

The Nature of the Transnational Firm

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2 A survey of theories of international production

John Cantwell

In the 1970s and early 1980s it became fashionable to search for general theories of international production which encompassed all the contributions of earlier writers thought to be significant. These were sometimes advanced as general theories of the multinational corporation (MNC), the main institutional agent of international production, or general theories of foreign direct investment (FDI), the major means by which international production is financed.¹ When confronted with evidence on certain types of international production that their 'general' theories did not seem to explain, the proponents of such theories all too frequently seemed to respond either by dismissing the relevance of the evidence or by adapting their terminology to accommodate it. To the extent they succeeded their theories became increasingly cumbersome and less operational (as discussed by Buckley, 1983).

By the late 1980s the limitations of particular theoretical approaches as catch-all explanations of international production seem to have become clearer even to their keenest advocates. This has led work in the field in two directions. First, within each approach there has been an effort to extend or develop theories to broaden their coverage, while allowing for the influence of other factors perhaps better explained by other complementary theoretical approaches. One issue that most schools of thought have identified as particularly requiring attention is the dynamic aspects of international production. This chapter therefore concentrates on theories of the growth of international production, and of changes in its composition, from various different perspectives.

Second, an attempt has been made to avoid fruitless confrontation between alternative theories setting out spuriously to encompass one another, by constructing a general framework of analysis of international production which represents the common ground between different theoretical approaches but is not inextricably wedded to any of them. It also provides a framework for helping to articulate the real areas of disagreement and

to decide between alternative theories where they offer genuinely competing explanations of the same phenomenon. This general framework has been developed by John Dunning, and since it deliberately draws on a variety of theoretical approaches it is known as the eclectic paradigm (Dunning, 1977, 1981, 1988a). The eclectic paradigm combines elements of quite different approaches to international production, and so it should not be misunderstood as itself another general theory: 'precisely because of its generality, the eclectic paradigm has only limited power to explain or predict particular kinds of international production; and even less, the behaviour of individual enterprises,' (Dunning, 1988a: 1).

Theoretical diversity is to be expected in the field of the economics of international production as much as in any other area of economics. However, it is one of the virtues of the eclectic paradigm that it makes clear that such diversity is attributable not only to a variety of ideological standpoints. There are three additional reasons to expect theoretical diversity in this case. First, international production may be of a resource-based, import-substituting, export-platform or globally integrated kind, each of which raises distinctive considerations and each of which affects home and host countries in different ways.

Second, and related to this, the use of particular theories often reflects the issues addressed and the questions asked. Theories of international production have drawn on six separate branches of economic theory (Cantwell *et al.*, 1986): the theories of international capital movements, trade, location, industrial organization, innovation and the firm. To give examples of possible approaches, those whose concern is with the MNC *per se* tend to rely on a particular theory of the firm, while those interested in FDI for its own sake may place special emphasis on a theory of international financial flows.

Third, international production can be analysed at three levels: macroeconomic (examining broad national and international trends), mesoeconomic (considering the interaction between firms at an industry level) and microeconomic (looking at the international growth of individual firms). It is quite natural that macroeconomic theories of international production should have often relied heavily on theories of trade, location and (in the case of FDI) the balance of payments and exchange rate effects; mesoeconomic approaches tend to be derived from industrial economics, game theory and the theory of innovation; while microeconomic thinking is grounded upon the theory of the firm.

Using this distinction between different levels of analysis, the main theories of international production can be grouped under four headings. These constitute four alternative theoretical frameworks, since approaches within each share certain common theoretical foundations. However, each

of them can be further subdivided between particular theories or approaches, and they are not always mutually exclusive. The first two are based on alternative theories of the firm; the market power or Hymer theory of the firm, and the internalization or Coasian theory of the firm. The third group are macroeconomic developmental approaches, while the fourth are based on the analysis of competitive international industries.

It should be noted that, as already suggested above, the eclectic paradigm, is not an alternative analytical framework in the same sense, since it incorporates elements from all four types of approach and can be applied equally well at micro or macro levels. It is, rather, an overall organizing paradigm for identifying the elements from each approach which are most relevant in explaining a wide range of various kinds of international production, and the wide range of different environments in which international production has been established.

The next section reviews the four major types of approach to international production, together with the eclectic paradigm. The following one examines the relationship between different approaches in the perspectives they offer on the growth of the firm and international competitiveness. This leads into a concluding section on how the various approaches have attempted or are attempting to treat the dynamic aspects of international production, with some speculation on future developments in the analysis of international production. Since much of the literature has been concerned to emphasize the role played by technology in the growth of the MNCs, this features heavily in the discussion.

A SURVEY OF THE MAJOR THEORIES OF INTERNATIONAL PRODUCTION

The theory of international production dates from 1960, when Hymer, in a doctoral dissertation eventually published in 1976, showed that the orthodox theory of international trade and capital movements did not explain the foreign operations of MNCs (see Cantwell *et al.*, 1986). In particular, it did not explain two-way flows of FDI between countries, and still less between countries with similar factor proportions. His explanation of why firms move abroad and establish international production was based on a theory of the firm and industrial organization. Since that time, four major theoretical frameworks for the analysis of MNCs have emerged, and a fifth overall framework attempts to bring strands from each together. The first two are based on particular theories of the firm, and although their advocates sometimes claim that they are general theories, they are unlike the eclectic paradigm, which is a general all-encompassing framework which need not be tied to any particular theory of the firm or MNC development. The other

two frameworks suggested here also collect together somewhat different approaches, derived from adaptations of the theory of international trade or economic development and the theory of oligopolistic competition or technological innovation respectively.

The first theoretical framework used to analyse international production is that passed down by Hymer, based on the view of the firm as an agent of market power and collusion. It comes in both non-Marxist and Marxist versions, the latter dating back to Baran and Sweezy (1966). Two of the clearest recent statements of this framework can be found in Newfarmer (1985) and Cowling and Sugden (1987). (See also chapters 3 and 8.)

The second is the internalization approach, based on a Coasian or institutionalist view of the firm as a device for raising efficiency by replacing markets; it has been advanced as a general paradigm by Rugman (1980), though less extravagant claims are made for a similar approach by Buckley and Casson (1976, 1985), Williamson (1975), Teece (1977), Caves (1982), and Casson (1987), amongst others. (See also chapter 4.)

Approaches based on the analysis of competitive interaction in international industries include later (Mark II) versions of the product cycle tradition (Vernon, 1974; Graham, 1975; Flowers, 1976; Knickerbocker, 1973), the technological accumulation approach (Pavitt, 1987; Cantwell, 1989b), the internationalization of capital approach (Jenkins, 1987), and in a developmental context the work of those whom Jenkins terms neo-fundamentalist Marxists (Warren, 1980).

Macroeconomic developmental approaches come in various forms, covering the earliest versions of the product cycle model (PCM Mark I), which trace back to Vernon (1966) and Hirsch (1967); the approach of the Japanese economists Kojima (1978) and Ozawa (1982); the investment-development cycle (Dunning, 1982) and stages of development approach (Cantwell and Tolentino, 1987), and – though these are rather different – approaches that deal with the role of financial factors in FDI (Aliber, 1970; Rugman, 1979; Casson, 1982).

The final framework is the eclectic paradigm developed by Dunning (1977, 1988a), which as its name suggests combines elements of all the other four in such a way that it is compatible with various different theoretical approaches. It can be applied at a macroeconomic or mesoeconomic level, but since it is discussed in the literature in a microeconomic context with reference to theories of the firm it is reviewed immediately after the first two approaches in the survey which follows. (See also chapter 5.)

The market power approach

The earliest articulation of a rounded-out theory of international production

separate from the theory of international trade and capital movements can be traced back to Hymer (1976). In the traditional neoclassical approach economically advanced countries, owing to their relative abundance of capital but scarcity of labour, have low rates of profit or interest but high wage rates prior to international transactions. They therefore tend to export goods requiring capital-intensive production methods to less advanced labour-abundant countries; or, as a partial substitute for this, to export capital direct through FDI in developing countries. Capital thereby flows from countries in which the interest rate is low (owing to the abundance of capital) to those in which it is high (owing to capital scarcity).

The traditional classical and Marxist approaches reached similar conclusions, though by following a different line of reasoning. It was argued that there is a tendency for the rate of profit to fall (or in some versions a tendency towards underconsumption) in an advanced capitalist country. This provides an incentive to foreign investment in countries at an earlier stage of development, where capital can be employed more profitably. If the rate of profit at home has been driven down, owing to the intensity of competition, as in Adam Smith's story, then foreign investment in underdeveloped countries serves as an outlet for surplus capital. In Marxist accounts the rate of profit falls either because of a rise in the capital-output ratio (the organic composition of capital) or because of a fall in the share of profits in income (the rate of exploitation). It then follows that there are likely to be investment opportunities in economically backward countries with low capital-output ratios or which permit a super-exploitation of a weakly organized labour force. Alternatively foreign investment and trade involve the search for new markets in underdeveloped countries and regions, owing to the inadequacy of local consumption or demand.

Although theorists sometimes react only slowly to changes in the reality they endeavour to explain, such traditional explanations could not survive for long without severe adaptation in the period after 1945. It was true that before 1939 the bulk of international trade and investment ran between industrialized and developing countries, often in accord with colonial or other historical connections. However, this changed rapidly in the post-war period. In 1950 around three-fifths of manufacturing exports from Europe, North America or Japan were directed to the rest of the world, but by 1971 only just over a third (Armstrong *et al.*, 1984: 215). Even more dramatically, two-thirds of the world's stock of FDI was located in developing countries in 1938, but this had fallen to just over a quarter by the 1970s, where it has remained since (Dunning, 1983b: 88). In other words, international production is now organized principally between the industrialized countries.

Clearly, the conventional explanations of international production which

were essentially constructed at a macroeconomic level were in need of substantial revision if they were to remain useful. They did not explain cross-investments between countries at an advanced stage of development, let alone the cross-investments within the same industry which became increasingly important from the 1970s onwards. Hymer's response was to apply a theory of the firm within its industry to establish the determinants of internationalization.

Hymer's particular theory of the firm sees it as a means by which producers increase the extent of their market power. A definition of market power can be taken from Sanjaya Lall, whose work at the time was identified with this approach:

Market power . . . may . . . be simply understood as the ability of particular firms, acting singly or in collusion, to dominate their respective markets (and so earn higher profits), to be more secure, or even to be less efficient than in a situation with more effective competition. . . . The concept may, of course, be applied to buyers (monopsonists) as well as sellers.

