The Role of Multinational Enterprises in the Transition Process of Central and Eastern European Economies
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1 Introduction

1.1 Setting the Scene

Since the collapse of the communist system, the global economy has been exposed to considerable changes. The increasing globalization, which was amplified by the liberalization of trade and capital markets, has caused more intense relationships of economic actors across countries. As a consequence, the international trade in goods and services rose from US$ 4,360 billion in 1990 to US$ 17,433 in 2013 (see OECD 2014). Over the same period of time, the global stock of foreign direct investment (FDI) jumped from nearly US$ 2 trillion to above US$ 25 trillion (see UNCTAD 2014). This development has been associated with an increasing internationalization of firms, since the share of output generated by foreign affiliates in global GDP more than doubled from 21.2% in 1990 and to 46.5% in 2013 (see UNCTAD 2014:p.29). As theoretical (see Helpman, Melitz, and Yeaple 2004) and empirical (see e.g. Driffield and Love 2007) evidence suggest that multinational enterprises (MNEs) are more productive than domestic ones, the investigation of the role of MNEs and FDI is highly relevant in order to understand the prospects of economic growth across countries over the last two decades.

In their transition from socialist planned economies to market economies, Central and Eastern European (CEE) countries were exposed to a complete overhaul of their economies. The internationalization trend has been above-average in these economies. At the beginning of the transition, the CEE economies were dominated by the public sector, whereas foreign controlled firms played a marginal role. Despite the relatively high educated workforce, the socialist legacy had produced a technological stagnation, a massive public sector, a low degree of entrepreneurial activities, and a vanished capital stock. Under these circumstances, it was a challenging task to implement the institutional transition in these economies. As outlined by Detscher (2006), this process required a new economic and institutional framework, a liberalization of markets as well as an industrial privatization and restructuring.

In the initial transition phase, the structural change and privatization process were accompanied by uncertainties and a dramatic increase of unemployment with a different extent across countries. On the one hand, the former satellite states implemented a rapid transformation of the economic system and joined the European Union (EU) in 2004 or 2007, respectively. As shown in figure 1.1a, the share of the
EU New Member States (NMS) in global output fell from nearly 2% in the late 1980s to 1.3% in 1992 and stabilized at a level 1.8% in the middle of the 1990s. Today, nearly 2% of global output is generated in the NMS. On the other hand, the countries of the Commonwealth of Independent States (CIS) faced severe difficulties in adapting their system to the new environment. The share of the CIS countries in global GDP more than halved between 1990 (3.8%) and 1998 (1.6%) followed by a recovery after the year 2000 reaching a share of 2.3% in 2013. This relation holds for the distribution of inward FDI, which was marginal at the beginning of the transition process. In comparison to the CIS countries, which emerged as a significant recipient of FDI after the year 2000, the NMS started to attract a considerable amount of FDI after the recession of the initial transition phase was overcome in the early 1990s. Today, CIS and NMS countries account each for more than 3% of the global inward FDI stock.

FDI has played a crucial role in the early stages of the transition in CEE economies going beyond the obvious provision of the capital needed for the industrial restructuring. In order to understand the fundamental role of FDI, it is important to consider the heterogeneity of firms. Beugelsdijk, Brakman, et al. (2013) define a pecking order of internationalization as the most productive firms are engaged in multinational activities, medium productive firms are active in exports, and the least productive firms stick to domestic markets. Hence, MNEs can be considered as the forefront of economic performance (see e.g. Driffield and Love 2007). This concept is
confirmed by key indicators illustrating the leading role of foreign affiliates in the catching-up process in CEE economies. In 2001, more than 60% of the investments carried out in the Czech Republic, Hungary, Poland, and Slovakia, were implemented by foreign controlled firms. Since their share in overall employment was much lower (between 30 and 45%), MNEs can be considered as "a means to support the process of technological renewal and economic development" (see Günther and Gebhardt 2005).

