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THE ENVIRONMENT FOR FDI SPILLOVERS IN THE TRANSITION ECONOMIES

Background Paper

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I. Introduction

Foreign direct investment is often seen as an important catalyst for the economic transformation of the ECE transition economies. Its importance is seen to be not only in providing finance for the acquisition of new plant and equipment, but also in the transfer of technology and organizational forms from relatively more technologically advanced economies. FDI can also result in positive "spillovers" (externalities) to the local economy through various channels such as competition, imitation, training and linkages with local suppliers and customers, and thus enhance the benefits of FDI. In consequence spillovers have become a prominent feature of the new growth theories and related policy discussions.[1]

Attracting FDI and maximizing its growth impact is an issue of considerable importance to the transition economies as it relates to their ability to catch up with western levels of income by enhancing the efficiency and growth of local enterprises. Spillovers may be present, but not strong enough to contribute to convergence, or they might even be negative. In the latter case, and more generally in the absence of positive spillovers, the process of catching up would be held back and foreign-owned industrial enclaves would emerge.[2]

FDI is a relatively recent phenomenon in the transition economies, in most of them originating only at the beginning of the 1990s decade when the transition got under way. Thus until recently the FDI has played a relatively small role in most of these economies, and virtually none in several. Exceptions are Hungary and Estonia whose cumulated FDI flows amounted to 30 and 18 per cent of GDP, respectively in 1996.[3] Comparable figures for the Czech Republic are 15 per cent, Poland (8), Slovakia (6), Bulgaria and Slovenia (4) Russia (3) and Romania (2). In recent years at least nine transition economies have been the subject of empirical studies,[4] perhaps making spillovers in this

[1] These issues are discussed more extensively in "Economic Growth and FDI in the Transition Economies", Chapter 5 in UNECE, *Economic Survey of Europe in 2001*, No. 1

[2] The presence of spillover also bears upon the issue incentives for FDI and whether they are justified, but this question is not addressed here.

[3] Survey 2001. Chart 5.2.1 The 1996 date was chosen because it is the mid-point of most of the estimation samples used in the studies cited below. The average cumulative FDI/GDP ratio for the transition economies was about 6 per cent, compared to 9-10 per cent in the developed countries and South America and 17 per cent in South, East and Southeast Asia. The high FDI in several transition economies reflects mainly investment in energy extraction (which is generally associated with little spillover). .

[4] Bosco, Maria Giovanna. Does FDI Contribute to Technological Spillovers and Growth? A Panel Data Analysis of Hungarian Firms. Transnational Corporations. 2001 Apr; Vol. 10(No. 1):pp. 43-68. Damijan, Joze, B. Majcen, M. Knell, and M. Rojec. The role of FDI, Absorptive Capacity and Trade in Transferring Technology to Transition countries: Evidence from Firm Panel Data for Eight Transition Countries, 2001 Sept. Mimeo. Djankov, Simeon

part of the ECE region the most intensely studied in the world. Although the results vary somewhat, these studies have generally failed to find positive net spillovers and in several cases have found negative ones prevailing during 1993-1997. It is essential to bear in mind that the transition economies of the ECE region differ greatly among themselves in terms of the level of development and the stages of their transformation, and this is likely to affect their potential for creating positive linkages.

This paper will proceed as follows: [5] **Section II** will introduce the various spillover mechanisms through which foreign investment enterprises (FIEs) affect domestic enterprises (DE's).[6] **Section III** will briefly draw attention to the economic legacy of central planning and the subsequent economic and policy shocks that are likely to have adversely affected the creation of positive externalities. **Section IV** draws on the results of several empirical studies of spillovers in the transition economies. Several factors which in the presence of FIEs appear to have affected intra-sectoral spillovers are discussed from the viewpoint of potential implications. In **Section V** attention is drawn to the potential spillovers between major economic sectors and within sectors other than manufacturing. **Section VI** contains a discussion of the findings and policy conclusions relating to the diffusion of the benefits of FDI in the transition economies.

II. Intra- and inter-sectoral spillovers

Before discussing the different types of spillovers mechanisms, it may be useful to differentiate between the potential direct and indirect effects of foreign investment enterprises (FIEs—see BOX) on the local economy. The direct effects result from the fact that FIEs (as part of a MNC) are likely to have access to superior technology, know-how, and other resources that will enhance its own output, efficiency and often exports as well. FIEs can also indirectly impact the local economy by influencing the behaviour and performance of local firms through spillovers (externalities). A positive spillover occurs when local firms benefit from the FIE's superior knowledge of product or process technologies or markets, without incurring a cost that exhausts the whole gain from their improved performance. Two types of spillovers are generally discussed:[7] intra-sectoral (industry/horizontal) spillovers, which result from the presence of foreign affiliates of TNCs in a particular sector, and inter-sectoral (vertical) spillovers which are associated with the creation of forward and backward (vertical) linkages between FIEs and domestic firms.

Virtually all of the available empirical analysis addresses intra-sectoral spillovers (eg. within the 2 or 3 digit ISIC industrial branch) There are several channels through which productivity spillovers from FIEs to domestic firms in the same sector can occur.[8] Due to the presence of a FIE, domestic firms may discover the existence and profitability of new products and technology through a demonstration effect. The process may even be repeated every time innovations are transferred from the parent firm to the affiliate.[9] Second, local firms can copy or imitate the products sold by an FIE or the technology it uses. However, since this know-how or technologies are generally not available on the market, local firms may resort to reverse engineering (in the case of products) or hiring FIE employees with the required knowledge and skills. (If the technology is not FIE specific and available internationally, it may be imported embodied in capital and intermediate goods). Third, the entry or presence of a foreign affiliate can create or intensify competitive pressures on local firms spurring management to use existing technology and resources more efficiently. Increased direct competition may also prompt domestic firms to step up efforts to imitate and seek more efficient technologies abroad.[10] However, FIE competition can also reduce the market share of domestic firms, weaken their financial position

and B. Hoekman. Foreign Investment and Productivity Growth in Czech Enterprises. World Bank Economic Review. 2000 Sep. Girma, Sourafel D. Greenaway and K. Wakelin. Who Benefits From Foreign Direct Investment in the UK? Second Draft for the Centre for Research on Globalisation and Labour Markets. 2000 Jan Kinoshita, Yuko. R&D and Technology Spillovers through FDI: Innovation and Absorptive Capacity. CEPR Discussion Paper Series. 2001 May(No. 2775). Konings, Jozef. The Effects of Foreign Direct Investment on Domestic Firms: Evidence from Firm level Panel Data in Emerging Economies. CEPR Discussion Papers. 2000 Oct(No. 2586). Yudaeva K., K. Kozlov N. Melentieva and N. Ponomareva. Does Foreign Ownership Matter? Russian Experience. 2000 Oct. Zukowska-Gagelmann, Katarzyna. Productivity Spillovers from Foreign Direct Investment in Poland. Economic Systems. 2000; Vol. 24(No. 3):pp. 223-256.

