DRC Working Papers
Foreign Direct Investment in Emerging Markets
CENTRE FOR NEW AND EMERGING MARKETS
LONDON BUSINESS SCHOOL

No. 15

FDI Spillovers in Emerging Markets: A Literature Review and New Perspectives

By
Klaus E. Meyer
Copenhagen Business School

Draft, March 2003
Do not quote

CNEM is a Development Research Centre supported by the UK Department for International Development

Contents

Acknowledgements: I thank Arie Lewin for stimulating this research, and Evis Sinani for her research assistance. Moreover, the following colleagues have been providing helpful comments: Saul Estrin, Camilla Jensen, Mike Peng and participants of the JIBS conference 'new frontiers in international business research' at Duke University.

Abstract

Multinational enterprises (MNEs) play a pivotal role in the development of many emerging markets, and have consequently received due attention by scholarly research in economics and by policy analysts. In contrast, international business scholars have been comparatively uninterested in analyzing this role of MNEs. Yet, they would have important contributions to make to these debates, in particular in two ways: Firstly, the management perspective is essential to understand the interaction between MNEs and their local environment. Secondly, the application of theories and research methodologies developed in management research provide new insights on the dynamics of MNEs in emerging markets.

The prime objective of this paper is thus to motivate international business scholars (beyond those working within a traditional economics paradigm) to engage in research on the role of FDI in emerging economy societies. I thus review existing literature, and propose extensions of the research agenda that management scholars may wish to pursue.

1. Multinational Enterprises in a Changing Global Economy

Multinational firms play a pivotal role in global economy, linking rich and poor economies, and transmitting capital, knowledge, ideas and value systems across borders. Their interaction with institutions, organizations and individuals is generating positive and negative spillovers for stakeholders in host countries. In consequence they have become focal points in the popular debate on the merits and dangers of globalization, especially when it comes to developing countries.

A solid understand of the role of MNEs in host societies is vital for both policy makers and for MNEs themselves. Policy makers are influencing the regulatory regime under which the MNE as well as local business partners operate and is influenced by politics.[1] Policy makers are interested to understand *how* MNEs influence local firms, and thus economic development and national welfare. They need to understand how policy instruments may induce MNEs to act in ways that benefit the host economy.

[1] The policy relevance is underlined by the fact that international organization have sponsored research in the field (Oman 2000 [OECD], Hansen 2002 [UNCTAD]), commissioned very informative reviews of the literature (Altenburg 2000 [UNCTAD], Blomström and Kokko 2002 [OECD], Fan 2002 [ADB]) and publish regular reports, notably the annual World Investment Report [UNCTAD].

The impact of multinational firms on their surrounding is, or should be, equally relevant to managers. Firstly, positive spillovers may be utilized to build a reputation as company concerned for its stakeholders, while negative spillovers may in the long-run trigger adverse reaction from stakeholders such a local politicians. Secondly, recognizing complementary interests as well as and areas of conflict helps in negotiation processes as it helps identifying strategies that benefit both MNEs and stakeholders in host economies. In fact, there are cases where MNE have commissioned independent studies to document their spillovers, as this might enhance their bargaining position.

Despite the policy relevance, the impact of MNE on host economies is not well understood. Wells (1998, p. 102) observed, "some FDI is good, almost certainly some is harmful. But exactly what kind of investment falls in each category is frightfully difficult to determine, even if the effects are measured against only economic criteria". Similarly, Caves (1996, p. 237) concludes his review of the literature: "The relationship between a less developed country's stock of foreign investment and it subsequent economic growth is a matter on which we totally lack trustworthy conclusions"; and Rodrik (1999) infers, "Today's policy literature is filled with extravagant claims about positive spillovers to domestic firms, [yet] the hard evidence is sobering." Having reviewed the vast empirical literature aiming to identify spillovers, I have to concur.

This paper thus puts forward some suggestions on how to advance this research agenda. The main focus is on economic spillovers. Spillovers are an empirical phenomenon. MNE are profit maximizing, and thus naturally *not* interested in creating benefits for others without obtaining a good price for it. However, spillovers may arise from market transactions if the value of the resource sold exceeds the price charge, known in economics as the consumer surplus. Thus unless the seller is able to apply perfect price discrimination, the buyer will be better off as a result of the transaction. Moreover, spillovers arise from non-market transaction when resources, notably knowledge, are spread without a contractual relationship between the owner and recipient of the knowledge. Weather foreign investors allow such spillovers depend on their opportunity costs of sharing the knowledge, and the transaction costs of establishing barriers to knowledge flows.

The interest of both policy makers and managers focuses on the specific circumstances that influence the extent of spillovers, including characteristics of investors, investment projects, local firms, and the policy framework. However, foreign investors affect their host economies, and local firms in particular, through a wide range of mechanisms. Thus the relationship between foreign investors and local businesses is complex. Moreover, the changing role of MNEs in the global economy requires a continuous reassessment of the role of FDI in emerging markets (Dunning 1994, Narula and Dunning 2000). The acceleration of FDI over the past decade raises its potential impact, while the changing nature of multinational business leads to fundamental changes in the ways MNEs coordinate their global operations, and interact with local stakeholders. *Inter alia*, I wish to mention a few trends:

- Knowledge has become the prime foundation of competitiveness for both companies and nations. At the same time, sought knowledge is more often tacit and embedded in organizations. This changes the types of spillovers that host countries seek, i.e. knowledge based resources and capabilities.
- Industrial production networks are becoming a dominant mode of coordination between firms related by long-term relationships (Chandler et al. 1998, Rugman and d'Cruz 2000).
- MNEs operate on the global stage and develop new strategies to optimize the combination of resources available at different locations. This leads to strategies like global sourcing and strategic asset seeking FDI, and in consequence more complex interactions with host economies.
- FDI is attributed an important role in building industrial clusters, which is perceived to be very important by policy makers.
- The evolution of supranational institutions and contracts has opened trade and investment regimes, lowered interference by governments in business affairs, and reduced scope for industrial policy at a national or sub-national level (Ramamurti 2001).
- Citizens worldwide are becoming more concerned with global social and environmental issues, which are not yet analyzed systematically in mainstream academic research.

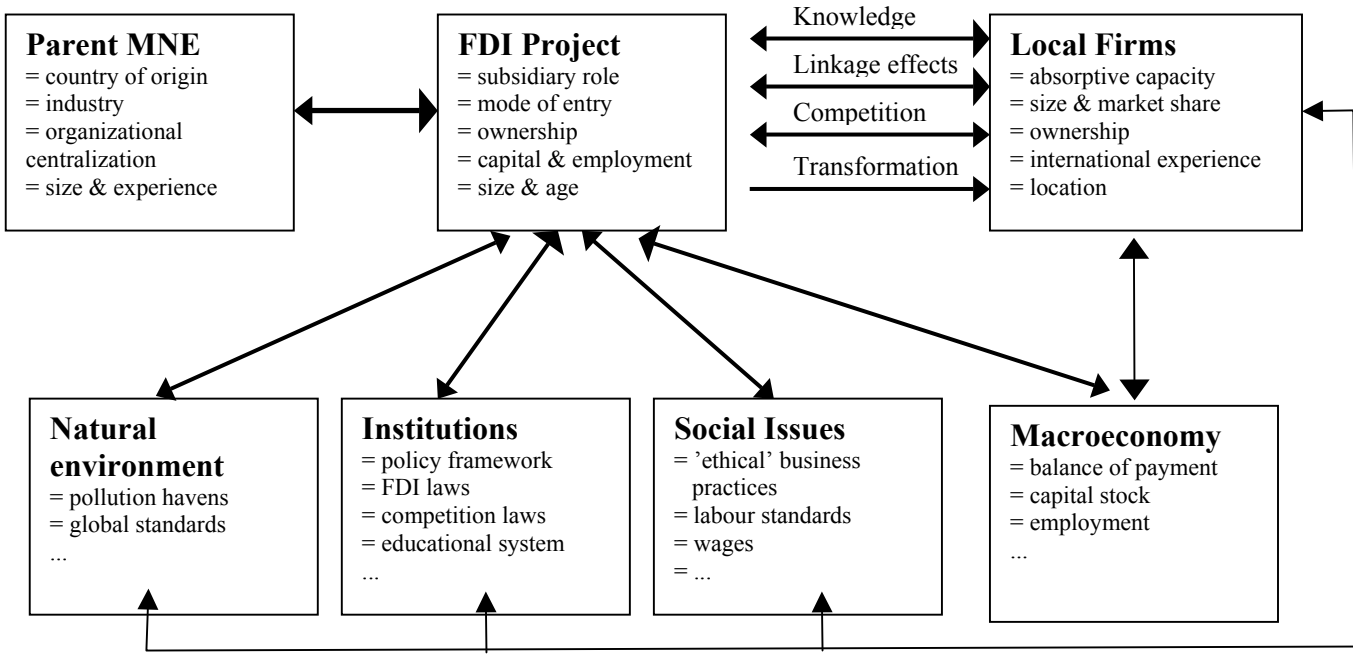
The role of direct foreign investment and multinational firms is hotly debated in policy circles, notably when it comes to emerging markets. Scholarly research has for many years analyzed aspects of this role of FDI, thus aiming to contribute to a rational assessment of the impact that MNEs have on their host societies. Yet the scholarly debate is dominated by economists (e.g. Blomstrom et al. 2000), political scientists (e.g. Moran 2002), and sociologists (e.g. Firebaugh 1998), while international business scholars have largely been sitting on the sidelines. Yet social scientists from other disciplines may not have the in-depth understanding of the inner logic of multinational firms that international business scholars would be able to contribute. Most business scholars focus on how businesses improve their own performance in terms of profits and growth, while offering few insights into the wider role of business in society, and the impact that business has on other organizations or individuals.

The main theoretical foundation applied to analyze spillovers from multinational firms is mainly industrial organization economics (including transaction cost and agency theory). Few studies consider more recent developments in strategic management research, such as the resource based view, organizational learning theories, and institutional perspectives. Given the importance of knowledge as contribution of foreign investors to host economies, it would be natural if theories developed to analyze knowledge management, should also be useful to analyze knowledge spillovers. Moreover, institutional perspectives of strategy investigating how firms adjust their strategies to the institutional environment should have something to say on how the host country institutions affect those activities that may generate positive spillovers for the host economy.

This paper reviews the literature on FDI spillovers with the aim to outline how international business scholars could contribute to this important research agenda. This review considers the channels outlines in Figure 1, with am emphasis on the interaction with local firms, where most research effort has been concentrated. Sections 3, 4 and 5 thus review on respectively knowledge spillovers, linkage effects and other interaction of foreign investors with local firms. Before, I briefly review the macroeconomic literature on the impact to set the stage for firm level analysis in section 2. Section 6 discusses broader societal issues of institution building, social issues and the environment. Section 7 discusses how spillovers may vary with the parent MNE and characteristics of the FDI project, an under-researched issue. On the

basis of this literature review, Section 8 presents an outline for the research agenda on FDI Spillovers.

Figure 1: Organizational Framework for FDI Impact in Emerging Markets



2. Macroeconomic perspectives

FDI is a transfer of capital across borders, which allows the receiving economy to increase investment beyond its on savings rate. Traditionally, development economics has focused on this addition to the capital stock as core contribution of foreign investment to economic development (e.g. Lall and Streeten 1977). FDI is a particularly appreciated source of capital because it has a more long-term character than portfolio investment, and direct investors make a stronger commitment to the host economy. It cannot be withdrawn quickly if the volatile environment goes through an economic downturn, such as the exchange rate crises in Mexico 1995, East Asia 1997 or Russia 1998. However, foreign investor's commitment comes at a price as investors expect high returns on high-risk investments, in the longer term leads to

capital outflows in terms of profit remittance or interest payments, which are reflected in other positions of the balance of payments (Figure 2).[2]

Figure 2: FDI Impact on the Balance of Payments

Selected Items

Balance of Payment	
Capital Outflows	*Capital Inflows*
Imports - Intermediate goods for local assembly and sale - Machinery for local production facilities - Investors' global products for local sale	Exports - Final goods for global markets - Intermediate goods for global markets
Service imports - Fees for licenses and other services	Service exports - Tourism and business travel receipts
Capital Export - Profit remittance - Interest payments - Repayment of loans	Capital Import - Initial equity investment - Loans from parent to affiliate

The second macroeconomic effect of FDI is their impact on the trade balance. MNEs have a competitive advantage in both accessing global markets in importing their products to local markets. The ability to produce at central locations with large economies of scale and supply markets in several countries is a core strategy of in many manufacturing MNEs. Hence, they frequently export more than domestic firms, but also import a larger share of their inputs. A large share of both exports *and* imports is typically to or from affiliated companies, i.e. intra-firm international trade. For national welfare, it is not interesting what share of production is exported, but what share of sales is local value added, and who appropriates that local value added. Hence, any analysis of trade impact of FDI has to consider their impact on both exports and imports, a simple truth that is overlooked it much of policy debates, and some empirical studies too.

In recent years, scholarly attention has moved to the impact of international trade and FDI on economic growth in the host economy through productivity-effects. For instance, imports of intermediate products and capital equipment or learning

[2] UNCTAD (1999) evaluates and discusses trends of impact of FDI on balance of payments. For instance, repatriated earnings relative to new FDI in the 1990s vary from 6% in Eastern Europe, 29% in Latin America, 33% in Asia to 75% in Africa (UNCTAD 1999, p. 165).

about advanced technologies contribute to the fundamentals enabling economic growth (Grossman and Helpman 1991). Models of the 'new growth theory' with endogenous technological progress in macroeconomic models stipulate a positive relationship between FDI and technology transfer, usually assuming a linear relationship (Wang 1990, Walz 1997).

One line of research, known as the endogenous growth theory, models technological progress endogenously. R&D, human capital accumulation and spillovers are considered as determinants of long-run economic growth (Romer 1990; Barro and Sala-i-Martin 1995). Spillover effects occur as knowledge generated by R&D in one country creates positive effects in other countries. As channels that transmit knowledge this literature focuses primarily on international trade, yet recent studies have shown that FDI is at least as important as transmission mechanism. For example, Hejazi and Safarian (1999) test a proposition on R&D expenditures spillover between countries. Using national level data for OECD countries, they find that FDI is a stronger mechanism of technology diffusion across countries than international trade.

