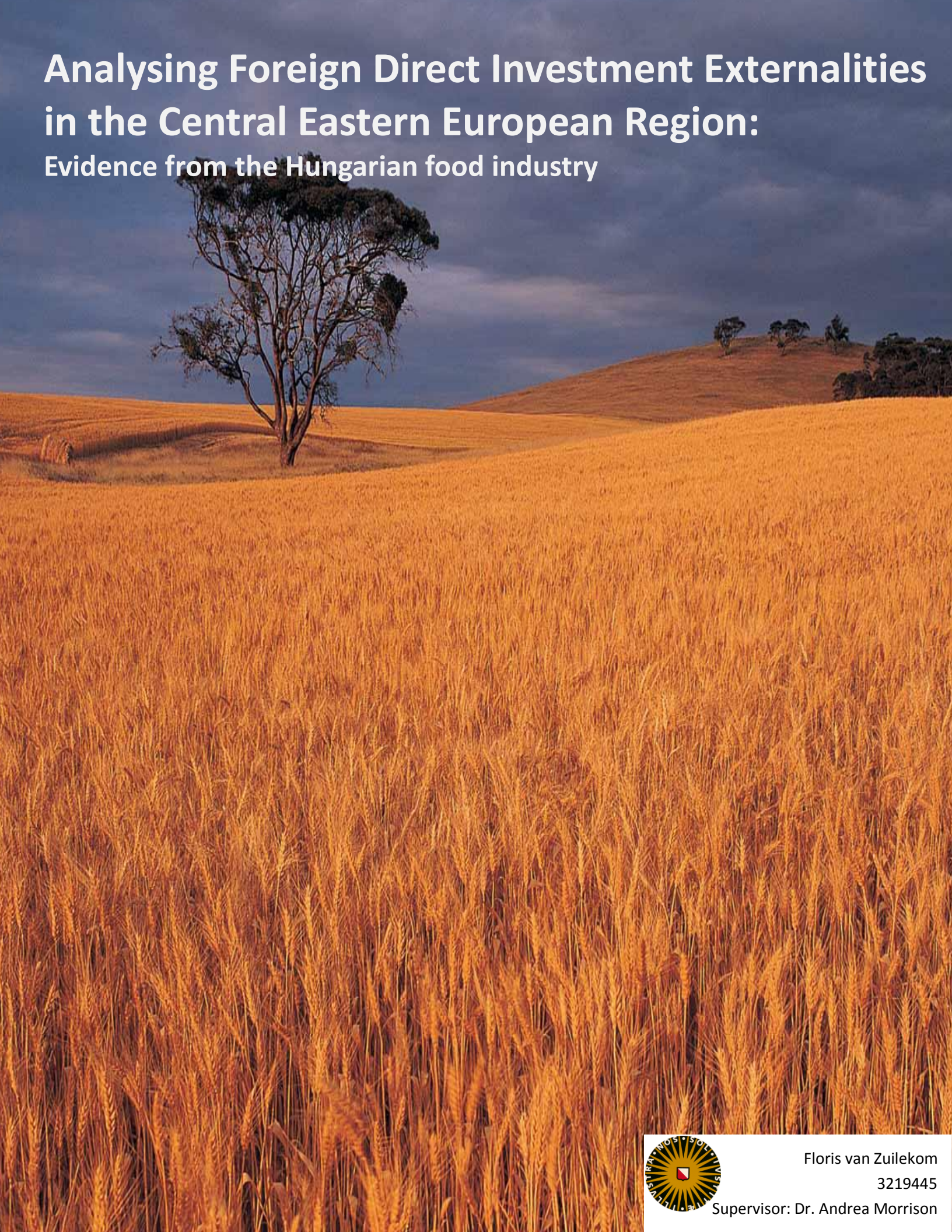
Analysing Foreign Direct Investment Externalities in the Central Eastern European Region:

Evidence from the Hungarian food industry



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Preface

'Hungary lost its historic position as breadbasket of the region' This quote originates from one of the interviewees in this survey. It refers to the alterations in the Hungarian food sector as a result of Hungary's accession to the European Union (EU) and is closely related to the influence of foreign direct investments (FDI).

Twelve months ago I had little knowledge about the economy of Hungary let alone the Hungarian food industry. While I was working for the Royal Netherlands Embassy in Budapest news concerning restricting policies towards Dutch foreign enterprises caught my attention. It confused me that a country which highly depends on foreign capital would conduct policies that may damage their reputation towards possible incoming investors. Apparently, scepticism towards FDI increased and stories of multinational companies poisoning local economies became more popular. This trend conflicted with my perception of FDI that had been built up through my master's degree. I was convinced that foreign affiliates were particularly useful for domestic firms in developing economies as these multinational companies introduce new techniques, capital and employment to host economies. I decided to read more about this subject and found articles with contradicting results. At the same time my interest for agriculture grew. I accompanied Martijn Homan, the Agricultural Counsellor of the Embassy, on multiple trips to local farms and food processors and was asked to join a delegation of Dutch agro-specialists and entrepreneurs that visited Hungary. Consequently, I decided to write my master's research on FDI in the CEE region with special attention to the Hungarian food sector.

I would like to thank Martijn Homan of the Royal Netherlands Embassy in Budapest and Andrea Morrison my supervisor from the University of Utrecht. Andrea provided me with useful ideas and corrected me whenever my thesis went into the wrong direction, whilst at the same time giving me the liberty to construct my own ideas. Martijn Homan boosted my interest for the agricultural sector. Furthermore he provided me with associates that were well willing to participate in interviews. Secondly, I would like to thank all my interviewees. Finally, I would like to thank my friends and family who continuously supported me. Special tribute to Leon Boelens who assisted me with English spelling and grammar.

Even though it was quite a difficult process, writing my thesis was a lifetime experience. I hope you will enjoy reading it.

Floris van Zuilekom, F.P.V. van

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Contents

1. Introduction

As one of the largest distributor of dairy products the French company Danone is responsible for 57% of all fresh dairy products sales in Hungary in 2010. Due to its significance for the regional economy the company faced heavy pressure from the Hungarian national and local authorities as a result of its announcement to close down one of its facilities in Györ. Authorities called for a boycott on all Danone products, arguing that Danone denies the interests of its 700 employees. This is example shows how important some foreign affiliates are to their host economy. Besides employees, even local companies may be affected by their disappearance. Suppliers may lose an important customer and face bankruptcy. In attempt to capture the influence of foreign direct investments (FDI) on domestic regions, this thesis examines local linkages in the Central Eastern European (CEE) region.

Multinational companies are considered to be the most advanced companies. Accordingly, efficiency, R&D expenditures and innovation are higher in foreign owned firms (Bevan & Estrin, 2004). Their presence may facilitate local companies with new techniques and knowledge. This know-how may spread widely, raising the productivity and competitiveness of an entire economy (Sass, 2004 & Neuhaus, 2006). Local linkages between foreign owned companies and domestic companies are the tools to increase economic performance according to the United Nations Conference on Trade And Devolpment (UNCTAD) (2001). For this reason governments eased restrictions and legislations in order to benefit foreign affiliates. Particularly in CEE countries, authorities were deregulating in order to attract FDI and used predominately subsidies and favourable tax incentives as tools. This eventually contributed to a large inflow of foreign capital (Marcin, 2008). However, not always does a host region benefit from incoming investments. Knowledge transfer and economic profit can be limited, competition may dominate the positive technology spillovers and local companies may not be able to grasp or keep up with demands and knowledge spillovers from foreign affiliates and competition may have devastating effects on local companies.

There are multiple outcomes of FDI participation. The focal point of this thesis is to find out whether a positive relationship exists between the inflow of FDI and regional economic growth. To accomplish this, the relationship between growth in FDI and productivity growth will be tested in three CEE countries, i.e. Poland, Hungary and Romania, divided in 31 NUTS II regions with the help of a multiple regression analysis.

Nevertheless, the test results alone are not sufficient enough to explain the actual linkage between FDI and possible changes in efficiency of domestic companies. To get a better understanding of this relationship, a case study concerning the food sector in Hungary will be conducted. The food sector is one of the prime examples of a shifting economic framework. During the transition period land privatisation and reform were needed to adapt to the new economic settings. The lack of know-how to restructure firms and capital to buy machinery for laboursaving production, called for investments from outside (Walkenhorst, 2000 & Konings, 2001). These investments were embodied in the form of large retailers and competitive food processors, mainly from Western Europe, that entered the country at the

period of transition in the early nineties (Dries et al, 2004). The case study will provide the thesis with information on the characteristics and extent of local linkages, and whether these linkages provide the local economy with new knowledge and techniques that are needed for economic growth.

1.1 Thesis aim and scope

Organisations such as the UNCTAD (2001) emphasise the importance of linkages between foreign affiliates and the host economy. Linkages may incorporate valuable knowledge exchanges and increase productivity of local companies. Therefore, importing FDI is regarded as a prerequisite for developing countries to improve their economy. Though, in their report the UNCTAD warns for possible negative externalities, arguing that not all linkages are profitable for domestically owned companies. The line between growth enhancing effects and negative spillovers for the host region seems to be rather thin. I want to find out whether foreign affiliates and therewith the existence of local linkages contributes to regional growth. Therefore the aim of this thesis is to gain better understanding of the relationship between foreign owned businesses and host economies.

I use the CEE region as an example of a developing region. The former Soviet countries witnessed a significant inflow of FDI. Most of the literature that is written on FDI in the CEE area date from 10 to 15 years after the first foreign companies entered the region (Konings, 2001 ; Dries et al 2004 ; Barrell & Holland, 2000 ; Csaki & C. Forgacs, 2007 and Javorcik, 2004). Now, somewhat 22 years later influences of FDI on the host economy might be altered and different findings may be found.

1.2 Research question

To achieve the goal of this thesis, the following research questions have been formulated:

To what extent do foreign direct investments influence economic growth in the CEE area? How is this illustrated in the Hungarian food sector?

Sub questions:

How is knowledge created and how does it spread between organisations and regions?

(Section 2.2)

What are important factors for knowledge to spread between organisations?

(Section 2.3

To what extent are multinational companies willing to share knowledge?

(Section 2.4)

How do local linkages emerge? And does this lead to knowledge spillovers?

(Section 2.5)

What are the obstacles that prevent local linkages to occur between foreign affiliates and domestic companies?

(Section 2.6)

Do foreign affiliates contribute to productivity growth in the host economy?

(Section 2.7)

How did the food sector in the CEE develop during the period after the transition? And what is the role of FDI?

(Section 6)

1.3 Structure

The thesis is divided into two parts; first theories concerning knowledge spillovers and the relationship between foreign affiliates and their host economy will be discussed. At the end of the first section the relationship is tested through a multiple regression analysis concerning FDI data and general economic performance data on regional level in Poland, Romania and Hungary. Afterwards I will have a closer look at the linkages between foreign affiliates and domestic companies in the food sector in Hungary. I use empirical findings from interviews to illustrate those linkages. The second part starts at section 6, which introduces general developments of the food sector by outlining findings and information from CEE literature.

1.3.1 Theoretical framework

I will start with an outline of the literature on knowledge creation and diffusion explained by the evolutionary economy approach. There are several channels that facilitate knowledge to diffuse over long distances, FDI is one of them. In revealing the usefulness of FDI in transmitting valuable know-how one must take into account that there are factors that determine the successfulness of such knowledge transfers. In identifying these factors key concepts like absorptive capacity and resource heterogeneity are explained in section 2.3. Section 2.4 includes internationalising theories which will provide information on a firm's motivation to invest in cross border projects. Their willingness to share knowledge with the host economy depends greatly on their reason to participate in FDI (Moreira, 2000).

Local linkages are described in section 2.5. These linkages are determined by several factors. This section will combine the abovementioned concepts to the relationship between domestic companies and foreign owned firms. Afterwards, section 2.6 describes the possible negative effects of FDI and the obstacles relating to local linkages. Section 2.7 examines the already written studies concerning the relationship between FDI and regional productivity growth. This section closes with a conceptual framework in section 4.8.

1.3.2 Methodology

There are two methodology sections, i.e. section 3 and 7. The first will explain the quantitative test that is applied to measure the relationship between growth in labour productivity and FDI variables. The second will cover case study relating to the influence of foreign affiliates in the Hungarian food sector.

1.3.3 Analysis, conclusion and discussion.

The results of the first analysis and the following interpretation are scrutinised in section 5. The second analysis will have a closer look at the food sector in Hungary with the help of the knowledge of six actors experts. The results of the latter are presented in section 8 and 9. Finally, this thesis closes with some concluding remarks taking into account the results from both analyses. The discussion will mainly deal with future research and policy suggestions regarding the utility of ties between FDI and domestic firms.

1.4 Social and scientific relevance

National investment policies have become more encouraging towards FDI, whilst at the same time national governments have intensified regulation towards foreign companies regarding environmental responsibility and poverty reduction (UNCTAD, 2010). So called screening of multinational firms to protect national resources and certain industries is more common even in developing economies. The scepticism towards FDI rose in several CEE countries. in Hungary reports of foreign affiliates that are struggling with laws and taxes are increasing. Accordingly the country is more selective towards incoming firms and has imposed windfall taxes which mostly effect foreign players in the banking, utility and retail sector, in contrary the government is supporting multinational companies in export orientated production, such as the automotive sector (Sass and Kalotay, 2012). These selective tax policies may point to a more cautious approach towards FDI. Governments want to make sure that FDI contributes to the domestic economy instead of posing threats to local businesses.

In order to gain more knowledge regarding the externalities that derive from FDI inflow, scientific research has to be conducted. This thesis contributes to such research in an attempt to find out whether the inflow of foreign affiliates adds to regional economic growth. Moreover the case study will offer a comprehensive insight into the factors that determine the relationship between FDI and local businesses. The results may offer new insights for future economic policies regarding FDI through which national and regional authorities may improve their ways of dealing with incoming companies.

The results will be strongly linked to the food sector in Hungary and will therefore be less applicable to other sectors. Nevertheless, few FDI research has been applied to the food sector so far, even though farms, processors and retailers are constantly searching for methods to optimise their ways of production, management techniques and product quality (Dries et al, 2009 & Walkenhorst, 2001). For that reason theories regarding local linkages, absorptive capacity and resource heterogeneity can be applied to this sector as well. Hence this study will contribute to the international business and economic geography literature by examining FDI influence from a relatively unexplored perspective.

2. Theoretical Framework

Before I explain the meaning of knowledge spillovers, it is important to understand the definition of foreign direct investments (FDI). The methodology concerning FDI is not always identical. Definitions deriving from statistical databases, i.e. Eurostat, UNCTAD, and other country specific databases, vary in their ways of explaining FDI. Therefore, this section will give a definition of FDI.

2.1 What is FDI?

'According to IMF and OECD definitions: direct investment reflects the aim of obtaining a lasting interest by a resident entity of one economy (direct investor) in an enterprise that is resident in another economy (the direct investment enterprise).': (Duce & España, 2003, p.2). Lasting interest implies a long standing relationship between the direct investor and the investment enterprise. It also includes a significant degree of influence of the investor on the management of the latter (Duce & España, 2003). The share of capital in the invested enterprise should, according to the IMF (2001), be more than ten percent to be recorded as direct investment. From that point any further investments between the investor and the investment enterprise should be accounted as direct investment. On the other hand if the share of the invested capital in the enterprise is less than ten percent, then the IMF (2001) refers to the investment as portfolio investment.

The way that the direct investments are defined, highly influences the amount of direct investments that is accounted for in yearbooks and balance of payments. If, for example a non-resident buys an equity share of more than ten percent, the whole purchase of equity share is subscribed as direct investment in the balance of payments. However if a non-residents holds a share of less than ten percent and subsequently invests in additional shares so that the total share rises above ten percent, then only the additional shares are accounted as direct investments in the balance of payments (Duce & España, 2003).

The actual difference between portfolio investments and direct investments is defined by the degree of control (Hymer, 1960). Portfolio investments are seen as passive investments whereas direct investment future the intention to acquire a lasting management interest. The latter is due to its active form of participation expected to feature technology exchange and knowledge spillovers (UNCTAD, 2001). The guideline of ten percent share is not optimal; however this is the most common way to distinct direct investments from portfolio investments (Duce & España, 2003). From here onward references to foreign capital, foreign investments or foreign participation will refer to foreign direct investments excluding portfolio investments.

A direct investor can be an individual person or group of persons, an incorporate or unincorporated private or public enterprise or group of enterprises or a government that has a direct investment enterprise in another country. A direct investment is an incorporated or unincorporated enterprise in which a foreign investor owns more than ten percent of the equity share (Duce & España, 2003). One

can make distinction between subsidiaries, branches and associates, as well as greenfield and brownfields investments, however this thesis is not focussing on the externalities deriving from a particular form of investments, but from all types of investments in an aggregated form.

I will now introduce the term knowledge creation and knowledge spillovers, from an evolutionary economic perspective. In later sections the term knowledge spillovers will be used to explain local linkages between FDI and the host economy.

2.2 Routines and the creation of knowledge

The first part of this section explains how knowledge is created and why organisations and even regions differ in their available knowledge. The second part discusses the possibility of knowledge flowing from one organisation to another and even from one region to another.

Sub question: *How is knowledge created and how does it spread over space?*

Routines are the competences of an organisation, in order words: routines are the results of accumulated knowledge embodied in firms (competences) and employees (skills) and are the specific operational memories of an organisation (Boschma, 2008). An organisational routine is built up by subroutines performed by employees and machinery and is often accomplished without the conscious awareness of the top management (Nelson and Winter, 1982). As well as persons, organisations have bounded rationality, which is a result of their disability to overview all possible problems of their organisation of production and changes in their environment (for example market demand). Hence it is impossible for a firm to know what the optimal routine is. One can only say that the behaviour of firms is determined by their routines, a change in their routines brings a change in their ways of production and their fitness to their environment (Nelson and Winter 1982, pg. 128).

Innovation[1] and thereby knowledge creation involves an alteration in routines. There is considerable uncertainty when altering the way of production, marketing methods, product design and other kinds of routines. The uncertainty is twofold: there is uncertainty about the nature of the innovation and the consequences of employing an innovation (Nelson and Winter, 1982). Thus, both results are unpredictable and will only be visible when there is reasonable experience with the new routines. Changes in routines can be triggered endogenously; for example when problem solving responses to faults in the routines trigger an alteration in the whole production process or product design. Also, when new personnel enter an organisation or the company obtains another plant, changes in routines may

[1] The term innovation refers to the economic exploitation of knowledge embodied in new products, machinery, techniques and processes. Innovation is an invention that leads to an economically and socially accepted and used technology (Boschma et al, 2002). The evolutionary economy divides innovation into incremental innovation and radical innovation. Incremental innovation is when a product or production process is slightly adapted, whereas radical innovation leads to totally new products or production process.

emerge. Although replication of the existing routines can be a desired outcome, copied routines cannot be implemented without adaptation costs. The old routines work as a template to which the new staff and facility has to adapt. Important is that the benefits of replication of routines to new acquired factors of production must exceed the costs of it (Nelson and Winter, 1982).

Finally, imitating can be a drive for changes in routines. When another firm has a more optimal way of producing or produces a product of better quality, an envious firm can decide to duplicate this achievement. However the imitating firm is likely not to be in possession of the format of the successful routine. Therefore the closes thing to duplication is a substantial mutation of the original, which depends on the complexity of the routine. Tacit routines, i.e. routines that are hard to codify are more difficult to copy than standardized variants. Consequently, the success of imitation varies dramatically but does not necessarily have to have great consequences for the economic performance of an imitator (Nelson and Winter, 1982). Also, the following changes on newly imitated routines are highly depending on the routines obtained in the past, the latter are the memory of a company and determine the interpretation of the newly obtained routines. In order words: the accumulated routines offer opportunities as well as barriers for a company to adjust to new techniques. Hence a company's development follows a path dependent development (Boschma, 2008).

So employees and machinery carry the routines / knowledge of a firm. No firm possesses the exact same knowledge as another firm as a consequence of bounded rationality and path dependency. Resource heterogeneity is therefore a logical consequence and offers the possibility of firms to learn from each other.

2.2.1 Geography of innovation

Some companies try to prevent knowledge spillovers towards other businesses because the latter can, in its turn, use the knowledge for free since it is a non-rival good. The use of knowledge by one firm does not prevent its use by others (Boschma, 2008). To guaranty ownership over an innovation or certain firm specific knowledge, a firm can opt for a patent. According to Schumpeter (1942), market imbalance is a logical outcome of the latter. He stated that the market is a mechanism that provokes unevenness which results in economic differences between regions. A company may maximise monopoly profits by being the first to innovate radically. The market rewards a head start with high profits. This reward can be protected by patents which prevent knowledge from flowing freely consequently leading to market imperfections.

These market imperfections are visible through the concentration of knowledge creation and innovation in space. Regional differences in knowledge are due to the fact that research and development (R&D) tend to be very spatially concentrated (Boschma, 2008). According to Hymer (1979) this will result into a situation whereby only few places accommodate high amounts of research facilities leading to an uneven distribution of regional growth. Nevertheless it is not necessarily for new knowledge to cause an innovation in the same region. For example, Europe spends relatively a lot of money in science projects, whilst relatively few innovations take place in this particular region according to Boschma (2008). Also,

places with a large amount of R&D facilities do not automatically generate the same amount of innovations, in many cases companies use the knowledge of their R&D facility to produce the innovation elsewhere, for example through FDI (Boschma, 2008). In this perspective it is possible for Western European food processors to implement their gained knowledge to create a new product in the CEE area.

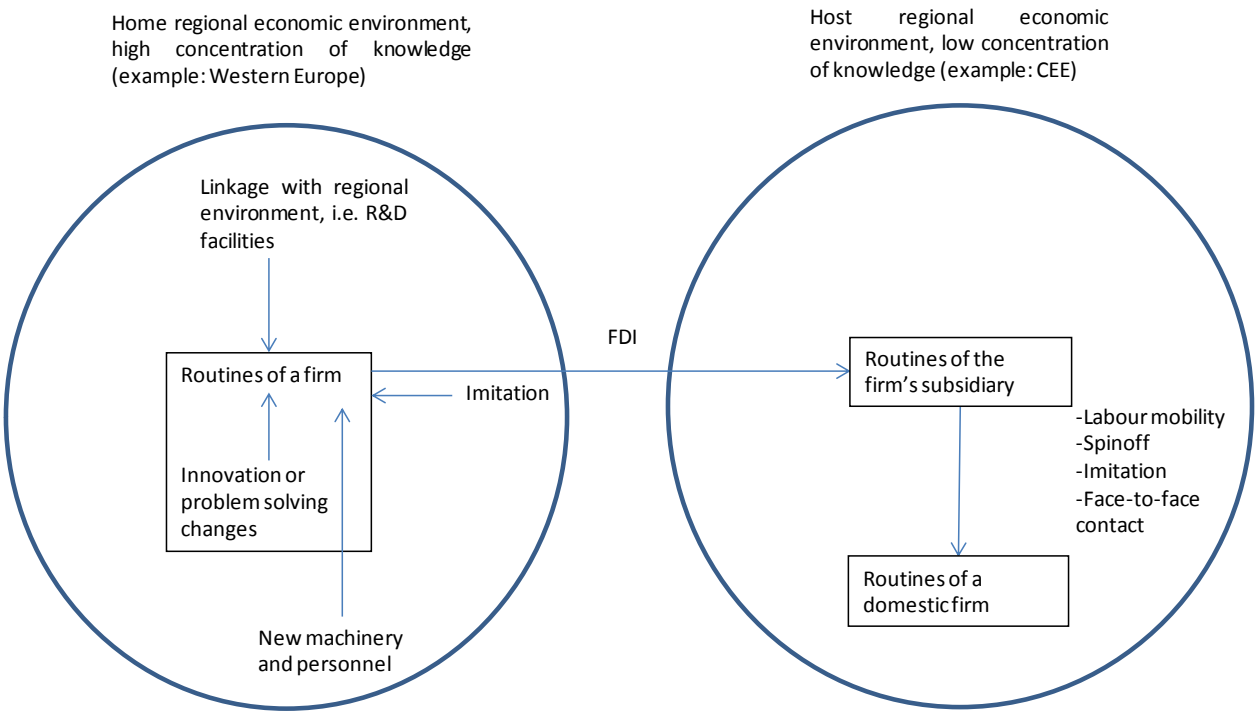
2.2.2 Knowledge diffusion

The previous section raises the question whether knowledge is able to spread over space. There are accordingly several ways for knowledge to spread both intraregional and interregional. In this subsection examples of 'knowledge channels' are shortly discussed, these channels are useful in understanding local linkages.

Several channels are able to diffuse skills and competences. A spinoff is a firm of which the founder was a former employee of an incumbent firm. By starting an own business, the former employee can use knowledge and know-how gained from the incumbent firm to effectively run his or her own business. Another way for knowledge to diffuse is via labour mobility. When an employee of one company moves to another, he or she may contribute to the exchange of knowledge between the two firms. Also, labour mobility will increase regional networks since former colleagues are likely to be in contact with each other and, therefore, are able to share knowledge (Boschma, 2008). Finally, face-to-face contact between members of a firm can also be a good transmitter of skills and competences. The above mentioned methods are expected to be intraregional: firms still need to be geographical close.

Nevertheless, there are accordingly ways for technology to diffuse interregional. Both (international) trade and FDI are effective ways to transfer knowledge over a longer distance (UNCTAD, 2001; Boschma & Iammarino, 2009; Bodman & Le, 2013; Souare, 2012; Fernandez & Paunov, 2012). Know-how can be transported through ties between parent company and subsidiary or through ties between supplier and buyer. Forthcoming, this interregional knowledge transfer may spread intraregional via the above mentioned channels which, if originated from FDI, will be called local linkages, i.e. labour mobility, spinoffs, face-to-face contact. My interpretation of the so-called relationship between knowledge creation and diffusion and the role of FDI is illustrated into a conceptual model (figure 2.2). The figure is simplified, which means that only one-way relationships are shown. Other possible forms of knowledge transfers such as export have been left out.

