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KNOWLEDGE TRANSFER TO MNE SUBSIDIARIES BASED IN CENTRAL EAST EUROPE – Integrating knowledge-based and organisational perspectives. An introduction

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Aims and objectives

This Special Edition of *East-West Journal of Economics and Business* is guided by the interest in the question to what extent foreign direct investors transfer technology or knowledge to the economies in Central East Europe (CEE). The main objectives of this Special Edition are: first, to contribute in terms of theory development by integrating organisational and knowledge-based views on knowledge transfer in MNE's; and second, to bring fresh empirical evidence on the determinants of intra-MNE knowledge flows and the potentials of technological spillovers to domestic firms.

Knowledge transfer and empirical evidence from CEE

According to the technology gap hypothesis, foreign direct investment plays a particularly important role for relatively more backward regions (Findlay 1978). Campos and Kinoshita (2002) argue that CEE transition economies were far away from the international technological frontier, hence, could potentially benefit from technology transfer to a particularly large extent. Yet, in distinction to many developing countries, they started out with a long history of industrialisation and a relatively well educated work force. Moreover, these economies are located in proximity to large EU markets, and most transition economies embarked on a comprehensive privatisation process at the time when FDI flows were starting to peak on a global scale. Arguably the transfer of technology and know-how accompanying FDI is increasingly more important than the sole capital transfer (Hunya 1998, McMillan 1996). In fact empirical evidence for CEE shows that foreign subsidiaries are deepening trade linkages; that direct effects of FDI materialise in significantly higher productivity compared to domestic firms. However, the extent of technological spillovers from FDI is still very limited, non-existent or even negative (Holland et al 2000, Hunya 2000, Resmini 2000, Rojec 2000, Konings 2001, Meyer 1998, Damijan et al 2003, Jindra 2005). Whilst we can safely assume that the economic activity of a foreign investor will typically help to accelerate technological development in the host economy to some degree (see e.g. Dyker and Stolberg 2003, Lim 2001, Hunya 2000), we do not know under what conditions is technology and knowledge transfer particularly intense.

The primary reason why MNE's exist is because of their ability to transfer internally and exploit knowledge more effectively and efficiently vis-à-vis external market transactions (Hymer 1960, Buckley and Casson 1976, Caves 1982, Porter 1986, Teece 1981). Despite increasingly open and efficient global markets, they remain relatively ineffective means for two reasons: one, an important part of specialised knowledge of any firm exists in a tacit and thereby non-tradable form; two, market based transactions are often associated with negative externalities (Gupta and Govindarajan 2000). However, the existing literature has shown a number of impeding factors to effective knowledge transfer such as the associated resource costs (Teece 1981), the characteristics of knowledge itself (Lippman and Rumelt 1982, Polanyi 1966, Zander and Kogut 1995), motivational disposition, and insufficient absorptive capacity (Levinthal and March 1993, Simon 1991, Szulanski 1996 etc). With some notable exceptions very little systematic empirical investigation into the determinants of internal knowledge transfer has been attempted so far (for example Goshal and Bartlett 1988, Gupta and Govindarajan 1994, 2000). The main research interest in the management of MNE knowledge processes has

been on cognitive aspects such as tacitness, complexity, absorption etc. With regard to the CEE region studies suggest that knowledge inflows from foreign parent depend on the provision of training, technology, and managerial assistance (Lyles and Salk 1996, Steensma and Lyles 2000), and informal institution such as trust and shared values (Lane et al 2001, Dhanaraj et al 2004). Another line of studies researched the role of particular human resource practices and expatriates in foreign affiliates (Cyr and Schneider 1996, Minabeva and Michailova 2004, Minbaeva 2005). Despite a rich literature on the mode of entry, post-acquisition strategies, and governance of foreign affiliates in transition economies (see Meyer and Peng 2005 for an overview), considerably less attention has been devoted to the mechanisms of organisational control in knowledge transfer processes within MNEs. However, with reference to developed economies there are some notable exceptions such as Gupta and Govindarajan (2000) scrutinising the role of formal integration mechanisms, the allocation of decision-making power, and motivational disposition. However, Foss and Pedersen (2004) argue that knowledge transfer itself is rarely considered endogenous to organisational arrangements. Therefore, contributions selected for this Special Edition try to fill this gap by working at the interface between knowledge-based, organisational, and strategic thinking and the example of foreign affiliates based in the transition economies of Central and East Europe.

CEE subsidiary database

The field work study, from which the contributions presented here are derived, formed part of a larger research EU RTD 5-th framework project[1] that generated a unique database for subsidiaries based in Estonia, Hungary, Poland, the Slovak Republic, and Slovenia. In 2002/2003 local mangers and CEO's provided information about measurable firm characteristics and various aspect covering governance, strategic control, and subsidiary mandates. The project targeted the largest foreign operations in terms of employment. In terms of methodology, we hence intentionally introduced a selection-bias: rather than being able to deduct from our results a general picture that applies to any technology transfer via FDI, our results pertain to the most important objects involved in this process and hence remain country-specific. Out of the 2203 subsidiaries approached some 458 questionnaires were returned. The response rate was the highest in Slovenia with 34.4 per cent, followed by Slovakia (30.2

[1] *HPSE-CT-2001-00065: 'EU Integration and the Prospects for Catch-Up Development in CEECs - The Determinants of the Productivity Gap' (2001-2004),* www.ihw-halle.de/projects/productivity-gap.htm

per cent) and Estonia (30.0 per cent), while in Poland and Hungary only 18.8 per cent and 11 per cent respectively answered.