Firebaugh (1998) analyzed effects of FDI on growth and, in rejecting the dependencia theory, [3] finds that developing countries with higher FDI tend to exhibit faster growth in the long-term and short-term. Borenstein et al. (1998) find that the effect of FDI on host economy growth depends on the human capital, measured by level of education, in the host economy. Based on a significant interaction effect, the authors infer that FDI contributes to economic growth only if the host economy has sufficient absorptive capacity. De Mello (1999) and by Xu (2000) obtain similar results. Balasubramanian, Salisu and Sapsford (1996) find that countries with outward oriented trade policies are more likely to show a positive association between FDI and growth.

[3] An influential line of thought not covered in this review is 'dependencia theory', which argues that FDI would be harmful to the long-term economic growth in developing countries, the so-called periphery. FDI would allow MNE to control and extract labour and material resources that might otherwise be used for national development. The division of labour would create a dependency on powerful actors controlling scarce capital and other resources. The dependencia theory has been developed based on Latin American experiences in the 1960s and 1970s, yet it has been largely discredited by the successful experience of East Asia (Firebaugh 1998, Hein 1992). The negative effects may have been caused by the inward-oriented trade policies in Latin America, which contrast with the outward-oriented policies of East Asia. Hence, under certain policy environments, FDI may have a negative impact.

These macroeconomic studies face a major methodological problem as the causality may be reversed. To address the potential 2-way causality between FDI inflow and economic growth, Kholdy (1995) employed Granger-Causality tests for a set of developing countries. He finds that FDI is influenced by factor endowments, technological capacities, and market size. Moreover, the causality between growth and FDI is found to run from growth to FDI and not vice versa.

Over the past decade conceptual research has pointed out that industrial clusters, rather than nations, may be the relevant unit of analysis (Audretsch 1998, Rugman and Verbecke 2002a) because spillovers occur by direct interaction of transferor and recipient. This requires locational proximity at a micro level, possible as far down as the vicinity of a local pub where engineers relax after work. However, few quantitative empirical studies depart from using countries as level of analysis. Aitken and Harrison (1999), Haskel, Pereira and Slaughter (2001) and Smarzynska (2002) tested for the possibility that spillovers pertain to a "local" region smaller than the host economy, but they find no evidence to support this claim. In contrast, Zhang (2001) finds positive evidence of spillovers at regional level within China, as does Sjöholm (1999b) in Indonesia. This suggests that spillovers may be regional in very large economies (China, Indonesia), but there is little evidence for that in medium and small economies (UK, Venezuela, Lithuania).

To sum up, the macroeconomic relationship between FDI and economic growth is empirically supported, but the direction of causality is unclear. Moreover, the mechanisms by which the two variables interact cannot be established at the level of analysis, which limits its value as basis for decision makers in politics or management. The interaction between FDI and the balance of payments is complex, and analysts have to be sure to capture all channels of impact (Figure 2). Moreover, a longitudinal perspective is required as trade and capital flows vary over the lifetime of most FDI projects.

3.Knowledge spillovers

a. Knowledge and Economic Development

Knowledge has been recognized as a foundation for competitiveness on firm and national level; and knowledge-based spillovers have been the main focus of recent studies on spillovers benefits of multinational firms. Host countries, especially developing economies, aim to create indigenous "technological capabilities", that is "skills - technical, managerial and institutional - that allow productive enterprises to utilize equipment and technical information efficiently" (Lall 1996, p. 28). Some technology is codified in blueprints or embodied in machinery, and can readily be applied in the host economy. More difficult is the transfer of more complex capabilities, such as skills to assess available technologies and to select the most suitable ones, or the managerial skills to improve organizational arrangements. Such capabilities are often tacit and reside not only within the firm, but also in its environment, e.g. in the form of linkages with other firms, or in the educational system. Transfers of such knowledge are subject to various forms of market failure.

As institutional and economic environments change, and firms grow, different organizational processes are required, leading to new challenges for management. Notably in transition economies, incumbent leaders were often insufficiently prepared as they had different tasks and developed other skills in the central plan system. The required managerial and organizational capabilities are often beyond the experience-horizon of individuals unfamiliar with a competitive market economy. Child (1993) distinguishes three levels:

- At the *technical* level, new and specific techniques have to be acquired such as methods for quality measurement, scientific and engineering techniques or the construction of samples for market research.
- At the *systemic* level, new systems and procedures have to be adopted, which requires integrative learning emphasizing co-ordination and relationships. Examples include co-ordination of integrated production systems, or production control and budgeting systems.
- At the *strategic* level, senior managers have to develop cognitive frameworks for conducting the tasks of strategic management, including reassessment of

criteria of business success and factors contributing to that success. This requires understanding of technological and managerial processes in such depth that managers can engage in innovation, select and adapt technology and take strategic decisions.

Foreign investors are a potential source for knowledge at the technical and systemic level. They can contribute not only by transferring information, but also by stimulating directly or indirectly the generation of new knowledge in the host country, for instance by setting rules and institutions of the local organization. The generation of embedded knowledge depends on the specific rules and institutions in the firm and its environment, and follows evolutionary paths of development (Nelson and Winter 1982). The transferred knowledge contributes to the range of experimentation with new practices in the host economy. Investments from a variety of origins offer a particular wide array of experimentation, and thus foster the development of indigenous and locally adapted capabilities (Kogut 1996).

Host countries ultimately want local agents to acquire the new capabilities from the interaction with an MNE. However, MNEs are profit-oriented, and thus not interested to create knowledge transfers to their environment without earning an appropriate return for it. Spillovers are by definition benefits obtained by others without paying the full price. The conflict of interest becomes apparent at the third level of managerial knowledge, i.e. the knowledge required for strategic leadership. Moreover, most MNEs transfer knowledge required for specific application and adaptation, but not the deeper knowledge required for independent technological innovations. These strategic decision making capabilities are not normally required within subsidiaries, and it may in fact be seed for local competitors to emerge.

Hence, knowledge transfer is an area with potential mutual benefits, but also of conflicting interests. I next discuss when and why multinational firms transfer knowledge to their affiliate, and then review three mechanisms by which knowledge may diffuse beyond the foreign affiliate.

b. Knowledge transfer

Multinational firms exist because they possess some firm-specific advantages that can be profitably combined with locational advantages at a site outside their home country (Rugman 1981, Dunning 1993). These firm-specific advantages, also known as ownership advantages, are often knowledge-based assets such as technological and organizational capabilities. The purpose of a foreign operation thus is to exploit or augment their resources and capabilities (e.g. Anand and Delios 2002), which requires that the capabilities are at least in part shared with the foreign operation.

Knowledge spillovers start with knowledge transfer within the investing MNE. This raises the productivity of the subsidiary in the host economy and thus contributes to tax revenues and national income and, possibly creates spillovers to the local economy. However, *what determines the knowledge transfer from MNEs to their affiliates?*

First, MNEs transfer knowledge to the extent that it serves the subsidiary to achieve it objectives, which in turn depends on the subsidiary role and the local competitive environment. A subsidiary engaged in R&D or in application of latest technology in the production process would naturally receive more knowledge from the parent than a subsidiary manufacturing products at later stages of the product cycle. Moreover, subsidiaries facing competition from technologically advanced local firms may meet that challenge by upgrading technology with additional support from the parent MNE. Hence, the technology transfer within an MNE can be expected to increase with the technological sophistication of the local environment (Blomström, Kokko and Zejan 1994).

Second, many contractual forms of international business have been developed over the past two decades as alternatives to equity investment: licensing, franchising, subcontracting, strategic alliances and others (Young et al. 1989). These new forms of international business include knowledge transfer. Hence, the relevant question is not whether FDI transfers knowledge, but whether FDI is the *most suitable* mode for inward technology transfer?[4]

[4] The East Asian experience suggests that there are multiple paths to success (Lall 1996): Japan, Korea and Taiwan pursued an active policy of technology acquisition while restricting inward DFI. On the other hand, Hong Kong, Singapore and Malaysia relied very heavily on DFI. Nevertheless, all these countries have been extra-ordinary successful.

The internalization literature (e.g. Caves 1971, Buckley and Casson 1976) suggests that firms prefer direct investment to transfer knowledge as knowledge has public good properties and FDI can prevent undesired diffusion. From the receiving country's perspective, the diffusion would represent a desirable positive externality. However, governments must acknowledge that, unless they offer the transferor protection of his intellectual property, they may not get access to the know-how at all. This leaves a bilateral bargaining situation.

A different line of argument arises not from the public good nature of knowledge, but from its tacitness. Competitive advantages of firms are based on often organizationally embedded knowledge, which cannot be learned rather than adopted from blueprints but can only be transferred through personal interaction. Its transfer requires a complex learning-by-experience process that cannot be organized via markets (Kogut and Zander 1993). The transfer of tacit knowledge is in fact not free but fairly expensive (Teece 1977). The changing nature of technology necessitates different acquisition strategies as more complex and tacit knowledge becomes, the less feasible is licensing Thus DFI becomes the most suitable mode for importing tacit managerial know-how. Even so, the transfer by a foreign investor to an affiliate takes time.

A major element in the transfer of technology is the training of local employees at all levels of the organization, from low-skilled manufacturing operatives through supervisors to technically advanced professionals and top-level managers (Blomström and Kokko 2002). The training may be provided in formal training courses in the subsidiary or elsewhere in the network of the multinational enterprises, as well as through on-the job training in close contact with expatriates or trained local staff. There is ample evidence that MNEs invest more than local firms in training and staff development (Gerschenberg 1987, Chen 1983, UNCTAD 1994). However few studies explore how and under which circumstances MNEs train foreign staff, and to what extend such training creates benefits that are not appropriated by the investing firm. For instance, training may serve to identify the most qualified individuals for international careers, who thus work for the MNE outside their home country, and accelerate a brain drain.

Hence, intra-MNE knowledge transfer varies across FDI projects, and this influences the potential for knowledge spillovers. The literature on knowledge spillovers ought to integrate the analysis of intra-MNE transfers when analyzing actual spillovers.

c. Intra-Industry Knowledge spillovers

Knowledge spillovers within an industry are often expected from **demonstration effects** (also known as contagion effects, or imitation effects). Demonstration effects work through the direct contact between local agents and an MNE operating at different levels of technology (Kokko 1992). After observing a product innovation or a novel form of organization adapted to local conditions, local entrepreneurs may recognize their feasibility, and thus strive to imitate them. Prior to such an encounter, local entrepreneurs have limited information about the costs and benefits of new methods. Therefore, they may perceive the risk of investment as quite high. As local businesses come into contact with existing users, information about the technology is diffused, the uncertainty is reduced, and imitation levels increase (Blomström and Kokko 1996). The learning through observation affects not only technological innovation, but also new management techniques and new ways of inter-firm division of labor. FDI introduces an 'existing proof' of viable paths of development (Kogut 1996). This demonstration effect has quasi-public good characteristics as firms can observe the outcome of organizational innovations by successful companies.

Moreover, MNEs may open new export markets, and open up new export markets for local followers that can build on the country of origin reputation that foreign investors may help building, and use the same trade channels. MNEs are more likely to share such general knowledge, as it is less industry-specific and not part of their core capabilities and its diffusion to local businesses does not endanger their own competitive advantage (Altenburg 2000).

Formal economic models often follow Findlay (1978) to present spillovers as increasing with the difference in technological levels between domestic and foreign firms in the industry. Moreover, the technology gap can be affected by the learning capability and saving propensity of the host country and tax rates on MNEs' profit. Wang and Blomström (1992) extend this line of theoretical work by modeling spillovers as endogenous result of the interaction between MNE affiliates and local

firms. They consider the costs of technology transfer, and incorporate spillovers in firms' own decision making. Both local firms and foreign firms can influence the technology gap, and thus indirectly the extent of spillovers. Local firms build learning capabilities to adopt technology foreign firms, which reduces the gap, while affiliates will have to import more technology from MNEs in order to expand the gap. Spillovers are a result of the difference in technology and interactions between foreign and local firms. Authors in this tradition thus hypothesize that spillovers increase with foreign presence and that the size of spillovers increases with the size of the technology gap. However, the positive relation between technological gap and spillover is based on an assumption that can be traced back to Gerschenkron (1962), and for which empirical evidence is unconvincing (see below).

A different critique of the demonstration effect questions the public good nature of knowledge (Fan 2002). This literature assumes that at least to some degree knowledge can be transferred without costs to the transferor. However, knowledge is increasingly private and legally protected, or tacit and can only be transferred through direct interaction between transferor and recipient. Hence, the extent of knowledge transfer depends on actions of both firms, and is not automatic, as models implicitly assume.

A more observable channel of spillovers within an industry, and beyond, is the movement of employees. MNEs build local human capital through training of local employees, yet these highly skilled individuals that may move to locally owned firms or may start their own entrepreneurial businesses. Even rank and file staff acquire skills, attitudes and ideas on the job through exposure to modern organization forms and international quality standards. Labor mobility can lead to substantial improvements in productivity throughout the economy by transferring tacit knowledge that could not be transferred through informal contacts between firms.

However, MNEs naturally tend to discourage highly trained employees from leaving by paying salaries above local standards. Thus labor mobility would be low in emerging economies where MNEs have substantial advantages over domestic firms. Empirical evidence on spillovers from labor mobility is far from conclusive. Studies focusing on staff in MNEs find that most employees that received extensive training stay with their MNE. For instance, Gershenberg (1987) finds only 16% of labor movement from MNEs to Kenyan firms. On the other hand, studies of successful local firms find that many entrepreneurs of top managers had prior links to MNEs. For

example, Katz (1987) reports that many managers of local firms in Latin America started their career with MNE subsidiaries. Altenburg (2000) reports that spin-off electronics companies in Malaysia maintain close relations as suppliers and subcontractors with the MNE, while Hill (1982) makes similar observations in the Philippine appliance and motorcycle industry.

