

## **Industrial restructuring in European transition economies and MNEs' investment motivations**

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### **Abstract**

Using survey evidence the paper characterises MNEs' strategic positioning in central and eastern European economies in terms of the relative status of seven reasons for investing and the degree of use of seven sources of technology. As a key theme the ways in which the diverse objectives and technological positioning of MNEs' operations in the transition economies can affect both the initial industrial transformation and further sustained development of such host countries is analysed. The entry of MNEs to the transition economies is found to target the supply of the local markets, using the groups' mature technologies as embodied in established products. However, the presence of various secondary motives and supporting localised technology sources demonstrates the presence of significant evolutionary processes. These may lead to individualised (export-oriented) roles of subsidiaries in transition economies using local technology and creative competences.

## **Industrial restructuring in European transition economies and MNEs' investment motivations**

### **Introduction.**

Early speculation and analysis with regard to foreign direct investment in the newly emerging transition economies of Central and Eastern Europe (CEE) tended to focus on those attributes of potential host countries that would be likely to attract, or repel, the activities of multinational enterprises (MNEs). On the positive side emphasis was placed on the immediate size and growth potential of the markets of such countries and on their ability to provide inputs to the current production operations of MNEs in a cost-effective fashion. Delineation of a range of attracting attributes implicitly recognised the presence of a comparable heterogeneity of motivations within the decision framework determining the direction and strategic status of MNEs' new investments. Subsequent studies refocused the articulation of their analysis of MNEs' activity in CEE economies by adopting typologies of subsidiary roles or strategic motivations. The current paper adopts the latter approach, but places somewhat more emphasis than most early studies on two complementary lines of argument.

Firstly, it is argued that the aims of the analysis can be usefully extended to cover issues relating to the ways in which MNEs' operations in CEE may influence the nature and value of the industrial transformation and economic restructuring achieved in these countries. Beyond the vital, but general, contribution of foreign enterprise and capital to support privatisation, the operations of MNEs are seen to have other, more case-specific, potentials. Thus where these companies focus mainly on the supply of their already successful products to the host-country (or wider-CEE) market, both the originality of

these goods and the practices through which they are advertised and distributed may make important qualitative contributions to the marketisation of these economies. Where MNEs' aim is more towards the use of cost-effective local inputs to support exports to wider (notably Western European) markets the host-country benefits will emphasise the internationalisation of local industry in ways that reflect immediately available sources of comparative advantage.

However, successful economic transition and continued development, inevitably and desirably, change those characteristics that originally attracted the MNEs' investments. Increased incomes may mean that local consumers demand upgraded products and greater responsiveness. These same increased incomes may reflect higher rewards to local factors (notably labour) in ways that begin to offset the cost-effectiveness of the export-oriented operations. The key emphasis of this first point is then to suggest that the strategic heterogeneity of MNEs' subsidiaries (their operation as a dynamic differentiated network) means that the potential exists to embrace these host-country changes in a positive manner through complementary processes of strategic evolution.<sup>1</sup> Sustained growth and development in CEE countries need not alienate MNEs' operations, but instead can provide the basis for an impulsion towards upgrading and deepening of their commitment to the local economy.

<sup>1</sup> The key conceptualisations of the modern MNE that underpin this line of argument, and the central themes of the paper, are the heterarchy (Hedlund, 1986, 1993; Hedlund and Rolander, 1990), the transnational (Bartlett and Ghoshal, 1989, 1990) and the horizontal organisation (White and Poynter, 1990). The ability to build global competitive capacity through networks of subsidiaries playing differential roles (including learning and knowledge generation) has been suggested in the work of Bartlett and Ghoshal (1986), Ghoshal and Bartlett (1990, 1998) and Ghoshal and Nohria (1989). The potentials for subsidiary evolution within such networks are analysed by Birkinshaw and Hood (1997, 1998), Birkinshaw, Hood and Jonsson (1998), Birkinshaw (1996, 1997), Delany (1998) and Egelhoff et al (1998).

The second point is to see technology as central to the potential of such mutually-shared processes. Understandably few of the early studies saw technological capacity or capability as host-country characteristics that were likely to attract the initial investments of MNEs. Similarly the expectation was also that the technological status of subsidiaries would, at their setting up, be based around the local activation of elements of the standardised existing knowledge of the parent group. The local technological capability was normally expected to be limited to the assimilation and operationalisation of products and processes transferred from elsewhere in the MNE. However, studies of the developmental possibilities available to individual MNE subsidiaries have argued and demonstrated the potential for movements to higher-value-added roles (notably in the form of acquisition of a mandate to pursue new product development) through their in-house generation of distinctive technological capabilities (Pearce, 1992, 1999; Papanastassiou and Pearce, 1999). In turn the ability to achieve such technological individuality at the subsidiary level is expected to reflect the availability of knowledge and expertise (e.g. strong R & D experience and capacity) from its host-country science base. The availability of a commercially underdeveloped potential of this type, inherited from high levels of scientific commitment (research funding, education and training) during central planning, may be an unexpected resource in CEE economies, that enters the strategic thinking of entrepreneurial subsidiary managers at an early stage (Manea and Pearce, 1997a).

This paper develops these two themes using material from a survey of global or regional HQs of leading industrial MNEs, which asked them to evaluate a number of factors relating to their operations in CEE. The questionnaire was sent to 408 leading

manufacturing and resource-based MNEs,<sup>2</sup> with replies received from 50 of these. Twenty-eight of these had manufacturing operations in CEE economies and 11 more had subsidiaries there which carried out other significant parts of the value-added chain (marketing, distribution, resource exploration, strategic planning offices).<sup>3</sup> The respondents reported on in this paper covered mainly those with manufacturing operations, along with a selection of those with other forms of substantive value-adding activities in CEE economies.

In the next section we report the respondents' evaluation of seven possible reasons for investing in CEE economies. In terms of the themes of this investigation these seven reasons may be perceived as variants of (or as encompassing different degrees of) three types of primary motivation for MNE expansion (Dunning, 1993; Behrman, 1984). The first of these imperatives is *market seeking* (MS). The crucial host-country attribute here is the potential of its market, and the MNE investment is thus made to strengthen its position in the supply of that market. In this case MNEs may have previously supplied these countries to some degree through trade (notably from sites in Western Europe) but now respond to the opportunities of political and economic transformation by relocating at least some substantial parts of the value-chain into the region, in order to address the distinctive needs of competitiveness in these markets more completely and responsively.

<sup>2</sup> The starting point was the *Fortune* listing of leading global corporations, published in August 1996. Since this, for the first time, covered all areas of business, only 207 relevant manufacturing and extractive enterprises were found. To increase the population the last listing of 500 industrial companies (*Fortune*, July 1994) was consulted and 201 firms not already derived from the 1996 listing were added to the 207.

<sup>3</sup> The remainder answered questions relating to their general evaluation of aspects of transition economies, reasons why they had not invested and their future approach to the region.

