FDI Spillovers in Slovakia: Trends from the Last Decade and Recent Evidence from Automotive Industry[1]

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Abstract

This paper examines the indirect effects of foreign direct investment, commonly referred to as spillovers, in Slovakia. It provides a theoretical framework of this phenomenon reviewing existing literature on the topic that presents some experiences of Slovak companies over the last decade regarding spillovers and describes qualitative research of spillovers in the Slovak automotive industry. The results show that spillovers are present only through backward linkage, which is related to the technology transfer from foreign customer to domestic supplier.

Keywords: *foreign direct investment, spillover effects, Slovak automotive industry*

JEL Classification: F21, F43

Introduction

Foreign direct investment (FDI) takes place in an environment, which is day by day more policy distorted. Following the advices of international trade and development agencies, governments move from creating more liberal and stable environment to providing enormous public subventions and using all measures possible to attract the inward investment.

The foreign investor is expected then to bring employment, capital, technology and increase the productivity and competitiveness of domestic companies. This kind of expectations is typical for all the transitional economies and it has been visible, especially in the 90s, in the biggest recipients of the investment among them. However, the investments can have many negative effects as well –

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each effect can be usually judged from two perspectives – a positive one and a negative one and creates a fruitful field for the academic discussion as well as for the further research.

The theoretical arguments explaining how the technology will spill over to domestic firms seem to be reasonable. The only trouble is that the evidence, which could prove the existence of such spillovers is somehow missing. If willing to conclude that policymakers use subventions to gain effects, which are generally taken as granted, but actually may not even exist, we would need deeper research, especially in Central and Eastern Europe.

The objective of this paper is therefore to provide a theoretical and practical understanding of the indirect effects of foreign direct investment (commonly referred to as spillovers effects) taking into consideration wide range of theoretical and empirical literature on this topic. In the theoretical part we will analyze the content and forms of spillovers, identify their scope, impacts on the host economies and factors influencing their existence. After a short investigation of the empirical evidence, we will provide some experience of the effects from foreign direct investment in Slovakia and present results of research on spillovers in the automotive industry.

1. Background Literature Survey[2]

The inflow of foreign direct investment has both positive and negative effects on the host economy. Thus governments are taking actions to attract FDI and offer substantial public subventions presumably to gain one of the positive effects: • creation of jobs • transfer of skills and know-how • technology transfer • structural changes • export growth • regional development • creation of clusters.

The positive effects can be in general divided into two groups-with direct and indirect influence on the economy. FDI-invested companies have been proved to be more productive than the local ones and exhibit higher productivity, which is referred to as the direct effect of FDI. More important for the economy, though harder to measure and observe, are the indirect effects, commonly referred to as spillovers. By spillovers is meant positive economical externalities emanating from FDI, which are generated involuntarily, cannot be adequately reflected in a market pricing and therefore have no cost for those profiting from them. Spillovers from FDI take place when the entry or presence of foreign company increases productivity of domestic firms in the same sector or even in other sectors of the host economy and the corporation does not fully internalise the value of

[2] The survey is not exhausting owing to space constraints.

those benefits. Spillovers arise because multinational corporations in general bring with them some kind of technological advantage – a firm specific asset, like superior marketing, management or production techniques, which enables them to compete successfully abroad. Since this technological advantage has usually the characteristics of a public good, there is a scope for positive externalities, which domestic firms can benefit from.

The theoretical literature identifies four *channels* through which the host country can boost its productivity via spillovers: imitation, skills acquisition, competition and enhanced export propensity (Blomström and Kokko, 1997).

Table 1

Driver	***Sources of Productivity Gain***
Imitation	• Adoption of new production methods • Adoption of new management practices
Competition	• Reduction in X-inefficiency • Faster adoption of new technology
Human Capital	• Increased productivity of complementary labour • Tacit knowledge
Exports	• Scale economies • Exposure to technology frontier

Source: Görg and Greenaway (2001).

Many authors consider *imitation* the most important transmission mechanism for new products and processes. Simple manufactures and production processes are easier to be imitated than the more complex ones, so the scope of imitation clearly depends on the product/process complexity. We cannot expect all processes to be dissipated by imitation, however, any improvement of local technology resulting from imitation can result in a productivity spillover and can bring benefit to local firm.