(Lall, 1976: 1343)

Originally applied to international production by Hymer (1976), this theoretical approach has been used recently by those such as Savary (1984), Newfarmer (1985) and Cowling and Sugden (1987).²

The main idea is that in the early stages of growth firms steadily increase their share of domestic markets by means of merger as well as capacity extension, and that as industrial concentration (and market power) rises so do profits. However, there comes a point at which it is no longer easy to further increase concentration in the domestic market, as few major firms remain, and at this stage profits earned from the high degree of monopoly power at home are invested in foreign operations, leading to a similar process of increased concentration in foreign markets.

The notion that firms everywhere seek out collusive arrangements as the major means by which they keep profits high is reminiscent of Adam Smith, but the market power school have gone further. According to Smith, competition between firms remained a spur to increased investment and technological change, whereas for those who have emphasized the role of market power in MNC activity investment is not so much an independent response to competition as a means of further extending collusive networks. MNCs are believed to invest in foreign operations to reduce competition and increase barriers to entry in their industry, and by increasing the degree of monopoly power they may even (in the longer term) have an adverse effect on the efficiency of foreign plants.

The market power theory of the firm is therefore clearly at odds with the

alternative theory that the central objective of the firm is to raise its internal efficiency as the means of increasing profits. To the extent that MNCs raise research and productivity in their foreign operations, and improve efficiency through co-ordinating different types of plant and different types of technology, the effects on profitability in international industries may be ambiguous. Higher internal efficiency within MNCs may increase competition amongst them, making it more difficult for them to divide markets by agreement, and reducing profitability (or at least offsetting the gains due to greater efficiency). If this continues it may act as a disincentive to a further extension of international production, but in this view greater short-run efficiency is to be understood simply as a source of increased market power, which is likely to reduce the extent of investment in greater efficiency in the future.

The market power approach is often associated with the industrial organization literature, in which it is commonplace to argue that a more concentrated market structure is allied to greater collusion and a higher share of profit. It should be noted, though, that in Hymer's original version it was a theory of the firm and of the behaviour of the firm rather than a theory of industrial organization in the modern sense. In Hymer (1976) the firm appears as an active rather than a passive agent. Hymer followed Bain (1956) in viewing the firm as actively raising entry barriers and colluding with other firms in its industry. In the market power theory the primary causal link runs from the conduct of firms to market structure rather than vice versa. MNCs are seen as building up a position of market power at home, and then in their respective international industries. Their movement abroad is hastened by depression in the home market, which may result in part from their own diminishing incentive to invest, owing to their ever more extensive market power and collusive agreements.

Kindleberger's (1969) interpretation of the Hymer story placed it more firmly in the industrial organization tradition, which revolves around a structure-conduct-performance model. In Kindleberger's restatement the MNC was seen as a function of market structure characterized by monopolistic competition between differentiated products, rather than as an agent involved in oligopolistic interaction with other firms. The more recent writings of Newfarmer (1985) and Cowling and Sugden (1987) have moved back towards the Hymer stance, in that while their argument is set in an industrial organization context, they emphasize the (anti-competitive) impact of MNCs on host country market structure.

The use of an industrial organization context by more recent authors partly reflects a change in the issues and the institutions under study themselves. Hymer's objective had been to investigate why national firms went abroad, rather than to evaluate the operations of existing MNCs. Today the concern is with the way in which international industries are organized. Cowling and

Sugden (1987) contend that internationalization is undertaken not only as a means of increasing the market power of firms in final product markets, but also to raise the share of profits in two ways. First, the greater ability to shift production between alternative locations strengthens the bargaining power of firms in negotiations over wages and conditions of work. Second, by 'putting out' work previously done within the firm to a network of dependent subcontractors, both locally and internationally, the position of collectively organized trade unions in large plants is weakened. This is then integrated with the 'monopoly capitalism' argument of Baran and Sweezy (1966) or the stagnationist argument of Steindl (1952): a combination of a rising share of profits and an increasing market power (which reduces the incentive to invest) leads to a slower growth of demand, and secular stagnation eventually at an international level.

Within the market power approach, as is the case within all the frameworks considered, differences of emphasis can be detected. Hymer was concerned with the relationship between the efficiency with which production is organized within the firm and the extent of market power and collusion. By contrast, Cowling and Sugden (1987) make almost no mention of the technological efficiency of production other than with reference to the organization of work. They are much more concerned with the distribution of income between wages and profits. Indeed, Sugden (1983) suggests that the pursuit of a higher profit share necessarily entails inefficiency as MNCs geographically spread production as a means of increasing their bargaining power through a 'divide and rule' strategy. Certain of the differences between authors and approaches to international production can therefore be attributed to differences in the issues addressed.

Internalization

The alternative theory of the firm which has been applied to international production derives from the work of Coase and lays emphasis on the efficiency with which transactions between units of productive activity are organized. This modern theory of the 'internalization' of markets as it is applied in the case of international production (see Buckley and Casson, 1976) is based on Coase's (1937) criticism of neoclassical economics. The framework of analysis, like the neoclassical theory of trade and investment, is based on exchange between individuals or groups of individuals, but it introduces the transaction costs of such exchange, which vary in an arm's-length or market relationship as compared with a co-operative relationship. Where the transaction costs of an administered exchange are lower than those of a market exchange, then the market is internalized and the collective efficiency of the group is thereby increased. Apart from the existence of

economies of scope across activities, the direct co-ordination of transactions may reduce the costs associated with information impactedness, opportunism, bounded rationality and uncertainty (for a summary see Caves, 1982).

It is argued that intangible assets such as technology are especially costly to exchange in arm's-length transactions. By thinking of the exchange of technology as a transaction that is internalized when the firm has a horizontally integrated network of production, horizontal integration is treated by analogy with vertical integration. Firms that invest abroad in R&D facilities are therefore treated in exactly the same way as firms that invest in a venture to extract natural resources and secure supplies of raw materials; both are internalizing markets, and it is simply that they internalize markets for different commodities.

Where markets are internalized through the common ownership and control of the groups that are involved in exchange with one another, the transaction cost approach suggests the appropriate institutional arrangement on which co-operation between the parties is likely to be founded. At one extreme are joint ventures over which the MNC exerts little direct control, or a largely decentralized MNC in which internal markets regulated by transfer prices have replaced external markets, as emphasized by Rugman (1981). Indeed, where the MNC internalizes an externality (an external economy or diseconomy) it may create an internal market where no external market existed previously (Casson, 1986a). At the other extreme is the organizational structure stressed by Williamson (1975), that of globally integrated multinationals in which control is centralized and hierarchical. This distinction is discussed in Kay (1983).

Of course, there is an overlap of the spectrums spanned by market and administrative co-ordination, in that where market exchange is characterized by monopolistic or monopsonistic elements, the MNC may exercise control over its contractual partner without resort to 'internalization'. Strictly speaking, in the transaction cost approach the firm is defined as the direct organizer of non-market transactions. However, the firm or MNC might equally well be defined as the controller and co-ordinator of an (international) network of production or income-generating assets (Cowling and Sugden, 1987). If so, the firm may exercise control over production which it has subcontracted out but for which it is the monopsonistic buyer. Transactions are of an external market kind, but production may be controlled and co-ordinated from a single administrative centre. In this respect the internalization framework offers a theory of the choice between different modes of transacting rather than a theory of the (boundaries of) the firm.

To be of use in empirical work this approach needs to be operationalized in a workable model of transaction costs (Casson, 1981; Buckley, 1983),

but the variables thought to be especially significant are the regularity of transactions between the parties, and the complexity of the technology exchanged. Transaction cost analysis may also require adjustment to take account of the distribution of the gains from exchange under different institutional arrangements (as suggested by Sugden, 1983). Thus the MNC may not favour the most efficient or lowest-cost arrangement if its profit share is higher under another. By the internalization of production MNCs may weaken the effectiveness of trade union organization, and increase the share of profits.

Advocates of the internalization approach have also recognized the possibility that MNCs may increase profits through the restriction of competition in final product markets, and that this may offset the generally superior allocation of resources associated with MNC activity:

Welfare losses arise where multinationals maximise monopoly profits by restricting the output of (high technology) goods and services . . . where vertical integration is used as a barrier to entry . . . [or] because they provide a more suitable mechanism for exploiting an international monopoly than does a cartel.

(Buckley, 1985: 119)

However, they believe that, even in the presence of monopolistic elements, the creation of new internal markets generates sufficient improvements in efficiency that overall cost minimization remains the overriding motivation of the growth of the firm:

The internal market . . . in the long run will stimulate both the undertaking of R&D and its effective implementation in production and marketing. Consequently, dynamic welfare improvement is likely to result.

(Buckley, 1985: 119)

Although in the past internalization theorists and the market power school have claimed theirs as a general theory of the firm (and hence of the MNC), they have each addressed rather specific aspects of the firm's operations. Unlike in the market power argument, in the transaction cost approach the structure of the final product market is of only secondary interest. The emphasis is on achieving profit maximization through the efficient exchange of intermediate products, rather than through the exclusion of (potential) rivals in the final product market.

For this reason the counterfactuals with which international production is compared are different. Internalization theorists have treated the alternative to international production as being the licensing of a local firm (or inter-firm trade in intermediate products), or exports from the home country

(and no local production). The market power school have instead treated the alternative as being independent local production, which is driven out or diminished by the direct local presence of the MNC (or, to a lesser extent, by its licensing a local competitor). In this respect, it is quite possible for work in the internalization tradition to take into account influences deriving from competition or collusion in final product markets or the distribution of income, just as certain of the market power group going back to Hymer himself made allowance for efficiency considerations. However, disagreement between these approaches remains in the sense that the choice of theoretical issues on which to concentrate is not arbitrary but reflects what each camp believes to be the most important historical driving forces underlying the growth of the modern firm.

The eclectic paradigm

The eclectic paradigm grew out of a desire to synthesize elements from the two competing theories of the firm and certain other approaches to international production considered below. However, it was not intended to be a complete synthesis, as it is not possible to encompass fully a set of theories which address rather different questions and rely on different views of the world. It was therefore soon acknowledged that it was not itself another theory. It was instead intended to provide an overall analytical framework for empirical investigations which would draw the attention of the analyst to the most important theories for the problem at hand. It also provided a framework for a comparison between theories, by establishing the common ground or the points of contact between them, and clarifying the relationship between different levels of analysis and the different questions which theorists have been concerned to address. Thus, for example, internalization theory may be the most relevant under certain circumstances or when answering certain kinds of questions (such as those related to backward vertical integration into resource extraction), while the determinants of the competitive strategy of firms in their final product market may be more pertinent in other cases (such as technological competition or co-operation).

