mainly unskilled labor which is much cheaper outside the capital city.

#### *SZÉKESFEHÉRVÁR*

One of the most successful regions in Hungary in attracting foreign direct investment, apart from Budapest, is Fejér county, and especially its capital Székesfehérvár. According to a *Financial Times* survey, Székesfehérvár and its surroundings is one of the 10 most rapidly developing areas in the world. A major reason is that, unlike other parts of the country in which investment in privatization is dominant, Székesfehérvár has managed to attract a lot of greenfield investments. Large multinationals like FORD, IBM, EMERSON-ELECTRIC, PHILIPS, and STOLLWERCK have chosen Székesfehérvár for their greenfield projects. Several factors contribute to the success of this city and its surroundings as a location for the investments of foreign companies:

1. The presence of an industrial tradition in the region as it was the base of two of the largest state companies in Hungary: VIDEOTON (electronics) and IKARUS (bus manufacturer);
2. A well-educated workforce, many of whom became available after restructuring at big state companies like VIDEOTON and IKARUS;
3. All kinds of business services and factory premises provided by former state company VIDEOTON;
4. An 'investment friendly' local authority, which assists foreign companies in legal matters, and an army major who is very active in attracting FDI to the city;
5. The geographical location, only 50 kilometers from Budapest and close to the EU.

Perhaps the most important factor is the role that former state company VIDEOTON plays in the region, something which becomes apparent from the first three points mentioned above. After privatization in 1991 and the foundation of VIDEOTON HOLDING in 1992, the company started, apart from their own production, to provide services to other companies, mainly foreign investors. The VIDEOTON INDUSTRIAL PARK, which operates as a separate economic entity under the holding, provides a wide range of services for foreign companies located on the premises of VIDEOTON, which makes greenfield investment very attractive. Companies can lease buildings from VIDEOTON, whether existing or newly built. A wide range of other services is provided by the former state company. For example, the vast majority of IBM's employees are on the payroll of VIDEOTON. Other services are for instance customs services, accountancy and tariff administrations services, training of employees, etc. The services provided by VIDEOTON lower the threshold of a foreign greenfield investment considerably. Or, as the general manager of FISHER-ROSEMOUNT put it: 'It is easy to grow with VIDEOTON in the background and using the facilities of VIDEOTON.'

The well-educated labor force is an important factor in the region's attractiveness as well. However, the establishment of a growing number of large foreign greenfield plants puts a heavy stress on the labor market. The low unemployment rate in Székesfehérvár and the immobile labor force necessitates that companies become inventive in recruiting new employees. IBM, for instance, has its own transportation network which operates within a radius of 50 kilometers. This is the only way to get enough employees.

Székesfehérvár has not been a boom town from the start of the transition process. This is illustrated by the example of STOLLWERCK, a German candy and biscuit manufacturer, that opened a greenfield plant for the production of biscuits in 1992. They needed a 450-meter long production line. In Germany it was not possible to find an area that big, so they looked for a proper location in Hungary. In Budapest, where the headquarters is located, it was not possible to find a big enough area either. They looked and tested more than 400 possible locations in Hungary. Székesfehérvár appeared to be the best location by far, at that time. They were not only able to find a suitable production site in Székesfehérvár, the city could also provide enough skilled female production workers. After the establishment of some large foreign greenfield plants in Székesfehérvár, the labor market situation has changed dramatically. Moreover, these foreign plants that are mainly involved in electrical engineering, where profit margins are higher than in the food and beverages production, have a higher status as employer and are able to pay better salaries.

Although part-time work hardly exists in Hungary<sup>19</sup>, our survey showed that at least one company in Székesfehérvár uses part-time work as an instrument for committing employees

to the company. The company, that aims at employing women with children, offers these part-time jobs as a kind of fringe benefit of employment. By offering part-time jobs, the company hopes to prevent job-hopping among its employees.

#### *BORDER REGIONS*

The border regions with Austria have attracted a lot of foreign investments. Both in absolute numbers, but especially in relation to the number of inhabitants and the number of domestic companies. These foreign investments are not only found in the larger towns and industrial centers, but also in some small villages that lie within a stone's throw from the border.

Especially in these small villages, the establishment of foreign companies can impose a high pressure on the labor market. For instance Jánossomorja, a small village with 5,000 inhabitants, is only a few kilometers from the Austrian border, just 15 kilometers south of Mosonmagyaróvár. The village cannot provide enough employees for the two food facilities in our survey located there. The two companies together employ 325 people. The situation is so pressing that one of the two companies is contemplating a move to Mosonmagyaróvár (with nearly 30,000 inhabitants). The fact that they would consider moving a factory only 15 kilometers further in order to be accessible to the workforce, emphasizes both the immobility and unavailability of labor in this region. One other argument that plays a role in the relocation concerns their employees' travel expenses which the company has to pay. In the meantime, the two foreign companies in our survey cooperate. They set up their own transportation network to ferry their employees from surrounding villages to and from work.

The lack of labor in this part of Hungary is also caused by the fact that many people work (illegally) in Austria for a large salary that reportedly may be up to four times the amount they would make in Hungary.

Also in larger cities in the region, the establishment of foreign greenfield investments puts a heavy burden on the labor market. Győr is the largest city and the most important industrial center in the northwest of Hungary. The city's attractiveness for FDI is due to a number of favorable characteristics. First, the city has a long-standing industrial tradition. The headquarters and a number of production plants of the large state conglomerate RÁBA were located in Győr<sup>20</sup>. Another favorable condition is the location of the city near the Austrian border (and the EU market), and on the highway from Vienna to Budapest.

In Győr, some large foreign investments are to be found. Not only companies that invested in the privatization, but also, to an increasing degree, greenfield plants. Where in autumn 1995 there were only two companies at the industrial park in Győr (Ipari Park), currently, a great number of companies are situated there. AUDI HUNGARIA MOTOR, which produces Audi engines, is one of the major foreign investors in the city, employing more than 1,000 people<sup>21</sup>. Moreover, the company has plans to invest in another plant for the assembly of cars. This would not only create more jobs at AUDI, but also much indirect employment, since foreign subcontractors of the company would consider investing in Hungary as well. Besides, purchase from indigenous Hungarian suppliers or Hungarian-based foreign suppliers would create additional jobs as well. This 'knock-on effect' can be substantial<sup>22</sup>. AUDI in Győr has calculated that by employing 2,800 Hungarian workers directly, it also creates between 3,000 and 4,000 jobs in the rest of the economy (*The Economist*, November 22 1997; Business Eastern Europe Survey). On the other hand, however, there is an increasing pressure on the regional labor market. AUDI's manager in

Győr, Karl Hübscher, worries that it would take only one more big foreign investor in western Hungary to tighten the labor market intolerably. Unemployment in Győr, which was 20% when AUDI arrived, is now below 5% (*The Economist*, 22-11-1997).

In the other parts of Hungary in our survey (that is Veszprém, Komárom-Esztergom, the eastern parts of Győr-Moson-Sopron and Vas, parts of Fejér, and southeast Pest), the labor market is generally not as tight as in the above-described regions. The fact that they host relatively fewer foreign companies is an important factor in this. Nevertheless, there might be some problems with finding people with specific skills, especially people for key positions.

But in these areas, the opposite is also true. We found some companies at which employees are over-educated. This refers to activities for which low-skilled workers are needed, but which are done by people with middle-level education. An example is MTD HUNGARIA in Nemesvámos (Veszprém). One of the activities that the company is involved in is in the assembly of small agricultural machines. The work is done by workers with a middle-level technical education, although no specific skills are required to do the job. In comparison, at the parent company in Germany the assembly is done by unskilled workers only. This suggests that on a local level there is still an abundance of skilled workers.

## **6.7 Conclusion**

In this concluding section the most important findings in this chapter are:

- The effects of foreign companies on labor in a quantitative respect are favorable for greenfield companies. The setting up of new production facilities, and the aggressive expansion afterwards have created many new jobs. The employment effects at privatized companies were mainly negative during their first years in Hungary. These negative effects are not so much the result of the introduction of new technologies, but also the organizational adaptations that were necessary because of the legacy of the socialist system (overmanning on the shop-floor and the management, and the hiving off or closure of departments or collective facilities). However, we found that after the organizational modernization, many of the companies have grown again in terms of personnel, due to the setting up of new departments and an expansion of capacity. As a result, we found an increase in employment compared to the start of their operations in half the privatized companies in our survey.
- The managers of the foreign companies are very positive about the Hungarian labor force with respect to their education level, their eagerness to learn and their adaptability to the new situation. As a result, foreign companies do not find it difficult to get workers acquainted to the new, more modern equipment. Nor do they have problems in filling slots for shop-floor workers, except for NC and CNC operators and welders. In fact, for cost-based investments, the skills of Hungarian employees in combination with the labor costs are important elements in the decision to invest in Hungary.
- Foreign companies face great difficulty in filling vacancies for key management positions in for instance human resource management, logistics, sales, marketing and finance. This is the combined result of the absence of these skills during the centrally planned era, the

slow adaptation of the educational system, and the difficulty workers have in taking responsibility. These problems are greater outside Budapest than in the capital city itself. The managers were very pessimistic about an improvement in the situation in the short term.

- Due to the limited technological and organizational modernization, domestic companies do not have problems in filling key positions. Their problems pertain more to keeping their skilled workers, because the foreign companies prefer to recruit these experienced workers from domestic companies. Therefore, foreign companies cream off the labor market, rather than contribute to a decrease in unemployment.
- In practically all foreign companies, training of employees is very important. Partly these training facilities are set up to address the scarcities on the labor market. However, mainly in the larger industrial centers, this leads to a growing functional labor mobility. Besides, training-on-the-job is an important element in getting workers acquainted to new equipment. Finally, training is geared to increase the competitiveness of the firm. But by doing this, foreign companies contribute to the transformation process as well, by increasing workers' motivation, company commitment and improving their flexibility. As a result of training, in general the share of unskilled work has decreased.
- Labor productivity increased in practically all the companies in our survey (both foreign and domestic). This is the combined result of technological modernization, training of employees, staff reduction and a number of organizational changes. Despite the limited technological and organizational modernization in domestic companies, they have been able to increase productivity as well. This is probably the result of the terribly low labor productivity before they were privatized, indicating that simple adjustments (for instance staff reduction) might lead to an increase in labor productivity.
- Labor is an important factor in the location of foreign companies. This is more important for companies that set up facilities outside Budapest, due to the additional locational advantages we find in the capital city (infrastructure, centers of decision making), despite the fact that the capital hosts the best qualified labor market. As these additional advantages become less important, we expect a more dispersed pattern of location in the future. As a result of the further tightening of the labor market in the northwest (partly caused by the concentrated settlement of FDI), foreign companies increasingly have to search for suitable locations for their greenfield facilities in the eastern part of Hungary, where the education level and working skills are lower, but where labor is abundant.

## NOTES

<sup>1</sup> In most, but not all cases the large state conglomerates are transformed into separate entities before being privatized. Only in a limited number of cases is an entire SOE sold, including all its facilities.

<sup>2</sup> Excluding GE TUNGSAM, where 7,000 jobs were lost.

<sup>3</sup> Although we treat this topic as a quantitative effect here, it might include qualitative elements as well.

<sup>4</sup> Service activities under the socialist system were usually integrated in the large state industrial conglomerates, and were therefore classified under the industrial sector. Here, we do not refer to the emergence of service activities due to the disintegration of these industrial conglomerates, but to the emergence of new service activities and newly established companies in the services sector.

<sup>5</sup> 69% agree, of which only 8% fully agree. See also annex 3.

- <sup>6</sup> W.C. Ford, Jr. about the FORD investment in Székesfehérvár, quoted in *The Budapest Sun*, June 20, 1996.
- <sup>7</sup> Note that this refers to the situation at the beginning of 1997.
- <sup>8</sup> It is striking that 90% of the managers of greenfields agree, compared to 64% of those at privatized companies.
- <sup>9</sup> As opposed to the kind of training under the first point, which deals with training in direct relation to the technological modernization, mostly in the first years of their presence in Hungary, this refers to training for new technologies to keep up with international standards and to increase or secure their (international) competitiveness.
- <sup>10</sup> There were and still are, however, some manufacturers producing trucks (RÁBA) or buses (IKARUS). However, the production of passenger cars or engines for passenger cars was absent before 1989.
- <sup>11</sup> In contrast, a majority of the managers of domestic companies (62%) disagree.
- <sup>12</sup> UNITED TECHNOLOGIES (+641), MAGYAR SUZUKI which hired 450 new employees last year since they introduced shift work and IBM (+1,500) where the selection and recruitment are contracted out to VIDEOTON.
- <sup>13</sup> This is not totally in line with the findings in this study, as greenfields appeared to employ school-leavers to a large extent (table 6.5).
- <sup>14</sup> Moreover, long-term unemployment is a chronic problem in OECD countries as well.
- <sup>15</sup> As compared to investments in Western countries.
- <sup>16</sup> As we found in chapter 5, the cautious investment strategy of greenfield investments is for instance shown by use of already-used equipment from Western subsidiaries at the start of operations. Only later they might be replaced or supplemented with new (state-of-the-art) equipment that ensure higher productivity levels.
- <sup>17</sup> Hungary has legislated a minimum wage level. In 1996 5.0% of workers earned the minimum wage or less (OECD, 1997).
- <sup>18</sup> However, for some 'semi'-greenfields (see chapter 2), that are located in the building of the domestic partner, the location was more or less a given. Nevertheless, although they are located on the same premises as the domestic partner, these companies were free to choose their location.
- <sup>19</sup> Only 0.8% of employed men and 2.0% of employed women work part-time. In comparison, OECD averages are 7.7% and 31.2% respectively (OECD, 1997).
- <sup>20</sup> RÁBA produces among a great many other things front and rear undercarriages, undercarriages for trailers, diesel engines, trucks, trailer-tractors, and power machines.
- <sup>21</sup> The number of employees refers to the situation at the end of 1996. Currently, AUDI employs 3,000 people in Győr (OECD, 1999).
- <sup>22</sup> This is shown for instance by the acquisition of SKODA by the VOLKSWAGEN GROUP in the Czech Republic. VOLKSWAGEN created a large number of indirect jobs at other foreign companies that followed VOLKSWAGEN in their investment in the Czech Republic.