This evidence suggests that the movement of employees may not be large in terms of the number of individuals moving to local firms. However, those that do leave may have a substantive impact on the development of indigenous firms, especially if they become entrepreneurs and set up their own businesses. Such movements may not be against the interest of the multinational firm if the new firms become business partners, for instance as suppliers, or by advancing innovations that developed within the sphere of the MNE but could not be pursued further as they fell outside the core competences of the firm. Relating these insights to the literature on entrepreneurship and spin-offs may further enhance our understanding of these types of spillovers.

d. Empirical evidence on intra-industry knowledge spillovers

Knowledge spillovers are difficult to quantify because "knowledge flows … leave no paper trail by which they may be measured and tracked" (Krugman 1991: 53). The economics literature has thus developed a number of proxies such as 'technological distance' (Jaffe 1986), incidences of innovations (Geroski 1986) or patent citation data (Branstetter 2000) to trace how R&D or innovations in one firm affect other firms. The literature on FDI spillovers has focused more indirectly on performance changes of potential recipient firms. Productivity spillovers and market access spillovers are measured by changes in local firms changes in, respectively, productivity and improved access to international markets (Blomström et al. 2000).

I review the empirical literature after presenting the pertinent theoretical arguments to be tested. In this section I thus focus only on *intra*-industry spillovers. Spillovers between related industries will be discussed after review of theoretical arguments for *inter*-industry spillovers.

The number of empirical studies assessing the incidence of intra-industry spillovers to local firms is fast growing (see Appendix 1), and reviews of this literature have appeared (e.g. Görg and Strobl 2001). Before embarking on a discussion of the findings, two methodological notes are in place.

Firstly, the studies use different types of datasets, cross-sectional data and panel data. Caves (1974) analyzed cross-sectional data in his pioneering work, and similar data have been used in many subsequent studies. However, this methodology makes strong assumptions concerning the existence of an equilibrium. Moreover, the association between FDI and industry productivity may be a result of MNEs entering industries with higher productivity.[5] Theoretical perspectives such as the OLI paradigm suggest that MNEs operate in technology intensive industries, such that reverse causality is highly plausible. A different methodological concern is that higher productivity in an industry does not necessarily imply spillover: It may be that inefficient producers in the same sector are crowded out by the multinational firm and have to close down – hence the average productivity in the remaining domestic industry rise even if no change occurred in the surviving firms (Smarzynska 2002).

With the emergence of panel data techniques and the corresponding software, Haddad and Harrison (1993) analyzed panel data, and this approach has been employed by most of the subsequent studies. The two approaches systematically lead to different results. Görg and Strobl (2001) show that studies using cross-section-data are delivering systematically more positive estimates of the spillover coefficients than panel data studies. In consequence, we concentrate on cross-sectional studies when assessing the overall message arising from this research. The emphasis on studies employing recent data is also imperative when considering policy implications, because of the changing nature of FDI, of interaction with local agents, and of host country policy regimes.

The studies moreover vary in their level of analysis as some studies use firm level data, whereas many older studies use industry level data. According to Görg and Strobl's (2001) meta-analysis, this does not appear to lead to systematic biases.

Appendix 1 lists empirical studies on spillovers. The results for panel data research in developing countries show negative effects in two major studies by Aitken and Harrison (1999) on Venezuela 1976-89 and Kathuria (2000) on India 1975-89. Other studies such as Haddad and Harrison (1993) on Morocco 1985-89 or Kugler (2001) on Columbia 1974-98 find insignificant effects. For transition economies, the evidence is even less clear. Liu (2002) in China, Yudayeva et al. (2000) in Russia and

[5] Blomström, Kokko and Zejan (1994) and Kokko and Blomström (1995) analyse the determinants of technology transfer in terms of royalties paid to parents, and found that MNE increase technology transfer in response to competitive pressures from local firms. Hence an association of FDI with higher levels of technology in local firms is likely to be based on a 2-way causality.

Sinani and Meyer (2002) in Estonia find positive effects, while other studies find negative effects in Bulgaria, Romania (Koning 2001) and the Czech Republic (Djankov and Hoekman 2001). However studies in transition economies employ relatively small datasets of selected sub-industries or short time periods. Hence, the overall evidence does not support the proposition of intra-industry productivity spillovers except under special circumstances, such as transition from plan to market.

The technology gap hypothesis also attracted considerable attention by empirical researchers, but they do not find empirical support. Haddad and Harrison (1991) find that FDI in Morocco has a greater impact on reducing the productivity gap between foreign and domestic firms in the case of a low initial gap. Kokko (1994) finds that in Mexican industries with high technology gap, there is no evidence that higher foreign presence would increase productivity of local firms. Kokko, Tasini and Zejan (1996) find no evidence of spillovers in Uruguay in the overall sample of firms; but spillovers are significant for the subsample of industries with a small technology gap.[6] Similar results were obtained by Tsou and Liu (1994) for Taiwan. Hence, I concur with Fan (2002) ***not*** **to maintain the hypothesis** first proposed by Gerschenkron (1962) and widely assumed in economic models **that spillovers are an increasing function of the technological gap**.

Further research ought to follow Liu et al. (2000) and test for **non-linear relationships** between the technological gap and productivity spillovers received by local firms.[7] *Potential* technology spillovers increase with the technology available in the FDI firm, which increases with the gap. However, the *realized* spillovers decline as firms fall too far behind to be able to absorb the technology, which declines with the gap (Blomström and Sjöholm 1999). Such non-linearity between strategic targets and prior knowledge has also been shown in firm level studies in transition economies as a result of, among other causes, cognitive gaps of managers (Newmann 2000).

[6] Technology gaps are constructed as the ratio of average of value added per employee of foreign firms to the average of value added per employee of domestic firms, and small gaps identify cases when foreign technology is useful for local firms and where local firm posses the skills needed to apply or learn the foreign technology.

[7] Patibandla and Petersen (2002) argue that within the Indian software industry, foreign investors with higher-level technologies generated larger spillovers. This does not contradict the above generalization based on cross industry studies, as local firms in this industry had strong technological capabilities, such that the gap may not be very large.

e. Absorptive Capacity

A related line of theoretical work emphasizes the recipient's own capabilities and initiatives. A broad consensus suggests that countries need to certain level of indigenous human capital to be able to benefit from knowledge transfer by multinational enterprises (e.g. Lall 1992). This argument has been theoretically developed with reference to concept of 'absorptive capacity' (Cohen and Levinthal 1989, 1990). Absorptive capacity is the firm's ability to recognize valuable new knowledge, integrate it into the firm and use it productively (Lane and Lubatkin, 1998). For private firms to utilize knowledge encountered through interaction with foreign investors, they have to make their own investment in R&D and employee training, and adapt organizational structures that allow for innovation. Firms must have the appropriate absorptive capacity in order to select, acquire and integrate knowledge from other sources. Prior related knowledge as well structural characteristics of the organization contribute to a firm's absorptive capacity. In other words, in order to learn appropriate knowledge, firms may have to develop an adequate absorptive capacity (Cohen and Levinthal, 1990).

The capacity of organizations to absorb knowledge and to process information depends not only on individual learning. Rather, organizations form a context for individuals governing their ability to augment and create knowledge (Nonaka and Takeuchi, 1995). A firm's absorptive capacity is a function of characteristics of the organization itself, notably its organizational structure and combinative capabilities (Van den Bosch et al., 1999).

In emerging markets undergoing major liberalization, local managers may lack experience on how to act under the conditions of a competitive market economy. This applies in particular to transition economies (Uhlenbruck et al. 2003), but also economies implementing major reform of the institutional framework governing corporate strategies. Hence, firms may be equipped with little prior knowledge that would allow them to adequately interpret the information acquired to make the optimal decisions on how to use the knowledge encountered in contact with multinational firms. In other words, insufficient absorptive capacity may hinder critical learning processes at the firm (Cohen and Levinthal, 1990; Fiol, 1996).

Empirical research on absorptive capacity has been conducted as firm level and on industry level, and both lines of inquiry underline the importance of indigenous human capital. Liu, Siler, Wang and Wei (2000) find that foreign presence in a sector positively affects the labor productivity of domestic firms. Furthermore, the interaction of the spillover variable with intangible assets (as proxy for absorptive capacity) is positive and significant suggesting that domestic firms with high intangible assets benefit more from the foreign presence in the sector. Hence, local firms ability to use spillovers from FDI depends on their own technological capabilities, which forms part of their 'absorptive capacity'. Also, Kathuria (2000, 2001) finds that spillovers depend to a large extend on the investment by local firms in learning and R&D, which enables them to de-codify and apply received knowledge.

Some studies find other characteristics of local firms to influence received spillovers, and may be interpreted as providing indirect evidence for the concept of absorptive capacity. One could expect that foreign-owned firms are more flexible and promoting learning than domestic private firms, which in turn are more flexible than state-owed firms. Buckley et al. (2002) find that in China cooperative-owned firms receive larger spillovers, while state-owned firms experience negative spillovers. Similarly, Sinani and Meyer (2002) find privately owned firms to be more likely to benefit than state-owned firms in Estonia. Feinberg and Majumdar (2001) find that inward foreign investors in the Indian pharmaceutical industry benefited from each others R&D spillovers, while they could not identify spillovers to local Indian firms. This variation may be grounded in the different absorptive capacity across ownership types.

In studies of international joint ventures in Hungary, Lane et al. (2001) and Lyles and Salk (1996) confirm that capabilities to learn from partners is a tacit resource underlying the competitive advantage of a joint venture. Using survey data, rather than statistical data, they focus on the transfer of market-based capabilities MNE parents to Hungary-based joint ventures. Such learning not only entails absorbing new ways of doing business, but also requires some "unlearning" of existing organizational routines not conducive under the new circumstances (Lane, et al., 2001; Lyles and Salk, 1996).

To sum up, recent theoretical developments by business scholars on absorptive capacity have motivated empirical scholars to include human capital and intangible asset proxies in their studies. The evidence is fairly consistent, providing strong support for the hypothesis that absorptive capacity is important for receiving knowledge spillover benefits, even though vague measures of the concept have been used. Yet, the full potential of the concept of absorptive capacity is yet to be exploited. Future research ought to explore the concept in more detail to assert what contributes to a strong absorptive capacity on the firm level as well as on the national level.

f. Two myths and one promising avenue for future research

As a conclusion on intra-industry knowledge spillovers, we have to acknowledge that two of the concept widely used in the theoretical literature fail to gather convincing empirical support. The evidence on intra-industry knowledge spillovers is, if appropriate data and methodology is used, weak (except in transition economies). Similarly the technology gap hypothesis fails the empirical test. However, the evidence is very supportive of the importance of absorptive capacity. Spillovers emerge if local firms develop capabilities to decode, interpret and apply knowledge, for example by investing in human capital and in organizational structures that support learning. Thus future research ought to focus more on absorptive capacity to contribute to broader research agenda on the conditions under which spillovers emerge.

4. Inter-industry linkage effects

Direct linkages between firms in vertically related industries have long been acknowledged as major conduit for potential spillovers. The spillover literature has explored the nature of "forward and backward linkages", while management scholars have started to analyze "international production networks" as dominant mode of competition in a globalizing world economy. Recent empirical studies have shown such vertical linkage effects on the basis of firm level panel data.

a. Forward and backward linkages

Forward and backward linkages can generate productivity spillovers in industries related to the foreign investor. Foreign firms often purchase intermediate goods from domestic suppliers due to for instance high transportation costs and/or local content requirements. These backward linkages create spillovers through several mechanisms (Lall 1978, Smarzynska 2002):

- Foreign investors may transfer knowledge directly to local suppliers by training and even joint product development. Already Lall (1978) observed that MNEs improve the productivity of indigenous firms by providing technical assistance and training of employees to increase the quality of suppliers products', by helping in management and organization, and by assisting them in purchasing of raw materials. Moreover, the FDI may increase demand for intermediate goods, and thus allow local suppliers to realize scale economies. This interaction generates spillovers if the transferring multinational firm is not reaping the full benefits of the transferred technology, for instance by lowering purchasing prices (as it often may do, due to unequal bargaining power).
- Foreign-owned customers may set higher requirements regarding product quality and service-aspects of the supply relationships, such as just in time delivery, thus providing incentives for improving product quality and production processes.
- Multinationals acquiring local firms may break existing supplier linkages in favor of sourcing internationally. This increases import competition and force local firms either to upgrade for instance by themselves seeking a foreign partner, or to exit (Meyer 2000).
- Trained employees may move from the foreign investor to its local suppliers or customers, for instance in a process of outsourcing. This more likely than movements to competitors as employment contracts often inhibit moves to direct competitors.

Forward linkages have received less attention in the literature, yet downstream businesses can benefit through similar, complementary channels:

- Local firms acting as marketing outlets for foreign investors may receive considerable support in form of training in sales techniques and supply of sales equipment such as umbrellas or refrigerators, and by generating more economies of scale. In more complex form, local firms may operate under a franchise agreement with a multinational brand, thus receiving extensive training and marketing support (Altenburg 2000: 12-13).
- Local industry may benefit from supplies of intermediate goods and machinery from multinational firms if these provide better quality products, and more comprehensive after-sales services than previous local suppliers. "Many transnational producers of machinery, equipment or intermediate goods provide assistance to their customers … Most commonly they send specialized personnel to train the customers workforce on how to use the acquired machinery or equipment and provide repair service, but in many cases the transfer of knowledge goes much further, providing information on international quality standards and market trends" (Altenburg 2000: 15).
- FDI in infrastructure and business services has a direct impact on productivity its customers. In industries such as telecommunication, foreign investment leads to substantial improvement of services required by businesses; in other cases, such as accounting or IT services, foreign investors provide services previously not available locally.
- Local industry may also benefit from commodities such as ores or agricultural products for further processing. However, this effect may be theoretical as there is little evidence that commodity suppliers would influence their customers (Altenburg 2000: 7).

These backward and forward linkages are created by various forms of co-operation between foreign investors and local suppliers, from arm-length contracts to technology contracts like licensing, to strategic alliances. The more intensive and the more complex the transactions, the more likely knowledge will be exchanged. However, whether this creates a spillover depends also on the relative bargaining

power of the partners, which in turn depends on the firms' resources and capabilities contributed to the relationship. Suppliers that manufacture intermediate goods with technological specialization and/or economies of scale have some degree of autonomy and bargaining power. On the other hand, local suppliers providing products based on low labor costs face less favorable terms, while suppliers serving during peak demand periods need to be very flexible to cope with high uncertainty (Altenburg 2000).