In the eclectic paradigm it is contended that MNCs have competitive or 'ownership' advantages *vis-à-vis* their major rivals, which they utilize in establishing production in sites that are attractive owing to their 'location' advantages. According to Dunning, two types of competitive advantage can be distinguished; the first is attributable to the ownership of particular unique intangible assets (such as firm-specific technology), and the second is due to the joint ownership of complementary assets (such as the ability to create new technologies).³ MNCs retain control over their networks of assets (productive, commercial, financial, and so forth) because of the

'internalization' advantages of doing so. Internalization advantages arise from the greater ease with which an integrated firm is able to appropriate a full return on its ownership of distinctive assets such as its own technology, as well as directly from the co-ordination of the use of complementary assets, subject to the costs of managing a more complex network.⁴

Dunning (1988a) describes the internalization advantages that result from the co-ordination of the use of complementary assets as 'the transactional benefits . . . arising from a common governance of a network of these assets, located in different countries' (p. 2). That such benefits can be enjoyed only through co-ordination within the firm rather than by market co-ordination is said to be the result of transactional market failure. Three reasons are given for transactional market failure (Dunning, 1988a, b). First, risk and uncertainty may be significant in transactions carried out across national boundaries. Second, where there are externalities, benefits external to the transactions concerned may not be captured by parties transacting at arm's length. Third, there may be economies of scope through the direct co-ordination of interrelated activities.

More will be said about ownership advantages in due course, since they have been the subject of considerable debate in the literature. However, there are two points that must be clarified at the outset. First, there may appear to be an overlap between those ownership advantages which are due to the joint ownership of complementary assets and those internalization advantages which derive from the co-ordinated use of such assets. In fact the distinction here is rather like the distinction between the advantages of owning particular assets such as patented technology and the internalization advantages of retaining control over their use in order to ensure that the full return on them is appropriated by the firm that holds proprietary rights.

None the less, while ownership advantages that derive from particular assets can normally (in principle, at least) be sold – such as in the licensing of the use of a technology to another firm – there is in general no market for ownership advantages of a more collective kind. Examples of the collective type of ownership advantage are the overall organizational abilities of the firm, the experience and entrepreneurial capabilities of its managers taken together, the reputation and creditworthiness of the firm in international capital markets, its political contacts and its long-term business agreements with other firms. This kind of ownership advantage goes beyond any particular asset or any one individual, and in general cannot be sold outside the firm but is usable only within it.

One such collective ownership advantage is the ability of the firm to generate new technology, which will eventually result in a stream of new ownership advantages of a particular kind. This example will serve to

illustrate the distinction between collective ownership advantages at the level of the firm as a whole and the internalization advantages of the co-ordinated use of assets which are associated with them. Consider a firm which holds a strong position in a certain branch of the chemical industry and which uses its innovative potential to expand into the development of a technologically related chemical process. Suppose for the sake of argument that, to date, scientific and technical effort in the related sector has been concentrated outside the home country of the firm, so that its development work in this area is undertaken primarily in a subsidiary located in some foreign centre of excellence for the process concerned. A specialized R&D unit is established in the foreign country which is linked up with the parent firm's R&D facilities.

Now the ability of the firm to set up production in the foreign country and to initiate a new research programme there is due to its initial ownership advantage, which consists of established technology and an innovative strength in chemicals. The firm then gains internalization advantages through the co-ordination of R&D in home and host countries, which extends its original ownership advantage by increasing its capacity to innovate in both related sectors. In other words there is a progressive interaction between ownership advantages (the possession of technology and the ability to innovate) and internalization advantages (the international co-ordination of R&D facilities). Ownership and internalization advantages increase alongside one another in the case of successful international growth.

The second point that requires clarification at this stage is that the concept of ownership advantages is open to two possible theoretical interpretations. It is apparent from the discussion above that the market power theory of the firm perceives ownership advantages principally as anti-competitive devices which act as barriers to entry against other firms. Meanwhile, the competitive international industry approach considered below sees ownership advantages as competitive weapons which sustain a process of competition between rivals. For this reason ownership advantages are 'sometimes called competitive or [sometimes called] monopolistic advantages' (Dunning, 1988a: 2).

In conventional neoclassical or industrial organization analyses of market structure in which competition and monopoly are treated as opposites, to describe advantages as competitive or monopolistic would suggest a contradiction in terms. This is how matters also appear on the whole to the market power school, whose work is one variant of the industrial organization analysis. In their view if the larger firms in an industry have stronger ownership advantages this reduces the number of firms in the sector and increases the extent of collusion amongst those that remain, thereby restricting competition and implying a higher degree of monopoly power.

However, this contrasts with the classical approach to competition, which saw it as a process rather than a market structure. In the dynamic view of competition what matters is not the number of firms in an industry but the mobility of resources (within firms, as well as in terms of the entry and exit of new firms) and the balance of forces between firms in an industry. In this context in an oligopolistic industry Jenkins (1987) argues that competition and monopoly coexist. Firms compete through the continual creation of quasi-monopolistic positions, such as the creation of a new technology ahead of the field. It will be necessary to return to this issue in later sections.

As the eclectic paradigm is an overall organizing framework rather than a theory, it has no definite view of competition built into it. Nor does it depend *a priori* on a particular theory of the firm. It is capable of providing expression either to the internalization approach, in which the firm grows by displacing markets which operate in a costly and imperfect way, or the market power theory, in which it is the growth of the firm that is the essential cause of market imperfections and failure. The eclectic paradigm incorporates elements of both these alternative theories of the firm, since it allows that ownership advantages may act as barriers to entry and sources of market power. However, Dunning himself accords priority to internalization and supposes that competition is more important than collusion amongst MNCs: 'It is not the orthodox type of monopoly advantages which give the enterprise an edge over its rivals - actual or potential - but the advantages which accrue through internalisation . . .' (Dunning, 1988b: 32). Indeed, the latest terminology in which the eclectic paradigm has been couched (Dunning, 1988a, b), suggesting that the growth of the firm is a function of market failure, owes much to the internalization approach. While particular ownership advantages and the internalization advantages of appropriating rents are attributed to structural market failure, collective ownership advantages and the internalization advantages of co-ordinating the use of complementary assets are said to be due to transactional market failure.

Despite the priority which Dunning gives to the internalization over the market power theory of the firm, it would still be wrong to make the eclectic paradigm synonymous with the internalization approach, as is sometimes done in literature reviews. The more general nature of the eclectic paradigm has already been stressed, and this allows it to give equal weight to theories of macroeconomic locational advantages, and the interaction between the firm and its macroeconomic environment. Thus 'The theory of foreign-owned production stands at the crossroads between a macroeconomic theory of international trade and a microeconomic theory of the firm' (Dunning, 1988b: 19). In the same way the eclectic paradigm can be used to set out arguments that derive from competitive international industry approaches.

In this case interest also switches away from the analysis of the firm or MNC as such, towards the impact of the activity of one firm on that of another, and the interrelated development of the firm and its industry.

Competitive international industry approaches

Of the theoretical frameworks considered here there are two combinations which have conflicting perspectives, even though ideas from one might be used to qualify the other. The different perspectives of the market power and internalization theories of the firm have already been discussed; the market power and competitive international industry approaches are similarly opposed, though for slightly different reasons. Both relate to final product markets and are set out in the context of an oligopolistic industry. However, while the market power school suppose that, in general, internationalization lowers the extent of competition and increases collusion amongst firms, competitive international industry approaches share the view that in general the growth of international production tends to be associated with rivalry and to sustain the process of technological competition amongst MNCs. Also, the latter are genuinely mesoeconomic (industry-level) approaches and do not constitute another theory of the firm; they begin from the interaction between firms and the progress of industrial development, rather than examining the implications of behaviour inherent in the nature of the firm itself.

The earliest oligopolistic theories of international production (in the rivalrous as opposed to the market power sense) were later versions of the product cycle model, and similar extensions of the product cycle approach. In 1971 Vernon recognized that the original PCM was losing its explanatory capacity, and in 1974 he suggested a modified (Mark II) version which introduced oligopolistic considerations (Vernon, 1971, 1974). After the initial innovative phase of the product life cycle, established firms were seen as preserving their position through the existence of scale economies in place of technological leadership.

In this case the reason for relocating production abroad (import-substituting investment) as a product matured was no longer a matter of simple profit maximization in the face of a changing pattern of demand as income levels in other countries caught up. The emphasis shifted towards risk-minimizing strategies, with the aim of avoiding price warfare in a mature oligopoly. On the assumption of a high ratio of fixed to total costs in an industry characterized by economies of scale, security became a more important consideration for the firm relative to profitability. Vernon argued that this led to cross-investment (that is, intra-industry production) to reduce the threat of subsidiary price-cutting in the domestic market of each large

firm, despite the potential cost-minimizing benefits of concentrating production in just one or a few locations.

This idea of intra-industry production as an 'exchange of threats' became crucial to the work of Graham (1975, 1978, 1985). According to Graham, oligopolistic interaction between firms in an industry increases as firms grow, since (following product cycle reasoning) the capital-intensity of production rises and economies of scale become more important as the product line matures. As the ratio of fixed to total costs rises the consequence of rivals adopting aggressive price-cutting strategies becomes potentially more damaging, and so each firm increasingly takes account of risks as well as returns. In doing so it may have to accept some trade-off between security and profitability (Rothschild, 1947).

The notion of the search for security is also at the heart of the market power theory of the firm, though in this case it is achieved through monopolization and collusion and is generally supposed to be in line with profitability (Cowling and Sugden, 1987). Indeed, Hymer and Rowthorn (1970) had argued on this basis that the leading firms in each industry would have to aim to have a similar geographical distribution of sales or production as one another, at which point collusive agreements to ensure security would reach a peak. However, in Graham's (1975) historical account, while industrial stability and an avoidance of price warfare had typically been maintained before 1914 by collusive agreements and cartels, the exchange of threats was seen as a non-collusive alternative, which since 1960 had become the more usual means of reducing risk. With an exchange of threats competition is preserved, but in a stable rather than a cut-throat form.

To emphasise the difference with the analysis of the market power school, Graham (1985) goes beyond the product cycle framework and suggests that intra-industry production involving the cross-investments of MNCs in the same sector will generally act to accelerate new product development and introduction. He therefore reaches the very opposite view to that of Hymer and Rowthorn (1970) or Cowling and Sugden (1987): 'interpenetration of national markets by MNCs based in different countries – assuming that no merger of major rivals results – acts to reduce the likelihood that collusion can be successfully undertaken globally' (Graham, 1985: 82).