An alternative initial motivation for investment takes the form of *efficiency seeking* (ES). In its pure form ES behaviour would see no change in the market to which goods are to be supplied, but instead involves relocation of their production to sites providing lower input-costs and therefore securing a sharpening of efficiency and competitiveness. Thus an early prediction was that MNEs might assist the internationalisation of CEE economies by moving the production of some of their currently most price-sensitive goods to low-cost parts of the region, with these then being mainly exported back to their established (notably Western European) markets. A concern with such ES activity is that it only remains viable as long as the relatively standardised inputs retain their cost competitiveness. But, as we have noted, the process of development implies improved real rewards to a country's factors of production and may, therefore, seem to inevitably compromise the survival of operations initiated in response to efficiency-enhancing local inputs. As also already indicated, however, the potential for subsidiary evolution may provide an escape route from the alternative of closure, and thus from the view of MNEs' operations as innately footloose.

The basis for subsidiary upgrading will often take the form of the use of local knowledge and skill inputs to enhance the quality and individuality of its products (essentially acceding to product development status) and/or the productivity of its manufacturing processes. Building these subsidiary-level capabilities from local technologies, skills and research results and capacities, represents one manifestation of *knowledge seeking* (KS) as a third key imperative within the globalised aims of the contemporary MNE. Thus it is increasingly recognised that MNEs are now well aware of the need to detect and access significant new knowledge (including technological

potential and emerging taste trends and market needs) at any point in the global economy. The need to often embody KS motivations within individual subsidiaries provides a crucial evolutionary opportunity for these facilities (from either MS or ES origins) to justify their internalisation of more creative and dynamic local attributes. Once subsidiaries have asserted their individualised status in the MNE group around these more differentiated and localised sources of competitiveness they can also be seen to have taken on a more embedded and sustainable position within the development of the host economy (Pearce, 2000). The availability of such knowledge potentials in the European transition economies is unlikely to have often been a dominant factor in the initial attraction of MNEs' investments but, we argue, may well provide an impulsion for a very early deepening of their capabilities and thereby of their strategic status.

Against the background of the alternative roles and evolutionary possibilities available to subsidiaries, section three evaluates the strength and strategic positioning of seven sources of technology in the CEE operations of the leading MNEs. Two of these represent imported technologies of the subsidiary's parent MNE group. The first comprises fully stabilised technology, already embodied in mature and successful products, and would therefore, if dominant, impose dependency and vulnerability on the subsidiary. The second group technology, however, is perceived as not yet having been fully defined into standardised commercial formats, and as therefore possessing the potential to be activated as part of subsidiary-level product development operations. The remaining five technology sources are ones that are accessed or generated (in the case of output of local research work supported in some way by the MNEs) by the subsidiary in its host country. Even where the local technology is a mature and successful one that is

already embodied in established goods, its new activation within the scope of a MNE subsidiary can be seen as part of an individualisation process that may help that facility to assert an enhanced position in the more dynamic facets of its group's progress.

Thus the ways in which the local sources of technology may help define the potential for subsidiaries' strategic repositioning is a key theme, and section 3 therefore derives hypotheses relating to the manner in which the different (intra-group or host-country) types relate to the reasons for investing that are developed in section 2. Regression tests of these hypotheses are reported and discussed in section 4. Finally section 5 draws overall conclusions on the potentials for MNEs' contribution to both industrial transformation and sustained development of CEE transition economies.

### **Reasons for investing.**

The first reason for investing in a particular CEE economy which respondents were asked to evaluate was defined as 'to establish a strong position in the market of the host country' (HOSTMARKET). MS is clearly at the core of this reason for investing, and would certainly define the dominant motivation impelling the initial establishment of a subsidiary targeting this objective. Thus this motivation sees the particular CEE economy in terms of a significant extension of the MNE's geographical market areas, and perceives the establishment of a subsidiary there as providing the most effective way of obtaining a secure and well-rooted application of the group's existing sources of competitiveness in that country. The potential offered to subsidiaries that are initially mainly driven by this host-market imperative to pursue locally-responsive product and

process adaptation may, however, very quickly bring elements of, at least low-level, KS behaviour into their operations.

Thus effective penetration of a new market through this form of MS behaviour is likely to explicitly allow for individualisation of supply through localisation of those strong firm-level capabilities (established products and production processes) that provide the competitive basis for the initial entry. Accessing various aspects of local technology, skills and capabilities (i.e. forms of KS behaviour) may then provide valuable inputs into these local-market-targeting individualisation processes within the broader HOSTMARKET objective.

Though production efficiency will clearly be a routine concern of HOSTMARKET behaviour (including through process adaptation, as already suggested), we do not see ES as significantly relevant to the primary motivation for the initial implementation of such operations. The strength of the MNE's established sources of competitiveness, and the ability to apply them effectively to distinctive local (host-country) needs and conditions, provide the key capabilities that secure the HOSTMARKET objective. If this is so then the prevalence of KS over ES in supporting the achievement of the primary MS imperative of the HOSTMARKET reason for investment may also point towards the nature of the evolutionary potentials being generated within such local-market operations. As Table 1 demonstrates in summary form, HOSTMARKET emerges as the strongest currently perceived reason for

investing<sup>4</sup>, being rated as a 'major' reason for investment for 78.4% of subsidiaries and as 'not' a reason for only 8.6%.<sup>5</sup>

The second predominantly MS reason for investing in a CEE economy was defined as 'to achieve better access to a new regional market (i.e. other CEE countries)' (CEEMARKET). Once again the initial impulsion to the investment comes from pursuit of the most effective means of securing an enhanced degree of commitment to the supply of a newly-emergent market space. Though the motivation is thus defined by the MS imperative of achieving a competitive positioning in a specific market area, the supporting status of ES and/or KS in securing and developing this position from a particular CEE economy are also a crucial part of the analysis.

Since the market targeted here is one comprising several national economies, the initial MS decision to supply from within the region is followed by another involving the choice of the precise location of such a production facility. To the extent that this decision relates to the cost-efficiency of production of those parts of the MNE's standard product range that provide the basis for its successful entry of the new regional market, then ES becomes the main supplementary element embodied in securing the aims of CEEMARKET. However, as with HOSTMARKET, the full achievement of the MS objective is likely to ultimately benefit from individualising the supply capabilities so as

<sup>4</sup> Such dominance of market-seeking behaviour has been a pervasive result of survey studies (Svetlicic and Rojec, 1994; Rojec and Svetlicic 1993; Lankes and Venables, 1996; Mutinelli and Piscitello, 1997; Meyer, 1998; Manea and Pearce, 1997b, 1998) and case studies (Estrin et al, 1997).

<sup>5</sup> Thirty-three HQs replied to this question, of which 27 were from those with production subsidiaries in the CEE region and six from those that operated there through other parts of the value-chain. In all 135 subsidiaries were covered through separate replies reported in table 1. Of these 74 were producing subsidiaries, 19 were subsidiaries of MNEs that did have production operations in CEE but which themselves only operated at other stages in the value-chain, and 42 were subsidiaries of MNEs that only operated in CEE at non-production phases of the value-chain.

to better respond to the tastes and conditions of the target market area. Since the customer base in the case of CEEMARKET is likely to be both more diverse and more extensive than for HOSTMARKET it may well need and justify a more thorough individualisation of supply (i.e. movement away from the current standardised norms of the MNE group), with a more complete product development process superseding mere adaptation of existing goods. This may then call into play much more comprehensive and profound KS behaviour in the CEE-country subsidiary.