Technology transfer can occur also through *acquisition of human capital.* Multinationals demand usually relatively skilled labour in the host country and invest in this labour through training. It is not possible to fully protect such investment in human capital, because of the movement of labour to other firms, or to start new firms. Both of these effects can generate productivity spillovers via two mechanisms.

Firstly, a direct spillover to complementary workers, as skilled labour working alongside unskilled labour tends to raise the productivity of the latter.

Secondly, workers that move carry with them knowledge of new technology, new management techniques and consequently can become direct agents of technology transfer (Gőrg and Greenaway, 2001).

Competition as another transmission mechanism of spillovers is debatable. If the multinational company does not have a monopoly status in the host market, it produces in direct competition with domestic firms in the same sector. These are therefore under pressure to produce more effectively and increase their competitiveness. Such struggle to survive can indeed lead to productivity gains, but not as a result of technology or knowledge dissipation from the foreign company, thus controversial to be called spillover.

An indirect source of spillovers can be also via *market access, or export knowledge*, which basically means the possibility for domestic companies to learn from multinationals how to export. When investing abroad, multinational companies in general already have information about foreign markets and are armed with export knowledge, which domestic firms can gain through collaboration or more likely imitation. If they learn how to penetrate export markets, they can increase their productivity exploiting scale economies.

As described in many studies,[3] different *types of spillovers* have been generated, both intrasectoral (horizontal) and intersectoral (vertical). In case local firms benefit from the presence of multinational companies in their sector, it is referred to as *horizontal spillovers*. To the extent that domestic firms compete with the multinationals, these try to avoid the spillovers effect in the same sector and prevent their specific assets from leaking. They can achieve this via formal protection of their intellectual property, trade secret, paying higher wages to prevent labour movements to local firms, or they simply try to locate in countries or industries where domestic firms have limited imitative capacities. (Smarzinska-Javorcik, 2003).

On the other hand, foreign companies have no incentives to prevent spillovers in downstream, or upstream sector, increasing the productivity of their suppliers or customers. This phenomenon is called *vertical spillovers* and can take place between foreign and domestic firms active in different sectors through two mechanism – via backward and forward linkages. Backward linkage is related to spillovers from foreign customer to domestic supplier through direct knowledge trans-fer, higher requirements regarding products and services, or increased demand enabling domestic firms to exploit the economies of scale (channels of vertical spillovers). Many case studies show examples of foreign firms offering technical assistance or employees trainings to their local suppliers and helping them with searching for other customers, buying materials, or quality control. The broader the relationship is, the bigger the scope for potential spillovers effects.

Spillovers through forward linkage occur when the domestic firms become productive due to access to new, better, or cheaper inputs produced by a multinational.

[3] See, for example, Belderbos, Capannelli and Fukao (2001); Saggi (2002), or Smarzinska-Javorcik (2003).

The basic difference between the horizontal and vertical spillovers is that from the multinational point of view, the horizontal spillovers are involuntary and unwanted, leaking to domestic competitors, while the vertical are voluntary and wanted, usually being passed to domestic suppliers.

The presence of a multinational in the economy can also have *negative effects* on domestic firms. In this case it is debatable again, whether we can consider these effects spillovers, since we defined them as positive externalities from foreign firms to domestic. If we define spillovers as all the effects that the multinationals have on domestic firms, then we find the whole spectrum of positive and negative effects, not just in the area of productivity. The most important would be the so-called crowding-out effect- result of *negative horizontal spillovers.*

As Gőrg and Strobl (2004) argue, multinationals producing at lower marginal costs than domestic firms will most probably increase their output and attract demand away from these firms. Having the demand decreased, the domestic companies will have to cut their production, which if having fixed costs of production, will raise their average cost. Quite usual is also that foreign companies offer higher wages to their employees, which leads to higher wage demand in the whole economy and creates pressure on domestic firms to increase their wages as well if not willing to lose employees. This, of course, increases firm's average costs as well. The phenomenon is called wage spillovers and derives from the competitive pressures in the sector. If the domestic company cannot survive such pressure, it is crowded out by its competitor.

Negative horizontal spillovers occur if the domestic firm is crowded out by a foreign competitor in the same sector/industry. If the domestic supplier is crowded out by foreign suppliers and the negative effect influences different sector, it is referred to as negative vertical spillovers.

