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Transnational corporations and the control of restrictive business practices: theoretical issues and empirical evidence

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The paper examines the defence of RBPs advanced by the internalization theory of DFI. RBPs are justified since not only do they have the effect of internalization but also because in their absence transactions-costs imperfections would undermine the effectiveness of technology transfer. The claims made for the efficiency of internalization and RBPs are not proven, however, because market imperfections may well be created by firms themselves and cannot be treated as exogenous. Although the available data are inadequate they support the view that the control of RBPs does not reduce technology inflows. There is a clear need for more research on this issue.

I Introduction

It is now generally accepted that technological autarchy is neither feasible nor desirable for less developed countries (LDCs). Starting from this position it becomes particularly important to inquire into the functioning and the efficiency of the channels through which technology is 'transferred' to the LDCs. By far the most important channel for such transfer is the Transnational Corporation (TNC). Whether it operates through the formation of a subsidiary or through a variety of 'non-equity' arrangements, the TNC is involved in the transfer of technology, defined broadly to include not only the technology of production but also a variety of marketing, managerial and organizational know-how. It is a testimony to the influence/importance of this observation that the central element in the explanation of the phenomenon of direct foreign investment (DFI) and the TNC is now regarded as the possession and/or generation of 'intangible' assets. Capital and financial flows associated with TNC operations now play a much smaller role in the explanation of DFI. Many theorists argue that the main benefit for host countries, and particularly LDCs, is in fact access to technology which in the absence of TNC operations would be denied to them (Casson, 1979; Teece, 1981a). Development economists interested in TNC operations, too, have given relatively more attention to the technological aspects of TNC operations in LDCs as witnessed by the literature on the 'appropriateness' of the

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technology transferred to the LDCs (the recent literature is summarized in Kirkpatrick *et al.*, 1984, Chapter 4).

The other question of major interest has been the costs imposed on LDCs (irrespective of the 'appropriateness' or otherwise) by technology transfer. It is here that the issue of Restrictive Business Practices (RBPs) has attracted attention, since their impact has been regarded, at least potentially, as having raised the cost to the LDCs of obtaining technology.

During the 1970s, the work of Vaitsos (1975), among others, did much to illuminate both the extent and the implied costs to the LDCs of the major forms of RBPs (such as the prohibition of exports). Recently a significant new element that has been added to the debate is a coherent *defence* of RBPs (which to our knowledge was lacking during the 1970s). This stems, in turn, from recent developments¹ in the theory of DFI, namely the systematic incorporation of the concept of internalization (dating back to the seminal article by Coase in 1937) as a major plank in that theory (Buckley and Casson, 1976). The internalization theory of DFI has enabled some theorists to claim a positive role for RBPs in facilitating the transfer of technology to the LDC, and to argue that curtailing these practices may only result in hampering such flows. Thus Teece (1981a) argues that RBPs are necessary in order to make technology transfer effective (see also Caves, 1982). Casson (1979: 22) asserts that:

many of the restrictive clauses in technology contracts are a legitimate defence of the proprietor's interests, so much so that if host countries outlaw such practices proprietors may prefer to abstain from DFI or licensing rather than meet the host country's terms.

In this paper we wish to examine the validity of the defence of RBPs put forward by the internalization theory of TNCs. We first explain in more detail the theoretical basis for this defence. We then argue that, even though the new theories of DFI have provided a (previously unarticulated) rationale for RBPs, it does not in a significant way affect the 'old' arguments in favour of a bargaining approach; that control of RBPs will not necessarily reduce the flow of technology to the LDCs and may thus increase the gains to the LDCs from technology transfer.

¹ The relevance of the concept for the theory of DFI was clearly seen by Hymer (1960) who noted that 'the firm is a practical institution which substitutes for the market. The firm internalizes or supersedes the market. A fruitful approach to our problem is to ask why the market is an inferior method of exploiting the advantage; that is, we look at imperfections in the market' (p. 48). However, Hymer emphasized the role of oligopolistic interdependence and bilateral monopoly as market impurities that favoured DFI compared to licensing. More recent writers have emphasized the transactional difficulties inherent in the market exchange of information and knowledge (see below).

II The case for RBPs

In our view the theoretical rationale for RBPs depends on the two following propositions:

- 1 That internalization is an *efficient response* by firms to the non-existence or the imperfection of external markets. In the international context, DFI is a response to the imperfection or impossibility of market-mediated, inter-country flows of firm-specific knowledge.
- 2 RBPs usually accompany technology licensing contracts because they have the *effect of achieving some of the conditions that would obtain in an internal market*. Their removal may thus destroy what is effectively an internal 'market' and hence the flow of technology that it permits.²

1 Market failure, internalization and the TNCs

The task of the allocation of resources can, in principle, be performed under a variety of institutional arrangements of which the decentralized private market economy (in which *all* decisions on the allocation of resources are carried out at arms length) is only one. In this pure form of a market economy, 'firms', understood as institutions in which resources are combined under common ownership, cannot exist. In this situation, any transaction necessarily implies an exchange of ownership. Clearly, an alternative to such a pure market economy is one in which some (in the extreme, all) allocations are carried out within the firm and, as such, transactions do not imply any exchange of ownership (Casson, 1979).