In this case creative capabilities may become part of those local attributes that sustain operations in one CEE economy as a supply base for the wider region. However, it may be difficult to reconcile ES and KS as supporting imperatives in building the subsidiary's ability to fulfil the CEEMARKET form of MS motivation. Thus ES points towards a short-term competitiveness that is secured by emphasis on low costs, whilst KS is oriented towards the commitment of overhead expenditures to build up creative capacities that will yield medium-term dividends in the form of enhanced and individualised products. The more decisive that stringent cost performance (ES) is seen to be in obtaining a role in the group's MS objective (CEEMARKET), the less likely is the subsidiary to be able to implement investment in those creative attributes (KS) whose rewards will be somewhat delayed.

Though less prevalent than HOSTMARKET, CEEMARKET confirms the overall predominance of MS in the early CEE activity of MNEs by revealing clearly the second highest average response (AR) in Table 1. In fact CEEMARKET was rated as a 'major' reason for investing for 43.9% of subsidiaries, and as a 'minor' (supporting) reason for another 34.5%.

**Table 1: MNEs' evaluation of reasons for investing in CEE countries**

	Reasons for investing (average responses) <sup>1</sup>						
	HOST MARKET	CEE MARKET	EFF SEEK	LOW COST	LAB SKILL	SCIENCE INPUT	NATRES
<i>By home region</i>							
Asia	2.25	3.00	2.25	3.00	2.00	1.43	1.38
North America	2.73	2.30	1.34	1.55	1.39	1.18	1.18
West Europe	2.93	2.07	1.36	1.92	1.24	1.07	1.18
<i>By host country</i>							
Bulgaria	2.70	1.90	1.10	1.44	1.18	1.09	1.09
Czech Republic	2.81	2.38	1.62	1.95	1.48	1.10	1.10
Hungary	2.71	2.38	1.47	1.90	1.33	1.19	1.19
Poland	2.88	2.32	1.60	2.04	1.44	1.08	1.16
Romania	2.91	2.18	1.18	1.64	1.27	1.09	1.18
Russia	2.94	2.18	1.29	1.82	1.24	1.31	1.47
Slovakia	2.63	2.19	1.25	1.80	1.44	1.13	1.13
Slovenia	2.80	2.00	1.10	1.44	1.22	1.10	1.20
<i>By industry</i>							
Chemicals	2.69	1.92	1.26	1.31	1.16	1.05	1.05
Electronics	2.90	2.23	1.38	1.74	1.62	1.31	1.31
Mechanical Engineering	2.86	2.48	1.48	2.29	1.18	1.09	1.36
Motor vehicles	2.86	2.86	2.29	2.86	1.57	1.33	1.43
Miscellaneous	2.70	2.30	1.33	2.04	1.35	1.00	1.00
Total	2.80	2.24	1.40	1.83	1.35	1.14	1.18

*Reasons for investing.*

HOSTMARKET - to establish a strong position in the market of the host country.

CEEMARKET - to achieve better access to a new regional market (i.e. CEE countries).

EFFSEEK - to improve our MNE group's competitiveness in supplying its established markets (e.g. EU).

LOWCOST - availability of low-cost input factors (e.g. cheap labour; energy; raw materials).

LABSKILL - the skill quality of production labour.

SCIENCEINPUT - availability of scientific inputs.

NATRES - access to particular national research and technological expertise.

*Note:*

1. Respondents were asked to evaluate each reason, for each country in which they had investments, as (i) a major reason for investing, (ii) a minor reason for investing, (iii) not a reason for investing. The average response was calculated by allocating 'major' reason the value of 3, 'minor' reason the value of 2, 'not' a reason the value of 1.

In the context of this analysis pure-ES behaviour takes the form of implementing a production operation in a CEE country in order to increase the effectiveness with which existing goods are supplied to those market areas in which their acceptance is already well-established. Rather than extending markets geographically, as in the two previous reasons for investing, the aim of ES is here to deepen (or defend) an already fully-formulated position in a familiar area, by sharpening the competitiveness of those goods around which this presence has been built. This broad perspective of ES was defined in the survey as 'to improve our MNE group's competitiveness in supplying its established markets (e.g. EU)'(EFFSEEK).

In its pure form, as envisaged by HQ observers or planners, such ES behaviour would involve the effective operationalisation of standardised technologies and practices, in order to replicate existing production processes, at lower cost, in a new CEE location. As such its cost stringency would, once again, be assumed to normally limit the likelihood of approval for any KS resource commitment. However, this might be less readily accepted at the subsidiary level, where the technological dependency and strategic vulnerability of a severely truncated functional capability might generate serious frustration (especially in countries where creative potentials and competences can be clearly discerned). Where such frustration can be manifested around clearly articulated and persuasive KS potentials, an ES subsidiary might occasionally be provided with a basis for some degree of speculative investigation where this does not compromise the coherence of its primary network-supply role. Though subsidiaries that manifest the EFFSEEK reason for investment may well supply some of their output to CEE markets, this would be seen as a spillover from the success of their ES aims and not as active MS

behaviour (which might cultivate local markets more effectively through product differentiation). Against the expectations of much early theorising on MNE entry into CEE, this form of ES behaviour was reported as relatively rare. Thus it was not considered to have been a reason for investing in the case of 75.5% of the subsidiaries covered, and was rated a major one for only 13.7%.<sup>6</sup>

The three reasons for investing in CEE countries reviewed so far can be interpreted as representing forms of a strategic need for MNEs to geographically extend their supply capacity, in response to varied demand-side requirements (i.e. to secure a more complete and responsive access to emerging CEE markets in the MS cases, and to reinforce the competitiveness of provision to existing markets in the ES one). The remaining four reasons for investment relate more to what may be considered as supply-side characteristics, i.e. a CEE economy's ability to supply those inputs that can support a local subsidiary's capacity to play a particular role at a particular time (and, perhaps, to achieve evolution in its role over time).

The first of these supply-side reasons for investing was described as 'the availability of low-cost input factors (e.g. cheap labour; energy; raw materials)'(LOWCOST). This may be seen as mainly supporting the ability to take an ES position within a MNE's supply capabilities. As Table 1 shows LOWCOST was in fact somewhat more strongly endorsed than the demand-side form of ES (EFFSEEK), being considered as a major reason for investment in 22.8% of subsidiaries and a minor reason

<sup>6</sup> Other studies reinforce the view of the rather secondary relevance of either the ES motivation (Lankes and Venables, 1996; Manea and Pearce, 1997b, 1998; Rojec and Svetlicic, 1993) and of input costs (Svetlicic and Rojec, 1994; Rojec and Svetlicic, 1993; Meyer, 1998) though labour seeking was a quite significant factor in Italian investment in CEE economies (Mutinelli and Piscitello, 1997).

for a further 32.4%. This does indicate that though cost-consciousness is not a dominant motive for investing in CEE its influence does extend beyond those subsidiaries with an EFFSEEK orientation into support of the predominantly MS subsidiaries. Again the expectation would be that strong response to LOWCOST would mitigate against simultaneous KS behaviour.

The second reason for investing that relates to immediate supply capability was 'the skill quality of local labour' (LABSKILL). Such skilled labour may support ES, by enhancing productivity in established production processes. In MS contexts its scope may go beyond this by manifesting specific locally-oriented capabilities and awareness that can assist in product or process adaptation. Indeed such localised skill dimensions can provide an input to KS activity, by helping with the individualisation of subsidiary competence that supports product development. Despite this eclectic range of possibilities, however, LABSKILL was rarely perceived as a significant influence on MNE expansion into CEE, being a major reason for investing for only 3.6% of subsidiaries and rated as irrelevant for 70.5%.

