The Determination of Export Oriented and Domestic Market Oriented Foreign Direct Investment in LDCs

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Ensayos y Monografías
Número 46
Noviembre 1986
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Abstract

This paper examines the conditions leading to the establishment of export oriented and domestic market oriented firms in less developed countries. It is shown that the minimum output necessary to transfer production abroad is larger for the domestic market oriented multinational corporation than the export oriented firm, leading to the greater mobility of the latter across countries. Also, the provision of social overhead capital in LDCs provides a greater inducement to the establishment of export oriented foreign firms than a policy which directly subsidizes the purchase of domestic resources in the host. On the other hand, the latter policy increases the probability of attracting export oriented foreign direct investment if the firm's tax burden in the host is less than costs in the host.

Foreign direct investment (FDI) has evolved over the post-World War II period. It has increased both in size and scope, resulting in the internationalization of production. In particular, the number of countries from which FDI originates has increased, whereas at one time U.S. subsidiaries were predominant. There has also been a movement away from large resource based extractive activities to horizontally integrated plants using high technology processes for the production of consumer goods. The global distribution of FDI has changed too, much of it now extending into the region of Southeast Asia. With these new

* Professor Department of Economics, Wayne State University Detroit, MI. An earlier version of this paper was presented at the Ninth Annual Meeting of the Caribbean Studies Association, St. Kitts-Nevis, May 30, 1984. The comments of Suphan Andic an Alan T. Udall are appreciated.

Nota: El presente ensayo es una versión del trabajo que presentó el Dr. Carlos E. Santiago en la Novena Reunión de la Asociación de Estudios del Caribe que se celebró en St. Kitts-Nevis, el 30 de mayo de 1984. Agradecemos al doctor Santiago su colaboración desinteresada al someternos este valioso e interesante trabajo, para ser publicado por la Unidad de Investigaciones Económicas. Queremos también agradecer la colaboración de la profesora Alicia Rodríguez sin cuya gestión la publicación de este trabajo no hubiese sido posible.

Angel L. Ruiz Mercado, Ph.D.
Catedrático y Director
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developments it is unlikely that past government policies toward FDI will continue to be optimal and calls for new directions by host and source governments are inevitable.


The evidence suggests that multinational corporations produce either for export or domestic markets (Caves: 1982, pp. 252-261), but not both. The export oriented or domestic market oriented nature of the foreign firm has important implications for the development experience. Moreover, there is increased reliance on FDI to provide employment, scarce capital, modern technology, foreign exchange, and taxable income to developing countries. This, along with the growth of FDI from source countries, suggests that the role of FDI in development is likely to continue increasing. Likewise, competition

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1. The difference between export oriented and domestic oriented FDI can also be interpreted as similar to the difference between export promoting and import competing (or import substituting) activities.
Among developing countries for FDI has given rise to government induced incentives to attract foreign firms to particular locations.

This paper develops a static microeconomic model of FDI determination to illustrate the influence of various government policies on the behavior of the potential multinational enterprise. The objective is to simplify a rather complex decision-making process into its most essential features, thus providing a framework for a better understanding of the effects of government policies on the destination and character of FDI.

The paper is divided into four sections. Section 1 introduces a model of FDI determination within a framework emphasizing risk, and relative factor and product market conditions in source and host countries. Sections 2 and 3 discuss the role of host country subsidies and taxation on export market oriented and domestic market oriented FDI. Section 4 provides some concluding comments and possible extensions of the analysis.

1. A Model of Foreign Direct Investment Determination

A relatively straightforward behavioral model of FDI is developed at the level of the firm. FDI involves a decision to establish productive activities in a host country while transferring technology, managerial know-how, and the like from the source country. In the tradition of the “eclectic” approach to FDI (Dunning, 1979), three conditions are associated with these activities: (i) that firms locating abroad have a net ownership advantage over

2. Among the studies which have considered the FDI location decision within a similar framework, albeit less formalized, are those of Helleiner (1973) and Kravis and Lipsey (1982).

3. For purposes of the analysis, no distinction is made as to whether the multinational enterprise is horizontally integrated, vertically integrated, or diversified.
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competitors; (ii) that it is in their interest to internalize this advantage; and (iii) that it can be best exploited in combination with location-specific factors in the host country (otherwise it would be best to supply the foreign market via exports).