The notion of oligopolistic interaction can also be combined with various other non-product cycle ideas on the firm. Sanna Randaccio (1980) combined oligopolistic interaction with Penrose's (1959) theory of the growth of the firm. She hypothesized that the ability of a firm to gain an increasing share of an individual market through local production was a function of the share of that market already held. Firms with a smaller existing share would be able to grow rapidly, with a lower risk of setting in motion a damaging competitive warfare. To allow a stable competitive process to continue to

run smoothly, it was therefore in the interests of US firms to switch resources away from domestic growth and towards the expansion of their European production (starting from a smaller base), just as it was in the interests of European firms to expand their US operations.

Meanwhile, returning to the exchange of threat view of oligopolistic interaction, Casson (1987) has attempted to integrate it with the internalization theory of the firm. In this case, in order to examine the implications for rivalry of different relative market shares, Casson's model makes the determinants of long-run market share exogenous. Depending upon the relative strength of firms, an exchange of threats (establishing a foothold in the major markets of rivals) may be used to preserve price stability.

In recent years work has also begun on technological competition between the MNCs in an international industry, rather than on the effect of oligopolistic rivalry on price competition. The quotation from Graham above suggests a connection between technological competition and the rise of intra-industry production. Cantwell (1989b) shares Graham's view that the increasing internationalization of manufacturing production has helped to sustain technological competition between MNCs. Following the idea that MNC expansion can be linked to a process of technological accumulation within the firm (Pavitt, 1987), innovation and the growth of international production are seen as mutually supportive.

The term 'technological accumulation' encapsulates the view that the development of technology within a firm is a cumulative process. That is, the creation of new technology is to be understood as a gradual and painstaking process of continual adjustment and refinement, as new productive methods are tested and adapted in the light of experience. In any firm there is a continual interaction between the creation of technology and its use in production. For this reason, although a group of firms in a given industry are likely to have similar lines of technological development (similarities which may be increased through collaborative R&D projects, through drawing on the results of publicly funded research, and through imitation), the actual technological path of each is to some degree unique and differentiated. The acquisition of new skills, and the generation of new technological capacity, partially embodied in new plant and equipment, must be a goal of every firm in an oligopolistic industry if it is to maintain and increase its profits. Even where new technology is acquired from outside the firm, it must be gradually adapted and integrated with its existing production methods.

The notion of technological accumulation is consistent with the ideas of Rosenberg (1976, 1982), Usher (1929) and the earlier work of Marx on technological change through systematic adaptation. More recently,

Atkinson and Stiglitz (1969), Nelson and Winter (1977) and Stiglitz (1987) have spoken of 'localized' technological change in the context of the previous technological evolution and learning experience of the firm.

While the product cycle theory supposed that an individual act of technology creation was then diffused abroad, in the technological accumulation approach the use of technology in new environments feeds back into fresh adaptation and (depending upon the state of local scientific and technical capability) new innovation. When production is located in an area that is itself a centre of innovation in the industry concerned, the firm may gain access to research facilities which allow it to extend technology creation in what are for it previously untried directions. In recent years technological accumulation has frequently been organized in international networks, or in other words integrated MNCs. At one time MNCs may have been simply the providers of technology and finance for scattered international production; today they have become global organizers of economic systems, including systems for allied technological development in different parts of the world.

The technological accumulation approach therefore addresses the question of why it is that technology is developed in international networks rather than in a series of separately owned plants. Part of the answer is provided by internalization theory, which focuses on why MNCs as opposed to purely national firms have come into existence. That is, if the initiating firm is to appropriate a full return on its technological advantage, and if it is to co-ordinate the successful introduction of its new technology elsewhere, then it must exercise direct control over the network as a whole. However, this may be not so much a feature of the market for technology, which is the focus of internalization theory, as a feature of the very nature of technological development itself.

Suppose for a moment that the act of exchanging technology between firms does not present a problem, in that a reasonable price for such an exchange can always be readily agreed. Now consider an international industry in which constituent firms produce more or less identical products for the same international markets. However, each firm has its own quite specific process technology, derived from a distinct technological tradition (say, different chemical processes with a similar end result). In this situation, if technological accumulation is continuous in each firm, raising its productivity or lowering its costs along a given line of technological development, then no firm would abandon its existing pattern of innovation and buy in all its technology from a competitor. It would be far more costly, and perhaps even impossible, for a firm to switch into a completely new line of technological development, by comparison with the costs of the potential seller of technology simply extending its own network. Some exchanges

of technology between existing firms will take place, since alternative lines of technological accumulation in the same industry are often complementary to one another. However, where technology is bought in it must be adapted to and incorporated into an existing stream of innovation, and this adaptation becomes part and parcel of the on-going process within an established firm of generating its own technology.

In the case outlined, the retention of technology within each firm has little to do with any failure or malfunctioning of the market for technology, but everything to do with the close association between the generation and the utilization of a distinctive type of technology within each firm. By extending its own network, each firm extends the use of its own unique line of technological development, and by extending it into new environments it increases the complexity of this development. The expansion of international production thereby brings gains to the firm as a whole, as the experience gained from adapting its technology under new conditions feeds back new ideas for development to the rest of its system. For this reason, once they have achieved a sufficient level of technological strength in their own right, firms are particularly keen to produce in the areas from which their major international rivals have emanated, which offer them access to alternative sources of complementary innovation. This offers one explanation of the increase in intra-industry production in the industrialized countries (Cantwell, 1987b).

This is founded on the belief that innovation is location-specific as well as firm-specific (Cantwell, 1989b). The scientific and technological traditions of each country, the shared experience of its researchers and production engineers and the communication between them across companies, the nature of its educational system, and its common business practices – all contribute to the distinctiveness of the path of technology development undertaken in each location. By drawing on innovations of various kinds depending upon the conditions prevailing in the relevant local research centre MNCs develop a more complex technological system. The attractiveness of locations for other research-related investments may well be strengthened in the process. The involvement of foreign MNCs in research in centres of innovation has a direct effect on broadening the scope of local technological capability, and an indirect effect through its competitive stimulus encouraging other firms to extend their local research programmes. The process helps to establish locational poles of attraction for research-related activity.

The technological accumulation approach suggests two major reasons why the growth of international production has been associated with sustained technological competition between MNCs in manufacturing industries. First, internationalization has supported technological diversification, since the form of technological development varies between locations as well as between firms. By locating production in an alternative centre

of innovation in its industry the MNC gains access to a new but complementary avenue of technological development, which it integrates with its existing lines. By increasing the overlap between the technological profile of firms competition between MNCs is raised in each international industry, but so also are co-operative agreements as the number of technological spill-overs between firms increases as well. Spill-overs occur where technologies are created by a firm which lie outside its own major lines of development but which may be of greater use within the main traditions of another firm.

Second, and partly because of the first factor, today there are a growing number of connections between technologies which were formerly quite separate. This greater technological interrelatedness has brought more firms, and especially MNCs, into competition with one another. These two elements have been associated with the growth of what are sometimes called 'technological systems' in MNCs. Where MNCs in a competitive international industry are all attracted to certain centres of innovation to maintain their overall strength, then research and research-related production may tend to agglomerate in these locations (Cantwell, 1987c).

Some similar themes appear in the internationalization of capital approach of Jenkins (1984, 1987). In his view the growth of international production is just one aspect of a trend towards a more integrated world economy. As a result of this trend in each industry products and processes have become increasingly standardized across countries, while firms safeguard their competitive position through the continuing differentiation of products and technology. Once again, the growth of MNCs is seen as part of a competitive process, in which each firm attempts to gain competitive advantages through innovation, and only in certain circumstances do they enter (for a time) into collusive arrangements.

According to Jenkins, if nationalistic governments in LDCs prevent the entry of MNCs this only reduces the speed of adaptation to the requirements of international competition, but does not allow them to avoid such adaptation altogether. Marxists such as Warren (1980) go further and argue that FDI helps to promote local capitalist development and economic advance. They emphasize oligopolistic competition between MNCs of different national origins. They reject the idea that MNCs provide host LDCs with inappropriate technology, and contend that this is simply a defence of economic backwardness (Emmanuel, 1982).

In the opinion of Jenkins (1987), the emphasis that Baran and Sweezy (1966) and the Marxists that followed them placed upon monopoly, and their downplaying of oligopolistic competition between MNCs, can be traced back to a time when the USA and its firms held a hegemonic position in the world economy. Since then newer MNCs from Europe, Japan and now

the Third World have been growing rapidly. The increasing internationalization of R&D also suggests that MNC growth has helped to sustain technological competition. The use of the market power approach as a *general* theory of international production therefore has a somewhat dated feel about it.

However, competitive international industry approaches allow for co-operation and collusion between firms, and for the weakening of local firms as a consequence of MNC expansion under certain circumstances. Inward investment may have competitive or anti-competitive effects on host country industries (Cantwell, 1989b). It has been argued that in modern international industries a competitive impact from MNC growth in one location and an anti-competitive effect in another are two sides of the same coin (Cantwell, 1987c). Where indigenous firms enjoy a strong technological tradition in the sector in question the growth of international production provides a competitive stimulus which encourages an increase in local research-related activity, while where such a tradition is weaker the research of local firms may be displaced by simpler, assembly types of production organized by foreign MNCs. The faster growth and upgrading of activity in one location are then achieved at the direct expense of the downgrading of another, as different stages of production become geographically separated.

Macroeconomic developmental approaches

It was argued above that the earliest neoclassical and Marxist macroeconomic theories of foreign capital movements could not deal satisfactorily with the growth of international production between industrialized countries at a similar stage of development. The more modern macroeconomic theories of international production which address this question are currently at a rather more rudimentary stage of development than are microeconomic or mesoeconomic theories (for a survey see Gray, 1982). They have tended to attract less attention than theories of the firm since the demise of the product cycle model or PCM (Giddy, 1978; Vernon, 1979). However, their origins go back to the same period, the early 1960s. They emerged as a result of criticisms of the traditional theory of international trade, just as Hymer's work represented a criticism of the traditional theory of international capital movements.

The product cycle itself was in the first instance a purely microeconomic idea which had been familiar for some time in business schools, but which was applied by Vernon (1966) to topical discussions on patterns of international trade and the balance of payments. Vernon's criticism of conventional trade theory also called attention to the rapid rise of international

production amongst US firms in Europe at that time. In the Heckscher – Ohlin – Samuelson (HOS) theory trade (or FDI, where capital movements substituted for trade) should be greatest between countries whose proportional factor endowments are most dissimilar. This could not explain the tremendous post-war expansion of trade and investment in manufacturing industry between the US and Europe. Nor could a theory which assumed that trade automatically balances in accordance with comparative advantage offer any assistance in explaining regular US trade surpluses in the 1950s.