From society's point of view, the particular arrangement chosen may be regarded as simply a means to an end which is the efficient allocation of resources. In neoclassical economic theory, under certain restrictive assumptions, the allocation of resources associated with a perfectly competitive economy is (Pareto) efficient and cannot be improved upon. However, the absence of perfect markets does not inevitably imply inefficiency. Thus, as Casson (1979: 78) has remarked, 'market failure is a property of a particular institutional arrangement; so long as there are several possible institutional arrangements for a given market, failure of one arrangement is compatible with efficient organization of the market as a whole'.

Internalization necessarily takes place if and only if external markets are

² In this paper, the terms 'internalization' and 'internal markets' are used interchangeably to refer to the organization of an activity within the firm rather than through the market. It should be noted that RBPs are to be found both in licensing agreements between otherwise independent parties and also found in agreements between parent and subsidiary companies. In the latter case, the function of RBPs is to reinforce the control of the parent over the subsidiary. It reflects the fact that ownership alone may not always guarantee effective control. This paper is primarily concerned with RBPs in licensing agreements but common issues exist in both situations.

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imperfect. It is essentially a means of avoiding the *costs* of using imperfect external markets. Such gains (or cost avoidance) are real and not merely pecuniary economies of internalization. However, not *all* imperfect markets are internalized since whilst there may be (transaction) costs of operating such markets, there are also costs of operating an internal market. Firms driven by the desire to maximize profits will choose the mixture of internal and external market organization that is efficient and cannot be improved upon.

That firms should choose the most profitable form of organization is not surprising. However, for this to be efficient and hence socially beneficial, economizing on transaction costs should be the only or at least the primary cause of internalization and other motives, such as the 'quest for monopoly gains', should be relatively unimportant in determining the boundary between market and internal organizational forms. This is the typical position adopted by internalization theorists from Coase onwards. Thus, perhaps the most influential of recent writers, Williamson (1981: 1537–38), states:

I submit that the modern corporation is mainly to be understood as the product of a series of organizational innovations that have had the purpose of economizing on transaction costs. . . .(and) since transaction cost economizing is socially valued, it follows that the modern corporation serves affirmative economic purposes.

If the suppression of markets and their replacement by internal organization within firms is efficient, then it follows that the patterns of trade and capital movements within such organizations (which in the international context would imply the existence of TNCs) are also efficient and welfare promoting. Thus following Williamson, Teece (1981b: 4) writes, 'some scholars have missed important features of MNCs; they are obsessed instead with market power considerations. But the efficiency consequences of the organization of economic activity by multinational firms are more interesting, possibly more important and certainly less well understood' (see also Dunning and Rugman, 1985). Internalization of markets across countries by TNCs is deemed to be efficient. Otherwise, the heavy (transaction) costs involved in using external markets would mean that *mutually* beneficial opportunities for international trade, particularly in knowledge and technology, would not be realized. In the words of Hood and Young (1979: 236):

On the whole the view accepted in this book is that the MNEs [multinational enterprises], by overcoming [market] imperfections (e.g. non-tradability in the market for technology, trade inhibiting government economic policies, etc.), have caused greater international specializations. In this sense, the MNE, like international trade, permits greater exploitation of international comparative advantage. Extending from this is the *presumption* that MNEs operate, albeit unconsciously, to improve world welfare³ (emphasis added).

³ Although as Hood and Young (1979: 236) point out, this 'is not more than a presumption because of the second best nature of the problem. In a situation where restrictions on trade and

If the role of TNCs is basically to remove obstacles to trade, then, as Agmon and Hirsch (1979: 333) have argued, 'countries whose factor and product markets are imperfect and whose market mechanism is fragile, have more to gain from the presence of MNCs than those countries with highly developed and established markets'. This implies that LDCs may have more to gain from the operation of TNCs than developed countries. In other words, the main advantage of TNCs for LDCs is not the transfer of technology as such but that they provide an *institution* that allows such a transfer at less cost than the alternative external market (Casson, 1979: 5). More concretely, the advantage of internalization for the LDCs is precisely that TNCs integrate various inputs into a 'package' that they transfer to LDCs (Hennart, 1982: 173). Certainly, writers such as Vaitos (1980) see the fusion of individual input markets within the firm as the main *strength* of the TNCs but at the same time (and perhaps by the same token) they regard this as a major drawback for LDCs. Thus Pazos (1967) remarks that 'the main weakness of direct investment as a development agent is a consequence of the complete character of its contribution' (quoted in Vaitos, 1980: 29). As we have seen, internalization theory argues the exact opposite of this, suggesting that the 'unbundling' of the technology package is inefficient (Hennart, 1982: 174).

2 RBPs and the functioning of internal markets

Once it is accepted that the practice of internalization can promote an efficient allocation of resources, any activity that helps the emergence and maintenance of internal markets may also be efficiency promoting. The key question is, therefore, whether and/or to what extent RBPs are associated with internalization. More specifically, the question to be asked is whether RBPs in practice counteract significant causes of market failure. In the present context, there are three important conditions the absence of which can lead to the emergence of internal markets.

factor movements exist, not every move to overcome such restrictions will result in an improvement in real output and income'. In this paper, we pursue a different theoretical problem (see below) and disregard second best problems. We note, however, that the second best doubts have not received sufficient attention by internalization theorists and more often than not the presumption is treated as if it were a fact. A more fundamental criticism would reject the welfare economics basis for evaluating the efficiency of internalization by denying the validity of perfect competition as an ideal with which an internal arrangement may be compared. For example, Clifton (1977) has argued that a world dominated by large, diversified and oligopolistic firms is, in fact, more competitive in the sense that capital is more mobile in such a system where (some) firms have the capability of identifying and exploiting profitable opportunities (i.e. capital is more mobile within the firm than through a 'perfect' market). However, in this analysis with the rejection of perfect competition as an ideal, there can be no presumption regarding the welfare implications of internalization and the growth of firms. Internalization is simply intended to benefit the firm. Whether it also benefits society is at best an empirical question.