Figure 2.2: Conceptual model



Source: own interpretation

Before linkages between foreign affiliates and domestic companies will be discussed this thesis will first introduce three concepts, i.e. proximity, absorptive capacity and resource heterogeneity which may have significant effect on the existence of local ties and the success of knowledge transfers.

2.3 Regional growth through knowledge spillovers: the concepts of proximity and absorptive capacity:

Sub question: *What are important factors that enable knowledge to spread between organisations?*

Accordingly proximity and absorptive capacity influence the extent of knowledge spillovers between foreign affiliates and domestic companies (Caragliu & Nijkamp, 2012; Asheim et al, 2011). Therefore they are considered to be handy tools in analysing local linkages. The following section will analyse both concepts.

2.3.1 Proximity

Linkages between firms can be encouraged by geographical proximity, this assumption states that knowledge spillovers occur between organisations that are geographical close. Accordingly spillovers become weaker as distance increases. As a result, firms tend to cluster, in particular in knowledge intensive industries, i.e. where R&D facilities, universities and high skilled labour are pivotal (Audretsch & Feldman, 1996). The proximity of local firms to foreign affiliates may lead to demonstration spillovers. Domestic firms may imitate methods or products from foreign firms in close range (Damaijan et al, 2003).

2.3.2 Cognitive distance, proximity and absorptive capacity

Boschma (2008) argues that cognitive proximity may even be more crucial. The term cognitive proximity is closely linked to absorptive capacity: firms need to share similar knowledge and expertise in order to 'learn' from each other (Boschma, 2008). Nooteboom et al (2007) argues that cognitive proximity facilitates trust; the will to cooperate and enables absorption of knowledge. However, too much cognitive proximity hampers the innovative performance of firms. Therefore firms need to have a certain amount of cognitive distance or as he calls it: resource heterogeneity. The latter increases the innovative performance of firms as it brings novelty. The function of cognitive distance and proximity follows an inverted-U shape, whereby the optimal point rests somewhere in between cognitive proximity and distance.

According to Nooteboom (2007), firms differ in their resources, this difference causes performance among firms to vary. Alliances between firms enables them to combine such differences and increase their innovative performance. Even though the literature of Nooteboom aims predominately at technological advanced industries, I found it plausible to apply resource heterogeneity to the possible alliances between foreign affiliates and domestic companies. In line with the UNCTAD report (2001) I assume that predominately domestic companies are able to learn, i.e. complement their resources /

routines with additional techniques and know-how from foreign affiliates. This is particularly useful if the resources of foreign affiliates fit better to the conditions of the host market. Market conditions in the CEE region are shifting more towards the standards of Western European markets since the transition (Dries et al, 2009). Therefore foreign affiliates from Western Europe may be extra useful to domestic companies. However, too much cognitive distance will hamper the learning effect between parties as they are no longer able to understand or absorb each other's knowledge.

Using literature of Nooteboom (2000), one can conclude that cognitive distance / resource heterogeneity is a negative linear function of absorptive capacity, the latter helps firms to implement and understand novelty or in other words: new knowledge. 'We might now interpret *absorptive capacity* as the domain of cognition: the phenomena one can *make sense of*, i.e. which one can perceive, interpret, evaluate': Nooteboom (2000). In his work Nooteboom (2000) makes a distinction between cognitive distance as he calls 'for the sake of novelty' and cognitive proximity 'for the sake of efficient absorption'. We follow the division and consider absorptive capacity to have overlapping features with cognitive proximity.

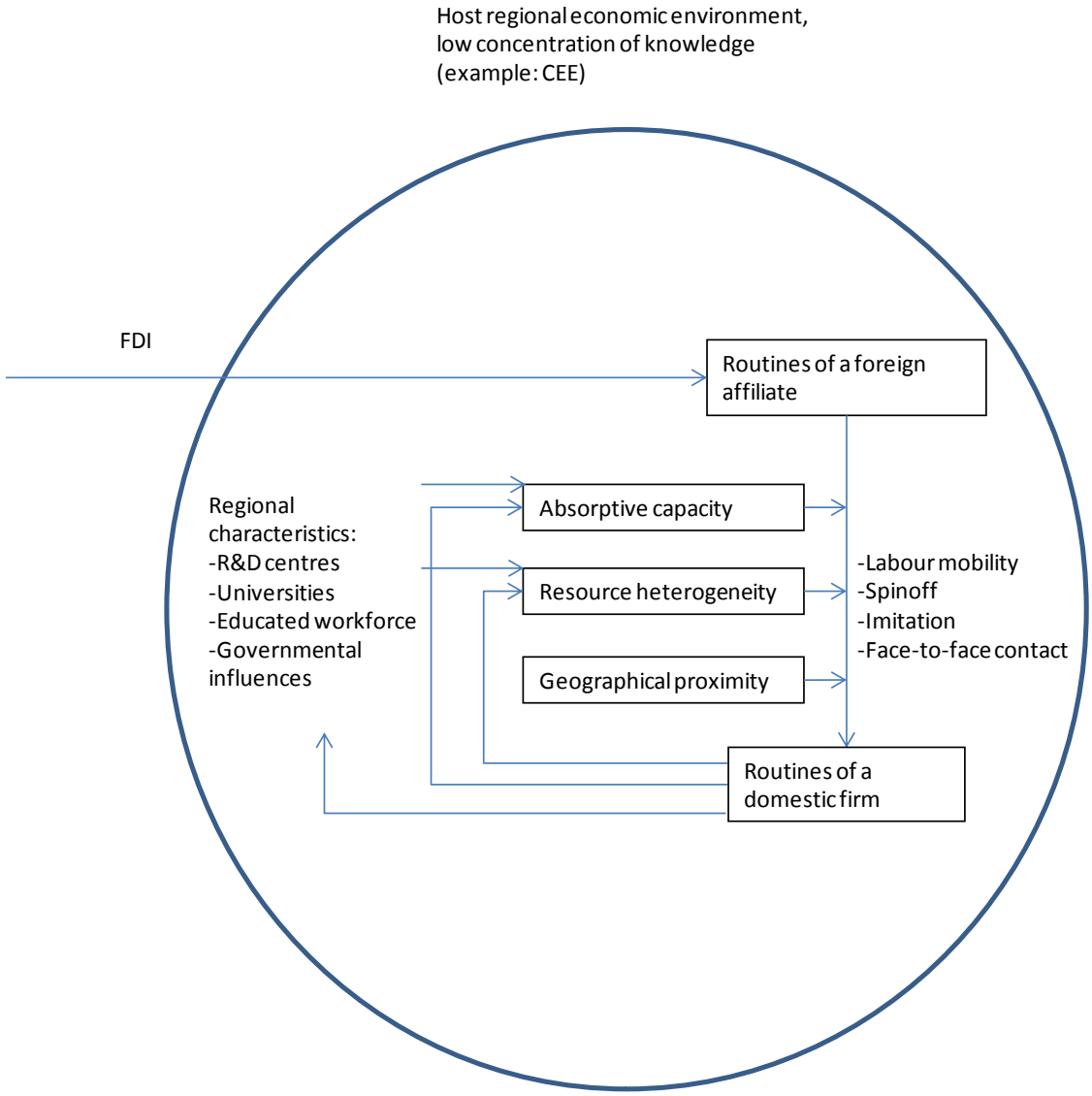
Absorptive capacity originally descends from business literature. Cohen and Levinthal (1989) were one of the first to mention it. They argued that absorptive capacity is a result of a firm's R&D efforts, besides the creation of new knowledge a firm generates the ability to assimilate and exploit existing information from its environment. Caragliu and Nijkamp (2012) apply this theory to regions, stressing that regions differ in their ability to adopt new knowledge and technology. They claim that every region has its own absorptive capacity. This capacity comes from knowledge accumulation. Accumulated prior knowledge provides the possibility to gain new knowledge and to recall and use it at a later stage (Caragliu & Nijkamp, 2012; Egbetokun & Savin, 2012). Absorptive capacity is therefore considered to be an important regional factor to grasp knowledge spillovers from FDI (Acaravci & Ozturk, 2012).

Regional absorptive capacity builds up through linkages between actors such as firms, universities and research centres. According to Szogs et al (2008), institutions may be the bridge between the knowledge level of indigenous firms and incoming multinational companies. Studies have shown that a high number of R&D facilities has a positive impact on the ability of a host economy to grasp international knowledge flows. This is in line with the literature of Cohen and Levinthal (1989) that stress the importance of R&D efforts to improve a firm's absorptive capacity. Also, according to Caragliu and Nijkamp (2012) and Bodman and Le (2013) high educated workforce are important assets of a region's learning ability. Workers will not only spread the knowledge to other companies, but can also use it to start their own company. Though, the latter will predominately be depending on the rate of entrepreneurship as well (Juliussen and Fløysand, 2010).

Figure 2.3 illustrates the presumed relationship between the concepts which are mentioned above. Knowledge spillovers from FDI may influence regional characteristics as well. Furthermore, the possible changes in routines of domestic firms may be reflected on regional characteristics, regional absorptive capacity and the resource heterogeneity ratio between domestic firms and foreign affiliates.

Note that only the host region is illustrated whilst the home region has been left out. I used only the term absorptive capacity, since cognitive proximity and absorptive capacity share many overlapping features concerning knowledge spillovers (Nooteboom, 2007). Also, cognitive distance is incorporated in resource heterogeneity. Even though resource heterogeneity is often used as a factor for innovativeness, I will use the term to indicate the possibility of local learning. I argue that a certain difference in technology level is needed between the foreign firms and domestic companies to provide learning opportunities for the latter. Both decisions are made to avoid confusion in terminology, according to my perception this will improve the clarity of this research.

Figure 2.3: Conceptual model



Source: own interpretation

2.4 Internationalisation theories internationalisation theories: why do multinational corporations participate in FDI?

Sub question: *To what extent are multinational companies willing to share knowledge?*

Internationalisation theories explain the motivation of multinational companies to participate in cross-border activities. The determination for cross-border activities features important information on how FDI will influence a host economy (Moreira, 2000), as Cantwell and Iammarino (2000) stated: "*The impact of these flows on both the firm and the region clearly depends on the technological profiles and strategies of multinational corporations, as well as upon the characteristics of the regional system of innovation and its local specialisations."* In other words: the willingness to exchange knowledge and routines is depending predominately on the intentions of the foreign affiliate and the cognitive proximity between the region and the multinational corporation.

There is a wide variety of literature concerning global sourcing strategies; it is however beyond the scope of my work to present all theories. This section uses four internationalisation theories; each of them provides useful information on the determination for cross border investments from different angles. Following each theory there will be a short estimation on how, according to the theory, foreign affiliates will influence local businesses in the CEE area.

2.4.1 Dunning's eclectic paradigm

According to Dunning (2001) the concepts of ownership, location and internationalisation advantages (OLI) are the main conditions of firm-performance. Ownership advantages consist of a firm's unique assets that enables it to take advantage of cross-border investment opportunities. Examples of these advantages are managerial skills, firm technology etc. Locational advantages are the non-transferable characteristics specific to a region or country, i.e. raw materials, competitive labour costs, infrastructural network but also tariffs, quotas and access to consumers. Internationalization advantages are the advantages that come from own production, instead of participating in a joint venture or licensing another affiliate take over production (Barrell, & Holland, 2000).

There are three sets of forces that refer to the above mentioned advantages that determine the extent and pattern of international production financed by FDI and undertaken by multinational corporations. Firstly, the comparative advantages that one firms of one nationality possesses over those of another nationality. 'These advantages may arise either from firm's privileged ownership of, or access to, a set of income-generating assets, or from its ability to co-ordinate these assets with other assets across national boundaries in a way that benefits the firm relatively more in comparison to its competitors, or potential competitors. ': Dunning (2001, p. 176). Secondly, the extent to which firms think it is profitable to use and generate these assets in foreign markets and thereby adding value to them, instead of participating

in a joint venture or outsourcing of production. Finally, to what extent firms choose to place these value adding assets in a foreign market (Dunning, 2001).

This approach divides three forms of international activities: export, licensing and FDI. The most important pre-condition for a multinational corporation to engage in international activities are the existence of net ownership advantages. Thus, if a foreign affiliate decides to invest in a country in the CEE area, the eclectic paradigm assumes that the firm has ownership advantages over local firms in that particular region. Otherwise, the firm would not have tried to serve the CEE market. Furthermore the likelihood of using local suppliers would be significant, since the multinational aims to benefit from locational advantages; otherwise it would have chosen to serve the host market via export. This indicates that domestic firms may benefit from ties with foreign affiliates, in particular vertical ties (explanation in section 4.4). Finally the question rises whether the multinational engages in acquisition or licences a local firm to produce its product. The firm will make a consideration on the bases of internationalisation advantages (i.e. coordination and transaction costs) (Dunning, 2001). If the multinational decides to merge or take over a domestic firm, it is very plausible that domestic firms will be able to profit from the multinational company's superiority as part of its ownership advantages. However the linkage with local firms will not be self-evident, according to Pottlesberghe and Lichtenberg (2001), Dunnings paradigm dictates that firms try to benefit from their ownership advantages rather than spreading it internationally.

2.4.2 Market power approach

According to this theory a firm's motivation to locate a production facility abroad involves the pursuit of total market control. A multinational firm has no intention to strengthen its knowledgebase while participating in FDI. Hymer (1976), who is one of the founders of this approach, concluded that firms invest abroad to extend collusive networks, to reduce competition and to increase entry barriers for future competitors.

Hymer (1960) makes a distinction between portfolio investments and direct investments. Aforementioned, the difference between the two concepts is the degree of control. The control over competitor firms abroad is used as a tool to remove competition in that market with the expectation that it will lead to higher returns and profits (Moreira, 2000). The multinational firm exploits its ownership advantages such as economies of scale, financial reserves, permanent control of technology, access to inputs, and control of distribution systems. These advantages can only be used in foreign markets under condition of complete ownership. Further advantages of the foreign firm consist of the ability to produce and operate in any market. These advantages lead to market imperfections through which multinational companies are able to compete with indigenous firms. To a certain degree these imperfections are a way to compensate for the costs of FDI participation. In this sense market imperfections are vital for a firm to operate in a foreign market (Hymer, 1960).

The market power approach suggests that firms are not expected to share knowledge with indigenous firms, neither are they interested in gaining knowledge from the local market. Their main interest is market control and the advantages from market imperfections. Hence the likelihood of local firms in the CEE area to profit from foreign firms is minimal. The probability of losing market share and dealing with increased competition is more present (Hymer, 1960).

2.4.3 Vernon's Product lifecycle

Vernon (1979) stated that firm managers are stimulated by the needs and opportunities of the surrounding market, the home market as he calls it. Innovation is depending on the stimulus of this market. Vernon's main argument is that high income and demand fosters innovation. His theory proposes that at the beginning of a product life-cycle, all the parts and production are generated in the region where the product is invented. Forthcoming, this is generally a region with high-income. In the start-up phase, the product demand is very inelastic; the innovator is therefore indifferent to the level of production costs. In a later phase, demand grows in familiar regions with similar high income. The firm must make a decision between exporting the product or to undertake cross-border production to meet the growing demand. Gradually the number of imitators will grow as the product gets more standardized, which leads to more competition. As the product matures, less attention is given to its exceptionality and more to its costs. The producer is more interested in low labour costs as the broadening of competition continues and demand elasticity increases. The latter causes the original innovator to lose its monopoly position (Vernon, 1979). Eventually multinational companies choose to locate their production facility overseas in order to keep ahead of competition; this will favour countries with low labour costs. 'Trade will accordingly return to a cost based comparative advantage pattern': Moreira (2000). In some situation the product becomes an item that is imported by the region of invention.

Following the argumentation of Vernon (1979) inventions are not likely to take place in the CEE area. He stated that high income and demand fosters innovation, the question is whether the CEE area is a region of high income and high demand. Compared to Western Europe and other OECD countries the CEE area is a region of middle income (Copenhagen report, 2006). Hence the production of a new product in the CEE area will probably take place when the product is already matured and standardized. In case of agriculture one can think of products that require relatively low technological knowledge and have probably low added value. However linkages between the innovative multinational and firms in low income areas are still expected to take place, since these multinational companies are looking for cheap production at a certain point in the product lifecycle.

2.4.4 Technological accumulation approach

The technological accumulation approach argues that technological development is a cumulative process. It follows the evolutionary approach uttering that knowledge accumulation is an endogenous process, which is gradual and leads to continuous altering of existing routines and takes place through implementing, adopting and testing new ways of production and product creation (Moreira, 2000).

Although firms follow their unique path, the development of firms will have certain similarities through the interaction in production and technology creation. The technological competition will drive firms to explore new environments in order to strengthen their competences and skills to operate in different regions and sectors. Therefore rivalry for knowledge is a driving force to participate in international activities (Moreira, 2000). In order to be able to grasp new technology, absorptive capacity for both firm and region is pivotal (Cantwell & Iammarino , 2000).

Due to the unique path of routine building for every organisation, imitating competences and skills from other organisations will encounter problems. The costs of adapting to external techniques may be higher than developing them internally (Kogut and Zander, 1993). Kogut and Zander (1993) argue that the path dependency of technological development might be a barrier for inter-organisational knowledge flows. The likelihood of tacit knowledge to flow through intra-organisational networks rather than via inter-organisational channels is consequently higher. This explains the existence of broad intra-organisational networks in the international business arena.

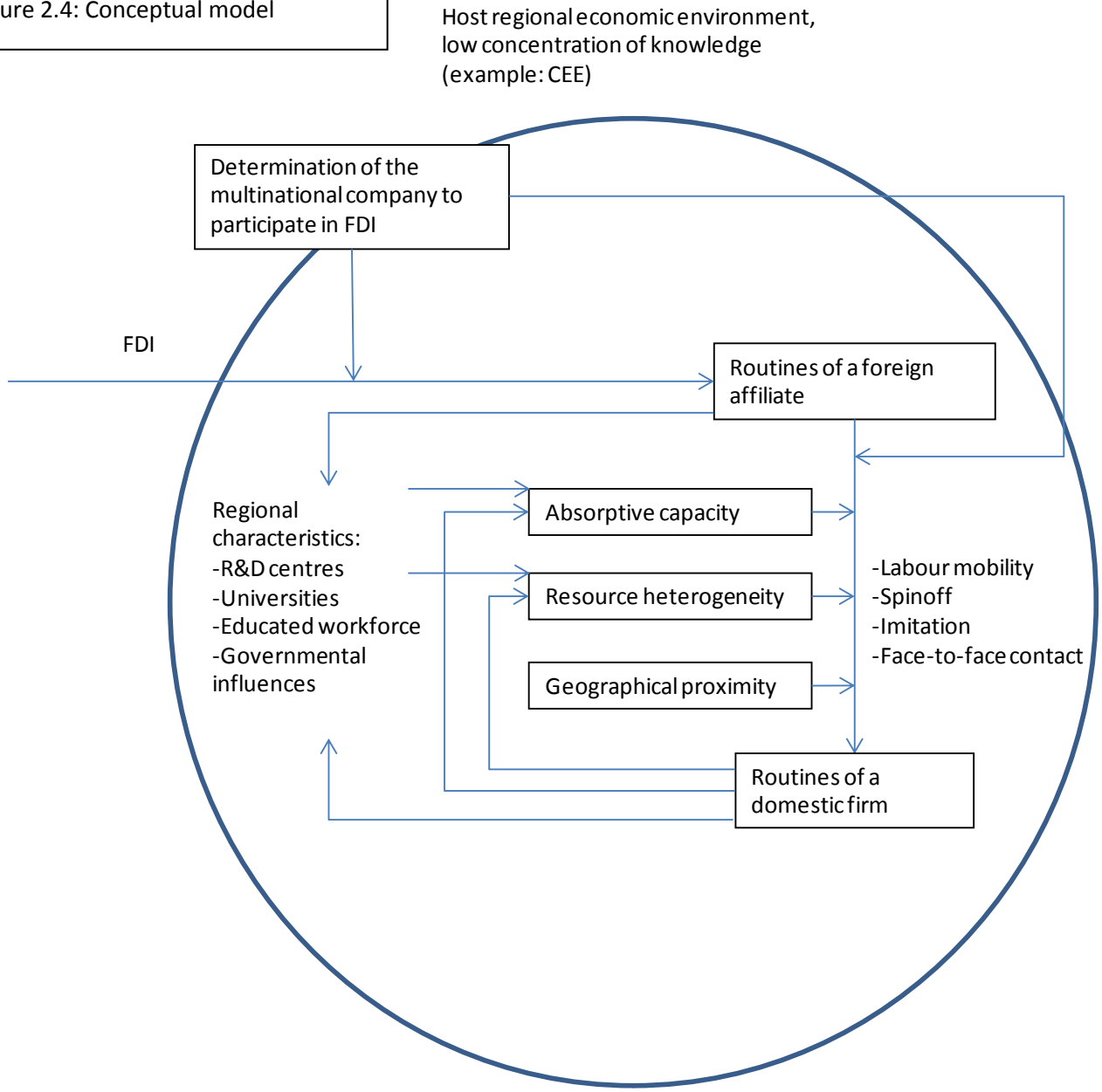
Cantwell and Iammarino (2000) found that the pattern of networks of MNCs follows a regional hierarchy of specialisation, whereby the technological specialisation of an MNC is depending on the regions place in the hierarchy. They argue that without interference, the forces of globalisation will increase the gap between technological advanced regions and those who lack behind. Whether this means that multinational companies are likely to share their knowledge with firms in the CEE area is not that clear. Tacit knowledge is more expected to spread through intra-company instead of inter-company channels. However more standardised knowledge will possibly spread more easily between companies. One can argue that the higher a regions absorptive capacity towards these firms the more a region will benefit from these international knowledge flows.

The aforementioned theories offer different perspectives to the motivation of organisations to participate in international activities. There are several forms of internationalisation: export, licensing, and FDI (Dunning, 2001), this thesis aims to explain the latter. From these theories my interpretation is that companies are not very keen on sharing their knowledge with other organisations. Total market control and protecting ownership advantages are some of the proposed reasons. The next section covers the literature on local linkages (linkages between foreign affiliates and domestic companies and institutions). In that section previous theories will be combined to explain the possible knowledge exchanges between multinational companies and the local economy.

The determination of multinational companies has been added to the conceptual model (figure 2.4). The purpose of a certain investment highly influences the extent to which a foreign affiliate is willing to share

its knowledge to companies in the host economy. Therefore an arrow is also directed towards the link between the routines of the foreign affiliate and the routines of the domestic firms and regional economic environment.

Figure 2.4: Conceptual model



Source: own interpretation

2.5 Linkages as part of knowledge transfer from FDI

Sub question: *How do local linkages emerge? And does this lead to knowledge spillovers?*

This thesis started with an evolutionary approach towards knowledge creation and distribution, followed by a section in which factors were described that influence the extent to which knowledge exchange is possible and effective. After that section I discussed theories concerning the motivation of firms to participate in internationalisation processes and the relation to knowledge distribution. This section connects the aforementioned theories to the relationship between foreign affiliates and local enterprises. These ties are called local linkages. The significance of local linkages is emphasised in a report of the UNCTAD in 2001. Hence the frequent use of UNCTAD as reference. This section will start with an introduction to local linkages as it is presented in the UNCTAD 2001 report. The second part discusses the likelihood of horizontal linkages and backward linkages to occur. Finally this section closes with important preconditions that foster the establishment of local ties.

2.5.1 Local Linkages: brief introduction

Knowledge spillovers from FDI are referred to by UNCTAD (2001), as an important boost for host economies. This should be derived through vertical and horizontal linkages. Linkages involve transactions that contain exchanges of skills, information and technology. All three are useful to improve production processes and, therefore, promote growth of local industries (Belderbos et al, 2001). The spillovers can be both intra-industry transactions as well as inter-industry connections (Stančík, 2007). Vertical linkages are divided into forward and backward linkages. Forward linkages take place when a foreign owned company sells goods to a domestically owned firm and backward linkages occur when a foreign owned company uses domestically owned firms as suppliers. On the other hand, horizontal linkages take place when domestic competitors are able to profit from knowledge spillovers generated by foreign companies through competition, for example product imitation, and cooperation. Local linkages also incorporate knowledge exchanges with universities, research institutes and governmental organisations (UNCTAD, 2001). Linkages with foreign affiliates are according to UNCTAD (2001) most valuable for domestic companies. Given that foreign firms are expected to possess more advanced technology, knowledge and other valuable assets. Therefore the UNCTAD (2001) argues that developing countries may successful develop their economy, if they are able to attract a significant amount of FDI.

2.5.2 The limits of horizontal linkages and opportunities for vertical linkages

The establishment of linkages can be difficult to measure, in particular horizontal linkages. One way to measure horizontal spillovers is to find a relationship between growth in productivity at the level of local companies as a result of increasing competition due to incoming FDI. Whilst competition may have negative effects for some domestic companies, such as crowding out, it also forces the surviving companies to raise their productivity (Javorcik, 2004). In other words: surviving companies adapt their routines to obtain better market fitness. They may profit from incoming firms through labour mobility, by using the same skilled labour pool. On the other hand they can also decide to imitate the foreign affiliate by copying products as well as ways of production, management skills and marketing methods (UNCTAD, 2001).

Yet not all multinational companies would accept knowledge leaking towards competitors. In fact, according to the market power approach formulated by Hymer (1979), firms are likely to avoid knowledge leaking to prevent imitation and keep valuable know-how from flowing over. Also, foreign businesses may choose to pay their employees high wages to stop labour mobility and spin-offs from happening. Moreover companies can decide to formally protect their knowledge via patents, or localise in areas where indigenous firms lack the capacity to imitate. Accordingly positive horizontal linkages are less expected to occur than vertical linkages (Damijan et al, 2003), since the gains for multinational firms from the latter are more obvious (Javorcik, 2004 & Le & Pomfret, 2011).

