

LOCATION, NETWORKS AND THE MULTINATIONAL ENTERPRISE

Conference theme: MNEs and Market Structure 2:1 Market entry and locational strategies

Workshop paper

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Abstract

We review and synthesize the literature on the interactions between location advantages and the competitiveness of multinational enterprises (MNEs). We then develop new work on the nature of four types of networks in ‘sticky places’ and how these translate into firm specific advantages. The paper consists of four main sections. First, the evolution of the location advantage concept in the international economics literature is discussed. While this literature has substantially broadened its analytical scope in the last few decades, the field of international business research has been more advanced in its analysis of the interactions between location and MNE competitiveness. This is due to the latter’s in-depth focus on the actual behaviour of MNEs. The complex nature of location advantages for MNEs is discussed in detail in the paper’s second section. The third section describes the intellectual foundations of a spatial analysis of MNE activities within the context of four types of networks in sticky places. Finally, the paper’s fourth section discusses the relative contribution of home country specific advantages (CSAs) and host CSAs to MNE competitiveness. We conclude that host CSAs may become increasingly important in achieving global competitiveness.

Key words

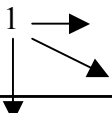
location; country specific advantages; competitiveness; firm specific advantages; networks in sticky places

1. A critical assessment of location theory

1.1. Traditional international economics

An analysis of the academic literature on location advantages first requires a classification and positioning of the different conceptual perspectives on this issue. Figure 1 provides a simple framework which allows us to classify these different conceptual perspectives on the basis of two key parameters. The first parameter is related to the unit of analysis. Here, the focus can be on location advantages at the level of a country, a single industry or an individual firm. The second parameter makes a distinction between trade and foreign direct investment (FDI) as the outcome of specific location advantages. This distinction is critical because the location advantages instrumental to exports or imports may be very different from the location advantages conducive to outward or inward FDI. Here, it should be emphasised that FDI may itself influence trade flows : it may through local production substitute for trade or even create new intermediate or final goods trade flows

**Figure 1: A classification of the international economics perspectives
on location advantage**

		Unit of Analysis		
		Country	Industry	Firm
Outcome of location advantage	Trade	1 	3	5
	Foreign direct investment	2	4	6

Conventional international trade theory which attempts to explain trade patterns can be largely positioned in cell 1 of Figure 1. The standard Ricardian model, valid in a 2 country – 2 product situation, concludes that comparative rather than absolute advantage of nations leads to trade and gains from trade. Even if the first country possesses a superior technology that would make it the more efficient producer of any good, it will, subject to a number of conditions,¹ specialize in only that product for which it is comparatively most efficient in terms of labour productivity. This also implies that the second country, with an inferior technology, will still have an implicit location advantage in producing the second product.

The Heckscher-Ohlin model builds upon the availability of identical technologies in the two countries, but also the presence of two production factors (labour and capital) and concludes, again subject to several critical assumptions,² that each country will specialize in the product that, in relative terms, requires the most intensive use of its most abundant production factor. More specifically, the labour abundant and capital abundant country will export the labour intensive and capital intensive product respectively.

Follow-up work, building upon the Heckscher-Ohlin thinking has led to a relaxation of most assumptions of the original model, allowing analyses to be performed that recognise the presence of many goods and many production factors. The two key conclusions usually continue to hold, however; first, an abundance of a particular production factor in one country gives this country a location advantage for the manufacturing of products that make an intensive use of the abundant production factor. Second, an increase of a specific production factor will not lead to a homogeneous expansion of the country's output. It will shift production and trade toward products that make the most intensive use of the expanding factor, hence strengthening the country's apparent location advantage for that product.

The explanation of trade based upon the comparative, macro-level advantage of countries in terms of the availability of technology or production factor abundance has

undoubtedly proven useful to explain trade patterns between countries at very different levels of economic development. Leamer and Levinsohn (1995) provide an overview of the empirical literature. However, it has also appeared less useful to explain trade patterns and therefore location advantages of countries with access to similar technologies and similar factor endowments.

1.2. New International Economics

Most trade between developed countries is intra-industry trade (Grubel and Lloyd 1975), which means that at a high level of aggregation of products (e.g. electronics or automobiles), developed countries have similar macro-level location advantages. The key explanation of this phenomenon is product differentiation, combined with the presence of scale economies and therefore imperfect competition (Dixit and Stiglitz 1977; Greenaway and Milner 1986; Helpman and Krugman 1985; Krugman 1980).

The analysis of intra-industry trade has pushed international economics scholars to largely shift their focus from analysing the comparative advantage of nations merely at the macro-level toward the joint analysis of country level, industry level and even firm level location advantages. The modern trade theory literature has thereby systematically shifted from merely covering cell 1 in Figure 1, to also including cells 3 and 5. One key study in this context is Cox and Harris' (1985) study on the likely impact of free trade between Canada and the United States. The study not only concludes that both countries may actually benefit from gains of trade at the macro-level but also that the higher potential to obtain scale economies and lower prices will lead to an exit of small, inefficient producers. Although freer trade with the United States will lead to a stronger location advantage for Canadian exporters at the macro and industry level, it simultaneously implies the elimination of the main location advantages, i.e. trade barrier protection, benefiting small, but previously economically viable

firms. Similar conclusions arise from the Smith and Venables' (1988) study on the likely impact of a single E.U. market (the 'Europe 1992' programme) on trade patterns.

Modern international economics has also developed substreams of thinking that give the multinational firm (MNE) a critical place in the analysis (Batra and Ramachandran 1980; Cantwell 1994; Ethier 1986; Helpman and Krugman 1985; and Markusen 1984). Here, the various activities performed by the MNE are spatially dispersed, with R&D and other upstream activities typically performed in home countries, depending upon these home countries' comparative advantages.

