

SPILOVER EFFECTS FROM FOREIGN DIRECT INVESTMENT TO LOCAL SMES. AN EMPIRICAL STUDY

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ABSTRACT. Foreign direct investment (FDI) is known for having a diversified impact on the host economy. Some of its potential outcomes are represented by spillovers to local enterprises. The aim of this paper is to analyze the spillover effects of FDI in Romania to local small and medium-sized enterprises (SMEs) by means of a case study. The present research is an empirical study and, as such, contributes insights into the literature on FDI in Central and Eastern European countries (CEECs), providing additionally a link between FDI and SMEs. The paper starts by reviewing the literature on FDI with regard to spillover and linkage effects on SMEs in the local economy. The second section focuses on the particular linkages between FDI and SMEs and their characteristics in the CEECs and Romania. The third section of the paper investigates the case of a large industrial foreign affiliate in Brasov County and the way it contributed to the performance of local SMEs in terms of turnover and employee growth. Several results of the empirical study are highlighted. The final section presents some conclusions and pinpoints the contribution of this study to the existing literature.

Keywords: SMEs, FDI, spillovers, linkages, CEECs

JEL Classification: F21, M21

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Introduction and Literature Review

Foreign direct investment (FDI) is known for having a diversified impact on the host economy. Some of its potential outcomes are represented by spillovers to local enterprises, mostly small and medium-sized enterprises (SMEs).

The spillover effects generated by FDI carried out by multinationals on the local SMEs in host economies received a fair share of attention in the theoretical and empirical literature, but with mixed results. This issue surfaced in the literature in the '60s. The first author to systematically include spillovers among the possible outcomes of FDI was MacDougall (1960), who analyzed the welfare effects of FDI.

Since then, several empirical studies examining spillovers from FDI found positive evidence, some rather not (a useful review is provided by Gorg & Greenaway, 2001). The difference in results suggests that the ability of firms in the host country to benefit from foreign technology is not automatic as it is affected by various economic and technological factors (Moosa, 2002). The most important factor has to do with the absorption capacity of local SMEs; to what degree they are able to interact and to learn from TNCs was shown by Blomstrom & Kokko (2003) in their seminal work on spillovers from FDI.

Some of the best-known spillover effects include: positive externalities in production through inter-industry linkages which upgrade the local supplier base, international marketing networks that can overcome barriers for exports into foreign markets, clustering of related firms, transfer of innovation and R&D activities, higher productivity by means of training of human resources, increase in sophistication of local demand, and stronger competition to the ultimate benefit of the consumer. The pecuniary element of spillovers is quite difficult to measure though (Jovanovic, 2006).

The literature differentiates between ‘pecuniary’ and ‘non-pecuniary’ spillovers. The former arise when a multinational affects the conditions of supply and demand for goods and services by another firm. Even in the absence of any knowledge transfer, the increasing demand of intermediate goods enables production on a larger scale, and thus improves the cost competitiveness of supplier firms. If the local SME benefits from assistance to meet quality requirements its performance will be further enhanced. Non-pecuniary externalities are commonly known as ‘technological spillovers’, arising from labor market exchanges, demonstration effects, etc. (Dunning & Lundan, 2008).

When it comes to the impact of FDI, one has to differentiate though between horizontal, forward, and backward spillovers. Horizontal spillovers are technological spillovers from the multinationals to other firms in the same industry. Forward spillovers are spillovers to firms consuming the products made by the multinational. Backward spillovers occur when multinationals induce higher productivity or share technology with suppliers (Jensen, 2006).

Whereas several authors praise the linkages between multinationals and local SMEs for productivity spillovers, technology transfer, and increased demand arising from the supply activities of local firms, others criticize FDI for crowding out effects and of pre-empting the development of local SMEs. Negative effects usually arise when foreign affiliates and SMEs compete either in product or in factor markets. Positive effects occur mostly from cooperation between the two entities.