# 7 Linkages and the diffusion of technology and know-how

## 7.1 Introduction

After having discussed the direct modernization effects of foreign companies in chapter 5, the indirect effects of FDI on the modernization of production are dealt with in this chapter. These indirect effects are through the backward linkages with domestic companies. In other words, we study foreign companies' purchase from domestic suppliers and subcontractors. We will look whether and to what extent foreign companies have linkages with domestic companies, and at the consequences of these linkages for the diffusion of technology and know-how from foreign to domestic companies. The main focus is on active diffusion, that is the diffusion of technology and know-how by providing some kind of assistance to domestic companies, that goes beyond the normal exchange of information that one finds in supplier and subcontracting relations. Hence, we try to find answers to the following research questions in this chapter:

9. Do foreign companies in Hungary maintain linkages with domestic companies via supplier or subcontracting relations, and if so, what is their purchase from domestic Hungarian companies (section 7.2)?
10. For what reasons do foreign companies in Hungary maintain linkages with domestic Hungarian companies, and what are the future prospects (section 7.3)?
11. What are the effects of these linkages on the diffusion of modern technologies and organizational and technical know-how to domestic companies (section 7.4)?

## 7.2 Supply and subcontracting relations between foreign and domestic companies

In this section we deal with the linkages between foreign and domestic companies in Hungary by looking at these linkages from the viewpoint of both foreign and domestic companies.

At foreign companies we study these linkages in two different ways. First, in section 7.2.1, we look at the backward linkages of foreign companies with domestic companies in terms of the purchase of different types of commodities. We measured *whether* foreign companies purchase each of the different selected types of commodities from domestic companies. Furthermore, we studied these linkages in a global perspective. After all, foreign



investors, and especially multinational corporations are tied in large networks of external and internal international relationships. By considering the total purchasing behavior of foreign companies we are able to put the purchase from domestic Hungarian companies in a broader perspective. Moreover, as for purchases in Hungary, we distinguished between the purchase from Hungarian domestic companies and other foreign companies located in Hungary. This distinction is important in light of the diffusion of technology and know-how to domestic companies.

Second, in section 7.2.2, we look at the *value* of the purchased products and services of foreign companies (all commodities together). Using a similar distinction as for the origin of the commodities, we distinguish between the purchase from domestic Hungarian companies, other foreign companies located in Hungary, and abroad.

In section 7.2.3, we look at the supplier and subcontracting linkages between foreign and domestic companies from the viewpoint of domestic companies. This means that we study the forward linkages of domestic companies with foreign companies. We distinguished between linkages with foreign companies located in Hungary and located abroad. This enables us to determine the real surplus value of contacts with foreign companies that are located in Hungary in terms of transfer of technology and know-how.

### *7.2.1 Purchasing behavior of foreign investors for different types of commodities*

Our focus in this section is on the purchasing behavior of foreign companies in Hungary with regard to different commodities: raw materials, simple semi-manufactured articles, complicated semi-manufactured articles, and supporting services. The managers at the companies in our survey were asked to indicate whether or not they purchase any of these commodities from Hungarian domestic companies, other foreign companies located in Hungary, or abroad. Their responses are presented in figure 7.1.

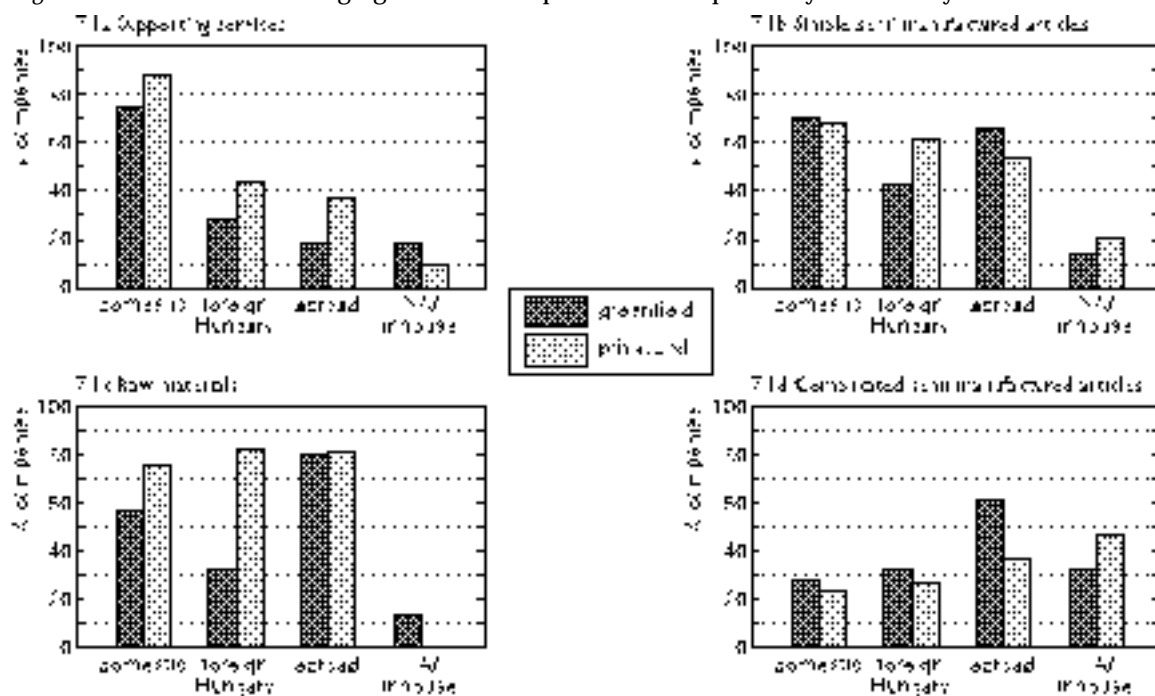
In our analysis we made a distinction between the purchasing behavior of privatized and greenfield companies. We expected that for privatized companies, local sourcing (that is the aggregate purchase at both domestic Hungarian companies and at other foreign companies located in Hungary) would be higher than for greenfield companies, since they could use already existing contacts of the companies they acquired. Besides, they are expected to have better knowledge of the local economy, hence a higher number of domestic suppliers. In contrast, greenfield investments have to establish a local supplier network from scratch, something that takes time, as already pointed out in chapter 2. Moreover, they are more often involved in assembly activities, in which the global supplier and subcontracting networks stay intact, but only the final assembly is moved to low-production-cost Hungary.

Three conclusions can be drawn from figure 7.1. First, most firms in our survey have a very diverse supplier network in the way that they purchase from each of the three types of companies we distinguished above. Second, the most purchase from domestic Hungarian companies is for supporting services, followed by simple semi-manufactured articles and raw materials. Only a limited number of companies purchase complicated semi-manufactured articles from domestic companies. Third, greenfield companies do not purchase less from domestic companies than privatized companies.

As for the first conclusion, we found that almost all the companies in our survey purchase from Hungarian domestic companies, foreign companies in Hungary, and abroad. This goes for both privatized and greenfield companies. Supplies from abroad are impor-

tant. Multinationals already had an international supplier network before they invested in Hungary. The new subsidiaries in Hungary often still make use of their international supplier networks to some or even a large extent. Other companies are engaged solely in outward processing to, or subcontracting for, the parent company. These firms are generally fully supplied by (or via) the parent company. Next to these international supplies, all the companies in our survey make use of suppliers located in Hungary. This includes both domestic Hungarian companies and other foreign companies in Hungary. As for the former, we can say that for privatized companies these linkages might be a continuation of former linkages of the then SOEs<sup>1</sup>. But our research shows that a large share of these linkages with domestic Hungarian suppliers are established after the foreign owner came in.

Figure 7.1 Purchase of foreign greenfield and privatized companies by commodity<sup>a</sup>



<sup>a</sup> The figures show at which type of company a particular commodity is bought. Three types of companies are identified: domestic Hungarian companies (Domestic), other companies in Hungary with foreign capital participation (Foreign Hungary), and companies abroad (Abroad). Companies that do not purchase a particular commodity on an arm's-length market –either because the production does not require this type of commodity (NA), or because they produce it in-house –are classified separately. For instance, 57.1% of the greenfield companies purchases raw materials from one or more domestic companies. For all 4 tables: greenfield: N=21; privatized: N=29.

Linkages with other foreign companies in Hungary are important as well. Notably, as many foreign companies have invested in Hungary, there is a higher chance of being involved with linkages with other foreign companies. Partly these foreign suppliers located in Hungary are companies that were sold to a foreign investor after the supply linkage with the then domestic company was established. This is hardly surprising, since the 'best' domestic companies have a better chance both of becoming a supplier to a foreign company, as well as being sold to a foreign company. Of minor importance, but yet worth mentioning, are linkages with other foreign companies in Hungary that followed a large multinational when

it invested in Hungary. In this way they were able to secure their delivery. Moreover, this offers an ideal opportunity to explore the possibilities for expanding their production capacity in Hungary for exports.

When taking a closer look at the breakdown of purchase of different types of commodities there are a few findings that require some clarification. As a general rule of thumb, one would expect that the more complicated products get – and therefore the more important quality becomes – the more likely they would be purchased abroad. When considering the linkages with domestic companies, it turns out that purchase from domestic Hungarian companies is the highest for supporting services (76% in greenfield companies; 90% in privatized companies), followed by simple semi-manufactured articles (71% greenfield; 69% privatized) and, to a lesser extent, raw materials (57% greenfield; 76% privatized). In contrast, only about one-quarter of the foreign companies (29% greenfield; 24% privatized) purchase complicated semi-manufactured articles from domestic companies. Therefore one could argue that this assumption holds true only to a limited extent: supporting activities can be ‘complicated’ as well and raw materials are only ranked fourth. But for a proper interpretation of these figures, we have to compare them with the figures for the linkages with other foreign companies in Hungary and with companies abroad.

Supporting services, like catering, distribution, maintenance et cetera, are mostly bought in Hungary, from domestic Hungarian companies (figure 7.1a). Only 29% of the greenfield companies and 45% of the privatized companies obtain these services from other foreign companies in Hungary, and even fewer companies obtain these abroad. The relatively high share of purchase of supporting services from domestic companies seems logical at first sight, but there might be several reasons why foreign investors obtain these supporting activities abroad or from other foreign companies in Hungary. For a company that produces for export markets, for instance, it seems more obvious to use logistical services from abroad. Maintenance is another case in point. Since production equipment is largely of West European origin, maintenance and repair is commonly provided for by the Western manufacturer, either from abroad, or by a Hungarian subsidiary. But this is not always the case. For instance FISHER ROSEMOUNT bought some CNC layers in Hungary, and the maintenance is done by a Hungarian company. According to the plant manager this is both cheaper and better than hiring a foreign company.

For the purchase of simple semi-manufactured articles (SMAs) and complicated SMAs, the above relation holds true to at least some extent (figure 7.1b+d). As for the former, there is a slight preference for local purchase, as for the latter there is a preference for purchase abroad. The limited local purchase of complicated SMAs might indeed have to do with the quality of the products from domestic Hungarian companies. But there are also other factors that play a role. First, there is a relatively large share of companies that do not buy complicated SMAs on an arm’s-length market at all. This might be because the production does not require complicated SMAs, or because the company produces them in-house (this goes for 33% of the greenfield companies and 28% of the privatized companies). This also explains why purchase from other foreign companies in Hungary and abroad is rather limited as well. The most important reason, however, for buying them abroad is the unavailability of a large share of products on the Hungarian supplier market. This also goes for raw materials. Hungary is not richly endowed with natural resources. So, here too, we found more companies with foreign suppliers rather than domestic suppliers (figure 7.1c).

With regard to entry mode, figure 7.1 does not provide evidence for our assumption that privatized companies have more linkages with domestic companies than greenfield compa-

nies. There are even more greenfield companies that buy simple and complicated SMAs from domestic Hungarian companies than privatized companies. In contrast where supporting services and raw materials are concerned, we found that more privatized companies purchase locally. Perhaps the following section, where we look at the value of the purchase of foreign companies, might provide more evidence for this assumption.

### 7.2.2 Local sourcing

Where we looked at whether or not a company purchases products from Hungarian domestic companies, other foreign companies in Hungary, and companies abroad in the preceding section, this section deals with the purchasing behavior of foreign companies in terms of the value of the products. Although this provides a less detailed picture, it gives more insight on the impact of foreign companies on the local economy in general and on domestic companies in particular. We compare the purchasing behavior of both privatized and greenfield companies, and companies in different sectors.