In this model, a decision resulting in FDI requires that the firm perceive that by establishing a subsidiary in the host country its expected profits would be higher than if it located in the source country. Thus, the decision is between becoming a multinational enterprise or establishing a new domestic plant. Let us denote \( \pi' \) as the level of expected economic profits obtained by producing in the source country and \( \pi \) as the same for the host country. A decision to invest abroad requires that:

\[
\pi > \pi',
\]

where,

\[
\pi' = P'q' - C'(q')
\]

is the expected profit level at the source and equals the difference between total revenue \( (P'q') \) and costs \( (C'(q')) \) at the source. Similarly, expected profits in the host are illustrated by

\[
\pi = Pq - C(q) - \tau(q),
\]

where the main difference between this expression and (2) is that prices \( P \), output \( q \), and costs \( C(q) \) are at the host location. Another difference is in \( \tau(q) \), which represents a risk premium that is involved when moving to an untried and unfamiliar location.

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4. As a behavioral motive for FDI, profit maximization has received considerable support in the literature, despite the fact that multinational enterprises are often substantively different from other firms in host and source countries. For a discussion of some of these issues see Horst (1974). Also, rather than treating risk explicitly, as done in this paper, some authors examine relative profit rates in terms of their certainty-equivalences (Beenstock, 1977).
The risk premium, \( \tau (q) \), is determined by a number of subjective and objective conditions such as differences in language, customs, and institutions in society as well as uncertainty, which is an integral part of the decision to invest abroad.\(^5\) Prior to the FDI decision, the risk premium is viewed to be an increasing function of the expected level of output \( (q) \). However, after the decision is made to invest in the host country, the risk premium declines with continued activity in that location. This phenomenon is discussed in Davidson (1980) in which a pattern of U.S. based FDI was observed which involved movements from the U.S. to Canada first, followed sequentially by movements to Western Europe, the more industrialized LDCs, and finally, less industrialized LDCs. Thus, \( \tau \) can be viewed as an increasing function of expected output and a decreasing function of actual output.

The relation between product and factor markets in host and source countries is fundamental to the analysis of conditions under which FDI takes place. For completeness, four distinct cases are examined. They are illustrated in table 1 as the (1) regional case, (2) export promotion case, (3) monopoly case, and (4) international barriers case. The regional case assumes that both product markets and factor markets are integrated between host and source locations, hence there are no barriers to the movement of commodities or factors of production.\(^6\) In the export promotion case, there exist barriers to the mobility of factors of production while goods are sold in international markets at a competitive price.

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5. Caves (1982) suggests that the riskiness of FDI can be equated with the absence of information. He contends that transactions costs in the transference of intangible assets across national boundaries induce firms to become multinational enterprises, thus maintaining ownership over plants established in foreign countries.

6. The notion of an integrated market is taken in the context of a customs union where factors and commodities flow freely between regions and a unique equilibrium price and quantity is determined.
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monopoly case posits no factor cost differentials between host and source locations while domestic “market power” is achieved in the host country. The final case, that of international barriers, assumes barriers to the trade of commodities and flow of factors of production between host and source locations giving rise to both price and cost differentials.

Table 1
A Framework Relating Product and Factor Market Conditions in Host and Source Countries

<table>
<thead>
<tr>
<th>Product Markets</th>
<th>Factors Markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated</td>
<td>Integrated</td>
</tr>
<tr>
<td>P = P'</td>
<td>C(q) = C'(q')</td>
</tr>
<tr>
<td>Non-Integrated</td>
<td>Regional</td>
</tr>
<tr>
<td>P(q) ≠ P'</td>
<td>C(q) = C'(q')</td>
</tr>
<tr>
<td></td>
<td>Export Promotion</td>
</tr>
<tr>
<td>P = P'</td>
<td>C(q) ≠ C'(q')</td>
</tr>
<tr>
<td></td>
<td>Monopoly</td>
</tr>
<tr>
<td></td>
<td>International Barriers</td>
</tr>
<tr>
<td>P(9q) ≠ P'</td>
<td>C(q) ≠ C'(q')</td>
</tr>
</tbody>
</table>

In the regional case, input and output markets between host and source countries are integrated and expected production levels are equivalent. This implies that the market clearing price, [P = P'], and cost functions are identical for both source and host countries giving rise to similar levels of output at the plant level. In this case, equation (1) suggests that FDI will occur only if:

\[-\tau (tq) > 0\]  

or if the risk premium is negative. This is an unlikely situation unless a guaranteed subsidy can be made available to prospective foreign investors which effectively eliminates risk. What is important in this initial case is that FDI generally requires that output and factor
markets in source and host countries be non-integrated. Thus, the focus of the analysis shifts to relative location-specific conditions and the nature of firms that take advantage of these differentials.