The incentives structure of foreign investors suggests that spillovers to related industries are more likely than within the same industry. Multinational firms have incentives to prevent spillovers within the same industry because they may strengthen their competitors. No such competition concerns apply to forward and backward linkages.[8]

The extent of such vertical spillovers varies across industries and projects. It depends, for example, on the interdependence of the supply chain, and the extent that manufacturers rely on intermediate products as inputs, that in turn have to produce locally due to transportation costs or the need for direct interaction between the firms. The market orientation of the foreign investor may matter too: local market oriented firms may find it easier to find local suppliers meeting quality requirements. On the other hand export oriented manufacturers may be integrated in the parents global sourcing strategy and find it difficult to find local suppliers that meet their global standards. Yet if they source locally, then the associated spillover may be even larger.

b. Access to International Production Networks

Inter-firm linkages have intensified in recent years as international production networks, rather than multinational firms, dominate the globalizing world economy (Chandler, Hagström and Sölvell 1998, Borrus, Ernst and Haggart 2000, Rugman and d'Cruz 2000). This has fundamental implications for the ways in which multinational firms interact with local firms, and in consequence for the economic development of emerging markets. Multinational firms at the core of a production network transplant network structures when undertaking FDI. Their global sourcing changes the nature of market transactions in the industry and raises the barriers to entry for potential new suppliers, even when a new FDI plant is established.

[8] Markusen and Venebles (1999) suggest that, theoretically, vertical spillovers can lead to the development of a strong local supplier industry, which in turn provides a basis for new entries in the downstream industry. As these entries developed they could, theoretically, crowd out the original investors.

For instance, car-makers extensively use outsourcing and modular production to reduce value-added in-house to focus on development, marketing and coordination of external business relationships (Dicken 1998, Nichiguchi and Anderson 1995). They organize their supply-chain through a network of long-term business relationships, selecting the suppliers with technological and organizational capabilities to fulfill their requirements. The number of interfaces that car-makers manage on their supply side is reduced by outsourcing large modules rather than only parts, and by creating multiple layers of suppliers. The 'disintegration of industry value-chains' (Borrus and Zysman 1998) and vertical specialization lead to increasingly complex interfaces.

Suppliers develop customer-specific know-how and contract-specific technologies. In close cooperation, capabilities are developed through experiential learning in the business relationship. The learning process reinforces mutual interdependence and strengthens the benefits of continuing the relationship. Moreover, long-term contracts provide suppliers with a predictable demand and thus encourage product innovation by reducing concerns over sunk costs of development, or of monopsonistic exploitation of productivity advances by the manufacturer (Nishiguchi and Anderson 1995). Suppliers can thus become "original equipment manufactures" for instance in the electronics industry.

The network economy moreover led to the emergence specialist international suppliers of specific types of production processes such as electronics assembly (e.g. Flextronics, Videoton), and businesses services such as transport and logistics (e.g. DHL, Li & Fung, Mærsk). These suppliers to brand name manufacturers are themselves becoming global enterprises with major operations in emerging markets. In industries such as electronics and automotives, they serve as first-tier supplier, and may work with local firms as second-tier suppliers.

The evolution of international production networks as dominant mode of coordinating industrial activity changes the competitive challenge for local firms in emerging markets aiming to supply a global player:

- The interaction with key network partners is essential for the growth and profitability of an organization, which creates new management challenges in terms of strategic flexibility and capability building (Birkinshaw and Hagström 2000).

- Network organizations have an essential role in the evolution of industrial clusters, and thus industrial development (Chandler, Hagström, and Sölvell 1998). Investment by lead firms may draw other network members to the same location, and thus create a larger impact than the initial investment alone (Rugman and d'Cruz 2000, Meyer 2000).
- The long term-nature of supplier relationships and the global reach of incumbents raise the entry barriers for smaller business in emerging markets. Even where competitive bidding processes are used, incumbents benefit from their long standing relationship, their reputation and their global production network, which provides customer-specific know-how. Also, large firms are better able to guarantee quality and just-in-time delivery.
- The international production networks tend to have a hierarchical structure (Rugman and d'Cruz 2000), with a "flagship firm" at the core. In consequence, less central partners in the network depend on the strategic and organizational leadership of the flagship firm. This new dependence may, according to Rugman and d'Cruz (2000:84), go as far that other participants, including non-business infrastructure such as universities and public agencies "have no reciprocal influence over the flagship strategy." This raises important questions concerning the ability of regional and national institutions to extract benefits from asymmetric global flagship networks (Mowery and Nelson 1999, Rodrik 1999, Ernst 2000).

c. Empirical evidence on Inter-industry spillovers

Inter-industry effects emerge from interaction between firms in different industries, notably through supplier-buyer relationships. Dunning (1993: 456) argued that the studies available at that time "are unanimous that the presence of FDI has helped raise the standards and productivity of many domestic suppliers, and that this has often had beneficial spillover effects on the rest of their operations." However, empirical proof of such spillovers is has to establish as this requires knowledge of industry-level input-output relationships.

Among recent studies, Smarzynska (2002) finds that positive relationships between the productivity of supplier industries to industries with high foreign presence, while at the same time finding no evidence of spillovers within the same industry. This is strong evidence that, at least in Lithuania, backward linkage

spillovers do exist. She moreover shows that the productivity effect is larger when the foreign investors are domestic market-oriented rather than export oriented, yet she finds no variation of spillovers between joint ventures and wholly owned affiliates. In a similar study for Indonesia, Blalock (2001) find strong evidence of spillovers from FDI in vertically related industries, while FDI in the same industry has no significant effect.

Kugler (2001) finds that the greatest impact of MNEs in Columbian manufacturing is across rather than within the subsidiaries' own industries. Aitken and Harrison (1991) find that in Venezuela forward linkages brought positive effects, yet backward linkages appear less beneficial, which they attribute to foreign firms' high import propensity. Similarly, Schoors and v.d. Tool (2002) find that backward linkage effects were positive and significant, while they surprisingly find that forward linkage effects were negative and significant.[9]

An innovative approach to study vertical linkages has been applied by Belderbos, Capannelli and Fukao (2001). They analyze local content ratios of Japanese overseas manufacturing affiliates across 14 countries to identify project and country-specific determinants of the extent of interaction with local suppliers. They find that more linkages exist for older affiliates, acquisitions and joint ventures, and in less developed countries also FDI by less-R&D intensive investors. Local variables increasing local content are infrastructure development and the size of the indigenous supplier industry. This supports the arguments concerning absorptive capacity made above. Moreover, local content requirements appear to have a positive effect while FDI established to jump tariff barriers has less local content.

In conclusion, there is a broad consensus and fair econometric evidence in support of backward linkages. Further research ought to link the research on international production networks with the empirical studies on vertical productivity spillovers.

[9] Note that Schoors and v.d. Tool (2002) refer to forward and backward linkages from the perspective of the local firm, whereas the remainder of the literature reviewed here takes the perspective of the MNE. I thus inverted their terminology to make it compatible with other studies discussed here.

5. Competition and crowding out effect

Foreign entry usually increases competition, especially if the entrant establishes a Greenfield project in a sector of non-tradable goods. This raises two questions for impact analysis: is increased competition good or bad for local firms and for consumers? And, how does it affect the distribution of rents in the industry?

Economists usually stress that increased competition would benefit consumers through lower prices or higher quality. For tradable goods, openness of the international trade regime may be sufficient to generate competition. Else, Greenfield entry would add one more firm to the industry, which reduces market power of incumbents. Acquisition entry does not increase the number of competitors on the market, but it may change the pattern of interaction between the competitors. Caves (1971, p. 15) thus argued that in any market situation, "entry by a foreign subsidiary is likely to produce more active rivalrous behavior and improvement in market performance than would a domestic entry at the same initial scale."

In a similar spirit, Wang and Blomstrom (1992) and Glass and Saggi (1998) emphasize the importance of competition in their models of spillovers. The entry of foreign firms in the host country market may increase competition and force inefficient indigenous firms to use existing technology more efficiently, or look for new technology, while the least efficient firms may be driven out of the market. The remaining domestic firms would recognize that to compete with FDI firms, they have to invest in advanced technology to increase their productivity.

However, foreign investors may come to dominate the domestic industry, notably if the technological gap between them and their local competitors is large. This may benefit consumers in terms of lower prices or better quality products. However, local firms may be crowded out, and stakeholders in those firms, notably employees, may loose their industry-specific investments. Aitken and Harrison (1999) argue that the negative spillovers that they found in their empirical study may arise from a 'market stealing effect', that is foreign investment reduces plant productivity in the short run by forcing domestic firms to cut production. If local firms are forced to exit (or are taken over) this can lead to oligopolistic market structures that may hinder endogenous technological development, reverse the downward pressure on prices, and even trigger adverse political economy effects. In a worst-case scenario, the foreign investor may attain monopolistic market power and thus extract rents in imperfectly

competitive markets that are transferred out of the country. This however would only occur in very specific cases, notably if competition constrained by high barriers to entry.

Thus the added competition of foreign entry would in most cases benefit customers, but the effects of firms in the same industry depend on the industry structure. The theoretical arguments suggest that a positive effect of inducing local competitors to improve their efficiency and motivate technological upgrading is likely if the gap is not too large. If local firms are weak, foreign entry may lead to their eventual exit.

Empirical evidence on the link between spillovers and competition is not conclusive. Haddad and Harrison (1993) find no evidence of technology spillovers, but the increased competition by foreign investors seems to push local firms toward the best practice frontier in industries with low level of technology. Blomstrom, Kokko and Zejan (1992) show that in Mexico local competition is positively correlated to imports of technology by MNEs. This impact is stronger in the consumer goods industry, which was known to require least advanced technologies.

The competition effects of FDI received less interest in recent years as liberalization makes highly concentrated markets less likely. However, industry structure remains an important control variable to be included in studies of FDI impact.

6. Impact on Society

The literature on social impact of FDI has developed largely separate from the literature on economic impact, as neither management scholars nor economists appear to take a particular interest in social issues, with the possible exception of institutions supporting a market economy. In this section I briefly summarize some of the arguments and evidence concerning impact on non-economic aspects of the host society.

a. Institutional development

FDI can contribute to the development of institutions that support the functioning of a market economy. Through lobbying, foreign investors may create pressure on local governments to change the institutional framework in order to meet the needs of a market economy. The desire to attract FDI may induce governments not only to

liberalize foreign investment laws but to establish general laws that govern business relationships and thus induce more comprehensive legal reforms. Major investors interact closely with the administration, and thus influence the interpretation of new laws, if not the laws themselves. They may also help in the application of international laws, and the establishment of necessary administrative routines. These types of influences were particular welcome in Eastern Europe during the early years of economic transition (McMillan 1993).

Yet foreign investors lobby in their own interests as well as in the interest of a functioning market economy. Following investors' requests may not always be in the host societies' interest, e.g. with respect to tariff protection, local content requirements, or tax exemptions.

A different type of institutional benefit arises from FDI in business services and infrastructure. For instance, investment in the financial sector contributes to overcoming the fragility of the financial sector in transition economies (e.g. Anderson et al. 1996). Foreign investment in telecom operators leads to major improvements in technology and competition in the sector. This ultimately reduces firms' communication costs and thus increases productivity. Similar effects arise from FDI in other utilities, such as energy distribution, or motorway and airport projects. While these various effects are claimed in the literature, I am not aware of any systematic studies on the impact of FDI on institution building.

b. The natural environment

The literature on social and environmental impact of FDI has developed largely separate from the literature on economic impact, as neither management scholars nor mainstream economists appear to take a particular interest. However, FDI is influencing many aspects of the host society, yet research has so far focused on economic variables. The impact of MNE on the social and natural environment of host economies can be positive or negative (Dasgupta et al. 2002, Zarsky 1999, Chudnovsky and López 2002). Some authors stress the transfer of modern, environmentally friendly technology and production processes by MNE, which improve the standards prevalent in the host economy, a 'pollution halo' effect. Other scholars are concerned that MNE choose to transfer outdated technology to locations with less stringent environmental regulation, a 'pollution haven' effect.

MNE have two motivations to transfer advanced environmentally friendly technology to emerging markets, even where this is not required by local legal or ethical standards. Firstly, MNE employing their global technology and procedures can realize economies in engineering standards for design, equipment purchases and maintenance; integrate global production and logistics, and reduce potential liability from regulatory changes (Dowell, Hart and Yeung 2000). The second motivation arises from the reputation of being seen to act ethically, or, more precisely, the potential dangers of damaging the global brand by a major scandal. Globalization moreover increases institutional and customer pressures on firms to surpass local requirements in emerging economies.

Thus, some observers expect a 'pollution halo' effects as foreign investors introduce environmentally friendly technology that then diffuses locally. There is empirical evidence that foreign investors are more efficient in using energy (Eskeland and Harrison 1997), an important aspect of environmental impact. Christmann and Taylor (2001) find that firms' international linkages contribute to their adaptation of industry self-regulation standards. However other studies, such Hettige et al. (1996) point out that local community pressure is more important than ownership in explaining environmental performance (Zarsky 1999).

On the other hand, the 'pollution haven' effect has become a major concern in environmental circles. Multinational firms are feared to evade stringent environmental standards in their home countries and locate to 'pollution haven', thus triggering a 'race to the bottom' in environmental standards. Empirical evidence suggests that escaping environmental regulation is not a substantive motivation for relocation of production as compliance costs are for most firms small relative to total costs of production, and legal changes in developing countries have narrowed the regulatory gap that may have existed in the 1970s (Jaffe et al. 1995, Zarsky 1999, Dasgupta et al. 2002). [10] However, possible relocation is occasionally used as bargaining argument by MNE bargaining with governments. Studies of actual pollution in overseas affiliates have to operationalize environmental impact by using a single indicator as dependent variable, which is problematic for a complex construct like environmental impact. Case studies provide a more rounded picture of environmental impact of specific projects and their evolution over time (Gentry 1998, Earth Council 1998). They point

[10] Recently, Smarzynska and Wei (2001) found some support for the pollution have hypothesis, but their evidenced is weak and does not survive their extensive robustness tests.

to particular problems in specific context, for instance to the danger of monocultural plantation for exported food products. However, there are too few such studies for a more general conclusion.

