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What Role for Multinationals in the New Theories of International Trade and Location?

GRAZIA IETTO-GILLIES

ABSTRACT *The paper starts with a summary of the way the new theories of international trade have incorporated the role of multinational companies (MNCs) in the location of production. The main, specific assumptions used to incorporate MNCs' activities relate to joint inputs at the company's level combined with assumptions regarding costs at the plant level and spatial transaction costs. It is claimed that this approach explains multi-plant location, although it cannot discriminate between inter-regional and the inter-national multi-plant location. It is argued that nation-states should be distinguished by their regulatory regimes. The MNCs' ability to plan and organize across different regulatory regimes may give them special advantages linked to distributional issues and spread-of-activities strategies. These strategies may lead to a pattern of industrial location not fully congruent with the one emerging from the new trade and location theories.*

1. Introduction

The last two decades have seen considerable advances in the economics of international trade. The new theoretical approach has been sparked off by developments in the mathematical modelling of imperfect competition and increasing returns (Dixit & Stiglitz, 1977).[1] Following from the new trade theories, there has also been a surge of interest in the theory of location of economic activity and, in particular, in theories of the geographical concentration of production.

As the theory of industrial location came to the forefront of economic analysis, economists were bound to start asking questions about the role of multinational companies (MNCs) in the new approach. Some writers have, in fact, attempted to incorporate MNCs' activities in the new trade and location theories. The modelling of MNCs' activities has been done by making specific assumptions on inputs/costs at the level of the firm, on the size of markets, on scale economies at plant level and on transportation and other spatial and non-spatial transaction costs. The overall framework is one leading to multi-plants production and it appears to make little distinction—as regards applicability—between intra-national and inter-national situations. Differences between the two cases are considered in terms of levels of transaction costs and, sometimes, barriers to mobility of factors and products.

Grazia Ietto-Gillies, South Bank University, 103 Borough Road, London SE1 OAA, UK. E-mail iettogg@sbu.ac.uk

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A different view is put forward in this paper; one in which nations are defined by the different regulatory regimes they encompass. The different regimes may pose costs and constraints but they also generate advantages. In this framework, operating across nation-states introduces some qualitatively features, which are not present when operating spatially within nation-states. It is argued that the different qualitative features should be reflected in the theories of multinational production and location.

The paper starts by summarizing the main points in the new trade and location theories as applied to the MNC (Section 2). Section 3 presents some criticisms of the theories and Section 4 suggests a different framework for dealing with inter-and multi-national activities. Section 5 considers the implications and the final section concludes.

2. Multinationals within the New Trade and Location Theories

The new trade theories (Krugman, 1985, 1991a, 1998) stress that specialization and trade are driven by (a) static and exogenous elements due to the comparative advantages of factor endowment (as in Ricardo and Hecksher-Ohlin) and by (b) advantages deriving from dynamic and endogenous elements linked to increasing returns. The latter ones can be the Marshallian type due to external economies linked to the scale of the industry or the Chamberlinian type, which are internal to the firm and are linked to the scale of the plant/firm. (Krugman, 1985, 1991a).

The assumptions behind the theory in general, and the various models stemming from it, are usually the following: (i) existence of transportation costs and other spatial transaction costs; (ii) immobility of labour and capital; (iii) the existence or gradual formation of scale economies of internal (Chamberlinian) and/or external (Marshallian) type; (iv) a large market due to the size of the population combined with high incomes per capita (Krugman, 1985).

Thus, increasing returns, whether linked to the size of the firm or industry, are used to explain trade as well as the geography of economic activity (Krugman, 1991b), clustering and agglomeration, industrial districts (Krugman, 1991a). They are also used to explore the effects of regional integration and of the changing pattern of activity in the North–South divide (Krugman & Venables, 1995), as well as many policy issues stemming from agglomeration and cumulative processes (Krugman, 1987 and Krugman & Venables, 1996).

This framework cannot explain direct production in other countries by MNCs. Essentially, if there are external economies of agglomeration and the internal economies are plant economies, then it can only make sense to produce in one location/country and supply other markets through exports. There is a basic conflict and tension between a theory that predicts clustering of production activities and a reality of companies that spread their activities in space — sometimes horizontally, sometimes vertically, sometimes both ways.