A logical question would be now, whether the final effect of a multinational on domestic companies is positive or negative. The answer depends on a lot of factors and is subject of many present research papers.

The incidence of spillovers is influenced by various *host industry and host country characteristics*, such as the technological gap between host and home economy and between foreign and domestic companies, absorptive capacity of indigenous firms and economy, level of education of the local labour force, nationality of investors, form and structure of foreign affiliate, mode of entry and many others. It seems clear that host country and host industry characteristics determine the impact of FDI and therefore systematic differences between countries and industries should be expected. There is strong evidence pointing to the potential for significant spillovers benefits from FDI, but also ample evidence indicating that spillovers do not occur automatically. Whether these potential

spillovers will be realised or not depends on the ability and motivation of local firms to engage in investment and learning to absorb foreign knowledge and skills.[4]

The existence of spillovers was not accepted because of theoretical arguments pointing at some possible externalities occurring from the presence of FDI, but thanks to case studies dating back to the late 1960s. Since then many authors researched the effects of FDI on the economy and particularly on domestic companies.

The *existing literature* nowadays is of three kinds. First, already mentioned *case studies*, which includes specific country experience, offer relevant information about the channels of spillovers, but are difficult to be generalized. Then, there is a plethora of *industry level studies*, most of which show a positive correlation between the presence of a multinational and productivity increase of domestic firms.[5] Their downside is that it is not fully possible to establish the direction of causality, so actually the positive association might be a result of foreign companies locating in high productivity industries instead of productivity spillovers. Another explanation for increasing productivity in a certain industry is already mentioned crowding out effect – when more productive foreign companies force the less productive domestic firms out of industry, so the overall productivity increases (Smarzinska-Javorcik, 2003). These studies are therefore not recommended to be used for measuring spillovers and all the positive results from such studies should be treated with caution.

Finally, there is also research based on *firm-level panel data*, which appear to be the most appropriate to determine the true existence of spillovers, however, most of them failed to prove them, or found only negative spillovers effects of multinationals on domestic firms in the same sector. Taking into consideration a wide range of papers using appropriate data and methodology, we have to conclude that the evidence of spillovers is surprisingly very weak. This conclusion takes us to our research aimed at searching for spillovers in Slovak companies, trying to prove their existence mainly by qualitative research. First some experience of Slovak firms will be presented and then the first results of more concrete research of technology spillovers on both horizontal and vertical level in the automotive industry.

2. Spillovers in Slovakia – Lessons from the Last Decade

Along with international trade and licensing agreements, foreign direct investment provides the most important and the cheapest vehicle for international technology transfer to Central and Eastern European countries. Multinational

[4] OECD (2002): The Economics of International Investment Perspectives.

[5] See for example Blomström and Wolff (1994).

corporations undertake a major part of the world's private R&D efforts and therefore control and produce most of the world's advanced technology. Investing abroad and setting up foreign affiliates leads then to a geographical diffusion of technology, even though not necessarily to any formal technology transfer beyond the multinational's boundaries. Still FDI is potentially the most important source of productivity growth in transition countries because of the urgent need to restructure quickly and may lead to technology leaking to the surrounding economy through spillovers.

The major entry mode for foreign investors in Slovakia has been the entry into existing companies in privatization or post-privatization era – at the beginning the typical entry mode was the creation of a joint venture with a local parent company. It was driven either by local conditions and the relationships toward foreign investors or by the legal limitations of the share of foreign capital in so-called strategic enterprises. Later at the end of the 90's and after the year 2000 we have witnessed growing number of brownfield and especially greenfield operations in Slovakia.

There is no doubt that the entry of foreign investor causes significant and direct change in the acquired companies or in the joint venture where foreign investor is one of partner companies. These changes usually start with massive restructuring including changes in product or service lines, technology improvement, lay-offs and the follow-up training of remaining labor force, development of management and transfer of management know-how and the improved productivity.

The indirect changes and spillovers we have witnessed most frequently in Slovakia include.

2.1. Change in the Local Parent Company of a Joint Venture with Foreign Partner

Many domestic parent companies were state-owned at the time of the establishment of the joint venture. Managers in the domestic parent expected the above-mentioned positive effects to spread eventually from the joint venture to the parent or to their own domestic daughter companies, but these expectations were rarely met.

