

**Impact of Trade Liberalization
on Foreign Direct Investment in
Producer Services**

By

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Abstract

This paper examines the effect of trade liberalization on foreign direct investment (FDI) in nontradable, producer services which play a supporting role in the production, trade, and distribution of final tradables goods.. It shows both theoretically and empirically that trade liberalization can have a positive effect on FDI inflows into producer services due to derived demand effects from the tradables sectors. The main policy conclusion of this paper is that foreign investment policy in supporting service sectors must be mutually consistent with overall trade policy to reap the desired benefits from trade liberalization.

1. Introduction

Services constitute a diverse set of activities. These include activities as varied as wholesale and retail trade, transportation, banking, finance and insurance, and real estate, among others. In the last two decades, the service sector has received increasing attention due to its growing share in national incomes, employment, and international trade and investment transactions. In particular, the growth of foreign direct investment (FDI) in the service sector has been striking, with the sector's share in world stocks and flows of FDI amounting to between 50 and 60 percent by the end of the 1980s.

Producer services, i.e., services which provide intermediate inputs to industry, have dominated the recent growth of FDI in the service sector. This dominance is in large part due to the expansion of industrial FDI and trade and the complementary role of producer services to the manufacturing, distribution, and exports of final products.

Given the nontradability of most producer services as well as their important spillover effects on the rest of the economy, the expansion of FDI in these activities is highly significant. It is well recognized that FDI in producer services facilitates the growth of related final goods industries by removing infrastructural and other capacity constraints to their expansion. FDI in producer services also enhances the efficiency and international competitiveness of final goods industries and contributes to technology transfer and exports.

Although there are various theories that explain FDI, none are specifically directed at explaining service sector FDI. Most of these theories including Vernon's product cycle theory; Hymer's core asset theory; Knickerbocker's oligopolistic strategy thesis; Bhagwati's splintering or disembodiment thesis; and the trade-based theories of defensive and offensive export-substituting FDI are more appropriate for explaining manufacturing as opposed to service sector FDI. Likewise, most empirical studies which have examined the importance of different factors such as market size, location-specific

advantages, corporate strategies, and host country regulations as determinants of FDI, are directed towards explaining FDI in goods rather than services.

This paper attempts to bridge this gap by providing a trade-based explanation for the recent growth of FDI in services, with a specific focus on producer services. The hypothesis is that trade liberalization can have a positive impact on FDI in intermediate services. This is due to the expansion of the tradables sector following trade liberalization which results in increased demand for producer services and higher returns to investment in these activities. Given domestic input constraints to the expansion of producer services, the higher demand for these services is met through FDI inflows which facilitate their expansion. The main driving force is the presence of demand linkages between the final tradables goods sector and intermediate services.

The hypothesis is motivated by studies on regional integration as well as more casual evidence from countries that have undergone trade liberalization. Although the proposition is not entirely new and demand linkage effects have been discussed earlier in the trade and FDI literature, this paper aims to contribute to the existing explanations by theoretically formalizing the relationship between trade and FDI for the service sector and testing this relationship for a particular case.

The structure of this paper is as follows. Section 2 discusses recent trends in service sector FDI, their significance, and existing explanations. Section 3 discusses the core hypothesis of the paper and the motivating evidence. Sections 4 and 5, respectively, demonstrate the hypothesis theoretically using a three sector Heckscher-Ohlin model, and empirically using a case study of Spain. The concluding section of the paper outlines the main policy implications, contributions, and limitations of this study.

2. Trends in Service Sector FDI

In the last two decades, services have become a major and increasing share of output and employment in all countries. Between 1965 and 1985, their share in output increased in 54 of the 81 countries for which data were available, averaging 61 percent for the industrialized market economies and 47 percent for the developing countries in 1985. In 115 of 116 countries, their share of the labour force also increased in this period.¹ Table 1 shows the trends in the service sector's share of output and employment for developed and developing countries.

Table 1: The share of service activity in the composition of GDP and the labour force, 1965-85 (%)

Country Group	Services as percentage of GDP		Percentage of labour force in services		Growth in output					
	1965	1985	1965	1985	Services		Manufacturing		GDP	
					65-80	80-85	65-80	80-85	65-80	80-85
Developing Countries (by income)										
Low	32	35	14	15	5.0	6.3	7.8	10.8	4.8	7.3
Low-mid	47	47	23	29	6.4	2.3	7.3	3.2a/	6.3	1.6
Middle	50	52	27	34	6.7	1.9	7.6	1.2a/	6.5	1.7
Upper-mid	51	54	32	40	6.9	1.7	7.2	1.4	6.6	1.7
High	30	39	15	21	...	5.1	...	9.2	7.5	2.2
All	42	47	18	22	6.4	2.8	7.6	3.5	6.0	3.3
Developed Market Economies	55	61	48	58	3.9	2.0	4.0	3.0	3.7	2.3

Source: World Bank (1987). *World Development Report*, World Bank, Washington, D.C.

a/ All industry.

¹Dunning, J. (1989), Table 1, p.6.

The sectoral shift to services in terms of output and employment has also increased the importance of this sector in international transactions. By the mid 1980s, services accounted for a significant one-fifth of total world exports of about \$2 trillion.² FDI by transnational service and industrial corporations has also increased significantly in the service sector. In the 1980s, FDI in services grew more rapidly than in any other sector. Their share in annual world flows of FDI rose from less than 20 percent in the 1950s to 25 percent in the early 1970s. It reached 60 percent, or an estimated \$50 billion by the mid 1980s. The share of services in the world stock of FDI stood at 50 to 60 percent or an estimated \$1,000 billion by 1990.³

The reorientation of FDI towards the service sector has been especially marked in the developed market economies. By the end of the 1980s, the service sector accounted for over 40 percent of the total stock and flows of outward FDI by the five major developed home countries. The service sector has also grown in importance as a destination for inward investment in major developed host countries, accounting for more than 50 percent of the total stock and flows of their inward FDI by the mid 1980s.⁴ The developed countries have been the main recipients of FDI in services, receiving about 84 percent of the total stock of world FDI in services by the end of the 1980s.⁵

The reorientation of FDI towards services has in comparison been relatively modest in developing countries. Only a few have substantial outward investments in

²UNCTC (1989a), p.2.

³UNCTC (1990b), p.2.

⁴UNCTC (1989a), pp.12-15.

⁵Dunning (1989), p.47.

services. Inward investment in services has also grown at a slower pace than in other sectors. However, in some developing countries, especially those offering offshore financial centres and flags of convenience, services have become an important destination for FDI, accounting for 30 to 40 percent of the total stock of inward FDI by the mid 1980s.⁶

2.1 Explaining FDI in Services

Hypotheses regarding the determinants of industrial FDI have also been used to explain transnational activity in services.⁷ Of these explanations, Dunning's eclectic paradigm of international production is perhaps the most commonly accepted theory of industrial FDI that is also relevant to services. It combines the traditional theory of factor endowments with the theory of economic organization.⁸ According to the eclectic paradigm, the extent, pattern, and growth of value added activities by transnational corporations (TNCs) depend on their competitive advantages relative to local firms. These consist of ownership-specific advantages, location-specific advantages, and market internalization-related advantages.

Ownership-specific advantages arise from the ownership of certain assets which give TNCs an advantage over local firms in the host country. In the case of transnational service corporations (TSCs), such advantages consist of property rights to management, marketing, and product innovation, exclusive or favoured access to input and product markets, access to technology and information, economies of joint supply in production, marketing, and finance, economies of scale and specialization, and economies of scope.

Location-specific advantages determine why the ownership advantages are implemented via production in foreign countries. Important locational determinants in the

⁶ UNCTC (1989a), pp. 18-19.

⁷ Several of these hypotheses were noted in the introductory section of this paper.

⁸Dunning (1981).

case of services are input costs, quality, productivity, infrastructural provisions, government regulations, the size and character of the local market, availability of key human and natural resources, and the economies of being close to suppliers, customers, and competitors. These locational variables are both country and industry-specific.

Internalization advantages determine why the ownership and location-specific advantages are coordinated to take the form of FDI, rather than trade or licensing. Internalization is motivated by the need to avoid search and negotiation costs, to avoid costs of enforcing property rights, to protect the quality of intermediate products, control sale and supply conditions, and to avoid or exploit government intervention.

Several studies have tested the eclectic theory of international production and have tried to identify the ownership-specific, location-specific, and internalization-related advantages of TSCs. These tests indicate that overseas services production is influenced by three kinds of general forces. These are general economic conditions, corporate strategies, and policies of home and host countries.

Among general economic conditions, the consistently most important factor is the market size of the host country. Market size is important in explaining transnational banking (Gray and Gray (1981), Rugman(1981)), international advertising (Weinstein (1977), UNCTC (1979), Terpstra and Yu (1988)), transnational insurance firms (UNCTC (1980), Schroath and Korth (1988)), and the location of international company offices (Dunning and Norman (1987)). These studies find that once a threshold size is reached, the FDI level in services responds positively to market size. Moreover, as with manufacturing, FDI in services reacts to the long run growth trend of the host economy rather than short term changes in the market growth rate.

Corporate strategies depend on factors like home country business presence in the host country, firm size and growth, and industry concentration. Empirical studies in international banking and advertising by Weinstein (1977), Khoury (1979), UNCTC (1979), Goldberg and Saunders (1980), Ball and Tschoegl (1982), Nigh et. al (1986), and

Terpstra and Yu (1988) find that transnational services FDI is positively related to home country business presence, although the importance of following-the-client declines over time. Firm size and growth and industry concentration also positively affect FDI in service industries like banking and advertising. (Ball and Tschoegl (1982), Terpstra and Yu (1988)).

According to studies by the OECD (1982 and 1987), the UNCTC (1988), and Walter (1985), government policies and regulations are also important in determining the location of service activities. Changes in regulations concerning foreign equity participation, profit remittances, taxes, and government procurement policies affect inward FDI levels by TSCs. These studies conclude that FDI in services is positively related to the host country's openness. Much of the recent expansion of FDI in services has in fact been attributed to the liberalization of foreign investment regulations in developed and developing countries in recent years.

The general conclusion of most of the studies is that many competitive advantages are common to services and goods. However, factors such as economies of scope and scale, market access, the capacity to acquire, assemble, and interpret information, and high transaction costs of exporting are more important in the case of service FDI.

2.2 FDI in Producer Services

Producer services, and in particular, services such as banking, finance, insurance, wholesale and retail trade, and marketing have experienced the most rapid growth in investment within the service sector.⁹ Between 1980-85, finance-related services accounted for 27 to 84 percent and trade-related services for 22 to 42 percent of total outward stocks of FDI in services. Together they accounted for 50 to 90 percent of total inward stocks of FDI in 1990.¹⁰ The importance of producer services is also reflected in

⁹ UNCTC (1989a), p.10.

¹⁰ UNCTC (1985), p.7.

the composition of FDI flows between major home and host countries. About 75 percent of Japanese investment in the US was in wholesale and retail trade and over 80 percent of its investment in the EC was in banking and finance.¹¹

The growth of FDI in producer services is highly significant since the latter have important spillover effects on the rest of the economy. Intermediate activities like transportation, communication, banking, and finance are important for the infrastructural development of an economy. Supporting services like insurance, trading, and data services have inter-linkages with other sectors, and some, like banking and finance, play a strategic role in the structural adjustments that accompany economic growth. Given the important role of producer services in the economy, the growth of FDI in these activities is highly significant. This is particularly so because most producer services are nontradable, intangible, and non-storable in nature. Therefore, FDI is often the most rapid, cost-efficient, and sole source of delivery for many supporting services whose indigenous development is constrained by a lack of capital, skills, and domestic markets of sufficient size.

FDI in producer services has many positive implications for the economy. It enhances linkages between industries and sectors of the economy. By providing intermediate service inputs to goods industries, it increases the latter's efficiency and ability to expand. FDI in producer services also contributes towards technology transfer. Since many producer services are very human capital -intensive, FDI in these industries helps transfer soft technologies like managerial skills, marketing techniques, professional, and other skills. The transnationalisation of producer services creates employment opportunities, especially in relatively labour-intensive areas like consultancy and marketing.

¹¹Balasubramaniam, V.N. and D. Greenaway (1991), p.4.

FDI in producer services also has implications for trade. Despite generally lower export propensities and import-substitution capacities than their industrial counterparts, foreign affiliates of many service industries are very export-oriented. For instance, more than 40 percent of the sales by transnationals in wholesale trade and engineering services are exported. Service affiliates also tend to be more diversified in terms of export markets than manufacturing affiliates.¹² FDI in producer services also enhances international competitiveness in goods industries by providing essential inputs into their production. Thus, if one accounts for the producer service component of manufactured goods, the indirect export propensity of many services may be much higher than perceived.

3. A Hypothesis for FDI in Producer Services

Since the growth of FDI in producer services has important implications for economic development, growth, and productivity, it is important to understand some of its underlying causal factors. This section presents a trade-based explanation which is specifically directed at explaining the recent growth of FDI in producer services.

The hypothesis is that a country's trade policies, in a multilateral or regional context, can affect the level and nature of FDI in its service sector. Trade orientation influences the volume of FDI in services by affecting the scale of tradables production. The latter affects the demand for and production of supporting services and consequently, the incentives for FDI in these activities. Given appropriate production structures and intensities of service usage in tradables production and a liberal regulatory framework for FDI in the service sector, a more outward trade orientation can lead to increased FDI in services. Since the hypothesis relies on the presence of demand linkages between final

¹²UNCTC (1989a), p.118.

goods and intermediate inputs, it is particularly relevant to explaining FDI in producer services which are intermediate in nature.¹³

3.1 Motivation and Evidence for the Hypothesis

This hypothesis is rooted in empirical evidence and observations on the relationship between trade and foreign investment, mainly from cases of regional integration. The evidence suggests that firstly, trade policies can affect the level of foreign investment, and that secondly, they can also affect the direction of this investment towards producer services, due to demand linkages between these activities and goods production and exports. The link between trade and foreign investment is mainly through market size and growth prospects, which are affected by trade policies.