At the theoretical level, it is possible to solve the conundrum by adjusting some of the assumptions and this is what economists have done. The assumption of capital immobility is obviously removed; moreover, constraints to the movements of products are sometimes introduced, such as barriers to trade. However, the main adjustment is in the treatment of internal economies. They are split into two types: (a) economies at the level of the firm and (b) economies at the level of plants. The first type of economies encompasses any input/costs (organizational, technological,

managerial/marketing) whose output (whether material or, more often, immaterial/services) is of benefit to—and can be used by—the company as a whole. No matter how many plants are going to use this output, the marginal cost for each of them is low or negligible. The firm still remains a Chamberlinian one, although it operates within a multi-plant framework. The industry as a whole may also achieve Marshallian scale economies.

Within this general framework there are two main routes to the introduction of international production by MNCs which, realistically, are always assumed to originate from developed countries.[2] The first route is designed to explain why MNCs locate in developing countries. This is done by assuming different factor endowment and the production of intermediate as well as final products (Markusen, 1984; Helpman, 1985; Helpman & Krugman, 1985). Moreover, the company as a whole achieves economies of scale on joint inputs whose outputs are *specific* to the company. These outputs are usually services linked to research or to brand names and advertising. Their specificity means that they cannot be bought on the market without loss of quality or loss of monopolistic position over, for example, the results of research. The models lead to a pattern of vertical integration of production across countries[3] and to intra-firm and intra-industry trade. The different factor endowment leads to specialization between countries, while joint inputs favour production under common ownership.

The second route deals with FDI into developed countries. Markusen (1995) probes into the circumstances that lead a company to produce directly abroad or to license or use other entry modes such as exports. He starts by giving some quite realistic stylized facts about MNCs' activities worldwide in the last few years at the macro and micro levels.

His model assumes: (i) two countries that are at the same stage of development, both with large markets of similar size—thus plant economies of scale can be achieved in both; (ii) the countries have similar factor endowment and thus the same costs of production; (iii) there are large transport costs and/or barriers to trade but not to FDI; (iv) there are large fixed costs of production at the level of the firm as a whole, for example R&D, and the firm owns relevant intangible assets.

The end result is that international production is of the horizontal type[4] and FDI exhibits an intra-industry pattern. Direct production abroad is preferred to exports due to assumption (iii). The intangibility of assets (iv) poses constraints on the degree to which the company can license and generally externalize its activities without risk of losing quality control or its monopoly over technology.[5]

3. Some Criticisms

The MNC-extended theories of industrial location have the great merit of attempting to incorporate international production in the main body of economic literature. There are, however, problems with the proposed approaches. At the theoretical level and through a series of specific assumptions, the theories manage to solve the contradiction between agglomeration predictions of the new trade and location theories and the reality of multi-national production by large firms. Unfortunately, the success in modelling them has not been mirrored by similar success at the empirical level. As Krugman (1998, p.15) puts it '. . .preliminary efforts. . .have found that such models are not at all easy to calibrate to actual data; in general, the tendency toward agglomeration is stronger in the models than it seems to be in the real economy!'.

There is a need to clarify the relationship between trade and international production in the enlarged framework. Some models lead to the conclusion that trade and international production are alternatives to each other. In fact, Markusen (1995) identifies uninational companies (UNCs) with trade and MNCs with FDI only. This is a problem, because MNCs are responsible not only for all FDI worldwide but also for very high percentages of world trade (United Nations, 1992, p. 200) and indeed FDI and trade may be complementary to each other, as FDI often generates rather than replaces trade.[6]

Dunning (1998) highlights the conflict/paradox between a theory that leads to concentration of production and the actual dispersion of production organized under the same ownership (Dunning, 1998, pp. 48, 57).

I see some of the contradictions and problems deriving from the fact that a theory that is basically rooted in geography and space, is being fitted into a framework related to nation-states and different regulatory regimes.

As we saw from the works reviewed in the last section, the basic assumption common to the two strands of MNC-enlarged theories of location, is the following. There are large, fixed costs at the firm level mostly related to large, intangible knowledge-based assets. There are, therefore, economies of organizing production under the same company umbrella although not necessarily under the same plant. The specificity of services deriving from the joint assets, leads to advantages of internalization and thus to a preference for direct production over licensing and exchanges at arm's length.