Foreign businesses will be more interested in linkages and spillover effects to upstream sectors, i.e. backward linkages, as this will generate better quality products from suppliers. Due to the inflow of foreign affiliates, the demand for high quality products and in-time delivery will rise, consequently domestic suppliers need to adapt to this changing consumer demand by improving their ways of producing (Javorcik, 2004). Furthermore FDI may foster growing demand for local products (Javorcik, 2004 & (Stancik, 2007). This has been the case in in the southern European food sector with the introduction of Western European supermarket chains (Csaki & Forgacs, 2007). Multinational companies in their turn profit from the improved performance of local suppliers (UNCTAD, 2001).

2.5.3 What determines the establishment of linkages?

It is difficult to find a well-defined theory on the establishment of local linkages (Raines et al, 2001). Therefore this section uses assumptions gathered from different studies by Belderbos et al (2001), White, (2004), Damijan et al (2003) and UNCTAD (2001). All argue in line with Audretsch and Feldman (1996) that geographical proximity between indigenous companies and foreign affiliates is needed to establish linkages. Proximity enables firms to monitor and strengthen social ties through face-to-face contact. Furthermore strong links with several suppliers in close range, assures a multinational of constant in-time supply of resources. Besides geographical closeness, sufficient cognitive proximity and absorptive capacity of local enterprises towards incoming firms is paramount. In order to absorb knowledge spillovers from incoming firms, domestic firms need to possess adequate managerial and

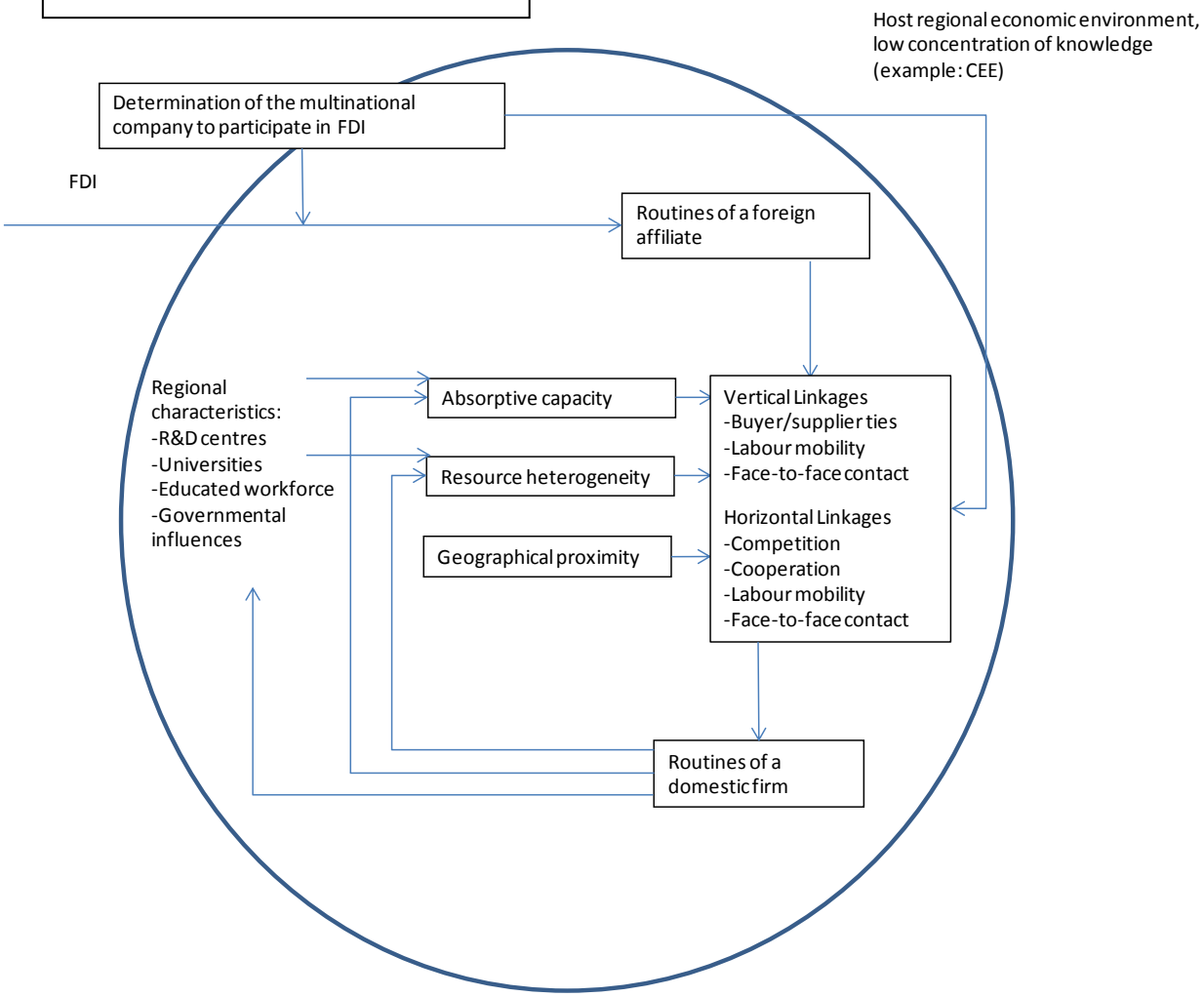
technical competences (UNCTAD, 2001). If not, linkages between both parties is rather impossible (Acaravci & Ozturk ,2012).

The role of institutions in establishing local linkages may also be important as it fosters cooperation and establish ties between economic actors. Institutions are able to diminish cognitive distances and encourage trust bunds. In other words: 'strong institutions such as chambers of commerce, universities, R&D facilities and business associations are geared to establish bonds (White, 2004). Governmental stability is also needed to make sure foreign affiliates are more embedded. It is simply too risky for a firm to invest in a region where legislation is changing frequently and where the government has little control over a country's economic and political situation (UNCTAD, 2001). The UNCTAD (2001) report also argues that strong financial systems, availability of quality human resources and good infrastructural networks generate more incentives on the part of multinational companies to invest in local linkages. This is largely supported by White (2004) and Belderbos et al (2001).

Aforementioned firm specific aspects determine the likelihood of linkages with the region. A firm might be looking to gather new technologies and therefore cooperates to a large extent with other companies (Cantwell & Iammarino , 2000), whilst other businesses are only interested in scaling up their global market share and are not very keen on cooperative bonds with domestic firms or local institutions (Hymer, 1960). Besides the corporate global sourcing strategies, i.e. Dunning's eclectic paradigm, market power approach, Vernon's product lifecycle and technological accumulation, 'vintage' effect, as described by Belderbos et al (2001), can have implications on local linkages as well. These 'vintage' effects concern to what extent the affiliate is still depending on suppliers from its home region. If proximity matters, multinational companies may ask their suppliers to move to the same region as well. The other way around, if long distance ties are sufficient, multinational companies may decide to hold on to their suppliers as well (UNCTAD, 2001). Also, firms can be loyal to their long-term relationships and are therefore not interested in new ties (Belderbos et al, 2001).

The conceptual model changes after horizontal and vertical linkages have been implemented.

Figure 2.5: Conceptual model



Source: own interpretation

2.6 FDI a threat to the host region?

Sub question: *What are the obstacles that prevent local linkages between foreign affiliate and domestic firms?*

There are many ways in which a region can profit from foreign capital investments. Nevertheless, there is a growing list of literature that points in the opposite direction (Crone & Roper, 2001 ; Wei et al 2011, Le & Pomfret 2011). The curiosity towards local linkages is, as aforementioned, initiated by the positive attitude of UNCTAD (2001). In order to retrieve a complete image of the possible influence of foreign affiliates on host regions, this thesis incorporates more critical views as well. The results I found are listed below and divided into different subjects.

2.6.1 Knowledge Gap

According to UNCTAD (2001), FDI provides learning opportunities to local suppliers, local buyers and even competitors. However other literature shows that this is not always true. Crone & Roper (2001) argue that learning opportunities are often hampered by a knowledge gap between foreign owned companies and local suppliers. They found this gap in their study in Northern Ireland, where, in contrast to other more technologically developed regions, only little knowledge spillovers existed between the multinational and local suppliers. Furthermore, they found different results between types of plants: engineering and R&D oriented plants are expected to have regular contact with other companies and are therefore more likely to share knowledge than the ones who are manufacturing oriented. The difference is explained through the more restricted function of the latter (Crone & Roper 2001).

2.6.2 Exploiting the market and lack of cooperation

Traditional criticism on the impact of FDI concentrates on the idea that multinational companies are solely interested in exploiting host markets through cheap labour whilst avoiding import tariffs, instead of sharing their knowledge (Potter, 2002). They argue that most foreign affiliates are limited in their freedom and are only there to serve the local market as they have just one function in a vertically structured supply chain, known as branch plants. These branch plants are accused of having little contact with local suppliers, both in terms of backward and forward linkages. Furthermore they make little effort to adapt their production process to the host economy, making it more or less impossible for knowledge to spillover through supply chains or labour mobility (Potter, 2002). Further criticism enhances the problem of financial leaking, whereby profit and earnings, conducted in the host economy, flow directly back to the parent company. Finally there is the risk of a closure, since most of these branch plants are replicas of other plants in the parent-group, it is therefore easy for a parent company to close or move one of these plants as a result of consolidation (Potter, 2002).

Even for FDI plants that are orientated on R&D development, cooperation with local affiliates can be limited. In a study concerning FDI in China, Wei et al (2011) found that foreign owned business are continuously more embedded in the Chinese market. However, knowledge flows are most likely to flow between foreign affiliates and less between foreign affiliates and local companies in regions where a lot of foreign owned companies are located. This is caused by a lack of absorptive capacity, resource heterogeneity divergent institutional characteristics and absence of labour mobility. This eventually results in scarce knowledge exchange between foreign affiliates and local businesses.

2.6.3 Creating opportunities or competition?

Theory about local linkages assumes that even local companies, specialised in the same products and services, would profit through competition, cooperation, labour mobility, and demonstration effects (UNCTAD, 2001). Nevertheless, negative relationships were found between horizontal linkages and productivity growth (le & Pomfret, 2011 & Konings 2001). The effect of competition from foreign owned companies was in those cases stronger than the benefits from knowledge transfer. This can be explained by the fact that foreign owned firms have a strong incentive to block knowledge from flowing to rival firms (Hymer, 1960; Fernandez & Paunov, 2012).

2.6.4 FDI competition and dependency

Competition from foreign companies can be healthy as it leads often to more efficiency. However, heavy competition may be catastrophic for some domestic firms. According to Pica and Rodriguez Mora (2011) a higher rate of globalization in a country leads to higher prices for labour, causing problems for, as they call it, 'middle talented domestic entrepreneurs' while they are not able to compete with foreign multinational companies that can afford to pay a higher price for labour. Also, starting entrepreneurs may choose a working career instead, since this is probably better paid (Pica & Rodriguez Mora, 2011). This leads to a situation whereby local suppliers and buyers are very dependent on foreign owned companies, as domestically owned companies are pushed aside. In that case mobility of FDI poses a threat for the host economy. Once the foreign affiliate decides to relocate the whole host economy may collapse. Chances of something identical to that happening are plausible, given that foreign direct investments are relatively more mobile (Potter, 2002 & UNCTAD, 2001)and are therefore more expected to relocate than domestic firms (Campello, 2009).

2.7 Knowledge spillovers and productivity growth: some empirical evidence

Sub question: *Do foreign affiliates contribute to the productivity growth in the host economy?*

International technology spillovers have long been studied by analysing international trade flows rather than looking at the impact of FDI. Nowadays, FDI is considered to be an important channel for knowledge diffusion. Multinational corporations introduce new techniques, materials, production methods and management skills to a host economy (Bodman and Le, 2013; Souare, 2012).

There has been discussion on how to measure the impact of knowledge spillovers on domestic firms. Some scholars argue that measuring patent applications per year is a proper way to measure innovativeness (Garcia et al, 2013). They argue that the role of competition offers increasing incentives to innovate (Aghion et al., 2001). However this thesis focuses besides externalities deriving from competition also on externalities deriving from vertical linkages. Moreover I want to investigate whether domestic firms become more efficient instead of mere technology improvement. Therefore I have chosen to use productivity growth as a measure for the growth in level of knowledge at the level of domestic companies, hereby following the decision in comparable studies such as those of Bodman & Le (2013) and Javorcik (2004) and Konings (2001). In their studies the impact of FDI on regional innovativeness and knowledge spillovers is measured by using productivity growth. The accumulation of knowledge and application to production will enable a firm to use factors of production, i.e. capital and labour, in a more efficient way (Romer, 1990; Grossman and Helpman, 1991; Aghion and Howitt (1992, 1998). This assumption has been used the other way around as well, Färe at all (1994) examined productivity growth in OECD countries by measuring changes in technology and technical efficiency.

The findings of the three comparable studies differ. In their studies Bodman and Le (2013) find a positive relationship between the quantified stock of foreign knowledge and their impact on productivity growth over a period of 25 years in OECD countries. The results of the research of Javorcik (2004) in Lithuania point out that backward linkages and horizontal linkages are positively related to a rise in output as well. However, the productivity function displayed only positive externalities for upstream suppliers, whilst no significant spillovers were found for domestic companies operating in the same sector or downstream sectors. In his study in Bulgaria, Romania, and Poland Konings (2001) discovered only in Poland a difference in performance between foreign owned and locally owned companies. Furthermore no evidence of positive spillovers from foreign owned companies on firm performance of domestically owned companies are found for all three countries. He argued that negative externalities resulting from competition effects dominated a positive technology effect.

The surveys differ in their methodology, this may cause different findings. Nonetheless, host regional differences may play a significant role as well. The results of the study of Bodman and Le (2013) in OECD countries show that R&D spillovers through FDI relate positively to the growth in productivity in the host region. Also, but to a lesser extent, having R&D facilities in other countries contributes to the knowledge base of the home region and eventually leads to productivity growth. Furthermore higher educated workforce makes implementation of new knowledge easier. Their results indicate a positive relationship

between high educated workforce and productivity growth as a result of inward FDI. In contrary Konings (2001) argued in his conclusion that the knowledge gap, which he found particularly in less developed markets, hampers knowledge spillovers between foreign affiliates and domestic companies leaving more dominance to the effect of competition. Inefficient domestic firms will lose market share to foreign affiliates. In later stages when inefficient firms have vanished and firms are adapted to the new market structure, the competition effect will decrease and may probably be replaced by technology spillover effects. He argues that this is for later research to find out.

Now, ten years after the study of Konings (2001) was conducted, this thesis has a fair shot in finding some new evidence of positive spilllovers from FDI. The difference in findings between the studies of Bodman and Le (2013) and Konings (2001) leaves an interesting gap in the FDI relating literature to investigate. Forthcoming, one can assume that for every region or country the result of such a research may differ. Therefore a multiple regression analyse is not enough to understand the relationship between FDI and firm performance in host economies. To be able to explain possible correlations the use of qualitative research is needed in order to establish a more comprehensive insight in the relationship between regional growth and the impact of FDI. Aforementioned this qualitative analysis is conducted in the second part of this thesis.

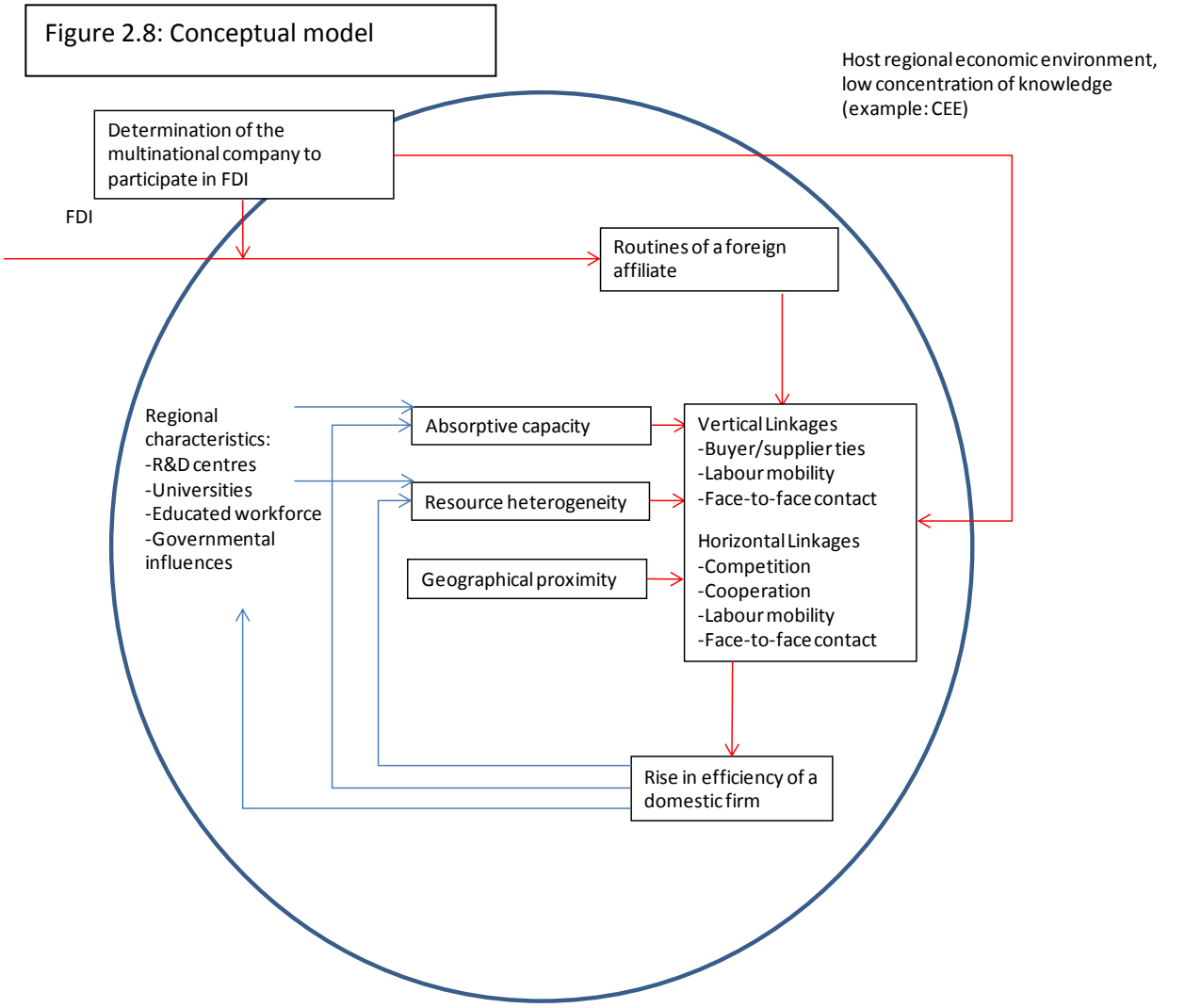
2.8 Conceptual model and hypotheses

The purpose of this thesis is to find the possible relationship between the inflow of foreign capital and rise in knowledge and productivity level of domestic companies . This section will try to connect the multiple factors that influence the aforementioned relationship in the conceptual framework. Hypotheses are conducted on the basis of the conceptual model and the theoretical framework.

The direct relationship between the inflow of foreign capital and productivity growth at domestic companies, i.e. without measuring vertical and horizontal linkages, will be examined in the first analysis. This will consists of a multiple regression analysis that answers the following hypotheses:

Hypothesis 1: Growth in foreign direct investments will lead to productivity growth of domestic companies.

Figure 2.8: Conceptual model



Source: own interpretation

The red lines in this conceptual framework represent the relationships that are examined during the case study of the Hungarian food sector. Here, local linkages are divided into vertical and horizontal linkages by the difference embodied in the kind of relationship to the foreign affiliate, i.e. competition and customer/supplier relationship . The success and the extent to which the relationship exists is influenced by absorptive capacity, resource heterogeneity and geographical proximity.

Furthermore, this thesis links the existence of local linkages with the determination of multinational companies to invest in a certain region. Internationalisation theories such as Dunning's eclectic paradigm, the market power approach, Venon's product lifecycle and technological accumulation approach predict divergent results for interaction between foreign affiliates and domestic companies. These theories predict whether or not a company choses to participate in FDI activities as well.

Finally the blue lines represent the relationships that were found in the literature but are beyond the scope of my research to investigate. For this thesis it is of little use to examine the influence of the knowledge level of domestic companies on the absorptive capacity of other domestic firms and institutions, when the main purpose of this thesis is to determine the relationship between the inflow of foreign capital and the level of knowledge and productivity of domestic firms. Nevertheless this could be an interesting subject for future research to carry out.

The second analysis will cover the following hypotheses, using a case study of the Hungarian food sector.

Hypothesis 2: The determination of a foreign investor to participate in FDI, influences the extent of linkages with domestic companies.

For instance, if a firm's main purpose is to enlarge its European market share by investing solely in distribution centres, this firm will have little contact with domestic companies. This assumption derives from the market power approach of Hymer (1960), who stressed that firms solely engage in FDI to extend collusive networks, to reduce competition and to increase entry barriers for future competitors. There are, as been assumed in the internationalisation theories, other possible reason for firms to broaden their views, each will influence the willingness of firm to conduct ties with domestic companies in a different way.

Hypothesis 3: Foreign affiliates are generally more technological advanced than domestic firms.

This hypothesis refers to the line between resource heterogeneity and local linkages. According to UNCTAD (2001) domestic companies in developing countries are generally behind foreign affiliates concerning technology, the quality of human resources and other competitiveness related factors. I regard this assumption to be a pre-condition for one way knowledge spillovers towards the host economy. Moreover, if foreign affiliates raise the level of knowledge, I assume that they need to be more technological advanced than the average local firm. This line is in line with the eclectic paradigm of Dunning. Dunning argues that a firm is likely to have ownership advantages over domestic companies when engaging in international activities.

Hypothesis 4: Foreign affiliates are more expected to have linkages with domestic firms that are located geographically close.

Audretsch & Feldman (1996), argue that knowledge spillovers become weaker as distance increases. Since firms will be in closer contact with neighbouring organisations, as this enables them to monitor social bonds through face to face contact (Boscham, 2008). Furthermore strong links with several suppliers in close range will give the multinational the security of constant in-time supply (Audretsch & Feldman, 1996). Hence, firms tend to cluster. Taking this into account I assume that domestic firms that are in close range from a foreign investor are more likely to have ties with this particular company.

Hypothesis 5: Domestic firms that have a higher absorptive capacity are expected to successfully conduct linkages with foreign affiliates.

The literature on absorptive capacity stresses that a firm´s cognitive ability is paramount in accumulating new knowledge. Domestic firms need to have built up prior knowledge in order to be able to grasp incoming technology and know-how from foreign investors. The absorptive capacity of a domestic company is represented by its own R&D efforts (Cohen and Levinthal, 1989) but could also be influenced by regional factors such as R&D facilities, universities and other technology centres as well as high educated workforce (Szogs et al, 2008). One could argue that if a firm with a high absorptive capacity is more capable of grasping and exploiting new knowledge, this firm is more capable of meeting new demands in terms of product quality and ways of production derived from incoming firms.

Hypothesis 6: Vertical linkages between foreign affiliate and domestic supplier will be more beneficial to local companies than horizontal linkages between foreign affiliate and domestic competitor.

Foreign affiliates rather exploit their knowledge than share it with competitors (Pottlesberghe and Lichtenberg, 2001; Hymer, 1960; Fernandez & Paunov, 2012). Several studies did not find any evidence of positive horizontal linkages, instead they argue that competition drove domestic businesses out of the market (le & Pomfret, 2011 & Konings, 2001). Nevertheless, a multinational may benefit from sharing knowledge with suppliers, as this will improve the quality of supplies. Furthermore, Dunning's eclectic paradigm dictates that a multinational company only decides to participate in FDI when all three of the OLI advantages are guaranteed. In order to make use of locational advantages a foreign affiliates has to some extent make use of the regional assets such as domestic suppliers.

The thesis will continue with a methodology section concerning the first analysis. The results will be presented afterwards, followed by section 6 which will analyse the food sector in the CEE area.

3. Methodology :

This thesis uses two research strategies to measure the impact of FDI in the CEE region. First, a quantitative research will be conducted, and later in section 7 and 8 a qualitative case study of the Hungarian food sector follows. Mixed methods allow the researcher to test his or her results by using the knowledge of experts, actors and scientists. The function of the second analysis is to fill the gaps left by the first; therefore this analysis follows the completeness approach which is described in the works of Bryman (2008). A common form is when ethnographers perform interview questions because not everything they want to know is unveiled by the quantitative research.

Mixed methods can be used in several ways, there is the possibility to start with a quantitative research and thereafter use a qualitative method. Morgan (1998) divides two decisions, i.e. priority decision and sequence decision, to mixed methods research. The priority decision is related to the question whether the quantitative or qualitative method will be the principal tool for gathering data. Consequently the other method will be designed to complement the first. It is based on the assumption that different methods have different strengths.

The sequence decision relates to the question whether to start with quantitative research as a preliminary to qualitative or the other way around. One can choose to use preliminary data to optimize the effectiveness of the principal method. On the other hand one can use follow up data gathering to strengthen the value of what is already in hand. The two decisions create four basic designs (table 3.1).

Table 3.1: Priority and sequence decision to mixed methods

		Priority	
		Quantitative	Qualitative
Sequence	Preliminary	Qualitative preliminary	Quantitative preliminary
	Follow-up	Qualitative follow up	Quantitative follow up

Source: own interpretation of four basic designs out: Morgan (1998)

This research uses the *qualitative method as a follow up* method to complement the quantitative method. The effect of inward FDI on total productivity growth is measured through a multiple regression analysis, however, one cannot determine solely from the results which possible factor connects the two variables. The available data set does not allow the measurement for backward, forward and horizontal spillovers separately as has been done in literature of Bodman and Le (2013) and Javorcik (2004). Consequently the regression analysis lacks sufficient explanatory power for this thesis to rest upon it solely, therefore the qualitative research is needed to examine the existence of backward and horizontal linkages through a case study in the food processing industry in Hungary.