FDI by multinationals is considered to be a major channel for the access to advanced technologies by developing countries. Knowledge transferred from the transnational company (TNC) to its subsidiaries may leak out to the host country, giving rise to an externality known as the spillover effect from FDI.

Various channels for spillovers have been suggested: labor turnover from multinationals to local firms; technical assistance and support to

suppliers and customers; the demonstration effects on local SMEs in issues such as export behavior, and managerial practices (Moosa, 2002).

The potential for technology transfer is one of the most cited positive outcomes of FDI. According to Markusen (1995), multinationals tend to be important in industries and firms with four characteristics: high levels of R&D relative to sales, a large share of professional and technical workers, products that are new and/or technically complex; and high levels of product differentiation and advertising.

Technology transfer, learning about markets and acquisition of labor skills can arise in many different ways as, for example, employees working in TNCs move to national firms bringing specific technological and managerial knowledge, or as suppliers of intermediates to the TNC acquire the technological specifications and procedures used by the TNC (Barba Navaretti & Venables, 2004).

Feenstra & Hanson (1995) examined the effect of FDI on the relative demand for skilled labor in Mexico. They found the growth in FDI to be correlated positively with the relative demand for skilled labor. This is consistent with the hypothesis that outsourcing by multinationals has contributed significantly to the increase in the relative demand for skilled labor in the North – South perspective.

FDI also influences the host economy via inter-industry linkages. To the extent that TNCs establish links with local SMEs, for supplying raw materials, parts and components, they can improve employment and revenues of SMEs. Apart from these backward linkages, subsidiaries of TNCs and SMEs can also engage in forward linkages by cooperating in distribution activities.

However, backward linkages are the most powerful channel to spill over technology and production techniques from multinationals to host countries (UNCTAD, 2001). China is a major example that updated technology via FDI as well as the training of human resources improves the general economic performance of domestic firms.

Investigation on Spillovers in the CEECs

When the Central and Eastern European countries (CEECs) began the transition from a centralized economy to a market economy at the beginning of the '90s, FDI was expected to bring a host of benefits to the recipient economy including capital and, most importantly, transfer of knowledge which should trigger technological change.

The failure of several domestic privatization schemes in the CEECs led to the widespread recognition that FDI proved a better vehicle for restructuring than domestic capital. Thus, most of the CEECs, in need of technological modernization, upgrading of infrastructure and acquisition of new skills, welcomed FDI in order to attain potential spillovers in their many forms.

Nicolini & Resmini (2010) investigate evidence for spillovers across the CEECs and find that FDI-induced spillovers are significant in Romania and to a lesser extent in Bulgaria; but they are not significant in Poland, where the technological gap between foreign and local firms is so narrow that it produces competition effects rather than technology spillovers. Finally, in Romania spillovers accrue to SMEs when foreign affiliates operate in high-tech manufacturing, while large firms are able to reap spillovers only from low-tech multinationals.

Damijan et al. (2003) using a large panel of data from eight CEECs, found that FDI represents indeed an important channel of technology transfer in the Czech Republic, Estonia, Poland, Romania and Slovenia.

Looking for spillovers from FDI in Romania, Voinea (2003) finds that new technologies are more likely to be transferred through FDI when the foreign affiliate operates in a pro-competitive environment. When the environment is anti-competitive, there are perverse incentives to gain monopoly rents not through innovation, but through market power inducements.

Moreover, the level of technological skills of the local human resources and the existing infrastructure play a major part for a successful absorption of new technology. The type of linkage between the foreign affiliate and the local SMEs is also essential for how important that relationship is within the whole network of the respective TNC.

Public policy should not be too restrictive so as to prevent the multinational of 'disclosing' its technology, but a strong enforcement of intellectual property rights should be in place. This has been a thorny issue in the CEECs, where the institutional framework didn't provide (especially in the first years of transition) an efficient system to prevent unwanted knowledge diffusion. Finally, the technological gap should not be too small (so as to leave space for improvement) or too wide (so that the spillover can be absorbed).