3.1.1 Japanese FDI in the EC

The hypothesis is strongly supported by studies on the growth of Japanese FDI in the EC in the 1980s. During this period, Japanese investment in the EC grew faster than in any other area of the world. The yearly flow of Japanese investment into the region increased from \$2 billion in 1985 to more than \$10 billion in 1988 and \$7.7 billion in the first half of 1989 alone.¹⁴ The EC's share of Japanese outward direct investment increased from 11 percent to 24 percent between 1982 and 1987 while the share of developing countries fell from about 50 percent to 12 percent in the same period.¹⁵

Studies indicate that the prospect of a unified market in 1992 and the resulting economies of scale and scope were important factors underlying the rapid growth of

¹³Earlier explanations of FDI in services have also referred to the role of complementarities between final goods and intermediate inputs. Much of the recent expansion in the activities of service transnationals is attributed to such demand linkages with service firms following industrial multinationals abroad.

¹⁴ International Management (March 1990), p.34.

¹⁵ P. Nicolaides (1990), p.66.

Japanese investment during this period in the EC.¹⁶ A 1989 JETRO survey of Japanese firms in Europe identified the growth in incomes and market size plus other dynamic effects of integration as the main underlying forces. Similarly, Balasubramanyam and Greenaway (1991) concluded on the basis of preliminary statistical analysis that between 1975 and 1988, Japanese FDI in the Community responded to enlarged market opportunities and that the single market program altered the locational characteristics and advantages of the EC as a host for FDI.

The evidence from Japanese FDI in the EC also suggests the importance of trade orientation for the sectoral destination of foreign investment. Most of the Japanese investment in the EC during the 1980s was in producer services, particularly, in banking, insurance, and commerce-related activities. In 1989, services accounted for about 80 percent of total Japanese FDI in the Community of which financial services alone accounted for almost half of the total. Manufacturing FDI comprised less than 20 percent of total Japanese FDI in the region.¹⁷ Table 2 indicates the relative importance of producer services in Japanese investment in the EC.

¹⁶It has also been suggested that much of Japanese investment in the EC in this period was undertaken to defuse the threat of protection in the future, along the lines of the quid pro quo theory of FDI. In this view, investment in the first period was not necessarily profitable, but was intended to pave the way for future exports.

¹⁷P. Nicolaides (1990), p.67.

Table 2: Sectoral Distribution of Japanese FDI in the EC (%)

	1986	1988	1989
Manufacturing	17.0	16.0	18.0
of which:			
Metals	1.8	1.1	0.9
Chemicals	1.6	2.0	2.5
Electrical Machinery	3.6	4.2	4.5
Transportation Equipment	3.4	3.0	3.0
Textiles	1.5	1.0	1.1
General Machinery	1.9	2.1	3.0
Non-Manufacturing	83.0	84.0	82.0
of which:			
Mining	6.2	3.6	3.1
Commerce	19.9	13.1	12.0
Finance & Insurance	41.3	49.2	47.3
Transport	0.3	0.3	0.3
Total (US \$ bn)	14.5	30.2	50.0

Source: Ministry of Finance, Japan

Studies indicate that the complementarity of producer services to final goods production or exports by Japanese firms, was greatly responsible for their importance in Japanese investment in the EC. Sleuwagen and Yamawaki (1991) concluded that much of Japanese FDI in banking, finance, and trading was a deliberate strategy to strengthen the productive and marketing efficiency of manufacturing firms and was aimed at facilitating intrafirm trade by Japanese industrial multinationals. Heitger and Stehn (1990) concluded that the complementarity of services like banking, insurance, and trade to Japanese exports explained their importance in Japanese FDI in the EC in the years preceding the formation of a single market. Increased investment in these services was found to be strongly related to the rapid increase in Japanese manufacturing production for exports within the region. Thus, the evidence from the case of Japanese investment in the EC supports both aspects of the hypothesis, i.e., that trade policies matter for the volume as well as the sectoral orientation of FDI.

3.1.2 The Iberian Economies and Inward FDI

Evidence from the Iberian countries following their entry into the EC in 1986 also supports the hypothesis. Both Portugal and Spain experienced rapid growth in inward FDI following membership in the EC. Investment inflows into Spain increased by 277 percent in the five years after its entry into the EC compared to only 19 percent in the five preceding years. Similarly, FDI inflows into Portugal increased by 160 percent after its entry into the EC compared to 45 percent in the preceding five years.¹⁸ The share of inward FDI in Portugal's GDP increased from 0.7 percent for the 1975-85 period to 3.7 percent in 1989.¹⁹ Spain and Portugal's experiences suggest that the change in their trade orientation due to joining the EC, affected their attractiveness as hosts for FDI.²⁰ Moreover, a close examination of the sectoral composition of inward FDI into these countries indicates that producer services, especially, trade and finance-related services were the main recipients of this increased FDI.²¹

The regional integration cases discussed above suggest the importance of trade orientation for overall FDI as well as FDI in producer services. They also indicate that the intermediate facilitating role of producer services in final production and exports is often an important incentive for FDI in these activities. This is not to preclude the role of other determinants such as government policies and regulations regarding FDI, macroeconomic conditions, or various country and industry-specific characteristics. However, given the current international environment with the surge in regional integration efforts and the

¹⁸UNCTC (1990a), Table 10, p. 6.

¹⁹OECD (1992), Table 8, p.32.

²⁰ The relative attractiveness of Spain and Portugal as host countries for FDI is discussed in more detail in Section 5 of this paper. Also see, UNCTC (1990a), p. 17.

²¹See, OECD (1992), Table 8, p.32 for the sectoral composition of Portugal's inward FDI from 1986-90. Section 5 discusses in detail the growth of FDI in trade and finance-related services relative to manufacturing in Spain, following its entry into the EC.

trend towards more open trade regimes, the hypothesis provides a relevant and important explanation for the growing share of services in global output and FDI.

4. Demonstrating the Hypothesis

This section presents a simple theoretical model that demonstrates the link between trade policy and FDI in producer services. Its aim is to establish the hypothesis proposed in Section 3. Specifically, the model considers how trade liberalization in a **small open economy** can affect resource inflows into its service sector.²³

It needs to be noted at the outset that this model captures one particular motivating factor underlying service sector FDI. Here, service FDI responds directly to changes in trading opportunities in final goods sectors following trade liberalization. It is driven by the difference in the rates of return across countries to factors used in service production. These differential returns are due to derived demand effects from tradables production to intermediate services that are initiated by trade liberalization. The latter is distinct from the "piggy-backing" form of service sector investment noted earlier, where service FDI follows manufacturing FDI to service home country client firms abroad.

4.1 The Theoretical Framework

There are two countries, A and B. The former represents the rest of the world while the latter is a small open economy (SOE). B is the country of focus in this model. Alternatively, if one were considering the case of regional integration, A could be viewed

²³The analysis is also applicable with slight modifications to considering the impact of trade policy changes on service FDI, in the context of regional integration.

as the partner country or region with which B integrates, with the added assumption that it is B's major trade partner and sets the prices for tradable goods.

Three goods, X, Y, and Z are produced in the economy. X and Y are final traded goods. In country B, X is the exportable and Y the importable good while the reverse holds in country A. Z is a non traded intermediate service used in X production in both countries. Due to its non tradability, demand for Z must be met by its domestic supply. All three goods are produced with the same production technology in the two countries and the product market is characterized by perfect competition.

There are three factors of production, K, L, and H. The former two represent the usual factors of production, capital and labour, respectively. H is a sector-specific input used in Z production. It can be interpreted as a factor that is human or physical capital-intensive and is specific to the service sector. The inclusion of a specific factor H in service production is based on the observation that services often require special kinds of resources in terms of capital equipment, specialized labour skills, or information technology. The factor H is assumed to be internationally mobile while labour and capital can move only intersectorally within each country.²⁴ All factor markets are assumed to be perfectly competitive.

The system of equations and assumptions that characterize this model are given below.

Production Functions

$$Y = F(K_y, L_y) \quad \text{Cobb Douglas} \quad (1)$$

$$X = G(K_x, L_x, Z_x) \quad \text{Cobb Douglas} \quad (2)$$

²⁴In general, the international mobility of factors used in service production such as information technologies, telecommunications equipment, etc. is highly restricted due to various kinds of government regulations in service sector industries.

$$Z = M(H_z, L_z) \quad \text{Cobb Douglas} \quad (3)$$

X and Y are characterized by the usual Cobb Douglas production functions using capital and labour as inputs. In addition, the X sector also uses nontraded intermediate services in its production. This reflects a strong factor intensity assumption regarding the use of producer services in the tradables sectors.²⁵

The nontraded intermediate service uses labour and the specific input, H in its production. This captures two features of service production. The inclusion of labour in the production function for Z reflects the fact that many services are quite labour-intensive. The inclusion of the specific input H reflects the fact that many services require specific human or physical capital based inputs into their production as discussed earlier.

Full Employment Conditions

$$K_x + K_y = \bar{K} \quad (4)$$

$$L_x + L_y + L_z = \bar{L} \quad (5)$$

$$Z_x = Z \text{ (by non tradability condition)} \quad (6)$$

The equations above represent the factor mobility conditions stated earlier. Capital and labour are fixed in domestic endowment and move across sectors within the economy. Demand for intermediate services must equal its domestic supply due to the nontradability assumption. Finally, due to the international mobility of the factor H, there is no corresponding full employment condition.

²⁵The factor intensity condition is discussed in detail later in this section.

Factor Price Conditions

Factor returns are determined by the marginal value product condition. The returns to capital, labour, and the service-specific input are given in the equations below.

In the capital market,

$$r_y = P_y^d F_k \quad ; \quad P_y^d = \text{domestic price of Y} \quad (7)$$

$$r_x = P_x^d G_k \quad ; \quad P_x^d = \text{domestic price of X} \quad (8)$$

Since capital is mobile across the X and Y sectors, the marginal value product of capital in X and Y is equalized in equilibrium. Therefore, $r_y = r_x = r$.

In the labour market,

$$w_y = P_y^d F_l \quad (9)$$

$$w_x = P_x^d G_l \quad (10)$$

$$w_z = P_z M_l \quad (11)$$

Again, due to intersectoral mobility of labour across the X, Y, and Z sectors, the marginal value product must be equal in equilibrium across the three sectors. Therefore, $w_y = w_x = w_z = w$.

The price of services, P_z , is given by the marginal value product of Z in X sector production.

$$P_z = P_x^d G_z \quad (12)$$

The return to the specific factor H is given by the marginal value product of this factor in service production.

$$v = P_z M_h = v^* \quad (13)$$

where v and v^* represent the domestic and world prices of the factor H. The equalization of the domestic price of H to the world price results from the international mobility of this factor.

Demand Linkage Function

It is also useful to explicitly derive the demand linkage relationship between the X and Z sectors. Profit maximization in the exportables (X) sector, yields the following demand function for services:

$$Z_x = Z_x(P_x, P_z, w, r)$$

Since X is produced with Cobb-Douglas technology, equation (12) can be replaced by (12') which expresses Z_x in terms of the scale of X sector output and factor and product prices.

$$Z_x = \frac{\alpha P_x^\alpha X}{P_z} ; 0 < \alpha < 1 \quad (12')$$

The expression in equation (12') shows that the demand for services is a positive function of the scale of X sector output and price and inversely related to the price of services.

Similarly, one can derive the explicit function relating X sector production to the demand for the specific factor H. Since Z is produced with Cobb Douglas technology, equation (13) can be replaced by (13') which expresses the demand for the specific factor H in terms of X and factor and product prices.

$$H_z = \frac{\beta P_x^d X}{v}; \quad 0 < \beta < 1 \quad (13')$$

This expression indicates that the demand for the service-specific input is a positive function of the scale of X production and price and inversely related to the price of the factor.

Equations (12') and (13') together yield the inter-industry linkage between the X and Z sectors in terms of service and factor input demand.

Factor Intensity Assumptions

It is assumed that the Y sector is more capital-intensive relative to the X sector. In other words,

$$k_y > k_x \quad ; \quad k_i = \frac{K_i}{L_i} \quad ; \quad i = X, Y$$

This factor intensity assumption is important for the analysis later in this section. Given the Cobb-Douglas production functions, this factor intensity condition implies that the distributive shares of capital and labour in X and Y production also hold in the same direction. Hence,

$\theta_{ky} > \theta_{kx}, \theta_{lx} > \theta_{ly}$; where θ_{ij} denotes the distributive share of factor i in good j .

It was noted earlier that Z is used only in X production. Although the service intensity assumption may appear restrictive, the condition has some factual basis. For instance, much of Japanese and US FDI in the service sector of newly integrated, small member countries in the EC, tends to cater to export-oriented manufacturing production and investment. It is also well known that many service transnationals follow their home country industrial clients abroad. Due to the limited size of the domestic market in a small open economy, it is likely that industrial transnationals that locate in such economies will be in export-oriented sectors where the host country has some form of comparative advantage. Hence, service sector investment that supports such industrial investment is also likely to be export-oriented in nature, that is in terms of its embodiment in final goods. While this does not necessarily imply that the exportable sector uses services more intensively than the importable sector, it suggests that when service FDI is motivated by changes in trading opportunities and market size, and provided the host country's domestic market is limited, the intensity of service usage could reasonably be greater in the exportables sector.²⁶

For the purpose of this model as long as the intensity of service usage is greater in exportables production, the exclusion of services as an input into importables (Y) production, does not affect the qualitative nature of the results. The extreme factor intensity assumption only makes the calculations simpler and the results easier to interpret.