Many joint ventures in Slovakia were established at the beginning of the 1990's. Since that time, all the Slovak parent companies have gone through privatization. Later, some of them faced serious financial problems, some of them went bankrupt. It is very interesting to watch this development and to realize that joint ventures in transition can have a very unusual nature with a very limited power and influence of the local parent company, no matter what its real share in the joint venture is. On the other hand, some of them have gone successfully through the process of transformation and restructuring and were privatized by their own management.

Generally stated, six cases of companies[6] we studied show that FDI had only a limited impact on the local parent companies. The extent of the change in the Slovak parent can be the result of several factors and spillovers:

• *"Unintentional learning"* – spreading of managerial approaches, business discipline, corporate ethics, new corporate cultures, and work practices. This effect is undeniable, but indirect and hard to measure. Many joint ventures in Slovakia were located on the same site as their Slovak parent companies (for example, the Slovak parent might contribute buildings from the former large production facility to the joint venture) which should theoretically make this kind of change and spillover very easy. This type of transfer is facilitated by labor force movements. Because of the higher or high salaries and wages in the FDI-invested companies, however, the movement of labor force from the joint venture to the original parent company is usually very low. Moreover, some of the practices in the joint venture are simply not applicable to other local companies (e.g., KAIZEN system at Volkswagen).

• *Intentional learning from the activity of its own joint venture.* Some Slovak parent companies literally copied the marketing methods and partially also managerial methods of their foreign partner in their own company including the ways of decisions, investment policy, and human resource management. If the question is how this was possible without the movement of the labor force or management, the answer could be found in the meetings of supervisory board of joint ventures (where of course, Slovak parent company participated) and unofficial information flow between parent companies and their joint ventures that was easy due to geographical location on the same site. The intentional learning could also be related to the wages: if Slovak parent companies do not follow the pattern of the joint venture, the best people from them had the tendency to leave and to work for a joint venture where the wages were usually moderately higher.

• *Becoming supplier of its own joint venture.* When the parent company becomes a supplier to its joint venture, their linkage has becoming direct through the quality and delivery requirements of the joint venture, but also indirect, through adapting to the "modus vivendi" of the FDI company in terms of entrepreneurial ethics and attitudes towards business partners.

• *Becoming supplier of the corporate network of foreign parent company.* Again, noticed more such cases can be found in Slovakia: one of the cases is for example Tatramat – the parent company of the previous Whirlpool-Tatramat joint venture. It has not only supplied its own joint venture in Slovakia, but it has also established a joint venture with an Italian company to supply Whirlpool-Europe network with components.

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[6] Companies in the original sample were joint ventures created at the beginning of the 90s by Slovak parent companies and following foreign partners: Volkswagen, Whirlpool, SEL Alcatel, Henkel, Hoechst and Dirickx (later all of them had been transformed to wholly-owned companies by foreign partners). However, some of the conclusions are also supported and using the experience of recent FDI-invested companies in Slovakia, for example in retail sector.

• *Internationalization* – the above mentioned case could be also used as an example when the presence of foreign investors drives local company to internationalize its operations and to create another international alliances either abroad or in the home country.

• *Becoming direct competitor of its own joint venture.* No company enters any joint venture with this immediate target, but we found such examples in Slovakia. Although competitive pressure can lead to dynamic efficiency gains in the future, at the beginning especially local parent companies understood it as betrayal.

• *Receiving dividends or cash for shares after the buy-out by foreign partner.* It may help in solving immediate problems in cash-starved Slovak companies, but there is no evidence to show that it can cause significant long-term change.