Looking at the *share* of purchase of foreign companies from any of the different types of companies, we found a more positive picture as for local sourcing than we would have initially expected (table 7.1). Considering all the companies in our sample, slightly more than half of total purchase comes from Hungary: 28.5% from domestic Hungarian companies and 22.6% from other foreign companies in Hungary. We found differences for different modes of entry and companies in different sectors.

Table 7.1 Purchase of foreign companies, by mode of investment and by sector (%)

	N <sup>a</sup>	Domestic Hungarian companies	Other foreign companies in Hungary	Foreign companies abroad	Total
Foreign sample total	37	28.5	22.6	49.0	100.0
<i>Mode of investment</i>					
Privatized companies	20	31.7	29.9	38.4	100.0
Greenfield companies	17	24.7	13.8	61.5	100.0
<i>Sectors</i>					
Mechanical engineering	13	33.0	18.2	48.8	100.0
Electrical engineering	11	13.9	11.1	75.0	100.0
Food & beverages	13	36.2	36.6	27.2	100.0

<sup>a</sup> The relatively high number of missing values is partly due to a number of companies that could not differentiate between purchase at domestic and foreign companies in Hungary. In itself this might be a positive finding, since it indicates that these companies do not see a large difference between these two types of companies in terms of quality, price etc.

Local sourcing at privatized companies is considerably higher than at greenfield companies, 61% and 39% respectively. So in terms of the multiplier effect on the Hungarian economy, privatized companies appear to be most important. However, the difference in local sourcing is more a result of the difference in the purchase from other foreign companies in Hungary than from domestic Hungarian companies. Considering the latter, we still find a

difference between privatized and greenfield companies, but this is only 7 percentage points.

When looking at the purchase of foreign companies in different sectors, we find some striking differences (table 7.1). Mechanical engineering companies take an intermediate position and resemble the general picture the most. Just over half the total purchase comes from suppliers located in Hungary. However, they seem to rely more on supplies from domestic Hungarian companies.

Foreign electrical engineering companies obtain the smallest share of their total purchase in Hungary. Three-quarters of the supplies come from abroad. This is due to the large share of greenfield companies in this sector<sup>2</sup>. These companies are more often involved in large-scale assembly activities which rely on worldwide supplies. Apart from the company's policy, another factor might be the absence of certain commodities in the Hungarian industry<sup>3</sup>.

Local sourcing is greatest for companies active in the food and beverages sector. Almost three-quarters of the total purchase comes from companies located in Hungary. Half of this comes from domestic companies. Practically all the companies in the food and beverages sector in our survey are aimed at the local Hungarian market. Therefore, this finding is in line with our earlier statement (chapter 2) that firms that serve the host market are more likely to develop local supply linkages than export platform plants. Most ingredients are available all over the world. Moreover, because of the low value added in this sector, transportation costs can not be covered by a somewhat lower price elsewhere. But there are some exceptions, like for instance SCHÖLLER. They produce Mövenpick ice cream under license. MÖVENPICK does not allow the local purchase of certain ingredients, for instance apricots. Nevertheless SCHÖLLER has managed to get approval to buy the chocolate for Mövenpick ice cream in Hungary (instead of Belgium). Some other companies are forced to buy certain commodities abroad as these are not available on the Hungarian market (for instance coffee beans).

### 7.2.3 Domestic Hungarian companies: linkages with foreign companies

We also studied the linkages between foreign and domestic companies from the viewpoint of domestic companies. We distinguished between linkages with companies that have invested in Hungary, and linkages with foreign companies abroad. This enables us to put the linkages with foreign companies that are located in Hungary in perspective. Moreover, we distinguished between all linkages (both forward and backward) and forward linkages<sup>4</sup>.

Table 7.2 Supplier or subcontracting relations of domestic companies with foreign companies

N=13	With foreign companies in Hungary		With foreign companies abroad	
	All linkages	Forward linkages	All linkages	Forward linkages
Companies (%)	85	62	85	38

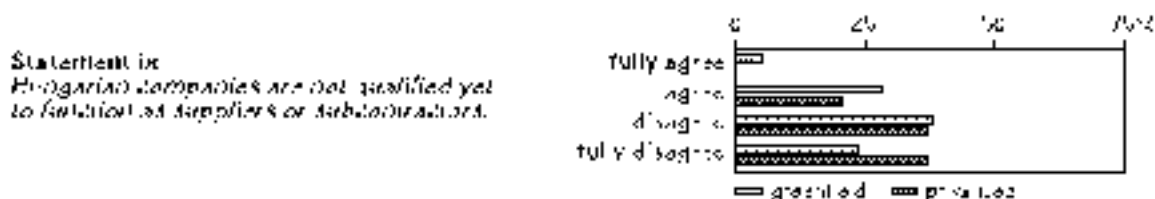
From the 13 domestic companies in our survey, 12 have contacts with foreign companies (table 7.2). It is striking that this goes not only for foreign companies that have invested in Hungary, but to an equal extent for connections abroad. Apparently, the economic recession in both Hungary and other CEE countries and the related collapse of most export

markets in CEE as a result of the disintegration of the CMEA, has forced domestic companies to penetrate new export markets (mainly in Western Europe, and also in CEE) and to approach foreign companies for cooperation, supply or subcontracting.

If we consider only forward linkages of domestic companies with foreign companies, the picture is somewhat different. They tend to occur more often with foreign companies that have invested in Hungary. Apparently, geographical proximity is an important factor in the formation of supply or subcontracting relations between foreign and domestic companies.

### 7.3 Comparative advantages of domestic Hungarian suppliers and subcontractors

After a general description of the supplier networks of foreign companies in Hungary, we now turn to deal with the backward linkages with domestic suppliers and subcontractors in more detail. We examine the reasons for and against the use of domestic suppliers and subcontractors (sections 7.3.1 and 7.3.2). In 7.3.3 we conclude by looking at the future expectations concerning the use of domestic suppliers and subcontractors.



But let us start by looking at the opinion of foreign investors in Hungary about domestic suppliers and subcontractors. We presented the managers with the statement: *Hungarian companies are not qualified yet to function as suppliers or subcontractors* (statement ix). In general their opinion about Hungarian companies as suppliers is positive, with managers at privatized companies more positive than managers at greenfield companies. Of the managers at greenfield companies 65% disagreed or fully disagreed with the statement. For privatized companies this figure is 78%. It is striking that privatized companies, that purchase a larger share from domestic companies, have a more positive opinion about domestic suppliers and subcontractors. The same statement was shown to managers at domestic companies. They all disagreed (54%) or fully disagreed (46%) to the statement.

However, we found that in individual cases there were traces of distrust towards domestic suppliers, even by foreign companies that have invested in Hungary. One striking example is that of the Hungarian FEMIPARI, a Győr-based producer of steel equipment and machinery. They had some contacts with a foreign company in Hungary. However, the foreign company would not deal with FEMIPARI directly. Now the Hungarian company delivers to another foreign investor in Hungary, that in its turn ships the goods to the foreign company. This way the foreign company may have covered itself against a certain risk, but they have to pay double the price than if they buy the products from FEMIPARI directly<sup>5</sup>.

#### 7.3.1 Reasons for using domestic Hungarian suppliers and subcontractors

We asked the managers at foreign companies in our survey why they choose domestic Hungarian suppliers or subcontractors and what they see as the specific assets of Hungarian companies. More specifically we asked their opinion about the price of the products, quality of the products and delivery time. A great many different responses were reported, indicating that foreign investors have different experiences with and opinions about domestic suppliers. And obviously, factors that play a role in using a specific subcontractor are inter-related. Therefore, the results should be interpreted as being indicative only. We will discuss the opinions of the managers at foreign companies about price, quality and delivery time separately below. Moreover, we deal with tariff barriers, which influence (the extent of) the use of domestic supplies.

#### *PRICE*

In line with our assumption, price appeared to be one of the most favorable aspects of the purchase from domestic Hungarian companies. For a vast number of foreign companies in our survey this is the most important reason for local supplies. Of course, price can not be treated as an isolated issue. Quality, and to a lesser extent delivery time, have to be at a reasonable level as well. The prices offered by domestic suppliers to foreign-owned customers might even be lower than to domestic customers. Companies with foreign capital participation in Hungary could sometimes obtain discounts from local suppliers because of their better creditworthiness than Hungarian companies.

For some large multinational companies, the price charged by Hungarian suppliers appeared not to be favorable. In some cases foreign suppliers charge lower prices and probably carry better quality products. For some large multinationals, these lower prices abroad are a result of long-term contracts for worldwide supplies in large quantities. This enables them to buy raw materials and semi-manufactured articles at very favorable prices. Large multinational corporations often make use of such networks of approved suppliers for worldwide supplies. Individual subsidiaries are often not allowed to source (domestic) subcontractors or suppliers themselves. Besides this, Hungarian local suppliers generally can not offer the large quantities involved, so they have little chance of becoming an approved supplier.

#### *QUALITY*

Our general assumption was that, seven years after the change of system<sup>6</sup>, the quality of 'Hungarian' products could still not compete with Western products. Indeed, as was shown by our survey, many domestic Hungarian companies still can not meet the quality standards set by foreign companies. But the opinions of the managers at foreign companies are very diverse. A lot of Hungarian companies have changed for the better, and produce good quality products now. Partly as a result of increased competition, but also because of the assistance provided by the foreign company (see below). A minor effort to support a (potential) supplier – through some technical assistance or the introduction of a quality control system – can improve quality significantly, and turn these companies into attractive suppliers.

A good example to illustrate how Hungarian companies can supply the demand for high quality products is provided by IBM. IBM buys its reading and writing heads for its hard disk assembly plant in Székesfehérvár from VIDEOTON. According to IBM, VIDEOTON's quality can compete with Japanese manufacturers in this highly competitive market. The lower price makes the purchase in Hungary very attractive. Currently, IBM purchases \$ 180 million

a year from VIDEOTON, an amount that will probably increase significantly in the coming years, in view of IBM's plans to triple output.



#### *DELIVERY TIME*

Our assumption was that delivery conditions would not be a strong point of Hungarian companies. Fast and punctual delivery has never been an important issue during the socialist era. We expected that an improvement in more favorable delivery conditions would be a long-term process, especially since the developments in this area in Western countries have progressed enormously during the last 10-20 years. These developments mainly refer to the concept of just-in-time delivery (JIT).

But opposed to our assumption, we found that delivery time was in fact one of the positive features of domestic suppliers. This does not specifically refer to the realization of JIT, but to the advantages of proximity. Indeed, most domestic suppliers are not familiar with JIT, or at least they were not at the time when the business relation started. (JIT is one of the areas in which foreign companies provide assistance to domestic companies; see below). But the advantage of proximity results in shorter transportation times. Besides, they have the advantage of not having to cross the border, which complicates JIT deliveries from foreign suppliers, although the border formalities have improved considerably since the change of system. Anyway, these observations indicate that the delivery conditions of a great many domestic companies turn out to be better than our initial assumption.

So whether or not domestic companies are familiar with the concept of JIT, working with local suppliers can improve flexibility, as was mentioned for example by a manager at the Dutch AMSTEL brewery in Komárom. He pointed out that if they needed some extra items of a specific product in a short time, only a domestic supplier could meet their order. One can not imagine that a foreign company from for instance the Netherlands would be willing or able to handle such a request, let alone to get the merchandise there in time.

#### *TRADE BARRIERS*

Trade barriers, both export and import, can exert a positive influence on local sourcing. Concerning the former, the example of SUZUKI is well known. SUZUKI set up production in Hungary first of all to serve the Hungarian and other CEE markets. As sales turned out to be disappointing, they were forced to export to the EU. Duty-free export from Hungary to the EU requires 60% European content. As the Hungarian subsidiary was the only production facility of SUZUKI in all of Europe, they were forced to look for local suppliers, which they did. Currently, SUZUKI has a European content of 64%: 27% of value added from Hungarian local suppliers, 23% from SUZUKI itself and 14% from the rest of Europe (Havas, 1997). However, the example of SUZUKI is rather exceptional. Most Hungarian-based exporters to the EU have some EU suppliers. Therefore, the tariffs do not count for European companies that have invested in Hungary. Even when they still use supplies from the parent company or from other EU countries, or when they use a lot of Hungarian suppliers, they meet the European content requirement that sets them free from import tariffs in the EU.

Import barriers are a way to stimulate local content as well. For instance, heavy duty is levied on the import of food products into Hungary. This forces foreign investors in Hungary to look for domestic suppliers, in order to reduce production costs and to be more competitive.

Finally we have to state that the described positive effects of tariff barriers on the local content of foreign companies in Hungary refer not only to increased purchase at domestic Hungarian companies, but also to foreign companies that have invested in Hungary.

### 7.3.2 *Factors restricting the use of domestic Hungarian suppliers and subcontractors*

A number of factors restrict the use of domestic suppliers. In the preceding section we already referred to the fact that large multinational corporations often use international supplier audits for worldwide supplies, and do not allow individual subsidiaries to use other suppliers. But also in the case of smaller companies, the parent company often decides which suppliers or subcontractors to use. Moreover, it might be the client that deters which supplies to use, notably when it concerns the production of specific products that are adjusted to the customers' wishes.