In this approach, the main assumptions leading to so-called multinational production are not specific to international activities; they relate to the structure of inputs and costs and they apply just as well to inter-regional location of activity. The models are multi-plants models in which the various plants could be located in different regions of the same nation-state (California, Michigan, Texas) or in different nation-states (Germany, US, UK, Canada). The difference between the two situations is one of degree: the spatial transaction costs per unit of distance may be higher between than within nations; the constraints to factors such as mobility may also be higher; there may be restrictions to trade at the international level, which would not exist at the inter-regional level.

In the MNCs-enlarged new trade theories, nations are defined in terms of the extra costs and barriers to factors and product mobility they pose over and above the costs of operating at the inter-regional level. Krugman is quite explicit on this point. He writes: 'Nations matter—they exist in a modeling sense—because they have governments whose policies affect the movements of goods and factors. In particular, national boundaries often act as barriers to trade and factors mobility.' (Krugman, 1991a, pp. 71–72) and later: '. . . countries should be defined by their restrictions.' (Krugman, 1991a, p.72). The emphasis here is on spatial and other transaction costs and on barriers to the mobility of factors and products.

However, there are wider differences between nations that are of relevance to the understanding of MNCs' activities. I prefer to define nation-states and their boundaries in terms of the regulatory regimes they encompass. Such regimes may refer to taxation, currencies, customs[7] or to labour regimes, i.e. to the boundaries within which the workforce can organize itself and bargain for wages and work conditions. In this approach, the essence of international production is that MNCs can operate across different regulatory regimes. This specific, distinguishing feature characterizes MNCs over and above the fact that operating across nation-states means also operating across space, as in economic geography and multi-plant

models. In contrast, the essence of inter-regionality (or intra-nationality) is operations across space but within a single—or more uniform—regulatory regime.

Does this approach matter in terms of the analysis of MNCs within the new theories of trade and location? If their ability to operate across different regulatory regimes does not matter in an economic sense, in the sense that it does not produce relevant economic effects, then there is no point in bothering with multinationality *per se* as a distinctive characteristic from inter-regionality. Inter-nationality, then, is a specific case of spatial economics and differs from inter-regionality only in relation to the level of spatial transaction costs, some of which may derive from restrictions and constraints imposed by governments. However, if multi- and inter-nationality is *qualitatively* different and produces specific effects over and above those related to spatial economics, then a different framework may be needed for dealing with MNCs' activities.

4. MNCs' Strategies and Industrial Location

In order to attempt the development of a wider framework within which to place the impact of different regulatory regimes on MNCs' strategies, it is useful to try to answer the following questions. Do firms derive benefits and costs from operating across nation-states (i.e. across different regulatory regimes) over and above any specific spatial transaction costs? Does operating across many nation-states (many regulatory regimes) give advantages that cannot be achieved by operating across many regions (i.e. across space but within a uniform regulatory regime)?

My answers to these questions are positive; this means that I see nation-states not just generating restrictions but also enabling the development of conditions for profitable accumulation by MNCs. I will argue in favour of this outcome by using examples from my definition of national boundaries as boundaries of regulatory regimes. The regulatory regimes refer to a variety of policy and institutional elements, which range from: taxation, currencies, labour bargaining power as well as barriers to the movement of products and factors, as in the quote from Krugman (1991a, pp. 71–72) above.

The first example refers to the nation-states as the *loci* of tax regimes. Multinational companies operate across nation-states and therefore across a multi-tax environment. The multi-nations characteristic of their activities allow them to invoice their internal transfers in such a way as to minimize their worldwide taxation liabilities. The ability to do this derives from the fact that they operate across many nation-states (many regulatory regimes) not from the fact that they operate across space.