²⁶ If the host country has a large internal market, then it is possible that much of the service sector FDI, such as in distribution and marketing could be related to the internal market opportunities created by increased imports and expansion of the importables sector, following trade liberalization.

Service FDI Assumptions

In this model, service FDI is captured by inflows of the specific factor H from the rest of the world. This is based on the observation that service sector transnationals often derive their competitive advantage from the ownership of certain specific assets in the form of technology, physical capital, information dissemination capabilities, marketing networks, etc. which may be in short supply in the recipient country. Flows in factor H are driven by differentials in its return across countries, i.e., the differential between v and v^* . The assumption is that foreign service providers seek higher returns to their ownership of specific assets, which in this model result from trade liberalization

Trade Policy Assumptions

It is assumed that initially, before trade liberalization is undertaken by country B, the import-competing sector Y is protected by a tariff of t_B . Since B is a small open economy, it takes world prices of the two tradables goods as given. Therefore, the domestic price of Y in B is expressed as $P_y^d = P_y^*(1 + t_B)$ and the domestic price of X in B is given by $P_x^d = P_x^*$, where P_x^* and P_y^* are the world prices of X and Y respectively.

The model described above is a system of 13 equations in 13 unknowns (X, Y, Z, K_y , L_y , K_x , L_x , Z_x , H_z , L_z , w , r , P_z). Hence, it can be solved for the unknown variables.

4.2 Derivation of Results

The demonstration of the hypothesis proceeds as follows. First the impact of trade liberalization on factor returns is derived. The implications of this impact are then considered for production in the two tradables sectors. Following this, the demand

linkage functions derived earlier in equations (12') and (13') are used to analyze the effect of changes in X sector production on the demand for and returns to the specific input H, and subsequently on FDI in the service sector Z, (i.e., resource flows of H into sector Z).

4.2.1 Trade Policy and Factor Returns

The sole trade policy variable in this model, t_B , is captured in the relative price of tradables, $p = \frac{P_y^d}{P_x^d}$. Therefore, movements in this relative price reflect changes in trade policy. To determine the impact of trade policy changes on factor returns, one needs only to consider the effect of changes in p on the real and relative returns to factors in country B.

Equations (14) to (16) below express the change in the price of output of the three sectors as a weighted average of the change in the price of factors used in their production. The circumflex represents proportional change in a variable.

$$\hat{P}_y^d = \theta_{ly} \hat{w} + \theta_{ky} \hat{r} \quad ; \quad (14)$$

$$\hat{P}_x^d = \theta_{lx} \hat{w} + \theta_{kx} \hat{r} + \theta_{zx} \hat{P}_z \quad (15)$$

$$\hat{P}_z = \theta_{lz} \hat{w} + \theta_{hz} \hat{v} \quad (16)$$

$$\text{Since } v=v^*, \hat{v} = 0 \Rightarrow \hat{P}_z = \theta_{lz} \hat{w} \quad (16')$$

Substituting for \hat{P}_z into equation (15) and solving for the real and relative returns to K and L, yields:

$$\left(\frac{\hat{r}}{P_y^d} \right) = \frac{\hat{p} \theta_{ly} (\theta_{lx} - \theta_{ly} + \theta_{lx} \theta_{zx})}{(\theta_{ky} \theta_{lx} - \theta_{kx} \theta_{ly} + \theta_{ky} \theta_{lx} \theta_{zx})} \quad (17)$$

$$\left(\frac{\hat{r}}{P_x^d}\right) = \frac{\hat{p}(\theta_{lx} + \theta_{lx}\theta_{zx})(\theta_{lx} + \theta_{lx}\theta_{zx} - \theta_{ly})}{(\theta_{ky}\theta_{lx} + \theta_{ky}\theta_{lx}\theta_{zx} - \theta_{kx}\theta_{ly})} \quad (18)$$

$$\left(\frac{\hat{w}}{P_y^d}\right) = -\frac{\hat{p}\theta_{ky}(\theta_{ky} - \theta_{kx})}{(\theta_{ky}\theta_{lx} + \theta_{ky}\theta_{lx}\theta_{zx} - \theta_{kx}\theta_{ly})} \quad (19)$$

$$\left(\frac{\hat{w}}{P_x^d}\right) = -\frac{\hat{p}\theta_{kx}(\theta_{ky} - \theta_{kx})}{(\theta_{ky}\theta_{lx} + \theta_{ky}\theta_{lx}\theta_{zx} - \theta_{kx}\theta_{ly})} \quad (20)$$

$$\left(\frac{\hat{w}}{r}\right) = -\frac{\hat{p}[\theta_{ky}(\theta_{ky} - \theta_{kx}) + \theta_{ly}(\theta_{lx} - \theta_{ly} + \theta_{lx}\theta_{zx})]}{(\theta_{ky}\theta_{lx} + \theta_{ky}\theta_{lx}\theta_{zx} - \theta_{kx}\theta_{ly})} \quad (21)$$

$$\hat{p} = \hat{p}_y^d - \hat{p}_x^d = \hat{p}_y^d \quad ; \quad \hat{P}_x = 0 \quad \text{since } P_x = P_x^* \quad \text{in country B.}$$

It is possible to sign equations (17) to (21) given $\hat{P}_y^d > 0$ due to the tariff on good Y. Then, given the earlier factor intensity assumptions and their implications for the factor distributive shares, i.e. $\theta_{ky} > \theta_{kx}$ and $\theta_{lx} > \theta_{ly}$, it follows that:

$$\left(\frac{\hat{r}}{P_y^d}\right) > 0 \quad , \quad \left(\frac{\hat{r}}{P_x^d}\right) > 0 \quad , \quad \left(\frac{\hat{w}}{P_y^d}\right) < 0 \quad , \quad \left(\frac{\hat{w}}{P_x^d}\right) < 0 \quad , \quad \left(\frac{\hat{w}}{r}\right) < 0$$

Also, since the domestic price of X is given by the world price which is fixed, $\hat{P}_x^d = 0$. It follows from the above equations that the absolute wage falls, $\hat{w} < 0$ and the absolute rental rate rises, $\hat{r} > 0$ and from equation (16'), $\hat{P}_z < 0$.

Hence, when the Y sector is protected by a tariff, the return to capital used relatively intensively in that sector, rises in absolute, real, and relative terms while it falls

for labour. The return to services also falls in absolute and real terms. Thus, with trade liberalization or $\hat{p} < 0$, $(\hat{w} - \hat{r}) > 0$, $\hat{w} > 0, \hat{r} < 0$, and $\hat{P}_z > 0$. These results validate the Stolper-Samuelson theorem in the present setup.

4.2.2 Trade Policy and Production

The implications of trade policy for tradables production are next determined using the results obtained above for relative and absolute factor returns. The change in the output of a sector is expressed as the weighted average of the change in factors allocated to the sector, where the weights as before are the distributive shares (θ_{ij}) of the factors in the value of output by that sector. The following equations express the change in X, Y, and Z production in terms of the change in their factor inputs.

$$\hat{X} = \theta_{lx} \hat{L}_x + \theta_{kx} \hat{K}_x + \theta_{zx} \hat{Z}_x \quad (22)$$

$$\hat{Y} = \theta_{ly} \hat{L}_y + \theta_{ky} \hat{K}_y \quad (23)$$

$$\hat{Z} = \theta_{lz} \hat{L}_z + \theta_{hz} \hat{H}_z \quad (24)$$

Using the demand linkage functions from earlier in equations (12') and (16') one obtains :

$$\hat{Z}_x = \hat{f}(X) - \hat{P}_z = \hat{X} - \theta_{lx} \hat{w} \quad 27$$

Substituting for \hat{Z}_x into (22) yields:

$$\hat{X} = \frac{1}{(1 - \theta_{zx})} [\theta_{lx} \hat{L}_x + \theta_{kx} \hat{K}_x - \theta_{zx} \theta_{lx} \hat{w}] \quad (22')$$

²⁷ $\hat{f}(X) = \hat{X}$ follows from Cobb Douglas technology in X and $\hat{P}_x^d = 0$ follows from the SOE assumption.

In order to solve for the change in tradables production, the change in factor supplies allocated to the different sectors, namely, $\hat{K}_y, \hat{L}_y, \hat{K}_x, \hat{L}_x$ in the equations above are expressed in terms of the change in factor returns. Since the direction of the change in relative and absolute factor returns was determined earlier, expressing equations (22) to (24) in terms of these returns determines the qualitative change in production in the three sectors. The following series of substitutions are used for this purpose.

First, the change in endowments of the different factors is expressed as a weighted average of the change in the factor's allocation across the different sectors.

$$\hat{L} = \lambda_{lx}\hat{L}_x + \lambda_{ly}\hat{L}_y + \lambda_{lz}\hat{L}_z \quad (25)$$

$$\hat{K} = \lambda_{kx}\hat{K}_x + \lambda_{ky}\hat{K}_y \quad (26)$$

The weight λ_{ij} in the above equations represents the endowment share of factor i in the production of good j .

Then, denoting $\sigma_{i,j,k}$ as the elasticity of substitution between factors i and j in the production of good k , one obtains the following expressions.

$$\sigma_{K_x L_x} = \frac{\hat{K}_x - \hat{L}_x}{(\hat{w} - \hat{r})}, \quad \sigma_{K_y L_y} = \frac{\hat{K}_y - \hat{L}_y}{(\hat{w} - \hat{r})}$$

The above expressions for the elasticity of substitution are next used to derive equations for factor allocation in the X and Y sectors in terms of the change in relative returns to capital and labour. These derived expressions are substituted into equations (22') and (23) to obtain:

$$\hat{K}_y = \hat{Y} + \theta_{ly}\sigma_{K_y L_y}(\hat{w} - \hat{r}) \quad (27)$$

$$\hat{K}_x = \frac{(1-\phi\theta_{zx})}{(1-\theta_{zx})} \hat{X} + \frac{\theta_{lx}\sigma_{K_xL_x}(\hat{w}-\hat{r})}{(1-\theta_{zx})} \quad (28)$$

$$\hat{L}_y = \hat{Y} - \theta_{ky}\sigma_{K_yL_y}(\hat{w}-\hat{r}) \quad (29)$$

$$\hat{L}_x = \frac{(1-\phi\theta_{zx})}{(1-\theta_{zx})} \hat{X} - \frac{\theta_{kx}\sigma_{K_xL_x}(\hat{w}-\hat{r})}{(1-\theta_{zx})} \quad (30)$$

It can also be shown that :

$$\hat{L}_z = \hat{X} - \hat{w} \quad 28 \quad (31)$$

Finally, substituting the expressions obtained in equations (27) to (31) into the factor endowment equations (25) and (26), yields:

$$(\lambda_{lx} + \lambda_{lz})\hat{X} + \lambda_{ly}\hat{Y} = \hat{L} + \Delta_L(\hat{w}-\hat{r}) + \hat{w}(\lambda_{lz} - \frac{\lambda_{lx}\theta_{zx}\theta_{lz}}{(1-\theta_{zx})}) \quad (32)$$

$$\lambda_{kx}\hat{X} + \lambda_{ky}\hat{Y} = \hat{K} - \Delta_K(\hat{w}-\hat{r}) - \hat{w}\frac{\lambda_{kx}\theta_{zx}\theta_{lz}}{(1-\theta_{zx})} \quad (33)$$

where,

$$\Delta_L = \frac{\lambda_{lx}\theta_{kx}\sigma_{K_xL_x}}{(1-\theta_{zx})} + \lambda_{ly}\theta_{ky}\sigma_{K_yL_y} \quad \text{and} \quad \Delta_K = \frac{\lambda_{kx}\theta_{lx}\sigma_{K_xL_x}}{(1-\theta_{zx})} + \lambda_{ky}\theta_{ly}\sigma_{K_yL_y}$$

The closed form solutions for \hat{X} and \hat{Y} are then obtained in terms of $(\hat{w}-\hat{r})$ by noting that $\hat{L} = \hat{K} = 0$ in equations (32) and (33) above, due to the fixed domestic supplies of these factors. The solutions are provided in below in equations (34) and (35).

²⁸Since $\hat{Z}_x = \hat{Z}$ from equation (6), $\hat{H}_z = \hat{X} - \hat{w} = \hat{X}$ from equation (13'), and $\theta_{hz} + \theta_{lz} = 1$, it follows that: $\hat{X} - \theta_{lz}\hat{w} = \theta_{hz}\hat{H}_z + \theta_{lz}\hat{L}_z$.

$$\hat{X} = \frac{(\lambda_{ky}\Delta_L + \lambda_{ly}\Delta_K)(\hat{w} - \hat{r}) + \hat{w}[\lambda_{ky}\lambda_{lz} + \frac{\theta_{lz}\theta_{zx}}{(1-\theta_{zx})}(\lambda_{ly}\lambda_{kx} - \lambda_{ky}\lambda_{lx})]}{D} \quad (34)$$

$$\hat{Y} = \frac{-(\hat{w} - \hat{r})}{\lambda_{ky}}[\Delta_K + \frac{\lambda_{kx}}{D}(\lambda_{ky}\Delta_L + \lambda_{ly}\Delta_K)] - \frac{\lambda_{kx}\hat{w}}{\lambda_{ky}D}[\lambda_{ky}\lambda_{lz} + \frac{\theta_{zx}\theta_{lz}}{(1-\theta_{zx})}(\lambda_{ly}\lambda_{kx} - \lambda_{ky}\lambda_{lx})] \quad (35)$$

where,

$$D = \lambda_{ky}\lambda_{lx} + \lambda_{ky}\lambda_{lz} - \lambda_{ly}\lambda_{kx} > 0$$

A close examination of the closed form solutions in equations (34) and (35) indicates the impact of trade liberalization on tradables production and subsequently, on the demand for intermediate services and returns to the specific factor used in service production.