Theoretically, foreign controlled firms potentially introduce superior technologies to the host economies (see e.g. Findlay 1978). Thus, FDI can reduce the technological gap between transition economies and industrialized countries. This effect is not only restricted to the MNE itself, since technological externalities might stimulate local actors in the host economy if domestic firms are endowed with a sufficient degree of absorptive capabilities. Evolutionary frameworks go beyond the assumption to consider MNEs as a carrier of technology. Firstly, interactions with the local business environment may raise the technological capabilities of MNEs itself. Therefore, the location choice of MNEs is not only driven by the aim to reduce costs, but also by technology and knowledge seeking motives. Secondly, internationalized firms might benefit from the internal diffusion of knowledge within the MNE, which is captured in the framework of technological accumulation by Cantwell (1989).

The overarching research questions of this thesis can be split into two complementary categories. Firstly, this thesis analyzes the decision of MNEs, where to establish a foreign affiliate, followed by the investigation of the impact of FDI in the host economies. Taking the different transition paths taken by CEE countries into account, the first empirical chapter (Chapter 2) investigates the regional location choice of MNEs in three CEE economies, namely the Czech Republic, Poland, and East Germany. With respect to the generation of knowledge, the subsequent chapter (Chapter 3) focuses on FDI in knowledge intensive business services going to East German regions. The last analysis of the first part (Chapter 4) investigates the determinants of FDI to Russian regions with a focus on the impact of the access to natural resources. In the second part, this thesis applies two different approaches in order to analyze the impact of foreign affiliates on the domestic economy. Chapter 5 analyzes spillovers of services FDI on the productivity of manufacturing firms in six NMS using a traditional production function approach. Complementary to the traditional production function approach, Chapter 6 accounts for the technological
heterogeneity of foreign affiliates by using survey data obtained from the IWH FDI Micro Database.

1.2 Theoretical Framework on FDI

This section provides a short overview of the theoretical foundation of the internationalization of firms and of the impact of foreign affiliates in the host economy. Until the 1960s, FDI was embedded as a byproduct in neo-classical trade theory, suggesting that the distribution of FDI is driven by interest rate variations. Insights from Regional Economics and International Business show that the location of FDI is influenced by agglomeration forces and by the characteristics of multinational enterprises (MNEs). Concerning the effect of FDI in host economies, spillovers to local firms occur if foreign firms introduce superior technologies to the local economy. Diverging strands of the economic literature show that the spillover effect to local firms rests upon the technological gap between the home and host economy, the absorptive capacity in the host country, the role of the subsidiaries within MNEs and the local business environment as well as on spatial dependencies.

1.2.1 The Establishment of Foreign Affiliates

Theoretically, FDI was initially integrated in the neo-classical international trade theory, whose general equilibrium is subject to a set of strict assumptions. Building on the validity of these assumptions, the theoretical frameworks of Regional Economics and International Business show that FDI cannot be explained exclusively within the neo-classical framework. In the field of Regional Economics, the New Economic Geography describes the spatial concentration of activities as an evolutionary process, while International Business theory stresses the role of market imperfections as the driver behind the endogenous growth of a multinational enterprise (MNE).

Neo-classical Trade Theory of International Economics

In the first half of the 20th century, theories on FDI evolved as a byproduct of the neoclassical theory of international trade (see Ietto-Gillies 2012), which is one of the fundamentals of International Economics and originates to Heckscher (1919) and Ohlin (1933). In the neo-classical two-country model with two products and two factors of production (labor and capital), differences in the relative proportion of
factor endowment cause differences in the relative costs of production leading to a specialization of a country in the product with the *comparative advantage*.

In the basic neo-classical trade model, both factors of production are not mobile between countries, and the general equilibrium can be achieved through trade. Nurkse (1933) extended the basic model by adding capital movements to the framework, which are driven by interest variations, without a distinction between portfolio and direct investment.