The final two reasons for investing encompass the availability of local attributes that can support the implementation of KS behaviour. The first of these, 'availability of scientific inputs' (SCIENCEINPUT), provides a generalised basis for implementing creative and product differentiating activity in a subsidiary where this involves generation of a knowledge capability that moves beyond the routine application of the standardised technology embodied in the goods inherited for MS or ES supply.

The second KS reason was formulated as 'to access particular national research and technological expertise' (NATRES). Here the specification is of particularly unique

elements in the host-country's technology and research capabilities, that can be accessed by a subsidiary in order to build a basis for offering a very explicit and distinctively original contribution to the extension of the product and knowledge scope of its MNE group. Whereas SCIENCEINPUT provides the in-house competence to benefit from evolutionary processes in the MNE, NATRES seeks to tap into more radical local knowledge potentials with the intention of attempting to assert a contribution to the more revolutionary dimensions of the group's technological and product progress. As Table 1 shows neither of these reasons for investing have so far asserted sustained prominence, with SCIENCEINPUT only relevant in 12.2% of subsidiaries and NATRES in 15.9%.

Another level at which the results in Table 1 reflect the strategic heterogeneity of early entry into CEE economies is in the rather different reasons that are emphasised by respondents from MNEs of different home-country origins. Here it is the Asian MNEs' orientation that is most distinctive. Thus HOSTMARKET is of well-below-average significance for Asian MNEs (albeit still of considerable absolute relevance), whilst both the export-oriented demand-side reasons (CEEMARKET and EFFSEEK) are vastly more important than for North American and European firms. Furthermore this is backed up by distinctively strong evaluation of ES-supporting inputs (LOWCOST and LABSKILL). A possible explanation of this may be that these Asian MNEs are setting up their initial CEE subsidiaries within the context of the ongoing completion of their wider European networks, and that ample room still exists for these subsidiaries, where demonstrably cost-effective (thus the notably strong response to the supply-side reasons), to claim major supply responsibilities for wider market areas. By contrast the early CEE operations of European and American MNEs may be seen more as appendages to already

fully-formalised, and mostly stable, European networks where strong vested interests (mature and politically adept subsidiaries in Western Europe) prevent the immediate penetration of these markets by output of new subsidiaries. Such strategic flexibility in Asian MNEs may also be the sources of their somewhat greater enthusiasm for KS reasons for investing in CEE (SCIENCEINPUT and NATRES).<sup>7</sup>

The subsidiaries of European MNEs have the most explicit focus on the host-country market (notably compared with the weakest extension into other CEE markets), which is in fact consistent with earlier observations of the strong local-market orientation of these MNEs' operations in UK (Hood and Young, 1988; Young, 1992; Papanastassiou and Pearce, 1999, Pearce and Papanastassiou, 1997), Belgium (Sleuwagen, 1988) and Portugal (Tavares and Pearce, 2000). US subsidiaries do seem to be quite strongly motivated to target other CEE markets,<sup>8</sup> though this does not reflect a particular response to input costs or labour skills or extend to ES behaviour in general.

The supply of their host markets dominates for operations in all the eight CEE countries reported separately in Table 1, but this is strongest for those in Russia, Romania and Poland. For Poland this combines with above average presence of CEEMARKET and EFFSEEK as supporting reasons for investing, but for Russia and Romania HOSTMARKET seems the dominant initial imperative. The most notable orientation to CEEMARKET emerges for Hungary and the Czech Republic. In fact the three strongest

<sup>7</sup> When a regression was run similar to that reported in table 4, but using only the dummy variables, the dummy for Asian subsidiaries is significantly negative (compared to the omitted European MNE dummy) in the test for HOSTMARKET and significantly positive in those for EFFSEEK, CEEMARKET, LOWCOST and LABSKILL.

<sup>8</sup> In the regression test with dummy variables (see note 7) the US dummy is significantly negative for HOSTMARKET (though less powerfully so than for Asian) and for LOWCOST, but significantly positive for CEEMARKET.

respondents to CEEMARKET (Poland, Hungary, Czech Republic) are also most likely to see EFFSEEK as a reason for investing, confirming a key ES element in pursuit of CEEMARKET from a particular country. Then, in turn, these three most export-oriented locations also record the strongest response to LOWCOST as a source of their ES performance. LABSKILL is also particularly relevant to Czech Republic and Poland (though not Hungary), and is the most notable reason for investment in Slovakia. The two KS motivations emerge most distinctively as reasons for investing in Russia.

In the industry-level analysis HOSTMARKET once again emerges as the pervasively dominant reason for investing. Export orientation is seen to be most prevalent in motor vehicles (both through CEEMARKET and EFFSEEK) and mechanical engineering (particularly in the form of CEEMARKET). In both cases this is supported by the strongest perception of LOWCOST as a reason for investing, thus perhaps reinforcing the presence of ES elements in CEEMARKET for these industries. LABSKILL and the two more clearly KS-oriented reasons for investing appear to be most notably recognised in electronics and motor vehicles.

### **Sources of technology applied in MNEs' CEE operations.**

The HQs that responded to the survey were asked to evaluate the degree of importance of each of seven sources of technology that might be applied, or generated, within their CEE operations.<sup>9</sup> In this section we describe these types of technology, derive hypotheses (evaluated in the tests reported in the next section) that relate them to

<sup>9</sup> Thirty-one respondents offered evaluation of the technologies used in their CEE operations. In the case of those that did not have producing subsidiaries in the region the reported technologies are those relevant to the activities carried out and/or the technologies embodied in products distributed there.

the investment motivations already outlined, and report their current relative prevalence (Table 2).

The first source of technology evaluated was defined as 'existing technology of the MNE group that is already embodied in established products that the subsidiaries undertake to produce' (ESTPRODTECH). Whatever the broad strategic reason for entering into the CEE economies, and however much awareness there is of the need for embeddedness and generation of evolutionary potentials once there, this form of standardised technology, underpinning the established product range and supply practices, is likely to be central to the early phases of operation. Thus entry into such new, unfamiliar, and potentially unstable emerging economic environments is likely to be built around sources of competitive advantage with which the MNE is very familiar and in which it has fully-verified confidence. Its core standardised product and process technologies are likely to exemplify this.