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3 *Adequate property rights*

Unless property rights are clearly defined, external markets are unlikely to function at all or at least are unlikely to function satisfactorily. Market transactions by definition involve an exchange of ownership, and thus, any ambiguity in ownership is likely to discourage market trading. This problem is particularly significant in the area of the creation and diffusion of knowledge, hence the useful role of patents in granting a legally enforceable title to the inventor or innovator. Patents not only give a measure of incentive for the creation of knowledge but also (and perhaps rather paradoxically) encourage its diffusion. This is because patents actually promote a *market* for knowledge, whereas, without the legal protection patents afford, firms would seek to keep their innovations secret (Casson, 1983: 14–15). However, it is argued by certain authors that present patent provisions are inadequate in many respects, particularly as they do not give any protection to managerial or marketing information (see Casson, 1979; Magee, 1977). In the international context this is thought to be one reason why firms prefer DFI to licensing. A more adequate legal protection may thus encourage licensing as compared to DFI.

4 *Contractual costs*

In order for an external market to function properly, it must be fairly easy to draw up a contract specifying the nature of the exchange, and the contract must be respected by both parties. Thus markets may fail because there are loopholes in the contract, i.e. the contract may fail to cover certain contingencies. In addition, in an external market, one party to the contract can always gain by defaulting as long as the other party honours its obligations under the contract. In an internal market there are no gains of this sort and hence no incentive to default. Nor is it so crucial for the 'contract' to cover all contingencies.

Contractual difficulties will be particularly forbidding when the 'sale' or lease of knowledge is involved. In particular, in those cases where knowledge contains a large element of implicit know-how which cannot be easily codified in blue-prints and formulae, it is very difficult to draw up a contract to give effect to the transfer of knowledge (Tece, 1981a).

5 *Increasing returns and price discrimination*

In cases of increasing returns to scale, an efficient level of output will be supplied by an external market only if prices are discriminatory (Casson, 1979). However, there are difficulties in implementing price discrimination. What is required is an accurate knowledge of reservation prices of different consumers and also legal restrictions on resale. In an internal market, however, prices need not be discriminatory.

Once again, it should be noted that transactions (in an external market) involving knowledge are subject to increasing returns and the conditions for effective price discrimination are particularly difficult to obtain.

Turning now to the role of RBPs, it is quite easy to show that they have a (quasi) internalizing function. All RBPs consist of restrictions imposed by one party (the licensor) on the decision-making freedom of the other party (the licensee). In this sense, therefore, RBPs have the effect of reducing the licensee to the status of a subsidiary, i.e. they have the effect of securing an internal market even in cases where DFI does not take place.

However, in order to make a more convincing case for the efficiency-promoting effects of RBPs, it is necessary to show a direct link between particular forms of RBPs, and significant causes of market failure (summarized above).

The most frequently used forms of RBPs are (UNCTAD, 1975; Long, 1981):

- (i) Restrictions on exports
- (ii) Tied purchase of inputs
- (iii) Use of expatriate managerial personnel
- (iv) Use restrictions on the technology transferred.

Export restrictions are included in virtually all technology licensing contracts involving LDCs. However, it is the practice that gets the most unambiguous theoretical support as efficiency promoting. The justification for export restriction is that it facilitates price discrimination by the licensor. Without export restrictions imposed on the licensee, it is argued that the development and utilisation of proprietary information would suffer. The licensor, without the ability to keep different export markets separate from each other, would be unable to practise discrimination and would thus have less incentive to innovate and license the innovation to firms in other countries.

The justification that is put forward for tied purchase of various intermediate inputs from the licensor is, implicitly, in terms of contractual difficulties. In particular, it is suggested that tied inputs function as a method of quality control and thus help to preserve the 'goodwill' and the market value of the proprietary knowledge transferred. This practice (tying the purchase of inputs) presumably frees the licensor from the need for incorporating quality standards in the contract which would be subject to both interpretation and implementation difficulties (see Teece, 1981a).⁴

⁴ Casson, however, is more sceptical on the beneficial role of tied inputs. He acknowledges that in some industries, such as pharmaceuticals, there may be a need to unify the sourcing of technological know-how and intermediate inputs. However, there is no economic justification for the compulsory tying of inputs. Casson points out that the element of compulsion suggests that the licensor 'envisages a situation in which it may be efficient for the licensee to use alternative sources' (Casson, 1979: 99).

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A similar justification can be put forward for the employment of expatriates in key managerial positions. In a sense, this is also a tied purchase, i.e. the purchase of managerial services from a specified source, usually the licensors themselves. Expatriates are usually in positions of strategic importance from the point of view of the licensor (such as marketing) and give the licensor effective control of the utilisation of the technology.