Some work has also investigated the dynamic effects of institutional changes such as trade liberalization on location advantages. *Ceteris paribus*, trade liberalization affects location in two ways. First, domestic firms with an interest in serving the more accessible foreign markets will be attracted by locations with a better 'exposure' to serving the foreign markets, e.g. through lower transport costs, better geographic proximity, the potential to capitalize on agglomeration economies, etc. see Hanson (1998) who studied the effects of North American economic integration on industry location. He found a significant impact of transport costs and inter-industry agglomeration economies. Second, foreign firms may enter the market through FDI and contribute to industry specialization in the goods and services for which comparative advantages exist, to serve both the local and international markets.

An interesting feature of much recent research on location advantages in the international economics literature, is the increasing attention devoted to 'created' location advantages, such as R&D, as opposed to the conventional factor endowments location advantages such as labour pools or the availability of capital. For example, investments in R&D allow countries to specialize in high technology sectors and to have high growth rates (Grossman and Helpman 1991). These investments may constitute a major location

advantage, depending upon international technology diffusion rates and the extent to which an advantage can be maintained over time.

The international economics literature on comparative advantage has thus evolved from a very narrow discipline largely positioned in cell 1, to a much broader research area than now spans in six cells of Figure 1 with perhaps cells four and six as the most promising ones for future research, given that R&D investments and the ‘intentional’ upgrading of location advantages largely occur at the industry or firm level (Rugman and Verbeke 1990).

1.3. The Upgrading of Location Advantages

Dunning's (1977, 1988, 1992, 1999,2000) eclectic paradigm as well as the modern internalization perspective on the functioning of MNEs (Rugman 1981, 1996; Rugman and Verbeke 1992, 1998) start from the premise that location advantages may be very different for each firm.

In this context, it is also important to emphasise that firm level knowledge creation appears very much embedded in localized innovation systems. As a result, much of the trade resulting from MNE activity is driven by differences in these innovation systems (Dosi, Pavitt and Soete 1990). MNEs may also further strengthen the location advantages of the countries in which they operate through reciprocal spill-over effects with the local networks they associate themselves with, both through cooperation and competition (see Rugman and D'Cruz 2000; and Dunning 2000).

Thus, it is not clear whether either investment incentives favouring FDI or TRIMS (trade related investment measures) discriminating against foreign MNEs such as local content requirements, export performance requirements and trade balancing measures can ultimately contribute much to long run location advantages of a particular country. The assessment of costs and benefits of such measures appears in any case very difficult (Guisinger *et al* 1985). TRIMS in particular do not appear very effective. When inhibited to achieve an 'organic symbiosis' with local innovation systems and to contribute as a 'workhorse' in such systems, MNEs are then forced to adopt a 'Trojan horse' policy. For example, local content conflicts in Europe have prompted Japanese motor vehicle companies to bring with them their Japanese component suppliers (Ozawa 1991; Saucier 1991).

Foreign MNEs can contribute to further develop and exploit the most promising knowledge bundles in a localised innovation system. The value added of a localised innovation system to the MNE is twofold. First, it allows the firm to tap into a

complementary knowledge base that would otherwise remain out of reach. Second, it provides flexibility and options to the MNE, as it allows the firm to ‘hedge its bets’ in the innovation area.

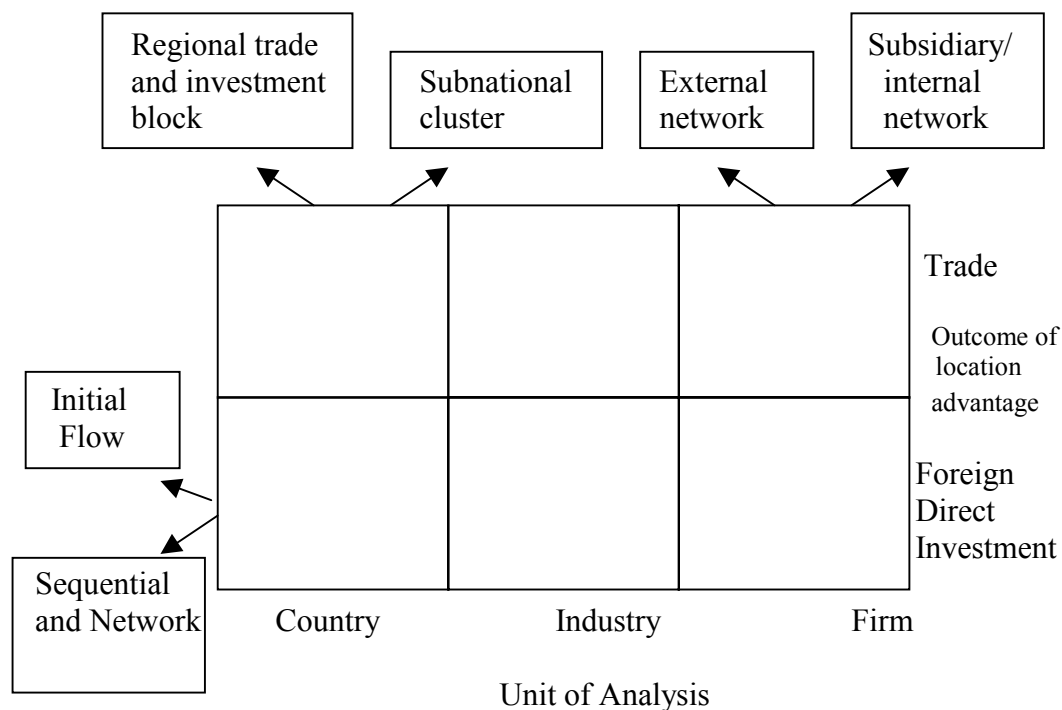
Increasingly, however, and this precisely reflects the importance of localised knowledge creation, it also appears that even the six cells of Figure 1 do not allow us to adequately position all of the relevant recent international business literature on location advantages. As regards the horizontal axis of Figure 1, a substantial body of literature on location advantages and competitiveness now suggests the importance of additional units of analysis. The country level analysis can be extended to include on the one hand regional trade and investment blocks as in the Triad Power concept (Ohmae 1985; Rugman 2000) and on the other hand subnational, regional ‘clusters’ (Porter 1990, 1998). In the former case, the concept of region largely results from political decision making (albeit reflecting efforts to increase economic integration); in the latter case, a variety of socio-economic, demographic, cultural, etc. characteristics of a geographically defined area determine the region’s boundaries.