3.1 Analysis 1: multiple regression analysis

To analyse the relationship between labour productivity growth and the inflow of FDI, I will use a multiple regression analysis, which will be conducted with the help of SPSS 20 software. This analysis offers me the possibility to check whether the possible correlation between labour productivity growth and FDI is not explained by other factors. These so called control variables consist of change in total investments, labour productivity level, private and public R&D expenditures and adult learning.

The definition of the CEE area differs per study. In some studies Russia is even considered to be part of the CEE area (Dries et al, 2009). I will use data concerning Poland, Romania and Hungary to carry out the multiple regression analysis. All three countries have gone through a transition process as a result of the fall of the Soviet Union and the enlargement of the European Union. Each of them followed a different path when looking at privatisation speed, FDI inflow and economic growth (Dries et al, 2009; Sass, 2004).

The data will cover all the NUTS II regions in Poland, Hungary and Romania. Regional data on productivity growth concerning the regions in Hungary were only available from 2007 onwards. Hence, I choose to measure the effect of FDI on productivity growth for the period between 2007 and 2010. The data is gathered from different sources. Primary data on productivity growth has been found on Eurostat, whilst region specific data on FDI participation per company could only be found on country specific statistical bureaus such as: Hungarian Central Statistical Office, the National Trade Register of Romania, the Central Statistical Office of Poland. This has some implications on the analysis; which will be discussed in section 3.4. Further data on control variables have been gathered from Planbureau voor de leefomgeving (PBL) (2010).Note that the data is only representative for the regions that are included in this regression analysis. These regions share a common history relating to economic and political developments; therefore I regard the data to be biased. Hence external validity is not applicable to this analysis.

3.2 Variables

3.2.1 Dependent variable

-Labour productivity growth

Productivity measures can be classified as a single factor measurement (relating one factor of output to one factor of input) and as a multiple factor measurement (relating a single factor of output to a bundle of inputs) (OECD, 2012). In this thesis I use the first method by dividing gross domestic product (GDP) by the number of people employed. Resulting in the following formula:

$$Yi = Oi / Li$$

Where Y stands for regional productivity at a certain period in time i, O stands for output represented by regional GDP, and L stands for number of people employed per region. In his work, Romer (1990) argues that 'in their joint present, technological change and capital accumulation account for an increase in output per hour worked.' To put it the other way around: changes in labour productivity reflect the joint influence of fluctuations in capital as well as alterations in technological and managerial skills. In other words the ratio between output and labour input reflects the influence of other inputs such as technological change and capital accumulation (OECD, 2001). In line with both sources I find labour productivity a profound measure for the effect of FDI on domestic companies, i.e. technological spillovers and capital injections.

The advantage of measuring labour productivity is that it is easy to measure, plus there is no necessity to use data on capital stock, which are according to Barrell, & Holland (2000) quite unreliable for a transition country. However, drawbacks include that the measurement represents the joint influence of several factors. One cannot tell from this measurement whether employees have become more productive or whether more effective ways of production have been applied. Nevertheless this measurement will be used to analyse economic growth, whilst other measurements such as value added and capital productivity contain the same flaws (OECD, 2001).

Furthermore to generate a normal distribution I use for all continues variables, i.e. dependent, independent and control variables, a logarithmic scale, as logarithmic scales reduce wide-ranging quantities to smaller scopes (Shirali, 2002). The logarithm of a variable has a normal distribution and may be helpful for analysis (Cardinal and Aitken, 2006).

3.2.2 Independent variables

-Number of companies with foreign participation

This thesis uses the *number* of commercial companies with FDI participation to measure the impact of FDI. Aforementioned, foreign direct investments range from ten percent ownership till total ownership. As a result there will be no distinction between joint ventures, greenfield or brownfield operations in this analysis. The data on FDI participation is gathered for the years 2005 to 2010. This generates a time lag of 2 years between the dependent variable, i.e. labour productivity growth, which is measured from 2007 to 2010 and this particular variable. It takes time for inward FDI to be felt by local companies (Garcia, 2013). Other studies such as those of (Bodman and Le, 2013; Pottelsberghe and Lichtenberg, 2001) use a time lag of one or two years as well.

There is a difference in cell fill between Romania and the other two countries. The number of companies with foreign participation in Romania far exceeds the number of companies with foreign participation in Hungary and Poland. This can be a result of different measuring, but it can also be an outcome of different pattern of investments. To eliminate the possibility of distortion, as a result of different measurement techniques, during the multiple regression analysis, I use growth in companies with foreign participation instead of sheer numbers of companies with foreign participation at a given point in time. This way significant difference in numbers between certain cases are not visible as only growth is being measured. Furthermore the logarithmic scale will lead to a more normal distribution.

This generates a formula as follows:

$$\ln(\Delta y) = \beta 0 + \beta 1 * \ln(\Delta Fn)$$

ΔFn stands for growth in number of companies with foreign participation and ln for logarithm. Furthermore $\beta 0$ is the intercept and the $\beta 1$ represents the coefficient of ln(Fn).

-Total foreign capital in companies with FDI participation

The impact of foreign investment can be measured in sheer numbers but also in amount of money. To complement the data on FDI participation, I will also use data on total foreign capital in companies with FDI participation. The data is gathered from the same source as the number of companies with FDI participation, but is now measured in millions of euros. Likewise, there will be no distinction in joint venture, greenfield or brownfield operations. The data is gathered over the years between 2005 and 2010 and is found for all 31 cases. Here, a time lag of 2 years between productivity growth and foreign capital participation has been applied as well. Furthermore, the same difficulties regarding vague methodology, as has been witnessed with the previous variable, feature this variable as well. Hence, I have chosen to use growth rates to measure the influence of this variable. The formula evolves into the following:

$$\ln(\Delta Y) = \beta 0 + \beta 1 * \ln(\Delta Fn) + \beta 2 * \ln(\Delta Fc)$$

Fc stands for growth in foreign capital participation in companies with foreign capital.

Hypothesis 1 states that growth in foreign direct investments will lead to productivity growth of domestic companies. Therefore I presume that the relationships between ΔY and independent variables Fc and Fn are positive.

3.3 Control variables

- Change in total investments in the period 2008 - 2010

The period between 2007 and 2010 featured significant macro-economic fluctuations. According to Kizys and Pierdzioch (2011) negative externalities affected the economies in the CEE region as well. Sudden changes in the macro economic sphere are likely to have their impact on regional growth rates, such as investments outlays, consumption and level of GDP (Marelli et al, 2012). The negative effect of the banking crisis of 2008 has been related to a reduction in funds allocated by banks and other investors (Fernández et al, 2013). In order to control for the effects of economic downturn I use change in total investments as a proxy variable. Total investments represent the gross value of fixed assets in national economy (CSOP, 2012). Studies such as those of Frankel and Saravelos (2010) include similar variables to test for the financial crisis.

The financial crisis started at the end of 2008. To capture its effect I have chosen to use changes in total investments over the period from 2008 to 2010. In case of a positive relationship between this control variable and growth in productivity one might argue that changes in macroeconomic sphere might have influenced the regional growth level.

The formula now consists of

$$\ln(\Delta Y) = \beta 0 + \beta 1 * \ln(\Delta Fn) + \beta 2 * \ln(\Delta Fc) + \beta 3 * \ln(\Delta I)$$

Whereby ΔI stands for changes in level Investments.

-Labour productivity level 2007

The rate of labour productivity growth can be highly influenced by the level of labour productivity in 2007. Since the outcome of the formula is depending on the so called 'old level' of labour productivity. The formula is as follows:

$$Ln(\Delta Y) = \ln((Y2-Y1)/ Y1)$$

Here Ln(ΔY) stands for growth in labour productivity between 2007 and 2010. Y1 and Y2 represent labour productivity in respectively 2007 and 2010. For example, if region A has a higher labour productivity level in 2007 than region B, but they each have the same absolute amount of labour productivity growth. Then, the outcome of the formula will feature a higher level of growth for region B than for region A. Therefore I presume that labour productivity level has a negative relationship with labour productivity growth.

Note that this variable, when negatively correlated with productivity growth, measures convergence between regions (Dogaru, 2011). This negative relationship means that regions that feature higher levels of productivity 2007 will witness lower rates of productivity growth. Regions with a low level of

productivity in 2007 will witness higher growth rates, in other words a negative relationship between both variables means that the difference of level in productivity is diminishing.

The formula now consists of:

$$\ln(\Delta Y) = \beta 0 + \beta 1 * \ln(\Delta Fn) + \beta 2 * \ln(\Delta Fc) + \beta 4 * \ln(\Delta I) + \beta 5 * \ln(Y1)$$

-Private R&D expenditures in 2000

Both Bodman and Le (2013) and Pottelsberghe and Lichtenberg (2001) assessed the role of R&D investment on productivity growth. They measured the effects of R&D derived from FDI and they examined the impact of domestic R&D efforts as well. I use both private and public R&D expenditures without distinguishing the R&D efforts derived from FDI from the domestic R&D efforts. That decision is enforced by the scope of my data, which does not divide domestic from foreign R&D expenditures.

There is a time lag between R&D expenditures and the actual period of productivity growth. Generally this time lag consists of two or three years Bodman and le, (2013) and Pottelsberghe and Lichtenberg (2001) even use only one year lagged data. However, according to findings of Eberhart et al (2004) R&D benefits can be felt over a longer period than two or three years. Their sample existed of 8,090 cases of R&D increases at 3,099 firms over a period of 50 years, i.e. 1951 -2001. They found significant R&D externalities in firm performance even after 5 years, stating that the market is slow to recognise the extent of the benefits of R&D investments. A more extreme example originates from the works of Adams (1990), who found in his study to the effect of R&D on productivity growth a lag in effect of roughly 20 years between the appearance of research in academic community and its effect on productivity by an industry. The time lag in this thesis is due to scope of available data seven years, but, referring to the results of Eberhart et al (2004) and Adams (1990), I assume that R&D externalities will still be noticeable after this period.

-Public R&D expenditures in 2000

The public R&D expenditures are gathered from the same source as the private R&D expenditure. According to Hall et al (2000) Public R&D has often been regarded as complementary to private R&D expenditures. In fact, in some cases they even stimulate private R&D expenditures. However many scientist argue that private R&D expenditures have a higher rate of return to firm productivity than those funded by public money (Hall, 2000). By dividing private and public R&D investments it is interesting to find out whether governments could play an influential role on the productivity growth of their respective economy.

The data has the same seven year time lag as the data concerning the private R&D expenditures. Here, I would expect R&D efforts to be noticeable after this period as well. The formula has been transformed to the following:

$\ln(\Delta Y) = \beta 0 + \beta 1 * \ln(\Delta Fn) + \beta 2 * \ln(\Delta Fc) + \beta 3 * \ln(\Delta I) + \beta 4 * \ln(Y1) + \beta 5 * \ln(Rv) + \beta 6 \ln(Rb)$

Rv stands for private R&D expenditures and Rb represents the public R&D expenditures.

- Adult Learning

One of the assumptions of this thesis is that knowledge accumulation eventually leads to productivity growth. Employees carry a firm's knowledge / routines. To improve these routines a firm may choose to train and educate its personnel. This adult learning is a vital component in lifelong learning and is often associated with increasing firm performance or productivity growth (Aghion and Howitt, 1992). Adult learning has also been stimulated by the EU, as public and private benefits include: greater employability, increased productivity and better quality employment (European Commission, 2006). Adult learning is defined by the European Commission (2006) as: *'all forms of learning undertaken by adults after having left initial education and training however far this process may have gone (e.g., including tertiary education).'*

The data on adult learning is gathered from Eurostat (2012) and includes all adults in between 25 and 64 in training and education over the year 2007. In contrary to R&D investments no time lag has been used, since I assume that learning whilst working will improve the skills of an employee instantly or at least within a year.

$\ln(\Delta Y) = \beta 0 + \beta 1 * \ln(\Delta Fn) + \beta 2 * \ln(\Delta Fc) + \beta 3 * \ln(\Delta I) + \beta 4 * \ln(Y1) + \beta 5 * \ln(Rv) + \beta 6 \ln(Rb) + \beta 7 \ln(Ai)$

Adult learning is indicated with Ai

3.4 Footnote regarding the data

The data originates from the following organisations: Eurostat (ec.europa.eu/Eurostat), Hungarian Central Statistical office (ksh.hu), the National Trade Register of Romania (onrc.ro), the Central Statistical Office of Poland (stat.gov.pl) and Planbureau voor de Leefomgeving (pbl.nl). The risk of gathering data from different sources is that they may use different methodologies to measure the data. To overcome this problem I tried to find data with similar measurements for all regions. However there might be a slight possibility that gathering methods among these organisations differ whilst using the same terminology. The prime example can be found in the terminology of the variables concerning the number of companies with foreign participation and the amount of foreign capital in companies with foreign participation. The different sources offer the following methodology:

-Hungarian Central Statistical Office: '*Direct foreign investment enterprise is an incorporated or unincorporated enterprise in which a direct investor resident in another country owns 10 per cent or more of the total subscribed capital*.'

-The National Trade Register of Romania: *'A registered company with foreign participation in the share capital is such a registered company partially or entirely established with the participation of natural or legal persons, with stable residence or registered office outside Romania.'*

-The Central Statistical Office of Poland: *'Entities taking part in the survey on companies with foreign capital and having foreign capital at the end of the year.'*

At the start of the theoretical framework I mentioned that only foreign direct investments and not portfolio incentives are used when discussing foreign capital and investments. The Hungarian Statistical Office offers information on enterprises in which a foreign investor, who residents in another country, owns more than 10 percent of the enterprise. The National Trade Register of Romania agrees on the part of the owner living outside the border; however the latter does not mention the ten percent ownership. Furthermore the methodology deriving from the Central Statistical Office of Poland only refers to companies with foreign capital. The methodology does not specify what is meant by entities, foreign capital and the percentage of foreign ownership.

I cannot be completely sure that the data covers only direct investments. Aforementioned, to deal with possible irregularities I will use growth rates and logarithm in order to diminish the effect of varying data gathering methods. All other variables have been found using just one source, most of it was gathered from Eurostat (2012) and the PBL (2011).

The data on growth in productivity is gathered over the period 2007 and 2010. Previous data relating to this variable could not be found for Hungarian regions. A four year time string may have negative effects on the reliability of the outcome of the test. For example macro-economic shocks may disturb certain relationships, or create bonds that are false. Therefore results of this tests should be interpreted carefully.

Besides using growth rates and logarithm, I will first investigate the data with the help of thematic maps in order to spot any anomalies relating to varying data-gathering methods. The thematic maps will help me to identify major flaws or unrealistic differences between cells in the data concerning FDI.

4. Analysis

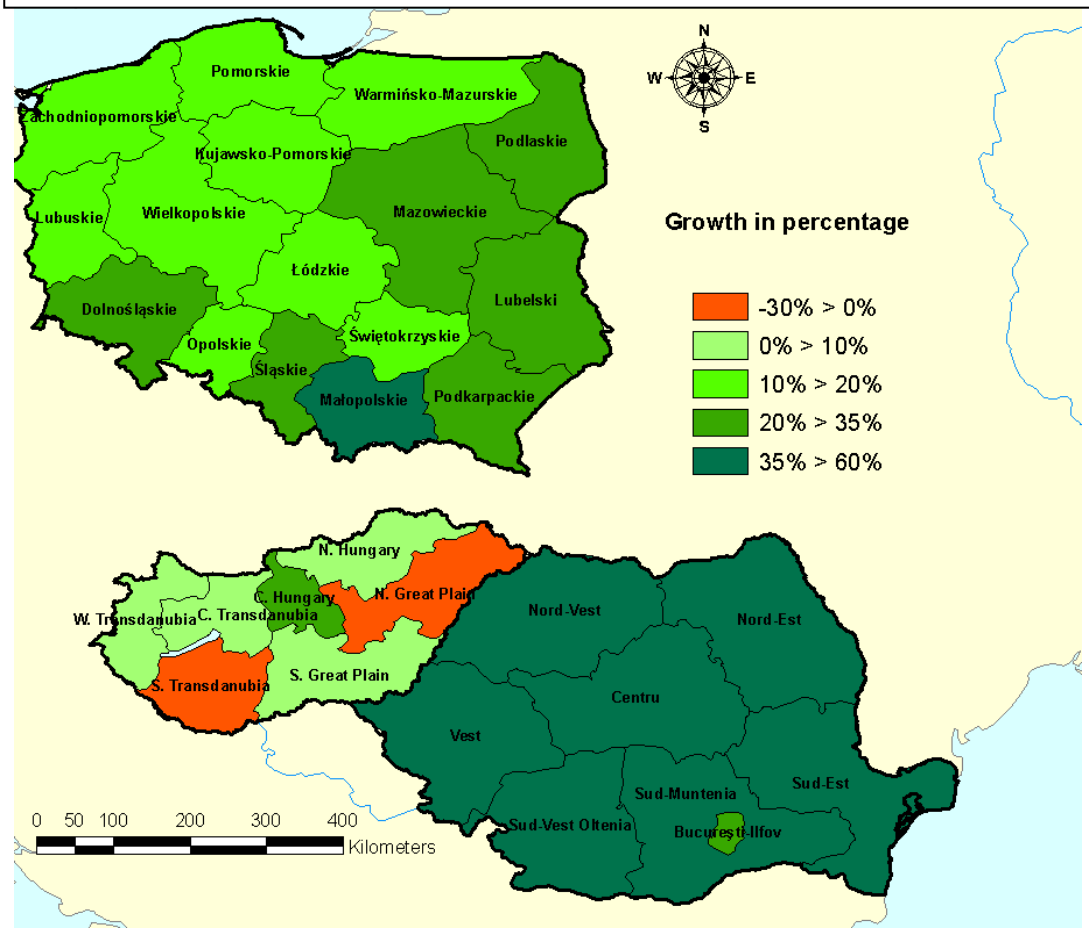
4.1 Investigating the data

To carry out the pre-analysis I will use ARCGIS, which enables me to portray the data in thematic maps.

4.1.1 Foreign capital participation in companies

The growth in FDI participation is mainly visible in the Romanian regions (Map 4.1). Their growth rates far exceeds those of the majority of regions in Hungary and Poland. Only the region of Central Hungary and some regions in the south and south-east of Poland have to a certain extent similar growth rates.

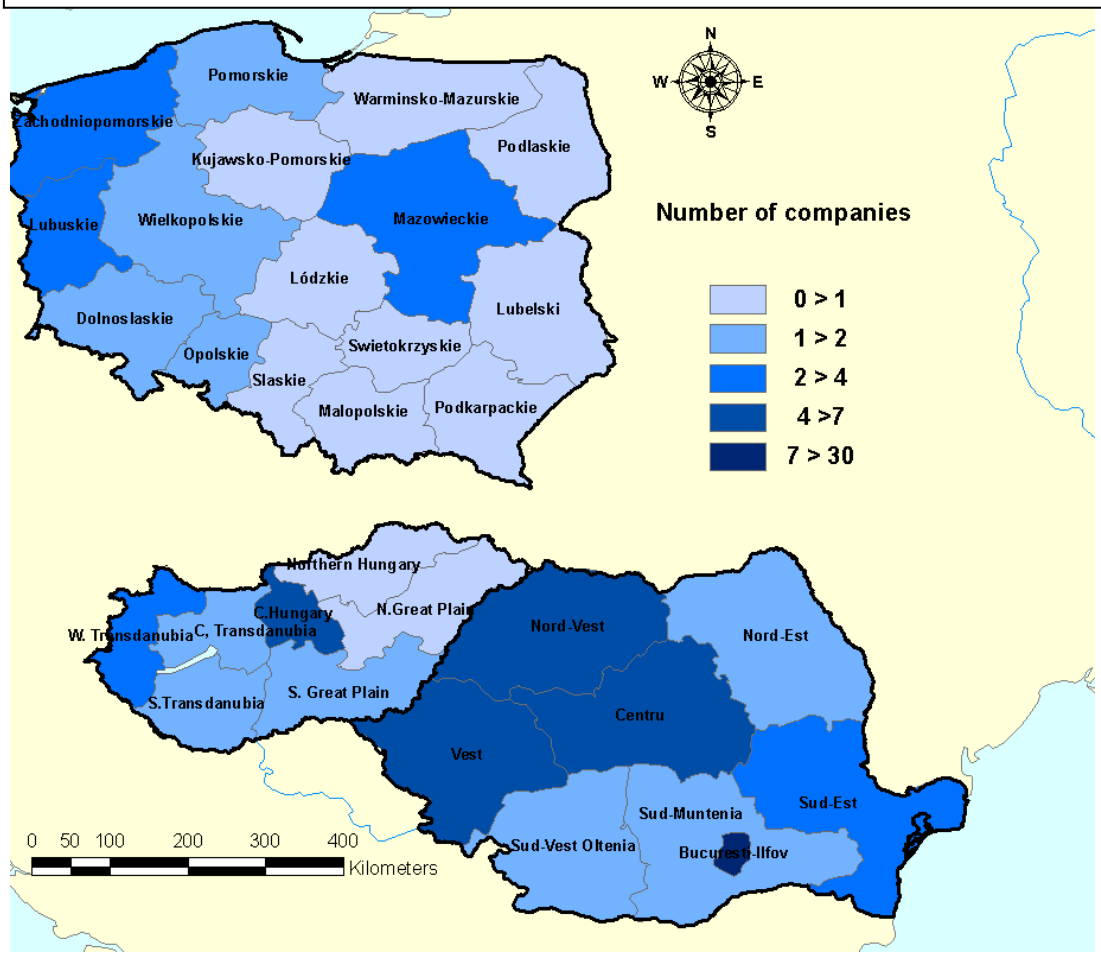
Map 4.1: Growth in companies with FDI participation in percentage between 2005 and 2010



Source: HCSO (2012), NTRR (2012) and CSOP (2012)

The large increase in FDI participation in Romania may be explained by possible low penetration of FDI in 2005 compared to the regions in Poland and Hungary in. Sass (2004) argued that Hungary was one of the first countries to witness a large inflow of FDI and would therefore witness lower growth rates in later phases. Furthermore, significant amounts of FDI entered Poland and reached considerable size at the end of the nineties (Barrell & Holland, 2000). The inflow of FDI in Romania started at a much later phase (Dries et al, 2009 & Brisan & Buiga, 2008). The difference between the countries is according to Barrel and Holland (2001) due to the fast recovery from transitional recession by both Hungary as well as Poland. Also, the speed of privatisation and the restructuring of political systems in these countries contributed to higher inflow of FDI.

Map 4.2: Number of companies with FDI participation per 1000 inhabitants in 2005



Source: HCSO (2012), NTRR (2012) and CSOP (2012)

Unlike the theory suggested, the relative number of companies with FDI participation was highest in Romania compared to Hungary and Poland in 2005 (Map 4.2). In particular the region of București-Ilfov features a high number of companies with FDI per capita followed by the Vest, Nord-Vest and Centru area. Foreign interference was also well presented in the capital region of Hungary and to a lesser extent in the capital region of Poland as well, i.e. respectively Central Hungary and Mazowieckie. However, the

likelihood of Romania overtaking both Hungary and Poland in attracting more capital from FDI on a short term is not realistic, given that Romania started to attract significant FDI projects at a much later stage (Acaravci & Ozturk, 2012 & Brisan & Buiga, 2008).

Data from UNCTAD (2012) show that the stock volume of FDI in Romania was significantly lower than in Hungary and Poland in 2005 (Table 4.1). However, between 2005 and 2010 the growth in stock volume of FDI in Romania was higher than the growth in Hungary; this is not the case for Poland. The possibility arises that FDI towards Romania carries less money per project in comparison to those in the other two countries. That is, if the methods of data gathering for all three countries were more or less similar.