[5] Greenaway and Gorg [to come] also deal with the issue of FDI spillovers.

[6] Domestic (local) firms are firms with a foreign stake of 10 per cent or less.

[7] This discussion excludes export spillovers which occur when the presence of a FIE motivates local enterprises to become exporters or to increase their exports

[8] The terms "productivity spillovers" and " technology spillovers" are used interchangeably.

[9] Kokko, A. *Foreign Direct Investment, Host Country Characteristics and Spillovers*, EFI, Stockholm, 1992.

[10] It is generally assumed that these spillover channels are most effective if the local firms and FIE are clustered.

and even drive them out of business (a negative spillover).[11] Thus it is not at all assured that the net effect of spillovers through the various channels will be positive.

There has been considerable debate about the actual importance of intra-industry spillovers from FDI. Some authorities doubt their significance because a proprietary technology exploited by a FIE is unlikely to be licensed to local competitors and it will not be available elsewhere. Moreover FIE may take steps to prevent the diffusion of its technology in the host economy (see below). This may also be one of the reasons why foreign firms often pay higher wages than domestic enterprises do (as is the case in the United Kingdom).[12] Such a wage strategy could short-circuit this potential spillover channel since FIE employees would have an incentive to stay. It could even result in negative spillovers if the higher wages attract the best employees from local firms.

Some of the same channels associated with intra-industry spillovers (eg labour mobility between firms, demonstration and imitation effects) are also involved in the formation of inter-industry spillovers. Although vertical spillovers are believed to be more important than the horizontal ones, they are difficult to analyze and, thus little work has been done in the area. It is typically assumed that vertical spillovers accompany the creation of vertical linkages.[13] In the formation of backward linkages with domestic firms, FIEs may provide:

a) Help to prospective suppliers to set up production facilities
b) Technical assistance or information to raise the standard of quality, reliability and speed of delivery of suppliers' products or to facilitate innovations; this may also impact on the suppliers' other operations
c) (or) assistance in purchasing raw materials and intermediaries
d) Training and help in management and organization
e) Assistance to suppliers to diversify by finding additional customers.
f) Financial assistance to help firms qualify as suppliers

It should be borne in mind that the existence of linkages does not necessarily imply positive spillovers, but the two are probably closely related.[14] Even if the FIE charges for the support it provides to its local suppliers (and distributors), it is not always able to extract full value of the resulting productivity increases. However in general companies are known to pressures suppliers to cut costs and prices. Linkages /spillovers may be influenced by host country characteristics, including market size, local content regulations and the size and technological capability of local firms.

III. The environment for spillovers during the transition

The transition process, particularly in the early stages, has not provided an economic environment conducive to the creation of positive spillovers/externalities. Macroeconomic performance in the transition economies deteriorated sharply early in the 1990s, systemic transformation required fundamental and rapid changes in the way of doing business and both the state and enterprises encountered severe resource constraints. Moreover all these countries had to overcome the generally negative legacy of central planning, including the lack of institutions, entrepreneurship, etc. These factors seriously weakened local enterprises, often leaving them with little capacity to respond to increased competitive pressures and to the need to integrate into the world economy.

Around the beginning of the 1990s the former centrally planned economies experienced a series of massive shocks. The collapse of that system and CMEA trading relationships resulted in huge falls in domestic output, investment and foreign trade, and access to foreign financial markets was disrupted. For example, in Eastern Europe, the Baltic States, and the CIS industrial output fell on average by 38 per cent, 64 per cent and 51 per cent, respectively, with even larger declines in some individual countries. In most east European countries, industrial output started to recover only in 1993-1994,[15] (though in Poland the upturn occurred in 1992), and with the exception of Hungary and Poland, it was still below the 1989 level in 2000. Second, the beginning of the transformation to a market based system, involved, among other things, the opening up of the foreign trade and investment regimes, subjecting local enterprises to intense foreign competition for the first time. R&D systems, never adequately focused on the commercialization of technology, were disrupted. In short, both the macroeconomic and systemic shocks severely undermined enterprise operations. Many

[11] A reduction in output pushes enterprises up their average cost curves (assuming declining average costs), which cuts profits or increases losses (see below).

[12] Girma The results are adjusted for differences in capital intensities and skill levels.

[13] Kokko

[14] Ibid

[15] *Economic Survey* , Appendix tables B.3, B4 and B11.

firms stayed afloat only thanks to payments arrears, and often politically driven subsidies and banks loans (the latter generally going un-repaid).

a) The legacies of central planning also left enterprises ill prepared to respond to the challenges and opportunities posed by the presence of FIEs. An incomplete list of generally negative factors includes:

b) A technologically **obsolete capital stock**, often based on CMEA technical standards (generally differing from their western counterparts) and a reputation for producing poor quality goods. Producing competitive goods that could be integrated into local and international supply chains was not possible with substantial new investment.

c) The **governance of enterprises** generally was not up to the task of meeting the challenges of a market economy. Under the former system, managers had become skilled in meeting plan targets, procuring inputs (often in short supply) and negotiating reductions in plan targets instead of striving for increased efficiency and maximizing profits. The obligation to fulfill or surpass production targets (the basis for salary bonuses) resulted in labour hoarding and thus substantial over-manning and low labour productivity. Often the introduction of new technology was resisted because it involved disruptions in production schedules. More generally R and D system were only loosely geared to the commercialization of products

d) Planners' preferences for large industrial enterprises and location based on political rather than economic criteria several potentially adverse implications. Enterprises isolated by distance are not well placed to benefit from spillovers which depend on the proximity of firms (agglomeration effects). Similarly spatial factors and an oligopolistic market structure (characterized by a single or a few large enterprises, whether privatized or remaining in state hands), creates the potential for rent seeking rather than the competitive responses essential for positive spillovers. Poorly located firms might also be at a disadvantage when seeking supplier status with better-located FIEs.

e) An underdeveloped housing market**,** although perhaps not as severe as in the past, may limit labour mobility potentially short-circuiting a key spillover channel; inadequate transport and telecommunications infrastructure, due to years of under-investment. (see below) [16]

f) A host of institutional deficits, in particular those that impinge on the functioning of a market economy, is also likely to have impeded the creation of positive linkages. It took a while to set up banking systems, and for much of the transition only limited funds were available to commercial entities, often only at high interest rates, short maturities (Banks often invested in government securities rather than in productive assets). Only a few countries have managed to set up functioning capital markets and only selected companies have been able to gain access.

g) However, most of these countries have achieved a well educated and skilled labour force, with a high component of scientific and technical personnel (though not accustomed to working under competitive market pressures).