More systematic research ought to explore the impact on institutional development, on the natural environment, and on social issues. These discussions require firmer empirical grounding, as well the theoretical developments. Empirically, this research has to move towards larger sample survey studies that capture multiple dimensions of impact, preferably integrating economic, social and environmental impact. Theoretical research ought to further investigate the motives for imposing high standards in foreign operations and on foreign suppliers, notably the effectiveness of the reputation effect and of industry self-regulation. Work sponsored by international organizations provides some starting points for such research (Zarsky 1999, Hansen 2002).

c. Social environment and business ethics

Like environmental impact, international business scholars have largely neglected social impact of FDI. The analytical arguments for expecting MNE to employ higher or lower social standards in their affiliates abroad are similar to the logic presented for environmental spillovers. On the one hand, concern with global standardization and the firm's reputation should induce MNE affiliates to employ high labor standards, with respect to working hours, sick leave, child labor condition, unionization etc. Since MNE's generally wish to retain their qualified staff, they should have incentive to keep them satisfied, unless they are employing unskilled labor with few outside job opportunities. On the other hand, lower labor standards and lower wage present opportunities to reduce production costs. This incentive is even larger than for environmental issues, as labor costs generally account for a larger share of costs.

In contrast to the environment, labor has bargaining power. Employee representation in the country of origin is likely to oppose relocation if it is associated with lowering of standards. Local employee representative on the other hand often have weak bargaining power.

With respect to pay level, several authors suggest that MNE affiliates pay higher wages than local firms. For instance, Aitken, Harrison and Lipsey (1995) in a study for Venezuela, Mexico and U.S. show that higher level of FDI is associated with higher wages in all three countries. However, in the two developing countries

they find no evidence of domestic firms paying higher wages. Less clear is the evidence for with respect to labor standards, where researchers face similar methodological problems as those studying environmental impact.

Social impact however also refers to broader issues as MNE are corporate citizens in their host economy, and interact with governments as well as consumers. This raised many ethical issues, some of which have been raised by scholars:

- Corruption is a major problem in many emerging markets. Foreign investors face the trade-off between 'do as the locals do', and loosing potential business opportunities. However, with the entry of foreign investors, the amounts of money available 'for grab' are much larger, thus increasing the potential damage caused by corrupt practices.
- Foreign investors use modern marketing to introduce their products to often-uninformed consumers. This raises issues of ethical marketing, where consumer protection is not well developed. Moreover, is it ethical to use marketing techniques that are unethical or even illegal in the investors country of origin, e.g. marketing of cigarettes, or to lobbying for the removal of regulation that is meant to prevent the spread of smoking under the disguise of free trade. Is it ethical to sell baby food where breast feeding is considered more healthy by many doctors and the WHO? And how about more generally marketing of processed food where traditional fresh fruit are healthier?
- Foreign investors moreover operate in context where local social and ethical standards are different from the standards at home, not only in extreme context such as South Africa during apartheid, or Burma under the military regime. Hence, investors have to consider if it is ethical to do business in such circumstance at all? On the other hand, is it ethical to superimpose one ones value systems on a host country with different traditions?
- In negotiations, MNE often confront a local government that may be democratically elected. In mature democracies all sovereign power is based on the people, but MNE have often more economic power than host economies.[11] How far can MNE go in pushing governments to pursue policies that are not backed by its electorate, say with respect to labor and environmental

[11] An indicator of this is that some MNE's have larger annual turnover than the GDP of many emerging markets.

standards? And, is it ethical to use diplomats from the home country to lobby for business conditions that would give regulatory advantage to specific firms?

Most answers to these ethical issues require value judgments, which make them hard to address in systematic research. However, it would be desirable if business scholars would explore the fundamental ethical issues such as to help decisions makers in management, public policy and in interest groups to clarify the implicit value judgments that they are taking.

7. Investor and project specific determinants of spillovers

For international business scholars it is obvious that FDI operations greatly vary with respect to their role within the MNE, and in consequence in their interaction with the local environment. For example, Dunning (1993) distinguishes four motives for FDI that would generate quite different local operations: resource seeking, market seeking, efficiency seeking, and strategic-asset seeking. In this perspective, it is surprising that many studies in economics treat FDI as an undifferentiated phenomenon. Empirical studies on the variation of spillovers across project-specific characteristics are surprisingly scarce, although business logic suggests considerable variations in impact across subsidiary role, mode of entry, and possibly nationality.

a. Subsidiary Role

MNE subsidiaries can serve many roles within the global corporation. These roles would vary greatly in their interaction with the parent, with other business of the parent's network, as well as with local businesses. Hence, the impact in terms of for example knowledge transfer varies with the subsidiary role.

Some companies may mainly serve to supply the global firms product and services in the local market, with or without local processing. Such FDI would transfer mainly operational and marketing knowledge, and benefit the local economy by providing higher quality products. In contrast, export oriented businesses may transfer superior knowledge on operating production and accessing foreign markets (possibly by intra-firm trade). Thus both types of FDI potentially transfer resources and capabilities that may give rise to spillovers, albeit their nature may vary with the motives of the investor and with the types of operations undertaken locally.

Knowledge spillovers are often associated in particular with higher value added activities, especially with locally undertaken research and development (R&D). While MNEs traditionally conduct most of their R&D close to headquarters, there is trend of FDI to locate access R&D competences around the world, either by locating near major centers of innovation, or by acquiring firms with R&D capabilities, and continuing or expanding their R&D (Kuemmerle 1999).

Many countries are particularly interested in attracting subsidiaries that engage in R&D activities, because R&D is expected to generate particularly attractive knowledge spillovers. This is primarily a policy issue for mature market economies, but some emerging markets are also evolving as location for development activities, such as the software and pharmaceutical industries in India. Feinberg and Majumdar (2001) investigated if there are spillovers of R&D subsidiaries in India, and found that affiliates of different MNEs benefit from each others R&D activity, but there was not spillovers to local firm, nor were there reverse benefits of tapping R&D capabilities of local firms.

b. Mode of entry

Foreign investment projects vary with respect to the foreign equity share, and whether a new enterprise is established as Greenfield operation or an existing enterprise is acquired. Both modes of entry can be organized with a joint-venture partner, in which case, the local partner owns equity in the new firm, or retains a stake in the firm sold. The impact of FDI on the host economy varies between these different modes (UNCTAD 2000), but thus issue has so far been mainly explored theoretically, while systematic empirical studies have not yet been conducted.

If new production facilities are established as a Greenfield, FDI contributes to local capital formation, and thus to gross domestic investment. The capital contribution can exceed the sum of the FDI reported in balance of payment statistics if additional local sources of funds are mobilized. However, locally raised funds can also crowd out local investment. Moreover, Greenfield FDI will have direct positive effects on employment levels, since all jobs in a project are newly created.

Moreover, Greenfield projects create new businesses and thus increase competitive pressures on local competitors, which may lead to them improving their efficiency, or being forced to exit the market. Investors typically set up new production facilities with their own management and technology, and import

machinery from their own home country. While Greenfield projects require more technology and other know-how transfers, the investor is better able to control the diffusion of specialist know-how beyond the affiliate. For example, production with low-cost labor for worldwide markets may use Greenfield operations, especially in specifically designed economic zones. Greenfield investors start without contacts to local businesses, and typically are more tightly integrated with the parent firm and less connected to local supplier industries.

Acquisitions, on the other hand, are at the time of entry complete enterprises, integrated in the host economy. They may have indigenous R&D operations, local brands, and a local supplier network, and are thus well positioned to act as relatively autonomous affiliates within a diversified MNE. Following the acquisition, traditional business relationships may or may not be continued by the new owners. Investment by acquisition may take over existing supply relationships, and thus would strongly impact on backward industries. This effect can be positive, if suppliers are supported in reaching higher standards, or negative, if supply relations are switched to global suppliers. Yet, even if some acquisitions discontinue local R&D, local sourcing or local brands, on average acquired affiliates would be more local in these respects that Greenfield operations. Evidence on this comes for example from Belderbos *et al.* (2001) who find a higher share of local content in acquired affiliates of Japanese MNE, and to a lesser extent in their joint ventures., compared to Greenfield FDI.

Positive effects of acquisition-investment arise with the large initial capital transfer, the purchasing price. This benefits both the balance of payments and, if a state-owned enterprise is acquired, the government budget. Direct employment effects of foreign acquisition are ambiguous. Although employees are often laid off, the *ceteris paribus* effect may be positive if the alternative to the foreign acquisition had required even more radical downsizing. In a positive scenario, the benefits may include substantial amounts of saved government expenses, avoidance of mass unemployment and social unrest.

Foreign acquisitions in the context of privatization often appear to lead to layoffs of many employees. However, the alternative may often involve even more drastic adjustment such that the foreign investor in fact may ‘save jobs’. A foreign investor taking over the local firm can add crucial resources, and thus ensure the survival of the firm, when otherwise bankruptcy may lead to a loss of the resources of capabilities of the firm.

Foreign investors are often well positioned to restructure firms in crisis and thus provide a basis for survival. Such case were particular important in the East European transition economies (Meyer 1998, 2001) and during the Asian crisis of 1997 (Zhan and Ozawa 2001): The foreign investor can take over majority ownership, and thus creates clear governance structures that may locally owned firm did not have. The investor can contribute crucially needed financial resources and managerial capabilities not available locally, and may provide links to its global networks and thus market access. Moreover, the foreign investor may be better positioned to induce a process of changing organizational culture such that it becomes more conducive to promoting performance under the conditions of a market economy. For foreign investors, entry under such condition may appear as case of mergers and acquisition, yet the political context of the acquisition creates institutional constraints, especially in the case of privatization, that influence the post acquisition restructuring and performance (Uhlenbruck and De Castro1998, Meyer 2002).

Since the next-best alternative is generally not known, the *ceteris paribus* impact of the foreign acquisition remains often general, the direct positive effects on employment tend to be limited as FDI projects are more capital intensive, and thus have higher labor productivity. Rigorous analysis has to consider the counterfactual, i.e. what would have happened in the absence of the foreign acquisition. If the local firm faced almost certain bankruptcy, then even a foreign takeover that led to massive downsizing should be considered as positive. Yet, the counterfactual is rarely easy to establish, and many of these cases may be subject to high degrees of politization and media interest, which may not make it easier to conduct the analysis.

Brownfield projects combine aspects of Greenfield and acquisitions (Meyer & Estrin 2001). They imply a much faster convergence of the impact effects of acquisition and Greenfield with respect to financial transfers, investment, technology transfer, employment, and exports. Weather or not longer term path dependency hypothesized for local supplier networks, technology sharing and R&D also evolves for Brownfield projects depends on to what extend the initial restructuring is disrupting the initial resource and network configuration.

Joint-ventures (JVs) create a new entity owned jointly by a local and a foreign partner. Both partners share the control of the operations, usually, though not always, in accordance with their respective shares in equity. As an organizational form, a JV is an intermediary between a contractual relationship and a wholly owned

affiliate that is common in international business. In a JV-acquisition, the local partner contributes with assets from an existing enterprise, and the foreign investor acquires an equity stake against capital contribution. Either form allows the local partner to retain legal independence, to learn from the foreign partner, and to transfer received know-how to other operations. Thus, technology received by a JV is more likely to diffuse into the host economy. Moreover, local joint-venture partners may be suppliers to the firm, or create links with their existing local business networks, which provides for deeper interaction, and thus more potential spillovers. Based on expected spillovers into domestic industry, governments often favor joint-ownership through special subsidies, tax holidays and special credit lines. Blomstrom and Sjöholm (1999) thus postulated but do not find support for the proposition that the share of foreign ownership affects the extent of spillovers, but it is not correlated with the degree of ownership.

The long term impact is however likely to vary less than the immediate short-term impact of different entry modes (UNCTAD 2000). The main exception appears to be the integration with local supplier networks, as acquisitions tend to retain and develop existing linkages, and in consequence the extent of technology sharing with local suppliers. In the short term, a number of impact parameters (technology transfer, technology spillovers, original R&D, employment quantity and quality, exports and imports, and competition) are likely to differ considerably depending on the specific circumstances of the investment project.

In conclusion, many parameters crucial for the impact of FDI vary between joint-ventures acquisitions, Greenfield investment. However, there is little empirical research to verify the relevance of effect stipulated in theoretical research.

c. Nationality

Multinational enterprises engaging in FDI are, unless they are truly global companies (as few are, Rugman and Verbecke 2003), strongly influenced by business culture and economic situation in their home country. For instance, the investment development path (Dunning 1986, Ozawa 1992, Dunning and Narula 1995) links the characteristics of outward FDI to a country's stage of economic development. This proposition is based on empirical studies comparing FDI from different countries. For example Japanese investors in Asia in the 1970s and 1980s have been reported to be more oriented towards relocation of production and thus generate exports to their country of

origin, while US investors are more market oriented. Moreover, Japanese investors were found to transfer technology moderately above local standards, while USA investors transfer latest technology (Kojima 1978, Ozawa 1979). Similar patterns have been reported for FDI from other Asian NIC's (Meyer and Nguyen 2003).

This observation gave rise to considerable debate over the nature and benefits of Japanese FDI overseas, as some scholars expected more spillovers form Japanese FDI due to its moderate technology gap and its export generation (Kojima 1978), a proposition hotly disputed by mainstream international business scholars (Buckley 1980). It is now well understood that such differences, which may have been exaggerated in some of these studies, can be attributed to the specific economic context of the source countries at the time rather than to cultural peculiarities.

However, the basic argument of this discussion, that national differences matter for the characteristics and spillover effects of FDI, remains important. For example, Buckey et al. (2002) discover larger spillovers for non-Chinese investors than for overseas-Chinese investors. Especially where intra-Asian FDI is concerned, country of origin matters (Meyer and Nguyen 2003), and the driving forces leading to such national differences merit further investigation. In conclusion, the characteristics of FDI projects in terms of for instance subsidiary role and entry mode can be expected to be important for spillovers, but there are few theoretical or empirical studies that explain how and to what extent these variations matter.