Some works, and specifically Helpman (1984) and Helpman & Krugman (1985), consider the trade in services of joint inputs within multi-plant MNCs. In this approach, the intra-firm exchanges of services are more in the nature of multi-plants transfers than in the nature of intra-firm international trade: they apply to exchanges across plants within the same company, whether these plants are located inter-regionally or inter-nationally. This is because one essential element of multi-nationality is missing: the different tax regimes that make it worthwhile to engage in tax minimization strategies such as the manipulation of transfer prices. Such manipulation produces several effects at the macro level (John *et al.*, 1996, ch. 2). It impacts on trade patterns as well as on the balance of payments and on the transfer of economic surplus (between the world's public and private sphere and

between different nation-states). Nonetheless, the wish to take advantage of different tax or currency regimes through the manipulation of transfer prices may not be a very relevant determinant of industrial location.

The second and more relevant example relates to labour regimes. Labour throughout the world has, so far, been unable to organize itself across nation-states. This is, of course, in stark contrast with capital, which has been extremely successful in planning, organizing and controlling production across nation-states: this is what the MNC is about. By operating in a multi-national environment, MNCs face a fragmented labour force (Hymer, 1972; Cowling & Sugden, 1987; Sugden, 1991; Ietto-Gillies, 1992, ch. 14). They are able to confront a more divided workforce than they would if, *ceteris paribus*, they were producing all their output within the boundaries of a single nation-state, within which labour could organize more easily and effectively. This may result in lower labour costs, at the level of the firm as a whole, in the short- to medium-term, compared with what the company would face if, *ceteris paribus*, it were operating inter-regionally rather than inter-nationally.

Moreover, the multinationality of operations gives the company longer-term benefits in terms of acquired knowledge of the supply conditions of labour in different nation-states and thus in terms of opportunities for the location of future investment. It also gives the MNC the ability to play one location against the other in its dealings with both labour and governments. This allows it to obtain lower wage settlements or higher perks from the regional/national governments.

The third example derives from risk minimization strategies. One advantage of a strategy of multinational spread of production and labour fragmentation is the reduction in the risk of disruption to production. However, the risk of disruptions may come not only from industrial disputes but also from other elements such as political upheavals or natural disasters. The first of these tend to be specific to nation-states while the second is more linked to the physical environment and geography. Nonetheless, nation-states may differ in their ability to cope with natural disasters and thus in their ability to minimize disruptions to business activities, when natural disasters do occur. Operating in many countries may also diminish the risk (or increase the opportunities) linked to possible changes in currencies or tax regulations.

The firm's advantages highlighted here are not a feature of the country's factor endowment—whether static or dynamic—nor of endogenous elements linked to increasing returns. They are specific to a characteristic of the multinational firm: its ability to operate across different nation-states and thus different labour regimes. They are benefits of multinationality *per se*; they are not linked to core/periphery issues but rather to the degree of spread of activities among many nations/regulatory regimes.[8] However, there may also be extra costs from operating in foreign countries (Hymer, 1960) and from a high geographical spread of activities across nation-states. Companies and their managers have to learn about different cultural, social and institutional environments and adapt to them.

The points just discussed are summarized and contrasted to the MNCs-enlarged new trade and location approach in Table 1. Krugman (1998, p. 8) presents—in a single neat table—the main forces that push the location of production towards the centre or the periphery. These forces are reproduced in columns one and two of Table 1 here. Column three lists forces that are government- and regulation-specific but which affect the geographical concentration along the same lines as in Krugman's framework.[9] Column four lists those

Table 1. Forces affecting location of production

Applicable to inter-regional and inter-national		Applicable to inter-national only. Due to different regulatory regimes.	
(1) Centripetal*	(2) Centrifugal*	(3) Centrifugal	(4) Spreading
Market-size effects (linkages)	Immobile factors	Regulations affecting: (a) factor mobility	Labour fragmentation strategies
Thick labour markets	Land rents	(b) product mobility	Risk minimization strategies
Pure external economies	Pure external diseconomies	(c) transfer prices	Strategies linked to transfer prices

* These two columns are taken from Krugman (1998, p. 8). The title of the table from which they are taken is 'Forces Affecting Geographical Concentration'.

strategic elements that cannot be fitted into a core/periphery framework because they push the company towards the spread of activities among many countries. Regulations likely to encourage the manipulation of transfer prices—such as those related to taxes or currencies—may sometimes push towards the periphery only, and sometimes towards the spread of activities into many countries.