In addition, the firm-level analysis can be extended to include two points. First, is the study of location advantages of subsidiaries, whereby optimisation needs to occur benefiting the MNE’s entire internal network (Rugman and Verbeke 2001). Second, much recent work has been done on location advantages of firms within the context of their external networks (e.g. forward and backward linkages). In these cases, the distinction between the firm level and industry level analysis of location advantages has become increasingly blurred (Rugman and D’Cruz, 2000).

With respect to the vertical axis of Figure 1, the ‘trade focus’ on goods and services and the ‘investment focus’ on initial capital flows (although belatedly recognising the importance of intangible know-how flows associated with the capital flows), have largely neglected the

ongoing, sequential and internal ‘network’ flows of know-how, whereby the direction and complexity of flows may substantially change over time (Birkinshaw 2000; Cantwell and Piscitello 1999). In other words the ‘optimal location’ for know-how development and the optimal diffusion patterns of this know-how may change over time, within the context of effectively functioning international business networks, irrespective of initial FDI flows (Rugman and Verbeke 2001). The above modifications to the analysis are represented in Figure 2.

Figure 2: New perspectives on location advantages



2. The role of location advantages for multinational enterprises

2.1. Location Advantages and International Business Theory

Hymer (1960, published 1976) was the first author to focus on foreign direct investment as a tool used by MNEs to transfer and exploit abroad proprietary resources. Interestingly, his view was that they would face location disadvantages vis-à-vis indigenous firms in host countries such as language and cultural barriers, lack of knowledge on the local socio economic and business system, expropriation risks, etc. which have been synthesised under

the heading of ‘liability of foreignness’. This implies that MNEs producing in host countries would not benefit to the same extent as indigenous firms from either localised network spillover effects or synergies from the combination of firm level and host country location advantages.

Vernon’s (1966) well known product cycle focused on the symbiosis between home country location advantages in technological innovation and the resulting proprietary assets at the MNE level. From a dynamic perspective, MNEs were then observed to be capable of linking their firm specific advantages (FSAs) with specific location advantages of host countries (in terms of demand patterns, supply capabilities and labour costs) as the maturing or standardization of products occurs (Rugman 1999). This dynamic approach, aimed at explaining market seeking FDI, neglected two key aspects of the linkages between MNEs and location advantages. First, the fact that MNEs may use foreign markets to reduce risks, although this was taken into account in a later publication (Vernon 1983). Second, the contribution of host country location advantages to the MNE’s rejuvenation or extension of its knowledge base. Vernon’s dynamic approach went far beyond conventional models that attempted to explain FDI flows as an almost mechanistic reaction to exogenous macro-level location advantages such as favourable exchange rates or relative labour costs, (Aliber 1970; Cushman 1985; Culem 1988).

At the beginning of the 21st century, Dunning’s eclectic paradigm has become the leading conceptual framework for the analysis of international expansion patterns of business firms. This paradigm builds upon the interactions among ownership specific variables, internalisation incentive advantages and location-specific variables. A first important contribution of this framework within the context of this paper is that the location-specific characteristics which contribute to competitive advantage are recognised to vary for different countries, sectors and firms, (Dunning 1992, table 4.3, p.84). The eclectic paradigm thereby

allows us to span the three units of analysis of Figure 1. It is interesting to observe that, at the firm level, the location advantages appear to include several ‘soft’ elements such as the firm’s experience with foreign involvement, psychic distance variables, attitudes to risk diversification, attitudes towards the centralisation of functions such as R&D etc.

A second contribution is that it allows identification of the key location advantages of four different types of international production: natural resource seeking, market seeking, efficiency seeking, strategic asset seeking, (Dunning 1998). One of the eclectic model’s great strengths is that it highlights the complexity of determining the practical implications for managers and public policy makers of specific location advantages.

2.2. Four Types of FDI

First, natural resource seeking FDI occurs when firms identify specific host country locations as an attractive source of natural resources at the lowest real cost. However, even in this case, additional location advantages such as good transport infrastructure, an effective institutional and legal framework, etc. have been identified as critical. In this case, FDI is usually associated with the exports of resource based products from the host country. However, this may in turn improve the location advantages of the home country both for the production and exports of goods which use the imported resources as a low cost or high quality input. As intra-firm trade replaces inter-firm trade, an unfavourable taxation regime in a specific country – whether the home or host nation – can even be overcome as a location disadvantage by shifting profit, but not the production itself from the nation with the unfavourable regime. FDI should therefore not be viewed solely as an outcome of existing location advantages but it may be instrumental to the creation of new location advantages.

Although the identification of location advantages clearly becomes much more complex when international production is involved, the predicted direction of the trade flows

associated with natural, resource seeking FDI is largely consistent with conventional trade theory. The home country will export capital intensive products with a high knowledge content. The host country will primarily export resource based or labour intensive products with a low technology content.