The role of technological factors in addressing these issues had already been clear to some authors in the 1950s. As is well known, Leontief (1954) referred to the significance of skilled labour in US export industries. Meanwhile, in linking trade imbalances with the monetary side of the balance of payments, Johnson (1958) suggested that the persistence of a dollar shortage in Europe after the Second World War may be explained by the lag with which innovation in Europe followed that in the USA. Then in the early 1960s two important papers on trade theory appeared. Posner (1961) pioneered a 'technology gap' theory of that part of trade based on innovating and learning faster than others; the link with the problems confronted by Leontief and Johnson are evident. At around the same time Linder (1961) argued that the main motor of trade was a similarity of income levels and patterns of demand, suggesting that trade flows are greatest between countries with similar factor endowments.

The PCM attempted to combine elements from both the Posner and the Linder theories of international trade, and to do so in such a way that the growth of US FDI in European manufacturing became part of the story. The essential argument is that high incomes and demand in the USA fostered innovation, especially in consumer durables produced by labour-saving techniques. This gave US firms a competitive lead which they exploited initially through exports and then through import-substituting investment in the region (Europe) catching up. Eventually, as products matured, trade in the sectors concerned would return to a cost-determined comparative advantage pattern, with MNCs losing technological advantages and having to rely on barriers to entry in marketing and distribution instead.

Apart from the original work of Vernon (1966) and Hirsch (1967), the PCM is explained clearly by Wells (1972) and in the studies of Hufbauer (1965, 1970). Detailed critical summaries can be found in Cantwell (1987a), Vernon (1979), Giddy (1978) and Buckley and Casson (1976). One reason for the demise of the PCM is that the technological leadership enjoyed by the USA in the 1950s and early 1960s gave way to a more balanced technological competition between the USA, Europe and Japan. Indeed, it is now Japan which has a regular trade surplus and whose firms are investing heavily in US manufacturing. Another reason is that the PCM deals

only with import-substituting investment, but since the 1970s the global integration of affiliates within MNCs has become steadily more important.

In his criticism of the PCM Kojima (1978) relied heavily on the distinction between import-substituting (trade-displacing) and offshore or export-platform (trade-creating) types of investment. An unfortunate pro-Japanese anti-American slant was given to his argument by a presumption that through its effects on trade import-substituting investment damaged welfare while export-platform investment improved it, and by his labelling the former 'American-type' and the latter 'Japanese-type'. Apart from the fact that there are many US firms with export-platform investments in South East Asia, and many Japanese firms with import-substituting investments in Europe and the USA, there is no reason why import-substituting investments must reduce the overall extent of trade at a macroeconomic level (as opposed to the level of the individual firm) unless certain restrictive assumptions are made. Moreover, there is evidence to suggest that export-platform investments are more likely to be of an enclave kind, with little technology diffusion to host-country firms (Dunning and Cantwell, 1990), and therefore they may play a lesser role in host-country industrial adjustment and welfare.

Kojima's position owes much to his interpretation of FDI (unlike Vernon) within an HOS model. Import-substituting investment was therefore seen as a replacement of trade in accordance with comparative advantage (investment emanating from an advantaged home country), while export-platform investment involved firms in an industry comparatively disadvantaged in the home country. As an extension of this argument, Kojima and Ozawa (1985) claim that global welfare is increased where international production helps to restructure the industries of each country in line with dynamic comparative advantage.

The underlying developmental process described by Vernon and Hirsch and by Kojima and Ozawa have many similarities despite the broader nature of the Kojima-Ozawa argument, and despite the differences in the theories of trade they employ. The Kojima-Ozawa approach applies particularly to a country which is growing rapidly, such as in recent years Japan, Germany or the newly industrializing countries. As local firms innovate and steadily upgrade their domestic activity, they have an interest in relocating their less sophisticated types of production in countries at an earlier stage of development. Although they still possess the technological and organizational know-how to sustain this simpler production, it may be more profitable to do so abroad, and to concentrate on higher value-added activities in the now more developed home environment. In other words, as in the PCM, firms relocate 'mature' or 'maturing' lines of production in countries which are still a step behind the home country.

Apart from export-platform investments, Ozawa (1979, 1982) pays

particular attention to resource-based investments. Again, in a country experiencing rapid industrial growth, and especially in a 'Ricardian' one such as Japan, lacking in natural resources, the rate of domestic expansion is likely to be constrained by resource availability. Home-country MNCs then have a direct interest in investing in resource-related development abroad as a means of supplying their own domestic markets. As they develop their manufacturing operations at home and in other industrialized countries, they may wish to move basic resource processing and simple manufacturing activities close to the site of resource extraction. In this case, the objectives of MNCs are in line with the development strategies of host countries.

This is an interesting idea, particularly when it is not assumed to be peculiarly true of Japanese MNCs alone, and once it is stripped from the intellectual straitjacket of the HOS model in which Kojima had confined it. Today, Japanese MNCs are at least as concerned with oligopolistic investments in the USA and Europe as with resource-based and export-platform investments in less developed countries (LDCs). It is now the newer Third World multinationals that are especially oriented to LDCs.

The major problem with Kojima's use of the HOS model is that it cannot be assumed that the industries in which a country has its greatest innovative potential are those in which it currently enjoys a comparative advantage (Pasinetti, 1981; Cantwell, 1989b). This indeed is the lesson of Japan's own post-war history, in which she successfully encouraged local technological development in sectors in which she began with a comparative disadvantage. With the assistance of foreign MNCs through licensing agreements (Ozawa, 1974) some comparatively disadvantaged industries were transformed into comparatively advantaged ones.

Moreover, it was precisely Vernon's point that import-substituting investment need not emanate from a sector in which the home country has a comparative advantage (unlike in the HOS model). A country which holds technological leadership may be a net exporter in some comparatively disadvantaged as well as in comparatively advantaged industries, owing to the technological edge of its firms. This is what gives it a regular trade surplus. If the innovative lead is lost (in the PCM as products mature) then production is relocated in accordance with underlying cost-determined comparative advantage. Kojima should also welcome this type of industrial adjustment if his argument were to be applied consistently.

A more general macroeconomic approach is the investment-development cycle, advanced by Dunning (1982). This is based upon the proposition that the level of inward and outward direct investment of different countries, and the balance between the two, depend upon their national stage of development. The poorest countries have very little inward or outward FDI, and consequently a level of net outward investment that is close to zero.

Countries at somewhat higher levels of development attract significant amounts of inward direct investment, but as the outward investment of their own firms is still limited they register negative net outward investment. Past some point outward direct investment takes off, and for countries at yet higher levels of development net outward investment begins to increase, until for the most developed countries it returns to zero and beyond this becomes positive.

Empirical evidence for the period since the mid-1970s presented by Tolentino (1987) suggests that this formulation may now require some qualification. Countries now seem to be embarking on outward direct investment more rapidly and at a much earlier stage of development than they once were. Apart from the fast growth of MNCs from Japan and Germany, a wide range of smaller industrialized and Third World countries have become significant sources of outward direct investment. The increasing internationalization of production has become a general phenomenon.

Dunning (1986) has elaborated upon the investment-development cycle by arguing that the character and composition of the outward direct investment of a country's firms (as well as its level) vary with the national stage of development. Early foreign ventures are frequently resource-based, but as firms mature they move beyond investment in a single activity or product and adopt a more international perspective on the location of the different types of production in which they are involved. Such MNCs are increasingly responsible for directly organizing an international division of labour in place of markets, and so the character of their activity and their ownership advantages become further removed from the conditions of their home countries.

Cantwell and Tolentino (1987) have extended this idea to argue that the outward direct investment of countries itself tends to follow a developmental course over time. Beginning from resource-based activity with fairly limited technological requirements, MNC involvement shifts towards gradually more sophisticated types of manufacturing. For the mature multinationals of Europe and the USA such an evolution has been going on for over a hundred years. The changing industrial composition of investment is associated with a changing geographical composition as well; resource-related investment in LDCs has been overtaken by research-related investment in industrialized countries.

The evolution of Japanese multinationals since the 1960s has been compressed into a much shorter time span. Investments in resource-related activity in South East Asia led the way in the 1960s and early 1970s, but today interest has shifted to the manufacturing investments of Japanese firms in Europe and the USA. Kojima (1978) had claimed that Japanese MNCs

were to be distinguished from US MNCs by their comparative lack of technological advantages, and by their orientation towards developing-country resource development and industrialization rather than oligopolistic competition with other developed-country multinationals. This now appears to have simply been a reflection of the early stages of development of Japanese multinationals.

Although Third World MNCs are nowhere near as advanced as the modern Japanese multinationals, the sectoral and geographical composition of their activity is also evolving much more rapidly than did the investments of the traditional source countries (Cantwell and Tolentino, 1987). There has been a general trend towards the internationalization of business which is common to the firms of all countries. As a result, Third World MNCs have tended to embark on multinational expansion at an earlier stage of their development than did industrialized-country firms.

The arguments of Cantwell and Tolentino (1987) and more recently Ozawa (1990) have established a link between competitive international industry and macroeconomic approaches to the growth of international production. It is suggested that the types of industries involved in international expansion vary with the characteristics of a country and the stage of development which it has reached. In turn, the industrial composition of international production influences its macroeconomic consequences.

Considering a stylized example, industrialization in a resource-scarce country may lead local manufacturing firms into backward vertical integration abroad. These investments may be thought of as supply-side driven, though their effect is to promote faster growth in the home country. Import-substituting investments in manufacturing in other industrialized countries may follow, attracted by foreign demand (as in the PCM), but quite possibly helping in due course to stimulate (further) outward investments from the host countries concerned. The eventual result may be a system of interlocking investments in each major industry, in which supply-side factors come to regulate the composition of activity in each location and the international division of labour. The geographical concentration of research activity may become cumulative over time (Cantwell, 1989b), while Ozawa (1990) suggests that restructuring in Japan has reached a Schumpeterian phase in which research-led industries are to the fore, and in which Japanese firms establish research-related foreign operations to tap into cultural diversities and creative human resources in Europe and the USA.