The basic neoclassical model described above, suggests unilateral capital flows from low to high interest countries. However, the reciprocal structure of FDI across countries and industries contradicts this assumption (see e.g. Hymer 1960). Furthermore, as outlined by Ietto-Gillies (2012) the general equilibrium in neo-classical theory is subject to several assumptions: perfect competition in the product and factor markets, constant returns to scale, immobility of labor (and capital in the basic framework), absence of transportation costs and uncertainty, as well as the homogeneity of products, consumer preferences, and technology.

**Regional Economics**

In their essay on the relevance of geography in economic theory, Brakman and Garretsen (2003) stress the importance of space and endogeneity of factor allocation in the general equilibrium framework underlying the neoclassical trade theory. As described above, in the neo-classical approach with a fixed factor allocation, trade can lead to a general equilibrium under the conditions of perfect competition, constant returns to scale and the omission of transport costs. Sophisticated models even showed that under the relaxation of these conditions trade might lead to a general equilibrium. Anyhow, Brakman and Garretsen (2003) conclude that the possibility of factor mobility, including migration, changes the picture considerably due to the forces of agglomeration economies, which predominantly arise at the local level (see Krugman, Fujita, and Venables 1999).

On the basis of the new trade theory (Krugman 1980), which describes a general equilibrium model with increasing returns to scale and transportation costs, Krugman (1991) initiated the *New Economic Geography* (NEG) by adding an additional factor to the framework, namely the endogeneity of factor endowments. The NEG argues that the presence of increasing returns to scale, local externalities, and economic integration leads to the spatial concentration of economic activities (see e.g. Fujita and Thisse 2013). Thus, the rise of industries in the form of clusters follows a
cumulative and evolutionary process, since firms tend to locate in existing industrial centers (Barrios, Görg, and Strobl 2006). According to the NEG perspective, the industrial concentration is driven by firms’ tendencies to concentrate production near markets and suppliers with a distinct capability to generate knowledge. Despite improved information and communication technologies (ICT), the generation of knowledge is highly concentrated as shown in the distribution of patents (see e.g. Florida 2005).

According to Arauzo-Carod, Liviano-Solis, and Manjón-Antolín (2010), agglomeration forces are probably the most studied determinant in the decision-making process of firms where to locate. Their meta-analysis on FDI location choice studies concludes that the extent of agglomeration forces differs across industries. Moreover and in line with Krugman, Fujita, and Venables (1999), the regional heterogeneity is often considered as a key factor behind the decision of MNEs to locate in particular agglomerations (see Beugelsdijk and Mudambi 2013). Theoretically, most of the empirical studies on the location decision of foreign firms refer to the model of monopolistic competition developed by Dixit and Stiglitz (1977), which links a production cost function with a demand function of a representative utility-maximizing individual. On the basis of the NEG and the Dixit-Stiglitz model, Head and Mayer (2004) developed a theoretical framework for the location choice analysis of foreign direct investments serving as theoretical foundation behind many studies on the distribution of FDI (see e.g. Amiti and Javorcik 2008).

International Business

Early International Business (IB) theory on the internationalization of firms refers to the assumptions of the neo-classical framework described above. According to Hymer’s (1960) approach of monopolistic advantages, FDI can be distinguished from portfolio investment due the possession of control over business activities abroad. Thus, interest rate variations cannot exclusively explain the characteristics of FDI.