Table 4.1: FDI stock in US Dollars at current prices and current exchange rates in millions

							Growth in volume stock between
YEAR	2005	2006	2007	2008	2009	2010	**2005 – 2010**
Hungary	€ 81.417	€ 106.789	€ 127.194	€ 117.247	€ 132.024	€ 120.943	**48,55%**
Poland	€ 121.076	€ 167.581	€ 237.695	€ 218.908	€ 246.746	€ 267.798	**121,18%**
Romania	€ 34.395	€ 60.556	€ 83.884	€ 90.477	€ 95.937	€ 93.613	**172,17%**

Source: UNCTAD 2012

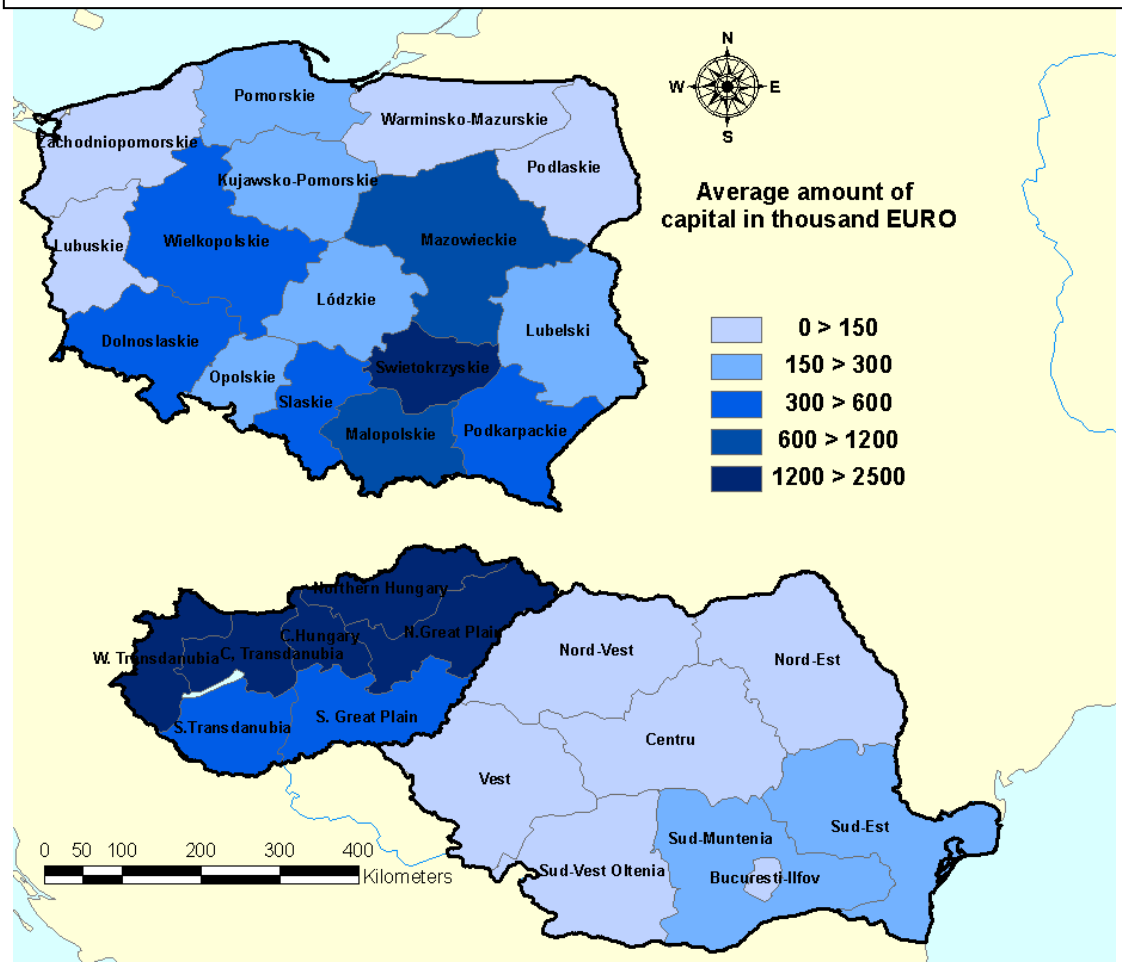
Map 4.3 shows the average amount of foreign capital per company with foreign capital. Clearly, the amount of foreign capital per company in Romania is much lower than in Hungary and Poland. This might support the assumption that the FDI projects in Romania carry less money than in the other two countries. This might be a result of consolidation processes, which started to occur in Hungary and Poland at a stage after they entered the free market zone of the European Union (Dries et al, 2009). Factories and firms were closed down and replaced by much larger firms that could provide multiple countries with supplies, since border fees and other border customs had disappeared. Therefore the low level of capital per company in Romania may be a sign that Romania is at a less developed stage of foreign penetration than the other two countries.

Another interesting fact is that the data gathered from UNCTAD (table 6.1), features higher amounts of foreign direct capital than data gathered from the country specific websites. The total amount of foreign capital participation in 2005 for Hungary, Poland and Romania were respectively €40 billion, €27 billion and €13 billion whilst FDI measured by the UNCTAD reached respectively €81 billion, €121 billion, €34 billion. The methodology of the UNCTAD is as follows: 'Foreign direct investment (FDI) is defined as an investment involving a long-term relationship and reflecting a lasting interest in and control by a resident entity in one economy (foreign direct investor or parent enterprise) of an enterprise resident in a different economy (FDI enterprise or affiliate enterprise or foreign affiliate). Such investment involves both the initial transaction between the two entities and all subsequent transactions between them and

among foreign affiliates. FDI stock is the value of the share of their capital and reserves (including retained profits) attributable to the parent enterprise, plus the net indebtedness of affiliates to the parent enterprises.'

One could argue that the UNCTAD uses all enterprises in the economy, that includes governmental enterprises and for example large infrastructural projects as well, whereas the data of the specific countries only uses data regarding commercial companies. Furthermore the data of the UNCTAD reflects the stock of FDI, which also incorporates retained profits. Most likely the latter is not integrated in the data derived from the country specific statistical offices. However with the poor explanatory methodology regarding some country specific databases, it is rather difficult to clarify the difference in data. However, I assume that the use of growth rates instead of absolute data will dissolve much of the possible variance in data gathering. Furthermore by using logarithm instead of actual growth rates the possible distortion of outliers will be eliminated.

Map 4.3: Average amount of foreign capital per enterprise with foreign capital in 2005



Source: HCSO (2012), NTRR (2012) and CSOP (2012)

Table 4.2 shows the total amount of foreign capital in companies with foreign participation. The capital cities, i.e. Warsaw in Mazowieckie, Budapest in Central Hungary and Bucharest in București-Ilfov, received the most foreign investments. Already in the nineties these cities witnessed large inflow of foreign capital represented as regional headquarters, sales and marketing operations and distribution offices (Turnock, 2001). Western and Central Transdanubia were also among the top listed in terms of investment destination. A possible explanation is the large automotive cluster PANAC, primary located in both Western and Central Transdanubia. According to the Hungarian Trade and Development Agency (ITD, 2006), the automotive industry is one of the main pillars of the Hungarian economy. Top multinational car manufacturers such as Audi and Suzuki have their manufacturing plants in Gyor and Eztergom (Panac, 2012).

Table 4.2: Top 10 regions with highest total amount of foreign capital in companies with foreign capital in 2005

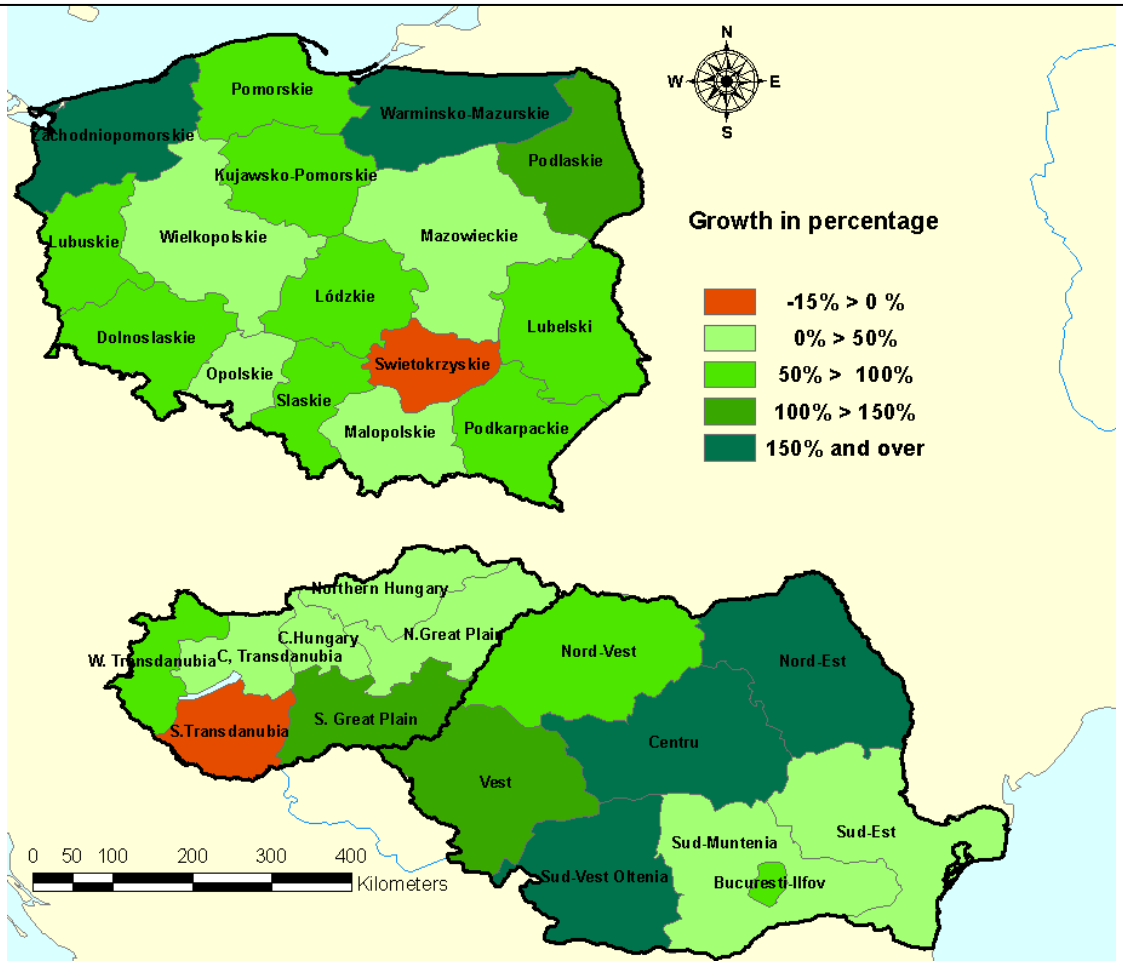
Regions	Total foreign Capital participation in companies in million EURO 2005	Regions	Total foreign Capital participation in companies in million EURO 2005
Central Hungary	€ 26,825.52	Wielkopolskie	€ 2,504.80
Mazowieckie	€ 13,726.96	Dolnośląskie	€ 2,347.16
Bucureşti-Ilfov	€ 7,684.40	Małopolskie	€ 2,280.26
Western Transdanubia	€ 4,441.38	Śląskie	€ 2,278.57
Central Transdanubia	€ 4,085.17	Northern Hungary	€ 1,646.55

Source: KSH (2012), ONCRO (2012), (GUS, 2012)

Strikingly, the total amount of capital manifested in the Central Hungarian area almost doubles that of the Mazowieckie area. Since the beginning of the nineties, Central Hungary and Budapest in particular drew far more attention from foreign investors than the other regions in Hungary (Boudier-Bensebaa, 2005). This has been less evident in Romania and Poland.

Map 4.4 shows the growth in amount of foreign capital participation in enterprises. Overall, the total injected capital is increasing. Particularly in parts of Romania and Poland growth in foreign capital is visible. This involves growth rates of over 200 percent and in the case of Sud-Vest Oltenia over 300 percent. This indicates that particularly regions in Romania are catching up in attracting foreign capital. The country witnessed an economic boom between 2003 and 2008; this was associated with the prospects of its EU accession. Accordingly the growth was partly driven by a large inflow of foreign direct investments that were attracted by the perception of high investment returns (Worldbank, 2009).

Map 4.4: Growth in amount of foreign capital per enterprises with foreign capital between 2005 and 2010

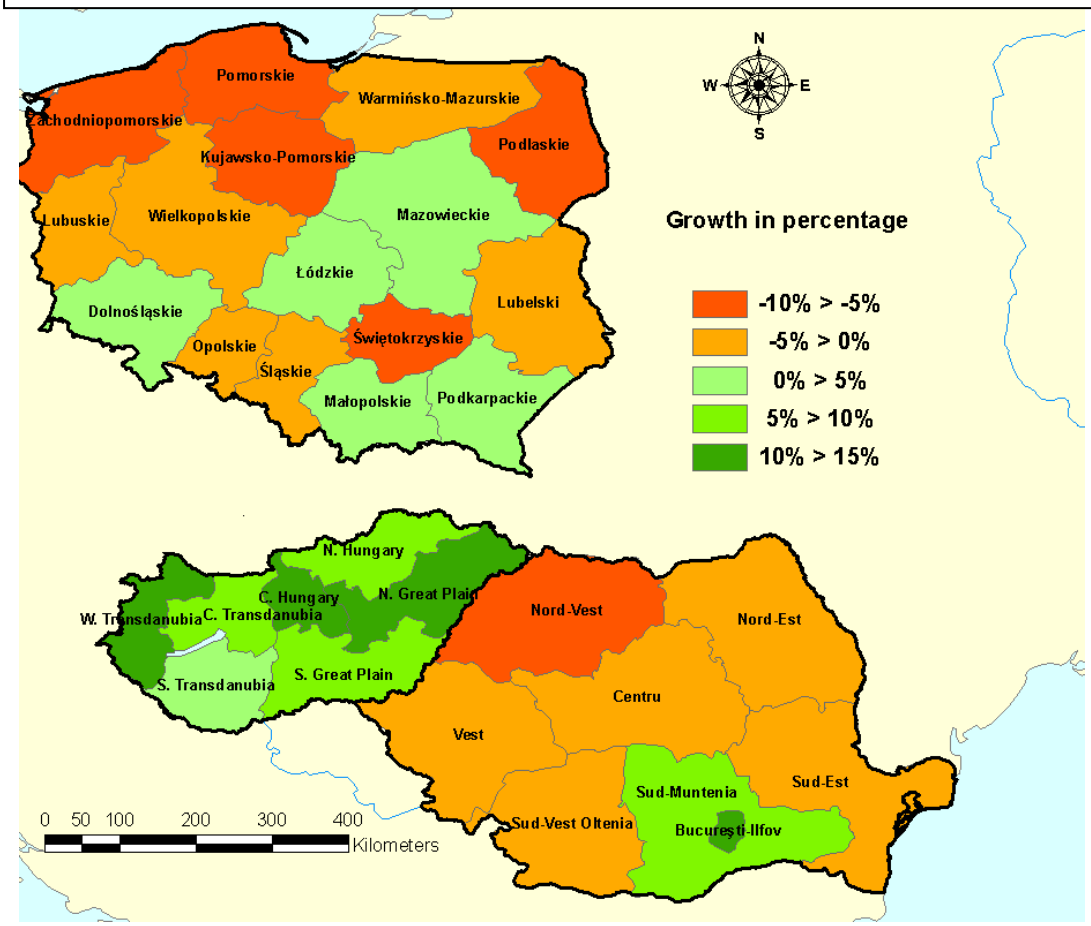


Source: HCSO (2012), NTRR (2012) and CSOP (2012)

4.1.2 Labour Productivity

Particularly Hungary witnessed a rise in labour productivity between 2007 and 2010 (Map 4.5). Growth was also visible in the capital district of Romania and the surrounding region and in some parts of Poland. However large parts of Romania and Poland featured negative growth rates. When comparing this map to the previous maps concerning FDI participation, one might argue that productivity growth does not correlate with growth in the number of companies with FDI participation and the growth in foreign capital.

Map 4.5: Labour productivity growth between 2007 and 2010

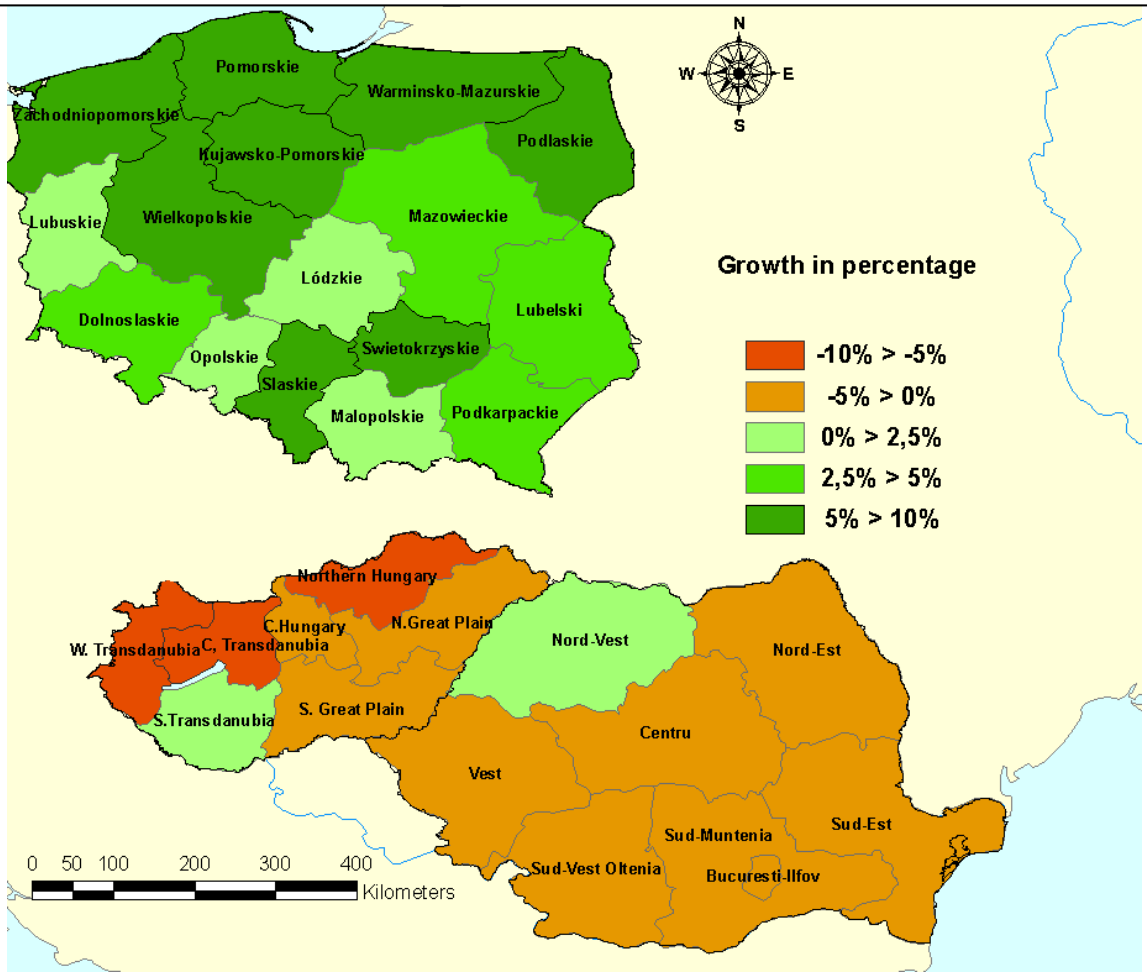


Source: Eurostat (2012)

The growth in productivity rose in most urban areas in Romania and Hungary. Especially the capital zone of Budapest and Bucharest, i.e. respectively Central Hungary and București-Ilfov, witnessed a fair growth in labour productivity. The regions with larger cities in Poland, i.e. Mazowieckie with Warsaw, Malopolski with Krakow, Lodzkie with Lodz and Wielkolpolski with Wroclaw, encountered a relative modest growth with an average between the zero and plus five percent.

Map 4.6 illustrates the growth in employment over the period 2007 -2010. Most of the areas that were suffering from labour productivity loss are in this map coloured green. These regions witnessed growth rates up to 15 percent. So the loss in productivity growth is largely explained by a growth in employment. However this is not the case for Romania, where most regions suffered from a modest fall in labour productivity as well as a modest fall in employment.

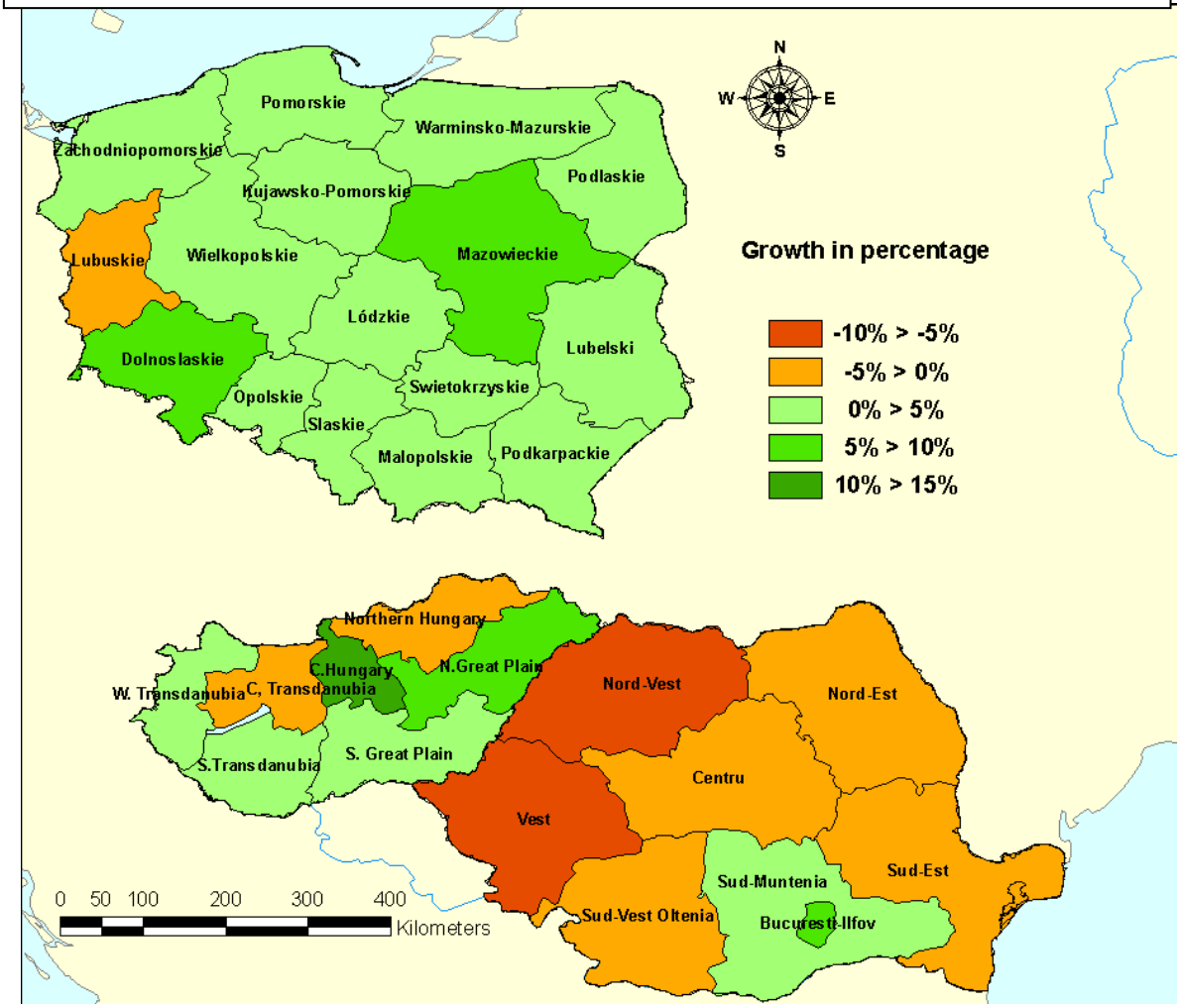
Map 4.6: Employment growth of people older than 15 years old between 2007 and 2010



Source: Eurostat (2012)

Furthermore, the regions in Romania witnessed a drop in GDP between 2007 and 2010 (Map 4.7), which explains the fall in level of labour productivity. The losses in GDP were most severe in the Nord-vest and Vest regions. The period of 2007 and 2010 featured a downfall in global economic performance. In Romania economic activity declined sharply at the end of 2008 and continued this trend in 2009. This resulted in a dramatic fall in annual GDP from 9% growth in the first quarter of 2008 to a decline of 13% in the last quarter of 2008 (Worldbank, 2009). This trend continued in 2009 and 2010 with severe drops in GDP levels (IMF, 2012).

Map 4.7: Growth in GDP between 2007 and 2010



Source: Eurostat (2012)

The financial downfall in 2008 affected Poland to a lesser extent than Romania. Though, the effects were felt in the declining demand for Polish export, tightening of credit conditions and temporary lower FDI inflow than previous phases. Nevertheless, the GDP growth remained moderate in 2008 and 2009 (Worldbank, 2009i). On average the majority of Polish regions witnessed growth in GDP in the period between 2007 and 2010 (Map 4.7). In contrary Hungary witnessed on average a drop in GDP of around six percent in 2008, which is a bit more than in Poland but did not equal the decline in Romania (IMF, 2010). The economic decline was tempered by quick recovery of export rates, the Hungarian economy showed weak recovery afterwards due to spillovers from the Euro crises as well as internal problems (IMF, 2011).

These maps offer an insight in the possible relationship between foreign participation and productivity growth. However one cannot conclude from these maps that there is a relationship between both variables let alone that this relationship is positive. To my knowledge there are not too many irregularities in the data to abort the multiple regression analysis. To a certain extent the analysis will be influenced by some irregularities concerning the data. Nevertheless the method for measuring FDI participation by all three country specific statistical offices seems to be somewhat identical. The

externalities of any inconsistencies will most likely be diminished by the use of growth rates and logarithm.

4.2 Multiple Regression analysis

This analysis employs the enter method to carry out the multiple regression analysis. The predetermined level of significance will be at 0.05. In other words if the probability value reaches lower than 0.05 the null hypotheses, i.e. there is no relationship between the two variables, will be rejected. The chief goal of this analysis is to test hypothesis 1: *Growth in foreign direct investments will lead to a rise in the productivity growth of domestic companies*

The independent variable is normally distributed; figure 1 in the appendix shows the histogram which seems to be pretty symmetrical. The P-Plot does not show any significant outliers, the residuals follow the diagonal line to a certain extent (figure 2, appendix). Furthermore, the data appear to meet the assumption of homogeneity of variance. The cases have been to some extent evenly distributed over the scatterplot (figure 3, appendix), so no heteroscedasticity is observed.

Finally all variables are independent, since no multicollinearity is found. Though, the variables adult learning and productivity level in 2007 seem to correlate to a certain extent (Appendix, table 1). Nevertheless the VIF values are all below 10 and the values concerning Tolerence are above 0.1 and 0.2 (table 5.2), which confirms that collinearity is not a problem for this regression analysis (Field, 2009). The data is not collected randomly, therefore the data will not meet the assumption of homogeneity of variance for a full hundred percent, which indicates that the data will not be representative for other regions.

5. Results

5.1 Analysis of the results

Table 5.1 shows the degree of predictive power of the model. The R square, i.e. the extent of variance of the outcome that is explained by the model, is 0,637 when all variables are inserted. This means that 64% of the total variance in labour productivity growth is explained by the independent variables. The difference between the adjusted R square and the R square, i.e. 0,637 – 0,526 = 0,111, that is 11 per cent, which assumes that the model would have 11 per cent less explanatory power when taken over different regions worldwide (Field, 2009).