Second, market seeking FDI is more difficult to reconcile with conventional trade theory because it usually has an immediate import substitution effect (except if trade barriers made imports impossible in the first place), but often also leads to trade creation (Lipsey and Weiss 1984; Rugman 1990). This occurs, for example, when the newly established subsidiary uses intermediate outputs from the home country in its own production process, when it becomes a leveraging platform for additional exports in other product areas for the home country and finally, when its production is not used only to serve a host country market but also third country markets.

Here, a first complexity is that location advantages of specific countries may shift over time as exemplified by the international product cycle (Vernon 1966). A net exporter of innovative products, may switch to market seeking FDI and may later become a net importer of the same, but now standardised, product. A second complexity is that substantial intra-industry FDI can now be observed, reflecting the differential FSAs of rivals in an industry but also the similar location advantages of countries, as both the source nation and recipient of FDI. A third complexity is that, even within a single MNE, complex intra-firm flows of knowledge and goods can often be observed, reflecting sophisticated bundles of location advantages and firm specific advantages, and resulting in complex network linkages among the various affiliates (Rugman and Verbeke 2001).

Dunning (1973) in an early survey of the field studies on FDI, already identified 30 location advantages viewed as determinants of especially market seeking FDI including host country market characteristics, trade barriers, cost factors, investment climate components,

etc. Here, an interesting observation was that many location advantages are actually industry specific (Dunning and Norman 1987).

The third type of FDI, efficiency seeking FDI, leads to even higher complexity as regards the location advantages of the countries involved. First, this type of FDI is usually trade creating at the firm level, because it reflects a rationalisation of the MNE's operations and typically a specialisation of the various affiliates in its internal network. This increases both intra-firm knowledge and goods flows, and the international exposure of the affiliates. An in-depth, fine grained analysis, of FSA and location advantage bundles at the affiliate level is then required to understand exactly how location matters to the firm. Here, it is important to understand the specific role given to or earned by affiliates in the company (Rugman 1990). They may act as 'globally rationalised' subsidiaries performing a particular set of activities in the vertical chain or have a regional or world product mandate. In the case of a vertically integrated chain consisting of several, globally rationalised businesses, intra-firm trade is likely to increase, building upon the location advantages benefiting each subsidiary, thereby leading to an increase of both intermediate goods trade and international production (Cantwell 1994).

An interesting observation regarding internationally integrated production is, however, that the key location advantages do not appear to be related to low wages. MNEs export primarily from high labour cost countries with large markets, implying to some extent the presence of local scale economies (Kravis and Lipsey 1982). Even more importantly MNEs seek location advantages complementary to their own firm specific advantages, typically in the form of an appropriate infrastructure, technology development and supporting institutions (Cantwell 1995).

The fourth main type is strategic asset seeking FDI (Wesson 1993). Here, assets of foreign firms are acquired through new plants and acquisitions or joint ventures, to create

synergies with the existing pool of assets through common ownership, see e.g. Kogut and Chang (1991). Here, it is, e.g. the R&D performed in host countries rather than the home country which constitutes the key location advantage leading to FDI. To the extent that the acquired assets sourced from a host country are also linked to a localised innovation system, the MNE as a whole may get access to at least some spill-overs from that innovation system. Conversely, the localised innovation system may benefit from being associated with the foreign MNE.

Dunning (2000) provides a brilliant synthesis of the key location advantages identified by 10 schools of thought on location advantages as they apply to these four main types of FDI.³

In addition to the four main motives for FDI, additional motives appear equally related to location factors. First, escape investments, typically made to avoid home country restrictions (e.g. regulation of laboratory tests on animals, limitations on the range of services that can be provided in the financial services industry, etc.) obviously reflect the absence of government restrictions elsewhere.

Second, trade supporting investments (e.g. to aid in purchasing of inputs, logistics activities, after sales service, the liaison with host governments, etc.) precisely aim to facilitate home country imports or exports through building on host country location advantages.

2.3. Operationalisation of CSA-FSA framework

Dunning's eclectic framework is clearly related to Rugman's (1996) and Rugman and Verbeke's (1992) extended internalisation perspective. This perspective suggests that it is precisely the nature of a company's FSAs and the type of country specific advantages (CSAs)

it faces, that will determine whether a particular production activity will be located in a foreign country through FDI, i.e. whether internalisation will occur.

An interesting feature of the FSA-CSA framework is that it can be operationalised at three levels. First, as a strategic management tool to guide top management decision making at the firm level. Here, it should be recognised that the CSA-FSA configuration may be different for every strategic business unit, subsidiary and even value added activity, within a single firm (Rugman, Verbeke and Luxmore 1990; and Rugman and Verbeke 2001). Second, as a public policy tool, to describe at the national level and by industry both the revealed comparative advantages (RCA; use of Balassa index) and the revealed firm specific advantages of domestic companies, (RFSA; ratio of sales by domestic MNEs to sales by foreign based MNEs in an industry, relative to the total sales by domestic MNEs to total sales by foreign based MNEs) (Sleuwaegen and Veugelers 2000). Third, at the level of cross-country analyses, whereby a country's relative attractiveness vis-a-vis other countries can be described in terms of on the one hand general location parameters (in principle exogenous to companies, such as the quality of the educational system) and on the other hand characteristics of the 'average' firm. For example, the competitiveness rankings of countries established in the yearly World Competitiveness reports of the World Economic Forum can be decomposed in a 'CSA' and an 'FSA' part.

The normative implications of possessing weak or strong location advantages are, however, very different for firms, industries and countries. At the firm level, location advantages contribute to the firm's performance (in terms of survival, profitability and growth) vis-à-vis rival companies. Managerial decision making should therefore attempt to optimise this contribution. At the industry level, location advantages do not usually bear similar implications, for two reasons. First, an industry usually does not act to optimise its location advantages, although public agencies may select specific industries as beneficiaries

of location enhancement measures. The much debated strategic trade policy case reflects such a normative policy position. Here, the aim is either to shift profits to domestic firms through helping them attain first-mover advantages and learning curve effects or to generate localised technological spill-over effects (Rugman and Verbeke 1991). Second, a 'bandwagon' effect has often been observed, whereby several firms in an industry attempt to penetrate foreign markets almost simultaneously. However, such collective moves do not aim to optimise an industry's location advantages but on the contrary to prevent rivals from gaining privileged access to benefits associated with specific locations.