A frequently heard restrictive factor is that *there are no domestic suppliers* that produce the components or semi-manufactured articles required. Three aspects are relevant in this respect. The first is that it might be that the activities of the foreign companies do not link up to the existing production structure in Hungary. This seems especially valid for greenfield investments. A second related factor is that this might be exacerbated by the inflexibility of domestic companies to meet foreign investors' need for other, or new products. Also in industrial relations, the saying 'the customer is always right' has not taken root yet. According to one of the interviewees the situation is such, that 'if a potential supplier does not produce a certain product, he will not produce it if we ask him to, although he has the required knowledge and technology to do so'. A concrete example is offered by AMSTEL, a Dutch brewery in Komárom, that finds it impossible to buy brown bottles in Hungary, whereas green bottles are easily available. In contrast they succeeded in finding a Hungarian company that was willing to make crown corks, a product that was not available in Hungary thus far. This shows that the unwillingness to adapt to specific wishes of foreign investors is not characteristic for all Hungarian companies. But it shows at least the diversity among domestic companies in terms of their adaptation to the new market environment in their country. A third aspect is that domestic suppliers are now foreign-owned. As such this is not a surprising tendency, since the better Hungarian companies are often the ones to function as suppliers for foreigners, and are for that reason potential take-over targets.

### 7.3.3 *Future expectations of foreign and domestic companies*

#### *FOREIGN COMPANIES*

In chapter 2 we stated that local sourcing usually increases the longer foreign companies are present in a certain country. The longer they operate in a certain country, the better they know the local economic and business environment, and the higher the chance of contact with potential domestic suppliers. Based on this, we would expect a relatively large number of foreign investors in Hungary that expect an increase in the outsourcing to domestic companies, especially since most foreign companies entered the country relatively recently. However, there are some factors that might exert a negative influence on this. We can, for instance, think of the earlier mentioned unavailability of a large number of products in Hungary, the still moderate quality of commodities at a number of Hungarian companies, and the take-over of domestic suppliers by foreign investors.

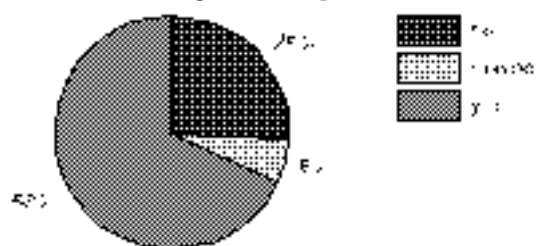
Nevertheless, 68% of the foreign companies in our survey were expecting an increase in the level of purchase at domestic companies in the two years following the interviews (figure 7.2). Four main sets of factors were given for this expectation: expansion of output,

logistical reasons, the general tendency for outcontracting, and better quality from domestic suppliers.

The expected increase in output and sales turned out to be an obvious but important factor in increasing domestic supplies, either because of a higher degree of capacity utilization or an expansion of the capacity. Concerning the latter we already concluded in chapters 5 and 6 that a large number of companies are involved in this. Along with an expansion of production and sales, the purchase from domestic companies will increase in absolute terms (at least if they were involved in this before).

For a number of companies the expected increase of domestic purchase is related to logistical advantages, both related to costs and delivery. Apart from the lower price level that can generally be found at domestic suppliers, lower transportation costs is a factor influencing domestic supplies. These savings are important for companies that are aimed at serving the local market, and to a larger extent for export-based companies, for instance as indicated by in a cost-benefit analysis performed by one of the firms in our survey. If the company would produce for export in Hungary, with supplies coming from Western Europe, the cost benefit of the investment in Hungary would be 17%. If, on the other hand, a large share of the supplies was obtained in Hungary, the cost benefit would be 54%, because of both lower purchasing and transport costs. Moreover, one of the reasons to increase the share of domestic purchase is that it is easier to realize JIT. But, as we will see below, this often requires some effort in the form of assistance given by the foreign company to the domestic company to get acquainted with this new phenomenon.

Figure 7.2 Do you expect an increase in the level of outcontracting to and purchase from domestic Hungarian companies in the next two years?



Other companies mentioned that they were expecting an increase in domestic purchase because of a general global trend of increased outcontracting and subcontracting. By sticking to its core business, a company becomes more flexible and can better respond on changes and fluctuations in demand. But this can only be the case with reliable subcontractors that can guarantee quality and delivery.

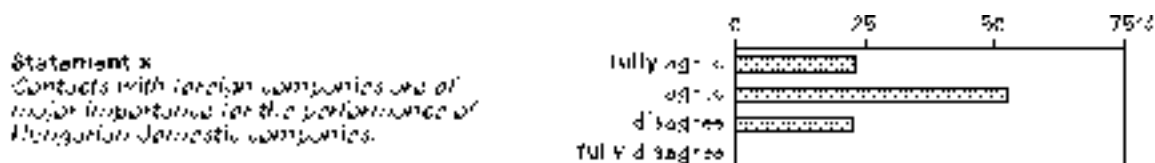
A final reason for an expected increase of domestic purchase that emerged during the interviews refers to increased product quality at an increasing number of domestic companies. Not surprising, foreign companies are careful in selecting their subcontractors, especially domestic companies, because there are large differences. However, as the transition continues, and more and more domestic companies restructure their facilities, the number of suitable Hungarian subcontractors and suppliers increases. ESKIMO, for instance, found only 25 suitable suppliers in Hungary in 1992. The 1997 supplier audit produced more than 2,000 companies that pass the company's quality standards<sup>7</sup>. However, when taking into account the ISO 14000 norm, that involves environmental standards, there are only three suppliers that pass the audit.

Although not specifically mentioned by the managers, an underlying factor that plays a role is obviously time, that is a crucial factor in forming a better knowledge of the local economy and the establishment of long-term, reliable, relations with suppliers and subcontractors.

Next to a vast majority of companies that expect an increase in domestic supplies, a quarter of the firms do not foresee such an increase. A few exceptions aside, these are companies that buy only a limited amount from domestic companies currently. One important reason, mentioned by almost half these companies, lies in the unavailability of the required raw materials and SMAs at Hungarian companies. Other companies want to increase their local sourcing, but only through increased purchases from other foreign companies in Hungary.

#### DOMESTIC COMPANIES

In section 7.2.3 we found that the vast majority of the domestic companies have contacts with foreign companies located in Hungary or abroad. But what about the near future? From the 13 domestic companies in our survey, 12 are actively seeking new business relations with foreign companies, either in or outside Hungary. This refers not only to foreign companies in Hungary and in the West, but also to companies in CEE. Within CEE, especially the Russian Republic and Ukraine were mentioned during the interviews. After all, the collapse of the CMEA has forced these companies to re-establish former contacts and to seek new business relations. For food processing companies the eastward orientation is prompted by trade barriers imposed by the EU as part of the Common Agricultural Policy (CAP). Ten companies expected the active policy for new relations would lead to new contacts with foreign companies in the two years following the interviews.



In general one can say that the companies see the importance of contacts with foreign companies and a more international orientation, as is also shown in the managers' responses to statement x. More than three-quarters of the managers are of the opinion that contacts with foreign companies are of major importance for the performance of Hungarian companies. The open character of the Hungarian economy nowadays, and the financial need for cooperation with other, foreign companies are relevant in this respect.

### 7.4 Diffusion of modern technologies and organizational and technical know-how

One of the positive effects of FDI in transition economies lies in the diffusion of modern technologies and organizational and technical know-how to domestic companies. Through this diffusion, the effects of FDI on the modernization of production can be far more widespread than if they were to act as 'cathedrals in the desert'.

In chapter 2, we stated that this diffusion can be either active or passive. Passive diffusion – that is the normal exchange of information, know-how, quality standards etc. that are necessary for the establishment of a normal supplier or subcontracting relation – is difficult to measure. Nevertheless, based on our findings in section 7.2 that dealt with the purchasing behavior of foreign companies, we can conclude that passive diffusion seems important: almost all foreign companies purchase from domestic companies and on average 28.5% of the total purchase comes from domestic companies.

In this section, we are interested in active diffusion, because of its greater impact. Active diffusion refers to the situation where a foreign company provides some kind of assistance to a domestic company that goes beyond the normal exchange of information.

Just over half of the companies in our survey provide assistance to domestic companies with which they have contacts (table 7.3). Considering only companies that buy at least 25% of their total purchase from domestic Hungarian companies, more than 60% of the companies provide assistance. In other words, foreign companies that are more integrated in the Hungarian economy provide assistance more often. It seems, that by providing assistance, domestic companies can become more attractive as suppliers or subcontractors (if they were not already in the first place).

One might expect differences in these findings between companies in different sectors and between different entry modes. However, we found hardly any difference in terms of assistance provided when differentiating between these two variables.

*Table 7.3* Technical and organizational assistance of foreign investors to domestic suppliers and subcontractors (% of companies)

	All foreign companies (N=50)	Companies $\geq$ 25% domestic purchase (N=21) <sup>a</sup>
Assistance	52	62
No assistance	48	38
Total	100	100

<sup>a</sup> 20 companies reported less than 25% purchase from domestic Hungarian companies. For another 9 companies the share of total purchase from domestic companies is not known (missing value).

In our survey, a wide range of assistance was found. Assistance can be classified under three headings: technical assistance, organizational assistance and financial assistance. All three will be discussed shortly below. Of course the results are only indicative in nature.

When discussing the issue of assistance to domestic companies in the former centrally-planned economies, the emphasis is often solely on technical assistance. This refers to the diffusion of modern technologies and know-how. In our survey this indeed turned out to be one of the major kinds of assistance. Often this includes aid in the form of production equipment for use by the domestic company. Further assistance involved training of employees at the domestic company, the Hungarian subsidiary of the foreign company, or even the parent company of the foreign investor abroad. Another variation is that employees of the foreign investor are posted at the Hungarian supplier or subcontractor temporarily.

Next to technical assistance, we found a large proportion of companies that provide assistance in organizational know-how. In our survey, this refers to management assistance

and consultancy, and assistance in (the implementation of) quality control and JIT. Sometimes the main aim of management assistance is to give the management self-confidence in corporate governance. This kind of assistance, that has been given little attention thus far in the literature, might be even more important than technical assistance. After all, modernizing the organizational structure in former SOEs is one of the important elements of transformation. In addition, there is a lack of people for key positions as was found in chapter 6. Finally, the implementation of technological modernization seems to be impossible without the proper organizational changes and without a proper supervision of the modernization process.

Next to this more general picture, management assistance might be required especially for domestic companies that have performed quite well and therefore registered excessive growth in a relatively short time. These successful companies find difficulty in or are unable to meet the excessive growth in demand. As a result, the organizational structure of the company (management) does not grow with the company. Giving management assistance or consultancy to these companies keeps them on track and guarantees future cooperation with the foreign investor.

Finally, assistance can be through financial aid as well. Since domestic companies find it difficult to finance their investments on the capital market (under favorable conditions), a foreign partner might provide financial assistance by securing a loan. Repayment might be either cash or in kind. In the latter case, the loan can be seen as a prepayment for future deliveries.

#### *DOMESTIC COMPANIES*

In section 7.2.3 we found that forward linkages of domestic companies occur more often with foreign companies that are located in Hungary than with foreign companies abroad. So the potential for receiving assistance is much higher for linkages with foreign companies that are located in Hungary. Indeed, we found that the linkages with foreign companies in Hungary are more often involved with assistance than those with companies abroad (table 7.4). However, the low number of cases forces us to interpret these findings with utmost care.

*Table 7.4* Assistance in the form of machines, know-how or organizational support from foreign companies (forward linkages only<sup>a</sup>)

	With foreign companies in Hungary	With foreign companies abroad
	Number of companies	Number of companies
Assistance	3	1
No assistance	5	4
Total	8	5

<sup>a</sup> For backward linkages we found no assistance.

When comparing our findings in table 7.4 with those in table 7.3, we see that fewer domestic companies reported that they receive assistance from foreign companies in Hungary, as opposed to assertions made by foreign companies (37.5% compared to 52%). This might have to do with the low number of domestic companies in the survey. Another factor might be that for domestic companies, the issue of assistance from foreign companies is

somewhat sensitive. A number of managers at domestic companies emphasized the *equality* of the relations with foreign companies. In contrast, there was one manager who admitted that they actually required some assistance from the foreign business partner, but they were afraid to raise the issue. He feared that if they brought up the issue, the foreign partner would go to another (Hungarian) subcontractor.

## 7.5 Conclusion

In this concluding section the most important findings in this chapter are:

- Foreign companies in Hungary are well tied into the Hungarian economy. Local sourcing in privatized companies is more than 60%. In greenfield companies this is close to 40%. The different findings for both modes of investment is mainly due to a difference in the purchase from other foreign companies located in Hungary, rather than from domestic Hungarian companies.
- Taking into account the limited time that foreign companies are present in Hungary, foreign companies actually purchase a rather high share from domestic Hungarian companies. At privatized companies, close to one-third of total purchase comes from domestic Hungarian companies. But especially at greenfield companies the purchase from domestic Hungarian companies is higher than we expected (close to one-quarter). At both privatized and greenfield companies the purchase from domestic Hungarian companies is highest for supporting services and simple semi-manufactured articles. Besides, purchase is relatively high for food and beverages and mechanical engineering companies. Overall, three-quarters of the foreign companies expect an increase in the purchase from domestic Hungarian companies in the near future.
- Low price and favorable delivery conditions are the most important reasons for purchasing from domestic companies. The differences between domestic companies are considerable in terms of the quality of their products. The unavailability of a large range of products was given as one of the major restrictions in increasing the purchase from domestic Hungarian companies.
- More than half of the foreign companies provide some kind of assistance to domestic suppliers and subcontractors, resulting in a positive effect on the diffusion of technology and know-how. This assistance includes technical assistance, assistance in organizational know-how, and to a lesser extent, financial assistance.