The following points emerge from the table. First, the new trade and economic geography theory, whose forces are summarized in Krugman's framework, lead to a pattern that is clear cut in terms of centripetal and centrifugal forces, and thus to a pattern that considers location in terms of core and periphery. Moreover, all the relevant forces act in a congruent way at the micro and macro level. Thus, the analysis can neatly be extended from the micro to general equilibrium and to the efficient allocation of resources at the micro and macro levels. These forces apply to both routes used in the MNC-enlarged theory of location (reviewed in Section 2), provided we assume some joint inputs for the company as a whole. MNCs may engage in strategies of a spread of activities, whether they are involved in horizontally or vertically integrated production across countries.

Secondly, at the level of nation-states, when the effects of different regulatory regimes are taken into account, the geography of industrial location is affected in ways and by forces that do not always coincide with the ones affecting location at the regional level. In particular, the assumptions of different regulatory regimes—different nation-states—introduce centrifugal forces affecting factors or products' mobility as well as elements that may lead to the manipulation of transfer prices (as in column three).

Thirdly and most importantly, the assumptions about the existence of different regulatory regimes introduce forces that are neither centrifugal nor centripetal but push towards strategies of spread of activities in many countries (column four). These are decisions arising from strategic behaviour rather than from efficiency considerations. Thus, issues of conflict resolution/avoidance and distribution play a key role in the development of MNCs' location strategies.[10] Fourthly, and arising from the previous points, the congruence between the micro and macro impact of decisions no longer follows. The spatial allocation of resources emerging from MNCs' strategies may no longer conform to the optimum allocation of resources as emerging from the endowment of resources of the different countries and/or from the increasing returns models. The clash between micro and macro optimization may be an obstacle to deriving general equilibrium conclusions from situations in which MNCs' strategies are—realistically—allowed to play a significant role in industrial location.

5. Implications

On the whole, I am inclined towards the idea that the manipulation of transfer prices is not a major determinant of MNCs' location strategies. Casson and associates (1986, p. 59) and Cantwell (1994, p. 312) point out that there is no evidence that the manipulation of transfer prices is the main motivation for engaging in intra-firm trade.[11] However, I feel that the strategies towards labour and towards risk spreading do play a significant role.

If we accept the 'regulatory regimes' approach to nations and to MNCs as organizations able to plan, organize and control business activities across nation-states and thus to take advantage of the different regimes, various implications follow.

First, operating internationally via FDI and direct production can generate benefits for the companies over and above those related to the sourcing of large markets, or factor endowment or the structure of inputs and costs. These benefits are linked to the ability of companies to take advantage of a variety of features of different regulatory regimes, which include: the ability to jump trade barriers (as highlighted in some of the theories considered above); the ability to profit from different tax, currencies and labour regimes; the ability to spread risks. There is, therefore, a much wider scope for advantages than those envisaged by the new trade and location theories.

Secondly, the advantages of operating across nation-states cannot be assimilated to a special aspect of multi-plant, inter-regional economics. They are specific to the ability to operate *across* different regulatory regimes and they may increase with the number of countries—thus, regulatory regimes—across which the company operates. For example, it is likely that the advantages related to labour regimes are linked to the number of foreign countries in which the company operates, with higher advantages for companies operating in more nation-states. The larger the number of countries in which firms operate, the more fragmented is the labour force they have to confront. The company with a large network spread of production activities is in a stronger position to play one site against the other and therefore has strong bargaining power *vis-à-vis* its workforce as well as towards the national and regional governments of host countries. It is also in a better position to minimize risks. There may, of course, also be additional costs of operating in many countries.

Third, if multi-nationality gives special advantages to MNCs, we must ask ourselves against whom are these advantages gained. The answer is towards those economic agents that, for historical reasons or for reasons linked to their institutional and organizational structure, cannot operate transnationally or not to the same extent. These agents are: the uninational companies (UNCs), the consumers, labour, and governments themselves. In this context, long-term strategies towards them and distributional issues become very important.

In the examples given so far, the MNC—by operating and optimizing across different nation-states—is at an advantage compared with either governments or labour. Moreover, these advantages towards governments and labour also result in competitive advantages towards rivals, be those other MNCs or UNCs.[12] Any advantages towards rivals by leading to higher market shares may start a cumulative process not dissimilar to the process stemming from economies of scale at the firm level. Therefore, as the advantages of multi-nationality spread from advantages towards labour to those towards governments and rivals, they may set in train a cumulative process of advantages for the firm which, altogether, affect the pattern of location in various countries.