Finally, in a licensing agreement, the licensee is usually restricted to using the know-how in a particular and specified manner. Teece (1981a) argues that such use limitations are necessary for the effective transfer of know-how to the licensee. In particular,

where the seller contemplates some use of the know-how himself, limitations on the buyer's use of the know-how in competition with the seller are necessary to provide the seller with the incentive to transfer this know-how and to share fully in his mental perceptions, understandings, working, experience and expertise (p. 90).

Use limitation can thus be regarded as a means of maintaining the right to exclusion over access (to some aspects or applications) of proprietary knowledge. Patents alone do not provide such protection, and use limitation is thus a substitute for adequate patent protection.

III An evaluation

The case for RBPs, as we have seen, is dependent, firstly, on the efficiency-promoting role claimed for internalization and, secondly, on the argument that without RBPs, effective internal markets cannot be established, thus destroying the basis for technology transfer. Let us examine each of these claims in turn.

1 Internalization and efficiency

If we accept that internalization is a response to market failure, then since it permits a transaction to be effected where there would otherwise have been none, internalization does play a useful role. The key question, however, is whether market imperfections are given exogenously or whether firms have a hand in creating them. This point is expressed very clearly by Rugman (1981: 156-57):

Regulation is always inefficient. Multinationals are *always* efficient. To be more precise, multinationals are efficient if the market imperfections (which they overcome by the creation of an internal market) are *assumed* to be external to the firm. Such exogenous market imperfections stem as much from regulations as they do from natural market failure (emphasis added).

In a more recent paper, Dunning and Rugman (1985) present a modified and somewhat less extreme version of this assertion. They distinguish

between two types of market failure, 'structural' (basically Bain-type entry barriers) and transaction-cost, and argue that the latter types of market failure 'arise naturally, or at least are assumed to be exogenous to the MNE' (p. 229). It is also implicit in their paper that transaction-cost imperfections are a more important source of internalization than the 'structural' ones.

Both Dunning and Rugman (1985), and even more so Rugman (1981), treat the exogeneity of (transaction-cost) imperfections as an assumption which they make no attempt to justify (regarding it, presumably, as self-evidently true). In Teece's writings (1981b; 1985), however, it is possible to glean some theoretical justification for this assumption. He argues that the incentive for internalization depends on the degree to which the technology in question cannot be evaluated due to its implicit, firm-specific content. Such characteristics, it may be argued, are inherent in the age, life-cycle stage and the complexity of the technology itself and, to this extent, can be regarded as exogenous to the firm.

This, however, is only part of the picture and we believe that the relevant characteristics of a firm's technology are in important ways endogenous to the firm.

Within the theoretical literature on TNCs there is a strand of thinking that, in our opinion, lends support to the argument that imperfections are not exogenous, even though it has not actually been interpreted in this way by the author himself. We refer to Magee's 'appropriability' theory of TNCs (Magee, 1977), the essence of which, in our opinion, is that internalization is not simply a substitute for the market transaction of a given piece of knowledge, but actually alters the nature or the content of that knowledge.

The internalization process itself involves investment aimed at increasing the appropriability of knowledge or information, i.e. ensuring that the nature of the information is such that it is not easy to copy. For example, computer firms invest to camouflage the technology in new models of their computers to prevent copying by rivals (Magee, 1977: 327). More generally:

The rational firm will create artificial and sophisticated masking devices, artificial product differentiation, and expend resources to appropriate the returns on earlier investment (Magee, 1977: 327).

The link between appropriability and internalization is that activities which increase appropriability in turn permit a more profitable exploitation of firm-specific knowledge via internalization. Once again, however, the question is whether attempts to increase appropriability are rational for society as well as for the individual firm; whether expenditure on the masking of technology and product differentiation is a real, or merely an 'apparent' waste of resources as Magee believes (see also Diaz-Alejandro, 1981).

The role of the patent system is also relevant when considering the internalization/appropriability of knowledge. It is argued that present patent provisions are inadequate and that internalization is a substitute for adequate

patent protection. At first sight, there seems to be some evidence for this. R&D activity in the developed countries seems to be less dependent on patenting (Lall, 1976), indicating the possibility that firms rely instead on secrecy and internal utilization in order to protect their proprietary knowledge. On the other hand, it could be plausibly argued that firms would choose internalization and monopolistic market power in preference to any feasible system of legal protection. Thus, we pose the question as to why internalization can be observed in many different countries with, presumably, very different legal provisions. Less speculatively, we observe in some industries such as pharmaceuticals, that even though patenting is important, marketing power is regarded as even more significant in protecting proprietary knowledge and in facilitating international expansion via DFI (Lall, 1976).

Finally, it may be asked why there does not appear to have been a concerted attempt by the business community to alter or 'modernize' patent provisions. In other areas of policy and regulation where large firms have perceived a vital interest, concerted lobbying, often successful, has been launched. An important example is analysed by Helleiner (1977): the role of US multinational firms in the evolution of US trade policy. Another and, perhaps in the present context, more relevant example is the TNCs' resistance to certain aspects of the proposed UNCTAD code of conduct on transfer of technology as it relates to RBPs (Roffe, 1984).