## NOTES

<sup>1</sup> As most SOEs were highly vertically integrated, these former linkages mainly refer to linkages with other parts of the then SOEs, that are privatized to other owners, or are still in state hands.

<sup>2</sup> The higher number of greenfield companies in this sector is even more pronounced here, as more privatized companies could not differentiate between the purchase at domestic and foreign companies in Hungary (and are therefore missing values).

<sup>3</sup> See also section 7.3.

<sup>4</sup> From the viewpoint of domestic companies these forward linkages with foreign companies coincide with backward linkages when looked at from the viewpoint of foreign companies (see also chapter 2).

<sup>5</sup> A somewhat different, even more extreme example is from an Austrian producer of bakery equipment in Hungary that was in negotiations with a domestic Russian company to deliver some bakery machines. The Russian company was not secure about the quality the Hungarian company could provide, so the Hungarian subsidiary referred to the parent company in Austria. Finally, the Russian company bought the machinery at the Austrian parent company. But they ended up with a price that was much higher than when they would have bought the machines directly from the Hungarian subsidiary, for products that were manufactured in Hungary anyway.

<sup>6</sup> That is when the interviews were taken.

<sup>7</sup> These numbers refer to both foreign and domestic companies in Hungary.



# 8

Following the change of system in 1989, Hungary became an attractive destination for foreign direct investment (FDI). The country's largely untapped consumer market and the low labor costs offered opportunities for many foreign companies. On the other hand, the Hungarian state has been very keen on attracting FDI. Lacking indigenous capital, they preferred foreign capital for the privatization of state-owned enterprises (SOEs). Moreover, foreign companies bring in Western management techniques, modern technologies and know-how, which were new to the local economy at the onset of the transition. In other words, FDI can play an important role in the transformation towards a more market-based economy.

In this study we focused on the contribution of FDI toward some key elements in the economic transformation in Hungary. The central problem definition of this study is: *What are the direct and indirect effects of foreign direct investment on the modernization of the manufacturing industry in Hungary, and what are the consequences of this modernization on the demand for labor, both in qualitative and quantitative respects?* The direct effects of FDI refer to modernization inside the foreign plants, and the indirect effects refer to the diffusion of modern technologies and know-how toward domestic companies.

We studied these processes in foreign manufacturing companies operating in mechanical engineering, electrical engineering, and the food and beverages industry; sectors that have the highest foreign involvement. Moreover, the study was restricted to companies that are located in Budapest and its surroundings or the northwest of Hungary. These regions host not only the highest concentration of FDI in Hungary, but in all of Central and Eastern Europe (CEE). Based on a disproportionate stratified sample, we interviewed staff at 50 foreign companies: 29 companies that invested in the privatization of SOEs, and 21 companies that set up new plants from scratch, so-called greenfield investments. In order to be able to put our findings for foreign companies in perspective, we interviewed staff at 13 domestic privatized companies.

As for the potential of host-country effects of FDI, Hungary seems to take an intermediate position. In contrast to developing countries, socialist Hungary was characterized by a fairly skilled labor force, high R&D expenditure, and an extensive industrial sector. But on the other hand, commercial, transportation and communications infrastructure were not much better than in many middle-income countries and its industrial performance was questionable. Besides Hungary has a much smaller level of technological, organizational and management capabilities than was found in Germany after the Second World War. So we could say that Hungary was maldeveloped, rather than underdeveloped.

In the context of the socialist past of Hungary, the distinction between foreign privatized and foreign greenfield companies is considered important in this research. Where privatized companies have to cope with the legacy of the socialist system directly, greenfield companies are only confronted with this legacy in an indirect way. Related to the main themes in this study, this means for instance that privatized companies are assumed to be saddled with largely obsolete production equipment and excess employment, whereas greenfield companies can furnish their plants with the latest technological equipment, and exert a more positive effect on employment. On the other hand, the diffusion of modern technologies (indirect effects on modernization) is expected to be higher in privatized companies because of former linkages and a better knowledge of the local economy.

In this concluding chapter the empirical findings of this study will be used in trying to find an answer to the question whether foreign companies contribute to bridging the gap between Hungary and Western market economies.

Looking at the processes taking place within the foreign subsidiaries we can indeed conclude that *FDI is bridging a gap*. Our findings have shown that foreign companies contribute considerably to the modernization of the manufacturing industry and the transformation of the labor market by implementing organizational characteristics and technological standards similar to those in Western countries.

This study convincingly showed that FDI is of major importance for the technological modernization in a direct way. Both privatized and greenfield companies contribute to the technological modernization in their own specific ways. Greenfield investments use international standard and state-of-the-art technology to a large extent. However, when the investment in Hungary is the result of a transfer of production capacity from Western subsidiaries to low-production-cost Hungary, this often involves a physical transfer of used equipment from these subsidiaries as well. It turned out that privatized companies indeed have to cope with obsolete equipment to a large extent when they started their operations in Hungary. On average, they start with more than 56% obsolete equipment. However, they have been able to reduce this share considerably in the meantime to 28%. Moreover, this share will further decrease, as 90% of the privatized companies have planned further investments in the near future. Although most foreign privatized companies still can not stand up to greenfield investments in terms of their equipment and technologies used, their contribution to the modernization of production is of vital importance. The more so, since they carry the momentum in the Hungarian manufacturing sector.

One of the elements is related to labor. The transformation of the labor market is one of the central elements in the transition towards a market-based economy. In this study we studied this transformation from the viewpoint of foreign companies. Admittedly this does not provide the whole picture, but we were of the opinion that the core of the changes on the labor market is to be found in these foreign companies, as they are the front-runners in the modernization process.

We conclude that foreign investments play a leading role in bridging the gap with respect to labor, both in quantitative and qualitative respects. Foreign privatized companies have dealt convincingly with overmanning, a typical problem in socialist countries. The layoffs that were the result of the new foreign owners' policies have often caused a negative effect on employment during the first years after the investment. However, it does not seem right to blame the foreign companies for this, especially in view of the fact that restructuring of SOEs and improving productivity were factors that play a role in attracting FDI in the first

place. Keeping in mind the legacy of the socialist system – characterized by largely obsolete equipment and full employment, unemployment on-the-job and top-heavy management – modernization of production, and a related increase in labor productivity, must inevitably lead to job losses.

Indeed, our research showed that the employment effects of foreign companies are not negative per se. Half of the foreign privatized companies have shown an increase in employment since the establishment, due to the setting up of new departments for instance sales and distribution, and an expansion of production capacity. A concomitant factor lies in the fact that not all privatized companies had to cope with overmanning to the same extent, partly because of pre-privatization restructuring. Next to this, greenfield investments have created new jobs for a great many people. Ongoing expansion at these greenfield sites will continue in the years to come.

Even more important for the transformation process is the way foreign companies affect the labor market in a qualitative respect. First of all foreign investors that use Hungary as an export base are attracted not only by the low labor costs, but to a large extent the high professional skills of Hungarian workers as well. Foreign investors appeared to be very positive about the skills of Hungarian employees, their eagerness to learn and their adaptation to the new situation in their country. Such a high level of skills made it easy for foreign investors to get workers acquainted with the new technologies that are introduced in foreign companies. In this respect, they also set the direction in which the education system (vocational training) has to be adapted for the new Hungary.

Our research showed that the mismatch between supply and demand on the labor market is highest for staff positions, indicating the contribution of foreign companies to the organizational modernization in their plants. Foreign companies have great difficulty in filling vacancies for key positions, especially for human resource managers, logistics managers, (middle-level) production managers, sales and marketing managers, financial management, chief engineers and quality control staff. The shortages are the combined result of the absence of these professions during the socialist period, the slow adjustment of the educational system, and the fact that people still have difficulty in handling responsibility in their work. Foreign companies are bridging the gap, by taking the education in these professions in their own hands. Besides, when they have been educated, people get the opportunity to acquire the necessary experience inside the foreign subsidiaries. The managers at most foreign companies are pessimistic about a decrease in these hard-to-fill vacancies for staff positions in the near future. The strong concentration of FDI and the ongoing inflow of foreign capital, all looking for the same management skills, are important factors in this respect.

Finally, foreign companies are important in transmitting what we might call ‘soft skills’ to Hungarian employees – shop-floor workers and people in key positions. By soft skills we mean tacit knowledge, team spirit and mentality. The skills that are lacking in Hungary (and other countries in CEE) are exactly the ones that have developed in Western market economies in the form of tacit knowledge. Our survey provided some evidence that foreign investments play a major role in transmitting tacit knowledge to their employees. Not only by just being there, but also because they spend a great deal of time and effort in changing their employees’ way of thinking and working methods. This also goes for team spirit and mentality. Teamwork appeared to be a problem for most employees, and forty years of central planning have resulted in low work morale. Almost all the companies in our survey are engaged in training employees in teamwork and motivation, so as to increase flexibility

and the company's competitiveness. These are also important elements in the transition of the labor market.

As a result of the process described here, labor productivity has improved considerably in practically all the foreign companies in our survey. This holds first of all for privatized companies that generally started with terribly low productivity levels. The increase in labor productivity is a direct result of the implementation of modern production equipment, the training of employees, and a number of organizational changes of which staff reduction and job combination seem to be the most important. An increase in labor productivity was also found in greenfield companies. They had to cope with start-up problems that were high due to the inherited features (for instance low work morale, and the lack of personal responsibility) and the rapidly changing economic environment.

On the other hand, our study provided evidence that FDI has contributed to a *widening gap within the country*, or at least not contributed enough to bridging the gap. The most important point is that the *gap between foreign and domestic companies has widened*. Domestic privatized companies in manufacturing do not only have a worse starting position than companies that were sold to foreign owners (on average more than three-quarters of the equipment is obsolete at the start of their operations), but have not been able to reduce this share ever since. The lack of good financing options was reported by the managers as a major constraint in the replacement of the outdated technology. However, one might question whether this is caused by the unwillingness of banks to finance the modernization of equipment or the high interest rates as reported by the managers. The reason might well lie with the domestic companies themselves, as they still use largely outdated equipment and are less engaged in modernizing the organizational structure of their companies. The latter is indicated by our finding that, as opposed to foreign companies, domestic companies did not have problems filling vacancies for key management positions, notably in those professions that were largely absent under socialist rule.

One indication of how foreign companies widen the gap with domestic companies is for instance foreign investors, especially those in greenfield sites, who cream qualified workers from domestic companies rather than take on the unemployed or school-leavers. Foreign companies can offer higher salaries and fringe benefits, and have a better image as employer. One could speak of a brain drain from the state and domestic private sector to foreign companies.

What we did study in this thesis is the way in which foreign companies can contribute to decreasing the gap with domestic companies. This was done by looking at the backward linkages with domestic suppliers and subcontractors. These linkages are the channels of diffusion for Western management techniques and modern technologies, especially when these linkages are accompanied by the provision of assistance to the domestic company. The indirect effects of FDI on the modernization of production might be much greater than the direct effects, and might be even more important for the (transition of the) Hungarian economy as a whole.

Taking into account the short time that most companies have operated in Hungary, and the rather unstable economic situation in the early transition years, we found that both privatized and greenfield companies purchase a rather high share of their total sourcing from Hungarian domestic companies. Privatized companies buy close to one-third of their total purchase from domestic companies and greenfield companies one-quarter. The main reasons for using domestic suppliers and subcontractors are favorable prices and, surprisingly,

delivery conditions. Although most domestic companies are not familiar with recent developments in logistics like just-in-time delivery, geographical proximity is important, both in terms of distance and flexibility. In contrast, the major factor that prevents foreign companies from purchasing more from domestic companies is that there are no domestic Hungarian suppliers for a large range of products. This might be the joint result of the modernization process in Hungary that has attracted new activities to the country that are incongruous with existing activities, and the fact that Hungary is not richly endowed with natural recourses.

The linkages between foreign and domestic companies can be seen as an indicator for the diffusion of modern technologies and know-how. More important in the case of Hungary is active diffusion, where the foreign investor provides some kind of assistance to domestic suppliers and subcontractors that goes beyond the normal exchange of information. More than half of the foreign companies provide some kind of assistance. Companies that purchase more from domestic Hungarian companies provide assistance more often. Assistance mainly involves technological assistance and assistance in organizational know-how. The latter can take many forms, like management assistance, consultancy, and assistance in (the implementation of) quality control and just-in-time delivery. Financial assistance was not a common form of assistance.

An industrial policy aimed at the promotion of linkages between foreign and domestic companies is therefore not only of interest for domestic companies, but a matter of national concern. Based on the findings in this study, the purchase from domestic companies can be increased by an improvement in (product) quality at domestic companies. A dynamic innovation policy, for instance through the setting up of technology centers and the implementation of R&D subsidies, can be important in this respect. Nevertheless, more than two-thirds of the foreign companies in our survey indicated that they expected an increase in the purchase from domestic Hungarian companies in the two years following the interviews. These expectations were based on an expansion of the output in Hungary, logistical reasons, a greater tendency of outcontracting in international business, and an improvement in product quality at a growing number of domestic suppliers. But despite the relatively high and still growing purchase volume, it has not yet paid off in major structural improvements at domestic companies. So, the growing gap between foreign and domestic companies is a matter of concern for the near future.