By relaxing the assumption of a perfect competition, Hymer (1960) notes that FDI is based on the exploitation of ownership-specific advantages (such as size, technological expertise, access to cheaper sources of finance, market power and managerial skills). If a foreign firm outperforms domestic competitors, which are exposed to local benefits from their existing embeddedness in the local business environment (lower costs of communication, absence of exchange rate fluctuations and preference for local suppliers), a firm enters a market through the establishment of an affiliate.
In addition to ownership-specific advantages, the reduction of transaction costs is considered as a key determinant of a MNE’s decision to establish a production plant abroad. According to Buckley and Casson (1976), the potential for a MNE to downsize transaction costs is based on market imperfections, which are especially relevant in the markets of intermediate inputs and knowledge transfer. The internalization of these potentials in form of a centralization of control under a common ownership can establish or extend the competitive advantage of a MNE (see e.g. Buckley and Casson 1976; Rugman 1980). Thus, the internalization theory provides an explanation why firms become multinational by building on transaction costs (see Ietto-Gillies 2012:p.102).

Dunning (1977) combined several strands of the economic literature such as the theory of the firm, organization theory, trade theory and location theory in order to develop the eclectic paradigm explaining the internationalization of production. According to Dunning (1979) a multinational enterprise enters a foreign market if the following three conditions take place. Firstly, a MNE must possess a competitive ownership-specific advantage over its competitors as described by Hymer (1960). Secondly, the location of investment must offer advantages such as access to markets, resources, labor market characteristics, as well as a matching of well-functioning political, legal and cultural environment. And thirdly, following the theory of internalization above, a firm benefits from the internalization of the use of inputs, which allows the firm to avoid external markets and to reduce transaction costs.

All the theoretical frameworks of the internationalization of firms described above are based on an ex-ante comparison between a firm, which decides whether to establish an affiliate in a foreign location, and the (potential) rivals in the corresponding market. The dynamics of the internal (learning processes and the allocation of production and competences within the enterprise) and external (potential interactions between the MNE and other actors in the local market) forces behind the (endogenous) growth of MNEs are omitted in these models.

Penrose’s (1959) resource-based view on a firm as a collection of productive assets and its intra-firm coordination of activities forms the basis for the competence or capability-based theory of the endogenous growth of firms driven by internal factors. For a MNE, the improvement of its capabilities and knowledge base is considered as a key determinant to maintain its competitive advantages (see Penrose 1959). As noted by Cantwell and Piscitello (2000), firms develop their capabilities through "internal learning processes in form of evolutionary experimentation".
The evolutionary perspective is captured by Nelson and Winter (1982), who suggest that organizational capabilities and routines of a firm are interdependent and tacit, and evolve slowly on the basis of experiences within the firm. Moreover, Teece, Pisano, and Shuen (1997) created the concept of dynamic capabilities suggesting that in rapidly changing environments, a firm’s performance highly depends on the evolution of internal technological, organizational and managerial processes within the firm.

In the theoretical perspective of technological accumulation, Cantwell (1989) considers the development of technology as a cumulative process within the firm as a process to lower production cost, and to raise the productivity as well as the quality of products. In terms of productivity growth, the accumulation of technology, which is reflected in the skills of the workforce, and the development of firm-specific assets, is a dynamic process and explicitly excludes productivity growth induced by static economies of scale. In this context, product and process innovation activities are identified as a fundamental condition for firms to maintain or enhance profits (Cantwell 1989). Moreover, the geographical dispersion of technological activities is considered a determinant for the success of innovations, due to the potential of the transfer of knowledge and innovation between affiliates within a MNE (see e.g. Cantwell 1989).

In addition to intra-firm processes, firm-specific learning, the accumulation of technology, and interactions with the local business environment are relevant for spillovers as well. Cantwell (1987, 1989) stresses the dynamic interaction between MNEs and existing spatially distinct capabilities, which are embedded in the economic structure of a location including the potential for industrial linkages and spillovers. In this context, a MNE benefits from the technological environment in the location of its investment and generates spillover effects to local suppliers, customers and competitors. Therefore, Cantwell (1989, 1995) concludes that in the context of a firm’s location and innovation strategy, locational advantages are considered endogenous due to the spillover effects of its activities. Thus, such evolutionary based theoretical frameworks go beyond the perspective of MNEs as pure transaction cost-minimizers.