Table 5.1: Model summary of the multiple regression analyse

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Durbin-Watson
				R Square Change	F Change	Sig. F Change	
,798[a]	,637	,526	,037992	,637	5,765	,001	1,889

Source: SPSS output

F shows the ratio of improvement in prediction of the model. The value of F rises to 5,765 when inserting the independent variables into the model, it is unexpected that this happened by chance (*p*-value = 0,001) with a level of significance of 0.05. Thus, the fitness of the model has been improved; this increases the ability of the model to predict the outcome of the Y-variable.

The value of B indicates the direction of the possible relationship (table 5.2). If the value is positive one can assume that the relationship between that particular variable and the dependent variable is positive. If the value of a given variable changes with 1 unit, than the outcome of the model, i.e. labour productivity growth between 2007 and 2010, will change with 1 * b value. The standardized beta value indicates the relative importance of each variable. By multiplying the beta of an independent variable with the standard deviation of the dependent variable, i.e. labour productivity growth, one could find out to what extent labour productivity growth would change if the standard deviation of that particular independent variable changes with one standard deviation unit. This is true only if the effects of the other variables held constant (Field, 2009). However since I use the log of every variable, it adds little to the imagination to perform such a calculation. Therefore, I will only use the value of Beta as an indication of the weight of each variable on the prediction of the outcome of labour productivity growth. The value of Beta varies between 0 (no weight at all) to 1 (perfect correlation).

Table 5.2: Coefficients of the predictors of the model

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0,112	0,107		1,042	,308		
Change in number of enterprises with FDI 2005-2010	-0,168	0,050	-0,540	-3,386	0,003	0,622	1,608
Change in foreign capital 2005 - 2010	-0,015	0,024	-0,098	-0,613	0,546	0,618	1,618
Change in investments	-0,015	0,060	-0,036	-0,255	0,801	0,776	1,288
Productivity level in 2007	0,035	0,038	0,191	0,912	0,371	0,362	2,763
Private R&D expenditures in 2000	0,033	0,011	0,481	2,933	0,007	0,587	1,704
Public R&D expenditure in 2000	0,014	0,013	0,207	1,096	0,284	0,441	2,269
Adult learning in 2007	-0,064	0,021	-0,664	-3,067	0,005	0,337	2,968

Source: SPSS output

The growth in number of companies with foreign capital correlates negatively with labour productivity growth (*p*-value = 0.003). The influence of the predictor on the dependent variable is quite strong (Beta = -0.540). The negative direction of the relationship is somewhat surprising considering the prediction in hypothesis 1. This relationship indicates that if the number of companies with foreign participation increases with one unit, productivity growth will decrease with 0.168. Growth in foreign capital in companies with foreign enterprises has no influence on the variance in the model. This contradicts hypothesis 1 as well.

In contrary, private R&D expenditures in 2000 correlates positively with labour productivity growth (*p*-value = 0,007). The Beta value is 0,481, which indicates a relatively strong relationship. B is 0,033, thus an increase in one unit of private R&D expenditures will lead to an increase of productivity growth of 0,033 units.

Finally, the relationship between adult learning and labour productivity growth is negative. This result contradicts the prediction in 5.2.3. The Beta is -0,664 which indicates that the influence of this variable is able to predict a significant part of the variance in the model. The contribution of the three correlating independent variables to the model is more or less similar; the results of the t-tests are approximately around 3.

5.2 Interpretation of the results

The positive relationship between private R&D expenditures in 2000 and growth in productivity indicates that CEE regions with high R&D expenditures have higher growth rates. This cannot be said for regions with high public R&D expenditures. The varying results between private and public R&D expenditures suggest that R&D investments are more effective when undertaken by companies than undertaken by governmental organisations.

Furthermore, adult learning correlates negatively with labour productivity growth. Accordingly, regions with high percentage of people between 25 and 64 participating in adult learning adult learning had lower productivity growth rates. In contrary to the assumptions of the European Commission (2006), adult learning does not lead to productivity growth in Hungary, Poland and Romania. The outcome is quite unexpected; however it is possible that these learning programmes are not effective. Time spend on these training programmes means less time spend on output, which may lead to lower productivity rates.

Finally, the results indicate that growth in the amount of foreign capital investments in companies has no effect on regional productivity growth in Poland, Romania and Hungary. Moreover, the growth in number of companies with foreign participation correlates negatively with the growth in productivity. Hence hypothesis 1 cannot be supported by the empirical results generated from regional entities in the CEE area. In fact, the evidence suggests that growth in the number of companies with foreign participation leads to lower economic growth.

Measuring productivity growth over a relatively short period of four years, i.e. 2007 to 2010, may involve some risks. The outcome of the model may be influenced by shifts in the economy. The financial downturn of 2008 is a perfect example of a sudden shift that fell in the middle of the period of investigation. Nevertheless the development of total investment in the period 2008 - 2010 did not correlate with labour productivity growth. The model could not identify any a possible relationship between the externalities from the macroeconomic and labour productivity growth. However, it is inconceivable to rule out the possibility that the number of companies with FDI participation may be accounted for the effects of the macroeconomic downturn.

FDI may have negative effects on the productivity growth of the CEE host economy. The main function of subsidiaries could be limited to the distribution of products whereby little knowledge exchange takes place, as section 2.6 suggests. Furthermore, the effect of competition may dominate the gains from knowledge spillovers. Scholars such as Le and Pomfret (2011) and Konings (2001) found in their survey a negative relationship between FDI and productivity growth as well. The latter added that these negative externalities could be temporary as the competition effect may be replaced by knowledge spillovers on the long term. He referred to the effect of a knowledge gap between foreign affiliates and domestic companies at the early stages, which diminishes through time as inefficient domestic firms vanish and others learn to adapt.

The results of the multiple regression analysis are not sufficient to explain or illustrate the relationship between foreign affiliates and domestic companies. Factors such as absorptive capacity, resource heterogeneity and the motivation of multinational companies to invest in a particular region are not uncovered yet. The upcoming section will have a closer look at on the food sector in the CEE area with special attention to Hungary to find out what kind of connection foreign investors have with their host economy. The case study will complement the results of the first analysis and take into account the concepts that have not been exposed yet. The interviews with Hungarian food related experts and actors will serve as examples of how foreign affiliates link with their host region.

The following section starts with a brief introduction of the broad shifts in the CEE food industry that took place after the transition period. Later on, the influence of FDI will gradually be introduced followed by a section in which empirical studies regarding the effects of FDI in the CEE food sector are presented. Finally I conclude the section with a case study of the food and agricultural sector in Hungary, which will offer a comprehensive insight in the relationship between foreign affiliates in the food sector and their domestic counterparts.

6. Transformation in the food sector in Central Eastern Europe

Sub question: How did the food sector in the CEE develop during the period after the transition? And what is the role of FDI?

6.1 Reform in farm structure and land distribution

After the collapse of the communist economy the share of agricultural income in total GDP started to shrink year-on-year in the CEE area. The demand for products declined as a result of the disintegration of the Soviet Union. The planned economy led to low efficiency, which in turn hampered agricultural output. Generally the land was cultivated collectively by workers in large scale farms. The disadvantages of these farms included their size which caused high transaction costs as all the personnel and land needed to be monitored (Mathijs & Swinnen, 1998). In some parts machinery was abundant, although most of the machinery was characterized as old and inefficient. Farms produced indifferent for consumer preference and were therefore not used to free market based demand. Even though there were some differences among CEE countries under Soviet rule, difficulties were more or less similar after the transition (Lerman, 2000).

In the CEE region, land collectivisation did not, in contrary to the Commonwealth of independent States (CIS), include all the arable land. During the post-war period only the land of unwanted elements in society such as Nazi-collaborators, churches and big landowners was seized. Much of the land owned by small farmers was untouched by the government. Although all farmers were obliged to enter state cooperatives, most of them were still registered as landowners. As a result the privatizing process during the period of transition was not as difficult as it was in Russia and other CIS countries. Nevertheless, legislation concerning private ownership in the CEE regions differs from that in Western countries. Most noticeably is the regulation regarding land transfer from one owner to another, which was in some countries even restricted (Lerman, 2000).

Private ownership is associated with incentives to invest in efficient farming techniques and machinery. Therefore landownership is a push towards more productive farming. Also, land transfer enables farms to reduce or gain in size in order to be more efficient and to effectively adjust to demand fluctuations. However the frequency of land transfers in the CEE region is very low as a result of the restrictions on land transfers. Forthcoming productivity growth has been hindered. Land leasing seems to be the only way to adjust farm sizes in order to increase efficiency (Lerman, 2000).

The land distribution process was for many former CEE countries a long and painful process, but is now more or less complete, even though the transformation process is not totally finished yet. The land distribution process featured some economically questionable decisions (Csaki & Forgacs, 2007). In some cases land was given to previous owners whilst in other cases vouchers were given out to beneficiaries to bid for pieces of land. This resulted in situations whereby owners live in a city far away from their

recently received land. The majority of these owners were not going to use the land but did not want to sell their newly retrieved assets either. Hence, a vast majority of land is leased to corporations and individuals who were looking to increase their cultivated land (Lerman, 2000).

The duality in farm structure is the most noticeable characteristic of CEE agriculture. It is manifested in a small number of big corporate farms and a large number of small farms (Csaki & Forgacs, 2007). The largest group of farmers (82 %) consist predominately of part-time farmers who own less than five hectare. All together they own approximately 13,3 million hectare (table 8.1). The group with land possession ranging from 5 to 20 hectares own altogether more land (13, 9 million hectare) than the former group even though they represent just about 15% of the farmers. Family farms of this size are expected to generate enough income to survive (IAMO, 2004). Most striking is the number of farms above 50 hectare (63) vis-à-vis their total land possession (18,7 million hectares). In order words 1% of all farmers owns 38% of all land.

Table 1: Land distribution amongst farmers in CEE region, 2004

	Less than 5 ha	5 to 20 hectare	20 to 50 hectare	Above 50	total
No. of Holdings	7,520	1,384	216	63	9,183
Share	82%	15%	2%	1%	100
Area cultivated in 1000 Ha	13,319	13,935	4,557	18,672	49,584
Share of total	27%	26%	9%	38%	100
Average farm size in ha	1	9	32	280	5

Source: IAMO, 2004

Some scholars argue that big farmers are likely to afford new machinery and technology and are able to profit from economies of scale. The other way around, small farms are said to use land more intensively. Due to this difference in conception, one cannot precisely say whether this distribution of land offers advantages for a certain type of farmer (Gorton & Davidova, 1999). However recent trends point out that the developing food processing and retail industry prefer supplier contracts with large farmers, as small number of large suppliers generates less transaction costs than a large number of small suppliers (Dries et al, 2009).

Whilst land and labour is richly obtainable, capital is scarcer. This shortage is clearly holding back farm efficiency and technological progression. For every extra hectare of land the number of assets diminishes. Thus, small and medium sized farmers have relatively more assets per hectare than large farms. In some countries (e.g. Poland) small and medium sized farms are known for being over equipped. Yet their assets are often old and out of date, while larger farms are able to afford newer and laboursaving machines (IAMO, 2004).

Most of the CEE agriculture is performed on private land now. In most CEE countries agricultural is dominated by small and medium sized farms. Nevertheless farm sizes increase and larger farms perform better. Though this is not necessarily a result of sheer size, factors such as management techniques and technological progress are important here as well (Gorton & Davidova, 2004). Also institutional factors such as subsidies may favour larger farms or land owners, whilst smaller farms may struggle to fill out subsidy forms.

6.2 Reform in the food processing industry

Reform was also needed in other segments of the agro-food sector in order to raise efficiency and output. The low efficiency and high margins in the food processing industry led to low prices for farm products. Capital was essential to renew parts of the food sector. The amount of capital could not be provided by farmers, processors or local stakeholders alone. The inflow of foreign capital could solve this issue (Walkenhorst, 2000). Besides the importance of capital injections, the food processing industry required managerial skills and technological knowledge to improve efficiency. With their superior know-how of production, markets and technology, foreign affiliates accelerated the reformation program (Walkenhorst, 2000).

Accordingly the fall of the Soviet Union gave rise to a mass inflow of food-processing industries from Western Europe that faced difficulties in their saturated domestic markets. The low labour costs offered higher returns and made it more interesting to produce locally, i.e. in the CEE area, instead of exporting products to the CEE area. The latter was also unfavourable due to import tariffs. Moreover, the previously state-owned food processing industries in the CEE suffered from capital loss during the transition due to restructuring and privatisation. This favourable situation presented a unique opportunity for Western food processors to increase their market share, which resulted in a massive one way inflow of FDI (Jansik, 2002).

The first countries to encounter large flows of FDI were Poland, Hungary and the Czech Republic, followed by the Baltic countries and later on Romania and Bulgaria (Csaki & Forgacs, 2007). According to Walkenhorst (2001) foreign affiliates were particularly interested in industries that featured large firm sizes. In his research to FDI determination in Poland Walkenhorst (2001) found that many of these investors participated in industries with high added value and a high percentage of private ownership. Foreign affiliates were more interested in the more developed companies with relatively low labour intensity. Noticeably, foreign penetration in first stage processing industries, i.e. industries that process raw materials derived directly from farmers, was initially quite low. These industries rely on the supply of domestic farmers who are known for their constant lobbying efforts, which introduces an element of unpredictability in daily operations (Yansik, 2002). Furthermore, according to Walkenhorst (2001) foreign investors were afraid that the low prices for agricultural raw material were momentary. Either way, at a later stage in transition, foreign producers also entered the first stage processing industries (Jansik, 2002).

The largest investments were made by multinational European food companies such as Nestle, Unilever and Danone, but also companies from outside the EU, i.e. Coca Cola, Philip Morris and Mars, tried to strengthen their foothold in these newly opened European markets. Besides the transnational firms also small and medium size businesses joined the flow of capital. The latter were seemingly more interested in places that shared a common history or were geographically close. This explains the flows from Greece to Bulgaria, Austria and Germany to Hungary and Germany to Poland (Jansik, 2002).

6.3 Reform in retail: the introduction of supermarkets

Retail in CEE countries was just as other sectors under Soviet rule characterised by a centralised planning system. According to Dries et al (2004) little research has been done on how this sector evolved during the period of transition. Their article describes the introduction and diffusion of supermarkets, hypermarkets and all those related to it. Also, they analyse the impact of the transition on organisational and institutional structure within the food sector. Their information is predominately gathered from the Fresh Food and Vegetables industry, but they stress that the situation is somewhat similar in other food industries as well. This section follows the classification generated from Dries et al (2004) which portray the transition through three phases in which the CEE food sector evolved.

Accordingly there are three stages that all CEE countries[2] have gone through. Though, the interval in which their separate food sector developed varies widely (Dries et al, 2004). Hungary, Poland and Czech Republic were the first countries to go through the transformation process. The pre-transition period featured high retail concentration by predominately state-owned firms with the exception of Hungary, Poland and the former Yugoslavia. Moreover there was an absence of foreign capital and multinational companies. Hence the primary source of capital was domestic. During the transition phase, privatisation led to the breakdown of the concentrated state-owned system in most of the CEE countries. Small and medium sized retail shops started to merge into small retail chains. FDI interfering was in this period small, due to difficult ownership structures, ban on foreign participation in privatising auctions, unclear laws and in some cases political instability. The local capital markets appeared unable to provide structural modernisation in the food sector (Walkenhorst, 2001). Hence the growth of small retail chains went slowly compared to later phases; however there were some that grew quickly and started to outstrip other chains (Dries et al, 2004).

The third phase is characterised by a high influx of foreign capital and large retail chains. The rise of multinational corporations and a modern retail sector included the growing share of supermarkets and hypermarkets. Also, market concentration started to recover, but was supported by private capital instead of public this time (Csaki & Forgacs, 2007). The rise in 'multinationalisation' as Dries et al (2004) call it, was dramatic and led to a control of almost 50% to 60% of the retail industry by multinational companies in countries such as the Czech Republic and Hungary in 2002, currently this number is

[2] In this section CEE also includes Russia and the Ukraine.

regarded as underestimated. In the Czech Republic nearly 80% of the multinational companies share is dominated by foreign retail chains. The modernisation in the food industry led to growth in food demand. Consequently this impacted also local farmers and food producers. Not much evidence has been found yet for the CEE market. However, research in Asia and Latin America has shown that the effect of supermarkets on local producers is significant, and exceeds the effects of any possible changes in trade regimes on farmers (Reardon, 2003).

The diffusion of foreign chains in CEE countries followed a gradual path. Firstly companies from neighbouring countries entered the market followed by large multinational companies. So-called 'first wave countries', i.e. Czech Republic, Hungary, Poland, were the first to encounter FDI inflow in the retail sector, followed by 'second and third wave countries' such as Slovakia, Russia, former Yugoslavia. Within countries, the presence of FDI spread from capital cities gradually to smaller towns and villages.

6.3.1 Change in food procurement system

The transition led to alteration in food procurement chains, which shifted from state owned to privatized chains with foreign interference. The emergence of chains of large format-stores and FDI were accountable for increasing competition (Csaki & Forgacs, 2007). More and more retailers found the need for cost reduction, delivery of standardised products and quality improvement to keep an advantage over competitors. Leading supermarkets and hypermarkets shifted the CEE procurement towards centralisation, cross-border procurement, specialised wholesalers, preferred supplier systems and the use of global logistic multinational companies to improve in-time delivery (Dries et al, 2009; Csaki & Forgacs, 2007).

Centralisation features one central buying office and several distribution centres or wholesale organisations, instead of per store procurement. Furthermore cross-border procurement allows the retail company to find the cheapest and best quality products from several countries in which they operate, which becomes more beneficial due to the recent EU membership status of these countries. Furthermore supermarkets prefer specialised wholesalers as they are accordingly more responsive to quality and consistency requirements. Moreover the leading chains are shifting towards direct purchase from growers. By selecting and incorporating preferred wholesalers the retailer is lowering transaction costs due to lower search costs and fewer suppliers per unit sold. Finally, leading chains use global logistic leaders to transport goods. This enables retailers to reduce costs whilst using rapid transport methods. Accordingly the evidence presented above was found in studies concerning the Fresh Foods and Vegetables industries (Dries et al, 2009). However, further digging in agro-business literature led to same findings for other sectors in the CEE food sector as well (Csaki & Forgacs, 2007).

The shifting procurement system introduced by supermarkets changed the environment for the traditional wholesalers who are now operating in a much more competitive market. Accordingly international food chains have a competitive edge over local wholesalers as they are able to collect better quality food and higher quantities from other markets in which they are active. The horizontal

spillovers directed from the inflow of multinational chains meant downsizing and bankruptcy for many traditional wholesalers in the CEE region (Csaki & Forgacs, 2007).

6.3.2 Consequences for upstream sectors: the case of vertical coordination

In other regions, the result of shifting procurement system has impacted farmers and food processing industries. New requirements challenge farmers in their ways of meeting demands. The question arises whether the new procurement system plays an important role in solving transition problems, i.e. inefficiency, lack of capital and knowledge (Dries et al, 2007). Also, to what extent is the influence from foreign investors tangible? Vertical spillovers from retail investments may affect productivity and output level in upstream sectors as well as they might evoke improvements at domestic competitors through horizontal externalities.

Surveys in Latin America showed that the new procurement system favoured large growers, whilst on the other end small farmers were more likely to be pushed out of the market (Reardon & Berdegué, 2002). The latter are constraint, due to a lack of capital in their means of making necessary investments, this disables them to meet the requirements of retailers. Secondly, due to transaction costs, it is costly for retailers and food-processors to have a large set of small suppliers than a small set of large suppliers (Dries et al, 2004).

Early studies in the CEE confirmed the results that were found in the aforementioned surveys in Latin America. Farmers who can deliver large volumes at a constant rate are more likely to be used as suppliers and have a higher chance of survival than smaller farmers. The same applies to large food processors. Hence the emerging chains exclude a large proportion of farmers and processors, especially the small ones. Competition has been strengthened significantly by the EU enlargement, now producers and processors encounter competition from surrounding countries as well (Csaki & Forgacs, 2007). The new vertical coordination stimulated farms to produce and supply the type and standards of products in which food processors and retailers were interested in, resulting in some cases to growth in productivity and quality at the farm level. Nevertheless, different evidence has been found concerning vertical coordination programmes from retailers (Dries et al, 2009).

6.4 Empirical evidence of vertical coordination programmes

In Poland, Hungary and the Czech republic vertical coordination programmes were already present before the supermarkets entered the market. Many of these vertical programmes were highly influenced by FDI inflow in the processing industry (Dries et al, 2009; Csaki & Forgacs, 2007).

One of the few studies that analyses vertical structures derived from FDI on agricultural performance in the CEE region is carried out by Walkenhorst (2000). He investigated the impact of FDI on the sugar beet industry in Poland. After British Sugar purchased a majority share in SugarPol ((a Polish sugar producer), the latter started to purchase new machinery. Soon managerial skills and productivity increasing methods started to spillover from British Sugar to SugarPol as specialist from British Sugar started to train managers and personnel from the domestic company. This resulted in improved efficiency of the SugarPol factories as well as a rise in output of extracted sugar. Short after, SugarPol invested in vertical coordination programmes through an education plan to improve techniques of farmers and their staff in order to generate better quality of sugar beet. According to Walkenhorst (2000) demonstration effects might have spread horizontally as well, as productivity of other Polish Sugar factories improved. Furthermore he argues that the implementation of new managerial techniques spread widely way beyond the sugar industry. Thus, this example shows the possible externalities of vertical programmes by foreign companies.

Evidence of vertical coordination programmes have also been found in dairy industries. During the transition phase, the demand for quality milk rose as a result of increasing competition. Also, demands for high quality milk increased in countries that faced EU-accession or were trading with EU-member countries. In contrary to old EU-member states, many of the former Soviet countries lacked the institutions that were needed to force farmers to use cooling systems or other methods that would improve milk quality and enable them to deliver milk at a constant supply rate. Therefore many dairy processors in the CEE region started to develop vertical coordination programs in which loans were given out and knowledge was shared. The evidence of these structures differed among countries: farmers in Poland were the first to develop the quality of milk whilst farmers in Albania are still producing low quality milk (Dries et al, 2009).

The vertical coordination programmes consisted largely of assistance in feed input, bank loans and financing programmes in order to equip farmers with new machinery. Specialist storage space, in the form of on farming cooling systems, has been important for the growth in yield and quality. Almost 67% of all farmers in Poland made investments in the past years after vertical coordination programs were implemented, even small farmers were among this number. In Bulgaria and Albania the effects of vertical investment programs were, however, not as strong as in other CEE countries. Half of the smaller farms in Albania, i.e. farms with about 2 cows which are highly overrepresented in Albania, did not invest at all during the survey period, whilst all farms with more than 15 cows did invest in new farm assets. The latter used predominately own resources to invest. Dries et al (2009) mentioned in their work that it is not totally surprising that small farms are less expected to invest in quality improvements, whilst the

majority of their milk production is for their own use, furthermore such an investment would not be profitably regarding the scale of their production.

Thus, results of horizontal and vertical linkages differ per study and per region. I will now continue with the case study of the Hungarian food industry.

7. Methodology

The developments of the Hungarian food sector accelerated in the last twenty years. This case study will be used as an example or representative case (Bryman, 2008) of how the transition economies changed as a result of a major shift in the economic system. This shift brought new challenges such asprivatisation, competition from other countries and drew FDI towards the region. The latter will be the main point of interest. The chief goal of the case study is to understand more about the role of foreign firms in a market that has recently faced a transition process, in order to add new findings to the literature on FDI.

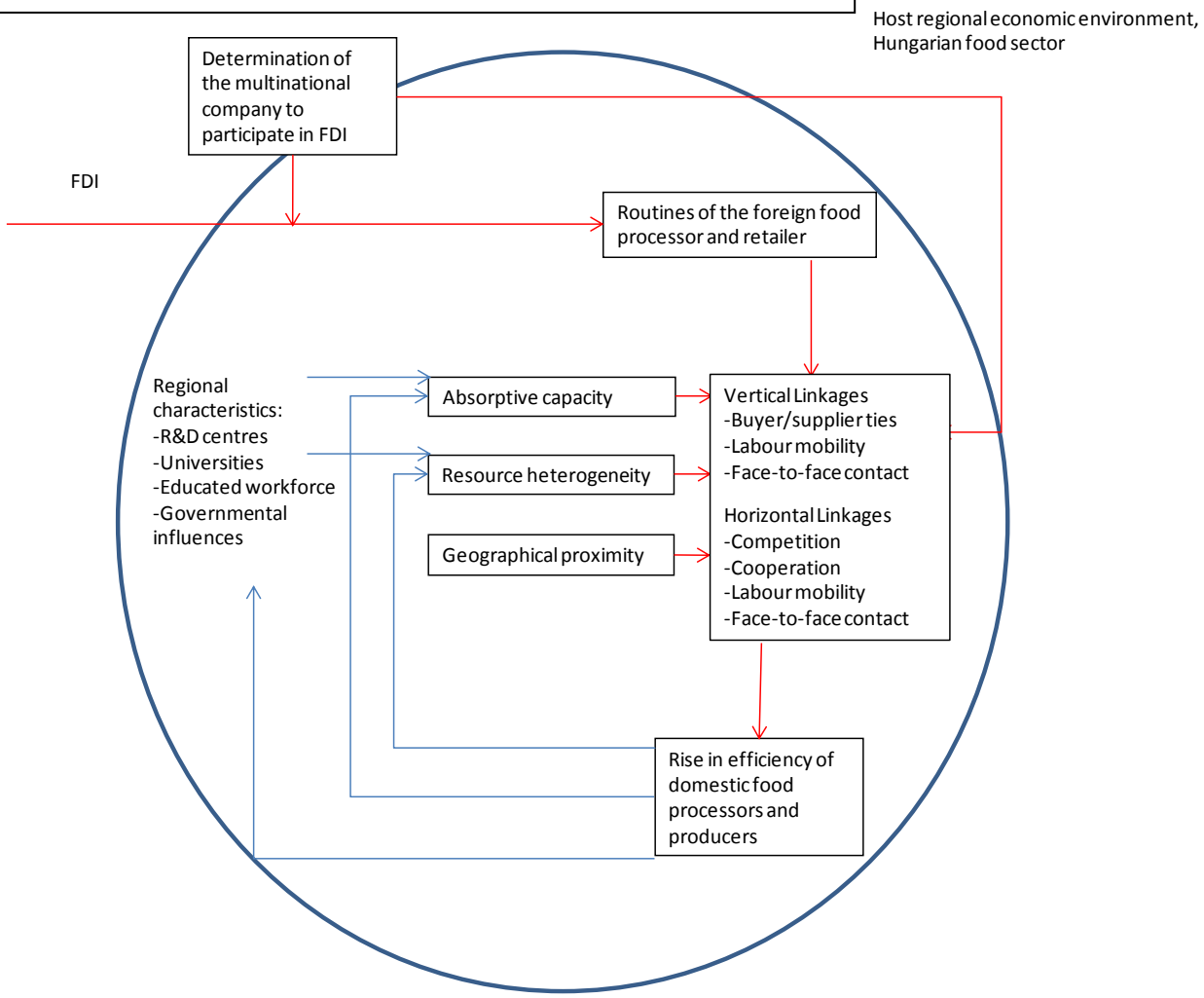
Accordingly a case study based on qualitative research tends to take an inductive approach to the relationship between theory and research (Bryman, 2008). In contrary to that suggested purpose, this case study will have a more deductive character as it follows the theoretical framework in an attempt to answer the hypotheses which are presented in 2.8. Nevertheless, findings of this research may contribute to existing literature, in particular since little research has been done on the effect of FDI in the food sector in the CEE area (Dries et al, 2009).