The second case can be illustrated by export oriented FDI in which output markets are integrated between source and host locations while factor markets are not. The firm faces identical prices for its goods in the face of possible cost differentials. If the market clearing price is \( P = P' = P^* \) the conditions for a movement to a host location is described as follows:

\[
P^* q - C(q) - \tau(q) > P^* q' - C'(q'),
\]

and by combining terms

\[
P^* (q - q') - [C(q) - C'(q')] > \tau(q)
\]

By defining \( \Delta q = (q - q') \) and \( \Delta C = [C(q) - C'(q')] \), equation (6) can be written as

\[
P^* (\Delta q) > \tau(q) + \Delta C
\]

If factor costs in the host country are lower than in the source country, the last term of the right-hand expression of equation (7) will be negative. Facing a uniform price, \( P^* \), and ceteris paribus conditions, output will be greater in the host and \( (\Delta q) \) will be positive. Defining the right-hand side of equation (7) as the factor compensated risk premium \( (\tau^*(q)) \), the condition for locating in the host country will be

\[
P^* (\Delta q) > \tau^*(q)
\]

Lower production costs in the host country reduce the disincentive effect of the risk premium and increase the probability of a firm's move.

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7. \( P^* \) can be interpreted as the international price of goods.
The third case emphasizes the structure of the host country product market and assumes no cost differentials between locations. The firm commands market power in the host but not the source country.\(^8\) Market power is indicated by the firm’s influence over price.\(^9\) Thus, the firm faces a downward sloping demand function in the host country and \(P(q) > P'.\) The location decision can then be represented by the following expression:

\[
P(q)q - C(q) - \tau(q) > P'q' - C'(q'),
\]

and since \(C(q) = C'(q')\) and \(q' > q\), equation (9) can be written as

\[
P(q)q - P'q' - \tau(q) > 0
\]

By defining \([P(q)q - P'q']\) as \(\Delta Pq^*\), we have

\[
\Delta Pq^* > \tau(q)
\]

Equation (11) suggests that FDI will take place if the market power induced revenue differential is sufficient to cover the risk premium.

The final case reflects a situation in which barriers to the flow of goods and factors of production between the source and host locations give rise to price and factor cost differentials. Moreover, there exist prospects for obtaining market power in the host location. Equation (9) can be rewritten as follows:

\[
P(q)q - P'q' - [C(q) - C'(q')] > \tau(q)
\]

---

8. A similar argument could be made assuming differences in demand conditions between locations (with non-integrated markets) without inferring differences in market structure.

9. The notion of market power is generally raised in conjunction with the activities of multinationals in host countries. However, some authors have failed to distinguish between market power as reflected in the firms control over price and relative efficiency wherein foreign firms have a cost advantage over domestic competitors. Both situations can be reflected in the increased market concentration of foreign firms. The work of Wilmore (1976) and Connor and Mueller (1982) suggests that foreign multinationals are associated with market concentration and infer market power from this relationship. See Demsetz (1973) for a critique of this approach.
or \[ \Delta Pq^* > \tau^*(q) \] (13)

where \( \Delta Pq^* \) is the market power induced revenue differential and \( \tau^*(q) \) is the factor compensated risk premium. If costs are lower in the host location and domestic market power is obtained in the host, the left-hand side of equation (13) is positive and the probability of the establishment of a subsidiary in the host location is even greater than the previous three cases.