4.3 Discussion of Results

As shown earlier, trade liberalization increases the return to labour relative to capital, i.e. $(\hat{w} - \hat{r}) > 0$, $\hat{w} > 0$, $\hat{r} < 0$, and $\hat{P}_z > 0$. Given these results, equations (34) and (35) indicate that output in the tradables sectors may move in either direction upon removal of the tariff. Therefore, conditions need to be specified under which the X sector would expand and create incentives for FDI in the intermediate services sector.

Equation (34) can be rearranged to identify the separate impact of changes in the wage and rental rates on X sector output.

$$\hat{X} = \frac{\hat{w}}{D}[\lambda_{ky}\lambda_{ly}\sigma_{k,y,ly} + \lambda_{ky}\lambda_{lz} + \frac{\lambda_{ky}\lambda_{lx}}{(1-\theta_{zx})}(\sigma_{k,l,x}\theta_{lx} - \theta_{zx}\theta_{lz}) + \frac{\lambda_{ly}\lambda_{kx}}{(1-\theta_{zx})}(\theta_{zx}\theta_{lz} + \sigma_{k,l,x}\theta_{lx})] - \frac{\hat{r}}{D}(\lambda_{ky}\Delta_L + \lambda_{ly}\Delta_K)$$

From the above equation it is clear that the decline in the absolute return to capital after liberalization in country B has a positive effect on output in sector X. However, the increase in the absolute wage in country B, post-liberalization, has two opposite effects. By the usual channels, the removal of the tariff lowers the relative price of Y. This reduces the marginal value product of capital and labour in Y relative to X, causing resources to flow out of Y into X production, thereby contracting the former and expanding the latter.

A contractionary effect arises from the inter-industry linkage between X and Z sectors. Since the intermediate input Z required in exportables production also uses labour, the rise in the absolute wage raises P_z , the price of the intermediate good, maintaining the zero profit condition in that sector. This consequently raises production costs in the X sector and has a contractionary effect. The extent of this negative effect depends on two parameters, θ_z and θ_{zx} , the distributive shares of labour in Z production and of Z in X production, respectively. If these shares are small, then it is likely that the expansionary effect dominates the contractionary effect from the price of the intermediate good Z. The sufficient, though not necessary condition, under which $\hat{X} > 0$ following liberalization, is given by:

$$\sigma_{k_x l_x} > \frac{\theta_{zx} \theta_{lz}}{\theta_{kx}}$$

If $\sigma_{i_k i_l} \geq$ for all factors in all sectors, and the distributive share of Z in X production is lower than that of capital, then this condition holds regardless of the distributive share of labour in Z production. Alternatively, if no condition were imposed on the elasticity of substitution parameter, the above inequality would hold if the shares of labour in Z production and of Z in X production were small relative to the share of

capital in X production. The intuition is that the higher the labour intensity of Z production, the greater the effect of an increase in the wage rate on its price. Moreover, the higher the intensity of services usage in X production, the greater the impact of this increased price of Z for production costs in the X sector and the larger the contractionary effect on X production.

Implications for FDI in the Service Sector

Given technology in intermediates production and assuming expansion of the exportables sector under the factor share conditions discussed above, the implications are clear for FDI in intermediate services. As shown earlier:

$$\hat{H}_z = \hat{X} - \hat{v} = \hat{X} \text{ since } v=v^*.$$

This implies that resource availability of the service sector specific input rises when the X sector expands. Since the domestic endowment of H is fixed, its increased availability reflects a resource inflow from the rest of the world into country B, i.e. FDI in the service sector of country B. Hence, this result demonstrates that trade liberalization can induce FDI into service production due to inter-industry demand linkages between final and intermediate sectors.

Implications for service production

It is also important to consider the impact of trade liberalization in this model on service production. It was derived earlier that :

$$\hat{Z} = \hat{X} - \theta_z \hat{w}$$

The above equation indicates that the impact of liberalization on output in the Z sector may be contractionary or expansionary. Assuming an expansion of the X sector from above, there is a positive impact on Z production due to the derived demand for services as an input into X production. However, the rise in the wage rate has a contractionary effect on service production, due to the negative effect on labour demand in the intermediate sector. The net impact on Z production depends as before on the distributive share of labour in its production. The higher this share, the greater the contractionary effect. The necessary and sufficient condition for the Z sector to expand is given by :

$$\hat{X} > \theta_{lz} \hat{w}.$$

Alternatively, the ambiguous impact of trade liberalization on Z sector production can be understood in terms of factor movements. According to equation (31),

$$\hat{L}_z = \hat{X} - \hat{w}.$$

If $\hat{X} > \hat{w}$ then clearly $\hat{L}_z > 0$. It has been established that $\hat{H}_z > 0$ when $\hat{X} > 0$. Hence, both inputs into Z production rise. Thus, the service sector necessarily expands. However, if labour allocated to the Z sector falls, then service production may decline or increase depending on the intensity of use of labour versus the specific factor H in the production process.

Therefore, interestingly, although trade liberalization can induce FDI into service production, this inflow of resources does not necessarily translate into the expansion of service production, due to offsetting effects from factor prices and intersectoral movement of factors. However, with the earlier mild condition of low labour share in Z

production, it is likely that services will expand in response to increased derived demand from exportables production in this model.

The preceding model demonstrates how trade policy can affect incentives for foreign direct investment in intermediate services. The main result is that if exportables are more intensive in the use of producer services than the import-competing sector and if the exportables sector expands following trade liberalization (which depends on certain factor share and substitutability conditions in this model), then there is increased demand for service sector specific inputs. Given limited domestic endowment of this input and international mobility of the factor, the increased demand is met by inflows of this resource from the rest of the world. These inflows are driven by return differentials to the input between the host country and the rest of the world. Thus, trade in final goods and investment in intermediate services , can be complementary phenomena.

4.4 Additional Considerations

As noted earlier, this model does not address the piggy-backing motivation for FDI. It directly links service sector investment to changes in the profitability of service production resulting from changes in final exportables production, bypassing the link between service FDI and export-oriented manufacturing FDI. However, introducing this additional causal link would not change the basic point that demand linkages from goods to services act as an incentive for FDI in producer services and that trade policy can be a relevant channel for driving this effect.

One also needs to note the relevance of this model to the case of regional integration. Although the model considers trade orientation in a global sense, i.e. vis a vis the world as affected by changes in unilateral trade policy, it can be easily adapted to

study the impact of trade orientation on FDI, in the regional sense, i.e. due to changes in trade policy from integration into a customs union or a free trade area.

Several realistic extensions of this model are also possible. One such extension would be to allow for the use of producer services in both export and import sector industries. Many producer services such as distribution and marketing services or financial services are important in the domestic sales, distribution, and marketing of imports. Since trade liberalization causes an increase in the volume of trade (both exports and imports), it can be a source of increased demand for intermediate services from the general expansion in exporting, importing, and related opportunities.

Another extension would be to consider the nontradables sector as one comprising of producer services as well as other industries. Such a construct would allow for intermediate consumption by the nontraded sector of its own inputs and therefore create additional sources of demand for producer services in the economy than solely from tradables production. In such a model, service sector investment could be driven by internal and external market opportunities, i.e. through exports, imports, and service-intensive components of the nontraded sector.

5. A Case Study of Spain

This section examines the empirical evidence on the link between trade orientation and FDI in intermediate services for the case of Spain. The case study demonstrates that Spain's entry into the EC in 1986 and the associated changes in its trade orientation at the time affected incentives for overall FDI in the country as well as specifically in its producer service industries.

The case study approach was selected due to various problems associated with empirical work that tries to integrate the theory of preferential trading and geographic discrimination with the theory of international production. Empirical work in this area suffers from a lack of appropriate data of adequate quality as well as problems in specifying appropriate statistical methods to isolate the impact of changes in the tariff structure from other determinants of FDI flows.²⁹ Hence, most studies of this nature consider the experience of individual countries.

The analysis is restricted to an in-depth study of one country, Spain, due to the difficulties involved in accounting for country-specific factors for many countries. However, it must be noted that while the conclusions drawn are not claimed to be universally applicable, they are also not meant to be exclusive to the case of Spain alone. The idea is to demonstrate that the hypothesis may be relevant to countries with trade liberalization experiences similar to that of Spain.

The choice of country was dictated by two reasons. The first reason was the broader relevance of the main hypothesis to Spain. The latter country has undergone a significant change in its trade orientation due to its membership in the EC with considerable reductions in its tariff and nontariff barriers as well as many structural and institutional changes. Spain has also experienced a large increase in FDI in recent years. The second reason for selecting Spain is that the time of its entry allows sufficient number of years in the pre- and post-integration periods to draw meaningful results.

5.1 Methodology of Analysis

The analysis consists of two parts. The first part establishes that Spain meets two important conditions of the theoretical model; one, that the factor intensity of service usage in exportable sector industries in Spain is greater than that in import-competing

²⁹Gravity type models of trade flows use dummy variables to capture the impact of trade preferences on FDI flows.

industries, and two, that Spain has undergone significant trade liberalization and change in its trade orientation. The first condition is demonstrated using input-output analysis and the second condition is established using information on protection rates and changes in the geographic composition of Spain's trade flows.

The second part of the analysis examines FDI trends in Spain. In particular, it examines changes in the total and sectoral volume and composition of US FDI in Spain before and after the country's entry into the EC in 1986. The aim is to identify any breaks in inward FDI trends around 1986 in order to determine if integration affected the overall and service sector-specific incentives for FDI in the country. Spain's relative importance as a host country for US FDI at the global and at the regional EC-wide levels is also discussed briefly. Finally, the role of country-specific factors is examined.

5.2 Data Sources and Problems

Data were obtained from primarily three sources. US-specific FDI data were obtained from the US Department of Commerce's Annual and Benchmark Surveys of *US Direct Investment Abroad*, from 1983 to 1989. Input-output analysis was conducted using input-output tables available at the three digit level of industry classification for the years 1985, 1986, and 1987. These tables were obtained from the *Contabilidad Nacional de España, Base 1985, Serie Contable 1985-89*, published by the Instituto Nacional de Estadística of Spain. The tables contained detailed matrices providing information on the direct as well as total (direct plus indirect) use of inputs across all industries in the Spanish economy. The tables also provided detailed industry level gross and net output, intermediate consumption, and value added data. In addition to these official tables, annual OECD surveys of Spain as well as the *Anuario Estadístico, España, 1987* (Statistical Yearbook of Spain) were used in various parts of the analysis.³⁰

³⁰The OECD surveys were used for general information on FDI and trade flows and the 1987 Statistical Yearbook for Spain was used to determine import and export sector industries in the input-output analysis. The use of the latter is explained in detail later in this section.

Most of the data problems arose in the process of collecting FDI data for Spain. FDI data were not available on a time-series basis at the level of disaggregation desired. For instance, data on inward FDI for Spain did not provide sufficient detail by industry of destination. Also, inward FDI data were primarily available for stocks and flows and not for a larger variety of FDI indicators like plant, property, and equipment, sales, and employment. Although outward data to Spain were found to be a more reliable source of information, sufficient industry-level breakdown for the desired period was available only for the US. Hence, the statistical analysis was conducted with US data only.³¹ However, since the data obtained were still not sufficient for doing rigorous regression analysis, basic tools of statistical inference such as rates of change, shares, observed correlation among variables, and supplementary case-study based information were used to analyse FDI trends in Spain.³²

5.3 Producer Service Intensity in Spain's Production

A fundamental condition of the model presented in section 4 was that producer services were used more intensively in the export sector relative to the import sector. Since the relevance of this model is being examined for the case of Spain, it is important to first determine whether this condition holds for Spain. For this purpose, factor content and intensities of service usage were calculated for the export and import sectors of the Spanish economy using the 1985, 1986, and 1987 input-output tables for the country.

³¹This may raise questions regarding the general validity of the results obtained. However, the results are significant given that the US has been one of the major investor countries in Spain for more than two decades. See, Baklanoff (1978), Table 4.1, pp.43-45.

³²Regressions of overall and sector-specific FDI in Spain on various trade policy and orientation measures like tariff rates and indices of openness yielded very weak results and had low degrees of freedom since data quality was poor and data were missing for many of the years required.

4.3.1 Selecting Export and Import Sector Industries

The first step in the input-output calculations consisted of assigning the industries listed in the input-output tables to the export and import sectors. Classification of these industries under exportables or importables was done on the basis of their net export values using the following methodology.

First, data on the value of exports and imports were obtained for the industries contained in the input-output tables. The primary source of this information was the 1987 Statistical Yearbook for Spain which provided values of imports and exports at a highly disaggregated industry level.³³ The industries listed in the Yearbook were then aggregated along with their corresponding values of exports and imports, to fit the industries listed in the input-output tables.³⁴

Next, the export figures for these aggregated industries were adjusted for the trade balance condition, i.e. that the value of total exports equals the value of total imports at the economy-wide level. The adjustment consisted of determining the percentage difference between total exports and imports and then adding that percentage to the individual industry's export figure in case of an overall trade deficit and subtracting that percentage from the individual industry's export figure in case of an overall trade surplus. For instance, if total exports exceeded total imports by 9 percent, then the export figures for each of the industries in the input-output table were adjusted downwards by 9 percent. Conceptually, the reason for this adjustment was to prevent under or overestimation of the value of exports or imports for individual industries in case of a particular year when

³³See *Anuario Estadístico, España, 1987*, Table 1.3.2, pp.228-242.