During much of the transition (at least the first half of the 1990s) most managers were simply trying to keep their enterprises afloat. They were confronted by falling or very depressed output and profits , adapting operations to the new market environment (including domestic and foreign competition), and, in many cases, also preparing their enterprises for privatization. All this required rapid and profound changes in management culture, adapting to hard budget constraints, and, in more general terms restructuring enterprises (This was the period of so-called defensive restructuring**).**[17] Firms were often left in a weakened state, with virtually no access to external financing, and they responded by cutting fixed investment, employment, and R& D expenditures. In short the situation was not conducive to the creation of positive spillovers.[18] The very same adverse situation caused many governments and eventually privatized companies to seek FDI as a solution to needed investment and longer term restructuring

[16] Planners tended to neglect infrastructure such as roads because of the high capital requirements and the fact that there was no measured output.

[17] Meyer (p.138) has argued that these organizational changes have posed formidable challenges for management and leadership. and that the pre-1989 organization was not always up to the task. Awareness of the need to change was high but this did not necessarily translate into willingness to give up benefit of the old regime (eg stability and social services). Moreover, the required skills and performance criteria have often been beyond the experience horizon of individuals used to the central plan system. Meyer, Klaus E. International Production Networks and Enterprise Transformation in Central Europe. Comparative Economic Studies. 2000 Spring; Vol. XLII(No. 1):pp. 135-150.

[18] In general the empirical studies of spillovers cited below do not address these complex questions, but when attempts are made to do so it is uncertain whether the methodology is adequate.

Although the issue has not received much attention in the theoretical and empirical literature, it is suggested here that domestic firms require a combination of strategic planning and adequate resources to benefit from the presence of foreign firms.[19] Among other things, a strategic approach to enterprise restructuring requires competent corporate governance (comparable to that of competing FIEs) with an ability to understand market trends, introduce competitive products and adopt new technologies, control costs, and so on. In order to implement such plans, a domestic firm would require adequate resources to:

- Invest in new fixed assets
- Regularly upgrade human capital, including the whole range of skills from management to production and marketing staff.
- Fund internal R&D activities (salaries, equipment, patenting)
- Adopt required technical standards

As noted above, it is doubtful that many firms were in a position to adopt such an approach during at least part of the transition.

IV. FDI spillovers in the transition economies: some empirical results

Several recent studies of foreign investment has examined its direct and indirect impact on the manufacturing sector of the transition economies during (roughly) the middle of the last decade.[20] Table 1 summarizes the results of these studies. In general they studies show that foreign firms perform better than domestic firms do (adjusting for selection bias), presumably because the FIEs benefit from superior technology and, in the case of acquired firms, from pre- and post-privatization restructuring.[21] The exceptions seem to be Bulgaria, and perhaps Romania where no difference in performance was found between FIEs and DEs.[22] However, in most of the studied countries the superior performance of FIEs has created a basis for positive FDI spillovers. To the extent that the proper channels are functioning this know-how should diffuse throughout the host economy. However, these results need to be used with care because of the limitations of the data. This warning also applies to inter-country comparisons due to differences in data sources, sample sizes, dependent variables and explanatory variables, model specification, and estimation periods.[23]

a. Total spillover effects in manufacturing

This results of these studies suggest that the presence of foreign firms has not produced the expected positive spillovers benefits to domestic firms in the same industry. In fact, within the manufacturing sectors of these countries the spillovers tend to be negative on average (table 1). [24] In the case of Bulgaria, the Czech Republic, Hungary, Poland and Slovenia, at least one study yielded a statistically significant negative spillover coefficient (the other coefficients are negative but not significant). Only one estimate is available for Estonia (positive) and Slovakia (negative), and in neither case is the coefficient significant (ie there is no statistical evidence of spillovers). In Romania, one author has found a positive spillover coefficient and the other a negative one, and in both cases they are statistically significant. Only in Russia has evidence of positive spillovers been found. These latter results are somewhat surprising (as is the positive result for Romania) given the low FDI penetration and the generally poor investment climate during at least most of the estimation period.

The generally negative coefficients suggest that the competitive effects of FIEs dominated the combined impact on domestic firms of any positive technology spillovers and productivity improvements from restructuring. The latter

[19] Zukowska also notes the need for strategic planning and resources. Blomstrom, Magnus. Host Country Benefits of Foreign Investment. NBER Working Paper Series. 1991 Feb (No. 3615). Blomstrom observes that spillovers are not created automatically and that investments may be needed.

In general, empirical analyses of FDI externalities have focused on market structure and technology gaps as explanatory variables (see below).

[20] Most of the studies test for intra-sectoral spillovers in manufacturing. The exceptions are Djankov and Hoekman who also include mining, construction, retail and financial services. Konings also includes some non-manufacturing firms but the sectors are not specified.

[21] Survey 2001 Table 5.7.1.shows that in a sample of countries the growth of FIEs is faster than that of EU firms in the same sector thus resulting in some convergence of productivity levels.

[22] Damijan finds the performance of FIEs in Romania to be superior to local firms but Konings does not. In Hungary and Slovakia, Damijan finds that FIEs do not perform better than local firms, but he explains that "this is clearly a result of the poor quality of data". Damijan, p. 11.

[23] All of the studies cited here use firm level panel data with sample sizes varying from somewhat over on hundred to several thousand enterprises. The results published in the Economic Survey (tables 5.6.6 and 5.6.7 differ in that they use manufacturing sector data at the 2 digit ISIC level.

[24] It is likely that these empirical results underestimate the negative impact of FDI presence since the samples tend to exclude all enterprises that were forced out of business during the sample period, due to increased competition or for other reasons

potential source of productivity growth requires some remarks. Given the legacy of over-manning and otherwise inefficient operation, increased competition from the presence of FIEs and a hardening of the budget constraint within domestic enterprises should have forced them to restructure and shed (dishoard) labour. The resulting improvement in the productivity of the DE would show up in the empirical results as a positive FDI spillover (though it could be due to other factors as well). The magnitude and duration of the spillover would reflect, among other things, the initial degree of over-manning, the degree of competition and the application of the hard budget constraint (ie discontinuing subsidies, cutting credit lines, etc) to domestic firms (both state and partially privatized). The results in table 1 suggest that if positive spillovers were manifested in the form of labour shedding by local firms, the effect was swamped by the negative impact of increased competition.[25] Much of the reduction in company overstaffing may have occurred prior to privatization(prior to the beginning to the sample periods).

b. Factors affecting spillovers in manufacturing

In the statistical tests cited above, the only explanatory variable of FDI spillovers was the presence of the FIEs themselves (measured by the share of sectoral output or employment accounted for by FIEs). These studies show that in aggregate domestic firms are not gaining from the presence of FIEs, some of them experiencing positive spillover effects, others negative, but overall these are canceling each other out[26] Below some of those factors (eg. sector or/enterprise characteristics) that were found to cause positive FDI spillovers in the transition economies (but which were offset for various reasons at the aggregate level) are examined. These factors include competition, productivity gaps (between FIEs and DE), and investment in human capital[27] and R&D. However, there is only limited scope for comparing the results of the studies because they tend to apply different explanatory variables.