At the country level, the intentional 'creation' of location advantages for either domestic firms or foreign firms, (or both) has been the subject of an enormous literature recently synthesised by Rugman and Verbeke (1998). The conclusions of their study is threefold.

First, the creation of location advantages favouring either domestic firms or foreign MNEs through specific incentive programmes and regulatory policies by government has become very difficult as many countries have become both major source nations and recipients of FDI. Hence, national treatment of foreign firms is mostly the appropriate policy. Second, many MNEs have adopted strategies of national responsiveness which makes a natural symbiosis with indigenous clusters much easier than in the past. Third, given the first two comments, many governments and MNEs now share a preference for international trade and investment agreements, either at the level of a regional block (e.g. EU, NAFTA) or at the multilateral level. In such cases, the concept of location advantages takes the form of a public good shared by all firms and countries covered by the agreements (Rugman and Verbeke 1994). From a comparative institutional perspective, the question shifts from asking who enjoys the strongest, government-induced location advantages to assessing the overall benefits of the international regulatory system, vis-à-vis a system of anarchy in creating national and subnational location advantages.

International regulatory systems to constrain the creation of artificial location advantages obviously do not make national government policy in this area obsolete. Instead they suggest a redirection towards innovation and knowledge accumulation, in line with a country's technological trajectory and national innovation system characteristics.

An important question is whether the nature of CSAs has changed in the recent past. Dunning (1998) has argued that in the 1980s and 1990s three important changes have occurred. First, the emergence of knowledge as the 'key wealth creating asset'. As a result, and with the exception of some national resource and cheap labour seeking FDI, MNEs now attach much more importance to locations with excellent infrastructure and institutional facilities, rather than conventional location advantages such as low labour costs or easy access to raw materials. Second, the rise of 'transactional benefits' of spatial proximity in the knowledge development process between the non-location bound FSAs of MNEs and the location bound, immobile clusters of complementary assets in host countries. These benefits of spatial proximity have led affiliates of MNEs to become increasingly embedded in host country innovation systems, as demonstrated by the growing geographic dispersion of R&D and the number of patents registered by MNEs outside their home country (Almeida 1996; Shan and Song 1997; Cantwell 1989; Kuemmerle 1999; Pearce 1990).

Third, the emergence of 'alliance capitalism', i.e. a collaborative, stakeholder approach guiding both intra-firm relationships and inter-firm cooperative agreements, especially in knowledge creation. In this context, it appears, for example, that localised networks of related and supporting activities act as an agglomerative magnet on FDI (Wheeler and Mody 1992; Audretsch and Feldman 1996). This does not imply, however, that within a single country, the location distribution of foreign owned and domestically owned production operations is necessarily the same. For example, Shaver (1998) found that foreign owned manufacturing operations in the United States were located comparatively more in coastal states where it is

more cost effective to receive imports. In addition, they were also located more in non-union, low wage, right-to-work states, reflecting, inter alia, an attempt to reduce the liability of foreignness on the cost side vis-à-vis domestic rivals. Shaver (1998) also suggested that foreign firms might prefer low wage states because they perceive employee skills, to be ‘upgraded’ by the company, as largely uniform across the country. If this were correct, it would also imply that FDI location would not be determined as much as domestic investment by the potential to benefit from cluster spill-over effects. This view, however, is in contrast with the more convincing empirical evidence of Chen and Chen (1998) that much recent FDI, especially by small companies, should be viewed as a linkage to a foreign network, i.e. as a tool to tap into resources such as ‘market intelligence, technological know-how, management enterprise, or simply reputation for being established in a prestigious market’.

These three elements largely explain the growth of strategic asset seeking FDI and the paradox of observing ‘sticky places within slippery space’ (Markusen 1996).

3. Spatial aspects of FDI, Networks and MNE activity

One of the key observations in economic geography is that both internationally and within a single country, economic activities are characterised by a specific level of geographic dispersion/concentration (Amiti 1998). Building upon Krugman (1991*a*), (1991*b*), (1998), three forces can be identified that foster concentration and three forces that stimulate dispersion. The former forces include (1) the presence of large markets that allow economies of scale in local production, a reduction in logistics costs, and agglomeration economies with related and supporting industries (backward and forward linkages), (2) abundant markets for specialised knowledge inputs (e.g. highly skilled labour), (3) knowledge spill-overs that lead to geographically localised positive externalities. The latter forces consist of (1) dispersed, immobile production factors such as land, natural resources and some types of labour, as well

as immobile demand requiring localised service provision, (2) scarcity rents, when an initial concentration of economic activity pushes up prices of scarce production factors in a particular location and (3) negative externalities such as congestion and technological ‘lock-in’.

Apart from the above factors, a localised culture of independence and exchange and institutions such as universities, specialised services and service organisations supporting this culture, may greatly aid superior innovative performance (Audretsch 1998; and Saxenian 1990).

Two types of knowledge spill-overs exist (Audretsch 1998). The first type, reflects intra industry knowledge spill-overs that benefit all firms located within a region, but limited to a single industry (Glaeser *et al* 1992). The reason for this regional specialisation of spill-overs is that firms within a specific industry may be very similar in terms of the type of individuals they attract, the way these individuals develop, absorb and communicate knowledge and the networking institutions they build, contribute to and draw upon in the region. The second type, consisting of inter-industry spill-overs in contrast, reflects the exchange of complementary knowledge among firms in different industries. Here, it is the diversity of geographically concentrated knowledge transfers that leads to new richness.