An authority on FDI in CEE, Klaus Meyer investigates spillovers in the case of Estonia and finds their magnitude quite significant. However, spillovers depend on the characteristics of incoming FDI, the recipient firm's size, its trade orientation and its ownership structure (Sinani & Meyer, 2004).

According to an empirical study on Romanian firms carried out by Javorcik and Spatareanu (2008), FDI correlates with the higher productivity of local firms in upstream industries. The authors argue that partially foreign-owned firms are more likely to contract with local SMEs than wholly-owned subsidiaries.

Empirical research reveals that in Romania the sectors with above average FDI penetration have recorded the highest productivity growth. However, FDI penetration only explains a part of the productivity gains in those sectors; furthermore, these gains are not automatically translated into welfare gains, as local companies existing on the market prior to FDI entry have usually been forced into downsizing. Also, FDI driven sectors have improved trade performance and specialization. By

contrast, the FDI induced specialization is for vertically differentiated products competing on price, not on innovation (Voinea, 2003).

Positive spillovers are easily visible in the case of manufacturing, especially the car industry, which experienced a profound penetration of FDI. Few would approve that carmakers such as Skoda or Dacia would have fared better under national ownership as compared to foreign ownership. Even if in the initial period the terms of the privatization contracts have not been fully met (in the case of Skoda) or there were massive displacements of local suppliers (in the case of Dacia), the major progress of both companies by means of technological transfer, managerial skills, training of employees and marketing tactics proves the virtues of FDI.

Car manufacturers often transferred all parts of the supply, production and distribution chain to CEE. What they have kept for themselves is their major R&D activity that remained in the home country for the time being. Most investors benefitted from investment incentives or special investment packages offered by the countries. In return they offered an investment program aimed at production growth, new job creation, training of local employees and development of the supply base in the country (Djarova, 2004).

Teaming up with foreign affiliates and the benefits associated with the subsequent technology transfer allowed many Czech SMEs, acting as car parts suppliers, to keep their domestic market share and also participate in European and worldwide distribution networks.

Skoda's suppliers were obviously required to meet high quality standards. Thus, Volkswagen's policy to build up a network of local suppliers resulted in half of their suppliers being Czech. About 50 joint ventures between Western component producers and Czech suppliers were formed as a spin-off of Volkswagen's investment in Skoda (Djarova, 2004).

The Hungarian affiliate of Suzuki followed a strategy of purchasing a wide range of raw materials, parts and components from primary and secondary suppliers in Hungary. By 2001, besides its own 2,100 employees, its indirect impact generated employment to 31,000 persons in 263 companies (UNCTAD, 2001).

In Romania, Renault's acquisition of Dacia and its phenomenal success afterwards generated an impressive growth of the horizontal automotive industry. Dacia's suppliers provide more than 100,000 indirect jobs. An evidence of vertical spillovers through backward linkages is the increased demand for intermediate products due to Renault's FDI entry, which allowed local suppliers of car parts to reap the benefits of scale economies.

The large foreign affiliates in the automotive sector have transferred new technology and have implemented in Romania modern management and logistics techniques such as Just-in-time, Kaizen, Six Sigma and other tools for continuous quality improvement. All of them invested in the training of their own employees and provided training and technical assistance to SMEs which act as their suppliers, thus establishing mutually beneficial relationships.

As Marinescu & Constantin (2010) show, the technology transfer also translated into higher technological content of exports, resulting in an increased competitiveness and better export opportunities for local companies.

A Case Study on Spillovers in Romania

The empirical part investigates the case of a large industrial foreign affiliate in the County of Brasov, Romania (named hereafter SC Romania, for confidentiality reasons) and its linkage to suppliers of raw materials, components and services, which are local SMEs. The study analyzes the

impact of the multinational company by looking at the way in which it has contributed to the performance of some local SMEs in terms of turnover and employee growth, thus generating spillover effects.

According to official statistics (Brasov Trade Register Office, 2012), foreign affiliates employ almost 40,000 persons in Brasov County, out of a total 160,000. The largest investor is Germany with around 700 registered companies and almost 20,000 employees. Brasov County has a good reputation for producing automotive parts. Some 5-6 large foreign affiliates and several small ones have chosen this location.