(i) Competition

Competition is generally considered beneficial for the promotion of positive spillovers, but constructing a comprehensive test for the impact competition presents various problems. There are at least three sources of competition in the host economy: the presence of FIE (also the source of the spillovers), domestic firms, and imports. As was noted above virtually all the studies conclude that the competitive presence of FIEs has a net negative spillover effect, offsetting any positive technology spillovers. The other, very limited (indirect) evidence also suggests that the effect of competition has been unfavourable. For example, results for Poland[28] indicate that FDI spillovers have been more detrimental (ie more negative) in highly competitive industries than in those characterized by low competition (though in certain low-competition industries there were positive spillovers). Similarly, in the Czech Republic technological spillovers were found in the (presumably low competition) oligopolistic sectors (eg electrical machinery and radio and television manufacture) but were absent in the (higher competition) non-oligopolistic sectors. Competition also seems to have contributed to the greater negative FDI spillovers among small firms in Russia than among large firms (assumed by the authors to operate in less competitive markets).

Although no studies have examined the impact of competitive imports on spillovers, the consequences are likely to have been unfavourable, at least in the early part of the transition. The sudden opening of these economies to import competition,[29] with little time for adjustment, undoubtedly subjected the enterprises to a massive negative shock (in addition to the other shocks mentioned above).[30] As a result enterprises in these countries were confronted with a fundamentally different adjustment problem than the gradual and predictable reduction in protection faced by the western countries in the post-war period. Western companies often benefited from long adjustment periods and extended government assistance, which facilitated resource reallocation and improvements in efficiency.

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[25] Zukowska found positive spillovers in Poland due to labour dishoarding , but only to 1991, after which the negative competition effect dominated.

[26] Girma uses this explanation of a non-significant spillover coefficient.

[27] This three factor model is used by Blomstrom; also by Girma et. al.

[28] Zukowska's measure of the competition faced by domestic firms is a composite index of industry concentration (based on the output of the four largest firms) and the rate of effective tariff protection.

[29] The control of imports by planners was suddenly replaced by a market based seem based on (functioning) tariffs and exchange rates. Sharp devaluations early in the transition did temporarily reduce import pressures while some exporter managed to shift exports from former CMEA markets to the west.

[30] Coincidentally, a change in consumer tastes in favour of western goods, available in quantity for the first time, also worked against local producers. Their import was facilitated by early foreign investment in the import-export services sector.

In the United Kingdom import competition has been found to have a positive effect on intra-industry spillovers, the productivity levels rising with the degree of import penetration (provided the technology gap is small—see below).[31] These results suggest that the competition from the presence of FIEs alone is not sufficient to create spillovers in an oligopolistic industry (in general MNCs are attracted to oligopolistic industries in part because of the lack of price competition). In these cases imports seem to provide the necessary competition to spur the creation of intra-industry spillovers (at least in the United Kingdom).

The effects of competition on spillovers is likely to be a complex function of the degree of FDI penetration, market structure, import competition, industrial sector, and the strength of local firms. [32] The relationships may also differ between countries and depend on whether or not a competition policy is in force. Given this complexity, it is difficult to determine ex ante whether an increase in competition from this or that source would be beneficial.

(ii) R & D and human capital

Several recent theoretical papers indicate that the degree to which local firms may benefit from FDI depends on their absorptive capacity. This capacity reflects a broad range of a society's capabilities, but in the empirical literature it is often proxied by a country's stocks or current investment in R&D and human capital. These investments involve somewhat different but complementary activities, and both represent the accumulation of knowledge (a key element in many of the new theories of economic growth). Theory also suggests that a host economy must have a minimum absorptive capacity to benefit from advanced foreign technologies, whether these are transferred directly to a FIE or involve spillovers from FIEs to local firms.

By raising the capacity of firms to innovate and absorb technical knowledge, R&D investment is a potential factor in the creation of FDI spillovers. A distinction is made between innovative R&D investment, through which a firm attempts deliberately to stimulate innovation and to improve its productivity growth, and absorptive R&D , which is designed to develop the ability to identify, assimilate and exploit existing technology generated by others. One study of the Czech Republic found that positive productivity spillovers are associated with absorptive investment in R&D by domestic firms and that the estimated 32 per cent rate of return is twice that of their investment in innovative R&D. [33] Only when the domestic firm performs R&D actively are there positive spillovers from foreign presence in the industry. This finding is noteworthy given that the Czech Republic has been one of the leaders in terms of R&D spending among the transition economies. However, another study of eight transition economies found evidence of positive spillovers from absorptive R&D only in Romania and of negative ones in the Czech Republic and Poland.[34] This study use data on the intangible assets of enterprises as an explanatory variable and there are questions about its adequacy as a measure of R&D activity.

In interpreting these results, it is important to bear in mind the technological legacy of central planning and the fact that the R&D systems in these countries have been in a state of flux. It is likely that both factors have adversely affected the ability of domestic firms to benefit from foreign technology. First, despite rather significant R&D investment prior to1990, negative systemic factors and the failure to sufficiently stress the commercialization of new knowledge resulted in a large and increasing technology gap vis-à-vis the developed west. This was reflected in, among other things, declining rates of output growth and generally poor quality goods which lost their competitiveness in world markets.[35] Second, according to various measures, the resources devoted directly and indirectly to R&D (in manufacturing) have fallen during the past decade,[36] presumably because of the financial challenges faced by enterprises[37] and governments, especially early in the transition. In terms of R&D expenditures/GDP, Slovenia and the Czech Republic have lead the transition economies. Hungary, Poland and Slovakia constitute an intermediate group, while Bulgaria, Latvia, Lithuania

[31] Girma. For example, within a sample of all firms with a 10 per cent technology gap (see below) and an import penetration of 66 per cent, a 1 per cent rise in a sector's FDI presence is associated with a 0.48 percent increase in the labour productivity of domestic firms. However, at one half of that import intensity (33 per cent) the corresponding rise in productivity is only 0.22 per cent.

[32] Kokko has observed that the degree of competition may not be adequately represented by market shares if the strongest competitive challenge to local firms comes from recently established foreign affiliates still operating on a small scale, but trying to capture a market share.

[33] Kinoshita.

[34] Damijan also found a positive rate of return to innovative R&D in the Czech Republic (15 per cent, the same as Kinoshita), but a negative return in Slovakia.

[35] Smolik, Joseph, "Evolution of external trade and payment of the European centrally planned economies", in J. van Brabant, ed. Economic Reforms in Centrally Planned Economies and their Impact on the Global Economy, McMillan, 1990.