1.2.2 The Impact of FDI in the Host Economy

The second part of this thesis deals with the impact of foreign firms on the host economy. In the economic literature, this question is linked to externalities or spillovers from foreign affiliates to local firms, and is one of the main FDI related research and policy issues. In the literature on International Economics, traditional models
explaining FDI spillovers through technological spillovers rely upon a production function approach as well as the concepts of absorptive capacity of the host country and the technological gap between the home and host economies. International Business and Regional Economics emphasize the importance of the technological and organizational heterogeneity of MNEs as well as spatial dependencies in the search for FDI spillovers.

**FDI spillovers in International Economics**

In the field of *International Economics* productivity spillovers from foreign affiliates to domestic firms have been a prominent topic of academic research. FDI spillovers can occur between firms that are vertically integrated with foreign affiliates (vertical, inter-industry spillovers) or in direct competition with them (horizontal, intra-industry spillovers). Additionally, vertical spillovers can be classified into forward (domestic firms demanding inputs provided by foreign affiliates) and backward (domestic firms supplying foreign affiliates) linkages.

The fundamental condition for FDI spillovers to occur rests upon the assumption that foreign affiliates introduce superior technologies and organizational skills to the local economy (see Findlay, 1978, and Griliches 1979, 1992). Therefore, the diffusion of the new technologies introduced by foreign firms as well as the transfer of organizational skills are considered as the channels contributing to the productivity growth of local firms (see e.g. Teece 1976; World Bank 1993).

The first model on technological spillovers through FDI was introduced by Findlay (1978) suggesting a positive impact of the technological gap between the host and home economy on the potential for spillovers to local firms. Concerning the characteristics of the host economy, Borensztein, De Gregorio, and Lee (1998) stress that the effect for FDI spillovers is not only related to the technological gap. These authors argue that the application of advanced technologies introduced by foreign affiliates requires a sufficient level of human capital. This assumption is in line with the concept of absorptive capacity introduced by Cohen and Levinthal (1989). Wang and Blomström (1992) assume that the diffusion of technology through FDI is subject to two types of costs; the transaction costs to the multinational transferring technology to its subsidiary and the learning costs of domestic firms implementing the new technologies.

Early empirical studies on FDI spillovers were focused on the sectoral level (see e.g. Caves 1971; Blomström 1986) with mixed evidence for FDI spillovers. It has been
argued that industry level studies have produced upward-biased spillover effects, since more productive sectors are more likely to attract inward FDI (see Driffield and Love 2007). Nowadays, the dominant concept to spillovers analysis is based on the production function approach using firm-level information. The results of firm-level studies depend on the study design as well as on the type of FDI spillovers. With respect to horizontal FDI spillovers, Markusen and Venables (1999) developed a theoretical framework how FDI affects local firms in the same industry and stress two contrary effects: a competition effect might reduce the profits of local firms, whereas linkages to local suppliers may reduce input costs. In their meta-analysis Görg and Strobl (2001) observed mixed results of horizontal FDI spillovers on productivity growth of local firms. Furthermore, the authors critically point out a publication bias, differences between cross-section and panel data and the sensitivity to the definition of the presence of multinationals.

Concerning the potential of vertical FDI spillovers, Rodriguez-Clare (1996) derived a theoretical framework suggesting that local firms benefit from FDI through vertical backward linkages when communication costs between the foreign affiliate and its headquarter are high, and when the host and home economy are not too different in terms of the variety of intermediate inputs. Empirically, the study by Javorcik (2004), who detected positive FDI spillovers via backward linkages in Lithuania, is regarded as a benchmark for studies on vertical FDI spillovers and redirected the attention from horizontal to vertical spillovers. As detailed input information is predominantly missing in firm-level data, she derived inter-sectoral linkages from input-output tables assuming a homogenous input structure across firms within a given sector. Javorcik’s results were confirmed by several studies as shown in a meta-analysis by Havranek and Irsova (2011). By investigating 3,626 FDI spillover estimates, these authors conclude that the spillover effects of vertical backward linkages are positive on average, whereas vertical forward spillovers are only marginally positive. The majority of studies on vertical FDI spillovers focuses on the manufacturing sector, while only a small fraction of studies analyzes the effect of FDI in the services sector on the productivity in the manufacturing sector.
Insights from International Business and Regional Economics