None of these impacts is generally common among all the joint ventures in Slovakia, with the exception of "unintentional learning". The impact of FDI on the local parent company is different in each case. However, based on approximately one decade of experience, certain conclusions could be drawn. Many companies we studied show that FDI has, paradoxically, a limited impact on the local parent, even though all of them entered joint ventures with the explicit intention of improving the performance of the parent firm. In our opinion, there are three main reasons for this. The first one is objective and lies mostly in an inheritance from the previous system: most factories have obsolete technologies and limited means for their renewal, i.e. they are not able to cooperate and keep pace with foreign companies, especially with the MNC (e.g., to enter their supplier networks with quality products or simply to learn from them). The next two are: (1) a very complicated process of privatization and transformation of local companies resulting in changes in ownership structures and management, and (2) high and unfulfilled expectations from the partnership and the ensuing jealousy and rivalry of local managers. If the combination of all these factors is present in the Slovak parent company, the FDI has almost no impact on it. If at least one is missing, the change and resulting spillovers are possible. Paradoxically, we find that the potential for change in the local parent depends to a much greater extent more on the attitudes of its management than on the presence of foreign partner. The deepest changes could be noticed in such Slovak parent companies that were later privatized by their own management i.e. where the active management had decision/making power and could actively influence its company.

Nevertheless, with the end of a privatization process and clearer ownership structures, we expect a more rational approach among local managers towards the creation of strategic alliances with foreign investors. Their decision will not depend on state bureaucracy and approvals as at the beginning of transition. We suppose that they will create more resource- and especially learning-oriented alliances, and that they will prefer to cooperate with more comparable, medium-sized

companies. In such cases, from the point of view of Slovak companies, the danger of take-over is not as high as with a large MNC, and at the same time, the chances that the foreign partnership will result in changes in the parent are much higher.

2.2. Change in the Local and National Business Environment

In comparison to the transfer of change to the parent companies, *the transfer of change into local environment has been better measurable and more significant.* This part deals with the influence of all foreign investors – those in the joint ventures, acquirers and those who created a fully new enterprise – a greenfield operation.

- *Influence on labor force and employment.* In spite of the decline in employment in some joint ventures and acquired companies at the beginning of their operations, the companies with FDI are important employers (for example Volkswagen, Siemens, foreign retailers rank among the biggest Slovak employers) who make significant investments in human capital. In all the FDI-invested companies we studied or interviewed, the wages are higher (sometimes as much as two times) than the local or national average. However, skill and knowledge transfer is not high because of the limited movement of managers and workers from companies with FDI and generally, low flexibility of Slovak labor force. If the labor force is leaving the FDI-invested companies, the majority of cases are that they start working at another FDI-invested company. Sometimes, managers leave for a Slovak company or build their own, especially in the case when the foreign investor cannot fulfill their carrier expectations or require too high working pace. However, the most frequent is the case when the management leaving the former employer ends at other FDI-invested companies.
- *Influence on local suppliers.* In some cases the companies with FDI are mainly supplied from the global network of their foreign parent companies, but in other cases the number of local suppliers has grown, meaning that local companies have successfully adapted to the quality requirements and entrepreneurial and cooperative principles of their partners. This learning process is significant, but it is limited by the number of companies involved in the supplier's network. The biggest foreign investor to Slovakia, Volkswagen even created a special program for its potential suppliers in which VW learned the participating companies how to comply with its standards.
- *Increase of competition.* This change is limited because the socialist idea of the division of production was based on monopolies: each factory had a different production program. This system remains intact in many ways: foreign investors often enter monopoly productions and have not directly increased domestic competition. However, since these companies import the goods from their global supplier, there is increased competition for the domestic suppliers and local producers. Increase of the competition for local companies is visible very strongly in retail sector and in retail supplier sector, especially

after the entry of global or regional multinational companies – big retailers, such as Tesco, Metro, Billa etc. on the Slovak market.

• *Development of entrepreneurship and new businesses.* This effect is possible if the local managers or workers employed in FDI companies create their own companies on the basis of their experience. Due to the necessity to have certain starting capital, this is not a usual case, however some cases were reported, especially when it comes to trading companies that are not so capital-intensive.

• *Supply on the domestic market.* The companies with FDI usually manufacture and place high-quality products on the Slovak market. In some cases, their quality may be lower than the quality of original local suppliers (private labels), but they contribute to the bigger assortment offered to Slovak customers and to wider choice for them in terms of price.

• *Export growth.* The quality of products, together with the use of distribution networks of foreign parent companies, has also led to higher exports on foreign markets. Export growth is often considered to be the proof of increased competitiveness and successful transition to market-oriented companies.