[36] Knell, Mark, "R&D Trends in the Transition Economies, mimeo, March 2000.

[37] As part of a cost savings strategy by the Treuhand in the early 1990s, cuts were made in the R&D spending of enterprises in the area of the former East Germany. However, it was later discovered that their technological and competitive capabilities deteriorated sharply as a result.

and Romania have spent the least.[38] However, even the highest spending transition countries devote less resources than western economies do, especially Japan and the US.

Third, R&D activity appears to have been disrupted during the transition. Enterprises cut spending during defensive restructuring while the activities of national research institutes were generally scaled back as a part of the revamping of national R&D policies (though the measures taken vary considerably within the area). In general, the role of enterprises in national R&D efforts has increased, and presumably there has been greater emphasis on the commercialization of technology.[39] However, the overall impact of cuts in funding and changes in the structure and orientation of R&D on the innovative and absorptive capacity of these societies is difficult to judge.

Investment in human capital makes it possible to create a sufficiently qualified labour force capable of operating with new and or more advanced technologies. There is very limited empirical evidence regarding the role of human capital in the creation of spillovers in the transition economies (and none of the studies examined the joint contributions of human capital and R&D though there is increasing empirical evidence elsewhere of their complementarity[40]). The study of Russia concludes that the average education level of personnel is high enough to enable domestic firms to absorb new technologies.[41] Moreover positive FDI spillovers increase with the level of education , and this is the case in both small and medium-sized firms (though the impact of education is stronger in the medium size ones. In the United Kingdom, too the impact of FDI on the level and growth of the productivity of local firms increases with higher skill levels, (and the effect strengthens as the degree of import penetrations rises)[42]

(iii) Productivity (knowledge) gaps

Technology or productivity gaps (ie between FIEs and local firms) are often used as an explanatory variable for FDI spillovers (but unlike deficits in human capital and R&D investments, these gaps are not subject to policies measures—see below). The gap approach reflects two potentially opposing effects. On the one hand, a gap can give rise to positive spillovers because there is a certain scope for backward, less productive domestic firms to catch up by imitating the FIE leaders. In this view the larger the gap, the greater the stock of advanced knowledge available for the domestic firm to absorb and the larger the potential spillovers. On the other hand, a large gap may imply that the advanced technology of the FIE is beyond the local firms' absorptive capacity, with adverse consequences for their market position. .

Results for the United Kingdom provide support for both effects. Very broadly, small gaps are associated with positive productivity spillovers, but these disappear if the gap is very large. Large gaps are also associated with negative spillovers in low-skill, low-competition sectors.[43] In Poland it was found that the scope for positive productivity spillovers widened with the size of the technological gap, and that this partially offset the negative impact of FIE presence and competition from other sources.[44] These results suggest that at least in Poland the differences between the technologies (broadly defined) applied by FIEs and local firms are not so great as to preclude assimilation by the local economy. The ECE results indicate that there have been (often large) productivity gaps between FIEs and DEs, but it seems that the spillover impact has been negative in the Czech Republic, Hungary and Slovenia, but not in Poland. It should be noted that the ECE results are not fully comparable to those above because of the high degree of data aggregation and the use of productivity convergence as the dependent variable.

(iv) Enterprise resources and spillovers

[38] Knell. The ranking of countries is somewhat different in terms of R&D personnel and the decline in resources devoted to R&D is steeper in terms of gross expenditure/GDP than in the number of R&D personnel/employment. However, R&D spending in Hungary showed some recovery in the second half of the 1990s

[39] Knell notes that patent applications by the transition economies in the US fell sharply in the 1990's. Explanations for this include lower R&D spending , a reduced priority for patenting during defensive corporate restructuring, and a shift in emphasis in favour of absorptive R&D and the commercialization of technology (at the expense of innovation R&D which is more likely to lead to patents).

[40] Frantzen,D, R&D, Intersectoral and International Knowledge Spillovers and Human Capital: an empirical investigation", *Economia Internationale,* November 2000.

[41] Yudaeva

[42] Girma

[43] Girma. The technology gap is measured by the individual firm's total factor productive gap relative to the 90th percentile TFP of the corresponding 2 digit industry. A 10 per cent difference in TFP is taken to represent a "small" gap .

[44] Zukowska

There are other factors which are likely to affect spillovers – corporate governance, the availability of financing, infrastructure, among others, that have not received much attention in the theoretical or empirical literature (section III). As regards the transition economies, only meager indirect evidence is available.

The study of Russia[45] separates domestic firms into two groups, medium-sized and small ones, the latter assumed to be weaker financially. The results do show that the small firms are subject to stronger negative spillover effects, as would be expected. However, whether this is due to resource constraints would require more research since financing has been a serious problem for most Russian firms. In general, positive spillovers seem more prevalent in concentrated industries. This might be explained by the characteristics of such markets: weak competition and higher and more stable profits, features that would give constituent firms greater access to external finance. Similarly, the association of R&D spending by local firms and spillovers in the Czech Republic suggests that those enterprises generated enough resources to fund R&D activity in the first place.

It might be added that the empirical results cited above (the uncertain comparability of which should be borne in mind) do not suggest any relationship between progress in economic reform and spillovers from FDI.[46] The aggregate results suggest that negative spillovers (or no spillovers at all) prevail in the leading economic reformers, but also in Bulgaria and possibly Romania. However, positive externalities have been found in Russia, among the slower reformers during the sample period, and they are stronger in the fast reforming regions.[47]

V. Intersectoral spillovers and vertical linkages[48]

The discussion of empirical results above has dealt only with intra-industry spillovers within the manufacturing sector (which accounts for only a fraction of an economy).[49] The purpose of this section is to draw attention to other potential spillovers: intra-industry spillovers in non-manufacturing sectors (eg. services, construction etc) and inter-industry (vertical) spillovers within major sectors (eg. Within manufacturing, other 1 digit ISIC sectors) and between these major sectors. As noted above, vertical spillovers may be more important than the intra-industry ones. However, data limitations normally preclude statistical analysis of these effects, and hence they are rarely treated in the literature (generally only case studies are available).