We would hypothesise very strong positive relationships between ESTPRODTECH and the two ES reasons for investing (EFFSEEK and LOWCOST), since the dominant imperative is to pursue cost-effective supply of established goods that embody such standardised technology. Similar positive relationships can clearly be expected for the two mainly MS imperatives (HOSTMARKET and CEEMARKET) as, once again, this initial market penetration is likely to be secured around familiar goods of proven success. Here, however, some weakening (compared with for ES) of the relationship might occur due to the possible early invocation of other sources of technology, accessed or generated by the subsidiary, to secure product adaptation or

**Table 2: MNEs' evaluation of sources of technology used by their subsidiaries in CEE countries**

	Sources of technology (average responses) <sup>1</sup>						
	ESTPROD TECH	GROUP TECH	LOCAL TECH	OWN LAB	ENGUN IT	UNIRAD	COLLAB RAD
<i>By home region</i>							
Asia	3.00	2.33	1.33	1.00	2.00	1.00	1.33
North America	2.79	2.14	1.50	1.14	1.29	1.14	1.14
Western Europe	2.88	1.71	1.57	1.21	1.50	1.07	1.14
<i>By industry</i>							
Chemicals	2.67	1.83	1.83	1.17	1.50	1.00	1.00
Electronics	2.78	2.13	1.38	1.25	1.50	1.25	1.38
Mechanical Engineering	2.83	1.80	1.60	1.00	1.80	1.00	1.00
Motor vehicles	3.00	1.67	1.33	1.00	1.00	1.00	1.33
Petroleum	3.00	1.67	2.00	1.33	1.33	1.33	1.33
Miscellaneous	3.00	2.33	1.17	1.17	1.33	1.00	1.00
Total	2.85	1.97	1.52	1.16	1.45	1.10	1.16

*Sources of technology*

ESTPRODTECH - existing technology of our MNE group that is already embodied in established products that the subsidiaries undertake to produce.

GROUPTECH - MNE group technology from which the subsidiaries develop new products for their markets.

LOCALTECH - established host-country technology.

OWNLAB - results of R & D carried out in the CEE subsidiaries.

ENGUNIT - development and adaptation carried out less formally by members of subsidiaries' engineering units and production personnel.

UNIRAD - R & D carried out for the subsidiary by local scientific institutions (e.g. universities; independent laboratories; industry laboratories).

COLLABRAD - R & D carried out in collaboration with local firms.

*Note:*

1. Respondents were asked to grade each source of technology as (i) a main source, (ii) a secondary source, (iii) not a source. The average response is calculated by allocating 'main' the value of 3, 'secondary' the value of 2 and 'not' the value of 1.

development. Thus some KS-related technological diversification may occur, within the MS roles, to facilitate the evolutionary competitive benefits of local responsiveness. It seems likely that perception of skilled labour as a CEE attribute that provides a reason for investing (LABSKILL) is initially associated with the ability to apply existing technologies locally, and especially to secure the strong levels of productivity that would provide ES performance. Nevertheless, it is also an attribute that could soon be central to the scope for operationalising other technologies (e.g. in KS-supported product development) that dilute the dominance of ESTPRODTECH. The two predominantly KS reasons for investment (SCIENCEINPUT and NATRES) explicitly reflect the aim of diversifying technological scope, so that their presence would be expected to be negatively related to ESTPRODTECH.

In line with the expected positioning of ESTPRODTECH at the core of the ability to assert initial strategic aims in CEE, Table 2 shows it to be by far the most prevalent of the seven types of technology investigated. In fact 87.9% of respondents considered it a 'main' source of technology in their transition economy operations, and 9.1% more a 'secondary' one.

A second source of technology that was expected to originate at the corporate level was defined as 'MNE group technology from which the subsidiaries develop new products for their markets' (GROUPTECH). These are technologies that have not yet been systematically embodied in products, but which are available in sufficiently precisely-defined forms to be disseminated to subsidiaries that can then pursue their incorporation in specific localised processes of product development. Thus here we can envisage the possibility of certain CEE subsidiaries accessing GROUPTECH as a crucial

input into the processes through which they develop new goods that seek to respond in a thorough way to the precise needs of their specific local (host-country or wider CEE) market space.

We can hypothesise at least a weak positive relationship between GROUPTECH and both HOSTMARKET and CEEMARKET since we expect evolutionary processes in subsidiaries playing these MS roles to move towards a certain degree of localised product development to which this potentially powerful source of new technology may often be relevant. The innate orientation of LOWCOST towards effective production activity provides no implication of any impulsion towards product development and therefore of any role for GROUPTECH, though it need not necessarily be inimical to it. Thus we have a neutral prediction for the relationship of GROUPTECH and LOWCOST.

In its pure form of supplying mature goods to their already established markets (e.g. Western Europe) in a cost-effective manner EFFSEEK would be likely to preclude product development and, therefore, be negatively related to GROUPTECH. However, sensitive and strategically-adept HQs may be aware of growing frustration in ES-oriented CEE subsidiaries that believe they can access and activate local creative scopes and indeed come to see this as a positive evolutionary potential.<sup>10</sup> To harness such creative potentials in those CEE subsidiaries that are already well-positioned in the MNE's wider supply networks, they may be allocated responsibility for developing a particular piece of GROUPTECH into a new product that they can supply to their major established market

<sup>10</sup> Taggart (1997, 1999) has applied the concept of procedural justice (Kim and Maugborne, 1991, 1993) to the processes of securing coherent and orderly progress from diverse subsidiaries within the competitive environment of the contemporary MNE.

areas. This would serve to allow creative potentials to be fully realised in these subsidiaries in a manner that is properly understood and authorised by central authority. Use of centrally-provided GROUPTECH would then keep the product development process in these subsidiaries coherent with the evolution of the wider supply network of which they are part and, by limiting the use of locally-derived knowledge inputs, lessen the potential for disruptive and contentious overlaps with goods produced by other subsidiaries. Overall we again have a neutral prediction for the relationship between GROUPTECH and EFFSEEK.

In broad terms LABSKILL, SCIENCEINPUT and NATRES are all reasons for investing that relate to creative CEE capabilities, and which can then be expected to be positively related to product development that can utilise GROUPTECH. One qualification, though, is that NATRES, in particular, may be very distinctive and point towards developments that have an originality that transcends (and actively seeks to avoid) GROUPTECH.

As Table 2 shows GROUPTECH emerged as the second most relevant source of technology activated in MNEs' CEE subsidiaries, at least as perceived by HQ respondents. Thus it was rated as a main source of technology in 22.6% of cases and as a secondary one in a further 51.6%. This degree of prominence certainly seems to indicate that MNE HQs recognise the potential for innovation processes to be activated in their CEE subsidiaries. That GROUPTECH emerges here as the strongest of the technology inputs likely to support such CEE product development may reflect the HQs' undervaluation of possible local inputs and/or a desire to constrain these creative

processes towards group authorised aims by control over a key resource (i.e. original technology perspectives).

The third technology source investigated was 'established host-country technology' (LOCALTECH). This represents a technology that has been originated in a CEE economy, and has achieved some degree of commercial activation there. MNEs' CEE operations can incorporate LOCALTECH either as part of the competence of an indigenous enterprise that is acquired, or by licensing it from a firm that remains independent (but which had failed to realise the scope of the technology in the most effective way).

LOCALTECH has the potential to play some role in the ways that operations that were originated for HOSTMARKET or CEEMARKET reasons may seek to differentiate the group products around which they initiate their CEE activity. Positive relationships can therefore be suggested. The probable denial of such locally-derived individualisation to the ES-oriented reasons for investing (LOWCOST and EFFSEEK) leads to hypothesised negative relationships with LOCALTECH. The more MNEs are motivated by LABSKILL as a reason for investing in CEE the more amenable they might be to assimilating other existing local competences, in the form of LOCALTECH, providing the prediction of a positive relationship. In a similar fashion the more open MNEs are to the quality of current local knowledge attributes (here LOCALTECH) the more willing they may be to respond to research capabilities (SCIENCEINPUT and NATRES), again allowing the prediction of positive relationships.