The possibility (at least) that market imperfections may be endogenously created by firms is acknowledged, more or less implicitly, by certain writers on the TNC. Thus, Buckley, in an important article (Buckley, 1983: 35; see also Buckley, 1985a) dealing with the strengths and weaknesses of current theoretical writing on the TNC, reminds us that 'firms play a role in creating, sustaining, dominating and suppressing markets as well as merely reacting to them'. Other writers are aware of this although they do not incorporate it in their analysis. At the very least one can argue that regarding the exogeneity of market imperfection as (a simplifying?) assumption is not a satisfactory state of affairs. As Calvet (1981) has pointed out, there is certainly an urgent need for empirical research to 'shed light on the question of whether MNEs extend and/or perpetuate market imperfections or whether they are a vehicle for overcoming natural market imperfections to the *benefit of all concerned*' (p. 51, emphasis added).

The last proviso in the above quote is very important since it is possible, of course, that all the efficiency gains may be appropriated by the internalizing firm. In pursuing these issues (the exogeneity of market imperfections and mutually beneficial consequences of internalization), it is necessary to bear in mind that the internalization theory does not give any consideration as to which party in a particular transaction may take steps to internalize the market. Implicitly, this is regarded as irrelevant with efficiency gains being viewed as independent of which party internalizes the market. In fact, in the purely theoretical accounts, and rather like the determination of price in a

competitive market, internalization comes about through the intervention of some sort of 'arbitrator' standing above the parties. It is the arbitrator who stands in a hierarchical relation to the transactors but the relationship between the transactors themselves is essentially equal. Hence the claim for the mutually beneficial consequences of internalization. Thus, for example, the incentive for backward vertical integration by retailers is, it is assumed, equally strong as that forward integration into retailing by manufacturers.

In fact, however, there is evidence of significant asymmetries in this regard. As Francis (1982: 112) has noted in the UK and elsewhere, 'it is very rare to find a retailer who has integrated backward into manufacturing though it is not at all uncommon to find manufacturers who have integrated forward into retailing'. Francis adds, correctly, that this kind of asymmetry would not exist under the simple hypothesis of the superiority of internalization.

A possible reason for the asymmetry arises because control over its own retailing helps the manufacturer to create a situation of 'information impactedness' *vis-à-vis* its customers. Customers are now deprived of an independent source of information – the retailer – on the comparative performances and prices of competing goods and brands. The independent retailer has no such gains from a vertically integrated manufacturing base. In such instances, the claim that internalization is a response to a 'natural' or exogenous market failure, or that it is mutually beneficial to both parties, is hard to sustain.

The important point is that even if there are 'efficient' reasons for internalization, they will probably be operating alongside 'monopolizing' or 'structural' motives for internalization and it is important to examine how these may *interact* with each other. This is one of the areas in which future research should be conducted and until this is done it is certainly premature to regard internalization as having a major claim to efficiency.

To conclude the above theoretical discussion it seems apt to quote the following passage from Dunning, a particularly interesting one in view of some of his subsequent writing (notably Dunning and Rugman, 1985):

where, for example, enterprises choose to replace, or not to use, the mechanism of the market, but instead allocate resources by their own control procedures, not only do they gain, but depending on the reason for internalization, others (notably their customers and suppliers prior to *vertical* integration and their competitors prior to *horizontal* integration) may lose. Internalization is thus a powerful motive for take-overs or mergers, and a valuable tool in the strategy of oligopolists (Dunning, 1981: 28).

The theoretical case for the efficiency consequences of internalization and the TNCs, we have argued, is to say the least ambiguous and we have noted the need for more theoretical work and cited Calvet's observation on the lack of empirical evidence. Rugman (1981), however, claims that the evidence is already there and supports the view that TNCs are efficient. The evidence

consists of data on the performance (profits adjusted for risk) of a sample (50) of US TNCs. His finding is that most of these TNCs earn what he terms a *normal* rate of return on their assets, thus 'proving' 'that they are unable to export their firm-specific advantage (a monopoly position) to generate excessive profits over time' (p. 141). This conclusion, however, is open to serious doubt.

For one thing, the allegedly 'normal' rate of profit used as a benchmark in Rugman's analysis is the average rate of profit earned by the 500 firms on Fortune's list. As such, however, the 'normal' rate already contains a possibly very large, or excessive, element of monopoly profit.⁵ These firms are themselves very large and most of them dominate many markets in the USA. In addition, of course, most of them have at least some degree of multinationality.

Secondly, as Cowling and Mueller (1978) have pointed out, the usual accounting conventions adopted underestimate monopoly profit.⁶ Thus many types of business expenditures such as those on lobbying as well as, to some extent at least, those on advertising and promotion, should be regarded not as part of the costs of production and distribution, but as *expenditure out of profit* incurred in order to obtain, maintain and enhance a monopoly position. Thus, to get a truer picture of profitability, such expenses should be *added* to profits rather than to costs. Cowling and Mueller's analysis has a wider relevance since, clearly, in a world where firms are seen to compete for monopoly profit, it is very unlikely for market imperfections to occur wholly exogenously.

We conclude, therefore, that the proposition that internalization is an efficient response to market failure is as yet unproved.

2 *The control of RBPs and the flow of technology*

In this section we argue that even if internalization is an efficient response by firms, in the particular context of the LDCs, there is a rationale for reducing the cost (to the LDC) of technology transfer, in part, through the control of RBPs. Clearly, if it can be shown that internalization is inefficient, the case for regulation would hold with much greater force.

If RBPs are mainly or solely a device for monopolization through internalization, then bargaining by the host country, whether less developed or otherwise, can simply have the effect of redistributing some of the monopoly profit away from the TNCs without having a significant effect on the flow of technology.