As described above, Cantwell’s approach towards technological accumulation (Cantwell, 1989) suggests that the effects of FDI depend on the interactions within and between firms. These effects are considered dynamic and endogenous rather than static. With regard to spillover effects on the host economy, Cantwell suggests that the potential for spillovers in the host economy depends on the technological heterogeneity of MNEs as well as on existing regional distinct capabilities (see Cantwell 1989, 2009).

The literature on International Business grasps further dimensions behind the spillover effects of FDI on the host economy going beyond the transfer of knowledge from the foreign affiliates to local firms. Firstly, the success and extent of technology transfer is supposed to be endogenous and, thus, subject to the local absorptive capacity described above and to the characteristics of the MNE such as size, experience, duration of presence in the market and R&D intensity (see e.g. Teece 1977; Castellani and Zanfei 2006). Secondly, the potential for local spillovers and technology transfer depends on the heterogeneity of subsidiaries, particularly on the role of the subsidiary within the MNE as well as on the subsidiary’s capability to self-generate knowledge. In this context, Marin and Bell (2006) argue that spillovers can only occur in the case that foreign subsidiaries are technologically active in host economies with a distinct role of the subsidiaries’ autonomy and of local business environment. And thirdly, Castellani (2012) notes that local firms, which are not affected by the introduction of superior technologies provided by foreign subsidiaries, can benefit from FDI through pecuniary externalities such as a reduction of the prices of inputs used in production.

Another important aspect in FDI spillovers rests upon the relation between spatial proximity and the extent of knowledge spillovers as explained by New Economic Geography (Krugman 1991). One of the first studies investigating the spatial dimension of knowledge spillovers through FDI was implemented by Aitken and Harrison (1999), who hypothesized that FDI spillovers ‘are likely to be captured first by neighboring domestic firms, and perhaps gradually spread to other, more distant domestic firms’. But their data on Venezuelan firms did not provide any empirical support for their hypothesis. More recently, Driffield (2006) and Crespo, Fontoura, and Proença (2009) found evidence for the spatial dependency in FDI spillover estimations. This finding confirms findings from the literature on agglomeration economies suggesting that learning effects within and across industries occur on a local rather than on a national level (see e.g. Porter 1996).
1.3 The Scope of the Thesis

As shown in the previous discussion, this thesis takes three theoretical frameworks on FDI into account, namely *International Economics*, *Regional Economics* and *International Business*. The empirical part of the thesis consists of two research objectives investigated in five chapters. The first objective deals with the question where do MNE locate in CEE regions and includes three FDI location choice studies. The second part of the thesis focuses on the impact of foreign affiliates in host economies by making use of two theoretical approaches (one more embedded in *International Economics*, one more in *International Business*) to investigate spillovers from FDI to local firms. The overall structure of the thesis is illustrated in figure 1.2.

Figure 1.2: The structure of this thesis

As already discussed, agglomeration economies are highly relevant for the analysis on the location choice of MNEs. As agglomeration economies predominantly arise at the local level (see Krugman, Fujita, and Venables 1999), the three empirical chapters on the locational factors affecting the decision of MNEs where to establish an affiliate, are subject to the regional dimension. Thus, these investigations are theoretically embedded in the *New Economic Geography* (NEG) belonging to the field of *Regional Economics*. In the literature, the model by Head and Mayer (2004) has been widely used explaining theoretically the location choice of MNEs. This model combines elements of the NEG with the assumption of an utility-maximizing firm, which chooses the location maximizing the firm’s profit. This approach also includes elements from the classical trade theory, as the FDI location choice can
be explained by the regional factor endowment including costs-minimizing motives and the importance of the access to distinct inputs such as natural resources. As argued before, the development of foreign affiliates themselves is subject to an evolutionary process, which is incorporated in the decision process of MNEs where to locate. Hence, the FDI location choice contains elements from all three theoretical frameworks described above. Due to the choice of regions as the spatial unit of investigation, the theoretical emphasis is on Regional Economics.