As seen from the latest rankings of the biggest Slovak companies, FDI-invested companies play important role in Slovakia in quantitative terms and are or belong to the biggest employers, to companies with highest turnover and profits. In contradiction to the situation in developed countries, most of them do not contribute to the development of the entrepreneurial sector and to the growth of competition in Slovakia. The reason of this paradox can be found in the former monopolistic and artificially created industry structure and the ensuing high capital barriers to entry. The next paradox is the big influence of foreign investors on the quality of the labor force and its limited movement from FDI-invested companies to the domestic sector. The reason could be found in the existence of a dual labor market (high salaries in FDI-invested companies) and the limited possibility for relocating (shortage of flats, slow development of home mortgages). The influence on local suppliers is also still limited, mostly because of the fact that the local companies are not yet able to meet quality and quantity requirements among large MNCs. In order to adjust (and sometimes to survive), local companies will be pressed to cooperate with foreign partners in the future to a much larger extent. One of the examples is growing car assembly sector in Slovakia and its impact on local suppliers. Local suppliers in car industry have become the target segment of our short study that was supposed to get the first information about spillovers in this industry.

To sum up the development in the 90s in this field, Slovakia also expected the stimulation of the economic growth, companies restructuring, export increases and import substitution, employment growth, creation of supplier networks and technology transfer from the investments pouring into the country. However, the

FDIs in Slovakia has been always relatively low compared to the other transitional, especially neighboring countries and in some cases the effects of the FDI – as shown – were rather limited. For example the restructuring of the companies or greenfield investment required in many cases the import of the new technologies what led to the immediate import instead of expected export growth. Slovakia also attracted many cost seekers and some market seekers among the FDI investors and not necessarily the knowledge seekers that were so expected and required by the Slovak governments and public.

3. In Search for Spillovers in the Automotive Industry

The automotive industry has become one of the main drivers of economic growth and the most dynamically developing sector in Slovakia. It represents one of the most important sectors in the economy, accounting for some thirty percent of the exports and about one fourth of Slovakia's total industrial production. With a large amount of inward investment over the past few years, Slovakia is predicted to become the world's number one car producer per capita in 2008 with annual production reaching some 850.000 cars. Considerable number of huge foreign investors (Volkswagen, PSA Peugeot Citroen, Hyundai) and domestic producers[7] acting in a highly competitive environment of an important industry could be in our opinion a good base for spillovers. The purpose of our study was therefore twofold. First, we decided to use qualitative research in form of questionnaires to see whether there is actually any potential for spillover effects in the automotive industry. Second, by shedding light on the possible channels of spillovers in the industry, we aimed at creating a broader base for further research extended to all sector of Slovak economy.

The initial survey covered 100 randomly chosen companies of all sizes in the automobile industry, out of which 34 responded. This study focuses on domestically owned firms,[9] which lowers the sample size to 15 and response rate of this target group to 15%. (The rest of the 34 responses were FDI-invested companies). Survey was conducted in November – December 2005.

[7] Volkswagen, PSA Peugeot Citroen and Hyundai Kia Motors represent Slovakia's main investors for final automotive assembly. There are around 134 suppliers and subcontractors represented in the Slovak market. The top ten include: Bosch, Delphi, Johnson Controls, Denso, Visteon, Lear, Magna, Valeo, TRW Automotive and Dana. Other U.S. based companies active in Slovakia include: Dura, Johns Manville, Taylor-Wharton Harsco, Teleflex Automotive, Tower Automotive, Molex, U.S. Steel Kosice, Plastic Omnium, 3M and Haden. The international affiliates include Sachs, Kuester, Hella, Hueck&Co., Leoni, Boge, Siemens, SEWS, Kablo Pirelli, Presskam, SAS Autosystemtechnik, YAZAKI and others. Future potential investors to Slovakia include Mazda. Honda. Toyota. MG Rover and Bridgestone. <http://strategis.ic.gc.ca/epic/internet/inimr-ri.nsf/en/gr115752e.html>

As we explained in the theoretical framework, spillovers can be both horizontal and vertical, with the latter being objectively more probable since foreign companies have no incentives to prevent spillovers in downstream, or upstream sector, increasing the productivity of their suppliers or customers but at the same time try to avoid the spillovers effect towards domestic competitors in the same sector. By this reason we decided to look first of all at the empirical evidence of *vertical spillovers*.