A comparison of the export promotion, monopoly, and international barriers cases is presented in Figure 1. It is assumed that the risk premium is a linear function of expected output in the host, \( q \). A fixed profit maximizing level of output in the source country, \( q' \), has been established. The firm’s decision, then, is to simultaneously determine its expected profit maximizing level of output in the host country and whether the conditions are met for transferring production to a foreign location. The area A-C-D-E-A illustrates the probability of a firm’s move to the host for purposes of export promotion, while the area B-D-B similarly reflects the likelihood of a firm’s move given the prospect of obtaining monopoly power in the host. With international barriers, the probability of moving abroad are even greater than the previous two cases as shown by the enlarged area A-B-D-A.

Figure 1
The Likelihood of FDI Under Export Promotion, Monopoly and International Barriers
Under export promotion, FDI can result in a level of expected host country output, between A and C, which is less than the profit maximizing level of output in the source country. However, this assumes that cost conditions in the host country are such that $C(q) < C(q')$, while $q' > q$. This occurs when economies of scale can be achieved in the host country at a lower level of output than in the source country (i.e., minimum efficient plant size is greater in the source country than in the host country). If this is not feasible, the likelihood of locating in the host country declines but is still possible if its expected profit maximizing level of output falls between C-D.

On the other hand, under monopoly, the firm's expected profit maximizing level of output must lie between B-D for a decision to locate in the host country to occur. Minimum monopoly output in the host will be greater than minimum export promotion output (see
distance A-B) if, in the latter case, output is greater in the source but costs lower in the host country. In contrast, minimum monopoly output will be less than minimum export promotion output (see distance B-C) if output is greater and costs lower in the host than the source under export promotion.

The results provide an explanation for the “footloose” character of export oriented multinationals. Compared to domestically oriented multinationals, export oriented ones initiate production abroad at a lower level of output as long as relative costs are lower in the host and minimum efficient plant size is achieved there as well. In contrast, the minimum output necessary to transfer production abroad for the monopolist (point B in Figure 1) is larger. Thus, domestically oriented multinationals require a given minimum market size to transfer production abroad which is not the case for export oriented multinationals. The ability to locate abroad at lower levels of output (and the lower start-up costs this generally represents) serves as an inducement to the mobility of export oriented FDI.

It is also possible to determine the conditions under which a host country attracts multinational enterprises with either domestic market orientation or export market orientation. The results are based on a comparison of equations (11) and (8). Subtracting the latter from the former gives:

\[ [P(\bar{q}) - q'] - [P^*(\Delta q) - \tau^*(q)] > 0 \] (14)

where \( \bar{q} \) is the monopoly level of output and all other terms are defined as above. Equation (14) can ultimately be written as:

\[ [P(\bar{q}) - q] > [\tau(\bar{q}) - \tau^*(q)] \] (15)
This suggests that monopoly power will serve as a greater inducement to FDI than cost differentials if the revenue differential is greater than the net risk differential.\textsuperscript{10}

Equations (4), (8), (11), and (13) identify three factors which influence movements in FDI. The first is a reduction in the risk premium, the second is the extent of factor cost differentials, and the third is the prospect of obtaining market power in the host country, Host country governments have the power to influence the direction and magnitude of FDI via subsidies and taxes aimed at altering one or more of these factors.

2. The Effects of Subsidies on the FDI Decision

Host country governments have historically played an important role in attracting or excluding multinational enterprises and FDI. Policies range from extremely liberal and generous long-term concessions for mineral rights to hostile nationalization without compensation. Indeed, changes in political climate are a major influence on the riskiness of a foreign venture. Although these more drastic steps have been taken from time to time, it is more commonplace for host countries to invoke a package of subsidies and taxes which reflect a given ideological stance toward FDI.

One of the most effective ways of stimulating the flow of FDI is through the use of subsidies. Subsidies take a number of different forms. On the one hand, they serve to reduce the risk premium of locating abroad and, on the other, they directly influence the firm's cost

\textsuperscript{10} A similar result would hold if a given firm were deciding whether to produce for export in one host country rather than for the domestic market in another host country. However, in this case the net risk differential could vary substantially between the two countries.
structure. One example of a subsidy which effects the firm's risk premium would be the provision of public education to increase literacy within the country. All firms benefit from a more educated populace.\textsuperscript{11} In contrast, a subsidy could be aimed at reducing a particular firm's (or industry's) costs of providing on the job training. A risk reducing subsidy, such as the provision of social overhead capital, has direct economywide benefits while a cost reducing subsidy benefits a select firm or group of firms.