Aforementioned this second analysis is conducted to give a more complete answer the research questions, as the first analysis could solely indicate whether a relationship between labour productivity growth and inward FDI existed. This type of method is referred to as the method of completeness, which is frequently used in ethnographic studies (Bryman, 2008). My first analysis indicated a negative relationship between growth in the number of companies with FDI participation and growth in productivity, however this result is much to general to give a real statement about the relationship between foreign owned enterprises and domestically owned companies in the CEE area. There might be linkages that involve knowledge exchange, which could be enforced or overshadowed by externalities such as competition. These factors are not easy to measure in a regression analysis, since these linkages are quite complex in their nature (Walkenhorst, 2000).

The analysis is less inspired by the works of Walkenhorst (2000) and Dries et al (2004) who respectively searched for backward linkages in de sugar industry in Poland and the dairy industry in the whole CEE area. In contrary to these studies, this thesis uses a variety of information relating to multinational companies and local companies that are operating in different subsectors within the food industry. Besides vertical linkages, the analysis will also include the possible existence of horizontal linkages.

The conceptual model is adjusted to the food sector:

Figure 7.1: Conceptual model applied to the Hungarian food sector



Source: own interpretation

Note that routines of the foreign affiliate has been replaced by routines of the foreign food processor and retailer. I left out inflow of foreign farmers, because I am predominately interested in the knowledge spillovers that derive from horizontal and vertical linkages of foreign processors and retailers. These companies were responsible for the changing procurement system (Dries et al, 2009 & Walkenhorst, 2000). Consequently, the rise in level of knowledge and productivity of domestic companies has been replaced by the rise in level of knowledge and productivity level of *domestic food processors and producers*, i.e. food processors and farmers, As these sets of companies are likely to be effected by the changing procurement system.

7.1 Qualitative research methods

The analysis will be deductive as it will examine whether theories about local linkages, absorptive capacity and resource heterogeneity can be applied to FDI in the Hungarian food sector. The sector serves as a case study and therefore as an example of a sector that has been penetrated by foreign investors. The findings cannot be generalised to other sectors or settings as I expect them to differ across sectors and countries. So external validity as is described in Bryman (2008, p. 382) is not applicable to this analysis.

The goal of the interview is to receive rich and detailed answers. Therefore a more or less flexible structure of interviewing is applied. I will conduct a semi structured interview; this means that I have a list of questions to be covered. However the interviewee has a great deal of leeway in how to answer the questions. Furthermore there is a significant difference in the questions that are asked to members of foreign owned companies, companies that are domestically owned and experts who are not representing a company but are part of an institution that is related to the Hungarian food sector.

In total six interviews were conducted. All of the respondents were either experts or actors in the Hungarian food sector. Two of the actors were representatives of Dutch food processors with subsidiaries in Hungary. One respondent is a representative of a Japanese tobacco firm, and another is a representative of a Hungarian meat processor which was recently purchased by a foreign company. The other two consists of the agricultural counsellor of the Royal Netherlands Embassy and the chairman of the Hungarian meat association who is representative of a meat and dairy processing group as well. Due to his double function, the latter will be addressed as representative of the meat and dairy processing group as well as expert. Due to firm policies I will not include names or firm specific characteristics that would give away the firm´s identity.

The result are categorised following the structure of the conceptual model, and will eventual answer the hypotheses presented below in the following chapter.

Hypothesis 2: The determination of a foreign investor to participate in FDI, influences the extent of linkages with domestic companies.

Hypothesis 3: Foreign affiliates are generally more technological advanced than domestic firms.

Hypothesis 4: Foreign affiliates are more expected to have linkages with domestic firms that are located geographically close.

Hypothesis 5: Domestic firms that have a higher absorptive capacity are more expected to successfully conduct linkages with foreign affiliates

Hypothesis 6: Vertical linkages between foreign affiliate and domestic supplier will be more beneficial to local companies than horizontal linkages between foreign affiliate and domestic competitor.

7.2 Coding and topic list

The term technological advanced will incorporate everything that concerns to knowledge, ability to create new techniques, management skills, state of machinery, product quality and more. During the interview I will replace technology and knowledge level with mechanisation, managerial techniques (ways of organising), consistency in output/distribution and quality of products. In order to test whether foreign firms regard themselves as more technological advanced, I will use examples of firm specific technologies, which is mostly presented on their corporate websites. The expert will be asked whether they assume foreign companies to be technological advanced or not. Furthermore the representatives of the foreign firms have to answer questions about the knowledge level of domestic firms, whether this is comparable to their own level of knowledge and whether this is comparable to the knowledge level in their home markets.

Vertical linkages will be referred to as client and supplier contact, longstanding contracts, face to face contact, collaborative programmes, R&D cooperation and more. Competition, imitation, collaboration will be used to ask respondents for horizontal linkages. The extent to which domestic firms are able to meet the demands of foreign affiliates is an indicator for absorptive capacity. Also the extent to which foreign affiliates consider Hungarian cooperation to be fit for any form of cooperation is another parameter.

Questions relating to the determination of foreign affiliates will include future expansion, the function of the subsidiary within the chain of the multinational and the reason for entering the Hungarian market. Finally geographical distance will be indicated by regional and country scale. Companies will be asked whether their suppliers, customers and/ or competitors are located in the same region or whether they are located in other countries.

8. Analysis of the outcomes

8.1 General developments of the Hungarian food sector after the transition

The former Soviet countries faced several privatisation waves after the transition. According to the representative of the Hungarian meat association, foreign influences started to grow right after the transition; many foreign food processors took over large parts of the industry already in the first wave: 'In the late 1990's more than half of the total capital in the Hungarian food processing industry was owned by foreigners. At its peak, a share of 64 percent of the total food processing industry was owned by foreign investors.' Most of these food processors took over multiple production facilities in several CEE countries.

The food sector had to deal with an adaptation process, in which the industry had to get used to the newly introduced capitalistic system. To make sure that plenty Hungarian businesses would survive this process, the Hungarian government implemented a subsidy program. Accordingly the EU enlargement introduced competition from surrounding countries, i.e. Poland, the Czech Republic and Slovakia, which affected Hungarian processors and farmers. The new procurement system, enabled retailers to purchase and sell food from and to other countries in the CEE region without paying any border fees. The same can be applied for most food processors. As a result the number of food processors and retailers declined but their size increased, this is referred to as concentration processes. Many of the foreign companies decided to use and expand the most efficient facilities and close down or sell the less efficient facilities. A large portion of the Hungarian facilities was shut down as these were not as efficient as their counterparts in neighbouring countries. 'Hungary lost its historic position as breadbasket of the region.' concluded the representative of the Hungarian meat association.

8.2 Determination of multinational companies to participate in FDI

Most of the interviewees consider the CEE region as a market with great growth potential. Their companies are looking to expand their revenue as their home markets suffer from saturation. The corporate structure of these companies allows them in some cases only to sell products. In general, the interviews give the impression that foreign businesses are mainly interested in production and sales activities and not so much in knowledge sourcing activities when they enter the Hungarian food market. One of the representatives stated that: 'it is possible to start some R&D activities and collaborations, but most of our product development is aimed at the Western European market' furthermore the skills and knowledge level of the developers here are not ground breaking enough to develop our products here.'

Among the interviewed firms there are two companies that have only distribution offices in Hungary, their production facilities are located in surrounding countries such as Poland and Romania. The main

purpose of the tobacco processor to invest in Hungary is to be the largest tobacco processor worldwide. However the output of the facilities in Poland and Romania are large enough to provide the Hungarian market as well, so no production facility is needed in Hungary. The chief motivation of the bread and pastry processor to invest in Hungary is to expand their market potential. Furthermore they are not producing in Hungary because their corporate structure prevents them from doing so. Finally, the representative of the Dutch dairy processor argued that his company invested in Hungary to increase its revenue in markets with growth potential. In contrary to the other two this company has production facilities in Hungary. This is also the case for the recently purchased meat processor.

The representative of the Hungarian meat association as well as the agricultural counsellor agree that most foreign players were waiting for the CEE countries to enter the European Union when they purchased much of the domestic facilities. The free trade zone enabled these companies to start their consolidation programmes in which many of the inefficient or unnecessary facilities where shut down or sold. The remaining facilities would take over the market share of the plants that were shut down.

Most retail companies entered the Hungarian market with somewhat the same motivation as most foreign processors did. According to both the agricultural counsellor and the representative of the Hungarian meat association, retailers are mainly interested in good quality products that can be delivered at a constant rate in large quantities. They do not care too much for longstanding relationships or collaborative links with most domestic suppliers. Therefore they will not invest too much time in sharing knowledge with actors of the host economy.

8.3 Regional characteristics and absorptive capacity of domestic firms

In other countries such as the Czech Republic, Poland and Slovakia the effect of subsidy programs on food processors was less visible than in Hungary during the 1990ties. Most inefficient state owned firms went bankrupt but were quickly replaced by more efficient and modern firms. According to the representative of the Hungarian meat association this development was less visible in Hungary. Subsidy programmes that were aimed to give Hungarian firms a slight advantage over competitors had positive effects on the short term, but hampered the adaptation process to the new capitalistic system on the long term. Government policies took away the incentives that would normally trigger firms to reorganise in order to become more efficient. Hungarian businesses faced strong competition from businesses from surrounding countries as Hungary entered the free trade zone of the European Union. Subsidy programmes were now aligned across countries. The competitive advantage was gone and numerous Hungarian firms were not able to meet the quality and quantity demands of retail stores and EU regulations, as a result they went bankrupt.

Consequently, many products from Poland, Slovakia and Czech Republic entered the Hungarian market. Food processors from these countries were at a more developed stage than those in Hungary. Hence the

consolidation process of foreign food processors hit mostly Hungarian facilities. As a result plenty of food processing industries disappeared. Competition grew mostly from surrounding countries.

According to both the representative of the Hungarian meat association and the agricultural counsellor some companies are not able to meet the demands of retailers and processors due to their size, which disables them to deliver high quantity. Also, due to their lack of proper machinery they might not be able to deliver the right quality of products. The changing procurement system of retailers are for many Hungarian firms difficult to cope with. The food processors in countries with a more ´lucky history´ as the expert calls it, i.e. Western European countries, had quite a long time to get use to the demands of retail chains whereas shifts in the Hungarian and CEE procurement system happened in a relatively short period.

When confronting the interviewees of the foreign companies with questions concerning absorptive capacity of domestic companies, the general census is not so much referring to a difference in level of knowledge and technology. According to some, their level of technology and knowledge is generally sufficient for cooperation and trade. However, other factors such as business culture seem to be more of an issue. ´Hungarians are re-active instead of pro-active, they wait for you to do something before acting themselves.' said one of the interviewees. According to the representative of Dutch dairy processor, Hungarian businesses are more opportunistic and therefore more interested in short term gains instead of long term business relations, which collides with the corporate vision of his company. The representative of the recently purchased meat processor, who is Dutch from origin, confirmed that there is a difference in business mentality that centres on alterations. According to him, in the Netherlands, businesses are more used to changes, whereas in Hungary, business culture is more static. Seemingly this is more of a bottleneck than a possible gap in quality and quantity demands for instance.

On employee level some social economic differences were found as well. The representative of the tobacco processor argued that Hungarian employees are generally speaking more risk-averse, this means that they are not keen on finding new solutions, and therefore do not pick up new information quickly. Other interviewees agree and argue that their Hungarian employees have sometimes difficulties to adapt to new demands. Nevertheless, they stress that Hungarians are generally well educated.

Thus, linkages may suffer from the incapacity of domestic companies and foreign affiliate to understand each other. The difference in business mentality may play a key role here in preventing longstanding business relationships. Though, the agricultural counsellor and the representative of the Hungarian meat association also argue that plenty of Hungarian businesses lack the capability to meet the demands of foreign affiliates, the majority of the representatives of the foreign affiliates state that this might be an issue but is not their main problem in trading with Hungarian companies.

8.4 Resource heterogeneity

Several interviewees argue that the food market is quite a traditional market in which innovations in product quality are not that common. Resource heterogeneity among firms may be less evident in comparison to other sectors and therefore the effect of knowledge spillovers may be less significant as well. This assumption is backed by both the representative of the Hungarian owned meat and dairy processing group and the representative of the recently purchased meat processor. The latter stresses that it is inevitable to imitate each other since products are quite similar. He argues: ´ if one wants to make a dried sausage, that person has to follow a certain recipe. These recipes are quite comparable; I would not call it imitation.' The representative of the Hungarian meat and dairy processing group argues that the products are fairly conservative, in a way that there is not much innovation going on in these markets. He illustrates this argument by saying that the sausages nowadays are not that different from those in 1960.

Little resource heterogeneity may rule out knowledge spillovers as firms cannot profit from each other's assets. For example, the representative of the tobacco manufacturer said that exchange of knowledge does not occur on a regular basis in the tobacco industry. Most producers are trying something new to increase their market share, examples can be found in creating cigarettes with a mint capsule in the filter and cigarettes that contain other substances which are not harmful to the user. There is, however, little room for marketing methods to promote new products and therefore the benefits of innovation efforts are limited.

Nevertheless, resource heterogeneity is still visible in the food sector as some companies are not able to meet certain quality and quantity demands whilst others are. Many of the respondents argue that mostly foreign affiliates are slightly better equipped and offer more added value to their products than domestic companies. This is visible in the Tobacco industry where the foreign affiliates are dominating the cigarette industry, whilst the Hungarian tobacco processor is mainly active in the lower segments such as '*the roll your own make your own'* products. Furthermore the bread and pastry processor is also operating in higher segments than most Hungarian competitors which concentrate more on lower segments as well. Thus, resource heterogeneity may vary across sectors.

8.5 Geographical proximity

Generally geographical distance has no significant role in linkages between companies in the Hungarian food sector. Most of the foreign affiliates have suppliers and customers that are located in different countries. The agricultural counsellor stated that with the EU enlargements farms and processors can supply other firms that are outside their country without having to pay for any border fees.

Both the tobacco and the bread and pastry processor do not have any links with local suppliers in Hungary. Apparently these companies do not need feel the need to be in close range with their

suppliers. Their production facilities are located in countries outside Hungary, some in relative close range, i.e. Poland and Romania, and others further away. Even in the dairy industry not all products require a short distance supply range. The Dutch dairy processor buys its milk both from local Hungarian milk producers as well as other foreign corporations; however the majority of products derive from intercompany facilities that are located outside the country. According to the agricultural counsellor , the demand for fresh products is lower in the Hungarian dairy market than for example in the Dutch market. Therefore a large share of dairy products may descent from regions outside Hungary.

However there are some companies that do need their suppliers to be in close range. The recently purchased meat processor stated that due to shelf life of their products, transportation between the slaughterhouses and their company needed to be as short as possible. Furthermore, geographical proximity seems to be more important in customer relationships. Face to face contact with clients is according to some interviewees vital for sales. In most cases they use Hungarian employees to visit firms, this nurtures trust bonds between both organisations. According to the interviewee of the bread and pastry processor ´To talk with local bakeries you have to speak their language.´ whilst the representative of the tobacco processor stated: ´Without using the Hungarian language you will not be getting far in this business´

8.6 Local linkages

- Forward linkages

The interviewees of all the foreign owned companies said to have contact with domestic firms. Yet, not all linkages involve knowledge transfers. For example, the tobacco manufacturer has only a team of people that visits retailers and small retail shops to sell cigarettes, little knowledge transfer takes place in these kinds of contacts. On the other hand, there are some examples of forward linkages that do involve more cooperation. The interviewee of the recently purchased meat processor states that his company develops products in collaboration with its clients. A client sees an upcoming trend and asks the meat processor to produce the products in the same way. According to the interviewee it is hardly impossible to develop their products without cooperation with their clients.

- Backward linkages

The linkages between the domestic farms and the dairy processor consist of several longstanding contracts and some contracts in which price negotiation takes place on a yearly basis. In this case the backward linkages involve product development or project re-engineering. Together with suppliers employees from the foreign dairy processor search for possible ways to improve the product quality, whether it is possible to lower the costs and to what extent they can develop the usability of products. These processes occur on a constant basis.

The recently purchased meat processor, has similar contacts with suppliers. The linkages with suppliers are longstanding and consist of monitoring the product quality and in time delivery. Employees of the meat processor are stationed in the slaughterhouses to make sure that these products are cleaned, frozen and well preserved for further processing. However at the early stage of the acquisition by the Dutch parent company, the linkages were more directed to adaptation programmes. The suppliers, i.e. the slaughterhouses, needed investments to buy new machinery to meet the quality demands of the processor. It took approximately nine months for the meat processor to make sure that its suppliers were delivering the right quality and quantity.

- Horizontal linkages

None of the representatives of the foreign owned processors said that their company had collaborative links with local competitors. Nevertheless this does not mean that that cooperation does not exist. According to the agricultural counsellor cooperation between processors occurs even more than cooperation between buyers and suppliers. Cooperating businesses can realise lower production costs whilst matching their production systems which leads to more effective ways of producing. The Hungarian meat and dairy processing group which participates in this survey is a prime example of such cooperation processes. Future cooperation between surrounding companies and the foreign owned processors is not ruled out, some of the processors said that there are domestic companies with which cooperation and merging is possible.

Horizontal linkages can also be established through channels such as imitation. The interviewee of the Dutch dairy processor was fairly sure that products from his company are being imitated by other domestically owned dairy processors. As an example he uses the processed dairy snacks, the Dutch processor was one of the first processors to come up with this product. Nevertheless competitors come up with alternative products that share many common features. Whilst the dairy processor uses patents, it cannot prevent competitors from producing similar products. In contrary, there are some companies that are willing to sell successful technology. According to the representative of the Hungarian dairy and meat processing group most of the innovative products and production methods derive from foreign multinational companies. If these companies realise that their techniques are successful they are sometimes willing to sell it, even to competitors.

Product quality is not the only characteristic that may be copied; ways of producing and management techniques are examples of resources that may be valuable for competitors as well. Unfortunately none of the interviewees could give me a clear example of management or production methods that have been copied. However, the representative of the Hungarian owned meat and dairy processing group told me that his company was planning to build a new slaughterhouse. Consequently employees of the group are currently scouting for valuable techniques in slaughterhouses of companies owned by Western European companies to use in their own facility.

- Linkages with universities and R&D centres

Most of the participating foreign owned processors do not cooperate with local universities or research facilities. The agricultural counsellor said that Hungary houses plenty of universities that are related to the food sector, and added that there will probably be some foreign owned companies that have links with local universities. Nevertheless it is apparently not common for the interviewed foreign processors to cooperate with research centres in Hungary. Most of them said to have links with universities in their home market for product development and product innovation. On the other hand the companies in the Hungarian owned meat and dairy processing group do have links with local universities. They are also in contact with foreign universities in Western Europe.

The interviewees from foreign enterprises acknowledged that training and educating their employees was part of their respective company´s routines. These trainings incorporated the development of skills related to work but are also aimed at improving language skills, predominately English. Referring to the literature, companies do try to adjust new personnel to their company routines. For these trainings they make use of educational institutes. Some of the foreign companies are also willing to train interns from local universities.

9. Interpretation: Hypotheses

This section verifies the remaining hypotheses. The outcomes will serve as a stepping stone to answer the research question. The hypotheses are chronological displayed followed by information retrieved from the interviewees.

Hypothesis 2: The determination of a foreign investor to participate in FDI, influences the extent of linkages with domestic companies.

This hypothesis is generally supported by the answers of the interviewees. One of the important determinants seems to be the business structure, which indicates the function of the subsidiary. The bread and pastry processor sells products from other companies in the group, therefore supply linkages with domestic companies are ruled out. The function of the subsidiary is limited to distribution activities. The tobacco manufacturer and to a lesser extent the Dutch dairy processor have intercompany supply chains which, in particular in the case of the tobacco manufacturer, lower the demand for products from domestic suppliers. Therefore, the tobacco processor has no linkages with domestic tobacco producers and the Dutch dairy processor retrieves half of its supplies from outside Hungary.

Foreign firms in the Hungarian food industry are generally interested in expanding their revenue. Therefore linkages are predominately aimed at buying and selling of products and to a lesser extent at R&D collaboration. Nevertheless, In the case of the Dutch dairy processor and the recently purchased meat processor backward linkages concerning product re-engineering and the safeguarding of product quality are present. One might consider that this can be categorized as R&D collaboration. Though, changes in product quality are often small; the representative of the Dutch dairy processor stated that the real R&D activities are performed in Wageningen.

My interpretation is that companies are predominately willing to invest in local ties if they receive something in return. Most interviewees said that their companies were willing to share knowledge with suppliers and to some extent with customers as well. These knowledge exchanges are predominately aimed at lowering production costs, to improve the quality of products and to offer a more constant flow of supply.

Hypothesis 3: Foreign affiliates are generally more technological advanced than domestic firms.

This hypothesis is not entirely supported by the answers of the interviewees. Answers to questions, related to innovativeness, efficiency and output, varied and illustrated that the concept of being more technological advanced is difficult to measure. Furthermore some respondents said that they do not quite know how efficient and innovative their competitors are. Others find it hard to speak about innovativeness and technological advanced in sectors with quite traditional products.

The representative of the Hungarian meat and dairy processing group acknowledged that Western European processors produce meat on a much larger scale and are more technological advanced than the average Hungarian firm. The output of foreign owned slaughterhouses is significantly above those in Hungary. These are often the companies from which domestic producers buy new techniques. His processing group is building a new international competitive slaughterhouse, consequently their employees are visiting slaughterhouses in Western Europe to gain information on new technologies.

After I asked the representative of the bread and pastry processor whether local firms could come up with similar inventive products, he confirmed that this was possible if these companies were willing to do so. However most of the local competitors operate in lower segments. He concluded that his company was more innovative and made more expensive products than most domestic competitors. He added that this could not be said when he compared his firm to other foreign affiliates that operate in the same market. The recently purchased meat processor could not exactly tell whether his firm produced more innovative products or possessed more advanced techniques than others. Nevertheless he stated that his test facility was one of the most advanced in Hungary. Though, there are competitors with similar test facilities, but these are not located in Hungary.

Product innovations by the Dutch dairy processor are predominately carried out in the Netherlands and not in Hungary. Hence the representative could not give a clear answer whether he thought his company was more innovative. Nevertheless he argues that generally Western European companies are more progressive in their ways of producing and in their ways of doing business than Hungarian companies. The representative of the tobacco manufacturer argues that it is rather difficult to tell whether his firm is more technological advanced. Generally innovations in tobacco products are not ground-breaking. It is quite expensive for a company to be present in a certain market, in order to make use of the existing distribution channels one has to pay a lot of money. When a company has a new product, it has to make significant investments in order to get its product in the market. Hence capital may be more important than innovativeness in this particular sector. Therefore the cigarette industry is dominated by three large foreign owned companies, in other words: due to their size foreign owned tobacco companies have more capital to invest.

On the basis of these answers I would consider that foreign affiliates have a competitive edge over most domestic companies, rather than saying that they are more technological advanced. In some cases capital and advantages through scale can be more important than technological superiority.

Hypothesis 4: Foreign affiliates are more expected to have linkages with domestic firms that are located geographically close.

This hypothesis cannot be supported by the results of the interview. Generally buyer-supplier linkages in the food sector seem to occur both within countries as well as between countries. Only buyers and suppliers that trade in food with short shelf-life have to be located relatively close to each other. Furthermore, since Hungary entered the free trade zone of the EU most Hungarian farmers and processors can deliver their products to businesses outside the border without paying extra taxes. This has altered the influence of borders and distance significantly. Horizontal linkages such as competition have an increasing transnational character. Hungarian businesses face competition from farms and processors from surrounding countries as the food market underwent a period of consolidation.

Nevertheless in some cases product development or re-engineering together with suppliers and customers take place on regular basis, therefore face-to-face contact may be important. Furthermore in the case of the bread and pastry company and the tobacco manufacturer client contact is central. One could argue that for some relationships firms have to be on relatively short distance, but my interpretation is that the role of proximity is not as essential as it is in high tech industries (section 2.3.1).