Due to the nature of the automotive industry in the Slovak Republic, where domestic companies mostly act as suppliers to foreign car producers, we searched spillovers only through backward linkage, which is related to spillovers from foreign customer to domestic supplier, and considered the three possible channels for vertical spillovers explained in the theoretical literature: direct knowledge transfer, higher requirements regarding products and services and movement of employees.

Direct Transfer of Knowledge from the Foreign Customer

Direct transfer of knowledge is determined mainly by the quality of relationship between supplier and customer and their *communication.* Out of fifteen researched domestic suppliers,[9] only one company stated the communication with their clients is formal and not very frequent, seven consider their communication both formal and informal frequent and other seven very frequent. Still the *transfer of technology* from client to the supplying company was in ten cases rare and in five infrequent. None of the companies experienced intensive technology transfer from their customers.

More common than the direct transfer of technology was the indirect transfer in form of technological assistance. Nine domestic companies were frequently supplied by *technical specifications of orders* and six occasionally. Eight companies learned to *develop new products/services* by virtue of their relationship with clients to some extent, four learned significantly and only three firms stated they did not learn anything in this area. Seven companies declared they have been able *to improve their marketing approach/strategy* as a consequence of the relationship with their clients considerably and eight managed this to some extent. There was no company, which would not improve their marketing/strategy when having foreign customers.

[8] At the beginning of the study we did not have any information about the ownership structure of the suppliers in the sample, therefore we needed to ask about the ownership structure in the questionnare.

[9] Each company researched had at least one main foreign customer.

Pressure for Product and Services Quality Increase Due to Higher Requirements from Foreign Customer

Eleven companies stated that their clients closely *monitor the quality of products* provided and check nearly 100% of the shipments, three said that more than 50% of shipments are inspected and only one company had a client, who inspected less than 50% of shipment, which clearly shows that there is existing pressure for quality management and production improvements. Eight companies have upgraded significantly (and seven companies to certain extent) their *technology base* and improved their *products/services quality* as a consequence of the relationship with foreign clients.

Trainings and Movement of Employees

Foreign firms *offered secondments for domestic staff, or shared personnel* with only four domestic companies. The rest almost never experienced such situation, so this channel for vertical spillovers can be considered probably very rare.

Overall Improvement

Expecting vertical spillovers through at least one of the above mentioned channels, we wanted to know whether the product/service improvements also led to *higher prospects for gaining new customers and exporting*. Five companies thought they would for sure find new customers for their products, eight saw this very probable and only one company improbable. We gained similar answers asking about exporting perspectives. Three companies saw their export prospects as excellent, nine considered them good and three neutral. We might conclude that the technological improvements led to higher possibility for finding new clients and exporting the production abroad.

Foreign investors in the automotive industry have a strong ability to pull a number of foreign suppliers with them, which then compete in the domestic market with domestic suppliers and create an environment for *horizontal spillovers*. These take place in case local firms benefit from the presence of multinational companies in the same sector.

In the theoretical framework we identified four main channels through which the host country can boost its productivity via horizontal spillovers: imitation, competition, skills acquisition (through human capital) and enhanced export propensity.

Imitation

The scope of imitation as the first possible channel for spillovers is determined on one hand by the product/process complexity and on the other by quality of relations between competitors. Two researched companies stated that there

is no *possibility to improve their production/managerial processes by imitating* foreign competitors, six thought it was partly possible and only one found the possibilities considerable. As for the *relations/communication* between domestic and foreign competitors, only three companies have friendly relationship with their foreign competitors, eight have neutral and two companies stated their relations are rare. Accordingly, the extent of cooperation was very low. Two companies did not experience a *cooperation in the area of knowledge sharing/management* at all, eight very rarely and four companies cooperate in this area only sometimes. Looking at *joint investment in the infrastructure*, the picture is even worse. With one exception, none of the companies ever cooperated with competitors in such field.

Competitive Pressure

The competitive pressure, defined as *the pressure to use the existing technology more effectively,* is according to all the companies very high. With two exceptions, the same applies for the *pressure to innovate and improve the products and services offered.*

Human Capital

Horizontal spillovers can take place also thanks to movement of labour from foreign companies to domestic. To see, whether such movement takes place, we approached a sample of 18 foreign companies in the same industry and found out that *manual workers* usually move to other foreign companies in five cases, to domestic companies in two cases and for the rest, firms stated they had minimal fluctuation. As for the *management,* in seven firms managers leave mainly to other foreign firms, in three to domestic firms and the rest again had minimal fluctuation. Even though there are examples of employees moving from multinationals to domestic firms, such cases are as presented above somewhat rare.