8. Research Agenda

The main purpose of this review of literature is to assess the current research agenda and to point out new directions. Having read a lot of studies, mainly in economics, I come to the conclusion that the research has too much focused on the basic questions of weather or not certain spillovers exist, and too little on which circumstance would favor the emergence of positive spillovers. However, the second question merits most attention, because the major policy debates are no more on weather or not to allow FDI, but on how maximize the benefits of FDI for local stakeholders.

To advance this research agenda, scholars ought to pay more attention to the specific actors involved, multinational enterprises and local firms, and the relationships between them. Theories developed in management research ought to be valuable contributions to this research. It moreover requires the analysis of more micro data, and other methodological innovations.

a. Focus on investors

Many channels of interaction between multinational enterprises and host economies and societies have been identified in the literature. However, the analysis often based on a-theoretical reasoning, and provides therefore few comprehensive explanations of the mechanism through which impact occurs. To advance our understanding of the impact of FDI, we need first and foremost a better theoretically grounded understanding of how spillovers are created. Theories developed in management research, such as organizational learning, the resource-based view, or the institutional view of strategy, provide opportunities to advance this agenda. They could help explaining the mechanisms creating spillovers, the conditions for MNEs to favor spillovers, and for local firms to benefit from them.

Future theoretical research ought to bring the firms back into the analysis. Spillovers vary with the specific features of both the multinational firm and local firms. Foreign investors pursue a variety of different corporate strategies when entering emerging markets, and thus establish subsidiaries with different roles within the MNE, and consequently different interactions with the local economy. However, this entry strategy is endogenous in the sense that local institutions and resource endowment influence corporate strategy (e.g. Meyer 2001), while in turn FDI may have an impact on institutional change and the development of local resources and capabilities.

The international business literature on, for example, subsidiary roles (Galunic and Eisenhardt 1996, Birkinshaw 2000), entry strategies (Anderson and Gatignon 1986, Hennart and Park 1993, Meyer and Estrin 2001) and centralization of decision making (Bartlett and Ghoshal …) provides an important basis to analyze the link between FDI strategies and their potential impact. The following specific issues ought to be addressed by future research:

Knowledge spillovers starts with sharing of knowledge within the multinational enterprise, mostly from headquarters to local affiliates. The extend and types of such internal knowledge transfer are crucial for the knowledge that can eventually diffuse in the local context. However, few studies systematically analyze transfer of knowledge within MNEs. This merits further research, for instance empirical studies of subjects of training, recipients, location (locally or abroad),

methods, and collaboration of training with international business schools Blomstrom and Kokko (2002).

Foreign investors forming a joint-venture with a local partner share their resources in return for access to the partners resources. This can lead to mutual learning, and thus extended linkages and knowledge transfers in the local business community. Joint ventures provide a direct interface for knowledge spillovers, yet MNEs would be naturally more reluctant to share crucial knowledge, especially if this may allow local firms to develop their own competitive advantages. Moreover, acquisition entry, especially when related to privatization is likely to have very different impact than Greenfield entry. Acquirers face the need to restructure and integrate the acquired firm, which has major implications for its local business network. Yet, these differences have rarely been analyzed systematically, although some studies include entry mode as control variable (e.g. Belderbros et al. 2001). However, entry modes appear to be a prime determinant of spillovers generated by FDI, yet spillover research to analyze the more systematically.

b. Focus on Recipients

Local firms' own strategies and resource endowment is crucial for benefiting from interaction with foreign investors. In recent years a broad consensus has emerged, supported by a number of empirical studies, that the local firms own absorptive capacity is crucial for them to benefit from knowledge spillovers.

Hence, management research on absorptive capacity is highly relevant for the analysis of FDI impact. The empirical research has so far stayed at the surfaces of the concept of absorptive capacity. Most quantitative studies use simple proxies of the human capital endowment or the intangible assets of the local firm. The concept of absorptive capacity as used in the management literature includes structural characteristics of the organization, notably its organizational structure and combinative capabilities (Van den Bosch et al., 1999) and strategic flexibility (Das, 1995. Research on Hungarian firms has shown that firms there improved their capacity to learn if organizational flexibility was promoted (Lyles and Salk, 1996). Organizations improved their ability to process acquired knowledge if collaboration and exchange of information within the organization was encouraged, employees were given greater latitude in altering activity patterns, and processes were adapted to perceived changing needs and conditions.

Moreover, absorptive capacity is when it comes to applying received knowledge to new contexts, to experiment by combining received and local knowledge, and to develop innovations that further enhance competitiveness. This includes innovation by entrepreneurs that leave the foreign-owned affiliate to establish their own business. The institutional context for entrepreneurial activity within existing firms, or by establishing new firms, forms and important aspect of absorptive capacity on a societal value, and underlines the fact that educational achievements indices are unsatisfactory proxies for absorptive capacity.

Organizational learning theory and the resource-based view provide a basis for analyzing specific firm-internal and external constraints of firms in emerging markets, and makes their challenges, such as a limited absorptive capacity, in adapting to changing institutional environments explicit (Uhlenbruck et al. 2003). To make this work relevant for the study of spillovers, Criscuolo and Narula (2002) suggest an interesting path; they aggregate the firm-level concept to a national level, and suggest aggregated firm-level information rather than national educational achievement indicators as proxies. Hence, spillover research ought to employ the broader concept of absorptive capacity used in management research to obtain a better understanding what enables firms to benefit from spillovers.

Furthermore, Spillovers arise from the interaction of multinational firms with local agents. However, few spillover studies have been conduced at the level of relationships, as most scholars are concerned with higher levels of aggregation. Knowledge spillovers are focal for spillovers, but the understanding on how such spillovers occur is limited. Moreover, access to international production networks is likely to be of increasing importance. Research of these networks ought to pay more attention to the role of smaller businesses in international production networks as most studies to date focus on the lead firm. Scholars can draw upon rich literature in business studies develop new understandings why these networks matter for small local firms, and how they may gain access to them.

c. Focus on Regions and Clusters

Regions, rather than firms or countries, may be a relevant unit of analysis. Notably, the emergence of industrial clusters may be essential for economic development, and it can be driven by one large multinational firm acting as lead firm for an entire industry (Rugman and d'Cruz 2000, Meyer 2000). By establishing operations within a

cluster, MNEs can both contribute to and benefit from the knowledge exchange within the cluster. These ideas are supported by case studies. For instance, Patibandla and Petersen (2002) argue that the early investment by early investment by Texas Instruments in the Indian software cluster around Bangalore was instrumental in developing the cluster. Similar case evidence shows the beneficial contribution of inward FDI during the inception phase of an industry, such as the textile industry in Bangla Desh and Mauritius (Rhee and Belot 1990), and the electronics industry in Penang, Malaysia (Altenburg 2000).

The contribution by the foreign investor may lie in both transfer of knowledge to local partners, possibly in exchange for other knowledge, and in their role as intermediaries in the international cross-fertilization of knowledge clusters. Moreover, presence of leading multinational firm may serve a signal of the quality of a local knowledge pool worth tapping into, and thus stimulate other foreign investors.

For local firms, the path to international markets in the age of international production networks is increasingly complex. Research suggests that the centrality of a foreign investor in its own production network, and the relative bargaining power of local firms are central for the spillovers that a local economy may obtain. However, the understanding of international production networks in regional development is not yet well developed, especially with respect to the role of local firms within such networks. Theoretical development exploring these issues may focus on organizational learning and knowledge creation. In addition to traditional tools of IO economics and management, Ernst (2001) suggests to employ evolutionary economics in explain these phenomena. Moreover, longitudinal studies ought to assess the effectiveness of such zones in attracting FDI and generating spillovers.

d. Focus on Society

Business scholars have largely neglected societal effects of foreign investment. FDI is influencing many aspects of the host society, yet research has so far focused on economic variables. More systematic research ought to explore the impact on institutional development, on the natural environment, and on social issues. Work sponsored by international organizations provides some starting points for future research, yet scholars may want to start by considering appropriate theoretical perspectives.

e. Building theory from case studies

This research agenda requires more creative theory building from case studies – notwithstanding the lack of such research in top Journals. However, longitudinal case studies of firms, industrial clusters, and industries are needed to explain the dynamics spillovers and long-term influence of foreign investment on local economy and society.

Many case studies seem to be selected as examples of either positive or negative examples, especially in the research on environmental effects of MNE (Chudnovsky and Lopez 2002). Many of the cases I encountered, especially on social and environmental impact, are partial in that they appear to be selected to depict particularly positive or negative examples, or present one perspective only, such as that of managers or environmental activists, while ignoring aspects that might contravene the authors' main argument. New theory development, and convincing evidence, can only come from case studies that are conducted with an open mind, and with a broad approach to impact. One common challenge is to identify the counterfactual, i.e. what would have happened without the FDI, which is necessary to assess the impact of a particular project (*ceteris paribus* condition). Moreover, longitudinal studies should follow global industry evolution over several years such that both winners and losers can be observed, and the emergence of new clusters can be observed in a dynamic context (McKendrick et al 2001, Murtha et al 2001).). Ex post selection of case, like cross-sectional analysis, may too easily fall in the trap of survivor-bias as firms leaving the industry are not considered.

f. Empirical testing

Having reviewed the vast empirical literature aiming to identify spillovers, I have to concur with the pessimistic assessments by Wells (1998), Caves (1996) and Rodrik (1999) quoted at the outset. Many studies have tried to establish whether intra-industry spillovers are positive or negative. My interpretation of the overall evidence at this stage is that spillovers at the industry level are rare, except for transition economies. Yet this is actually not the main research question. Empirical researchers ought to look beyond this question, and analyze under which circumstances FDI creates positive spillovers, and which circumstances increase spillovers. This requires more attention to the characteristics of the FDI project and to the micro-mechanisms of knowledge transfers.

There is stronger evidence for backward linkages (Smarzynska 2002, Belderbros et al. 2001) than for intra-industry spillover (Haddad and Harrison 1993, Aitken and Harrison 1999). Moreover, the theoretical arguments for vertical spillovers are in my view more convincing than those for horizontal spillovers. Hence, future research ought to pay more attention to vertical linkages, and how they evolve in industrial clusters and international production networks.

Moreover, empirical methods of analysis have to account for the complexity of the relationship between FDI and a host economy, as the foreign investor adapts strategies to the local environment, and at the same time influences the environment. Such reverse causality exists for most aspects considered for this review. This requires careful theoretical reasoning and innovative empirical methods to capture exactly the relevant interactions.

The empirical research faces the dual challenge of obtaining suitable data with good measures of the relevant concepts, and in applying suitable methods to analyze them. This requires new types of data, such as firm-level survey data that include measures for various forms of interaction with multinational firms: employment of previously working for MNEs, active monitoring of foreign competitors behavior, personal contacts with expatriates living in the country, etc. These data may have to be collected with surveys of domestic enterprise potentially in contact with the MNE. These data may not have the same (perceived)[12] reliability as official data, but provide information on those constructs that, according to theory, really matter. The expertise in management research to conduct analyze enterprise surveys with 'soft' concepts should make a valuable contribution to broadening the methodologies used in spillover research.

On the other hand, the economics and econometrics literature is ahead of the international business in terms of the quantitative empirical research methodologies concerning statistical firm-level data. Last not least quantitative and qualitative methods should be combined. The empirical literature mostly uses quantitative data on high levels of aggregation, while other studies focus on specific case studies. However, few studies combine qualitative and quantitative methods in insightful ways that allow informed interpretation of the quantitative results.

[12] There is a tendency among scholars, especially in economics, to place high trust in official data, and low trust in survey data. This may be misplaced in many cases, not only in emerging markets.

References: (to be completed)

Aitken, A., Hanson, G., and Ann, E. Harrison. 1997. Spillovers, Foreign Investment and Export Behaviour, *Journal of International Economics* 43, p. 103-132.

Aitken, B. and A. Harrison. 1991. Are there Spillovers from Foreign Direct Investment? Evidence from Panel Data for Venezuela, mimeo, MIT and World Bank, November [cited after Blomström and Kokko 2002].

Aitken, B. and A. Harrison. 1999. Do Domestic Firms Benefit from Direct Foreign Investment? Evidence from Venezuela. *American Economic Review* 89 (3), 605-618.

Aitken, B., Harrison, A., and Robert E. Lipsey. 1996. Wages and Foreign Ownership. A Comparative Study of Mexico, Venezuela and The United States. *Journal of International Economics,* Vol.40, pg. 345-371.

Altenburg, T. (2000): Linkages and Spillovers between Transnational Corporations and small and medium-sized enterprises in developing countries: Opportunities and policies, Proceedings of the UNCTAD X Special Round Table "TNC-SME Linkages for Development", Bangkok, February.

Anand and Delios (2001): …

Anderson, R.W. et al. (1996): Banking Sector Development in Central and Eastern Europe, London: CEPR and Institute for East-West Studies.

Audretsch, D.B. (1998): Agglomeration and the Location of Innovative Activity, Oxford Review of Economic Policy 14 (2).

Balasubramanian, V.N., M. Salisu and D. Sapsford 1996. Foreign direct investment and growth in EP and IS countries, *Economic Journal* 106, p. 92-105.

Barney, J. B. (1991). 'Firm resources and sustained competitive advantage'. *Journal of Management*, **17,** 1, 99-120.

Barro, Robert J. and Xavier Sala-i-Martin (1995). Economic Growth, New York: McGraw-Hill, Inc.

Belderbos, R., G. Capannelli and K. Fukao (2001): Backward vertical linkages of foreign manufacturing affiliates: Evidence from Japanese multinationals, *World Development* 29, no 1, p. 189-208.

Birkinshaw, J. (2000). *Entrepreneurship in the Global Firm*. Thousand Oaks, Sage.

Blalock. G. 2001. Technology from foreign firect investment: strategic transfer through supply chains, mimeo, Haas School of Business, University of California at Berkeley. [need to ask for permission to cite: blalock@haas.berkeley.edu]

Blomström, M., A. Kokko and M. Zejan. 1994. *Host Country Competition, Labor Skills and Technology Transfer by Multinationals, Weltwirtschaftliches Archiv 128, 522-533.*

Blomström, M. and F. Sjoholm. 1999. *Technology Transfer and Spillovers: Does Local Participation with Multinationals Matter?* European Economic Review, Vol. 43, 915-923.