³⁴Since in addition to the detailed industry breakdown of imports and exports, a broader sectoral breakdown of export and import values was also provided in the Yearbook, the correspondence was easily established across the two sources.

trade was highly unbalanced, as this in turn would bias the assignment of industries and therefore the factor content calculations towards one tradable sector or the other.³⁵

For all three years considered in the input-output analysis (1985-87), the trade balance was in surplus. The figures are provided in the table below.

Table 3 : Exports and Imports of Goods and Services in Spain for 1985-87 (mns of pesetas)

	Exports	Imports
1985	6407	5860
1986	6406	5716
1987	6995	6935

Source: Instituto Nacional de Estadística, *Contabilidad Nacional de España, Base 1985, Serie Contable 1985-89*, Madrid.

Based on the overall export and import figures above, downward adjustments of 9.3 percent, 12.1 percent, and 0.8 percent were made to the export figures of each industry in the input-output tables for the years 1985, 1986, and 1987 respectively.

Following this adjustment, the net export values were calculated for each of the industries. If adjusted net exports were positive, then an industry was classified under exportables and if adjusted net exports were negative, the industry was classified under importables.³⁶ Table 4 shows the sector-wise assignment of the industries listed in the input-output tables including those classified as producer services in this analysis. All remaining industries were grouped under the term "other industries".

³⁵The need for this adjustment was essentially due to an aggregation problem in classifying industries. The fact that both exports and imports were observed for each of the industries listed in the tables probably reflected cross hauling within industries which could not be picked up in the aggregated industry classification used in the tables.

³⁶The assignment of industries to exportables or importables remained the same when one did not adjust for the trade balance condition and simply took the value of net exports for each industry. This was because trade was roughly balanced for the three years considered and because the demarcation between exportables and importables was readily apparent from the export-import figures themselves. This fact was also reflected by the consistent assignment of industries to the two sectors across all three years.

Table 4 : Industry Breakdown from Input-Output Tables for Spain, 1980

Sector	Description of Industry and 3 Digit Industry Code
Export Sector	Agriculture, forestry, and fishing products (010), Metal products except machinery and transport equipment (190), Office and data processing machines, precision and optical instruments (230), Electrical goods (250), Motor vehicles (270), Other transport equipment (290), Beverages (370), Textiles and clothing (410), Leathers, leather and skin goods, footwear (430), Paper and printing products (470), Rubber and plastic products (490), Other manufacturing products (510)
Import Sector	Coal, lignite, and briquettes (030), Products of coking (050), Crude petroleum, natural gas, and petroleum products (070), Ferrous and non-ferrous metals and ores (130), Non-metallic mineral products (150), Chemical products (170), Agricultural and industrial machinery (210), Meats, meat preparations, preserves, and other animal products (310), Milk and dairy products (330), Other food products (350), Tobacco products (390), Timber, wooden products, and furniture (450)
Producer Services	Building and construction (530), Recovery and repair services (550), Wholesale and retail trade (570), Lodging and catering services (590), Inland transport services (610), Maritime and air transport services (630), Auxiliary transport services (650), Communication services (670), Services of credit and insurance institutions (690), Business services provided to enterprises (710), Services of renting of immovable goods (730)
Other Industries	Electric power, gas, steam, and water (090), Market services of education and research (750), Market services of health (770), Recreational and cultural services, personal services, and other market services (790), General public services (810), Non-market services of education, research provided by government and private non-profit institutions (850), Non-market services of health provided by government and private non-profit institutions (890), Domestic and other non-market services (930).

Source: United Nations, *National Accounts Statistics: Study of Input-Output Tables , 1970-80* , New York, 1987, p.252.

4.3.2 Input-Output Analysis

Based on the above classification of industries under exportables and importables, the input-output tables for 1985-87 were used to calculate the direct as well as total (direct plus indirect) input requirements of producer services as a percentage of value

added and as a percentage of net output (gross output less intermediate intra-industry consumption) in each of the two sectors.³⁷

The direct input requirements for producer services in each sector were calculated using the absorption matrices in the input-output tables.³⁸ An entry a_{ij} of the absorption matrix represents the value of direct input demand for industry i 's output by industry j . Therefore, to calculate the direct intermediate demand for producer services by a particular sector, the absorption values for all the selected producer services listed in Table 4 were summed up over all the industries comprising that sector.

$$\text{Direct demand for producer services by sector } W = \sum_j \sum_i a_{ij} \quad ;$$

a_{ij} = direct input demand for industry i 's output by industry j

i producer services

$j \in W$ and W represents the export or import sector.

Direct plus indirect input requirements of producer services for the export and import sectors were also calculated using the Leontief inverse matrix, $(I-A)^{-1}$ provided in the input-output tables.³⁹ The matrix $(I-A)^{-1}$ represents the total input-output structure of

³⁷ There is some debate about the use of direct versus direct plus indirect input requirements in the estimation of factor content. Estimates for both cases are presented in this section. The rank ordering of factor content remains the same across the two cases, as shown later. Since it is the ranking of factor intensities in the use of services that is important for establishing the hypothesis rather than the actual magnitude of this intensity, a basic condition of the hypothesis remains valid whether one uses direct or total input demand. A detailed discussion of the conditions under which direct versus total input needs should be used is provided in Carl Hamilton and Lars Svensson in *Weltwirtschaftliches Archiv*, 119 (1983), pp.453-464. The article concludes that gross input requirements are relevant for predicting the pattern of trade flows and should be used when there are nontraded intermediates while direct input requirements are relevant for explaining the allocation of production across countries and are sufficient when all goods including intermediate inputs are traded.

³⁸ Absorption values were obtained from *Contabilidad Nacional de España, Serie Contable 1985-89*, Table "Demanda Intermedia".

³⁹ See *Contabilidad Nacional de España, Serie Contable 1985-89*, Table "Matriz Inversa". The matrix A is the technical coefficients matrix. An entry a_{ij} of this matrix represents the direct input requirement of the output of industry i needed to produce a unit value of gross output in j . Gross output is defined as final

the economy. An entry a_{ij} of the inverse matrix represents the value of direct and indirect output of industry i needed to produce a unit value of net output (also termed final demand) in industry j .⁴⁰ For instance, if i represents electric energy and j represents the steel industry, then the coefficient a_{ij} of the inverse matrix represents the direct deliveries of electricity to the steel industry as well as the indirect deliveries of electricity channeled through all other industries whose outputs are used in steel production, to produce a dollar's worth of steel.

Total intermediate demand for producer service inputs for the export and import sectors was calculated using the following methodology. First, the coefficients corresponding to the producer service industries were summed for each of the industries falling within a particular sector. For instance, in calculating gross input demand for producer services by the export sector, the coefficients for all the selected producer services listed in Table 4 were added for each of the industries assigned to the export sector. This gave the total input requirement of all producer services for a unit value of net output by each export sector industry. Next, the coefficient sum for each industry was multiplied by the net output of that industry to obtain the latter's total input demand for producer services.⁴¹ This calculation was done separately for all the industries comprising the export sector. The total values for intermediate demand were then added

demand or deliveries in j plus intermediate consumption by industry j of its own output. See, Leontief (1986), pp. 41-48 for a detailed discussion of the technical coefficients matrix and its use in input-output analysis.

⁴⁰A column of the inverse matrix represents the gross output from each sector required to produce a unit value of final output of the industry corresponding to that column. Therefore, to obtain the total input requirements for producing a given amount of final output (demand), say in industry 1, one would simply multiply the final output value for industry 1 by column 1 of the inverse matrix. See, *Contabilidad Nacional de España, Base 1985, Cuentas Nacionales y Tabla Input-Output 1985*, pp.147-49 for a discussion of the Leontief inverse matrix and the derivation of total intermediate demand for an industry. Also, see Chapters 2 and 3 of Yan (1969) for the derivation and interpretation of this matrix.

⁴¹Net output figures were provided in *Contabilidad Nacional de España, Serie Contable 1985-89*, Table "Demanda Final".

up over all of the industries belonging to the export sector in order to get the total input demand for producer services by the export sector. Algebraically, the calculations are summarized in the equation below.

Total intermediate demand for producer services by sector W

$$= \sum_j [(\sum_i a_{ij}) \text{Net output in industry } j] \quad ;$$

$$a_{ij} \in (I - A)^{-1}$$

$i \in$ producer services

$j \in W$ and W is the export or import sector.

Direct and total input demand for producer services were calculated for the export and import sectors for the years 1985, 1986, and 1987. Following this, value added and net output of the export and import sectors were derived by aggregating the industry-level value added and net output data for each of the two sectors.⁴² The producer service intensity in exports and imports was then estimated in two ways; first as the ratio of the input demand (direct and total) for producer services by each sector to total value added of that sector, and second, as the ratio of input demand to the value of net output or final demand of that sector. The factor intensity results for the case of direct as well as total input demand are presented in Tables 5 and 6, respectively.

⁴²Value added data were obtained from *Contabilidad Nacional de España, Serie Contable 1985-89*, Table "Cuentas de Produccion y Explotacion por Ramas de Actividad".

Table 5: Factor Intensity of Producer Services in Exports and Imports using Direct Input Demand (mns of pesetas)

	Intermediate Demand ^{a/}	Net Output ^{b/}	Value Added ^{c/}	% of Net Output ^{d/}	% of Value Added ^{e/}
1985					
Export	1033518	6343860	4164191	16.3%	24.8%
Import	1077927	7659511	5309242	14.0%	20.4%
1986					
Export	1126624	6750243	4792118	16.7%	23.5%
Import	1032978	7287438	5715625	14.2%	18.1%
1987					
Export	1278542	7348229	5534813	17.3%	23.1%
Import	1128169	7954218	6313611	14.7%	17.9%

Source: Instituto Nacional de Estadística, *Contabilidad Nacional de España, Base 1985, Serie Contable 1985-89 y Tabla Input-Output* for 1985, 1986, and 1987, Madrid.

a/ Direct input demands were calculated using the intermediate demand tables (Demanda Intermedia) of the respective input-output tables for 1985, 1986, and 1987.

1985: Table 7.1, pp. 206-43.

1986: Table 5.1, pp.206-45.

1987: Table 5.1, pp. 190-229.

b/ Net output figures were obtained from the final demand tables (Demanda Final) of the respective input-output tables for 1985, 1986, and 1987.

1985: Table 7.2, pp. 248-57.

1986: Table 5.2, pp. 248-57.

1987: Table 5.2, pp. 232-41.

c/ Value added figures were obtained from the production tables (Cuentas de producción y Explotación por Ramas de Actividad) in the 1987 input-output tables.

1985: Table 6.1.1, pp. 362-65.

1986: Table 6.1.2, pp. 366-69.

1987: Table 6.1.3, pp. 370-73.

d/ Factor intensity was calculated as the ratio of intermediate demand to net output of a sector.

e/ Factor intensity was calculated as the ratio of intermediate demand to value added of a sector.

Table 6: Factor Intensity of Services in the Export and Import Sectors using Direct plus Indirect Input Demand (mns of pesetas)

	Intermediate Demand ^{a/}	Net Output ^{b/}	Value Added ^{c/}	% of Net Output ^{d/}	% of Value Added ^{e/}
1985					
Export	1748941	6343860	4164191	27.6%	41.9%
Import	1681097	7659511	5309242	21.9%	31.7%
1986					
Export	1853878	6750243	4792118	27.5%	38.7%
Import	1609014	7287438	5715626	22.0%	28.1%
1987					
Export	1958341	7348229	5534813	26.6%	35.3%
Import	1662431	7954218	6313611	20.9%	26.3%

Source: Instituto Nacional de Estadística, *Contabilidad Nacional de España, Base 1985, Serie Contable 1985-89 y Tabla Input-Output* for 1985, 1986, and 1987, Madrid.

a/ Total input demands were calculated using the inverse matrix (Matriz Inversa) and the final demand (Demanda Final) tables in the respective input-output tables for 1985, 1986, and 1987.

Inverse matrix

1985: Table 7.5, pp. 320-59.

1986: Table 5.5, pp. 304-43.

1987: Table 5.5, pp.320-59.

Final Demand

1985: Table 7.2, pp. 248-57.

1986: Table 5.2, pp. 248-57.

1987: Table 5.2, pp. 232-41.

b/ Net output figures were obtained from the final demand tables (Demanda Final) of the respective input-output tables for 1985, 1986, and 1987. (See a/ above.)

c/ Value added figures were obtained from the production tables (Cuentas de Produccion y Explotacion por Ramas de Actividad) in the 1987 input-output tables.

1985: Table 6.1.1, pp. 362-65.

1986: Table 6.1.2, pp. 366-69.

1987: Table 6.1.3, pp. 370-73.

d/ Factor intensity was calculated as the ratio of total input demand to net output of a sector.

e/ Factor intensity was calculated as the ratio of total input demand to value added of a sector.