Studies of vertical linkages within the manufacturing sector of the transition economies are not numerous and none of them try to determine whether there are positive spillovers. One review concludes that in eastern Europe first-tier suppliers are foreign owned, at least in part, while the second tier consists of locally-owned firms that have failed to attract foreign investors.[50] Their characteristics may cast doubt on the intensity of any spillovers from the first tier (ie FIEs) to their (second-tier) domestic suppliers. This inference may be drawn from the fact that domestic suppliers "are in the weakest position of the supply chain as they are usually not involved in product development and thus benefit less from technology transfer from the western customer. Their products are more standardized, and often of less technologically sophisticated than prior to 1989. Markets are more price competitive, especially with the introduction of internet-based auctions in procurement. Consequently they bear a major adjustment burden of changes in the product and procurement of the lead firm."[51] However, VW has developed a number of first tier local suppliers in the Czech Republic.[52]

In the transition economies, FDI has been significant in sectors other than manufacturing (eg. various services such as retail trade, banking, advertising and insurance etc). Intra-industry spillovers in these labour intensive sectors could occur through labour mobility and demonstration effects. Many transition economies have experienced an influx of large western retailers, but there have been widespread reports of small local retailers (recently privatized) being crowded out of business. In this case, the advantages of supermarkets, their management and marketing know-how, and the huge resources of the parent companies simply cannot be matched by local business. In the advertising sector,

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[45] Yudaeva

[46] Economic reform is a key determinant of FDI inflows. Survey 2001, p.

[47] Yudaeva

[48] Vertical linkages are the subject of Unctad, *World Investment Report 2001, Promoting Linkages*, New York and Geneva, 2001 and the Expert Meeting papers by F. Ruane, *Reflections on Linkage Policy in Irish Manufacturing- Policy Chasing a Moving Target*? and M. Szanyi, *Policy Consequences of FDI, Linkage Promotion Opportunities in Hungary.*

[49] As noted above some studies also include certain non-manufacturing sectors, but they do not provided separate results for these sectors.

[50] Meyer, p.141

[51] Ibid. Meyer adds that "firms may strengthen their position by supplying more than one major customer, but VW appears to constrain such efforts by requiring exclusivity to avert diffusion of its transferred knowhow". In other words a possible channel for technological spillovers is cut off.

[52] Ibid

foreign companies have made large inroads in Hungary (which already had an advertising industry in the 1980s). Apparently, the FIEs achieved rapid market penetration in part by aggressive pricing policies.[53] The entry of foreign banks has been counted on to improve the performance of the banking sector in the eastern countries, but the extent to which this has occurred is uncertain.

FDI spillovers between major industrial sectors (eg between 1 digit ISIC sectors) could stem, for example, from the large foreign investments in the telecommunications sector. Improved domestic and international communications linkages could, among other things, improve business efficiency, especially through the establishment of e-business. The latter has become essential for the integration of production systems, just- in-time delivery, etc., and countries' e-business capabilities have become a recognized indicator of their international competitiveness. Given the under-investment in services and infrastructure prior to 1990 and recent inflows of FDI there may be considerable scope for the development of vertical linkages and positive spillovers between major sectors of the economy.

VI. Discussion and policy Conclusions

The brief overview of empirical studies presented above gives evidence of positive direct benefits from FDI in the manufacturing sector in several transition economies. FIEs generally have grown faster than domestic firms, thus contributing to economic restructuring and output growth. However, the empirical evidence suggests that on average the indirect growth benefits of FDI are not what might have been hoped for. Instead of spurring domestic enterprises to better performance, the results indicate that any benefits from technological spillovers were offset by a negative competitive effect. On balance domestic firms in several countries appear to have been harmed by the presence of FIEs. Perhaps this outcome is not surprising given the adverse initial conditions and unfavourable economic environment during much of the transition period. The various shocks simply left many local firms too weak to respond to the challenges (both positive and negative) posed by FDI.

It is possible that this apparent weakness of domestic enterprises is just a temporary phenomenon, and that they will turn themselves around as they become accustomed to the new more competitive environment. However, the prospects for such a recovery might be questioned if local firms lack adequate financial and other resources (see below). It would be useful to determine what subsequently happened to the local firms that performed poorly in the presence of FIEs during 1993-1997 estimation period.

As long as FIEs themselves perform well, does it matter if net positive spillovers are not created or if domestic firms are crowded out (in the case of negative spillovers)? For one thing, a relatively rapid productivity growth in FIEs would result in the emergence of foreign-owned industrial enclaves. This is a large issue that cannot be addressed here. However, it may be useful to mention the few views on this subject voiced in the spillover literature. In Hungary, for example, the absence of positive FDI spillovers and the enclave problem has been a source of official concern.[54] The study of Russia notes that foreign competitors have driven domestic firms out of business, but it concludes that "given that most firms in the transition economies were inefficient, this development should not be regarded as negative, as it is just a replacement of inefficient firms by more efficient ones. "[55] The study of Poland notes, first of all, that "the restructuring of Polish industry initiated by trade and FDI liberalization proceeds through the elimination of relatively less productive local firms and an increase in the share of the foreign-owned sector industry… the more intensive activity of foreign firms seems to compensate their negative effects on indigenous firms."[56] However it also observes that the "process underway leads to the creation of a two-tiered economy. Since foreign enclaves are concentrated around big industrial cities, it leaves the other regions dependent on locally owned firms and their own efforts for catching up with the foreign rivals."

These views seem to ignore the potential balance of payments impact of an increasing weight of FIE firms in the economy. If for, example, FIE s are import intensive but export relatively little, an unsustainable trade deficit may arise.[57] The other issue, of course, is that profit repatriation can be expected to grow in step with the FDI stock. For an increasing profit outflow to be sustainable, FIEs (or the remaining domestic firms) would need to generate a growing trade surplus.

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[53] *Business Eastern Europe*, 23 March 2001.

[54] See for example the Szechenyi plan

[55] Yudaeva

[56] Zukowska

[57] The balance of payment implications are discussed in Survey 2001, p.

It would be useful to have more information regarding the relationship between spillovers from FIEs and the availability of resources in domestic enterprises. The creation of horizontal spillovers (and, in certain cases, vertical ones as well) is not automatic with the entry of foreign firms. Rather spillovers are likely to require a combination of strategic thinking, resources (see section III) and programme implementation on the part of domestic firms. However, some of the evidence presented above suggests that this may be beyond the capabilities of many domestic enterprises. They appear weak, either because of successive economic shocks and/or because of intense competition from FIEs and possibly imports. Poorly performing firms are not likely to be able to generate sufficient internal funds and will lack the credit histories to qualify for bank credits or capital market financing (in many transition economies these sources of finance may not be available even to creditworthy companies). The situation described above suggests a vicious circle from which some domestic firms might only be able to escape with a broad range of external assistance (managerial, financial, etc).

From the results presented above, it is clear that promoting the diffusion of the benefits of FDI is a complex task and that there are no easy or universal prescriptions. Generally, there have been two views on the types of policy measures available to governments to spread the benefits from FIE to the local economy.[58] Very briefly, one is to affect the behaviour of the FIEs by introducing various performance requirements (ie by establishing local content and R&D investment requirements). In this case, controls and direct supervision of MNCs are applied to ensure that these requirements are met. However, policy has moved away from this because, among other reasons, performance requirements seem to have had a negative impact and many of the measures are no longer consistent with countries international obligations (eg with EU and WTO membership).[59] The other approach, reflected below, involves the creation of a favourable economic environment.