Macroeconomic developmental approaches relate the investment position of national groups of firms to the industrial progression of their home

country. They may be demand-side or supply-side driven; in the PCM the growth of demand leads the relocation of production, while in the arguments of Kojima and Ozawa or Cantwell and Tolentino the emphasis is on supply-side opportunities and constraints in the course of industrial restructuring. However, in each case the underlying development process has both demand-side and supply-side aspects to it.

As mentioned above, it is also possible to trace the macroeconomic effects of international production that are likely to result within the market power approach. If international collusion between MNCs rises over time it would create a stagnationist tendency at a macroeconomic level (Cowling and Sugden, 1987). In addition to this, Pitelis (1987) argues that an increasing concentration of market power in the largest MNCs, and the growing importance of pension funds and other such financial institutions, have led to a steady rise in the economy-wide propensity to save, creating a further demand-side pressure towards stagnation. While this is a description of the macroeconomic effect of MNCs in the market power framework, it does not provide an alternative macroeconomic explanation of the growth of international production. It is true that Marxist writers, particularly around the turn of the century, had argued that a lack of demand in the industrialized countries would lead to imperialist investments in the search for new markets, to alleviate the effects of the concentration of capital at home. However, as noted above, this early kind of macroeconomic explanation cannot account for a rapid growth of cross-investments between countries which are all alleged to suffer from the same slackening of investment opportunities.

Macroeconomic theories of international production can also be extended to take account of financial influences on FDI. Part of the original product cycle idea was that a country whose firms became innovative leaders would establish a strong export position, accompanied by outward direct investment to support the international growth of the country's firms. This was true of Britain in the nineteenth century, of the USA in the early post-war period, and of Japan and Germany more recently (Cantwell, 1989a). A country in this position may be expected to sustain an overall balance of payments surplus (before short-term capital movements) and hence a strong currency. The strength of the domestic currency then provides an additional motive for outward direct investments by local firms. It can thus be argued that longer-term movements in exchange rates reflect underlying trends in industrial competitiveness, reinforcing the effect of real influences on the growth of international production.

As Europe and Japan caught up with the USA in the 1960s her export position weakened, and the US dollar ceased being a strong currency in

short supply. However, under the terms of the Bretton Woods pegged exchange rate system the dollar was not allowed to depreciate in response to balance of payments difficulties. As a result the dollar was widely viewed as being overvalued. This overvaluation contributed to yet higher outward investment, since US interests were able to buy up European firms and assets more cheaply in dollar terms, which offered a secondary, financial explanation for the high level of US FDI (emphasized by Aliber, 1970).

Matters are not so clear-cut in the period of general internationalization across the firms of many countries in the 1980s. European and Japanese MNCs have expanded their US operations throughout the last decade. Inward direct investment in the USA remained buoyant when the US dollar was strong between 1982 and 1985, just as when it was weaker in the early 1980s and late 1980s. However, there is some evidence to suggest that inward direct investment was particularly high (rising above an upward trend) in 1979-82 and since 1986. For this reason, Dunning (1988b) argues that events in international currency markets can affect the timing of FDI but not its long-term trend. Aliber's theory of FDI emanating from strong currency areas offers 'some interesting ideas about the *timing* of FDI and particularly that of foreign takeovers; and of fluctuations around a long term trend' (Dunning, 1988b: 15). Yet he also rightly notes that 'In many respects, it is a better extension of the traditional portfolio capital theory to incorporate market failure than a theory of FDI *per se*' (Dunning, 1988: 15).

In other words, Aliber's approach represents a return to the traditional theory of international capital movements, from which Hymer's (1976) work had led a departure. In the traditional theory, currency valuation and relative interest rates determine foreign investment flows, but factors related to the growth of firms and industries do not. The general trend towards internationalization, the substantial interpenetration of MNC activity in one another's domestic markets, and changes in the sectoral composition of international production can be explained only by the newer theories which have been emphasised here.

The various approaches to modelling the growth of international production differ over their choice of focus for a driving force underlying this expansion, related to the level of their analysis. In the technological accumulation approach it is the conditions for technology creation and its effective and efficient use in production. In the market power approach it is the widening of collusive networks and the restriction of competition in each national market. For internalization theorists whether international production expands or contracts depends upon changes in the transaction costs of operating in a wider set of markets (including the market for

technology), relative to the costs of the direct co-ordination of transnational actions. In most macroeconomic approaches it is the developmental position of countries and their firms. For theorists who focus on the foreign direct investment flows associated with international production rather than international production itself (such as Aliber, 1970) it is the functioning of currency and financial markets. For business economists whose method is to provide a series of case studies of MNCs (such as Stopford and Turner, 1986), the driving force is individual managerial or entrepreneurial strategies. These approaches are not always mutually exclusive, and the following section examines some points at issue between them.

POINTS AT ISSUE BETWEEN THE DIFFERENT THEORIES OF INTERNATIONAL PRODUCTION

To a large extent the differences between the approaches outlined above can be accounted for by the fact that they have addressed different questions, and in doing so different levels of analysis have been appropriate. The recognition of this variety of interest has led to a retreat from the search for a general theory of international production, as remarked upon at the start. Perhaps the most important distinction is that theories of the firm have naturally been interested in the existence of the firm or the MNC in itself, and issues related to it, while competitive international industry and macroeconomic approaches have been concerned with a broader set of issues, focusing on the interaction between the growth of the firm and the location of production. This distinction, and the possibility of combining insights gained from these alternative perspectives, are considered below. The implications for the ways in which different authors have interpreted the existence and growth of the firm are examined in the earlier part of this section. The role attributed to the interplay between the growth of MNCs and the changing location of production is considered towards the end of this section, while some suggestions for cross-fertilization between approaches are set out in the final section.

Firstly, in comparing different views on the existence and growth of the firm, it is necessary to refer to an area of residual or unresolved debate between the alternative schools of thought on international production. On the face of it the debate concerns the place of ownership advantages in the growth of the firm or MNC. However, this disguises disagreements (or differences of emphasis) over the role of efficiency considerations in the organization of the firm, and over the significance of competition between firms in their final product markets. In a nutshell, competitive international

industry approaches suppose that ownership advantages which raise the efficiency of the firm are a necessary condition for its survival *vis-à-vis* its rivals in an oligopolistic market. A strengthening of its ownership advantages relative to these rivals will enable it to increase its market share, or in other words to grow faster than its competitors. Internalization theorists have instead examined the efficiency of firms in terms of how the exchange of intermediate products is organized, in which process ownership advantages and inter-firm competition in final product markets are secondary questions. The market power school also take the view that ownership advantages associated with greater efficiency need not be regarded as a necessary condition for the existence of the firm or MNC, but for different reasons. They emphasize the conditions prevailing in final product rather than intermediate product markets, but deny that firms necessarily raise efficiency, and think of oligopolies in terms of a gradual extension of collusion, with the establishment of ownership advantages as barriers to entry.

To illustrate the difference, in the technological accumulation approach each firm in an industry internally generates a succession of innovations or ownership advantages, which constitute the basis of both their domestic and their international production. The ability to innovate in a growing sector is itself an ownership advantage which is a function of the past technological experience of the firm. These ownership advantages are oligopolistic advantages, essential to survival in an international oligopoly. The most innovative firms in an industry create a faster stream of more effective ownership advantages, and in so doing they increase their international production more rapidly and raise their world market share. The weakest firms lose market share, and if a firm lost all ownership advantages it would be quickly driven out of both domestic and international markets. However, firms with the fewest or weakest ownership advantages in general hold their position more easily in domestic markets than in international markets, owing to government support, consumer loyalty, the closeness of local business contacts, and so forth.

Ownership advantages are defined with reference to the (oligopolistic) final product market. They are advantages which lower the unit costs and raise the profit margins of given firms relative to others in the same industry. A firm with weak ownership advantages, and certainly one with none at all, has high unit costs relative to others in its industry, and consequently suffers consistent losses. A firm with strong ownership advantages (measured, for example, by a high share of patenting activity) will have a larger market share, and if its ownership advantages become stronger (its share of patenting rises) then its market share increases. Empirical investigation of competition between the world's largest firms has confirmed that companies whose share

of international patenting is greater than their international market share in their industry, at a given point in time, experience a faster rate of growth and hence a rising market share in the ensuing period (Cantwell and Sanna Randaccio, 1989).

Firms which lose ownership advantages face higher unit costs and lower profits, and a reduction in their market share. In the limit, a firm with no ownership advantages at all, though it is difficult to imagine such an extreme case in any existing industry, would lose market share until it was taken over or driven out altogether. Firms of MNCs therefore require ownership advantages as a necessary condition of their continued existence, and the stronger are their advantages the faster the rate of international growth they are able to sustain.

Against this, it is sometimes claimed by writers in the internalization tradition that ownership advantages are not necessary for the existence of MNCs and international production, apart from the advantages created by internalization itself (Buckley and Casson, 1976; Casson, 1987). By this they mean that firms may grow relative to intermediate product markets where producers trading with one another merge their operations, irrespective of the ownership advantages of the production units concerned. Hence they are referring strictly to the transition from national firms combining to form multinational firms, by means of the internalization of the intermediate product markets which previously linked them.

However, to conclude from this that ownership advantages are not a necessary condition of international production is a very misleading way of putting matters. At least one of the individual productions units that combine to form an MNC must have ownership advantages, so that the MNC has too. For firms to grow relative to their competitors in final product markets, or indeed simply to retain their share of final product markets, ownership advantages are necessary. The generation of ownership advantages, achieved mainly through innovation, is necessary for competitive success and indeed survival. Firms that fail to accumulate technology and related ownership advantages are either driven out of business, or taken over by firms that have the capacity to do so.

The ownership advantages of each firm represent its particular differentiated area of strength as against its major rivals, which determines the level and rate of change of its market share. Ownership advantages relate to production costs while internalization relates to transaction costs, though there is an interaction between the two. The internalization of intermediate product markets may complement ownership advantages but it is not a substitute for them. A group of firms each of which has no ownership advantages and therefore makes losses will not suddenly become profitable

merely by organizing transactions among themselves more efficiently. They will only reduce their losses. In any event, the benefits of internalization tend to be greater where each participating affiliate begins with strong ownership advantages, owing to the potential for economies of scope, technological complementarities, and so forth. Just as compatible ownership advantages may encourage internalization, so internalization may serve to increase (or in some cases to decrease) the firm's subsequent capacity to innovate or its ownership advantages. The existence of such interaction, though, does not make the concepts logically inseparable from one another.