The investigation of the determinants of FDI in CEE economies starts in Chapter 2 with a multi-country setting at a regional level. By extracting information from the population of the IWH FDI Micro Database, the empirical analysis of this chapter refers to information on subsidiaries registered in 33 regions in East Germany, the Czech Republic and Poland between 2000 and 2010. The results show that agglomeration advantages, such as sectoral specialization as well as a region’s economic and technological performance prove to be the most important pull factors for FDI in CEE regions. These findings also hold for single-country regressions. With respect to the regional absorptive capacity across these economies, the findings suggest that education matters for the attraction of FDI, especially regarding the economically more sustainable FDI in more advanced sectors of the economy. Therefore, FDI in CEE regions is not only dominated by efficiency seeking behavior, but also by strategic assets which seems especially true for East Germany and for the service sector, where well-qualified labor is an important location factor.

The latter finding provides a compelling motivation for Chapter 3, the investigation of the distribution of FDI in knowledge-intensive business services (KIBS), which has become crucial for the regional innovation performance in knowledge-based economies. As the global distribution of innovation is highly concentrated, Florida (2005:p.50) summarizes that “innovation, economic growth, and prosperity occur in places that attract a critical mass of talents.” Thus, FDI in science-based sectors can be considered as a driving force behind the spiky economic structure that puts capital and large metropolitan areas at the forefront of globalization. Hence, Chapter 3 empirically assesses the determinants of FDI in the East German KIBS sector showing that a high regional capability for technological interactions explains the path-dependency in the KIBS sector.

The final FDI location choice study in Chapter 4 focuses on the distribution of FDI in Russian regions. As shown above, Russia has only recently emerged as a large recipient and investor of FDI. The transition process in CIS countries differs from
the paths taken in CEE economies, which have already joined the EU. In comparison to CEE economies, the distribution of FDI across Russian regions is concentrated in few locations. On the one hand, some aspects of the structure of FDI are similar to the distribution of foreign affiliates in CEE as large urban agglomerations are among the major recipients of FDI. On the other hand, the access to core industries is highly regulated in the Russian Federation. Despite these restrictions and the fundamental role of natural resource in the Russian economy, regions endowed with natural resources have reported a high concentration of FDI inflows. The empirical analysis, which combines firm-level information obtained from the Ruslana Database with regional statistics, suggests that the access to markets and agglomeration forces are among driving forces behind the distribution of FDI in Russia, which corroborates the findings in Chapter 2 and 3. With respect to the access to natural resources, the findings show that the effect is sensitive to its measurement, and that resource endowment spurs co-location of services FDI.

The second part of this thesis focuses on the impact of FDI in host economies and is split into two empirical chapters. The first chapter on FDI spillovers (Chapter 5) uses the traditional model of technology transfer, which draws upon a production function approach and upon the assumption of a homogenous input structure across firms within a given sector. Theoretically, this framework is embedded in the field of International Economics and considers the arguments of technology gap and absorptive capacity as the fundamentals for spillover potential in host economies. In addition to the traditional approach, the analysis in Chapter 6 follows an approach capturing the technological heterogeneity of foreign affiliates relying upon the theoretical framework of International Business.