The results presented above indicate that for all three years considered, export sector industries used producer services more intensively than import sector industries, with intensity measured in terms of value added and net output. Moreover, the rank

ordering did not change whether one used direct or total input requirements in the calculations although the difference in factor intensities was more significant in the case of total input demand. Therefore, on the basis of the relative factor intensities derived above, if trade policy liberalization were to cause an expansion of the exportables sector and a contraction of the importables sector, one would expect a net positive impact on intermediate demand for producer services due to the more producer service-intensive nature of exportables production. Hence, the input-output analysis establishes that the structure of intermediate demand linkages between final goods and producer services in Spain is relevant to the hypothesis under discussion.⁴³

Similar calculations in terms of direct and total input demand were also done for the producer service industries, the group "other industries" in Table 4, and the nontraded sector (producer services + other industries).⁴⁴ The factor intensity results in terms of net output and value added for direct and total input demand are summarized in the Table 7.

⁴³Similar calculations were also attempted for Portugal since the initial aim was to conduct this analysis for both the Iberian economies. However, the intermediate consumption data for Portugal were very poor. Furthermore, since the FDI data for Portugal was missing for many of the years required, the entire analysis could not finally be done for this country.

⁴⁴ The nontradables sector was broken down into producer services and other industries in estimating factor intensities due to the highly varied nature of the industries that comprised this sector. The "other industries" category which contained research, health, and other government provided services were not found to be very intensive in their use of producer services. Producer services on the other hand, particularly commerce-related services, communication, and transportation consumed a large part of their own output as inputs, as is reflected in the higher factor intensity of this group. The distinction between the two sets of industries within the nontraded sector was also necessary since it is really the latter group that is being considered in this paper and which has experienced the growth in FDI.

Table 7: Factor Intensity of Producer Services in Nontraded Sector Industries (%)

Sector	% of Net Output			% of Value Added		
	1985	1986	1987	1985	1986	1987
Producer Services						
Direct demand	22.5	21.6	21.7	23.8	23.4	23.0
Total demand	30.6	27.3	30.4	32.4	29.6	32.3
Other Industries						
Direct Demand	10.4	10.5	10.8	12.8	12.8	13.4
Total Demand	14.2	13.3	15.2	17.5	16.3	18.8
Nontradables^{a/}						
Direct Demand	19.0	18.4	18.5	21.0	20.6	20.5
Total Demand	25.8	23.3	26.0	29.0	26.1	28.7

Source: Instituto Nacional de Estadística, *Contabilidad Nacional de España, Serie Contable, 1985-89*, Madrid.

a/ Nontradables consists of producer services and other industries.

The service sector calculations revealed that producer services are quite intensive in the use of their own output, in terms of both direct and total input demand.⁴⁵ This has important implications for the hypothesis under consideration. It suggests that in addition to the initial impetus to service demand from the expansion of exportables production, there is scope for an internal dynamic to service demand in the Spanish case, i.e., via input demand generated by service production itself.⁴⁶

⁴⁵It is a well known fact that services tend to use a large share of their own inputs in production. See, discussion on inter-industry linkages in UNIDO (1992/93).

⁴⁶The results presented on factor intensity must be qualified by noting some of the conceptual limitations in input-output analysis. Since input-output coefficients are given in value terms, different linkage effects may arise for the same physical interrelationships depending on the structure of relative prices. Differences in input coefficients may reflect differences in product mix rather than in production technology. The assumption of linear homogeneous production precludes the possibility of scale economies in inter-industry linkage effects. Finally, linkage measures are sensitive to the level of sectoral aggregation.

5.4 Trade Liberalization in Spain

Spain also meets the hypothesis' requirement of a country that has undergone significant trade liberalization and changes in its trade orientation. Prior to integration, Spain was one of the most protected economies in OECD Europe. Its 15 percent share of foreign trade was one-third less than the EC average. Its nominal and effective rates of protection stood at 15.1 percent and 24.7 respectively, compared to the EC's common external nominal and effective tariff rates of 4.9 and 4.1 percent respectively.⁴⁷

Despite the reduction of tariff barriers and quantitative restrictions on Spanish exports to the EC in the 1970s under earlier preferential agreements, Spain's exports to the Community were very low prior to integration. According to the 1990/91 OECD survey, this was probably due to the negative effects of induced import substitution. A relatively high correlation was found between Spanish protection rates and the country's revealed comparative advantage, indicating that trade policy affected the country's export and import structure and had a negative effect on its orientation towards exports.

The 1990/91 OECD survey indicates that Spain's trade orientation has changed significantly since 1986. In the first three years of its integration, almost 40 percent of the difference between Spanish tariffs and the EC's common external tariff was dismantled with significant reductions in quotas and other nontariff barriers. Although these reductions have been greater on imports from EC countries, covering upto 80.5 percent of imports from the EC by 1989, adoption of EC tariff rates has generally meant a reduction in Spain's overall protection level due to its high pre-1986 protection rates. These changes in Spain's trade policy are also reflected in changes in the regional and product composition of Spanish trade. Table 8 reflects the trade creation and diversion effects of integration and the redirection of Spanish trade towards EC countries.

⁴⁷ *OECD Survey of Spain, 1990/91.*

Table 8: Geographic Composition of Spanish Trade (non energy), percentage shares

	Imports		Exports	
	1985	1989	1985	1989
Total non-energy trade (goods)				
EC	53.9	63.6	51.8	68.3
US	14.9	9.8	9.5	6.6
OECD	82.1	86.5	70.3	82.6
Latin America	7.0	3.4	4.2	3.2
Rest of the World	10.9	10.1	25.5	14.2
Food Trade				
EC	22.0	45.5	56.3	68.2
US	28.1	14.4	9.1	6.4
OECD	55.2	65.1	79.1	86.5
Latin America	29.2	16.7	1.4	1.3
Rest of the World	15.6	18.2	19.5	12.2
Manufacturing Trade				
EC	65.4	68.4	50.2	68.5
US	12.5	9.1	9.9	6.9
OECD	93.1	91.7	68.0	82.0
Latin America	1.2	0.9	5.0	3.8
Rest of the World	5.7	7.4	27.0	14.2

Source: *OECD Survey of Spain*, 1990/91, Table 16, p.59.

5.5 Results of Statistical Analysis

A close examination of the pre- and post-integration evidence on total, manufacturing, and services FDI in Spain yields the following results.

Growth Rate of Overall FDI in Spain

Total inward direct investment in Spain grew rapidly after 1986. Between 1980 and 1985, the total volume of FDI in Spain rose only slightly from \$0.9 billion to \$1 billion. However, between 1986 and 1990, it grew more than tenfold, doubling to \$2 billion from 1985 to 1986, more than doubling to \$4.5 billion in 1988, and rising to \$10.7 billion by 1990. The share of FDI in Spain's GDP increased from an average of 1.1

percent in the 1982-85 period to almost 3 percent in 1989.⁴⁸ The rapid growth of FDI, especially after 1986, is also evident for US firms in Spain.

Table 9: Annual and average growth rates of various investment measures for US FDI in Spain (percent)

Year	Number of affiliates	Annual Growth Rate	
		Net Property, Plant, Equipment	Sales
1983-84	- 1.2	6.4	0.8
1984-85	1.5	7.9	11.2
1985-86	1.2	21.1	29.6
1986-87	2.4	20.9	32.6
1987-88	4.9	6.5	12.5
1988-89	21.3	16.3	11.9
Period	Average Annual Growth Rate		
1983-86	0.5	7.5	13.9
1986-89	9.5	14.2	19.0

Source: Estimated using data from US Department of Commerce, Annual and Benchmark Surveys, *US Direct Investment Abroad*, 1983-89.

Table 9 shows total FDI by US firms in Spain for selected investment measures. The annual growth rate of US sales and net property, plant, and equipment peaked around the time of integration, in the years 1985-86 and 1986-87, and remained high in subsequent years. The growth rate for the number of affiliates doubled from 1.2 percent in 1985-86 to 2.4 percent in 1986-87 and further doubled and quadrupled in 1987-88 and 1988-89 respectively. The average annual growth rate for total FDI also increased significantly for all measures during the 1986-89 period, increasing more than ten fold for the number of affiliates and almost doubling for net property, plant, and equipment. Hence, there appears to be a stimulus to FDI following Spain's entry into the EC.

⁴⁸ *OECD Survey of Spain*, various years.

Changes in the origin of FDI projects in Spain before and after 1986, also suggest the significance of Spain's integration with the EC for overall FDI in the country.

Table 10: Source of FDI in Spain (percentage shares)

Country of origin of FDI Projects	1984-85	1986-89
EC countries	38.4	52.0
Netherlands	7.3	16.5
UK	7.5	10.1
France	8.2	9.4
Germany	10.5	8.7
US	18.4	4.9
Foreign companies in Spain	12.9	25.3
Other countries	30.3	17.8
Total	100.0	100.0
Cumulative FDI (Bns \$s)	3.3	26.5

Source: *OECD Survey of Spain, 1990/91, Table 19, p.64.*

Table 10 shows that cumulative FDI in the EC grew almost nine fold in the 1986-89 period relative to the pre-integration year and that most of this increase originated in the EC countries. The shift towards intra-EC type FDI indicates that regional-integration related factors are relevant for understanding the general growth of FDI in Spain.

Growth Rates of Sectoral Investment

The impact of Spain's regional integration on US FDI in that country at the sectoral level is presented in the tables below. Annual and average growth rates of US FDI in manufacturing, trade-related services, financial services, and other services are provided. The FDI measures vary across sectors depending on their relevance to each sector. A brief analysis of the trends follows each table.

Growth of US FDI in Manufacturing

Table 11: Annual and average growth rates of US FDI in Spain's manufacturing sector (percent)

Year	Annual Growth Rate		Period	Average Growth Rate	
	Net Property, Plant, Equipment	Sales		Net Property, Plant, Equipment	Sales
1983-84	9.4	1.3	Before (1983-86)	9.6	13.6
1984-85	11.9	10.4			
1985-86	26.2	29.1			
1986-87	24.5	28.6	After (1986-89)	16.6	16.6
1987-88	9.7	12.5			
1988-89	15.5	8.7			

Source: Estimated using data from US Department of Commerce, Annual and Benchmark Surveys, *US Direct Investment Abroad*, 1983-89.

Like total investment, the annual growth rate of manufacturing investment by US firms rose significantly around 1986 for both measures provided. The average annual growth rate also increased in the post-integration years, by a little less than two times for net property, plant, and equipment, and by over 20 percent for sales. Thus, again there is some evidence of a break point around the time of integration, though the shift in growth rates is not as large as in the case of total FDI.

Growth of US FDI in Trade-related Services

Table 12: Annual and average growth rates of US FDI in trade-related services (percent)

Year	Annual Growth Rate			Average Growth Rate			
	Sales	Employment	Assets	Period	Sales	Employment	Assets
1983-84	3.8	- 1.3	- 1.7	Before (1983-86)	20.5	5.8	25.1
1984-85	17.6	12.9	36.4				
1985-86	40.2	5.7	40.6				
1986-87	53.6	34.7	55.4	After (1986-89)	33.9	17.9	32.4
1987-88	23.2	1.6	11.0				
1988-89	24.8	17.5	30.9				

Source: Estimated using data from US Department of Commerce, Annual & Benchmark Surveys, *US Direct Investment Abroad*, 1983-89.

Table 12 shows that trade-related services experienced significant increases in their annual growth rate throughout the 1983-89 period. The peak growth rate years are again in the 1985-86 and 1986-87 years, immediately preceding and following integration. The post-entry years, in all but one case, show sustained high growth rates ranging from about 10 percent to over 50 percent. The average annual growth rate also increased considerably in the post-integration period, by more than 200 percent for employment and by about 65 percent for sales. A comparison with the growth rates for overall and manufacturing FDI in the previous tables indicates that trade-related services experienced greater growth in FDI through this entire period and especially from about 1986. This may indicate that the sectoral composition of FDI moved in favour of this sector following integration, an issue that is examined later.

Growth of US FDI in Finance-related Services

Table 13: Annual and average growth rates of US FDI in finance-related services in Spain (percent)

Year	Annual Growth Rate		Period	Average Growth Rate	
	Assets	Local Sales		Assets	Local Sales
1983-84	20.1	19.2	1983-86	61.5	28.8
1984-85	56.9	22.6			
1985-86	107.6	44.7	1986-89	95.5	50.5
1986-87	151.8	72.7			
1987-88	139.2	36.8			
1988-89		41.9			

Source: Estimated using data from US Department of Commerce, Annual and Benchmark Surveys, *US Direct Investment Abroad*, 1983-89.

Although both investment measures for financial services grew rapidly during this entire period, their growth rates nearly doubled immediately after integration and remained very high in subsequent years.⁴⁹ The average annual growth rate also increased considerably for both measures in the post-integration period, increasing by more than 50 percent for assets and by 75 percent for local sales. Thus, despite the general upward trend in the growth rate of financial services FDI, a break is evident around 1986. As with trade-related services, this break is more significant than in the case of manufacturing investment.

⁴⁹It must be noted that the large annual changes in financial sector investment partly reflect the low volume of US FDI in this sector of the Spanish economy so that any change is from a small base value.

Table 14: Annual and average growth rates of US FDI in other services in Spain (percent)

Year	Annual Growth Rate		Average Annual Growth Rate		
	Sales	Employment	Period	Sales	Employment
1983-84	2.8	- 1.2	1983-86	7.3	- 7.9
1984-85	-13.4	- 35.3			
1985-86	32.5	12.7	1986-89	-7.9	10.2
1986-87	-12.4	- 1.6			
1987-88	5.0	- 6.5			
1988-89	70.6	38.6			

Source: Estimated using data from US Department of Commerce, Annual and Benchmark Surveys, *US Direct Investment Abroad*, 1983-89.

The figures for other services do not provide clear evidence on whether FDI received any additional stimulus around the period of Spain's integration. One possible explanation for the mixed evidence is that this category of services comprises a variety of activities, each of which may be affected by different factors. Thus nothing clear may emerge by grouping them together.