Hypothesis 5: Domestic firms that have a higher absorptive capacity are more expected to conduct linkages with foreign affiliates.

This hypothesis is largely backed by the answers of the representatives. The agricultural counsellor and the representative of the Hungarian meat association argue that Hungarian firms have difficulties to meet demands of foreign affiliates. A large proportion of the domestic firms are not able to deliver high quality products on continuous speed. Therefore firms that are more adapted to the demands of foreign affiliates have linkages whilst others do not.

Besides the ability to meet demands, mentality differences may have an effect on local linkages as well. Most of the representatives of the foreign affiliates argue that predominately cultural differences frustrate the relationship between foreign affiliates and domestic suppliers. Aforementioned, from their perspective Hungarian firms are more interested in short term gains than in long term relationships. According to the interviewee of the Dutch dairy processor Hungarian suppliers try to realise high profits of short term contracts and are not trying to build longstanding linkages. These adaptation difficulties seem to obstruct long term relationships, as price negotiations have to take place each year. This impedes trust bonds and may have a negative effect on knowledge spillovers that may come from long term linkages with foreign affiliates.

Hypothesis 6: Vertical linkages between foreign affiliate and domestic supplier will be more beneficial to local companies than horizontal linkages between foreign affiliate and domestic competitor.

There are cases whereby vertical adaptive programmes are implemented which are coordinated by the foreign affiliate. These projects incorporate new techniques and sometimes even investments in machinery. In the case of the recently purchased meat processor the adaptation program towards suppliers included quality and quantity improvement by changing methods of production and machinery. The interviewee of the Dutch dairy processor indicated that his company collaborated with suppliers mostly on project re-engineering; realisation of cost reduction is in these relationships the chief goal.

However, according to the representative of the Hungarian meat association knowledge exchanges are rarer when looking at the relationship between foreign retailers and domestic food processors. He argues that these ties do not incorporate knowledge spillovers and technology investment. Retailers often choose to approach businesses that are already capable to meet high quality and quantity demands. Retailers may be less interested in investing in adaptation programmes to smaller processors and producers as their prime motivation to invest in the CEE area rest on exploiting market opportunities and expanding their businesses. Therefore the demands of retailers favour predominately large businesses. Nevertheless, this may offer incentives for less competitive firms to increase production and product quality. Smaller businesses need to make a decision whether to adapt to the new demands or focus on niche markets. According to the agricultural council entrepreneurship is vital in this sense, 'As a firm you have to make your own investments and decisions, no one else does that for you'.

The representatives of the foreign firms stated that there were no collaborative horizontal links with competing firms. Nevertheless, the agricultural counsellor argues that cooperation between processors is more common than collaborative with suppliers and buyers, as this offers advantages such as scale enlargements and reducing costs due to more efficient ways of production. Cooperation may foster continuous supply and quality improvements consequently enabling firms to meet demands of foreign clients. Furthermore, horizontal linkages through imitation and competition may be even more effective. According to the representative of the Hungarian meat association the EU accession has fuelled the competition in the Hungarian food sector. As a result some firms have gone bankrupt whilst others transformed their business structure successfully. The extent of horizontal linkages through imitation and competition is rather difficult to measure. Many respondents assumed that imitation is taking place, though they did not have hard evidence to prove the existence of it. The effects of competition is also difficult to measure from this analysis only, one can only assume that competition sets off incentives for local businesses to improve their business strategies.

The hypothesis cannot be supported by the answers of the interviews. Foreign affiliates are probably more open towards vertical linkages, as this offers them generally more in return. Nevertheless, this does not mean that these ties are more beneficial to domestic firms regarding knowledge transfers or incentives to increase productivity. There are examples of training programmes in which domestic companies gain efficiency and knowledge level through vertical linkages. However, due to the traditional character of most segments in the food market knowledge spillovers will be less important than in other sectors. I regard the main push to descend from incentives to meet quality and quantity demands and

incentives that derive from increasing competition, especially since Hungarian firms are also competing against foreign firms located outside the country. Competition will encourage firms to reorganise and gain efficiency, otherwise they will face bankruptcy. The same incentive will derive from the demand for higher quality products and larger quantities.

10. Conclusion and discussion

This section will provide a conclusion followed by a discussion with recommendations. The conclusion will consist of short but comprehensive answer to the research question. The discussion will connect the results to the theory. Furthermore the results will be translated into policy recommendations for regional and national authorities on how to deal with FDI. Finally this section will close with a short reflection.

10.1 Conclusion

The research question is as follows:

To what extent do foreign direct investments influence economic growth in the CEE area? How is this illustrated in the Hungarian food sector?

Overall, no positive relationship between FDI and productivity growth in the CEE countries has been found. In fact, one could argue on the basis of the first analysis that foreign direct investments have a negative impact on the productivity growth and thus economic growth in the three CEE countries.

As the inflow of foreign direct investments started at the beginning of 1990 in predominately Hungary, Poland, Czech Republic and Slovakia, it gradually reached countries more to the east. Currently, FDI growth rates are higher in countries such as Romania, whereas Hungary and Poland seem to witness consolidation processes of foreign companies. In the Hungarian food sector many foreign retailers and processors waited for Hungary to enter the EU before starting their consolidation program. Companies grew in size and many of the inefficient participants in the food sector disappeared as a result of increased competition. Increased competition is fostered by foreign affiliates and might be the primary explanation for the negative relationship between the growing FDI participation and productivity growth.

The inflow of retailers and processors led to a new procurement system. Farmers and processors had to adapt their product quantities and quality in order to meet the demands of the predominately foreign owned retailers. In evolutionary economy terms: domestic companies had to reshape their routines in order to gain better market fitness. Some domestic firms may be able to adapt to these rising demands, whilst others might not be capable to catch up and face bankruptcy. This is more or less depending on their size and efficiency as well as their absorptive capacity. Accordingly subsidies did not contribute to the latter and took away to some extent, the incentives to adapt to new market structures. Entrepreneurship and the willingness to cooperate with customers, suppliers and even competitors are according to some interviewees the most important factors for Hungarian firms to improve their market fitness. The negative relationship between the number of companies with foreign participation and productivity growth may therefore be temporary. As Konings (2001) suggested effects of FDI can change over time from predominately competition effect to useful knowledge spillovers as domestic companies are adapting to the introduced changes in the market.

Many of the respondents argued that the food sector, compared to other sectors, is quite traditional in which they meant that ground-breaking innovation is uncommon. This does not mean that companies in the food sector do not develop their processes and products. Foreign affiliates seem to have a competitive edge over domestic companies. However, this has not led to significant learning effects from vertical spillovers. Furthermore, knowledge spillovers may also occur through imitation even though companies are not always willing to share their knowledge with competitors. One could argue that knowledge spillovers are not the most important externalities that derive from foreign affiliates in the Hungarian food sector. The effect of foreign affiliates is more or less intangible. With their presence they provide the incentives through competition and rising demands for the host economy to develop into a mature market.

10.2 Discussion

The UNCTAD (2001) stress in their world investment report of 2001 the significance of efficient linkages between foreign affiliates and local firms. The results of this thesis show that it is rather difficult to identify whether these linkages add to the regional growth in the CEE area and in Hungary in particular. The results illustrate that the growth in foreign affiliates correlates negatively with productivity growth. Similar results from Koning (2001) in comparable regions indicate that competition effects may be stronger than the effects of local learning on the short term.

The Hungarian food sector illustrates a sector in which the inflow of FDI has been rapid and dominant. The motivation of foreign affiliates to enter the Hungarian food market is according to the respondents based on market expansion. The behaviour of these multinational firms is in many ways similar to the predictions of the market power approach and Dunning's eclectic paradigm. The Hungarian retail and food processing sectors are mostly dominated by foreign companies that use their ownership advantages relating to economies of scale, access to inputs, control of distribution systems and to a certain extent technological superiority to dominate the food market and therewith raising entry barriers for competitors. Simple evidence can be found in the tobacco branch, where, according to the representative of the foreign tobacco manufacturer, foreign affiliates dominate the market because domestic competitors cannot afford to use the normal distribution channels due to high prices.

Evidence of Vernon's product lifecycle can also be found in the answers of the representatives. Most of the interviewees stated that their R&D centres are located in Western markets, which are overall qualified as high income countries. Product and process innovation is therefore mostly carried out in these regions. The majority of products that reach the Hungarian food market are already standardised, only in some cases these products are slightly adjusted. The Hungarian market and probably the CEE market as well may be used as cheap place to produce products in a given point of product lifecycle.

The behaviour of multinational companies poses threats to the CEE region as their predatory role is more dominant than their role as knowledge distributors. There is evidence of collaboration between foreign

affiliates and domestic companies but major knowledge diffusion is not that common. Linkages feature mostly competitive incentives and incentives that derive from quality and quantity demands. Particularly small farmers have difficulties to meet these demands. Furthermore cultural differences between domestic firms and foreign affiliates blockade long term links. From an evolutionary point of view it is hard for some domestic firms to adjust their routines to those of foreign affiliates. Routines that have been built up over the years have to alter due to sudden changes in the economic environment. The ability to adapt to these changing economic settings seems to be vital for domestic companies to survive.

10.3 Policy recommendations

Local and national authorities can play a pivotal in strengthening the competitive position of domestic firms. These organisations may promote cooperative firms. According to the representative of the agricultural council cooperation may lead to a better market position due to lower costs, as these companies increase their size and may benefit from economies of scale. Furthermore, vertical coordination structures between farmers and processors enable continuous supply. Also, these companies will have more capital to invest in product quality improvement. Eventually these firms will be able to meet the demands of the foreign retailers. Authorities may promote cooperation by increasing the number of shared service centres. According to the representative of the Dutch dairy processor, these centres are already present and have been proven to be successful.

Secondly programmes to improve the competitiveness of domestic farms should not be predominately aimed at investments in machinery and modernisation. In some cases it results in over-equipment and does not increase efficiency. Furthermore business owners may not have the knowledge to use the machinery properly. Therefore, it would be wise to invest in learning programmes as well. Accordingly there are sufficient agricultural universities in Hungary, but their cooperative links with the business sector seem to be moderate compared to the links with universities in countries such as the Netherlands. Cooperation between businesses, government and universities should therefore be intensified. Learning programmes will eventually increase absorptive capacity.

Finally, national authorities should be more aware of the results of their subsidy programmes. In the case of the Hungarian food sector it prevented companies from adapting to new market settings. Incentives that derived from competition were partially blocked and inefficient firms were kept alive. The market determines which firms survive; according to evolutionary scholars these are the firms that have the best market fitness.

10.4 Research recommendations

Future research should answer the question on how to strengthen local businesses in their absorptive and adaptive capacity. In particular on how governmental organisations and research facilities may support local businesses in improving their efficiency. This research should be aimed at developing learning programmes, improve cooperative bonds and examine the long term consequences of governmental policies for domestic firms. For example subsidies may favour domestic firms on the short term but could block positive market incentives on the long term.

Researchers should use a more endogenous approach regarding local linkages, in which they examine economic developments from a local business perspective instead of analysing solely the influence of foreign affiliates. By understanding difficulties of local businesses, they could get a better understanding of possible ways to improve the level of knowledge and efficiency of local businesses. Also, more research should be directed to the food sector. The literature regarding FDI in the CEE food sector is quite scarce, whilst most these countries have a relative large agricultural share in total output.

Finally, further research should find a solution to measure more intangible externalities such as those deriving from competition. This thesis makes solely assumptions to the effect of competition but fails to measure it properly. It may be possible by using data on sector level instead of regional level. Results from these kind of studies may offer great advantages for future economic development.

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12. Appendix 1:

All tables and figures in this appendix derive from SPSS.

Figure 1: Spss output, histogram of dependent variable: labour productivity growth.

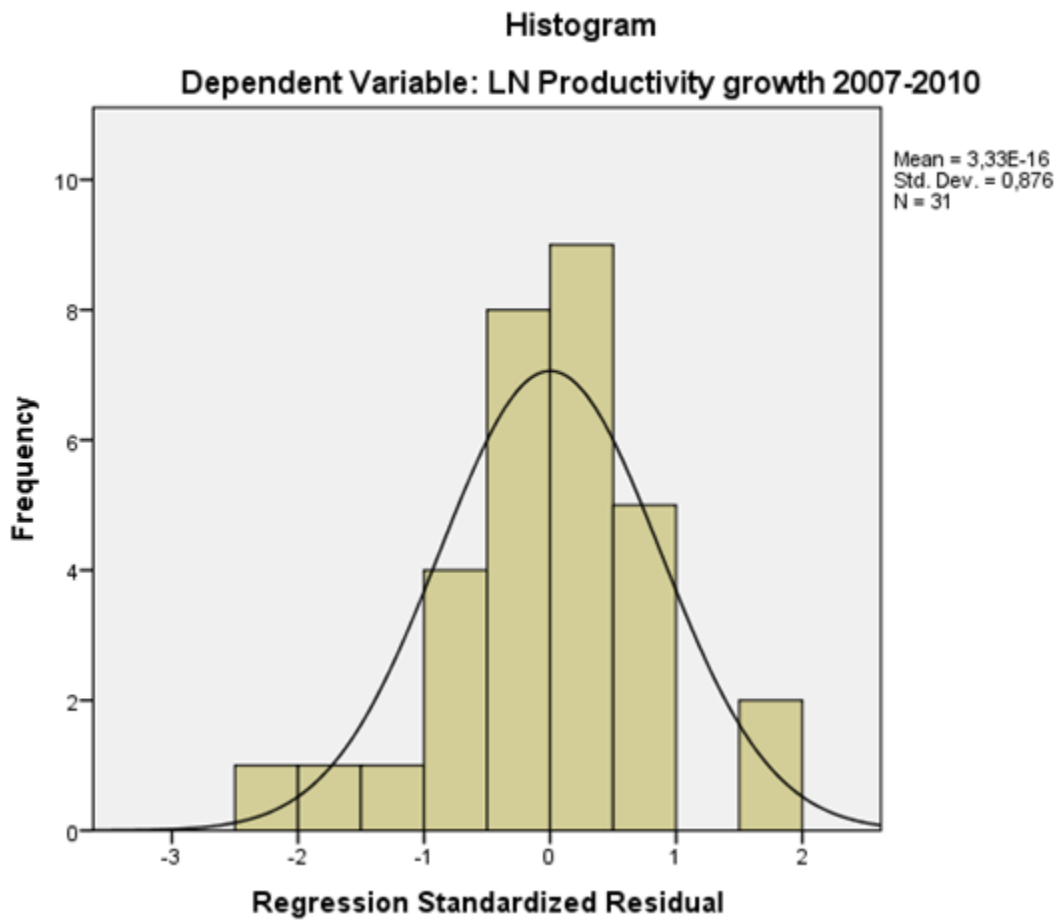

Figure 2: Spss output, P-plot of dependent variable: labour productivity growth.

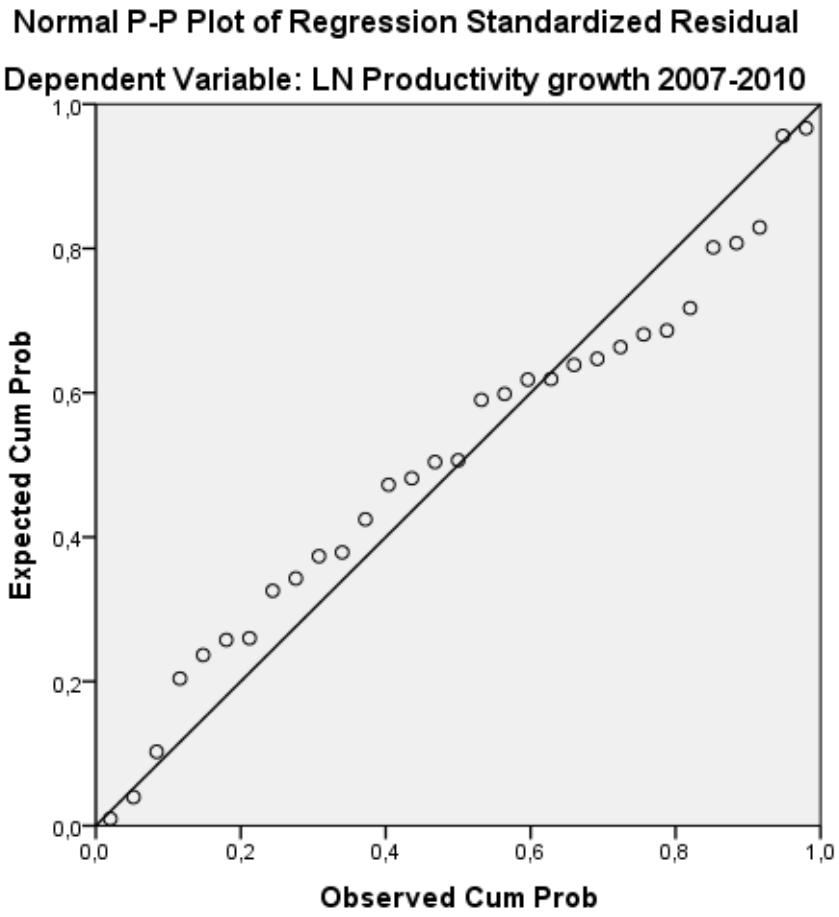

Figure 2: Spss output, scatterplot of dependent variable: labour productivity growth.

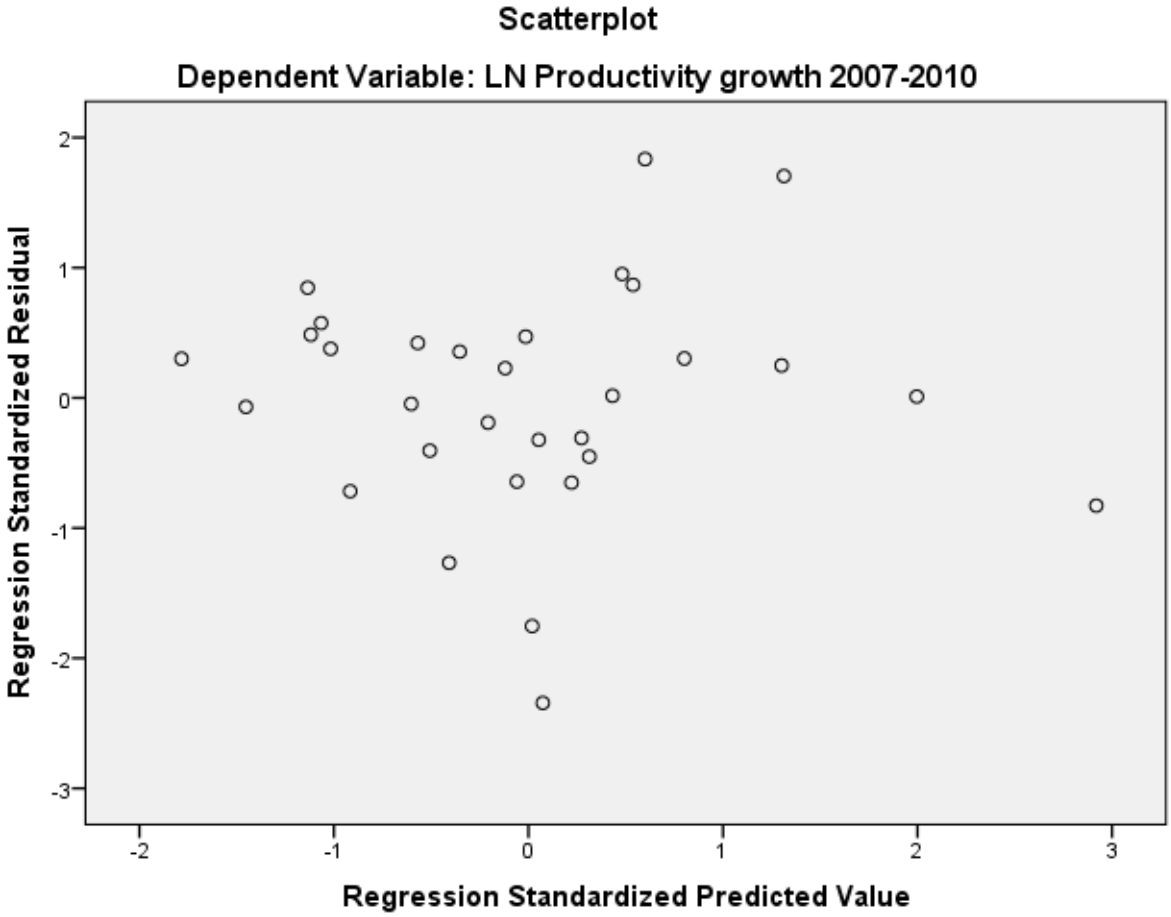

Table 1: Spss output, table multicollinearity

Dimension	Eigenvalue	Condition Index	Variance Proportions							
			(Constant)	Change in number of enterprises with FDI 2005-2010	Change in foreign capital 2005 - 2010	Change in investments	Productivity level in 2007	Private R&D expenditures in 2000	Public R&D expenditures in 2000	Adult learning in 2007
1	5,946	1,000	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
2	,924	2,537	0,00	0,01	0,00	0,73	0,00	0,00	0,00	0,00
3	,554	3,278	0,00	0,18	0,04	0,02	0,00	0,00	0,01	0,05
4	,258	4,802	0,00	0,29	0,46	0,00	0,00	0,02	0,01	0,01
5	,229	5,093	0,00	0,14	0,09	0,06	0,00	0,05	0,17	0,05
6	,054	10,455	0,01	0,36	0,15	0,03	0,01	0,83	0,15	0,02
7	,033	13,526	0,03	0,01	0,23	0,03	0,02	0,09	0,63	0,63
8	,002	53,939	0,97	0,01	0,02	0,13	0,97	0,01	0,04	0,24

13. Appendix 2: Template of general interview questions to foreign subsidiaries

Note that this template differs for local businesses and experts.

-Firm specific questions

Name of the firm

Country of origin

Year of establishment

How many people are employed by the firm? Are they both Hungarian and Foreign?

Are there more KFT's (companies in Hungary) owned by the same parent company?

What were the three most important motivations for the parent company to move to Hungary, and specifically this county? (labour costs, resources, access to market, knowledge assets, growth potential, follow up investment, Hungarian contacts, presence of similar industries, corporate taxes etc.)

Has there been a change in the reason for staying in Hungary?

-Firm competences:

On your website (foreign affiliate) emphasises innovations through new technologies concerning …. Do local Hungarian firms possess these technologies as well?

Relating to the previous question, would you say that the firm is more technological advanced than surrounding local firms in the host region (i.e. ways of production, managerial skills, quality of products and technology?

Does the firm use patents or other mechanism (for example no disclosure rules for labourers) to protect competences concerning quality of products, technology, ways of production and managerial skills?

-Region specific characteristics

Domestic Firms:

Are there many domestic firms in the region operating in the same sector or related sector? And are they useful to foreign affiliates and your firm in particular? (suppliers, customers etc.)

Do you consider the surrounding domestic firms to be technological advanced taking into account their computerisation, mechanisation, their managerial techniques (ways of organising), consistency in output/distribution and quality of products.

Are they comparable to your firm and firms in the home region? (Additional question: is there a clear gap in level of techniques?)

Do you think that local firms try to imitate products, managerial skills, ways of producing, or other techniques. If so, how? (labour mobility, product imitation, spin-offs?)

Depending on previous answer- (Regarding the last questions: How would you consider the learning skills of local firms? Do they successfully imitate these firm competences?)

Labour:

Is the level of skills and knowledge of the labour pool suitable for your firm? Do you think that local employees possess sufficient education level? Or is adaptation needed?

Government:

Does the firm has cooperative ties with local authorities and national government? Can you come up with some examples? (Permission to expand business, hire and fire employees, improve infrastructural facilities such as roads and bus stops).

Have there been any disputes with authorities in the time of presence here? Disputes concerning tax payments or employee regulations, pocket contracts etc.

Knowledge Spillovers through backward linkages

Domestic Firms:

What percentage of the local suppliers are from Hungarian descent?

Are they mainly located in the same region?

Are there any longstanding buyer-supplier relationships or is there a lot of alteration? How is the current situation, do you have some longstanding collaborative links with local suppliers? Can you name the three most important suppliers.

If so, was there a gap in managerial skills, ways of production, computerisation and or quality demands between suppliers and your company before the collaborative link?

Has this gap increased or decreased over the period of collaboration?

Were there any adaption programmes needed for suppliers to meet the demands of your company? For example: training of their employees or managers? And were these implemented?

If yes: How would you consider the learning skills of domestic suppliers towards newly introduced technology, ways of production, quality demands and managerial skills?

Is the firm participating in R&D cooperation with domestic firms? Furthermore are there cooperation programmes like sharing machines or labour pool? If not is the firm planning to do so?

Employees

Do exchanges of skills between employees from abroad and local employees take place?

Are there meetings between staff members of the foreign affiliate and those of the domestic supplier firms and how about the employees?

Would you acknowledge that there is a high degree of labour mobility in the region?

Is there labour mobility between the supplier firms and your company? How about spin-offs?

Other organisation

Are there any Universities or other research facilities actively involved in the food sector?

-Do they enable links between foreign firms and local firms?

-Do they offer training programmes for employees,

-Do they assist firms in creating new products or ways of more efficient production?

Is the firm participating in R&D cooperation with universities (student exchange) or consultancy bureaus? If not is the firm planning to do so?

Is there a likelihood of the firm to leave this region?

Is the firm likely to expand its business in Hungary or surrounding areas?

-Productivity (general information questions)

Do you see improvement in the quality of supplier products in the time of collaboration? How about in-time delivery and the ability to adapt to shifts in demand?

Do you think that the buyer-supplier relationship has led to an increase in efficiency and/or output at the suppliers' firm?

Has the presence of your company led to regional growth? Growth in employment, income etc.?

How important is your firm for the host region? Is the region depending on this firm.

What would you think would happen to the local suppliers if your company decides to move out of the region?