The empirical analysis in Chapter 5 focuses on the question how services FDI affects the productivity of manufacturing firms in six NMS (Bulgaria, Czech Republic, Estonia, Romania, Slovakia, and Slovenia) in the period between 2003 and 2008. Economically and politically, this question is of interest, since the analysis focuses on the period when these countries joined the EU, which was accompanied by far-reaching liberalization reforms. Academically, not many studies have addressed the impact of services FDI on manufacturing productivity (Havranek and Irsova 2011). In the context of the market reforms, the NMS experienced a large growth in the share of foreign investments across sectors and countries. The analysis uses firm-level information from the Amadeus database. The regressions confirm previous findings on the positive impact of services FDI on the productivity of domestic
manufacturing firms through vertical forward spillovers (see e.g. Arnold, Javorcik, and Mattoo 2011). Furthermore, the firms’ absorptive capability and size reduce the spillover effect of services FDI. A sectoral distinction shows that firms at the end of the value chain experience a larger productivity growth through services FDI. These findings suggest that services FDI enhances productivity of manufacturing firms, and thereby contributes to the competitiveness of the CEE manufacturing industries.

As outlined above, traditional approaches on spillovers capture the linkages between sectors via input-output tables. It is assumed that the input structure of firms is homogenous within a given sector. *International Business* relaxes this firm heterogeneity assumption. The investigation in Chapter 6 applies such an approach capturing the technological heterogeneity of firm through survey data from the *IWH FDI Micro Database*. This procedure allows to collect information on the extent of knowledge transfer and on the intensity of linkages between foreign affiliates and local firms. The findings show that foreign affiliates’ technological capability, embeddedness and autonomy are positively related to spillover potential. In contrast to what is commonly assumed, the analysis finds a positive but non-linear relationship between extent of local sourcing and knowledge transfer to domestic suppliers.

### 1.4 Conclusion

Research on the determinants of multinationals’ location choice and its impact on host countries’ economies is scattered across different fields of research in economics and business. By focusing on Central and Eastern European countries, where FDI emerged at the beginning of the transition process, this thesis is at the intersection of *International Economics, International Business* and *Regional Economics*. Using several databases and various modeling techniques, this thesis highlights the importance of agglomeration externalities in explaining MNEs’ location choice, as well as the presence of well-qualified labor. The empirical findings provide evidence for the path dependency of location choice of MNEs at a regional level, since both agglomeration externalities and knowledge spillovers are locally bound, which especially holds for FDI in knowledge intensive business services. Taking the different transition paths of former socialist countries into account, the findings of this thesis suggest that the distribution of FDI is also affected by the access to locally bounded inputs such as natural resources, which can be considered a key determinant of MNEs’ location choice in Russian regions.
Complementary to the question of MNEs’ location choice, this thesis shows by means of a production function approach that services FDI has a positive impact on the productivity of manufacturing firms in the host economy. Moreover, when allowing for firm heterogeneity and exploring the role of foreign affiliates’ technological capability, survey data from the IWH FDI Micro Database suggest a positive but non-linear relationship between local sourcing and knowledge transfer. Such an International Business approach showing the decreasing returns of local sourcing to knowledge transfer suggests that it is not so much the degree of local sourcing, but much more the foreign affiliates’ integration in global production networks that may explain knowledge transfer to local actors in the host economy.

Finally, the research agenda on the firm level characteristics shows that FDI across CEE regions follows a path dependent distribution. Therefore, FDI amplifies the concentration of economic activities. By applying two different approaches on FDI spillovers, this thesis proves that FDI contributes to the competitiveness of CEE economies. Notwithstanding, the finding that the linear impact of local sourcing on knowledge transfer does not follow a linear distribution, shows that the host economy does not benefit from the pure quantity of foreign investments. In line with previous findings that foreign affiliates need to be technologically active in the host economy (see e.g. Marin and Bell 2006), the impact of FDI depends on the linkages and technological co-operation between foreign and domestic firms. Hence, this thesis advances our understanding of the role of MNEs in the transition process of former socialist economies in Central and Eastern Europe.