Overall, Tables 11 to 14 point to a positive shift around 1986 in the rate of US FDI in various sectors of the Spanish economy. This shift was greatest for trade and finance-related services, with manufacturing benefiting to a lesser extent. Another interesting feature that emerges is the correlation between the FDI growth rates in manufacturing and in trade and finance-related services. A close examination of the relevant tables indicates that the highest annual growth rate years for manufacturing are positively correlated either for the same year or with a slight lag with the growth rates for trade-related and financial services. This may point to the supporting role of FDI in such

⁵⁰Other services include business services, consultancy, advertising, and marketing services.

services for FDI in manufacturing and the presence of follow-the-client motives for services investment, where service FDI follows manufacturing clients overseas.

Sectoral Composition of FDI

Changes in the sectoral distribution of US FDI in Spain were next examined. The purpose was to determine if service sector activities were indeed the main recipients of the increased FDI in Spain, as implied above by the higher growth rates of FDI in various services relative to manufacturing. Table 15 presents the average growth rates for the share of manufacturing, trade-related services, and financial services in total US FDI in Spain in the three years before and after integration.

Table 15: Average Growth Rates of Sectoral Shares in Total US FDI in Spain, before and after Integration (percent)

Sector	Average Growth Rate Before	Average Growth Rate After
Manufacturing		
Net Property, Plant, and Equipment	1.5	2.0
Sales	- 0.2	-1.9
Trade-related Services		
Sales	5.7	12.3
Employment	5.1	19.5
Assets	7.9	12.9
Financial Services		
Assets	38.5	60.9a/
Local Sales	9.2	26.6

Source: Estimated using data from US Department of Commerce, Annual and Benchmark Surveys, *US Direct Investment Abroad*, 1983-89.

a/: The post integration period for assets refers to 1986-88.

Table 15 indicates that the sectoral share of trade and finance-related services in total US FDI in Spain has grown more rapidly than that of manufacturing. The average

growth rate of manufacturing's share in total net property, plant, and equipment of US firms in Spain, rose only slightly in the post-integration period and fell significantly in the case of sales. Estimated annual growth rates of manufacturing's share in total sales by US firms in Spain show a decline through most of the 1983-89 period and very modest increases for the sector's share in property, plant, and equipment.⁵¹ Hence, the estimated changes in the sectoral distribution of US FDI in Spain suggest that manufacturing was not the main recipient of the recent growth of US FDI in that country.

In contrast, the average growth rate of the share of trade-related services in total FDI, increased significantly, by 60 percent or more for the measures provided, after 1986. Estimated annual growth rate figures reveal that the sector experienced sustained growth in its share of US FDI during this entire period. The yearly growth rate of the share of sales and employment in these services in total sales and employment by US firms in Spain, peaked at 15.8 percent and 31 percent respectively in the 1986-87 year, immediately following Spain's integration.⁵² These trends juxtaposed with the declining growth rate of manufacturing shares indicate the increased attractiveness of trade-related services relative to manufacturing as a sectoral destination for US FDI.

From the available evidence, one can conclude that Spain became increasingly attractive as a host country for US FDI, especially after 1986, and that services rose in importance relative to manufacturing as a target of this increased investment. There is a break in the data around 1986 for most of the tables presented which suggests a distinct relationship between Spain's integration in the EC and the observed FDI trends.

⁵¹See Appendix C for annual growth rates for the sectoral shares of manufacturing, trade-related, and finance-related services in total US FDI in Spain.

⁵²See Appendix C.

5.6 Spain's Relative Importance in US FDI

It was also examined whether there was a break in Spain's relative importance as a host country for US FDI at the global and regional levels, following its integration with the EC. This was done by estimating the share of total (global) as well as EC-wide US FDI that was directed to Spain and the shares of global as well as EC-wide US FDI in manufacturing, trade-related, and finance-related services, directed to these same sectors in Spain, in the pre- and post-integration periods.

At the global level, the results indicate that there was a general upward trend in the share of US FDI allocated to Spain for total, manufacturing, trade-related, and finance-related services.⁵³ This was true for a variety of investment measures, including net property, plant, and equipment, number of affiliates, and assets and in all cases, the annual growth rate for these shares peaked in 1986-87, immediately following integration. Trade and finance-related services increased their shares of global US FDI by more than manufacturing. The results suggest some investment diversion towards Spain following its integration with the EC.

Evidence on US FDI in Spain and Portugal and the countries of Algeria, Morocco, and Tunisia also supports this fact. While US FDI in Spain and Portugal moved parallelly with US FDI in these three North African countries upto 1985, the pattern was broken in 1986. US FDI began to rise more rapidly in the Iberian economies after 1986. This suggests that Spain and Portugal were able to provide incentives for FDI following integration which non-EC member, former substitute economies could not provide, leading to investment diversion.

At the regional level, the EC's share in total and sectoral US FDI as well as the EC-share of selected member countries was calculated using US Department of

⁵³This discussion is based on estimated overall and sectoral shares of Spain in global US FDI.

Commerce data. However, the results were mixed with no clear evidence to suggest a redistribution of US investment within the EC in favour of Spain.⁵⁴

5.8 Role of Country-Specific Factors

Although the preceding discussion has indicated that regional integration played an important part in inducing increased US FDI into Spain, the role of other country-specific factors also needs to be examined. The 1990/91 OECD survey of Spain tries to isolate the effect of Spain's integration from that of other factors on various indicators of its economic performance, including FDI growth. Spain experienced a strong investment boom in the first five years of its membership in the EC. The upswing was shared by all sectors. Econometric evidence shows that the investment recovery was significantly stronger than predicted by normal relationships. The OECD study attributes this difference to the strong increase in FDI in Spain. FDI growth may have contributed as much as 40 to 50 percent of the growth in total business investment in Spain since 1985.⁵⁵

According to the study, FDI growth in Spain was greatly influenced by its membership in the EC. As Spain's link with the EC became closer with the prospect of Spanish integration, US-based multinational corporations increasingly integrated their Spanish operations into their overall European strategy for investment. Spain was viewed as a platform for exports to the rest of the EC, suggesting the bridgehead motivation for investment following its integration.⁵⁶ The study also identifies the prospect of a unified

⁵⁴ If such evidence were available, it would imply that Spain's integration into the Community enhanced any initial advantages it had as a host country for US FDI and offset any previous disadvantages relative to other EC member countries.

⁵⁵ *OECD Survey of Spain*, 1990/91.

⁵⁶ This has been true of FDI in Spain since the 1970s as multinational enterprises have focused on using Spain as a platform to penetrate European markets and avoid tariff barriers due to Spain's preferential status in EC countries since that time.

EC market in 1992, the expectations of increased growth with Spain's entry, and the reduced political risks of investing in Spain due to its association with the EC, as other factors linking Spain's integration to increased FDI in that country.

This initial stimulus to FDI from integration was helped by country-specific factors such as the availability of a large skilled industrial labour force at a relatively low wage, measures to enhance labour market flexibility, industrial restructuring and modernization measures to increase business profitability, and liberalization of foreign investment regulations.⁵⁷ However, the study suggests that the separate influence of these factors on inward FDI was not that large for several reasons.

Firstly, many of these structural reforms and industrial restructuring policies were changes necessitated by integration itself and therefore were not independent driving forces. In addition, often the reforms undertaken after entry were not significant enough to explain the kind of growth in inward investment seen in Spain after 1986. In particular, one of the most important potential determinants, Spain's foreign investment regime, played only a limited role in this growth.

Although Spain had to bring its foreign investment regime into line with EC-wide regulations upon joining the Community which involved removing remaining restrictions on business and real estate holdings, the reforms were not significant in light of the favourable investment climate that prevailed in Spain in the pre-integration years. Ever since 1959 when Spain turned from an inward-looking to an outward-oriented approach to development, multinational corporations were treated liberally. In fact one of the key features of the reversal in its economic policy in 1959 was to create favourable conditions to attract private foreign capital and to have an open door policy towards multinational

⁵⁷Wage restraints by unions, fixed term employment contracts, and new laws on competition and entry increased profitability in Spain's industrial sector. Deregulation and restructuring of financial institutions and removal of remaining FDI restrictions in business and real estate, created a more liberal foreign investment regime. See, Appendix D for a summary of recent and earlier deregulatory measures in Spain's financial service sector.

enterprises. Restrictions on capital repatriation, profit remittances, and ownership conditions were relaxed at the time. As a result of these liberal foreign investment conditions, participation by foreign enterprises in Spain played an important role through wholly and majority owned subsidiaries, real estate holdings, portfolio investments, and various licensing and technical assistance agreements. Prior authorization was not required except in the case of majority ownership. During the 1970s, equity ownership conditions were further liberalized and full ownership was allowed in certain sectors subject to certain export and employment-related conditions.⁵⁸ Thus, the changes in the regulatory environment for foreign investment due to Spain's joining the EC are not significant enough to explain the large increase in inward FDI in the post integration years.

Lastly, the separate role of these other country-specific factors is undermined by the fact that there was sustained growth of inward FDI in the post-1986 period, despite slowdown of the Spanish economy around 1988, the gradual erosion of Spain's labour cost advantage relative to other EC countries, and the possibilities for investment diversion to countries in Eastern Europe with similar host country advantages. This suggests that some other stimulus to investment was present in Spain. Various studies of Spain's performance after integration and the preceding analysis indicate that regional integration provided this stimulus. To the extent that it also contributed to the structural and institutional changes which further encouraged the growth of FDI, one can conclude that the impact of integration on FDI in Spain was significant.

5.9 Broad conclusions from the case study

Notwithstanding the limitations of the preceding analysis, the following broad conclusions can be drawn. These are:

⁵⁸See Baklanoff (1978) for a discussion of changes in Spain's investment policies in the pre-integration years.

- 1) The rate of FDI in Spain increased after it joined the EC;
- 2) The growth of FDI was greater in trade and finance-related services relative to manufacturing;
- 3) Some of this increased FDI is explained by a rise in Spain's general attractiveness as a host country relative to non-EC countries;
- 4) There is no conclusive evidence to suggest that the increase in FDI was due to a relocation of FDI within the EC in favour of Spain;
- 5) Although factors particular to Spain related to industrial policies and labour and capital market conditions played a role in these trends, they mostly sustained the initial dynamism generated by integration and were not primary motivating forces.

The case study provides sufficient statistical and other evidence correlating Spanish integration and trade liberalization positively with the volume of FDI in Spain and the orientation of this FDI towards the service sector. In most cases, a turning point is evident around the year of integration with a more than normal increase in overall and service sector-specific growth rates of FDI in the post-integration period. Broadly, the core hypothesis of this paper is well supported by this case study.

6. Concluding Remarks

This paper has examined the recent growth of FDI in intermediate services and has provided some explanations for this phenomenon. It makes three important contributions.

Firstly, it establishes that trade policies are important in understanding FDI in producer services. This has been suggested in some studies but has not been explicitly modeled before nor studies in a case study context.

Secondly, it focuses specifically on essential characteristics of producer services like nontradability and demand complementarities to explain FDI in these activities, rather than simply extending industrial theories of FDI to services.

Finally, and most importantly, the study shows that trade and foreign investment policies cannot be viewed independently of each other when there are inter-linkages between final goods and intermediate services. For instance, in the model presented in Section 4, placing restrictions on the inflow of the factor specific to the service sector or other policy-based disincentives to service production, limit the availability of non traded intermediate services. This creates infrastructural bottlenecks in the exportables sector limiting its expansion despite trade liberalization. Liberal FDI policies can thus play an important role in complementing trade liberalization, in this case by enabling intermediate services production to expand and thereby providing essential inputs to the export sector.

6.1 Limitations

There are several limitations to the theoretical and case study-based analysis presented in this paper that need mention. The main limitation on the theoretical side is the reliance on the factor-intensity assumption in the theoretical model. If instead, of the present assumption, importables are more intensive in the use of producer services relative to exportables, then trade liberalization would have the opposite result from that shown in the paper. There would be an outflow of the service sector specific factor resulting from the contraction in importables production. So, although the hypothesis is shown to be valid in this model, it is not robust to changes in the factor-intensity assumption.

The main limitation in the case study arises from data problems. It was not possible to do sophisticated econometric testing of the hypothesis since for most countries data on service sector FDI is not available on a time-series basis, not disaggregated finely by different service activities, and is difficult to compare across countries due to different classification, aggregation, and data collection techniques.¹ This necessitated the case study approach.

However, even this approach is adversely affected by the generally poor quality of service sector statistics. The lack of sufficiently disaggregated data on service FDI by both country of origin and destination and for various investment measures, seriously limited the analysis. Moreover, without econometric analysis it is not possible to disentangle the effect of trade orientation on FDI flows into Spain from that of other FDI determinants.

These data-related limitations can only be overcome with the improvement of service sector statistics. This requires acceptance of a common international framework on services and resolution of various definitional and conceptual issues regarding this sector in multilateral negotiations. Till then, any analysis of the service sector will be plagued by such problems, precluding rigorous econometric testing.

6.2 Extensions

There are several possible extensions of this study. One would be to address the theoretical limitation discussed above. This would require constructing a model where intermediate services are used in both tradables sectors and the factor-intensity assumption does not drive the main result. On the empirical side, a useful extension would be to

¹See, Appendix B for a discussion on the quality of service sector data.

conduct regression analysis in order to quantify the relative importance of various FDI determinants in the service sector, including the significance of trade and FDI policies.