Blomström, M., M. Zejan and A. Kokko, 2000. *Foreign Direct Investment, Firm and Host Country Strategies.* London: Maximillan Press (chapter 8).

Blomström, M., and A. Kokko, 2002. FDI and Human Capital: A Research Agenda, Technical Paper no. 195, OECD Development Centre, Paris: OECD, August.

Borensztein, E., De Gregorio, J. and J-W. Lee. 1998. *How does foreign direct investment affect economic growth? Journal of International Economics*, Vol. 45, 115-135.

Borrus, M., D. Ernst and S. Haggard, eds. (2000): *International Production Networks in Asia: Rivalry or Riches?* London: Routledge.

Borrus, Michael and John Zysman (1998): Globalization with Borders: The Rise of Wintelism as the Future if Industrial Competition, in: A. Schwartz and J. Zysman, eds.: Enlarging Europe: The Industrial foundations of a New Political Reality, Berkely: BRIE and Vienna: Kreisky Forum.

Branstetter, Lee, 2000. Is FDI a channel of knowledge spillovers? Evidence from Japans FDI in the U.S. NBER Working Paper No. 8015.

Buckley, P. and M. Casson (1976):
Buckley, P., Clegg, J., and C. Wang (2002): The Impact of Inward FDI on the performance of Chinese Manufacturing Firms. *Journal of International Business Studies*, Vol. 33(4), p. 637-655.
Cantwell, J. 1989. *Technological innovation and multinational corporations*, Oxford Basil Blackwell.
Casson, M.E. 1994. Enterprise Culture and Institutional Change in Eastern Europe, in: P.J. Buckley and P.N. Ghauri (ed.): *The Economics of Change in East and Central Europe*, London: Academic Press.
Caves, Richard E. (1971): International Corporations: The Industrial Economics of Foreign Investment, *Economica* 38, p. 1-27.
Caves, R.E. 1974. Multinational Firms, Competition and Productivity in Host Country Markets. *Economica*, Vol. 41, 176-193.
Caves, Richard (1996): *Multinational Enterprise and Economic Analysis*, 2nd ed., Cambridge: CUP.
Chandler, A.D., P. Hagström and Ö. Sölvell, eds (1998): *The dynamic firm: The Role of Technology, Strategy, Organizations and Regions*, Oxford: Oxford University Press.
Chen, E.K.Y. (1983): *Multinational Corporations, Technology and Employment*, London: Macmillan.
Child, J. (1993). 'Society and enterprise between hierarchy and market.' In Child, J. (Ed.), '*Societal Change between Market and Organization'*, Aldershot: Avebury.
Child, J. and A. P. Czegledy (1996): 'Managerial learning in the transformation of Eastern Europe: Some key issues.' *Organization Studies,* **17**, 167-80.
Christmann, P. and G. Taylor (2001): Globalization and the environment, *Journal of International Business Studies* 32 (3), p. 439-458.
Chudnovsky, D. and A. Lopez 2002: The literature on environmental practices of TNCs, in Hansen, M.W. ed. 2002. *Managing the environment across borders: A study of TNC affiliate's environmental practices in China, Malaysia and India*, Copenhagen: Samfundslitteratur.
Cohen, W. and D. Levinthal 1989. *Innovation and learning: The two faces of R&D.* Economic Journal (1989), 569-596.
Cohen, W. M. and Levinthal, D. A. (1990). 'Absorptive capacity: A new perspective on learning and innovation'. *Administrative Science Quarterly*, **35**, 1: 128-52.
Criscuolo, P. and R. Narula (2002): A novel approach to national technological accumulation and absorptive capacity: aggregating Cohen and Levinthal, MERIT Research memorandum no. 2002-16.
Dasgupta, S., B. Laplante, H. Wang and D. Wheeler (2002): Confronting the environmental Kuznets curve, *Journal of Economic Perspectives* 16 (1), p. 147-168.
De la Torre, J. (1981): Foreign Investment and economic development: Conflict and negotiation, *Journal of International Business Studies*, Vol. 14 (///), 9-30.
De Mello, L.R. (1999): Foreign direct investment-led growth: Evidence from time series and panel data, *Oxford Economic Papers* 51, p. 133-151.
Dicken, Peter (1998): *Global Shift. The Internationalization of Economic Activity, 3rd ed*., London: Chapman.
Dowell, G., S. Hart and B. Yeung (2000): Do corporate global environmental standards create or destroy market value? *Management Science* 46 (8), p. 1059-74.
Dunning, John H. (1986): The Investment-Development Cycle and Third World Multinationals, in: Khushi M. Khan (ed.): *Multinationals of the South. New Actors in the International Economy*, London: Croom Helm.
Dunning, John H. (1993): *Multinational Enterprises and the Global Economy*, Wokingham: Addison-Wesley.
Dunning, John H. (1994): Re-Evaluating the Benefits of Foreign Direct Investment, *Transnational Corporations* 3, no. 1, p. 23-51.

Dunning, J.H: and R. Narula, eds (1995): book, London: Routledge
Earth Council (1998): Earth Charter and Ombudman Project, San José and Costa Rica: Earth Council (http://www.ecouncil.ac.cr/chair_ecombud.htm)
Eisenhardt, K. (1989): Building Theories From Case Study Research, *Academy of Management Review* 14, p. 532.
Enos, J. L. (1989): Transfer of Technology, *Asian Pacific Economic Literature* 3, p. 3-37.
Ernst, D. (2000): Inter-organizational knowledge outsourcing: What permits small Taiwanese firms to compete in the computer industry, *Asia Pacific Journal of Management* 17 (2), p. 223-255.
Ernst, D. (2001): *Review of 'Multinationals as Flagship Firms' by A. Rugman and J.R. d'Cruz*, JIBS Website www.jibs.net, April.
Eskeland, G. and A. Harrison (1997): Moving to Greener Pastures? Multinational and the Pollution Haven Hypothesis, Public Economics Division, Policy Research Department, Washington, DC: World Bank.
Fan, E. X. (2002): Technological Spillovers from Foreign Direct Investment – A Survey, ERD Working Paper no. 33, Asian Development Bank, December.
Feinberg, S. E. and S. K. Majumdar. 2001. Technology Spillovers from Foreign Direct Investment in the Indian Pharmaceutical Industry. *Journal of International Business Studies*, Vol. 32(3), 421-437.
Fiol, C. M. (1996). 'Squeezing harder doesn't always work: Continuing the search for consistency in innovation research.' *Academy of Management Review*, **21**, 4, 1012-21.
Firebaugh, G., 1998. Growth effects of foreign and domestic investment, American Journal of Sociology 98 (1), p. 105-130.
Galunic, D.C. and Eisenhardt, K.M. 1996. The evolution of intra-corporate domains: divisional charter losses in high-technology, multidivisional corporations. ***Organization Science*** 7: 255-282.
Gentry, B. ed. 1998: *Private Capital Flows and the Environment, Lessons from Latin America*, Cheltenham: Elgar.
Geroski, P.A., 1991. Innovation and the sectoral sources of U.K. productivity growth. *The Economic Journal*, Vol. 101, 1438-1451.
Globerman, S. 1979. Foreign Direct Investment and "Spillover" Efficiency Benefits in Canadian Manufacturing Industries, *Canadian Journal of Economics* 12, 42-56.
Globermann, S. and D. Shapiro 2003. Governance Infrastructure and US foreign direct investment, *Journal of International Business Studies* 34 (1), p. 19-39.
Görg, H., and E. Strobl. 2001. Multinational Companies and Productivity Spillovers: A Meta-Analysis with a Test for Publication Bias, *The Economic Journal* 111 (November), p. 723-739.
Grossman, G.M. and E. Helpman (1991). Innovation and Growth in the Global Economy. Cambridge: MIT Press.
Haddad, M. and A. Harrison. 1993. *Are there positive spillovers from direct foreign investment? Evidence from panel data for Morocco, Journal of Development Economics* 42, 51-74.
Hambrick, D. C. (1982). 'Environmental scanning and organizational strategy'. *Strategic Management Journal*, **3,** 159-74.
Hansen, M.W. ed. 2002. *Managing the environment across borders: A study of TNC affiliate's environmental practices in China, Malaysia and India*, Copenhagen: Samfundslitteratur.
Hein, S. 1992. Trade strategy and the dependency hypothesis: A comparison of policy, foreign investment, and economic growth in Latin America and East Asia, *Economic Development and Cultural Change* 10 (3), p. 495-521.
Hejazi, W. and A.E. Safarian 1999. Trade, foreign direct investment, and R&D spillovers, *Journal of International Business Studies* 30 (3), 491-511.
Henisz, Witold J. (2000): The Institutional Environment for Multinational Investment, Journal of Law, Economics and Organization *16, p. 334-364.*

Hettige, H., M. Huq, S. Pargal and D. Wheeler 1996: Determinants of pollution abatement in developing countries: Evidence from South and Southeast Asia, *World Development* 24, no. 12, p. 1891-1904.

Hill, H. (1982): Vertical inter-firm linkages in LDCs: A Note on the Philippines, *Oxford Bulletin of Economics and Statistics* 44, p. 261-71.

Hoskisson, R. E, Eden, L., Lau, C. M. and Wright, M. (2000). 'Strategy in emerging economies.' *Academy of Management Journal* **43**, 249-267.

Jaffe, A.B., 1986. Technological opportunity and Spillovers of R&D: Evidence from firms' patents, profits and market value. *American Economic Review* 76, no. 5, 984-1001.

Jaffe, A.B., S.R. Peterson and P.R. Portney 1995: Environmental Regulation and the Competitiveness of U.S. Manufacturing: What does the evidence tell us? *Journal of Economic Literature* 33, no. 1, p. 132-163.

Kathuria, V. 2000. Productivity Spillovers from Technology Transfer to Indian Manufacturing Firms, *Journal of International Development* 12, 334-369.

Kathuria, V. 2001. Foreign firms, technology transfer and knowledge spillovers to Indian manufacturing industries: A stochastic frontier analysis, *Applied Economics* 33, p. 625-642.

Katz, J.M. 1987. *Technology creation in Latin American manufacturing industries*, New York: St. Martin's Press.

Kojima, Kiyoshi (1978): *Direct Foreign Investment*, London: Croom Helm.

Kholdy, S. 1995. Causality between foreign investment and spillover efficiency, *Applied Economics* 27, p. 745-749.

Kogut, B. and U. Zander 1993. Knowledge of the Firm and the Evolutionary Theory of the Multinational Corporation, *Journal of International Business Studies*, p. 625-645.

Kogut, Bruce (1996): Direct Investment, Experimentation, and Corporate Governance in Transition Economies, in: R. Frydman, C. W. Gray and A. Rapazynski (eds.): *Corporate Governance in Central Europe and Russia*, vol. 1, London and Budapest: Central European University Press, p. 293-332.

Kokko A. 1992. Host country characteristics and technology transfer by U.S. MNCs*. In FDI, host country characteristics, and spillovers,* Dissertation Thesis, Stockholm School of Economics, (chapters 2 & 3).

Kokko, A. 1994. Technology, market characteristics, and spillovers, *Journal of Development Economics*, Vol. 43, 279-293.

Kokko, A. and M. Blomström 1995. Policies to encourage inflows of technology through foreign multinationals, *World Development* 23 (3).

Kokko, A., Tasini, R. and M. Zejan. 1996. Local technological capability and productivity spillovers from FDI in the Uruguayan manufacturing sector. *Journal of Development Studies* 32, 602-611.

Kokko, A., Tasini, R. and M. Zejan. 2001. *Trade Regimes and spillover effects of FDI: Evidence from Uruguay. Weltwirtschaftliches Archiv* 137(1), 124-149.

Kuemmerle, W. (1999). The drivers of foreign direct investment into research and development: an empirical investigation, *Journal of International Business Studies* 30, 1 First Quarter: 1-24.

Lall, S. 1996. *Learning from the Asian Tigers: Studies in Technology and Industrial Policy*, London: MacMillan.

Lall, S. and P. Streeten 1997: *Foreign Investment, Transnationals, and Developing Countries*, London: MacMillan.

Lane, P. J. and Lubatkin, M. (1998). 'Relative absorptive capacity and interorganizational learning.' *Strategic Management Journal*, **19**, 5, 461-77.

Lane, P., Salk, J., and Lyles, M. (2001). Absorptive capacity, learning and performance in international joint ventures. *Strategic Managament Journal*, 22: 1139-?????

Liu, X., Siler, P., Wang, C. and Y. Wei 2000. Productivity spillovers from Foreign Direct Investment: Evidence from UK Industry Level Panel Data*. Journal of International Business Studies* 31 (3), 407-425.

Lyles, M. A. and Salk, J. E. (1996). 'Knowledge acquisition from foreign parents in international joint ventures:' An empirical examination in the Hungarian context. *Journal of International Business Studies*, **27**, 5, 877-903.

McMillan, Carl H. (1993): The Role of Foreign Direct Investment in the Transition from Planned to Market Economies, *Transnational Corporations* 2, p. 97-119.

McKenrick, D.G., R.F. Doner and S. Haggard (2001): *From Silicon Valley to Singapore: Location and Competitive Advantage in the hard disk drive industry*, Stanford: Stanford University Press.

Meyer, K.E:. (1998): Enterprise Transformation and Foreign Investment in Eastern Europe, *Journal of East-West Business* 4 (1998), no. 1/2, p. 7-27.

Meyer, K.E. (2000): International Production Networks and Enterprise Transformation in Central Europe, *Comparative Economic Studies* 42 (2000), no. 1, p. 135-150.

Meyer, K. E. (2001a): International business research on transition economies, in A. Rugman & T. Brewer (eds.), *Oxford handbook of international business*, 716-759. Oxford: Oxford University Press.

Meyer, K. E. (2001b): Institutions, transaction costs, and entry mode choice in Eastern Europe. *Journal of International Business Studies*, 32: 357-367.

Meyer, K.E. (2001c): Direct Investment in East Asia and in Eastern Europe: A Comparative Analysis, in: P. Artisien-Maksimienko and M. Rojec (eds.): *Foreign Investment and Privatisation in Eastern Europe*, London: Palgrave, p. 102-128.