Though LOCALTECH can be hypothesised as possessing the potential to provide supporting inputs to several of the designated reasons for investing, it rarely seems likely

to provide the core of any such motivation. Thus it was rated as a secondary source of technology by 38.7% of respondents, but as a major one by only 6.5%. As Table 2 shows this rates it as the most significant of local technology inputs, but well behind the two external (MNE group) sources.

Whereas LOCALTECH may have some scope to impel evolutionary processes in MNEs' operations a more profound and sustainable contribution could be made by the results of in-house R & D activity. Thus respondents were asked to evaluate 'results of R & D carried out in the CEE subsidiaries' (OWNLAB) as a source of technology. Clearly the more important are the two aspects of local science potential (SCIENCEINPUT and NATRES) as reasons for investing the more likely are MNEs to set up the laboratories that can generate OWNLAB as a source of technology. To a much less decisive degree responding to LABSKILL is also a reason for investing that is likely to encourage, rather than mitigate against, the establishment of a local R & D unit. Positive relationships for OWNLAB may also be hypothesised with the two MS motivations for investment. Here the output of CEE laboratories can help with the locally-responsive adaptation that may be important to success in the MS role. The crucial relevance here, though, is in terms of evolutionary potential. As observed earlier, initial positioning in CEE is likely to focus on mature products that are based around familiar and stable ESTPRODTECH. Greater confidence within subsidiaries can soon lead to the necessary deepening of MS through greater localised flexibility and responsiveness, in the form of product and process adaptation. Increased ambition in this can result in setting up a local R & D unit, with the subsequent incorporation of OWNLAB as a source of technology that asserts a strongly individualised product-development capability. The circumstances most precisely alien

to the presence of local R & D (indicating negative relationships with OWNLAB) are the ES reasons for investment (i.e. LOWCOST and EFFSEEK).

In fact OWNLAB was never rated as a major source of technology, and only 16.1% of respondents even considered it to be a secondary one. This may reflect both its likely most decisive positioning in the rarest reasons for investing (SCIENCEINPUT and NATRES), and the prediction of only gradual emergence in the most prevalent (HOSTMARKET and CEEMARKET).

An alternative means through which MNEs may internalise particular aspects of local technological creativity in their CEE operations is in the tacit form of knowledge that is reflected in the distinctive capabilities of personnel employed. Thus respondents were asked to assess 'development and adaptation carried out less formally by members of the subsidiaries' engineering unit and production personnel' (ENGUNIT), as a technology input into their CEE operations.

We predict clear positive relationships between ENGUNIT and HOSTMARKET and CEEMARKET. Thus in these MS cases the types of locally-oriented competence implied by ENGUNIT can help to assimilate ESTPRODTECH initially, and then facilitate (before possible recourse to OWNLAB) its active adaptation to local needs. Since ES, in its pure form, precludes product adaptation or development the value of ENGUNIT to EFFSEEK or LOWCOST motivated operations is limited to securing the effective activation in local conditions of ESTPRODTECH. This provides only a weak basis for a positive relationship, but does not indicate a negative one. It seems routinely plausible that where LABSKILL is a reason for investing one manifestation of this is the availability of ENGUNIT as a source of skill-related tacit technology, providing for a

clear hypothesis of a positive relationship. We tentatively hypothesise a negative relationship between SCIENCEINPUT and NATRES and ENGUNIT. The more prevalent the KS-oriented reason for investing becomes the more the technological focus of the operations may be perceived to be around distinctively original locally-generated knowledge and the less relevant ENGUNIT seems.

Perhaps as a result of a strong contribution to the effective origination of the widely-prevalent MS operations ENGUNIT emerges in Table 2 as the most significant local source of technology. Even so it was only applicable to less than half of respondents, with 32.3% considering it a secondary source of technology and 6.5% a major one.

The last two sources of technology represent the output of joint research between the MNE and CEE associates. The first of these was 'R & D carried out for the subsidiary by local scientific institutions (e.g. universities; independent laboratories; industry laboratories)' (UNIRAD). This can be seen as an attempt to secure access to original knowledge potentials embodied in the technology stock and the ongoing research momentum of the local scientific community. As such we can hypothesise clear positive relationships between UNIRAD and SCIENCEINPUT, and, especially, NATRES. LABSKILL may be a generalised manifestation of environments conducive to UNIRAD, and may also be useful to the subsidiary-level operationalisation of such research results. A weak positive relationship is therefore hypothesised. In broad terms the types of technology secured in the form of UNIRAD are most likely to be activated in a MS context (positive relationships with HOSTMARKET and CEEMARKET) and may involve expenditure commitments alienated by ES (negative relationships with

EFFSEEK and LOWCOST). In fact UNIRAD was only rated as even a secondary source of technology by 9.6% of respondents.

The second source of technology deriving from joint research was defined as 'R & D carried out in collaboration with local firms' (COLLABRAD). The strengths of general scientific capability in the local economy are clearly conducive to such inter-firm collaboration, so that COLLABRAD is hypothesised to be positively related to SCIENCEINPUT and NATRES. LABSKILL may be a particular subsidiary-level attribute that is conducive to implementing associations with local firms and provides a positive hypothesis. The immediate commercial context of a subsidiary may be more influential on COLLABRAD (compared with the perhaps more speculative UNIRAD),

**Table 3: Summary of predicted relationships**

	Reasons for investing <sup>1</sup>						
	HOST MARKET	CEE MARKET	EFF SEEK	LOW COST	LAB SKILL	SCIENCE INPUT	NATRES
<i>Sources of technology<sup>2</sup></i>							
ESTPRODTECH	+	+	+	+	+	-	-
GROUPTECH	+	+	"	"	+	+	+
LOCALTECH	+	+	-	-	+	+	+
OWNLAB	+	+	-	-	+	+	+
ENGUNIT	+	+	+	+	+	-	-
UNIRAD	+	+	-	-	+	+	+
COLLABRAD	+	+	-	-	+	+	+

*Notation.*

- + positive relationship predicted.
- negative relationship predicted.
- " neutral prediction.

*Notes:*

1. For definition of reasons for investing see Table 1
2. For definition of sources of technology see Table 2.

though again the expectation is that this will be able to emerge most decisively in MS contexts, with such local individualisation still appearing (especially to HQ observers) as an unnecessary, and potentially disruptive, expenditure. COLLABRAD was more prevalent than UNIRAD, but still only relevant to 16.2% of respondents.

## **Results**

Regression tests were run with the seven reasons for investing as the dependent variables. Along with dummy variables for industry (miscellaneous serving as the omitted industry group), home country of MNE (Europe as the omitted source region) and host-country (Hungary the omitted nation), the seven sources of technology used in the CEE region (as reported in Table 2) were included as independent variables. The results are reported in Table 4.