The advantages of operating across different regulatory regimes and the ability to exploit the differences across nation-states may affect the pattern of industrial location at the macro level. For example, a strategy of fragmentation of the workforce employed may lead to a higher multi-nations spread of activities than warranted by the strictly optimizing, multi-plant model. If this is the case for many large MNCs, then this feature will also affect the location structure of economic activity as well as its agglomeration pattern.

What evidence is there for a possible model based on regulatory regimes and the advantages of spreading of activities? Sugden (1991) gives some evidence about the MNCs' strategies in relation to labour, although—on the whole—the evidence is not very substantial.[13] However, there is some evidence that the direct network

spread of activities of the largest MNCs worldwide is indeed very wide. Some of the largest TNCs operate in over 100 countries, with an average of over 23 countries for the world's largest 664 TNCs (Ietto-Gillies, 1998; Ietto-Gillies *et al.*, 1999). There is also some evidence of growing trends. Ietto-Gillies (1996, p. 200), in a study of the UK's largest TNCs in manufacturing and mining, finds that the percentages operating in over 20 countries rose from 20 in 1963 to 72 in 1990.

Moreover, the strategic approach to MNCs' location decisions proposed here is consistent with the following facts: (a) a lower agglomeration found in empirical works, compared with the theoretical models by the researchers of new trade theories as highlighted in Krugman (1998, p. 15); (b) a high and increasing degree of spread of activities by the largest MNCs; and (c) most foreign direct investment is directed towards other developed countries.[14] Given the location of markets, the availability of labour skills and technologies and the scope for linkages, companies might find it most profitable to locate in developed countries. They can do so either by producing all or most of their output in one or two countries and then sourcing the other markets via exports, or by producing near each market and thus fragmenting production into many developed countries. In both Markusen's (1995) model and the one sketched above, companies appear to follow a pattern of production fragmentation. However, in the first one (Markusen's) the choice of host location(s) depends on economic distance (transportation and other spatial costs), barriers to trade and size of markets. Given the tendency for both barriers to trade and transportation costs to decline, it is not easy to explain by this model the increase in FDI in all developed countries and the large spread of activities by MNCs. However, if we accept that MNCs' strategies are likely to lead to a higher level of fragmentation and dispersion of production by nation-states than the one envisaged by the new location theories, then the world pattern of international production may become easier to explain.

How can the approach sketched here be used positively to advance our understanding of industrial location in the era of transnational companies?[15] A realistic theory of industrial location must take account of increasing returns whatever their origin, and thus analyse the dichotomy in agglomeration and centrifugal forces. However, it must also take account of the strategic behaviour of MNCs, which plays a relevant role in the location of industrial activities.

Models of the MNCs, their behaviour and their operations, will have to juxtapose the situation of companies operating within the nation (within the same regulatory regime) and those between nations (between different regulatory regimes). The second situation should not be treated as an extension of the first one, even though increasing returns should play a role in both cases.

Over and above any assumption related to the factor endowment of countries, or joint inputs or increasing returns, the operations between nations would have the following characteristics. (a) Benefits (as well as some costs) of multi-nationality, i.e. of operating across different regulatory regimes. These will be specific to inter/multi-national operations and not to inter-regional operations and, indeed, will demarcate the specific features of the two. Moreover, the benefits may vary positively with the number of nations in which the MNC operates. (b) Possibly higher transaction costs than in inter-regional operations. Some learning elements will have to be incorporated here if we want a realistic model. The inter-national transaction costs may decline historically, i.e. with the length of time the company has been operating in the host country(ies). It is possible to learn about a market/location not only via direct production but also through other entry modes, such as exports or joint

ventures. Learning to operate in one or two countries may also enhance the ability to operate in additional locations; however, beyond a certain number of countries there may be a steep rise in managerial and organizational costs.