Given the framework of analysis presented here, a government sponsored subsidy would have the unequivocal effect of increasing the probability of a firms move to a host country location. Under any of the four cases presented above, a subsidy reduces either the risk premium or the compensated risk premium by the same amount. This assumes that the subsidy is neutral with respect to the firm's cost structure or the riskiness of the foreign location decision. However, this does not necessarily imply that the subsidy is independent of the firm's profit maximizing level of output. These results still hold if the size of the subsidy is an increasing function of the firm's output level.

As an incentive to FDI, a host government can tailor subsidies to reflect the relative importance of the cost or risk factor in the firm's decision to locate in its country. Let us assume that $\lambda$ reflects the governments perception of the relative importance of the risk premium while $(1-\lambda)$ reflects the relative importance of the domestic cost factor to the firm.

The government subsidy, $G$, can then be expressed in the following manner:

\textsuperscript{11} In practice, the distinction between a risk reducing and cost reducing subsidy becomes cloudy. For our purposes, we assume that both firm and government can distinguish between the relative effects of subsidies on risks and costs.
This particular specification enables the government to determine which relative factor (risk premium or cost structure) it must alter to regulate the inflow of FDI. By adding $G$ to the left-hand side of equation (1) we obtain:

$$Pq + (\lambda - 1) \tau(q) - \lambda C(q) > P'q' - C'(q')$$

(17)

The condition under which export market oriented FDI would occur is

$$P^*(\Delta q) > (1 - \lambda) \tau(q) - C'(q') + \lambda C(q)$$

(18)

while the condition leading to domestic market oriented FDI would be

$$\Delta Pq^* > (1 - \lambda) [\tau(q) + C(q)]$$

(19)

If the government decides to use subsidies for the purpose of directly reducing the risk premium attached to the location of FDI in its country ($\lambda = 1$), then foreign firms with export promotion potential would be attracted there if:

$$P^*(\Delta q) > \Delta C$$

(20)

while foreign firms with an interest in monopolizing the domestic market would be attracted to the host location if:

$$\Delta Pq^* > 0$$

(21)

The extent to which the government ends up attracting domestic market oriented rather than export market oriented FDI depends on whether the marker power induced revenue differential, $[\hat{P}(\hat{q}) - P^*q]$, is greater than the difference in the firm's cost between source and host locations, $[C'(q') - C(q)]$.

An opposite policy would be for the government to use subsidies to directly influence the firm's cost structure rather than risk premium. The extent to which this policy is more
effective than the former in stimulating FDI depends on the relative importance of \( \tau(q) \) or \( C(q) \) to the firm’s location decision. It is noteworthy that a cost-oriented subsidy policy rather than a risk-oriented subsidy policy would leave the determination of the character of FDI activities uniquely dependent upon the firm's revenue. Thus, a cost-oriented subsidy policy would attract domestic market oriented FDI rather than export market oriented FDI if the market power induced revenue differential is greater than zero or:

\[
[P(\cdot) - P^*q] > 0
\]

If relative cost differentials are an important determinant of the firm's location decision, as is the case for export market oriented FDI, the government should develop a subsidy policy aimed at stimulating the development of social overhead capital with the objective of reducing the risk premium rather than a policy which directly subsidizes the purchase of domestic resources. This increases the likelihood of attracting export market oriented FDI rather than domestic market oriented FDI.

3. The Effects of Taxation and Subsidies on the FDI Decision

Multinational corporations are taxed in both source and host countries. The taxation of foreign investment income is often a controversial topic since it influences the magnitude as well as the gains from FDI. In fact, much of the research in this area, within both partial and general equilibrium models, has been aimed at determining the effects of taxation policies on relative rates of return to capital, the magnitude and direction of capital flows, and the relative gains between host and source countries. Our emphasis is on how taxation
policies (independently, and in combination with subsidies) in the host country can influence the export market or domestic market orientation of foreign firms.