Our hypothesising with regard to the technological bases supporting the HOSTMARKET reason for investing is that such operations would build their initial bridgehead in the host CEE economy most decisively around ESTPRODTECH, but with a wide-ranging potential for any of the other sources of technology to augment this, either to help facilitate the original local assimilation of this staple group technology or to start the activation of more individualised (and indigenously-derived) subsidiary-level capabilities. In the regression ESTPRODTECH is clearly positively signed, though falling short of statistical significance. GROUPTECH, LOCALTECH and UNIRAD are all positively signed, as hypothesised, but none approaches significance and, therefore, do not appear to be yet playing sustained roles in the effectiveness, or evolution, of the HOSTMARKET operations. COLLABRAD is significantly positive, indicating that





HOSTMARKET is one of the contexts where this, generally sparse, technology is relevant. Rather surprisingly both OWNLAB and ENGUNIT emerge as significantly negative in the HOSTMARKET regression. This suggests that the more decisively subsidiaries' operations focus on supplying established goods to the host-country market, the less relevant to their activated capabilities are the results of in-house R & D (OWNLAB) or the tacit creative-knowledge potentials of engineering unit personnel (ENGUNIT). Overall the technological positioning indicated for HOSTMARKET seems to be a routine and undynamic one, with little evidence of any activation of those technology sources that can build up the types of in-house creative capabilities that then point towards clear evolutionary potentials in such subsidiaries. An apparently secure position in the host-country market, based around confidence in very successful established group technologies (ESTPRODTECH), may reduce a willingness to build other in-house knowledge capacities in order to target more speculative (and individualised) differentiating developmental potentials.

The CEEMARKET motivation for investment is again essentially pursuing the MS objective of enabling an MNE to assert a competitive status in a new market area whose strategic relevance is taking on growing levels of potential (compared with its closed and alien nature under communism). However, as activated in any particular CEE economy it adds a crucial export-orientation (compared with the introversion of HOSTMARKET) that provides enhanced relevance to other competitive imperatives. We have noted that these may have contradictory implications for the articulation of other sources of technology in CEEMARKET operations. The need to claim and sustain its status as the MNE's supply base for certain established goods to a wider group of

countries is likely to emphasise the ES-drives of cost-effective production. But a subsidiary-level ambition to deepen this role, and embed its position more securely around distinctive local creative attributes, point towards KS activity targeting the bases for development of new goods for the wider CEE-market areas. The overhead cost of building the scope of this longer-term KS objective may clash with the short-term cost-competitiveness of asserting its initial ES position.

In the CEEMARKET regression both ESTPRODTECH and GROUPTECH take the predicted positive signs, but fall short of significance, whilst it is LOCALTECH that emerges as most distinctively positively related to this reason for investing. As an early means of diversifying the product scope of CEEMARKET-type operations, LOCALTECH seems to possess the virtues of being readily available (avoiding the prolonged overhead expenditures of its generation) and, perhaps, of already embodying particular characteristics (in terms of product qualities and engineering formats) that provide more competitiveness to the target market area and supply conditions than can existing group technologies.

Both OWNLAB and ENGUNIT are again (against hypothesis) negatively signed, but much less strongly so than in the HOSTMARKET regression. This can be interpreted in terms of the suggestion of ES and KS influences within the CEEMARKET motivation. The more decisive cost consciousness of CEEMARKET would mitigate against pursuit of the developmental attributes of OWNLAB and ENGUNIT to a greater degree than for HOSTMARKET, strengthening any negative relationship deriving from this source. But a greater need to assert individualised competitive capabilities in order to retain and deepen its supply position for the wider CEE market would, we have

suggested, implant a priority towards the developmental KS capacities of OWNLAB and ENGUNIT in CEEMARKET that decisively transcends that in HOSTMARKET. The more weakly negative relationships of OWNLAB and ENGUNIT with CEEMARKET (compared with HOSTMARKET) is then compatible with both a continued cost-related avoidance of such short-term overheads and a, partially offsetting, greater determination to secure such developmental capabilities to underpin longer-term evolution.

UNIRAD is significantly negatively related to CEEMARKET. This may be because the results of such university collaborations would be expected to be quite unpredictable, and often radical in terms of developmental potential, and thus inimical to an apparent aim to base immediate progress around evolutionary (rather than revolutionary) potentials (derived from LOCALTECH, ESTPRODTECH and GROUPTTECH). COLLABRAD is very weak in the CEEMARKET regression, which may confirm that its positive significance for HOSTMARKET indicates that collaborative research with local firms mainly targets improved bases for competitiveness in the national host-country markets. Overall the results indicate that the CEEMARKET reason for investing does generate a greater awareness of the need for enhanced individualisation of competitive competences than HOSTMARKET, but that securing this is also more constrained by short-term cost-effective priorities.

That the EFFSEEK reason for investing is initiated around the networked supply of established products is confirmed by the significantly positive relationship with ESTPRODTECH in the regression. However, we have also suggested that (without abandoning cost-effective production as a key priority) developmental processes (both in the CEE host-country and in the MNE group) are likely to eventually encourage

evolution in the product and technological scopes of EFFSEEK subsidiaries. If such developmental processes are to be in line with the persistence of the essentially networked EFFSEEK role, then their key technologies need to be coherent with the mainstream knowledge progress of the group. Thus local inputs of knowledge and skill would be facilitating, rather than initiating, and the most likely technology base would be GROUPTECH. The strong and significant positive relationship of GROUPTECH and EFFSEEK then indicates that such evolutionary differentiation is in fact emerging within this type of operation with greater alacrity than implied by our original neutral hypothesis. The most plausible type of local technology to play the facilitating role would be ENGUNIT, thereby strengthening our prediction of its positive relationship with EFFSEEK. In fact the reported positive sign is very weak.

Confirmation of the negative relationship between EFFSEEK and OWNLAB indicates that the persisting cost dominance of this role still precludes such a sustained overhead expenditure. The desired coherence of any technological individualisation in EFFSEEK operations would be expected to mitigate against co-option of LOCALTECH, though the negative relationship in the regression is only a weak one. A significant positive relationship with UNIRAD indicates that, against both hypothesis and our interpretation of the result for CEEMARKET, EFFSEEK provides the context for the very limited access of this type of technological input. Against hypothesis COLLABRAD is also positively signed, but does not approach significance. Though the initial positioning of MNEs' export-oriented activity in the CEE economies is strongly driven by the cost-effective supply of existing goods, it also seems that scope is very

quickly emerging for locally-driven extensions of product range. These need, however, to be cohesive with the mainstream of the group's technologies and products.

As the first of the supply-side reasons for investing LOWCOST is expected to operate most emphatically as the focal point of ES-oriented activity. As such it is immediately surprising to note that the hypothesised positive relationship of LOWCOST with ESTPRODTECH (the core of pure ES-behaviour) falls well short of significance. The likely explanation is that investments for LOWCOST reasons can only be effective if the imported technologies are activated at (or near) their normal levels of productivity. Thus other supporting types of technology are needed to secure the effective assimilation of ESTPRODTECH (including some adaptation to make better use of the local production inputs). That ENGUNIT is the most plausible source of this capability is confirmed by its significantly positive relationship with LOWCOST. GROUPTECH has only a weak positive relationship with LOWCOST, by contrast with its decisive positive relationship with EFFSEEK. This is indicative of the purely static cost-orientation of LOWCOST (which provides no strong hypothesis of a position for GROUPTECH), by comparison with those evolutionary dynamic potentials we now discern in EFFSEEK (which are mainly articulated around GROUPTECH). As hypothesised neither LOCALTECH nor OWNLAB are relevant to the aims of LOWCOST, with significant negative results for both sources of technology. As was the case for EFFSEEK, both UNIRAD and COLLABRAD are positively signed, with the former again significant.