The main contribution of international business scholars has been to analyse geographical concentration/dispersion of FDI, not mainly as the result of exogenous forces but to a large extent as the outcome of MNE behaviour (Mucchielli 1998; Porter 1998a). For example, the existence of an economic centre, close to a large market, may attract foreign entry, which in turn makes this centre even more attractive to other firms. The presence of such path dependencies explains why the international expansion of MNEs is usually also restricted to a limited number of locations, because agglomeration economies and spill-over effects only arise over time and are created through a process of cumulative causation. It is a

self-reinforcing set of firm level actions that largely contributes to the spatial concentration of industries and the creation of specialised geographic areas.

Here too, the FSA/CSA framework can be used. More specifically, the creation of ‘sticky places’ fundamentally depends upon the synergies between strong mobile or non-location bound FSAs and immobile CSAs. Here, not all synergies are internalised by the firms involved. The spatial proximity between firms in a specific industry and, e.g. a pool of workers with specialised skills, the non-business infrastructure, etc. leads to technological and organisational spill-over effects benefiting the entire, localised industrial district.

From a sustainability perspective, four types of ‘sticky places’ can be distinguished, as shown in Figure 3. The horizontal axis measures the degree of cooperation within the localised network among the various actors, i.e. the presence or absence of intended efforts to create virtuous cycles of FSA-CSA interaction. Here, the key issue is whether these actors aim to create local network externalities or whether these spill-over effects just arise unintentionally. This distinction may be important within the context of the vertical axis, which represents the international contestability of the local network. If the contestability of stickiness is high, as a result of international competition, the defence mechanisms of the local network will be much weaker in quadrant 1 than quadrant 3, which explains the growing efforts of many local and regional governments to contribute to the creation and functioning of structured clustering mechanisms (Porter 1998b).

An important empirical question is obviously whether clustering benefits in the form of e.g. agglomeration economies, access to ‘thick’ markets for knowledge inputs and technological spill-over effects are equally important for all MNE value added activities. Porter (1986) has argued that, within the firm, the determinants favouring a specific geographic configuration may be very different for each value chain activity. For example, corporate and regional MNE headquarters, typically require a ‘strategic location’, with easy

Figure 3: The sustainability of sticky places

		Virtuous cycles of FSA-CSA Interaction	
		Unintended Cooperation	Intended Cooperation
Contestability of stickyness	High	1 Tethered local network	3 Challenged local network
	Low	2 Non-cooperative sustainable local network	4 Cooperative sustainable local network

access to an international communications and transport network, high quality external services and knowledge inputs (e.g. information processing workers), strong agglomeration potential which allows for frequent personal interactions with top executives of other key organisations, and an environment rich in social and cultural amenities. These elements must obviously be weighted against the cost of scarce inputs such as land, negative externalities associated with large, dense economic centres etc. (Dicken 1998). In contrast, R&D facilities may require very different location characteristics, depending upon the precise role of the R&D facility in the firm. This role may be either to exploit existing knowledge or to create new knowledge (Kuemmerle 1999).

As regards activities such as production and marketing, two MNEs facing broadly similar external ‘location pulls’ may still make their location decisions largely dependent on their administrative heritage. (e.g. a tradition of centralised production building upon home nation CSAs and leading to scale economies versus decentralised operations, building upon host nation CSAs and leading to benefits of national responsiveness).

The issue of relative contribution of home CSAs versus host CSAs to overall MNE competitiveness has been the subject of intense academic debate in the recent past. This is discussed in the next section.

4. The relative contribution of home CSAs and host CSAs to MNE competitiveness

The most influential work on the impact of location on international competitiveness in the 1990s has undoubtedly been Porter's study on the 'diamond' of competitive advantage (Porter 1990). Porter argues that four inter-related elements at the level of each industry within an individual nation determine international competitiveness. These determinants include factor conditions, demand conditions, related and supporting industries, and firm strategy, structure and rivalry. Two other elements, namely government and chance are viewed by Porter as secondary determinants that may affect the strength of the primary elements.

Porter's (1990) approach undoubtedly constitutes an important advance on conventional economics thinking on the sources of competitiveness at the industry level. His comments on the importance of (1) created, advanced factor conditions as opposed to natural resource endowments; (2) sophisticated rather than large scale demand; (3) linkages with related and supporting firms and (4) intense domestic competition, have undoubtedly been useful to both managers and public policy makers. However, from an international business perspective, Porter's (1990) framework is also associated with substantial weaknesses, especially when applying his perspective at the firm level. His framework assumes that for each business in a firm, a single home base exists which acts as the sole source of this firm's key location advantages. These CSAs can then be absorbed within the firm, i.e. contribute to the development and exploitation of its FSAs. Foreign nations' diamonds can only be tapped into

selectively, because a firm aiming to draw upon a foreign diamond's strengths is viewed as always being at a disadvantage vis-à-vis firms 'inside' this foreign diamond system.

Porter's (1990) perspective has been rightfully criticised by several international business scholars. Dunning (1993) has argued: 'To suggest the competitive position of MNEs like IBM, Philips of Eindhoven, SKF, Nestle, BAT, rests only on their access to the diamond of competitive advantage of their home countries is ludicrous – however much their initial foray overseas may have been based on such advantages.' Porter did acknowledge the strategic option for firms to 'shift' the 'home base' for specific businesses from the home country to a host country, in function of their relative CSAs. However, firms and industries from small open economies largely rely on international linkages, especially through inward and outward FDI as sources of competitiveness. For example, in relatively small economic systems such as Belgium in the European Union (EU) context, or Canada in the context of the North American Free Trade Agreement (NAFTA), any analysis of the sources of domestic firms' international competitiveness needs to take into account the issue of access to foreign diamond components. Hence, a 'multiple diamond' approach is clearly required, as demonstrated by several conceptual and empirical studies (Moon, Rugman and Verbeke 1995, 1998).