Second, the geographical concentration of FDI in Hungary has caused an *increasing gap between regions* that attracted a large share of FDI (more or less the very regions central in this study), and regions that have not, notably the eastern half of the country. Of course it is not fair to blame FDI solely for the regional differences in Hungary. Hungary has for years been characterized by a very uneven geographical distribution of the economy. But what we might conclude is that the location of FDI has been a factor in further accentuating regional differences after the change of system in 1989.

The geographical focus in this study was on those regions that have attracted the vast majority of FDI up till now. The concentration of the Hungarian domestic manufacturing industry in Budapest and the northwest has been an important factor in the location of foreign companies. First, because of this concentration, most companies in the manufacturing industry that were put up for sale in the privatization of SOEs were located here. Second, because of this concentration of the manufacturing industry, Budapest and the northwest of Hungary host a large pool of well-educated, experienced workers, many of whom became available after restructuring at these SOEs. The quality of labor has turned

out to be an important factor for foreign greenfields to locate their premises in the northwest and in the agglomeration ring around Budapest. Other factors are related to the geographical position in international respect in general (bordering the EU), and geographical proximity in particular (for Austrian and German companies), better infrastructure, a higher education level, and factors that are related to the position of Budapest as a primate city.

This study showed that the strong concentration of FDI is causing more and more problems for foreign companies in recruiting suitable employees, especially for companies located in Budapest, areas directly bordering Austria, and the former industrial districts of Győr and Székesfehérvár that have managed to attract a lot of greenfield investments. These problems force foreign companies more and more to look for locations where labor is abundant. The eastern part of the country does not only have a large pool of unemployed workers, wages are lower too. So, these locations might be especially attractive to companies that are in search of cheap low-skilled labor. In contrast, the education level of the labor force is lower than in the northwestern part of Hungary, and the integration with the western part of Hungary (and therefore Western Europe) is problematic.

Considering the above, we conclude that the privatization policy in Hungary that favored the direct sale of SOEs to strategic foreign investors has turned out to be successful. Partly as a result of these foreign investments, Hungary has been able to integrate into the West European economy substantially, after being locked in the socialist spheres of influence for forty years. The impact of FDI on the transition in Hungary has been substantial and largely positive up till now.

The role of foreign companies in the transition of the labor market is substantial. Practically all the foreign companies are involved in on-the-job training and in-house education. Their efforts are most important in the education of people for key positions for whom there is a large shortage, and in transmitting soft skills. The transfer of these soft skills is not only decisive in a company's profitability, but is also a very central, though underexposed element of foreign companies' contribution to the transformation process. Further research on these soft skills seems therefore appropriate.

Of course, the modernization process that is so vital for the economic transition has thus far been largely restricted to the foreign companies themselves, and some are still in the middle of it. Generally speaking, the foreign companies are not acting as 'cathedrals in the desert'. In fact, the purchase from domestic Hungarian companies is relatively high and many companies are actively seeking to increase this further. Even considering the limited modernization at domestic companies, foreign investors see the benefits of local purchasing, and are willing to provide assistance to domestic suppliers. So, probably when studying the diffusion of organizational and technological know-how in a later stage of the transition process, the picture might be more positive, regarding linkages, diffusion, and the modernization process in the domestic companies.

In this study, we focused on the manufacturing industry. But, where manufacturing has turned out to be the main destination for foreign capital, the sector as a whole is decreasing in importance. This is partly related to the transitional recession, as well as a change from an industrial society to a post-industrial, service-oriented society (see Barta, 1996). The study of this process, and the role of FDI in this, opens new avenues for future research as well.

Currently, nearly ten years after the change of system, investment opportunities in the privatization of SOEs are reaching their end, as the privatization is nearly completed. This

means that future investment has to be mainly in greenfield sites. The central question is whether Hungary will stay an attractive destination for FDI in the future. It might well be that the times are changing. Although many firms were attracted to the untapped domestic market, the market potential is with just over 10 million consumers rather small. Moreover, as one of the front-runners in the transition process, wages in Hungary are relatively high compared to other countries in the region (for instance Romania, Ukraine, Russian Republic, Bulgaria).

However, we do not foresee a large out-migration of foreign firms from Hungary to other countries in the region, as wages increase. Serving the local market is an important motive for foreign companies that have invested in Hungary. For a large share of companies that have invested for cost considerations only, the education level and the skills of Hungarian employees are important as well. Moreover, most foreign companies are extensively involved in training and educating their employees, incurring expenses which can be characterized as sunk costs, in that they are irrecoverable in the event of selling or closing the factory. Finally, most foreign companies are extensively linked to the Hungarian economy. Local sourcing is high, especially in privatized companies (more than 60%, compared to 39% for greenfields).

Nor do we expect that Hungary will lose its attractiveness for foreign investors that plan to invest in the CEE region on short notice. The large inward FDI stock has created a basis of trust among foreign companies, politically, economically and legally. But in the longer run, along with increasing wages, Hungary will become less attractive for companies in labor-intensive industries that are characterized by cheap unskilled labor. In fact, companies in these sectors in Hungary have already started to invest abroad, in a Central European version of the flying-geese phenomenon (UNCTAD, 1998; Meyer, 1998). The outward FDI stock of Hungary at the end of 1997 was close to \$ 1 billion.

This tendency might be accelerated by the forthcoming EU membership. Ever since the change of system, Hungary, as the happiest barrack in centrally-planned Europe, has projected itself as a country that might take the role of a bridgehead between East and West. Perhaps through an EU membership, Hungary can really occupy this position, and take over part of the role that Austria has been playing up till now. In that case, Hungary might assume a leading role in bridging the gap between the EU and other countries in CEE that have made less progress in the transition process thus far. Consequently, Hungary might develop as a central country on the European periphery. This might also have a positive effect on the development of the eastern part of the country, as it becomes a more attractive location for foreign companies to establish production facilities or distribution centers.

## **Buitenlandse directe investeringen in Hongarije: Effecten op de modernisering van de industrie en de vraag naar arbeid**

Na de val van de Berlijnse muur in 1989 en het verdwijnen van het socialisme werd Hongarije een aantrekkelijke bestemming voor buitenlandse directe investeringen (FDI). De combinatie van marktpotentie, lage loonkosten en een relatief liberaal investeringsklimaat sprak veel bedrijven aan. De Hongaarse regering voerde bovendien een actief beleid. Een belangrijk instrument hierin was de privatisering van staatsbedrijven. De belangrijkste reden voor het aantrekken van buitenlandse strategische investeerders is het binnenhalen van westerse management technieken en moderne technologie en knowhow. Buitenlandse bedrijven beschikken niet alleen over de vereiste kennis, maar ook over de financiële middelen die nodig zijn voor de modernisering van de productiestructuur. Daarbij kunnen buitenlandse investeringen een belangrijke rol spelen in de transitie naar een markteconomie

De centrale probleemstelling van dit onderzoek is als volgt geformuleerd: *Wat zijn de directe en indirecte effecten van buitenlandse directe investeringen op de modernisering van de industrie in Hongarije, en wat zijn de gevolgen van deze modernisering voor de vraag naar arbeid, zowel in kwantitatieve als kwalitatieve zin?*

Voor dit onderzoek is gekeken naar de drie industriële sectoren die de grootste buitenlandse inmenging hebben: de werktuigbouwindustrie, de elektrotechnische industrie en de voedings- en genotmiddelen industrie. Daarnaast hebben we ons beperkt tot de regio's waar de meeste buitenlandse investeringen te vinden zijn. Het gaat hier om Boedapest en de omringende provincie Pest (samen de centrale regio) en de provincies Győr-Moson-Sopron, Vas, Veszprém, Komárom-Esztergom en Fejér (noordwest Hongarije). In de macroregio's centrum en noordwest Hongarije bevindt zich overigens de grootste concentratie buitenlandse investeringen van geheel Centraal- en Oost-Europa. Op basis van een disproportioneel gestratificeerde steekproef zijn in 1997 interviews afgenomen bij 50 buitenlandse bedrijven in Hongarije: 29 met bedrijven die in het kader van de privatisering van staatsbedrijven hebben geïnvesteed en 21 met bedrijven die een nieuwe vestiging hebben opgezet, een zogenaamde 'greenfield' investering. Daarnaast zijn interviews afgenomen bij 13 Hongaarse geprivatiseerde bedrijven, waardoor het mogelijk wordt de onderzoeksbevindingen in perspectief te plaatsen.

In de context van het socialistische verleden van Hongarije is de wijze van vestiging van buitenlandse bedrijven een belangrijke verklarende variabele. Bedrijven die middels privatisering in Hongarije hebben geïnvesteed hebben direct te maken met deze socialistische erfenis. Dit houdt in dat zij veelal geconfronteerd worden met verouderde machines en technologie, overbemensing, lage productiviteit, lange hiërarchische lijnen, inflexibele productiemethoden en incapabel management. Daarentegen worden greenfield investeringen, waarbij een geheel nieuwe fabriek wordt opgericht, slechts indirect geconfronteerd met deze erfenis, bijvoorbeeld door een algeheel gebrek aan mensen met de juiste managementkwaliteiten en een lage arbeidsmoraal. Zij kunnen de nieuwe vestiging inrichten naar de laatste technologische inzichten en hebben een positief effect op werkgelegenheid.

### *DIRECTE EFFECTEN OP DE MODERNISERING*

Uit het onderzoek komt duidelijk naar voren dat zowel geprivatiseerde bedrijven als greenfields een belangrijke rol spelen in de technologische modernisering van de Hongaarse indu-



strie in directe zin (binnen de eigen vestiging). De wijze waarop verschilt echter sterk tussen beide typen bedrijven. Greenfield investeringen worden uitgerust met moderne machines. Maar wanneer het gaat om een bedrijfsverplaatsing, waarbij productiecapaciteit van een westerse vestiging omwille van loonkosten verplaatst wordt naar het goedkope Hongarije, gaat die verplaatsing veelal samen met een fysieke verplaatsing van productielijnen, waardoor sommige greenfields niet (uitsluitend) met nieuwe machines worden uitgerust.

Geprivatiseerde bedrijven blijken bij aanvang inderdaad geconfronteerd te worden met een verouderd machinepark. Gemiddeld gaat het hier om 56% verouderde of sterk verouderde machines. Dit aandeel is in de tussentijd echter sterk afgenomen tot 28% en zal naar verwachting nog verder dalen, aangezien in 90% van de buitenlandse geprivatiseerde bedrijven verdere investering in technologische modernisering gepland is. De meeste geprivatiseerde bedrijven volgen een snelle, maar geleidelijke moderniseringsstrategie. Daarentegen vervangt een aantal bedrijven het gehele machinepark kort na de overname. Deze bedrijven worden ook wel aangeduid als 'brownfield' investeringen. Voor deze bedrijven is alleen de merknaam en het marktaandeel van belang in de overname, niet het bedrijf op zich.

Verder bleek dat bedrijven in arbeidsintensieve sectoren minder (snel) moderniseren, omdat de kostenbesparingen van moderne machines hier minder zijn als gevolg van de lage loonkosten. Dit geldt met name voor bedrijven in de werktuigbouwindustrie, waar veel handmatig werk moeilijk te vervangen is door machines. Het gaat hier veelal om investeringen waarbij het kostenmotief een belangrijke rol speelt (loonveredeling), in relatie met de technische vakkennis van werknemers.

De Hongaarse geprivatiseerde bedrijven in ons onderzoek hebben hun positie ten opzichte van buitenlandse investeerders vooralsnog alleen maar zien verslechteren. Om te beginnen hebben zij een slechtere uitgangspositie dan de buitenlandse geprivatiseerde bedrijven. Bij de start is gemiddeld meer dan driekwart van de productielijnen verouderd of sterk verouderd. Hongaarse bedrijven bleken tot op heden niet in staat om hierin verbetering te brengen. De technologische modernisering bij Hongaarse bedrijven wordt bemoeilijkt door financiële restricties (hoge rentevoet in relatie tot winstverwachting) en te hoge restrekkers als gevolg van verouderde machines.

#### *DE VRAAG NAAR ARBEID*

De effecten van buitenlandse investeringen op de arbeidsvraag zijn aanmerkelijk, zowel in kwantitatief als kwalitatief opzicht. Greenfield investeringen hebben vele nieuwe arbeidsplaatsen gecreëerd. Niet alleen door het opzetten van nieuwe productievestigingen maar met name ook door de continue uitbreiding van productiecapaciteit daarna. Deze voorzichtige, maar tegelijkertijd agressieve investeringspolitiek is kenmerkend voor buitenlandse investeringen in Hongarije.

De werkgelegenheidseffecten van geprivatiseerde bedrijven waren in de eerste jaren overwegend negatief. Dit is niet zozeer het gevolg van de introductie van nieuwe technologieën maar van organisatorische aanpassingen, zoals het bestrijden van overbemensing en het afstoten of sluiten van afdelingen en collectieve voorzieningen. Echter, uit het onderzoek komt naar voren dat de werkgelegenheidseffecten in geprivatiseerde bedrijven niet per definitie negatief zijn. In de helft van de bedrijven vonden we een toename van de werkgelegenheid tussen het moment van vestiging en de periode waarin de interviews plaatsvonden. Deze stijging is voornamelijk het gevolg van de oprichting van nieuwe afdelingen, zoals bijvoorbeeld verkoop en distributie, en een toename in productiecapaciteit. Een bijkomende

factor is dat niet alle bedrijven in dezelfde mate met overbemensing te maken kregen, bijvoorbeeld omdat sommige deels geherstructureerd zijn voor privatisering.