Although there does not appear to be any empirical evidence, it would seem that macroeconomic stability, coherent economic policies and a favourable investment climate would foster the creation of internal spillovers and continuing technology transfer from abroad. Confidence in the economy is likely to encourage strategic thinking by enterprise managers, especially if plans involve investment in new plant and equipment. The availability of infrastructure, particularly transport and telecommunications, is important for a country's overall competitiveness, but only a few transition economies have managed to rapidly upgrade their networks. High quality infrastructure is essential for the development of just-in-time delivery systems and, more generally, the creation of domestic supplier-customer linkages and integration into international supplier chains. Access to better infrastructure could also help to increase the efficiency of spillover mechanisms by facilitating contacts and knowledge transfers between enterprises, including those that had been sited in outlying locations.

The studies cited above suggest a number of policy actions in the area of competition, education, and R&D. More attention may need to be given to creating comprehensive and neutral competition policies, ones that do not favour foreign investors. The finding of negative spillovers may reflect in part the unfair competitive advantage that many foreign firms have gained from various investment incentives (eg. tax holidays). These were often granted by host country governments to attract FDI, sometimes with the justification of creating positive externalities. A competition policy should also aim to detect and curb any instances of predatory pricing by FIEs, since this would also undermine the performance of local firms. The huge resources of MNCs make it possible for their affiliates to price so as to gain market shares. Due to the complexity and differences in the situations of the individual countries (ie in degree of FIE presence, market structures, and imports) it is difficult to generalize about competition policies. Moreover there are uncertainties, such as why oligopolistic structures seem to promote positive spillovers -- because they allow companies to generate the required resources, or because of other reasons. There is also the role of imports, which the United Kingdom's experience shows are beneficial for FDI spillovers, but too much overall competition is harmful if local enterprises are not sufficiently resilient.

Several studies have shown the importance of human capital as a potential determinant of positive FDI spillovers (in addition to helping attract FDI). The level of education and the quality of skills constitute part of the capacity of local enterprises to absorb new technology, and more generally, respond to the competitive challenge of foreign firms. In general, most transition economies rank high by world standards in terms of educational attainment[60] and in the of number scientists and engineers (required for reverse engineering). The challenge for some of the countries, particularly many CIS, is to stem the deterioration of the education systems. For example, the study of Russia concludes that while

[58] This follows Blomstrom. The arguments apply largely to the creation of vertical linkages.

[59] In principal such measures are still open to those transition economies that have not accepted such international commitments, but given the global trend toward liberal FDI regimes, to adopt them might be counter-productive.

[60] Survey 2001 table 5. 2.2.

the technical level of personnel has been sufficiently high to master new technologies, efforts must be made to maintain the quality of the education system.[61]

Beyond general education, enterprises in a broad range of economic sectors have requirements for specialized skills and know-how, and these capabilities need to be constantly upgraded. In many countries this process has been facilitated by the proximity of businesses agglomerations to universities and technical schools (in addition to insuring a supply of qualified labour). However, in-house training tailored to meet the specialized needs of firms is also important. In both cases, skill upgrading requires decisions by management and the availability of resources. One aspect of human capital that has not received much attention is language skills. The languages of the transition economies are typically not those used within FIEs or those of the international scientific, technical and managerial communities. Knowledge of foreign languages within domestic firms is a key spillover channel, also indispensable for the creation and efficient functioning of effective backward and forward linkages.[62]

A related issue involves improving the mobility of human capital to promote knowledge spillovers. The underdeveloped housing sector, including mismatches between the location of housing and demand, may be an obstacle to desired labour movements, though it should be borne in mind that increased mobility can deprive domestic firms of qualified labour.

Empirical studies of the Czech Republic and other countries points to the importance of R&D investment in domestic firms as a means of enhancing their capacity to absorb technology.[63] This suggests that national policies need to deal with R&D investment and (FDI) investment promotion in a coherent manner. National policies with the objective of attracting the R&D activities of MNCs are not uncommon, but more attention may need to be paid to increasing the absorptive capacity of domestic firms. Such an approach might be particularly justified if, as in the Czech case, the rate of return on absorption-related R&D is considerably greater than that on innovation-related R&D. It is consistent with the view, supported by European experience, that small countries (as most transition economies are) should have the capability to use advanced technology and should emphasize promoting its widespread dissemination rather than developing entirely new cutting edge technologies (often the objective of innovation R&D).[64]

Supplier (customer) development programmes (SDP) have the potential for spreading the benefits of FDI throughout the economy. Such linkages are often created at the sole initiative of the FIE or the domestic firm. However, FIEs may not be familiar with domestic enterprises (perhaps a larger issue in the transition economies than elsewhere), in which case assistance, such as matching schemes may be useful On the other hand many domestic enterprises may not be aware of the opportunities and lack the capacity to become suppliers to FIEs (or more generally become integrated in international production chains) or to use the sophisticated output of some types of FIEs. A broad range of problems may exist (market failures) which may argue for a comprehensive and coherent national programme. Such programmes, including various services and financing that can be offered by governments, are discussed for SDPs in the *World Investment Report 2001*.[65]. This publication contains descriptions of the national programmes of three ECE countries, the Czech Republic, Hungary, and Ireland, which are also the subject of accompanying papers on the latter two countries. [66]

The need for policies in the areas of competition, investment in education and R&D, and supplier promotion schemes, points to key role for effective institutions.[67] The progress toward building institutions has varied considerably among the transition economies, and even the most advanced ones have some distance to go (the obligatory implementation of the *Acquis Communataire* is a source of motivation to the EU accession countries). For example, a functioning and reliable legal system is essential because the development of vertical and horizontal linkages hinges on the enforcement of contracts. In fact it has been reported that some FIEs have opted for foreign suppliers because of the perceived (legal) risk of doing business with domestic firms.

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[61] Yudaeva. It might be added that certain countries have experienced a serious brain drain, but its impact on their capacity to absorb technology is uncertain.

[62] Attention was recently drawn to the shortage of workers with foreign language skills and its implications for the Slovak economy by J. Vanous, PlanEcon Seminar, London, October 2001.

[63] Kinoshita recommends that promotion of foreign investment be accompanied by R&D subsidies or tax breaks.

[64] Blomstrom

[65] WIR2001 op cit. (tables VI.1 and VI.2 . Measure to encourage FIEs to provide financing to domestic business are discussed on p. 180.

[66] See Ruane op cit. and Szanyi op. cit.

[67] Also see "Creating a supportive environment for business enterprise and economic growth: institutional reform and governance", Part Two, *Economic Survey of Europe 2001*, No.2 discusses the importance of institutions.