One of the key problems of Porter's (1990) framework is his concentration on non-location bound FSAs developed by companies in their home country prior to engaging in FDI. As a result, he largely neglects, a) the systemic advantages of MNEs resulting precisely from the common governance of internationally dispersed value added activities, each building upon an idiosyncratic bundle of CSAs, and, b) the benefits of strategic asset seeking FDI, accruing to the MNE, whereby these assets may largely have been created on the basis of host CSAs.

Dunning (1996) has empirically assessed the geographical sources of MNE competitiveness through a survey of 144 of the Fortune global 500 industrial firms. He found that the relative contribution of host nation CSAs to the MNE overall competitiveness is increasing. On average, between 40 and 50 per cent of the location advantages' contribution to MNE competitiveness is viewed as being derived from host countries, particularly in the areas of natural resources, linkages with suppliers and rivals, and through foreign market size. In contrast, technological capabilities and skilled labour capital still appeared to be derived largely from the home country.

The relative importance of home versus host CSAs to the MNE's overall competitiveness is thus clearly an empirical question. Rugman and Verbeke (1995) have developed a conceptual framework that allows to position firms (or businesses within the firm) according to their reliance on specific bundles of CSAs as sources of international competitiveness. This is illustrated in Figure 4. The vertical axis measures the number of locations relied upon by the firm or each business within the firm as key sources of CSAs for any given business. Here, it is critical to know whether the firm or business within the firm builds primarily on one or several locations as a source of key CSAs, i.e., whether it has one or several home bases. The horizontal axis investigates whether the firm or business within the firm relies primarily on location bound or non-location bound FSAs.

The former reflect strengths that provide a favourable competitive position to a firm in a particular geographical area, such as a country or a limited set of countries, but cannot easily be transferred abroad, whether as an intermediate output (e.g. managerial skills, R&D knowledge) or embodied in a final product. In contrast, non-location bound-FSAs represent company strengths that can easily be transferred across locations at low costs and with only limited adaptation; this transfer can again take place in the form of intermediate or final outputs. The significance of the distinction between location bound-FSAs and non-location

Figure 4: Firm (or business) level sources of international competitive advantage

		Linkages between FSAs and location	
		Location bound FSAs	Non-location bound FSAs
Location of CSAs	Multiple home bases	1	3
	One home base	2	4

bound-FSAs has been explained in Rugman and Verbeke (1991, 1992). In fact, this distinction reflects a resource based interpretation of the integration-national responsiveness framework as developed by Bartlett (1986).

Porter's single home base perspective is clearly located in quadrant 4 of Figure 4. For each business, the firm relies on CSAs of a single nation as the key source of competitiveness. The firm then creates non-location bound FSAs building upon the home base CSAs, leading to exports and outward FDI. This perspective is consistent with Vernon's (1966) product life cycle. Quadrant 1 describes the firms that consist of largely independent, country based business units. They derive their competitive advantages primarily from location-bound FSAs that allow them to be nationally responsive. Quadrant 2 reflects the case whereby the firm (or its businesses) again relies on a single home base, but here it does not lead to the firm becoming a successful exporter or outward investor. Instead, the only way to achieve survival, profitability and growth is to develop specific domestic niches.

Finally, Quadrant 3 represents firms or individual businesses within the firm which function primarily through international network linkages. These units operate in a more integrated fashion, within a structure that may take the form of a “global web”, Reich (1991). MNEs engaged in strategic asset seeking usually also operate in this quadrant. It is in this case that the management of both the intra-organisational and inter-organisational networks may become very complex (Campbell and Verbeke 2000; Rugman and Verbeke 2001).

The question arises where firms should be positioned that work with subsidiary world product mandates (WPMs) (Rugman and Bennett 1982). Here, it should be emphasised that if the “businesses” within an MNE are defined sufficiently narrowly, it can usually be argued that individual “business units” with WPMs indeed all function with a single home base, thus requiring their positioning in quadrant 4 rather than quadrant 3. However, the single home base concept then becomes largely tautological (see *infra*).

It should be mentioned that Porter has refined his perspective on the importance of a single home base in more recent work (Porter, 1998*a*), recognising the importance of foreign locations to the overall competitiveness of MNEs. However, rather than acknowledging the existence in many cases of the importance of multiple home bases for MNEs, even for individual businesses, he has now chosen to define the concept of “business” or “product line” in such a narrow fashion that the prevalence of a single home base can indeed be defended in most cases of world product mandates.

For example, rather than recognising that Honda now functions with at least two home bases in the automobile business, namely Japan and the United States with the latter country being specialised in the design, development and upgrading of station wagons, Porter (1998*a*, p. 335) argues that station wagons actually constitute a distinct business or product line, thus building upon a single home base, namely the United States. In addition, according to Porter (1998*a*, p. 335) even the development of the “two door Civic Coupe” in the United States will

be achieved using the United States as a “single” home base ! A home base is thus defined as the location in which the most important decisions can be taken, largely independently from other locations: here, the definition of a product line can be adapted and narrowed as much as necessary to conform to the requirement that strategic decision making be concentrated in one location.

However, it is rather difficult to believe that all strategic decision making regarding the two- door Honda Civic Coupe would be divorced throughout the value chain from decisions on other cars in the Civic line or even other Honda car models. Indeed, Prahalad and Hamel (1990) have precisely identified as one of Honda's core competencies, its ability to share knowledge on small engines across very broad businesses such as automobiles, motorcycles and lawn mowers. In this context, it is interesting to observe, however, that when talking about Honda as a whole, Porter (1998*a*, p. 333-334) attempts to demonstrate, in contradiction with his own product line based analysis, the existence of a single home base for this firm in the automobile business using, inter alia, data of R and D geographic concentration.