6. Conclusions

The paper starts with a summary of the new theories of international trade and industrial location as applied to the explanation of multinational companies and their activities. The multinational activities are introduced within these new theories as part and parcel of the explanation of multi-plant activities deriving from the existence of joint inputs at the level of the company. This approach does not discriminate between multi-plant activities in which the pattern of location is inter-regional and those activities whose pattern of location is international. It is argued that such a distinction is necessary if we want to explain the essence of MNCs' activities and the MNCs' relationship with other players in the economic system.

In the new trade theories, nation-states are defined by the restrictions they put on business activities and, thus, by the extra costs they impose on international operations or by different factor endowment. In the approach presented here, nation-states are defined in terms of the regulatory regimes they encompass.

The ability to plan and organize activities across different regulatory regimes gives the MNCs extra advantages, which are specific to cross- and multi-country operations. These are strategic advantages against all those players in the economic system who cannot operate — or not to the same extent — across regulatory regimes for whatever reason. Such players are governments, labour, uninational companies or consumers. In this approach, distributional as well as efficiency considerations play a role in the strategies of MNCs. Moreover, such strategies will affect the company's competitive advantages over its rivals.

The advantages of operating across different regulatory regimes may affect the pattern of location, as well as the concentration of activity, which would emerge from increasing returns. The forces leading to multi-nationality cannot — or not always — be assimilated into centripetal and centrifugal forces and the core-periphery pattern, because they favour the spread across nation-states and thus regulatory regimes.

More realistic modelling of MNCs' activities within the new trade and location paradigm should contrast the costs and benefits of operating inter-regionally *versus* inter-nationally and not only those of operating within a single or multi-plant framework. In other words, the multinationality of operations (i.e. operations across different regulatory regimes) with its strategic elements, advantages and dis-advantages should be at the forefront of analysis and not come out as a by-product of spatial analysis. There are some spatial issues in multinational production, but there are also some very relevant non-spatial ones, which fall within the institutional, policy and distributional spheres.

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Notes

1. Prior to the new trade theories there was a considerable body of economic literature dealing with increasing returns (Young, 1928; Kaldor, 1967) as well as a body of economic geography dealing with agglomeration issues (cf. Krugman, 1998). What was lacking at the time was the ability to model them mathematically.
2. Approximately 81% of the world MNCs originate from developed countries and so does over 90% of the stock of world outward FDI (UNCTAD, 1998).
3. Cf. the literature on MNCs and internalization (McManus, 1972; Buckley & Casson, 1976; Rugman, 1981; Hennart, 1991) or the eclectic approach (Dunning, 1977, 1981). Penrose (1987), Ietto-Gillies (1992, chs 11, 14) and Dunning (1998) point out the inadequacy of this approach for the explanation of international production.
4. Markusen (1998) considers both horizontal and vertical integration within the same model.
5. Cf. also Helpman (1984) on this point.
6. For a review of the links between international production and trade, cf. Cantwell (1994) and Casson and associates (1986). Evidence of complementarity between trade and international production is in Chesnais & Saillou (2000). Within the new trade theories Helpman (1984, 1985), Helpman & Krugman (1985) and Markusen (1997) consider complementarities and different trade patterns.
7. Aliber (1970) uses currencies and customs regimes to explain foreign direct investment. See also Blonigen (1997).
8. This agrees with the statement that: '. . . the locational configuration of a firm's activities may itself be an ownership-specific advantage. . .' (Dunning, 1998, p. 60).
9. Elements (a) and (b) in column 3 are implicit in Krugman (1991a, pp. 71–72) quoted on page 416.
10. Some of these conflicts are clearly highlighted in Cowling & Sugden (1987) and particularly Sugden (1991) who uses Marglin (1974)'s analysis of the rise of factories to explain the development of the transnational company.
11. Nonetheless, once a pattern of intra-firm trade develops, for whatever reason, it does give scope for the manipulation of transfer prices and all the related effects follow.
12. The effects of specific strategic behaviour towards rivals for MNCs' activities are analysed in Knickerbocker (1973), Cowling & Sugden (1987) Graham (1978, 1992).
13. Sugden gives also reasons why the collection of evidence is intrinsically difficult.
14. Approximately 70% of world FDI stock (UNCTAD, 1998).
15. Most of the above elements affecting TNCs' strategies can be considered as supply-side. The relevance of demand-side considerations is in Acocella (1975), Pitelis (1991) and, to some extent, in Aliber (1993).

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