Belangrijker voor het transitieproces zijn wellicht de effecten van buitenlandse bedrijven op de arbeidsmarkt in kwalitatieve zin. De buitenlandse investeerders hebben een positief beeld van de Hongaarse beroepsbevolking als het gaat om het opleidingsniveau, de bereidheid om te leren en de aanpassing aan de nieuwe economische en politieke situatie. De vakkundigheid van werknemers maakt het voor buitenlandse investeerders gemakkelijk om werknemers vertrouwd te maken met de nieuwe technologieën (veelal on-the-job). Ook hebben zij weinig problemen bij het vervullen van vacatures op de werkvloer. Het is dan ook niet verwonderlijk, dat buitenlandse investeerders die Hongarije als een export platform gebruiken, niet alleen op zoek zijn naar goedkope arbeidskrachten, maar veelal naar *goed opgeleide* goedkope arbeidskrachten.

De mismatch tussen vraag en aanbod op de arbeidsmarkt is het grootst voor management functies. Dit kan gezien worden als een indicatie voor de bijdrage van buitenlandse investeringen aan de organisatorische modernisering. Buitenlandse investeerders hebben grote problemen in het vervullen van vacatures voor sleutelposities, met name op het terrein van personeelsmanagement, logistiek, productie, verkoop en marketing, financiën en kwaliteitscontrole. De tekorten zijn het resultaat van de afwezigheid van deze functies onder het socialistische regime, de langzame aanpassing van het onderwijssysteem, het stijgende aantal buitenlandse bedrijven, en het feit dat Hongaren nog steeds moeite hebben met het nemen van verantwoordelijkheid. Buitenlandse investeerders leveren een actieve bijdrage door de opleiding van personeel in bovengenoemde werkvelden zelf ter hand te nemen. Dit neemt niet weg dat het merendeel van de managers pessimistisch is over een verbetering in de situatie op korte termijn.

Uit de interviews met Hongaarse bedrijven komt daarentegen naar voren dat zij geen problemen ondervinden bij het vervullen van sleutelposities. Dit kan gezien worden als een indicatie voor de beperkte modernisering die hier tot op heden heeft plaatsgevonden. De problemen richten zich hier meer op het behouden van geschoolde werknemers, aangezien buitenlandse bedrijven een voorkeur hebben voor het aanstellen van deze ervaren vakmensen. Het gevolg is dat buitenlandse bedrijven – die een hoger salaris en betere secundaire voorwaarden bieden en een beter imago als werkgever genieten – de arbeidsmarkt afromen, in plaats van dat zij een directe bijdrage leveren aan het terugdringen van de werkloosheid.

Het opleiden van personeel is in vrijwel alle buitenlandse bedrijven belangrijk. Ten dele zijn deze trainingen gericht op het opheffen van tekorten op de arbeidsmarkt. Verder zijn er interne opleidingen die direct gerelateerd zijn aan de technologische modernisering. Het gaat hier met name om training on-the-job.

Naast de functiegerelateerde opleidingen zijn buitenlandse investeringen belangrijk in het overbrengen van 'soft skills' op Hongaarse werknemers. Dit geldt zowel voor werknemers op de werkvloer als in het management. Bijna alle buitenlandse bedrijven in het onderzoek trainen hun werknemers in teamwork (het werken in teamverband bleek een groot probleem voor de meeste werknemers) en proberen werknemers te motiveren. Buitenlandse investeerders spelen bovendien een belangrijke rol in het overbrengen van impliciete kennis ('tacit knowledge') op hun werknemers. Niet alleen door hun aanwezigheid, maar ook omdat zij over het algemeen veel tijd en geld steken in het veranderen van de wijze van denken en manier van werken van hun werknemers. De trainingen in 'soft skills' zijn erop gericht de flexibiliteit te verhogen en de concurrentiepositie te verbeteren. Maar het zijn tegelijkertijd ook belangrijke elementen in de transitie van de arbeidsmarkt.

Arbeid is een belangrijke factor in de locatiekeuze van bedrijven. Dit is op zich niet zo verwonderlijk, aangezien de best gekwalificeerde Hongaarse arbeidskrachten in de onderzochte regio's te vinden zijn. Maar het toenemende aantal buitenlandse bedrijven zorgt in de grote industriegebieden (Boedapest, Győr en Székesfehérvár) voor een krappe arbeidsmarkt. Het tekort aan werknemers voor managementposities is met name buiten Boedapest groot.

#### *INDIRECTE EFFECTEN OP DE MODERNISERING*

De indirecte effecten van buitenlandse investeringen op de modernisering hebben betrekking op de diffusie van moderne technologieën en organisatorische knowhow op lokale Hongaarse bedrijven, via de inkooprelaties met Hongaarse toeleveranciers en onderaannemers (subcontractors). Middels de diffusie van de modernisering naar Hongaarse bedrijven, zijn de vermeende positieve effecten van buitenlandse bedrijven veel groter, dan wanneer deze beperkt blijven tot de buitenlandse vestigingen.

Rekening houdend met de relatief korte tijd dat de meeste buitenlandse bedrijven actief zijn in Hongarije en de onduidelijke economische situatie in de eerste jaren van de transitie, kunnen we stellen dat zowel geprivatiseerde bedrijven als greenfields een groot aandeel van hun totale inkoop betrekken van lokale Hongaarse bedrijven. Voor geprivatiseerde bedrijven is dit een derde, voor greenfields een kwart. De belangrijkste redenen om gebruik te maken van Hongaarse toeleveranciers zijn gunstige prijzen, en verassend leveringscondities. Hoewel de meeste Hongaarse bedrijven niet vertrouwd zijn met recente ontwikkelingen in toelevering zoals just-in-time, is geografische nabijheid een belangrijke factor, zowel met betrekking tot afstand als flexibiliteit. Een belangrijke belemmerende factor in lokale toelevering is het gegeven dat voor een groot aantal producten geen Hongaarse toeleveranciers te vinden zijn.

De relaties tussen buitenlandse en Hongaarse bedrijven kunnen gezien worden als een indicator voor diffusie. Belangrijker in het geval van Hongarije is actieve diffusie, hier gedefinieerd als het verstrekken van assistentie of hulp die niet valt onder de normale uitwisseling van informatie met toeleveranciers of subcontractors. Meer dan de helft van de buitenlandse bedrijven geeft op een of andere manier hulp, waarbij bedrijven die meer lokaal inkopen vaker assistentie verlenen. Deze hulp is vooral in de vorm van technische en organisatorische assistentie. De laatste krijgt op vele manieren gestalte, zoals bijvoorbeeld management assistentie, consultancy, en hulp in de implementatie van kwaliteitscontrole en just-in-time levering.

Meer dan tweederde van de buitenlandse bedrijven verwacht een toename van de inkoop bij Hongaarse bedrijven. Deze verwachting is gebaseerd op een toename van de productie in Hongarije, logistieke gronden, een algemene tendens van toenemende uitbesteding, en een verbetering van de productkwaliteit bij een groeiend aantal Hongaarse bedrijven.

#### *TOT SLOT*

Buitenlandse investeringen hebben een aanzienlijke en overwegend positieve invloed op de modernisering van de industrie en de veranderingen op de arbeidsmarkt, beide centrale elementen in de transitie naar een markteconomie. In dit opzicht kan gesteld worden dat de nagenoeg afgeronde privatisering succesvol is geweest. Vooralsnog blijven de moderniseringseffecten echter hoofdzakelijk beperkt tot de buitenlandse vestigingen, ondanks de groeiende inbedding van buitenlandse bedrijven in de Hongaarse economie. De stijgende

discrepancie tussen buitenlandse en Hongaarse bedrijven is dan ook een bron van zorg voor de nabije toekomst.

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## **Curriculum vitae**

Hans van Hastenberg was born on July 9, 1967 in the city of Boxtel. In 1988 he took up Human Geography at the Faculty of Geographical Sciences, Utrecht University, where he graduated in 1993 as an economic geographer with a study on Dutch companies in Hungary, Poland and the then Czechoslovakia. The main themes of this research were the companies' investment motives, their entry modes, and how they assess the climate for investment. In September 1994 he began his Ph.D. studies at the Urban Research centre Utrecht (URU), which operates within the Faculty of Geographical Sciences of the Utrecht University. There he worked on a dissertation on the effects of foreign direct investment in Hungary on the modernization of the manufacturing industry and the labor market. Currently Hans is a lecturer at the Department of Urban Geography at Utrecht University.

# Annex 1 Questionnaire to foreign companies

This questionnaire consists of 6 parts :

1. A form in which particulars of the company should be filled out
2. Questions about the background of the investment, strategic issues and performance
3. Questions regarding production and process innovations
4. Questions with respect to labor and the organization of labor
5. Questions concerning contacts with domestic Hungarian companies
6. Some statements

## 1. Checklist

Name of company							
Name held by interviewee							
Position interviewee							
Location of headquarters							
Location of subsidiaries in Hungary							
Foreign owner	Name:			Country:			
Foreign capital share							
Other foreign partners							
Sector							
Activity							
Established since	19						
Number of employees (this plant)	1990	1991	1992	1993	1994	1995	1996
Annual sales (turnover) (this plant)	1990	1991	1992	1993	1994	1995	1996

**2. Questions regarding the background of the investment, strategic issues, company characteristics and performance**

The following questions will go into the background of the investment (such as motives for investment, entry mode, sales markets etc.), strategic issues, company characteristics and the actual performance of the company at present.

1. *How did you invest in Hungary (initial entry mode)?*
  - ◇ Acquisition of a state company
  - ◇ Joint venture (partial acquisition of a state company)
  - ◇ Joint venture (setting up a new (greenfield) plant together with a local company)
  - ◇ Greenfield investment
  - ◇ Other, namely, .....
2. *Why was this entry mode chosen?*
3. *Were other entry modes considered and why were these not chosen?*
4. *Were any additional investments in Hungary made after initial entry, or has there been a change in your company's mode of investment since then?*
  - ◇ No
  - ◇ Yes, namely, .....
5. *What was the main reason for investing in Hungary?*
  - ◇ Market considerations (Hungarian market)
  - ◇ Cost considerations (low production (labor) costs in Hungary)
  - ◇ Strategic considerations, namely, .....
  - ◇ Other, namely, .....
6. *Please indicate in terms of percentage your company's sales markets in the first full year after establishment in Hungary (= 19.....) and in 1996.*

	19.....	1996
Hungarian domestic market	%	%
Other countries in Central and Eastern Europe	%	%
Western Europe	%	%
Other, namely, .....	%	%
Total	100 %	100 %

Where there has been a distinct shift in sales markets (question 6) or a shift in strategy (question 5 & 6), i.e. market considerations combined with Western sales markets or cost considerations combined with mainly Hungarian sales:

7. *Can you explain why?*
8. *What sort of products does this establishment produce?*
  - ◇ ..... % consumer goods
  - ◇ ..... % semi-manufactured articles
  - ◇ ..... % production equipment, machinery

- ◇ ..... % other, namely, .....
- 9. *What production form(s) is your plant engaged in (as a % of output)?*
  - ◇ ..... % single-piece production (according to specific needs of clients)
  - ◇ ..... % in batches
  - ◇ ..... % mass production
- 10. *Is this establishment involved in product development (the development of new products)?*
  - ◇ No
  - ◇ Yes
- 11. *This establishment is currently .....*
  - ◇ Profitable
  - ◇ Breaking even
  - ◇ Making a loss
- 12. *How do you regard the present situation of your company compared to other companies in this branch in Hungary?*
  - ◇ It is among the better companies
  - ◇ Average
  - ◇ Among the worse

<b>3. Questions regarding production and process innovations</b>
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The following questions deal with production, production equipment, process innovations and organization of production. The questions are restricted to the primary activities of this subsidiary, i.e., manufacturing.
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- 13. *In terms of percentage, how would you categorize this subsidiary's production equipment at time of entry?*

◇ Archaic or totally obsolete	..... %
◇ Somewhat obsolete	..... %
◇ Accepted international standard	..... %
◇ State-of-the-art (very modern)	..... %
	+ ..... %
◇ Total	100 %
- 14. *Did you invest in new production equipment (modernize production) since you established in Hungary and if yes, how would you classify this new equipment?*
  - ◇ No ⇒ proceed to question 17
  - ◇ Yes, modern compared to other equipment in this subsidiary
  - ◇ Yes, modern by Hungarian standards in this sector
  - ◇ Yes, accepted international standard
  - ◇ Yes, state-of-the-art
- 15. *Was this production equipment new or was it already used or written-off machinery from other (Western) subsidiaries?*
  - ◇ New
  - ◇ Already used or written-off, namely, .....

16. *In terms of percentage, how would you categorize this subsidiary's production equipment at present?*
- |                                   |         |
|-----------------------------------|---------|
| ◇ Archaic or totally obsolete     | ..... % |
| ◇ Somewhat obsolete               | ..... % |
| ◇ Accepted international standard | ..... % |
| ◇ State-of-the-art (very modern)  | ..... % |
|                                   | _____+  |
| ◇ Total                           | 100 %   |
17. *Can you indicate the average age of the core-production equipment at present?*  
 ..... years old
18. *What were the most important motives to invest / restrictions not to invest (in connection with question 14) in new production equipment?*
19. *Are you planning to invest in new more modern production equipment in the near future (next two years)?*
- ◇ Yes, because .....
  - ◇ No, because .....
20. *Do you use Computer-Aided Technology in manufacturing, and if so, to what extent?*
- ◇ No
  - ◇ No, but we will in the near future
  - ◇ Yes, ..... % of production equipment is based on Computer-Aided Technology
21. *Was there a reorganization of production in this establishment after entry/investment (allnot due to the introduction of new equipment/technology)?*
- ◇ No
  - ◇ Yes, namely, .....