⁵ It may, of course, be argued that monopoly profits are required to finance risky and costly R&D. But this argument implicitly assumes that both the extent and composition of R&D and other expenditures that generate firm-specific assets are, from society's point of view, optimal. There is no theoretically compelling reason for such an assumption.

⁶ See also the debate between Littlechild (1981) and Cowling and Mueller (1981).

There are two related reasons why, in the context of LDCs, there is room for bargaining even if internalization is basically efficiency promoting on a global scale. The first reason relates to the TNCs' more efficient *operation of* productive activity while the second relates specifically to its role in the transfer of technology.

Agmon and Hirsch (1979), as we have already noted, argued that TNCs can improve on the performance of imperfect markets in the LDCs, basically because of their superior managerial and organizational ability in overcoming imperfections in factor (and goods) markets in the LDCs. However, this efficiency gain is seen to be on the *cost side alone*. Goods and services are being produced at a lower cost than they would be in the absence of TNC investment. But the LDCs are not necessarily better off unless they can prevent the MNEs from appropriating all the efficiency gains (in higher profits).

The second reason why there is scope for bargaining relates to the nature of technology that is usually transferred to the LDCs. One important implication of the appropriability theory of the TNCs is that the kind of technology developed by the TNCs is not particularly responsive to the potential 'demand' for technology in the LDCs. There is an inherent bias in favour of sophisticated, high-income and complex products which would be difficult to copy by rivals. By the same token 'simple', labour-intensive or small-scale technology is neglected since it suffers from low appropriability. Since the technology is not LDC-specific, it need not earn a rate of return higher than the marginal cost of the transfer, although, obviously, the TNC would bargain for a higher rate than this. As the markets of LDCs play a comparatively small role in the calculation of the global return to R&D expenditure, there is scope for bargaining over the potential return.

Furthermore, the marginal cost of technology transfer to the LDCs is likely to be quite low, although in the light of evidence produced by Teece (1977), it is unlikely to be zero. The low marginal cost of transferring technology to the LDCs is due mainly to the fact that such technologies are usually of an older vintage and thus relatively standardized (see Contractor, 1983), a fact that tends to reduce the costs involved in technology transfer (Teece, 1977).

Even when the technology is not particularly old, it is likely to have been transferred to several developed country markets before its introduction to a LDC market. As each application of technology is likely to reduce the marginal cost of its subsequent transfer, this is also a factor that is likely to reduce the marginal cost of transfer to the LDCs (see Teece, 1977).

IV Empirical evidence

The analyses of the previous section imply two distinct approaches for empirical investigation and testing. The first approach would directly tackle the issue of exogeneity of market imperfections which, as we have argued, is the fundamental basis for the assertion that internalization is efficient. However,

there are several obstacles in pursuing this line of investigation, including the lack of detailed firm-level data regarding the conduct of R&D. For example, it would be necessary to determine whether or not R&D activity, including the possible suppression of new products and processes, influenced or even determined the opportunities for internalization, rather than being a mere response to externally imposed constraints.⁷

The second line of approach, one that we follow in this section, is to seek to determine whether or not controlling the RBPs of TNCs actually reduces the inflow of technology to LDCs. If technology inflows are reduced, this may be taken to reflect the underlying efficiency of internalization. If technology inflows remain unchanged, on the other hand, we are justified in suggesting that RBPs may be a device to increase the monopoly rents of TNCs. This then is basically the hypothesis that may be 'tested'.

The United Nations Conference on Trade and Development (UNCTAD, 1980) has investigated and evaluated the experience of a number of LDCs of regulating technology imports.⁸

Inevitably, adequate data for a proper evaluation do not exist. The inflow of technology is proxied by the number of agreements submitted for approval, processed and authorized, and obviously, the use of these data in this manner is subject to serious limitations. For example, we do not know what would have happened if there had been no controls; the technological content and the value of the operations involved will differ between different agreements; even though the total number of technology transfer agreements may not alter, there may well be a change in the composition of technology flows (it may well be the case that TNCs are deterred from transferring more advanced or newer technologies); the 'quality' of the transfer process itself may well be affected in that TNCs may be unwilling to provide more than the minimum formalized information required for the technologies' effective transfer (for an example, see Davies, 1977).

Keeping these important qualifications in mind, the data show that during the 1970s there was a relatively stable or growing trend over time as far as technology imports were concerned (UNCTAD, 1980: 9, Table 2; see also

⁷ Newfarmer's study of multinationals in Brazil provides some empirical support for the notion that the practice of internalization may actually perpetuate and/or enhance market imperfections rather than simply by-passing them. Newfarmer (1979b) reports a large number of what he calls oligopolistic tactics (including mutual forbearance, cross-subsidization and predation and interlocking directorships) which serve only to preserve and increase monopoly power of TNCs in the Brazilian electrical industry and are not necessary for the transfer of technology. Newfarmer (1979a) examines the reasons for the takeover of Brazilian firms by US TNCs and his major conclusion is that no efficiency gains are involved. In fact, he argues that Brazil could substantially gain from prohibiting 'non-socially beneficial' takeovers. See also Connor and Mueller (1982).

⁸ India initiated policies aimed at the control of technology imports in 1947, although it is probably in Latin America that the most widespread and developed regulatory mechanisms exist. As of 1980, eight Latin American economies (Argentina, Bolivia, Brazil, Colombia, Ecuador,

Chudnovsky, 1981: 142, Table 3), and it is tentatively concluded that they do not support those who argue that transfer of technology regulations restrict the inflow of technology.