The fallacy of the single home base argument becomes even clearer when Porter discusses the Hewlett Packard case (Porter 1998*a*, p. 339). He argues that 77 per cent of HP's physical space dedicated to manufacturing R and D and administration in fact is the United States, reflecting in his view, the existence of a single home base, especially since the ‘specialised expertise’ of ‘worldwide experts’ is also concentrated in that home base. This raises two interesting issues. First, the fact that 23 per cent of physical space dedicated to manufacturing, R and D and administration is not located in the United States, obviously does not qualify for a multiple home base designation. In that case, what percentage would? Second, on what basis can a distinction be made between ‘specialised expertise’ of worldwide experts, which appears to qualify for ‘home base’ branding and for example “process-oriented

R and D, product localisation and local marketing", Porter (1998a, p. 334), activities which do not appear to deserve a home base qualification.

In terms of description, the discussion on whether a firm or business unit functions with a single home base or multiple home bases appears to be a largely semantic issue. At the firm level, Porter's (1998a) analysis suggests that a high percentage of core assets, competencies and strategic decision making power concentrated in one country would lead to the qualification of a firm as being a single home based company. In contrast, the authors of this paper would argue that (1) there must be a 'threshold percentage' of core assets, competencies and strategic decision making power concentration below which a firm would be viewed as functioning with several home bases and (2) when one or various foreign units have built up a substantial critical mass of, e.g., R and D knowledge and are able to substantially augment this knowledge base through virtuous interactions with location advantages in host countries, the firm would again be viewed as functioning with several home bases.

At the business unit level, Porter's (1998a) perspective suggests that any business unit can be defined sufficiently narrowly (typically as a product line) so as to allow the identification of a single home base. In contrast, the authors of this paper would argue that business units should be defined *ex ante*. A business unit with several product lines using different home bases would then reflect the presence of a multiple home base structure.

From a normative perspective, Porter's (1998a) view is more problematic as he suggests that it is impossible at the firm or business unit level to have more than one home base. His approach therefore is not testable. In contrast, the authors of this paper view the presence of one or multiple home bases as an empirical question, whereby factual evidence suggests an increased use of multiple home bases.

CONCLUSION

This paper has suggested that the main challenge facing MNEs today in the location area is to combine effective access to - and participation in - foreign knowledge clusters, with efficient firm-level leveraging of the resulting knowledge base. To meet this challenge may be fraught with difficulties, for two reasons.

First, the benefits from setting up a subsidiary in a foreign, local cluster may not be easy to assess ex ante, as these benefits may largely depend on the actual absorption of cluster know how. The absorption effectiveness may be very difficult to predict, given that a substantial portion of these benefits consists of cluster spill-over effects. Subjective perceptions may be critical here. This also implies that existing participants in a cluster, as well as local/regional public agencies responsible for the economic development of a cluster, may substantially affect the perceived cluster attractiveness through the external image they are able to create for it.

Second, the international leveraging of know-how derived from participation in a cluster may also be difficult, when various MNE operations build upon diverging, specialized technological capabilities and when knowledge transfer costs are high.

A complementary issue is related to the effect of MNEs on the local knowledge clusters themselves. Whether MNEs will consistently enhance the upgrading of local knowledge clusters, rather than eliminate domestic expertise and reduce long run cluster stability in host countries is at present a much debated policy issue and an empirical question which requires substantial further research.

However, on the positive side, two categories of potential benefits to clusters from MNE-activity have so far been largely ignored in the literature.

First, high profile MNEs may through their presence in a cluster provide legitimacy to this cluster and alter the cluster's attractiveness as perceived by other MNEs and domestic firms. In other words, a global signalling effect may arise, which may greatly contribute to the cluster's visibility, as well as its expansion and sustainability.

Second, MNEs may well act as intermediaries in the international cross-fertilization of localized knowledge clusters.

The mainstream international business literature has traditionally viewed the MNE as an efficiency driven, transaction cost reducing and welfare enhancing. In their work, the MNE is considered an appropriate vehicle for the transfer and exploitation of proprietary knowledge, as well as for knowledge development, extension or acquisition across borders, when alternative modes of operation are inefficient. As a result of FDI, the MNE benefits from foreign location advantages, whereas foreign locations may benefit from various beneficial MNE spill-over effects, such as the upgrading of the local supplier base, the productivity improvement of the local human resources pool, a higher sophistication of local demand and better customer service as an outcome of stronger competition. However, MNEs may also increasingly act as a link between sticky, localized innovation clusters. In such a case they are the unintended lubricant for international exchanges and spill-overs among these centres. MNEs could thus increase the foreign knowledge absorption capacity of localized innovation clusters and contribute to the global diffusion of knowledge. Such a diffusion process may be tempered by the MNEs' limited capabilities to absorb and transfer knowledge within their own internal network, especially when multiple home bases are used, with distinct approaches to knowledge development and transfer.

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NOTES

1. These conditions include, inter alia, the presence of only two countries, two products, one scarce production factor (labour) but a different production technology (and therefore a different labour productivity) in each country, with constant returns to scale.
2. These assumptions include, inter alia, identical production factor prices and identical homothetic tastes in the two countries.
3. These 10 schools include (1) traditional location theories; (2) theories related to the process of internationalisation; (3) agglomeration theories; (4) theories related to spatially specific transaction costs; (5) theories related to the presence of complementary assets; (6) theories related to government induced incentives; (7) theories related to oligopolistic behaviour and product cycles; (8) theories of risk diversification; (9) exchange rate theories; (10) knowledge enhancing (dynamic) theories of location.