One of these large foreign affiliates, SC Romania, cooperates with more than 420 local suppliers for raw materials and various services, most of them SMEs. According to data from the company, 188 are located in Brasov County itself (for proximity reasons to the plant) and other 234 are spread around the country, most of them being located in the capital city, Bucharest (SC Romania, 2014). According to its in-house regulations, all suppliers have to comply with certain quality requirements, which are first checked by means of a potential analysis. After granting approval as collaborators for the multinational, the same criteria are checked again on a semester basis.

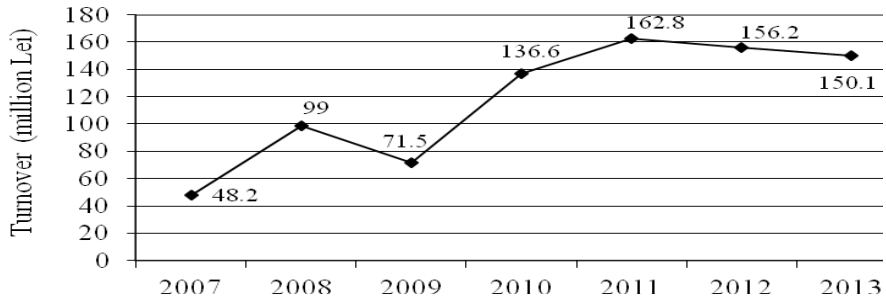
The SMEs acting as suppliers for the affiliate share the following characteristics:

- Meeting deadlines: high flexibility, reliability and competence in solving the problems that pertain to the strengths of the affiliate;
- Cost responsibility: price setting by suppliers is a very important issue in manufacturing – therefore, the affiliate expects transparency in this respect;
- Quality responsibility: quality assurance is based on the „zero-defects” philosophy and on the continuous improvement of costs, quality, sales terms and service provided. For certain areas, quality certifications such as ISO 9001 and ISO TS 16949 are required as a pre-condition to be granted supplier status;

- Environmental protection: adhering to environmental regulations and norms is a minimum condition imposed on suppliers. An ISO 14001 or EMAS certification is advised or even compulsory in several fields. By means of the high standards imposed by SC Romania on the local suppliers, the quality and efficiency of the partnering SMEs increased as well. Further research of company data also reveals that a significant part of the total staff employed by SMEs acting as subcontractors for SC Romania work in fact for the multinational. This highlights the fact that besides having a positive impact on the employment rate in the region by hiring directly a lot of staff for its plant (SC Romania is one of the top employers in Brasov County), it also generated indirect jobs by means of subcontracting activities to local SMEs. Due to consistent amounts of orders placed to subcontractors, local SMEs were driven to hire additional staff.

The analysis of employee activities in subcontracting firms for SC Romania shows that out of 3,800 employees in these SMEs, around 760 persons work in operations related to the multinational, i.e. 20% of the total staff. Out of the 760 employees performing work for SC Romania in several local SMEs, one-third are directly involved in production activities and two-thirds supply services or are involved in administrative tasks. In the latter category we can cite firms such as Electromagnetica SA, Olin Foods, Brasov customs etc. The production part comprises supplying SMEs such as: Becotek Metal SRL, Matec CNC-Technik SRL, Asam SA, etc. For a more specific analysis, the case study comprises two of the more important subcontracting SMEs for SC Romania: Becotek Metal SRL (produces pipes and casting reels) and Matec CNC-Technik SRL (produces spherical joints and reels). The evolution of turnover and the average number of employees for the period 2007-2013 are investigated so as to highlight the impact of SC Romania on the two suppliers.