Contributions and findings

The analyses presented here are in the form of four individual contributions all of which use the same database yet apply different empirical methods and conceptual frameworks. The results are hence complementary and should allow the reader to learn the most up-to-date knowledge that science has to offer about the role of FDI in CEE.

Hamar and Stephan develop a taxonomy in which the potential for internal technology transfer is conceptualised along two dimensions: subsidiaries' mandate and adaptive ability. Mandate refers the extent to which business functions are undertaken by the subsidiary. Adaptive ability refers to foreign affiliates that are autonomous and at the same time have generated high productivity growth since entry of the foreign owner. The authors test to what extent there are differences in the subsidiaries' potential for internal transfer across the five CEE countries in the sample. In addition to all other studies in this Special Issue, Hamar/Stephan analyse also the potential for external technology transfer approximated by the extent of trade (forward/backward) and non-material linkages to domestic firms. They find that Hungary show the largest potential for internal technology transfer, but shows however, the lowest extent of local linkages limiting the scope for external effects. In contrast Polish and Estonian foreign companies are characterised by a high potential for external effects. However, here affiliates do not translate extensive mandates into productivity gains. For Slovenian and Slovakian subsidiaries showed similarly low potential for internal technology transfer; however, here also external linkages were limited.

Jindra tests the link between subsidiary roles and the extent of knowledge transfer across the whole sample. He assumes knowledge inflows endogenous to subsidiary roles. Using integrating strategy and knowledge-based perspectives he derives a MNE integration-subsidiary capability (IC) framework and differentiates four subsidiary roles. MNE integration is proxied by various measures including control as well as the trade links between the MNE and its subsidiary. Subsidiary capability is approximated by the extent to which the foreign affiliate exercises technological functions and has its own R&D capabilities. Jindra predicts that MNE integration and subsidiary capability are positively associated with knowledge inflows. Cluster-centre analysis is used to allocate each subsidiary to a strategic role. After controlling for country, industry, and firm specific effects the impact of subsidiary role as determinant of knowledge inflows is estimated. The key findings are: (a) the

extent of knowledge inflows differs significantly across all subsidiary roles defined; (c) the probability of knowledge inflow diminishes in a anti-clockwise direction starting in the high integration-high capability quadrant of the IC taxonomy; thus (b) both MNE integration and subsidiary capability drive knowledge inflows.

Majcen et al scrutinise the link between productivity growth and functional upgrading in Slovenian manufacturing subsidiaries. Special attention is given to the impact of foreign and governance patterns. After controlling for other firm specific and industry effect that the level productivity growth is significantly and positively correlated with the level of foreign parent companies' control of marketing and strategic business functions. The foreign equity share as such is not a significant factor. Thus foreign equity seems not to be an alternative for foreign parent companies' control of marketing and strategic business functions. In other words, the level and mechanisms of control of individual business functions seem not to be related to the level of foreign equity share. Furthermore, their models indicate that larger subsidiaries and subsidiaries with a higher exports-to-sales ratio also experience higher changes in the productivity level. Subsidiaries in high technology intensity sectors exhibit significantly lower changes in productivity than subsidiaries in other sectors.

Männik et al examine country, industry and firm specific effects on the autonomy of MNE subsidiaries across business functions for the five countries in the sample. The study aims at developing a deeper understanding of the multidimensionality of the subsidiary autonomy that is analysed in four areas: technology, marketing, management, and finance. Multivariate analysis revealed significant differences in subsidiary autonomy by countries, industries, and firms. Subsidiaries in more developed CEE countries, such as Slovenia and Hungary, had the highest scores for the autonomy, especially in terms of management and financial autonomy. In terms of industry the most autonomous subsidiaries were found in medium-high-tech and low-tech industries. In contrast foreign affiliates in high-tech industries showed low autonomy across all four factors. In terms of firm effects, size is positively associated with autonomy in Poland, Hungary and Estonia. In contrast, smaller firms have higher autonomy in Slovenia and Slovakia. A link between firm performance and autonomy could be attested for subsidiaries in Slovenia and Hungary. In sum, the study finds evidence for the heterogeneity of subsidiary autonomy that seems to be country, industry, and firm specific.

Jindra et al test the ‘technology gap’ hypothesis in the context of intra-MNE knowledge flows. Furthermore, it introduces complementary knowledge stocks into the concept of absorptive capacity. The analysis finds partial support for the ‘technology gap’ hypothesis applied at industry level. Furthermore,

subsidiaries' complementary knowledge stocks increase the probability for corresponding knowledge inflows from the foreign parent.

Conclusions

To summarize, the studies this Special Edition contribute in terms of theory development as they suggest two different frameworks for conceptualising the determinants of intra-MNC knowledge flows combining organisational and knowledge-based theory (Hamar and Stephan, Jindra). On the empirical side, the contributions show that subsidiary autonomy is heterogeneous and depends on country, industry, as well as firm effects (Männik et al). There seems to be a particular pattern of governance that is positively associated with firm performance. Strong foreign control over particular business functions independent from the equity share held by foreign investors seem to drive productivity in Slovenia. Furthermore, there seems to be evidence for a link between particular subsidiary roles and knowledge inflows across CEE. MNE integration and subsidiary capability foster knowledge inflow and firm performance (Jindra). With regard to absorptive capacity, subsidiaries' knowledge stocks seem to be complementary to knowledge inflows from the MNE (Jinda et al). This Special Editions highlights the notion of subsidiary heterogeneity i.e. the potential direct and indirect impact of FDI on a host economy depends crucially from the nature of subsidiary operation. This is in turn depends on MNE strategy as well as the local environment. Mainstream economic approaches assessing FDI effects would benefit by taking account of this dual heterogeneity visible at a more detailed firm level.

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