Meyer, K.E. (2002): Management Challenges in Privatization Acquisitions in Transition Economies, *Journal of World Business*,37 (2002), no. 4, p. 266-276.

Meyer, K. E. & S. Estrin. 2001. Brownfield entry in emerging markets*, Journal of International Business Studies,* 32: 575-584.

Meyer, K.E. & H.V. Nguyen (2003): *Foreign Investor's Entry Strategy and Sub-national Institutions in Vietnam,* Project Working Paper, Center for New and Emerging Markets, London Business School, March.

Mowery, D.C. and R.R. Nelson, eds. (1999): *Sources of industrial leadership: Studies in seven industries*, Cambridge: CUP.

Murtha, Thomas P., Stefanie Ann Lenway and Jeffrey A. Hart (2001): *Managing New Industry Creation: Global Knowledge Formation and Entrepreneurship in High Technology*, Stanford Business Books.

Narula, Rajneesh and John H. Dunning (2000): Industrial Development, Globalization and Multinational Enterprises: New Realities for Developing Countries, *Oxford Development Studies* 28 (2), p. 141-167.

Newman, K. 2000. Organizational transformation during institutional upheaval. *Academy of Management Review*, 25: 602-619.

Nichiguchi, Toshihiro and Erin Anderson (1995): Supplier and Buyer Networks, in: E.H. Bowman and B. Kogut, eds.: *Redesigning the Firm*, p. 65-84.

Nonaka, I. and Takeuchi, H. (1995). The Knowledge-Creating Company: How Japanese Companies Foster Creativity and Innovation for Competitive Advantage. New York: Oxford University Press.

North, D. C. (1990). *Institutions, Institutional Change, and Economic Performance*. Cambridge ; New York: Cambridge University Press.

Oman, Charles (2000): *Policy Competition for Foreign Direct Investment: A Study of Competition among governments attracting FDI,* Paris: OECD, p. 15-23.

Ozawa, Terutomo (1979): International Investment and Industrial Structure: New Theoretical Implications from the Japanese Experience, *Oxford Economic Papers* 31, 72-92.

Ozawa, Terutomo (1992): Foreign Direct Investment and Economic Development, *Transnational Corporations* 1, p. 27-54.

Patibandla, M. and B. Petersen (2002): Role of Transnational Corporations in the Evolution of a High-Tech Industry: The Case of India's Software Industry, *World Development* 30 (9), p. 1561-1577.

Peng, M.W. (2000a): *Business Strategies in Transition Economies*, Thousand Oaks: Sage.

Ramamurti, Ravi (2001): The Obsolescing 'Bargaining Model'? MNC-Host Developing Country Relations Revisited, *Journal of International Business Studies* 32, p. 23-39.

Rhee, Y.W. and T. Belot (1990): *Export catalysts in low-income countries*, Washington, CD: The World Bank, 1990.

Rodrik, D. (1999): The new global economy and developing countries: making openness work, Policy Essay nr. 24, Overseas Development Council, John Hopkins University Press, Washington, DC.

Romer, P.M. (1990). "Endogenous Technological Change." *Journal of Political Economy*, 98.

Rugman, Alan M. (1981): *Inside the Multinationals: The Economics of Internal Markets,* London: Croom Helm.

Rugman, A. and J. d'Cruz 2000): *Multinationals as Flagship Firms*, Oxford: Oxford University Press.

Rugman, A.M. and A. Verbecke (2002a): Location, Competitiveness, and the Multinational Enterprise, in: A.M. Rugman and T.L. Brewer, eds.: *The Oxford Handbook of International Business,* Oxford: Oxford University Press, p. 150-177.

Rugman, A.M. and A. Verbecke (2002b): Multinational Enterprises and Public Policy, in: A.M. Rugman and T.L. Brewer, eds.: *The Oxford Handbook of International Business,* Oxford: Oxford University Press, p. 818-842.

Schoors, K. and B. van der Tool (2002): Foreign direct investment spillovers within and between sectors: Evidence from Hungary, Working Paper 2002/157, University of Gent, October.

Sinani, E. (2003): PhD thesis, draft, Copenhagen Business School, Center for East European Studies.

Sinani, E. and K. Meyer (2002): …

Sjöholm, F. (1999a): Technology gap, competition and spillovers from direct foreign investment: Evidence from establishment data, *Journal of Development Stud*ies 36 (1), p. 53-73.

Sjöholm, F. (1999a): productivity growth in Indonesia: The role of regional characteristics and direct foreign investment, *Economic Development and Cultural Change* 47 (3), p. 559-584.

Smarzynska, B. (2002): Does Foreign Direct Investment Increase the Productivity of Domestic Firms: In Search of Spillovers through Backward Linkages, World Bank: Policy Research Working Paper no. 2924, October 2002.

Smarzynska, B. and S.-J. Wei (2001): Pollution Havens and Foreign Direct Investment: Dirty Secrets or Popular Myth, NBER Working paper 8465, September.

Teece, David (1977): Technology Transfer by Multinational Firms: The Resource Costs of Transferring Technological Know-how, *Economic Journal* 87, 442-491.

Tsou, M.-W., and J.T. Liu 1994. The spillover effect for foreign direct investment: Empirical evidence from Taiwan manufacturing industries, *Taiwan Economic Review* 25 (2), 155-81. [based on citation in Fan 2002]

Uhlenbruck, K. and De Castro, J. (1998) Privatization from the Acquirer's Perspective: A Mergers and Acquisitions Based Framework, *Journal of Management Studies* 35, p.619-640.

Uhlenbruck, K., K. Meyer and M. Hitt 2003. *Organizational Transformation in Transition Economies: Resource-based and Organizational Learning Perspectives*, *Journal of Management Studies*, March 2003.

UNCTAD (1994): *World Investment Report 1994: Transnational Corporations, Employment and the Workplace*, Geneva: United Nations.

UNCTAD (1999): *World Investment Report 1999: Foreign Direct Investment and the Challenge of Development*, Geneva: United Nations.

UNCTAD (2000): *World Investment Report 2000. Mergers and Acquisitions and Development*, Geneva: United Nations.

Van den Bosch, F. A. J., Volberda, H. W. and De Boer, M. (1999). 'Co-evolution of firm absorptive capacity and knowledge environment: Organizational forms and combinative capabilities'. *Organization Science*, **10**, 5, 551-68.

Villinger, R. 1996. Post-acquisition managerial learning in Central East Europe. *Organization Studies,* 17: 181-206.

Waltz, U. 1997. Innovation, foreign direct investment and growth, *Economica* 64, p. 63-79.

Wang, J.-Y. 1990. Growth, technology transfer and the long-run theory of international capital movements, *Journal of International Economics* 29 (3-4), p. 255-71.

Wells, L.T. (1998): Multinational and the Developing Countries, *Journal of International Business Studies*, 29(1), 101-114.

White, S. and G. Linden (2002): Organizational and industrial response to market liberalization: The interaction of pace, incentive and capacity to change, *Organization Studies* 23, no. 6

Woodward, Douglas and Robert J. Rolfe 1993. The Location of Export-Oriented Foreign Direct Investment in the Caribbean Basin, *Journal of International Business Studies* 24 (1), p. 121-144.

Xu, B. 2000. Multinational enterprises, technology diffusion, and host country productivity, *Journal of Development Economics* 62, p. 477-492.

Yin, R. K. (1994): ***Case Study Research*****,** Beverly Hills: Sage.

Young, S. et al. (1989): ….

Zahara, S., and G. George 2002. Absorptive Capacity: A Review, Re-conceptualization, and Extension. *Academy of Management Journal*, Vol. 27, No. 2, 185-203.

Zarsky, L 1999. Havens, halos and spaghetti: Untangling the evidence about foreign direct investment and the environment, in: OECD, ed.: *Foreign Direct Investment and the Environment*, Paris: OECD.

Zhan, J. and T. Ozawa 2001. *Business Restructuring in Asia: Cross-border M&As in the Crisis Period*, Copenhagen: Copenhagen Business School Press.

Appendix 1: Summary of Papers on Productivity Spillovers

Authors	Countries	Year [1]	Data type[2]	Level of analysis[3]	Proxy for foreign presence	Dependent variable[4]	Result [5]
=aÉîÉäçéáåÖ=`çìåíêáÉë=							
Blomström & Persson (1983)	Mexico	1970	CS	Industry (dom.)	Share in employment	VA/L	+
Blomström (1986)	Mexico	1970, 75	CS	Industry (dom.)	Share in employment	Deviations of VA/L from industry best practice	+
Blomström & Wolff (1994)	Mexico	1970, 75	CS	Industry (dom.)	Share in employment	VA/L growth	+
Haddad & Harrison (1993)	Morocco	1985-89	Panel	Firms (all + dom.)	Share in assets	1) Deviations of firm productivity from industry best practice 2) Growth of VA	n.s.
Kokko (1994)	Mexico	1970	CS	Industry (dom.)	Share in employment	VA/L	+
Kokko (1996)	Mexico	1970	CS	Industry (dom.)	Share in employment	VA/L	+
Kokko, Tasini &Zejan (1996)	Uruguay	1990	CS	Firms (dom.)	Share in output	VA/L	n.s.
Aitken & Harrison (1999)	Venezuela	1976-89	Panel	Firms (all)	Share in equity, weighted with employment	Log (Y)	-
Blomström & Sjöholm (1999)	Indonesia	1991	CS	Firms (dom.)	Share in total gross output	VA/L	+
Sjöholm (1999)	Indonesia	1980, 91	CS	Firms (dom.)	Share in output	1) VA/L 2) VA growth	+ +
Chuang & Lin (1999)	Taiwan	1991	CS	Firms(all + dom.)	Share in assets / R&D	TFP	+ +
Kathuria (2000)	India	1975-89	Panel	Firms (dom.)	Share in sales / Foreign technical capital stock to total industry sales	Change in technical efficiency	- +
Kathuria (2000)	India	1975-89	Panel	Firms (dom.)	Share in sales / Foreign technical capital stock to total industry sales	Productivity growth	n.s. +
Kokko et al. (2001)	Uruguay	1988	CS	Firms (dom.)	Share in output	VA/L	+
Kugler (2001)	Colombia	1974-98	Panel	Industry (dom.)	FDI stock	TFP	n.s. intra-industry, + inter-industry
Feinberg & Majumdar (2001)	India	1980-94	Panel	Firms(all + dom.)	R&D stock of foreign firms	Log(Y)	n.s.
Blalock (2001)	Indonesia	1988-96	Panel	Firms	Share in output		n.s. intra-industry, + backw. linkage
qê~åëáíçå=bÅçåçãáÉë=							
Djankov & Hoekman (1998)	Czech Republic	1992-97	Panel	Firms (dom.)	Share in sales	TFP growth	-
Yudaeva et al (2000)	Russia	1993-97	Panel	Firms (dom.)	Share in output	Y/L	+
Konings (2001)	Bulgaria, Poland, Romania	1993-97	Panel	Firms (all)	Share in sales	Log(Y)	- Bulgaria and Romania, n.s. Poland
Zwkovska (2000)	Poland	1993-97	Panel	Industry (dom.)	Share in output	Y/L growth	-
Kinoshita (2001)	Czech Republic	1993-98	Panel	Firm (dom.)	Share in Employment	VA growth	n.s.
Damijan et al (2001)	Eight East European countries	1994-98	Panel	Firms(all + dom.)	Share in Sales / export.	Y growth	+ Romania, - Slovenia, n.s. six others
Smarzynska (2002)	Lithuania	96-2000	Panel	Firms(all + dom.)	Share in equity, weighted with output	Log(Y)	n.s. intra-industry; + backward link

Schoors and v.d. Tool (2002)	Hungary	1997-98	CS	Firms	Share in sales	Y/L	+ intra-industry, + backward link - forward link
Sinani & Meyer (2002),	Estonia	1994-99	Panel	Firms (dom.)	Share in equity / sales / employment	Y growth	+
Zhang (2001)	China	1984-98	Panel	Regions (all)	Ratio of FDI stock to GDP	Aggregate growth real GDP	+
Liu (2002)	China	1993-98	Panel	Industry	Share in equity	Domestic VA/L	+
Buckley et. al (2002)	China	1995	CS	Industry (dom)	Shares in Sales / equity / exports	Y/L	+ Market access + Prod. Spill
aÉîÉäçéÉÇ=`çìåíéåÉë=							
Caves (1974)	Australia, Canada	1965, 67	CS	Industry (dom.)	1) Share in Sales. 2) Share in Equity.	Profit/Equity VA/L	+ Australia, n.s. Canada
Globerman (1979)	Canada	1972	CS	Industry (dom.)	Share in value added	VA/L	+
Liu et al. (2000)	UK	1991-95	Panel	Industry (dom.)	Share in equity	Log(VA/L)	+
Harris & Robinson (2001)	UK	1974-95	Panel	Firms (dom.)	Share in capital stock	Log(Y)	n.s., + or - according to industry
Haskel, et al (2001)	UK	1973-92	Panel	Firms (dom.)	Share in employment	Y growth	+
Driffield (2001)	UK	1986, 92	CS	Industry (all)	Growth of foreign sales / capital / R&D	VA growth	n.s.
Girma (2002)	UK	1989-99	Panel	Firms (dom.)	Share in employment in FDI region	TFP growth	n.s.
Barrios (2001)	Spain	1990-94	Panel	Firms(all + dom.)	Share in value added.	Log(VA)	n.s.
Barrios et al (2001)	Greece, Ireland, Spain	1992, 97	CS	Firms (dom.)	Share in employment.	Log(Y/L)	n.s. Greece, + Ireland and Spain
Flores et al (2000)	Portugal	1992-95	Panel	Industry (dom.)	Share in value added	VA/L	n.s.

Notes:

1. Data period analyzed
2. CS = cross-sectional data;
3. Some studies cover impact on all firms ('all'), while other studies consider only impact on domestic firms (dom.) and yet other studies have separate regressions for both (all + dom.).
4. VA = value added, L = labor, Y = output (using different proxies, such as sales).
5. * = Intra-industry productivity spillovers unless otherwise specified, forward/backward refer to the perspective of the MNE, + and - means significant positive or negative spillovers; n.s. indicates insignificant spillovers.

Source: Sinani (2003).