A number of LDCs have enacted legislation and established regulatory bodies to eliminate or control RBPs, but in many cases the legislation appears to be weakly applied or largely non-operative. It is difficult to evaluate how effective legislation outlawing RBPs can be (the formal elimination of RBPs is meaningless if the behaviour of a subsidiary still conforms to policies imposed on it by the parent company - UNCTAD, 1980: 31), but UNCTAD presents information on the number of agreements rejected because of the inclusion of unacceptable RBPs.

For example, in Mexico between 1973 and 1975, over 25 per cent of all technology contracts proposed were rejected; in India, the proportion of technology contracts rejected varied widely, from 40 per cent in 1974, falling to 17 per cent in 1978 and rising to 24 per cent in 1979; in Brazil, the rate of refusal was lower but rising over the period covered, reaching almost 7 per cent in 1975 (UNCTAD, 1980: 32-33). In addition, evidence was available to suggest that there had been a shortening of the duration of technology transfer agreements and this, too, was considered by UNCTAD to be of considerable benefit to the recipient party. Overall, UNCTAD (1980: 32) concluded that 'The type of clauses that proliferated in transfer of technology agreements before government intervention in the technology market have been substantially reduced'.

Government intervention in the market for imported technology has also attempted to reduce the payments for royalties and technical fees to levels more acceptable to the LDC. Most regulating bodies have attempted to fix maximum royalty fees according to the kind of technology and/or the economic activity of the recipient party (UNCTAD, 1980: 14).

Again, methodological problems and data deficiencies make it difficult to assess how effective such regulatory mechanisms have been. UNCTAD (1980) presents some data on the extent of foreign exchange savings estimated to have been made by a number of countries.

In the Philippines, for example, it was estimated that there would be a foreign exchange saving of \$40 million over a 5-year period; in the case of Colombia between 1967 and 1971 an estimated annual saving of \$8 million was achieved (UNCTAD, 1980: 15-16). Quite significant foreign exchange savings appear to have been made in a number of cases, therefore, although the situation is complicated by the fact that much technology is transferred

Mexico, Peru and Venezuela) applied special regulations for the control of transfer of technology agreements. Elsewhere, the Philippines established a Technology Transfer Board in 1978 to register and evaluate all technology transfer arrangements (UNCTAD, 1980: 2-3), and Nigeria established the National Office of Industrial Property in 1979 with similar functions (UNCTAD, 1984).

through intrafirm transactions and the real costs of the technology transferred may not be readily apparent.⁹

The United States remains the largest supplier of technology to LDCs (as measured by transfer of technology receipts). Analysing data on fees and receipts by the United States (disaggregated into intrafirm and interfirm payments) in the 1960s and 1970s, UNCTAD tentatively concluded that there had been a significant reduction in the growth of royalties and fees remitted from Latin America to the United States in the 1970s, particularly of those in the form of intrafirm payments, as compared both with the 1960s and with other regions. Furthermore:

This reduction has probably been a consequence of the policies in the region regarding technology payments and it suggests that technology suppliers have generally adapted themselves to the prevailing circumstances. In this connection it is worth bearing in mind that the reduction in the growth rates of royalties and fees has not been accompanied by any normal general increase in repatriated dividends and interest. Nor does direct evidence exist of a more widespread use of transfer pricing in the late 1970s (UNCTAD, 1980: 22-23).

Data on payments made by individual LDCs for transfer of technology in the 1970s provide further support for UNCTAD's arguments. Table 1 permits a comparison of the 1960s and 1970s and shows clearly the reduction in the rate of growth of technology payments between the two periods. This reduction has occurred without any apparent fall in the inflow of technology into these countries (although we must keep in mind the distinction made above between the quantity and quality of technology flows).

Table 1 Growth of transfer of technology payments in selected LDCs

	Period 1	Annual average Growth rate %	Period 2	Annual average Growth rate %
Argentina	1965-70	26.9	1971-78	9.6
Brazil	1965-69	20.9	1970-76	16.7
Mexico	1953-68	15.0	1970-76	6.0
India	1959-69	15.2	1970-77	12.7

Source: UNCTAD, 1980; 26, Table 10.

Two further ways of evaluating the growth of royalty payments may be briefly mentioned. Payments for the transfer of technology as a proportion of a country's exports have fallen (UNCTAD, 1980: 26, Table 9), and pay-

⁹ Intrafirm transactions are often of great significance (in 1978, for example, 85 per cent of United States receipts of fees and royalties from LDCs were from affiliated companies - UNCTAD, 1980: 16) and special measures have been implemented to attempt to deal with the problem. The Andean Group, for example, prohibits royalty payments between parents and subsidiaries with respect to intangible technological contributions on the grounds that the transfer of profits from the subsidiary to the parent includes payment for the use of any technology transferred (UNCTAD, 1980: 18).

ments as a percentage of total manufacturing output have also fallen in four Latin American economies (Argentina, Brazil, Colombia, Mexico) over the period 1970-76 and have risen for India (Chudnovsky, 1981: 139, Table 2).