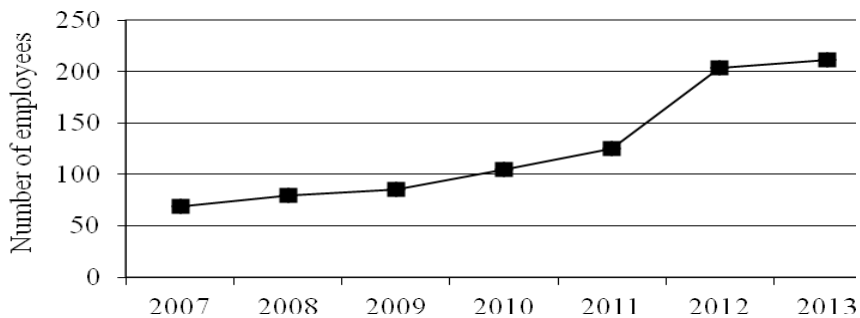
Fig. 1. The evolution of turnover for SC Becotek Metal SRL



Source: Adapted by the author from www.doingbusiness.ro data

SC Romania initiated a subcontracting relationship with Becotek Metal SRL in 2007. The evolution of the turnover of Becotek Metal SRL from 2007 onwards until 2013 has largely been positive (see figure 1). The turnover more than tripled from approximately 48 million Lei in 2007 (the first year when the SME became a supplier for the multinational) to 150 million Lei in 2013. The only year with a sharp drop in turnover has been 2009 (a 38% decrease compared to 2008). This was the year when most of the Romanian companies suffered severe consequences from the widespread financial and economic crisis.

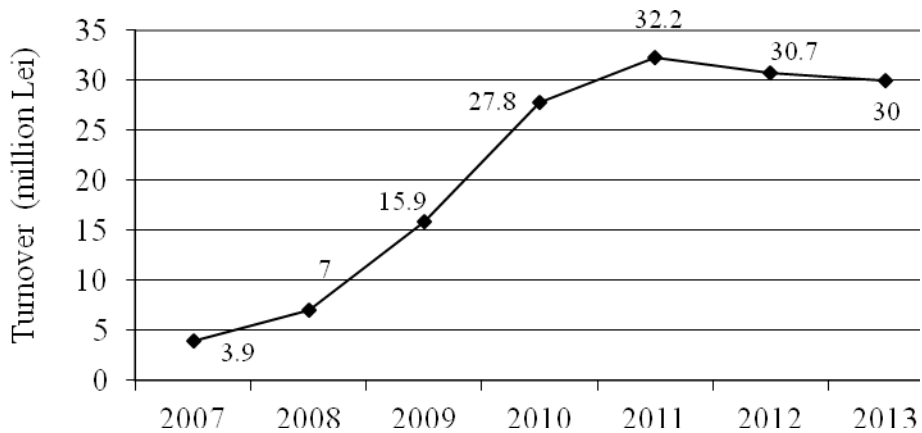
Fig. 2. The average number of employees for SC Becotek Metal SRL



Source: Adapted by the author from www.doingbusiness.ro data

The average number of employees at Becotek Metal SRL also rose consistently over the period (see figure 2). In the first year taken into consideration for the study (2007) the SME counted 69 employees. Their number increased until 2013 to 211 employees bringing Becotek Metal SRL almost on the verge to becoming a large enterprise (according to the EU and Romanian law, companies qualify as SMEs below the 250 mark for employee numbers).

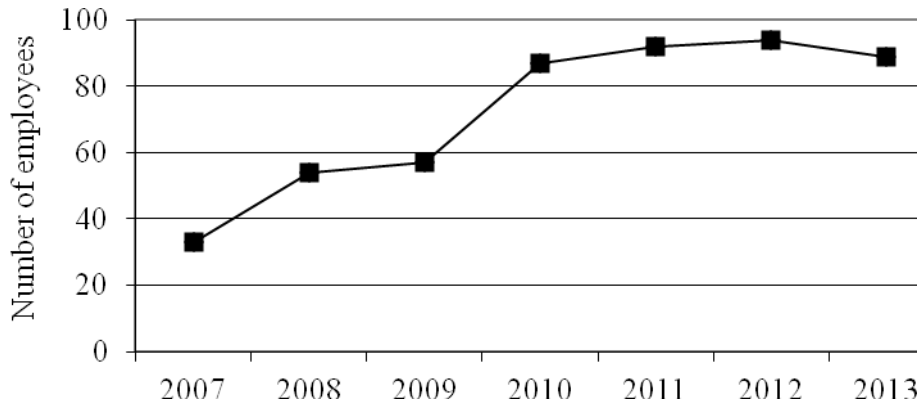
Fig. 3. The evolution of turnover for SC Matec CNC-Technik SRL