<b>4. Questions with respect to labor: quantitative, qualitative and organization of labor</b>
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In view of our aim to investigate the consequences of the modernization of production for the demand for labor, both regarding employment and qualifications, we will proceed with some questions regarding labor.
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22. *How important was the regional supply of labor (regional labor market) for the decision to locate in ..... (name of town)?*
- ◇ Of determining importance
  - ◇ Very important
  - ◇ Average importance
  - ◇ Minor importance
  - ◇ Negligible importance
23. *If labor was not of determining importance, what then was of determining importance for your decision to locate in ..... (name of town)?*



24. Which of the following applies to the new employees you hired last year (1996)?
- ◇ ..... school-leavers
  - ◇ ..... from other local companies
  - ◇ ..... from other foreign companies in Hungary
  - ◇ ..... formerly unemployed
  - ◇ ..... re-entrants on the labor market
  - ◇ ..... other, namely, .....
- \_\_\_\_\_+  
 ..... total number of employees hired in 1996
25. How do you recruit these new employees in general? Rank order: 1 is most important, 2 is second most important etc.
- ◇ Recruitment agency
  - ◇ Labor office
  - ◇ Advertisement in the newspaper
  - ◇ Schools/vocational training schools
  - ◇ In a roundabout way, through employees
  - ◇ Government job creation schemes
  - ◇ Other, namely, .....
26. What characteristic in general has the highest priority in selecting new production-related employees? Please rank: 1 is most important, 2 is second most important, 3 is third most important.
- ◇ Education
  - ◇ Experience
  - ◇ Attitude, mentality
  - ◇ Other, namely, .....
27. Are there vacancies which are difficult to fill?
- ◇ Yes, a lot
  - ◇ Yes, some
  - ◇ No ⇒ proceed to question 31
28. What kind of vacancies are these, and what are the requirements?
29. How do you cope with this problem?
30. Do you expect the problem of vacancies which are difficult to fill to change in the near future?
- ◇ Yes, because .....
  - ◇ No, because .....
31. Did the supply of sufficient suitably qualified labor play any role in the decision to upgrade / not upgrade your production equipment (check question 14)? Please explain.

32. Do you educate or train your employees and if so, in what way?

- ◇ No ⇒ proceed to question 34
- ◇ Yes, through internal courses
- ◇ Yes, through courses elsewhere
- ◇ Yes, through 'training-on-the-job' in Hungary
- ◇ Yes, through 'training-on-the-job' abroad
- ◇ Other, namely, .....

33. Why do you educate or train your employees?

34. Can you give an indication of the relation between unskilled and skilled work in this production plant at the time of establishment (entry) in Hungary and present? (Not in terms of the education of the employees, but the kind of work they do.)

	Entry	Present
Unskilled	..... %	..... %
Skilled	..... %	..... %
Total	100 %	100 %

35. Please indicate for each of the following departments whether the number of employees has decreased (-), remained the same (o) or has grown (+) during the last three years, and whether there was a shift in the level of work in each department from low (unskilled) to middle level (vocational training) and from middle to high level (higher education/university level)?

Departments	Growth	Shift from low level to middle level	Shift from middle level to high level	No shifts
	- o +			
Production (shop-floor)				
Administration & Management				
Support services departments (sales, expedition, R&D etc.)				

36. How many people work full-time and part-time in this plant?

- ◇ ..... % full-time
- ◇ ..... % part-time

37. Has the number of part-time workers grown over the last two years?

- ◇ Yes, significantly
- ◇ Yes, moderately
- ◇ No

38. *Did labor productivity per employee in this establishment change since your plant was established in Hungary?*

- ◇ Increased significantly
- ◇ Increased moderately
- ◇ Stayed about the same
- ◇ Decreased moderately
- ◇ Decreased significantly

39. *What was the main reason for this change?*

40. *Do you expect an increase in labor productivity per employee in the next two years?*

- ◇ Yes, approximately .....%
- ◇ No, it will stay about the same
- ◇ No, it will decrease by approximately .....%

**5. Contacts with other companies**

A major topic in this research is the role of Western investments in the modernization of the regional production structure in Hungary. Therefore the following questions deal with contacts with domestic Hungarian companies.

41. *Please state the activities which your company contracts out via subcontractor or supplier relations and indicate the type of companies.*

	Local Hungarian companies	Companies in Hungary with foreign capital participation	Foreign companies abroad	Not applicable
Raw materials				
Simple semi-manufactured articles				
Complicated semi-manufactured articles				
Supporting services				
Other, namely, .....				

42. *What share of your total purchase in 1996 did you obtain from domestic fully Hungarian-owned companies, companies in Hungary with foreign capital participation and from companies abroad?*

	Local Hungarian companies	Companies in Hungary with foreign capital participation	Foreign companies abroad	Total
% of total purchase	..... %	..... %	..... %	100 %

43. *Why do you / do you not purchase from Hungarian domestic companies?*  
(Catchwords: price, quality, delivery time)
44. *If you use domestic suppliers or subcontractors, do you provide some assistance or support in the form of machines, know-how, management assistance etc.? If so, why?*
- ◇ No
  - ◇ Yes, because .....
45. *Do you expect an increase in the level of outcontracting to and purchase from domestic Hungarian companies in the next two years?*
- ◇ Yes, because .....
  - ◇ No, because .....

<b>6. Statements</b>
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46. *Please give your opinion about the following statements*

	Fully disagree	Disagree	Agree	Fully agree
a) The general education level of the Hungarian labor force is a hindrance to the modernization of our production.				
b) The Hungarian labor force is well educated.				
c) Hungarian employees are eager to learn				
d) Hungarian employees still have difficulties with cooperation in their work				
e) Hungarian employees are fast learners and adapt to the new situation in their country very quickly				
f) It is very hard to recruit well-educated employees in Hungary.				
g) It is a necessity to educate workers yourself in Hungary.				
h) The setting up of a good, efficient running production plant in Hungary is not possible in the short term (two years).				
i) The technological level of (former) state-owned companies in Hungary is very low.				
j) Hungarian companies are not qualified yet to function as suppliers or subcontractors.				
k) Investment by way of a greenfield plant is the only way to obtain an efficient, internationally competitive production capacity in Hungary in the short term.				
l) Investment by way of an acquisition or a joint venture is the only way to get access or to sell on the Hungarian market.				
m) A local partner is still of vital importance for the success of an investment in Hungary.				

Thank you very much for your time and cooperation!

## Annex 2 Questionnaire to domestic companies

The questionnaire to domestic companies largely resembles the questionnaire to foreign companies. Therefore, only the question items which differ from the questionnaire presented in annex 1 will be listed.

### 2. Questions regarding privatization, foundation, strategic issues, company characteristics and performance

Questions 1-5 are replaced by:

1. *Is this a former state-owned company or a newly established private company, a so-called greenfield investment ?*
  - ◇ Former state-owned company
  - ◇ Newly established private company (greenfield)
  
2. *What is the present ownership structure of this company?*
  - ◇ ..... % owned by employees of this company
  - ◇ ..... % owned by management of this company
  - ◇ ..... % owned by domestic private Hungarian companies, persons or financial institutions
  - ◇ ..... % state-owned
  - ◇ ..... % foreign (not higher than 10%)

\_\_\_\_\_ +  
100 % Total
  
3. *Has the ownership structure of this company changed over time and if yes in what way?*
  
4. *What was the main reason for the initial investor or private owner to establish this company?*

### 4. Questions with respect to labor: quantitative, qualitative and organization of labor

Additional question:

25. *Is there, in your opinion, competition with foreign companies in Hungary for good qualified labor?*

### 5. Contacts with other companies

Questions 41-45 are replaced by:

41. *Does this company have links or contacts with companies with foreign capital participation located in Hungary (by way of supplying or subcontracting relations etc.)? If so, what kind of relations are they and what is the intensity of these contacts?*
  - ◇ No ⇒ proceed to question 43
  - ◇ Yes, namely, .....
  
42. *Do you receive any assistance, support or payment in the form of machines, know-how, management-assistance etc. from these foreign companies? What is the importance of this kind of assistance (these contacts) for your company?*

43. *Does this company have links or contacts with foreign companies located abroad (by way of supplying or subcontracting relations etc.)? If so, what kind of relations are they and what is the intensity of these contacts?*
- ◇ No ⇒ proceed to question 45
  - ◇ Yes, namely, .....
44. *Do you receive any assistance, support or payment in the form of machines, know-how, management-assistance etc. from these foreign companies? What is the importance of this kind of assistance (these contacts) for your company?*
45. *Are you actively looking for new relations or contacts with foreign companies located either within or outside Hungary?*
46. *Do you expect an increase in the number and intensity of contacts with foreign companies in the next two years?*
- ◇ Yes, because .....
  - ◇ No, because .....

<b>6. Statements</b>
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**Statements k), l), and m) are replaced by:**

	Fully disagree	Disagree	Agree	Fully agree
k) Investment by way of an acquisition or a joint venture is the only way to get access or to sell on the Hungarian market.				
l) A local partner is still of vital importance for the success of an investment in Hungary.				

## Annex 3 Statements

*Statement i* The lack of good financing possibilities is a major restriction to the modernization of our production.

	Domestic (N=13)
Fully agree	46.2
Agree	30.8
Disagree	15.4
Fully disagree	7.7
Total	100.0

*Statement ii* The Hungarian labor force is well educated.

	Greenfield (N=21)	Privatized (N=29)	Foreign total (N=50)	Domestic (N=13)
Fully agree	23.8	34.5	30.0	23.1
Agree	66.7	58.6	62.0	69.2
Disagree	9.5	6.9	8.0	-
Fully disagree	-	-	-	7.7
Total	100.0	100.0	100.0	100.0

*Statement iii* Hungarian employees are eager to learn.

	Greenfield (N=21)	Privatized (N=28)	Foreign total (N=49)	Domestic (N=13)
Fully agree	23.8	21.4	22.4	7.7
Agree	66.7	64.3	65.3	61.5
Disagree	9.5	14.3	12.2	30.8
Fully disagree	-	-	-	-
Total	100.0	100.0	100.0	100.0

*Statement iv* Hungarian employees are fast learners and adapt to the new situation in their country very quickly.

	Greenfield (N=20)	Privatized (N=27)	Foreign total (N=47)	Domestic (N=13)
Fully agree	30.0	33.3	31.9	15.4
Agree	55.0	18.1	51.1	76.9
Disagree	15.0	48.5	17.0	7.7
Fully disagree	-	-	-	-
Total	100.0	100.0	100.0	100.0

*Statement v* The general education level of the Hungarian labor force is a hindrance to the modernization of our production.

	Greenfield (N=21)	Privatized (N=29)	Foreign total (N=50)	Domestic (N=13)
Fully agree	-	-	-	-
Agree	9.5	-	4.0	-
Disagree	23.8	34.5	30.0	46.2
Fully disagree	66.7	65.5	66.0	53.8



Total	100.0	100.0	100.0	100.0
<i>Statement vi</i> It is very hard to recruit well-educated employees in Hungary.				
	Greenfield (N=20)	Privatized (N=28)	Foreign total (N=48)	Domestic (N=13)
Fully agree	15.0	7.1	10.4	15.4
Agree	30.0	21.4	25.0	23.1
Disagree	50.0	46.4	47.9	53.8
Fully disagree	5.0	25.0	16.7	7.7
Total	100.0	100.0	100.0	100.0
<i>Statement vii</i> It is a necessity to educate workers yourself in Hungary.				
	Greenfield (N=20)	Privatized (N=28)	Foreign total (N=48)	Domestic (N=13)
Fully agree	30.0	14.3	20.8	15.4
Agree	60.0	50.0	54.2	53.8
Disagree	10.0	32.1	22.9	30.8
Fully disagree	-	3.6	2.1	-
Total	100.0	100.0	100.0	100.0
<i>Statement viii</i> Hungarian employees still have difficulties with cooperation in their work.				
	Greenfield (N=21)	Privatized (N=29)	Foreign total (N=50)	Domestic (N=13)
Fully agree	4.8	13.8	10.0	7.7
Agree	57.1	48.3	52.0	30.0
Disagree	33.3	20.7	26.0	46.2
Fully disagree	4.8	17.2	12.0	15.4
Total	100.0	100.0	100.0	100.0
<i>Statement ix</i> Hungarian companies are not qualified yet to function as suppliers or subcontractors.				
	Greenfield (N=20)	Privatized (N=28)	Foreign total (N=48)	Domestic (N=13)
Fully agree	5.0	-	2.1	-
Agree	30.0	21.4	25.0	-
Disagree	40.0	39.3	39.6	53.8
Fully disagree	25.0	39.3	33.3	46.2
Total	100.0	100.0	100.0	100.0
<i>Statement x</i> Contacts with foreign companies are of major importance for the performance of Hungarian domestic companies.				
	Domestic (N=13)			
Fully agree	23.1			
Agree	53.8			
Disagree	23.1			
Fully disagree	-			
Total	100.0			