Taxation of foreign investment income in the host reduces the probability of a firm's move, other things considered equal. Redefining $\pi'$ and $\pi$ as profits net of source country domestic income taxation and source country foreign income taxation, respectively, the condition leading to a favorable foreign investment decision is:

$$Pq - C(q) - \tau(q) - t\pi^* > P'q' - C'(q')$$  \hspace{1cm} (23)

where $t$ is the rate of host country taxation of profits of foreign firms, $\pi^*$ is the difference between foreign income and costs ($Pq - C(q)$), and all other variables are defined earlier. The rate of taxation, $t$, lies between 0 (full tax-exemption) and 1. A taxation policy other than tax-exemption will lead to a reduction in the probability of a firm's move to the source location. This result remains unaffected by the degree of integration of product and factor markets, and hence, the outward or inward-orientation of foreign firms.

A combination of taxes and subsidies is a common policy toward FDI. Although taxation policies do not influence the type of foreign enterprise attracted to the host location, subsidies do. Table 2 presents the effects of both taxes and subsidies on the decision to engage in FDI activities under export market and domestic market orientation.
The Effects of Taxes and Subsidies on FDI Determination

<table>
<thead>
<tr>
<th>Market Orientation</th>
<th>$\lambda = 1$</th>
<th>$\lambda = 0$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export Market</td>
<td>$P^<em>(\Delta q) - t\pi^</em> &gt; \Delta C$</td>
<td>$P^<em>(\Delta q) - t\pi^</em> &gt; \tau(q) - C'(q')$</td>
</tr>
<tr>
<td>Domestic Market</td>
<td>$\Delta Pq^* - t\pi^* &gt; 0$</td>
<td>$\Delta Pq^* - t\pi^* &gt; \tau(q) - C'(q')$</td>
</tr>
</tbody>
</table>

There are certain conditions under which these policies can increase the probability of attracting foreign firms with export market or domestic market orientation. Three particular cases are noted. (1) If the host country tax burden ($t\pi^*$) is less than the risk premium ($\tau(q)$), a subsidy aimed at reducing the risk of moving abroad ($\lambda = 1$) will lead to an increase in the probability of attracting both export oriented and domestic market oriented foreign firms. (2) If the host country tax burden ($t\pi^*$) is less than costs in the host ($C(q)$), a subsidy aimed at reducing foreign costs ($\lambda = 0$) will increase the probability of attracting export oriented foreign firms only. (3) If the host country tax burden ($t\pi^*$) is less than costs in the source country ($C'(q')$), a subsidy which reduces foreign costs ($\lambda = 0$) will only increase the likelihood of attracting domestically oriented FDI. A comparison of cases (2) and (3) suggests that, to the extent that costs are lower in the host country, the domestic oriented foreign firm will locate abroad at a lower level of output, $q$, than the export oriented firm. Thus, a combination of a profits tax and a subsidy on domestic resources in the host, increases the mobility of domestic oriented multinationals relative to export oriented ones.

4. Concluding Comments
The framework is not intended to compete with the general equilibrium macroeconomic approaches, but rather, to complement them by emphasizing behavioral decisions at the level of the firm. The degree of integration of product and factor markets between source and host countries is the fundamental determinant of the nature of FDI activities in the host. Likewise, the notion of risk and uncertainty, and how they vary across host countries, is central to understanding the behavior of multinationals.

The model provides a number of hypotheses regarding the decision to locate abroad. The ability to influence domestic prices, achieve cost advantages, and reduce uncertainty increases the likelihood of transferring production to a foreign location. The relative importance of these factors also influences the types of firms which engage in FDI and where they will ultimately locate.

From the point of view of host country governments and policy makers, the issues raised by the analysis are fundamental for continued growth, productivity and technological advance, balance of payments stability, and improvements in social welfare and equity. Alternative policies influence the firms decision to enter the host country as well as its export or domestic orientation. Actual government policies toward FDI vary substantially across countries. To devise policies which are truly effective, they must incorporate a realistic appraisal of the prospects for competing for foreign producers as well as an assessment of how, and if, FDI will enhance social and economic welfare.

The analysis can be extended in a number of useful directions. Partial equilibrium conditions can be established and comparative statics developed. A detailed examination of more elaborate government policies toward FDI, in both source and host countries, can be
conceived. Also, empirical research can be carried out to determine the appropriateness of some of the hypotheses which the model suggests. Continued growth of FDI in the international setting justifies these new directions.