Source: Adapted by the author from www.doingbusiness.ro data

In the case of another SME which is an important supplier for SC Romania, namely Matec CNC-Technik SRL, the turnover had a positive evolution, with a significant increase over the period 2007–2011 (see figure 3). The turnover virtually doubled from year to year for a string of three years after the SME became a subcontractor for the multinational. After 2010 turnover growth slowed down and then it remained fairly stable for the next years.

Fig. 4. The average number of employees
for SC Matec CNC-Technik SRL



Source: Adapted by the author from www.doingbusiness.ro data

The average number of employees for Matec CNC-Technik SRL also had a positive development (see figure 4). The most significant yearly growth was registered between 2009 and 2010, when staff rose from 57 to 87 employees.

Both indicators analyzed - turnover growth and employee growth, show positive evolutions over the whole period (2007-2013) for both SMEs acting as main suppliers for the foreign affiliate: Becotek Metal SRL and Matec CNC-Technik SRL.

We can conclude that SC Romania had a significant positive impact on its local supplying SMEs by contributing to the growth of the size of their overall business. The quality of the operations of the local SMEs was also improved by means of the linkages to the multinational. The companies acting as suppliers were gradually forced to adopt, implement and then keep up high standards of production as well as modern managerial and organizational practices such as Fit for Quality, 5S, or Kaizen.

Conclusions

The linkages and the knowledge spillovers towards local SMEs associated with an increase of their productivity are regarded as some of the main ways in which the host country may benefit from FDI.

Furthermore foreign affiliates may also have negative effects for local SMEs when the two categories compete with each other either in product or in factor markets giving rise to crowding out effects.

Though the issue of spillovers is a hotly debated topic, empirical studies so far have not come up with a clear-cut answer about their existence, the factors that influence them and the net outcome of their effects.

In Romania, FDI often forced local SMEs to restructure their activity in order to survive in a very competitive market. The most ambitious ones went through extensive certification and quality processes, in accordance with EU norms. Clear evidence of backward linkages can be detected in the car industry, where a host of car parts makers have become a driving force in Romania's output, employment and exports.

As the analyzed case study on a large foreign manufacturing affiliate in Romania shows, the cooperation with more than 420 local SMEs led to the upgrading of their activities. Modern managerial and organizational practices were imposed by the affiliate on the partnering SMEs. These, in turn, strived continuously to improve costs, quality, sales terms and service, so as not to lose their position as suppliers.

The backward linkages formed between the multinational and the local SMEs were instrumental in increasing turnover, employment, skills of human resources, and managerial capabilities of the domestic suppliers.

While the research is an empirical one, the author is aware that the conclusions drawn from the case study cannot be generalized. However, the study sheds some light on the existence, workings and effects of the backward linkages between a foreign affiliate operating in manufacturing and the local SMEs acting as its suppliers. This contribution adds to the rather scarce number of studies carried out in the CEECs.

The insights from the empirical study are also useful for public policy. Consequently, local authorities should encourage and then strengthen backward linkages between foreign affiliates and local SMEs by solving the different market failures, taking appropriate measures to reduce the technological gap and improve the infrastructure. The increased value-added to the host economy will only accrue if SMEs are supported with financial assistance and information.

The duty of public authorities is to stimulate also the linkages between foreign affiliates and local actors (schools, universities, research centers, etc.), as the benefits of knowledge spillovers through training by foreign affiliates are larger if the technological capability of the host country is high.

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