The role of institutions in supporting a strategy to enhance the creation of linkages and spillovers involves a broad range of functions including:

- A recognition by the leadership that action on the national level is necessary
- Assessment of the capabilities of local industry
- Identification and analysis of global trends to determine how a country can fit in based on its assets and potential[68] Given the pace of globalization this must be an ongoing process
- Translation of analytical conclusions into viable programme proposals
- Adoption of the necessary legislation including adequate funding
- Implementation by the executing agencies, including ongoing support for participating firms[69]
- Evaluation of the programmes [70]on an ongoing basis and periodic adjustment in response to changing conditions.

Clearly such a complex, coherent and comprehensive approach requires a strong institutional base and a long-term commitment, and considerably more than adopting a list of measures. Experience from other regions indicates that the building of linkages takes time, and this is likely to be the case for intra-industry spillovers as well [71] This would be all the more the case in the transition economies given the newness of FDI, the unfavourable operating climate, distress enterprise management during much of the transition, and so on. It also takes foreign affiliates time to become operational and profitable, and these objectives may take precedence over the development of local suppliers chains (in general the transition countries had a legacy of poor quality goods to overcome). It should be borne in mind, too, that the evidence for horizontal spillovers (in manufacturing) is mixed even in long-established market economies. Positive externalities from FDI were found in Mexico, but in Venezuela spillovers seem to be negative. The absence of intra-industry spillovers (on average) in the United Kingdom is somewhat surprising given that all the factors that appear necessarily for positive spillovers seem to be present.

[68] For example, the Hungarian policy of early and rapid privatization with foreign strategic investors is attributed in part to the research on intra-industry trade carried out by Hungarian institutes in the 1970s and 1980s. Mihalyi, Peter, Privatization as a unique form of FDI: the case of Hungary", *Seminar on FDI and Privatization in Central and Eastern Europe*, 2-3 March 2000.

[69] An example is the recent bringing into conformity of Czech industry with EU technical standards. This is a condition for many exports to the EU and participation in international supply chains. To this end, the Czech standardization agency received government to help make local firms aware of these requirements and to meet them (though some domestic subcontractors were helped by FIE purchasers). The Czech Republic is the only EU accession country that is a member of CENELEC, an EU standardization agency. Many FIE's now require ISO certification, but do not necessarily help potential partner firms acquire it.

[70] Ruane discusses some of the problems of assessing supplier promotion programmes. Nonetheless an ongoing evaluation process is essential because of ample evidence that the desired results are often not achieved (see Szanyi for examples).

[71] See UNCTAD op. cit. and Kokko p.46. Ruane points out that various Irish policies toward FDI have been pursued for several decades. .

TABLE 1

Intra-industry spillovers in selected transition economies: a summary of empirical studies

Country	*Bulgaria*		*Czech Republic*			*Estonia*	*Hungary*	
Authors	*Damijan, Majcen, Knell, Rojec*	*Konings*	*Damijan, Majcen, Knell, Rojec*	*Dyankov, Hoekman*	*Kinoshita*	*Damijan, Majcen, Knell, Rojec*	*Bosco*	*Damijan, Majcen, Knell, Rojec*
Period	*1994-1998*	*1993-1997*	*1994-1998*	*1992-1997*	*1995-1998*	*1994-1998*	*1993-1997*	*1994-1998*
Total spillovers	Neg/NS	Neg/S	Neg/NS	Neg/S	Neg/NS	Pos/NS	Neg/NS	Pos/NS
Other factors								
R&D								
Innovative	Neg/NS	..	Pos/S	..	Pos/S	Neg/NS	..	Pos/NS
Absorptive	Pos/NS	..	Neg/S	..	Pos/S	Pos/NS	..	Neg/NS

Country	*Poland*			*Romania*		*Slovakia*	*Slovenia*	*Russian Federation*
Authors	*Damijan, Majcen, Knell, Rojec*	*Konings*	*Zukowska-Gagelmann*	*Damijan, Majcen, Knell, Rojec*	*Konings*	*Damijan, Majcen, Knell, Rojec*	*Damijan, Majcen, Knell, Rojec*	*Yudaeva, Kozlov, Melentieva, Ponomareva*
Period	*1994-1998*	*1993-1997*	*1993-1997*	*1995-1998*	*1993-1997*	*1994-1998*	*1994-1998*	*1993-1997*
Total spillovers	Pos/NS	Neg/NS	Neg/S	Pos/NS	Neg/S	Neg/NS	Neg/NS	Pos/Sig
Other factors								
Competition	..	..	Neg/S	..	..	..	..	..
Human Capital	..	..	..	..	..	..	..	Pos/Sig
R&D								
Innovative	Pos/NS	..	..	Pos/NS	..	Neg/S	Neg/NS	..
Absorptive	Neg/S	..	..	Pos/S	..	Pos/NS	Pos/NS	..

Source: UNECE based on country studies (see text).

Note: Neg/Pos: negative/positive coefficient; S/NS: statistically significant/not significant

BOX 1

Implications of ownership structure

The ownership structure of firms in the transition economies may have important implications for the creation of spillovers and the interpretation of empirical studies. Economic reform in these countries has resulted in the presence of various ownership forms. The opening up of these countries to foreign direct investment allowed multinational companies (MNCs) to create foreign investments enterprises (FIEs)[a] either through greenfield investments or through acquisitions, often associated with privatization programmes. FIEs are generally defined as resident firms with at least 10 per cent foreign participation, though this may differ depending on the data set. In the empirical studies of spillovers cited in this paper, the non-FIE enterprises are referred to as domestic (or local) firms (DEs). However this term encompasses several ownership forms: fully privatized, partially privatized (ie the state retains a significant state), and fully owned state enterprises.

The privatization process and the resultant structure of domestic firms have had at least two potential consequences. First, as argued in the text, on average, domestic private firms are likely to have been weakened by various shocks and faced uncertain prospects (and for that reason may also have failed to attract foreign partners).[b] As a result these firms are unlikely to be sufficiently resilient to respond to the presence of FIEs. The other implication of DE structure is that firms within the group may behave differently, affecting the empirical results. For example, state-owned firms (or others) with access to subsidies, loans from state banks, or other assistance may not need to respond to the presence of foreign firms as would privatized firms subject to hard budget constraints.[c] Needless to say the huge differences in ownership structures and government policies towards supporting firms in the ECE region offer considerable scope for inter-country variations in the potential for FDI spillovers.

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[a] This paper uses the same terminology as the Economic Survey 2001. Foreign investment enterprise (FIE) and foreign affiliate are used interchangeably. Similarly for domestic firm (DE) or local firm.

[b] This is the other side of the selection bias issue addressed by many studies of FDI performance. They control for the fact that MNCs tend to acquire the best performing local firms and this automatically and favourably effects the measured performance of FIEs as a category.

[c] See Zukowska for the responses of different types of domestic firms in Poland.