The need for ownership advantages applies to both national firms and MNCs, although it is especially true of MNCs, since inefficient firms may be able to survive longer in their own domestic markets. Moreover, the most innovative firms whose ownership advantages are strongest are more likely to take over firms whose ownership advantages are weak than vice versa. The international networks of MNCs expand directly through the independent establishment and extension of their own ventures, together with take-overs or mergers with firms whose technological activity (ownership advantages) is complementary. Once MNCs are created they may gain additional advantages from the international co-ordination of activity, in part through the enhancement of their technological strengths by way of a more geographically and industrially diversified research programme. The international co-ordination of research and production is therefore supportive of technological advantages, not a substitute for them, nor a sufficient condition for their generation.

The debate over the necessity or otherwise of ownership advantages is largely a discussion that has proceeded at cross-purposes, since as discussed above different approaches have been set up to answer different questions. Internalization theory endeavours to explain why firms in general displace intermediate product markets in general, or why MNCs in general displace international trade in intermediate products, and in addressing this issue, it is not necessary to refer to ownership advantages. The existence of ownership advantages on the part of firms plays no role in the Coasian theory in deriving the existence of firms themselves, the joint ownership of assets being explained by the replacement of markets.

However, while this is a sufficient theory of the existence of firms considered as a whole without reference to any final product market (in place of atomistic competition), it is not a sufficient theory of the growth of a particular firm or a particular group of firms *vis-à-vis* other firms. To explain why one firm displaces another, or why, for example,

Japanese MNCs have grown at the expense of US firms, then relatively stronger ownership advantages are necessary. The relative strength of technological ownership advantages is in general the principal determinant of variations in unit costs or productivity across firms (particularly in industrialized countries). Variations in unit costs are in turn necessary to explain why certain firms grow faster than their competitors in a given final product market.

In this respect, internalization theory has addressed a different issue from competitive international industry approaches; it is concerned with the extent of firms as a whole, as opposed to markets in general (or what might be thought of as the degree of concentration of ownership), rather than the process of competition between already existing firms. For a particular firm or a particular group of firms ownership advantages are a necessary condition for establishing and preserving international production.

To appreciate how the role attributed to ownership advantages varies between theories, it is useful to draw a distinction between what is normally understood as a theory of the firm and the separate development of theories of the growth of the firm. In the theory of the growth of the firm as developed by Penrose (1959) internally generated growth associated with firm-specific ownership advantages is central. The growth process is inherent to the firm which directs its internal resources towards expansion:

While external inducements and difficulties have been widely discussed, little attention has been paid, in a systematic way at least, to the equally important internal influences on the direction of expansion. . . both an automatic increase in knowledge and an incentive to search for new knowledge are, as it were, 'built into' the very nature of firms possessing entrepreneurial resources of even average initiative. . . I have placed the emphasis on the significance of the resources with which a firm works and on the development of the experience and knowledge of a firm's personnel because these are the factors that will determine the response of the firm to changes in the external world and also determine what it 'sees' in the external world. . . Unused productive services are, for the enterprising firm, at the same time a challenge to innovate, an incentive to expand, and a source of competitive advantage.

(Penrose, 1959: 66, 78, 79-80, 85)

The purpose of this rather lengthy quotation is to clarify the difference between the theory of the growth of the firm, in which internal ownership advantages are critical, and the Coasian theory of the firm, in which they

are not. The Coasian theory of the firm emphasizes the conditions of exchange of intermediate products initially in markets external to the firm, which lead firms to internalize the markets in question. Internalization thus offers a theory of the firm or the extent of the firm rather than its growth; except in as much as any static theory can be made dynamic by referring to changes in levels. Thus, despite the claim that the 'original objective of the approach adopted by Buckley and Casson (1976) was to use the concept of the internalisation of markets to develop a model of the growth of the firm' (Buckley, 1988: 182), it is not inherently a theory of growth in the way that the Penrosian theory and the allied competitive international industry approaches based on internal ownership advantages are.

Given this distinction between theories of the internally generated growth of the firm in competition with others, and the internalization theory in which the motive force for growth lies outside the firm, it is not surprising that internalization writers have tended to treat ownership advantages as given. At least until now, internalization theory has concentrated on the issue of technology transfer and the institutional form it assumes, rather than variations between firms in their ability to generate technology. Even when considering oligopolistic interdependence in the form of an exchange of threats, Casson (1987) assumes constant long-run market shares, or in other words fixed and exogenous ownership advantages in the way they have been defined here.

A similar downplaying of the role of ownership advantages can be found in Kojima's work on Japanese MNCs and the recent literature on Third World MNCs, in which it is sometimes claimed that investments in LDCs require no ownership advantages on the part of the firms that make them. It is certainly true that it may be the smaller, relatively weaker firms in an international industry which make export-platform investments in labour-intensive production, while the more advanced firms invest in research-related production in the industrialized countries. However, this need not be the case in the Kojima-Ozawa story, since it may be the same firms which upgrade their production at home while redeploying less sophisticated types of activity in countries at an earlier stage of development. Even if it is the case all that this entails is that the ownership advantages of such smaller newer MNCs lie in a simpler type of manufacturing and in their access to commercial outlets, not that they have no ownership advantages at all. It is simply that the more sophisticated types of international production require stronger ownership advantages (a stronger technological base) than other types, which is scarcely surprising.

Note also that ownership advantages are not always necessarily in the

specific sector in which investment takes place. Consider, for example, a diversified take-over by an international conglomerate. Ownership advantages are therefore to be understood as providing a firm with a general ability to expand, and the stronger are these advantages the faster the speed of international expansion that it is able to sustain. It is true that where a conglomerate chooses to move into an unrelated sector its motive is essentially of a financial kind, and may be better explained by a theory of FDI (such as that of Aliber, 1970, or Rugman, 1979) than a theory of international production. The ownership advantages of such firms may well be of a financial rather than a technological kind.

Where firms rely on technological ownership advantages they invest in production in areas related to their existing strengths. Of course, where they produce in foreign centres of innovation they may also gain access to a new stream of complementary technological developments. Investment may be motivated mainly by the objective of strengthening their ownership advantages. In such cases the original ownership advantages of firms are built upon, consolidated in their existing fields and extended into new areas. There is a progressive interaction between the growth of international networks and the strength of ownership advantages.

The other confusion about ownership advantages that is often found in the literature is that, as noted above, they are frequently described as monopolistic advantages. Perhaps a further reason why internalization theorists have insistently criticized the concept of ownership advantages is because of this interpretation, associated with the market power approach. The origins of this terminology go back to Kindleberger (1969), who recast Hymer's work to associate MNCs with the existence of a particular market structure, that of monopolistic competition (within which each participating firm has some monopolistic advantage). Hymer himself believed that firms actively sought to raise barriers to entry and to collude with other firms in their industry, and that market structure was a product of their behaviour and the extent to which they succeeded in making lasting collusive agreements, rather than the other way around. In Kindleberger's restatement the MNC was seen as a function of a market structure characterized by monopolistic competition between differentiated products, rather than as an active agent engaged in oligopolistic interaction with other firms.

In Hymer's approach the strength of ownership advantages amongst the leading firms reflects the degree of monopoly power in a sector. However, strictly speaking, even in his framework ownership advantages should be thought of as oligopolistic and not monopolistic advantages.⁵ This is even

more true in competitive international industry approaches such as that based on technological accumulation. Firms accumulate differentiated but overlapping technologies, irrespective of whether they produce identical or different final products. MNCs are therefore involved in technological competition with other members of an international oligopoly. Where it suits them they may arrive at certain co-operative arrangements, such as in cross-licensing agreements. Each participant in the international oligopoly has certain specific advantages based on its own previous technological experience. The relative strength of the ownership advantages of each firm determines both their rate of growth *vis-à-vis* their competitors, and their attitude towards co-operative arrangements with other firms in the same sector. In this view the extent of collusion is a less important determinant of profits and growth than the strength of advantages, and is instead essentially also a product of the latter. Collusion comes and goes as the balance of advantages between firms change.

The different perspective of the various approaches as to the operation of locational influences can now be considered. The dividing line here is essentially between the two theories of the firm, which tend to treat location as exogenous (to be determined by some other theory), and the macroeconomic and mesoeconomic approaches, in which locational factors are themselves influenced by the growth of firms. To give an illustration of a process of continual interaction between ownership and location advantages, consider the case of a modern global manufacturing industry in which MNCs benefit from direct access to any of the main locationally advantaged centres of technological development. By investing in research and production in these sites they increase their own competitiveness (ownership advantages), as well as the competitiveness of production in the countries concerned and their attractiveness to other firms (location advantages). In this case ownership and location advantages are not independent.

Looking back historically, the location advantages of countries also helped to determine the pattern of technological specialization of each country's firms, or in other words the sectors in which they had the greatest capacity for generating ownership advantages. For example, Rosenberg (1976) has shown that US firms emerged from the industrial revolution with advantages in woodworking technologies due to the plentiful availability of local timber supplies, while British firms developed advantages in metalworking and coal-related technologies due to local coal deposits.

Internalization theorists have tended to take location advantages and technological ownership advantages as given and exogenous, in order to focus attention on the form of linkages between plants. Neoclassical trade

and location theorists have gone even further, and in many cases simply assumed away technological ownership advantages (all firms have access to the same technology) in order to focus on purely locational factors. The market power school treat technological advantages as barriers to entry, while typically taking location as exogenous.

This is not to say that the market power and internalization approaches have ignored locational factors. Hymer (1975), for example, suggests that firms locate activities in accordance with a hierarchy, with high-grade activities in industrialized countries and low-grade activities in LDCs. Newfarmer (1985) and Bornschier and Chase-Dunn (1985), who take a market power view, similarly distinguish between central and peripheral locations in an international industry. While retaining the internalization perspective, Casson (1986b) has also suggested a model of the international division of labour. Indeed, internalization theorists have recognized that the growth of the firm may influence location; for example 'internalisation allows international transfer price manipulation that will bias location towards inclusion of low tax locations' (Buckley, 1988: 182). It is simply that those who have analysed the growth of international production from the viewpoint of the theory of the firm have not on the whole attached very much significance to the interaction between the growth of the firm and the changing location of production. For this reason they have often disregarded those elements of macroeconomic explanations which have attempted to do just this: 'Elsewhere I have attempted to show that even this macro explanation must rely on micro aspects to achieve its explanatory cutting edge' (Buckley, 1988: 186).

This contrasts with the product cycle approach, the Kojima-Ozawa analysis and the various competitive international oligopoly theories, which have all stressed the interaction between the growth of the firm and the location of production and the consequences for the structure of industrial production and trade. Macroeconomic theories of international production make location advantages depend on macroeconomic factors related to countries and their level of development, while mesoeconomic approaches emphasize the locational factors specific to an international industry (see Gray, 1982, for a discussion of whether location advantages can be treated as purely macroeconomic). Naturally, the focus of interest and the level at which analysis is conducted affect the treatment of location in theories of international production.