The economic rationale behind UNCTAD's advocacy of government intervention in the market for technology is in part based on the presumption that the monopoly rents enjoyed by technology suppliers (the TNCs) can be reduced without affecting the supply of technology. UNCTAD believes that the results so far achieved by those countries that have attempted to regulate the import of technology have been 'considerable' and a number of suggestions are made for the improvement of regulatory frameworks and institutions (more effective monitoring systems, more effective control of technology transfer transactions within TNCs, etc.) (UNCTAD, 1980: 37). In principle, the selective control of RBPs can be kept separate from more general intervention in the market for technology. In practice, however, effective selective intervention may be difficult to achieve, and governments resort instead to wider-ranging regulatory regimes.

The latter have recently come under critical scrutiny and it is clear that the issues relating to technology transfer to, and technological development within, the LDCs are more complex than perhaps is suggested by UNCTAD. Lall (1984; 1985) has in particular been especially critical of Indian technological policy. He argues that a 'complex and rigid' structure of controls has been established to control technology imports and although India has made significant progress, the cost has often been unacceptably high:

... India's technological strategy has had strong conflicting effects on the development of its technological capabilities. On the one hand, it has clearly led to a lot of technological effort and assimilation, and impressive growth and diversity of TE [technology exports] testifies to how far Indian enterprises have progressed with relatively small inputs of foreign technology. On the other, it has created large areas of technological backwardness (Lall, 1985: 168).

Lall argues that, in the context of the 'inward-looking' and protectionist framework of the Indian economy, the attempt to develop an indigenous 'know-why' capability (an understanding of the nature of the underlying process and product technologies) may well divert resources from technological activity which would occur in a more open or liberal environment and may well burden the economy with outdated technologies, to the detriment of economic growth. Furthermore, 'the mastery of a certain level of know-why may not imply the capability to further develop that know-why in line with developments abroad' (p. 219) and thus, paradoxically, technology exports and technological development can coexist with growing technological backwardness. Lall concludes:

The relationship between technology import and local technological effort is therefore a continuously varying one. At certain stages the two are substitutes, and intervention is required to bring private efforts in line with social needs. At others, they are complementary. As the economy develops, the need for intervention is correspondingly reduced (Lall, 1985: 219–20).

However, there is no necessary contradiction between Lall's general critique of Indian technology policy and more selective intervention in markets for technology. The more general interventionist position espoused by UNCTAD aimed, *inter alia*, at the control of RBPs may well be open to the kind of criticisms made by Lall, but much depends on the indigenous technological capabilities of the LDC itself (its absorptive capacity – see Buckley, 1985b). It is now widely acknowledged, for example, that the development of a fairly sophisticated indigenous technological capability is a necessary precondition for effective technology transfer by, amongst others, TNCs. As the United Nations (1983b: 67) has argued:

... an indigenous technological capability is a necessary condition for the evaluation of technology to be obtained from abroad, for the effective utilization of the transferred technology, for its adaptation to local conditions, for getting better terms for the transfer in negotiation with foreign enterprises and for the generation of 'appropriate' indigenous technologies. In other words, indigenous technological capability is not an alternative to transfer but a necessary condition for it.

Policy towards technology transfer in general, and with respect to RBPs in particular, therefore, should be neither crudely interventionist nor completely 'free market' in approach. It will vary between countries at different levels of development and industrialization and will alter over time for individual countries in accordance with changing domestic conditions and, additionally, with changes in the international environment. The emphasis in this paper has been on bargaining with TNCs at the national level as it is highly unlikely that individual firms in LDCs will have the experience and ability to do so on their own.¹⁰

The argument can be extended, however, in that even individual LDC governments may not be able to bargain effectively with TNCs and the need for international action then becomes apparent (hence the importance that the LDCs attach to the negotiation of an effective Code of Conduct on the Transfer of Technology – see United Nations, 1983a).

¹⁰This, of course, presupposes that they have the desire to bargain for a better deal from TNCs. As Chudnovsky (1981: 134) points out, however, independent recipient firms in the LDC will not necessarily be interested in reducing the costs of technology imports if those costs can be passed on in full to their customers. This possible indifference on the part of recipient firms represents a potential conflict of interest between the LDC government and the technology importing firms, with the private interests of the latter differing from the interests of the LDC government, with a consequent reduction in support for government intervention in the technology market.

V Conclusion

The claim that internalization and hence the use of RBPs is an efficient response to exogenous market failure is not convincing on theoretical grounds. In this paper we have attempted to argue that many of the market imperfections may, in fact, be created or at least aggravated by the firms themselves. There are, in addition, second best doubts regarding the welfare implications of internalization which need more explicit theoretical clarification than has hitherto been attempted. More fundamentally, as already noted above, one may question the relevance of welfare economics to the evaluation of internalization and RBPs altogether. This point also requires greater theoretical clarification.

The data collected and analysed by UNCTAD, although they must be treated with caution, nevertheless support the general arguments advanced in this paper. The empirical evidence, such as it is, does not support the assertion that technology flows will be reduced by regulatory regimes in LDCs. On the other hand, the quality of the data is such that it does not allow any definitive conclusion on this question. There is clearly a need for more dependable data on which to base empirical work of a greater depth than hitherto attempted. One possible approach would be to construct a 'quality adjusted' index of technology inflows for a number of carefully selected LDCs. Rather than using a simple count of the number of technology agreements, we would need to weight each agreement according to the kind of 'quality' considerations noted at the beginning of section IV above. Movements in such an index over time and across countries would allow more reliable observation of the impact of control/regulatory mechanisms on technology flows in general and the number, incidence and type of RBPs in particular.

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