Export Spillovers

The possibilities for domestic companies to *learn from multinationals how to export* are again low. Nine companies do not cooperate in the are of export promotion at all, four of them very rarely and two sometimes.

Next to the positive spillovers, we described also the negative externalities in the form of crowd-out effect and so called *wage spillovers*. These take place if the domestic firms are pushed to increase their wages in order not to lose their employees. According to our research this situation did not prove to be a real threat since majority of companies questioned felt such pressure only to a certain extent.

Conclusions

The inflow of foreign direct investment has both positive and negative effects on the host economy, which can be generally divided in two groups – with direct and indirect influence on the economy. More important are the indirect effects, commonly referred to as spillovers, which occur if the entry or presence of foreign company increases productivity of domestic firms. In case local firms benefit from the presence of multinational in the same sector, it is referred to as horizontal spillovers. These can take place through four main channels: imitation, acquisition of human capital, competition and export knowledge. In case local firm benefits from the presence of a multinational in upstream or downstream sector, it is called vertical spillovers. The main channels for these types of spillovers are direct knowledge transfer, higher requirements regarding products and services, or increased demand enabling domestic firms to exploit the economies of scale.

FDI-invested companies play important role in Slovakia and are or belong to the biggest employers, to companies with highest turnover and profits. While studying the joint venture experience of Slovak parent companies with foreign investors, we found out that in the contradiction to the situation in developed countries, most of them do not contribute to the development of the entrepreneurial sector and to the growth of competition in Slovakia. The reason of this paradox can be found in the former monopolistic and artificially created industry structure and the ensuing high capital barriers to entry. The next paradox is the big influence of foreign investors on the quality of the labor force and its limited movement from FDI-invested companies to the domestic sector. The reason could be found in the existence of a dual labor market and the limited flexibility of the Slovak labor force. The influence on local suppliers is also still limited, mostly because of the fact that the local companies are not yet able to meet quality and quantity requirements among large MNCs.

After having studied the joint ventures, we have tried to analyse both horizontal and vertical spillovers in the Slovakia's automotive industry and the findings can be summarized as follows: considering vertical spillovers, even though communication between local suppliers and foreign clients was quite frequent, the direct transfer of technology did not happen. On the other hand the indirect transfer of technology in the form of technical assistance proved to be one of the possible spillover channels with domestic companies learning how to develop new product/services and to improve their marketing approach or strategies. Higher requirements from foreign customers also led to significant technology and product improvements. Spillovers due to the movement of employees were rare, but the overall picture of vertical spillovers remains optimistic as companies stated their prospects for gaining new customer and exporting their products abroad are improving.

Much weaker is the evidence of horizontal spillovers. The possibilities for imitating are low, relationships between local and foreign competitors do not lead to any significant cooperation, employees from foreign companies leave mainly to other foreign firms with better prospects and the potential to learn about exporting is weak. The only channel for horizontal spillovers is the debatable competitive pressure, which is pushing domestic firms to use existing technology more effectively, innovate and improve their products. Negative externalities in form of wage spillovers did not prove to be present either.

Results of this research are in line with other empirical studies, which did not prove the existence of horizontal spillovers, or succeeded in proving the existence of vertical spillovers and also with theoretical studies, which explain why vertical spillovers occur while horizontal do not. (See the theoretical part of this paper.) They are far from complete, but can help us understand the complicated nature of spillovers and channels through which they can take place. Further research should be aimed at searching for other possible ways for spillovers to occur and extend the sample to all the industries in Slovakia.

While conducting similar research, we always need to keep in mind that the behavior of the "FDI carriers", mostly transnational companies is purely dictated by their long-term goals. Unfortunately, many of them still see Slovakia as an ideal place for cost seekers (the best example are recent car production investments), but there is also visible that knowledge seekers attracted by the high quality of labor force have started to invest into call centers, software centers, and consider direct investing into R&D in our country. Spillover effects resulting from their presence are expected to grow and become subject of next research studies.

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