As hypothesised LABSKILL is significantly positively related to ENGUNIT, confirming that when the skill quality of labour is perceived to be a reason for investing in broad terms a particularly relevant specific component of this attraction is tacit

knowledge in certain personnel that allows for a degree of localised in-house creativity (in the form of adaptation of technology or its more substantial development). As predicted a key context for the activation of these capabilities is in the assimilation of MNEs' core technologies, with the regression revealing a strong positive relation between LABSKILL and ESTPRODTECH. In fact it seems likely that the main status of LABSKILL relates (in a way that parallels the relationship between ENGUNIT and LOWCOST) to the ES priority of cost-effective localised application of mature technology. Thus LOCALTECH, OWNLAB and COLLABRAD are all negatively signed, and GROUPTECH is only marginally positive, with our initial hypotheses of positive relationships with LABSKILL for these technologies having derived from the more active local responsiveness of MS or the more creative orientation of KS. As for other ES contexts UNIRAD is significantly positive.

The general rarity of SCIENCEINPUT and NATRES as reasons for investing may suggest that where they do emerge this is still a mainly speculative *ad hoc* decision, with little coherence with the types of technologies directly activated in the MNEs' more dominant modes of investment. Thus many of the results in the respective regressions run counter to our initial hypotheses. In line with expectations, however, is the fact that SCIENCEINPUT and NATRES do tend to reflect environments conducive to OWNLAB and COLLABRAD. Nevertheless it is then surprising that ENGUNIT and UNIRAD, which might be expected to complement OWNLAB and, to some degree, COLLABRAD (as well as being naturally responsive to SCIENCEINPUT and NATRES) are clearly negatively signed.

## **Conclusions**

In the survey results we find that HOSTMARKET emerges as the strongest reason for investing in CEE countries, and that ESTPRODTECH is the most pervasive technology used by MNE subsidiaries in the region. Though the positive relationship between these in the regression does not quite reach significance it is nevertheless clear that the dominant motive for MNEs' initial entry into individual CEE countries is the pure-MS one of maximising the effectiveness with which the market for their established products, embodying stable and formalised technology, can be extended into these emerging economies. In essence such a strategic status is not compatible with either the understood competitive priorities of the contemporary MNE or the needs of a process of industrial transition in the CEE countries that can move towards a sustained development that is based around competitiveness in external markets and the effective activation of dynamic and creative capabilities that may already exist (if not yet adequately recognised or utilised) locally. The more decisively a subsidiary focuses on supply of standardised products to its particular host-country market the less likely it is to also be generating capabilities that may provide the basis for a more extrovert and dynamic status in the future. Providing a variegated product range in a responsive fashion to the local market (in some degree pursuing current economies of scope rather than of scale) may not be favourable to the cost priorities of ES, or provide a deep impulsion or appropriate resource-orientation for the building up of strong and distinctive localised knowledge competences. Indeed in the regression for HOSTMARKET two possible ways of broadening local knowledge capacity towards support for substantial innovation as a source of escape from stagnant introversion (i.e. OWNLAB and ENGUNIT) are

significantly negatively signed, whilst the positively signed COLLABRAD may be targeting better local performance.

Perhaps more positively other reasons for investing are reported as being at quite significant levels, and these do point to potentials for breakout into wider geographical markets and/or the inculcation of greater subsidiary-level initiative and creative capacity. Though we have considered the defining imperative of CEEMARKET as MS, since it again secures the effective entry of MNEs' stable product range into a new geographical market, we have noted that how this is secured has the potential to involve quite powerful elements of ES and/or KS. In terms of the strategic evolution (probably rationalisation) of an MNE's CEE operations, a subsidiary in one country that wishes to sustain supply of the rest of the transition economy region needs to generate creative capabilities to individualise its goods whilst retaining a competitive level of cost efficiency. It thus seems as if, whilst still using ESTPRODTECH as their quantitatively dominant source of technology, the qualitatively most distinctive behaviour of the CEEMARKET subsidiaries is their use of LOCALTECH to differentiate their product range in ways that appeal to consumers in the target market area. The fact that OWNLAB is insignificant for CEEMARKET (compared to its strongly negative relationship with HOSTMARKET and, especially, the ES-driven LOWCOST and EFFSEEK) may also suggest the presence of a stronger impulsion towards in-house R & D capacity in these operations that is still, nevertheless, partially offset by avoidance of such overhead costs.

The broadly defined ES reason for investing (EFFSEEK) provides the clearest route into important export markets (through direct access to the MNE group's already established supply networks) but, as a consequence of the low-cost emphasis in asserting

its initial claim to the role, leaves little potential for distinctive product development using local technology and research capacity. Thus ESTPRODTECH emerges decisively at the core of the implementation of this role, and local technology and in-house R & D are clearly alien to it. Nevertheless EFFSEEK also provides the strongest position for use of new group technology (GROUPTECH) in CEE operations. Thus subsidiaries focusing on this role may be allocated a certain degree of responsibility for developing new goods based around recently-generated group-controlled technologies. This allows for a certain degree of evolutionary scope in these units, but still limits the degree to which this can embody the more distinctive local technology potentials and creative capabilities, and thereby assert a real degree of individualised autonomy.

We can conclude that both the export-oriented motivations for MNE investment in CEE do appear to encompass dynamic and development-supporting potentials, but that these are rather different in their technological origins. In the case of EFFSEEK the apparent scope for CEE subsidiary-level product development seems to be based around the orderly and network-oriented application of new group-derived technology. This is thus likely to be a parent-company-driven process (Birkinshaw and Hood, 1997, 1998) and leaves relatively little scope for subsidiary initiative (Birkinshaw, Hood and Jonsson, 1998) or for the individualistic activation of local knowledge potentials. Nevertheless, given the relatively limited status of the purely cost-driven ES role at present, it may be that such an emerging differentiation of product scope (albeit alongside persisting cost-consciousness) could prove a more effective route through which CEE subsidiaries can increase their penetration of the established (e.g. Western European) supply networks of their MNEs.

By contrast export to other parts of the transition economy region (CEEMARKET) appears to involve an attempt to escape from the dominance of established group technologies and to secure market growth through product development around the revitalisation of existing local products and knowledge scopes. This is thus a more subsidiary- and host-country-driven (Birkinshaw and Hood, 1997, 1998) process of resource development, which should derive much more idiosyncratically original products (i.e. outside the mainstream of the group's existing range) that are distinctively reflective of local needs and knowledge potentials. Though success in this should initially secure a subsidiary's status amongst its MNE's key supply units for CEE markets (creative scope may be more valuable than just low-cost capacity during rationalisation processes in the region) the potentials could transcend this. Thus truly original products generated as part of CEEMARKET subsidiaries' evolution may emerge as having unanticipated market potentials beyond the region and the strategic orientation of these units may be refocused to reflect this. This may then be another route through which creative potentials, rather than low cost, may ultimately provide the basis through which MNE operations can help CEE industrialisation to generate an internationally-competitive status.

The patterns of MNEs' behaviour in CEE industry described in this paper are clearly parts of evolutionary processes, and the results and interpretation should be seen as indicative of broad options and potentials. Nevertheless it is argued that the analysis offered certainly reflects the value of applying the views of the modern MNE as a dynamic differentiated network to the analysis of these companies' contribution to sustainable industrialisation in the transition economies.



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