THE DEVELOPMENT OF A DYNAMIC ANALYSIS OF INTERNATIONAL PRODUCTION

As a rule, macroeconomic and competitive international industry approaches

to international production are by their very nature dynamic, as they have usually been concerned to describe a process over time. Theories of the firm, although they have attracted a greater literature, have addressed only certain types of question on the dynamics of international production. The internalization approach has asked why firms in general (the visible hand) have expanded relative to markets in general (the invisible hand). The particular issue which has attracted most attention is the idea of an evolution in the business of firms, from exports (through a sales agent), to licensing a foreign company, to the establishment of international production (Buckley and Casson, 1981; Teece, 1983; Nicholas, 1986).

This section considers how theories of the firm may be extended or adapted to take account of the wider evolution of international production linked to the cumulative development of technology through the international networks of MNCs. The technological accumulation approach emphasizes the connection between the generation of technology and the growth of production, both within firms and in terms of the distinctive geographical pattern of innovation and research-related production that develops in each industry. This evolutionary view of the growth of international production may usefully be combined with insights from the theory of the firm, and the theory of the growth of the firm.

Two possible extensions of internalization theory might be considered which would broaden the approach. First, attention can be paid to the interrelationship between the growth of the firm and the changing location of production, which has already been raised in the context of other approaches as suggested in the previous section. Second, the transaction cost framework might be usefully combined with a theory of entrepreneurship, innovation or the changing technology and organization of production within the firm.

Whereas the theory of cumulative technological change, like the work of the classical economists, is a theory of production (and the changing technology of production), as it stands the Coasian theory of the firm, like the neoclassical economic thinking of which it is a criticism, is a pure theory of exchange. Exchange takes place under a variety of institutional arrangements, in markets or within the firm. It is worth noting that Nelson and Winter (1982) make use of certain aspects of the work of Williamson and others in developing their evolutionary theory of economic change. However, in order to make the Coasian theory of the firm itself evolutionary it would be necessary to specify how transaction costs are themselves influenced by the growth and technological innovation of firms.

As Casson (1986a) has pointed out, while transaction cost theory specifies conditions under which non-market institutional arrangements will obtain (for example, within the firm), it does so at present to the exclusion of any active role for managerial strategy. In other words, while a theory of the MNC, couched in terms of an exchange framework, can explain the existence of the MNC or the firm, it has still left the firm itself as a passive reactor to transactional circumstances. As remarked above, it relates to the external influences on growth, and not to the internal sources of growth which make the firm inherently dynamic when under competition in its final product market. Changes in the organization or control of production are merely a response to changes in the costs of various exchange relationships in markets or otherwise. This procedure may be justified if one is concerned only with the internalization of intermediate product markets actively replacing trade between independent parties.

However, difficulties are encountered when this approach is applied to the historical evolution of say, import-substituting international production; take, for example, the growth of investment by US firms in Europe in the 1950s and 1960s. Part of the reason is that locational factors were responsible (faster growth in Europe). While this helps to explain the initial direction of the investment, it does not explain how manufacturing MNCs steadily grew in the post-war period. Nor does a change in political risk provide a complete explanation. It might be suggested that, where markets in intangible assets such as technology become in some sense more imperfect, the transaction costs of market exchange rise, and horizontally integrated MNCs tend to grow. But it seems most implausible to argue that any international markets were operating more imperfectly in the late 1950s and the 1960s by comparison with the 1930s.

Within this framework, the explanation is presumably in part that the transaction costs of co-operative relationships fell even faster than the costs of using the market mechanism. Yet one of the main reasons for this was the growing experience of firms in international production in the industrialized countries, initially of US firms in Europe. To avoid falling into a static tautology (that is, that international transaction costs fell because of the growth of the MNC, and the MNC grew because of lower internal transaction costs) this must be set in a dynamic framework, whereby the interaction between transaction costs and the growth of firms is set out. Transaction costs depend upon the technological and productive activity of the firm. The international growth of firms is part of an evolutionary process. This also helps to call attention to other aspects of the explanation: in this case, the generation of strong technological ownership

advantages by US firms, and the greater locational advantage of producing in Europe in the 1960s.

Internalization theory when taken independently is at its strongest when discussing vertical integration, such as the backward integration of manufacturing companies to secure raw material supplies, including natural resources (Casson *et al.*, 1986), or their forward integration into distribution or sales agencies (Nicholas, 1983, 1985). When it comes to the international expansion of manufacturing production itself a pure theory of exchange is on weaker ground. It has been claimed that the horizontal integration of manufacturing plants can be explained by the transaction costs of exchanging technology at arm's length (Buckley and Casson, 1976). However, technology may accumulate with the firm not so much because of the characteristics of the market for technology once it has been created as because of the conditions under which it is most easily generated and used in production. Technology is then difficult and costly to transfer or exchange between firms precisely because it tends to be associated with the research and production experience accumulated within a particular firm, rather than vice versa. Armour and Teece (1980) take a step in this direction in recognizing from a transaction costs perspective that vertical integration may increase R&D and the rate of technological change.

It seems reasonable to suppose that the accumulation of technology and the growth of production within the firm will affect the transaction costs of exchange. The transaction cost theorist has instead tended to start from exchange in a market, which gives way to more consciously organized control where it is relatively inefficient. Coase (1937) stressed the market conditions which lead to a reorganization or an extension in the organization of the firm. However, the nature and extent of a firm's transactions and co-operative arrangements with other firms, as well as its market share, also depend upon its innovative capacity *vis-à-vis* other firms. As paths of technological development become established within each firm this is likely to affect the conditions of technology transfer between them, which has been the focus of much of the internalization literature.

A similar criticism can be made of the conventional structure-conduct-performance paradigm of industrial organization theory, which is essentially static and does not deal with industrial dynamics or evolution (Carlsson, 1987). Once again, the firm appears as a passive reactor to changes in market structure. This is rather unfortunate, since early analysis of the growth of the firm in the 1950s (such as Penrose, 1959) had appeared to fit in nicely with treatments of imperfect competition, and the emergence of the study of industrial economics. Indeed, as noted above, Hymer's

theory of the growth of the MNC was based precisely on this combination of an active firm increasing the extent of its market power, and colluding with others to raise what Bain (1956) termed barriers to entry or new competition.

However, there are problems with the market power theory of the firm if it is used as a general explanation of the growth of international production, especially in the context of the technological competition that exists today between the firms of the major industrialized countries. In most industries the level of expenditure on research and development has been rising in recent years. Countries have become increasingly concerned about their technological competitiveness, while firms have been under steadily more pressure to maintain and build upon their major sources of innovative strength. It is necessary for all theories of the dynamics of international production to come to terms with this. The implication of the market power view is that profitability is usually seen as being raised through a restriction of output and of the number of firms competing. In fact the steady generation of ownership advantages through technological accumulation, rather than serving as a barrier to potential new entrants, may increase competition amongst firms already in the international oligopoly, causing them to expand their own research and production. Research-intensive lines of activity are not generally known for their lack of competition in world markets; quite the reverse.

In an industry with rapid technological accumulation the high profitability associated with the existence of strong ownership advantages is not due to a restriction of output, a lack of competition, and a high degree of industrial concentration as a feature of market structure. It is rather accounted for by the greater scope that innovation provides for productivity improvements, and with them the faster growth of output. Competition is more intense in terms of the creation of new products and processes.

Yet the market power theory of the firm as used by Hymer may be relevant to certain types of MNC activity, even if it does not provide a general explanation of MNC growth. Firms are more likely to seek out co-operative agreements or collusion with other firms where they are in a weak position *vis-à-vis* other firms in their industry, or where competition is very intense. Where they are relatively weak the licensing of technology is liable to run in just one direction, while where they are a leading member of an international oligopoly cross-licensing arrangements are to be expected. Increasing overlaps between firms in their technological development (as technological interrelatedness rises) is also likely to lead to an increase in cross-licensing as well as greater technological competition. There may therefore be new areas of business co-operation within an essentially competitive environment. Collusion between MNCs

is quite possible, but it is generally to improve the relationship between their international production networks rather than being an explanation of them.

Analysing trends in technological competition (and co-operation) between MNCs in the future is likely to be of considerable interest. One question which has been raised is the extent to which the recent upsurge in the internationalization of production is leading to an increasing locational concentration of research activity. This in turn has effects on the competitiveness of both firms and countries. Work on international industrial dynamics of this kind is still at a relatively early stage, but similar work on cumulative patterns of technological change is already attracting increasing attention in other fields. Further explorations of the relationship between technological innovation and the production of MNCs, hopefully, will make a distinctive and important contribution. As Dunning has recently suggested:

It is to be hoped that a next generation of scholars will give more attention to issues of innovation and entrepreneurship as they impinge upon the internationalisation of business. We believe that if a new breakthrough in our understanding of foreign production occurs, it will be in this direction.

(1988b: 36)

NOTES

- 1 Alan Rugman (1980) invoked internalization as a general theory of the MNC-cum-FDI, while Robert Aliber (1970, 1971) made international currency valuation the cornerstone of what he seemed to think of as a general theory of FDI-cum-MNC.
- 2 That Cowling and Sugden do not seem to identify themselves with the Hymer tradition need not be of concern here.
- 3 Dunning (1983a, 1988a) refers to these as ownership advantages of an asset kind, and ownership advantages of a transaction cost-minimizing kind, or, following Teece (1983), ownership advantages of a governance cost-minimizing kind.
- 4 Although the distinction between appropriability and co-ordination remains an important conceptual one, in practice where the firm controls complementary assets it may be difficult to differentiate between the two. The significance of this division is discussed further by Teece (1990).
- 5 They are monopolistic only if they are based entirely on product differentiation. If firms have advantages that are related to production – scale economies, patented technology, or high start-up costs – then they need not have monopolistic control of (segments of) the final product market. Their monopoly power is a result of collusion, which is made easier by such barriers to entry, but is exercised jointly rather than individually. It might still be said that each firm has a quasi-monopolistic position in the everyday sense that each

exercises a monopoly over the use of its own patented technology or large-scale plants (Jenkins, 1987). However, if they do not sell the use of such technology or plants in an external market then they are not monopoly sellers; hence the term *quasi-monopoly*. The market they actually serve is oligopolistic, even if it is divided by collusive agreement.

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