Another extension of this work would be to explore the political economy features of the model presented. For instance, due to inter-linkages across sectors, there are incentives for domestic producers in the export sector to organize and lobby for supporting FDI policies and policy-based incentives in producer services. This creates possibilities for coalitions across different sectors within the model. Therefore, an interesting extension would be to allow for coalitions and lobbying and to endogenize tariff reductions rather than taking them to be exogenous as in this paper. It may also be interesting to compare the welfare implications of trade and FDI liberalization in such a political-economy framework.

Finally, a useful extension of this study would be to conduct detailed, industry specific studies of important producer service activities. Since service industries are very heterogeneous, it is difficult to generalize results across this sector. Such detailed industry studies would provide a more comprehensive understanding of the wide range of issues that are relevant for explaining the recent growth of FDI in services.

References

- Agarwal, J.P. (1980). Determinants of Foreign Direct Investment: A Survey. *Weltwirtschaftliches Archives*, vol. 116, No.4, pp.739-773.
- Baklanoff, E. (1978). *The Economic Transformation of Spain and Portugal*, New York: Praeger Publishers.
- Balasubramanyam, V.N. and D.Greenaway (September 1992). *Regionalism and FDI: The Case of East Asian Investment in Europe*, Workshop on Regionalism and the Global Trading System, GATT Secretariat.
- (1991). Economic Integration and Foreign Direct Investment: Japanese Investment in the EC. *Credit Research Paper*, No. 91/12, Center for Research in Economic Development and International Trade, University of Nottingham.
- Ball, C. and A. Tschoegl (1982). The Decision to establish a Foreign Bank Branch or Subsidiary. *Journal of Financial and Quantitative Analysis*, vol. 17, No.3, pp.411-424.
- Bandera, V.N. and J.T. White (February 1968). US Direct Investments & Domestic Markets in Europe. *Economia Internazionale*, vol. 12, No. 1, pp.117-33.
- Bhagwati, J.N. (June 1984). Splintering & Disembodiment of Services and Developing Nations. *The World Economy*, vol.7, No.2, pp.133-44.
- Buckley, P. and P. Artisien (1987). *North-South Direct Investment in the EC*, Great Britain: Macmillan Press.
- Burgess, D. (1990). Services as Intermediate Goods: The Issue of Trade Liberalisation. In R. Jones and A.Krueger, eds., *The Political Economy of International Trade*, New York: Basil Blackwell, pp.122-139.
- Business Today (March 1992). *Japan's Build-Up in the EC, Going Strong*, pp.12-17.
- Caves, R.(1982). *Multinational Enterprise and Economic Analysis*, Cambridge Surveys of Economic Literature, Cambridge, New York : Cambridge University Press.
- Channon, Derek (1988). *Global Banking Strategy*, Chichester, Great Britain : John Wiley and Sons.
- Daniels, P.W. (1993). *Service Industries in the World Economy*, Oxford, UK; Cambridge, USA : Blackwell Publishers.

- Daniels, P.W. (1985). *Service Industries: A Geographic Appraisal*, London: Methuen and Co. Ltd.
- Dunning, J. (1989). *Transnational Corporations and the Growth of Services, Some Conceptual and Theoretical Issues*, New York : United Nations.
- (1988). *Explaining International Production*, London : Unwin Hyman Publishers.
- (1981). *International Production and the Multinational Enterprise*, London : Allen and Unwin.
- (1973). The Determinants of International Production. *Oxford Economic Papers*, vol. 25, No.3, pp.289-335.
- and G. Norman (1987). The Location Choice of Office of International Companies. *Environment and Planning*, vol. 19, pp.613-631.
- Francois, J.F.(1990). Producer Services, Scale, and the Division of Labour. *Oxford Economic Papers*, vol. 42, pp. 715-29.
- Giarini, O. (1987), ed. *The Emerging Service Economy*, Services World Forum Project, Oxford, UK; New York : Pergamon Press.
- Goldberg, L. and A. Saunders (1980). The Causes of US Bank Expansion Overseas. *Journal of Money, Credit, and Banking*, vol. 12, No. 4, pp.630-43.
- Gray, Jean M. and Peter Gray (March 1981). The Multinational Bank. *Journal of Banking and Finance*, vol. 5, No.1, pp.33-63.
- Hamilton,C. and L. Svensson (1983). Should Direct or Total Factor Intensities be used in Tests of the Factor Proportions Hypothesis? *Weltwirtschaftliches Archiv*. 119, pp. 453-464.
- Heitger, B. and J. Stehn (September 1990). Japanese Direct Investments in the EC-Response to the Internal Market 1993? *Journal of Common Market Studies*, vol.29, No.1, pp.1-15.
- Helleiner, G.K. (March 1973). Manufactured Exports from Less Developed Countries and Multinational Firms. *The Economic Journal*, vol. 83, No. 329, pp.21-47.
- Hudson, M. (January 1989). Portugal to 1993, Investing in a European Future. *The Economist Intelligence Unit*, Special Report No. 1157.

- Hymer, S. (1960). *The International Operations of National Firms: A Study of Direct Foreign Investment*, Cambridge : MIT Press.
- Instituto Nacional de Estadística (1990). *Anuario Estadístico, España, 1987*.
- Instituto Nacional de Estadística (1990 and 1991). *Contabilidad Nacional de España, Base 1985, Serie Contable 1985-89 y Tabla Input-Output, 1985, 1986, 1987, Madrid*.
- International Management (March 1990). *The Japanese take a Second Look*.
- International Management (March 1989), *The Paranoia Gripping Japanese Business*.
- JETRO (March 1990). *Current Situation of Business Operations of Japanese Manufacturing Enterprises in Europe, 6th Survey Report, London : JETRO*.
- Jones, R. (December 1965). The Structure of Simple General Equilibrium Models. *Journal of Political Economy*, vol. 73, No.6, pp.557-72.
- Jones, R. and H. Kierzkowski (1990). The Role of Services in Production & International Trade- A Theoretical Framework. In R. Jones and A. Krueger, eds., *The Political Economy of International Trade* , New York : Basil Blackwell, pp. 31-48.
- Khoury, S. (1979). International Banking: A Special Look at Foreign Banks in the US. *Journal of International Business Studies*, vol.10, No.4, pp.36-52.
- Knickerbocker, F. (1973). *Oligopolistic Reaction and the Multinational Enterprise*, Boston : Harvard University Press.
- Kojima. K. (June 1973). A Macroeconomic Approach to Foreign Direct Investment. *Hitotsubashi Journal of Economics* , vol. 14, No. 1, pp.1-21.
- Kojima ,K. (1982). International Trade & Foreign Investment: Substitutes or Complements. *Hitotsubashi Journal of Economics*, vol. 23, No. 1, pp.1-12.
- Kravis, I. and R. Lipsey (1982). The Location of Overseas Production and Production for Export by US Multinational Firms. *Journal of International Economics*, vol.12, pp.201-23.
- Leontief, W. (1986). *Input-Output Economics*, New York : Oxford University Press.
- Lunn, J. (1983). Determinants of US Direct Investment in the EC, Revisited Again. *European Economic Review*, vol. 21, No. 3, pp.391-93.

- (1980). Determinants of US Direct Investment in the EC, Further Evidence. *European Economic Review*, vol.13, No. 1, pp.93-101.
- Markusen, J. (March 1989). Trade in Producer Services. *American Economic Review*, vol.79, No.1, pp.85-95.
- (1983). Factor Movements & Commodity Trade as Complements. *Journal of International Economics*, vol. 14, No. 3/4, pp.341-56.
- Melvin, J. (October 1989). Trade in Producer Services: A Heckscher-Ohlin Approach. *Journal of Political Economy*, vol. 97, No. 5, pp.1180-1196.
- Mundell, R. (1957). International Trade and Factor Mobility. *American Economic Review*, vol. 47, No. 3, pp.321-335.
- Murphy K., A. Shleifer, R. Vishny (1989). Industrialisation & the Big Push. *Journal of Political Economy*, vol. 97, No.5, pp.1003-1026.
- Nicolaidis, P. and S. Thomsen (December 1991). Can Protectionism Explain Direct Investment. *Journal of Common Market Studies* , vol. 23, No.6, pp. 635-43.
- Nicolaidis, K. and Albert Bressand, eds., (1989). *Strategic Trends in Services: An Inquiry into the Global Service Economy* , A Services World Forum Project, New York: Harper and Row.
- Nicolaidis, P. (1991). Investment Policies in an Integrated World Economy. *The World Economy*, vol. 14, No. 2, pp.121-138.
- (1990). The Growth of Japanese Direct Investment in the EC. *EIU European Trends*, No.3.
- (1984). *Liberalizing Service Trade: Strategies for Success*, London: The Royal Institute for International Affairs.
- Nigh, D., Kang Chao, and Suresh Krishnan (1986). The Role of Location-Related Factors in US Banking Involvement Abroad. *Journal of International Business Studies*, vol.117, No.3, pp.59-72.
- Nusbaumer, J. (1987). *Services in the Global Market*, Boston : Kluwer Academic Publishers.
- (1987). *The Services Economy: Lever to Growth*, Boston: Kluwer Academic Publishers.
- OECD (1992), Portugal. *OECD Economic Survey*, Paris.

- (1987). *Controls and Impediments Affecting Inward Direct Investment in OECD Member Countries*, Paris.
- (1982). *Controls and Impediments Affecting Inward Direct Investment in OECD Member Countries*, Paris.
- (various years). Spain. *OECD Economic Surveys*, Paris.
- Riddle, Dorothy (1986). *Service-Led Growth: The Role of the Service Sector in World Development*, New York : Praeger Publishers.
- Rivera-Batiz, F. and L. Rivera-Batiz (Spring 1992). Europe 1992 and the Liberalisation of Direct Investment Flows: Services versus Manufacturing. *International Economic Journal*, vol.6, No.1, pp.45-57.
- Root, F. and A. Ahmed (Winter 1978). The Influence of Policy Instruments on Manufacturing DFI in Developing Countries. *Journal of International Business Studies*, vol. 9, No. 3, pp. 81-93.
- (July 1979). Empirical Determinants of Manufacturing DFI in Developing Countries. *Economic Development and Cultural Change* , vol. 27, No. 4, pp. 751-67.
- Rugman, A. (1981). *Inside the Multinationals: The Economics of Internal Markets*, New York : Columbia University Press.
- Sapir, A. and J. Lutz (August 1981). Trade in Services:Economic Determinants and Development Related Issues. *World Bank Staff Working Paper*, No. 480, Washington, D.C.: World Bank.
- Schmitz, A. and P. Helmberger (1970). Factor Mobility and International Trade: The Case of Complementarity. *American Economic Review*, vol. 60, No. 4, pp.761-67.
- Schroath, F. and C. Korth (1989). Managerial Barriers to the Internationalization of US Property and Liability Insurers. *Journal of Risk and Insurance*, vol. 56, No.4, pp.630-48.
- Terpstra, V. and C. Yu (1988). Determinants of Foreign Direct Investment of US Advertising Agencies. *Journal of International Business Studies*, vol. 19, No.1, pp.33-47.
- United Nations (1989). *Trade in Services: Sectoral Issues*, UNCTAD/ITP/26, New York : United Nations.

- United Nations (1993). *World Investment Report 1993: Transnational Corporations and Integrated International Production*, New York : United Nations.
- United Nations Centre for Transnational Corporations (UNCTC) (1993). *The Transnationalisation of Service Industries, An Empirical Analysis of the Determinants of FDI by Transnational Service Corporations* , New York: United Nations.
- UNCTC (1992a). *Determinants of Services, A Survey of the Evidence*, New York: United Nations.
- (1992b). *Foreign Direct Investment and Industrial Restructuring in Mexico*, No. 18, New York: United Nations
- (1990a). *Regional Economic Integration and Transnational Corporations in the 1990s* , No.15, New York : United Nations.
- (1990b). *Transnational Corporations, Services, and the Uruguay Round*, New York: United Nations.
- (1989a). *Foreign Direct Investment and Transnational Corporations in Services*, New York: United Nations.
- (1989b). *Transnational Service Corporations and Developing Countries: Impact and Policy Issues* , No. 10, New York : United Nations.
- (1985). *Trends and Issues in Foreign Direct Investment and Related Flows*, New York: United Nations.
- (1980). *Transnational Reinsurance Corporations*, New York: United Nations.
- (1979). *Transnational Corporations in Advertising*, New York: United Nations.
- United Nations Statistical Office (1987). *National Accounts Statistics, A Study of Input-Output Tables, 1970-80* , New York : United Nations.
- United Nations Industrial Development Organisation, (UNIDO) (December 1985). *Input-Output Tables for Developing Countries, Volume II*, New York : United Nations.
- UNIDO (1992/93). *Industry and Development Global Report* , New York: United Nations.
- US Department of Commerce (various years). *Survey of Current Business*, Washington, D.C. : Bureau of Economic Analysis.

- US Department of Commerce (various years). *US Direct Investment Abroad*, Washington, D.C. : Bureau of Economic Analysis.
- Vernon, Raymond (May 1966). International Investment and International Trade in the Product Cycle. *The Quarterly Journal of Economics*, vol. 80, No.2, pp.190-207.
- Walter, I. (1985). *Barriers to Trade in Banking and Financial Services*. London: Trade Policy Research Center.
- Weinstein, A. (Spring/Summer 1977). Foreign Investments by Service Firms: The Case of the Multinational Advertising Agency. *Journal of International Business Studies*, vol. 8, No.1, pp.83-92.
- World Bank (1987). *World Development Report*, Washington, D.C.: World Bank.
- Yan, Chiou-Shuang (1969). *Introduction to Input-Output Economics*, Principles of Economics Series, Drexel Institute of Technology: Holt, Rinehart, and Winston Publishers.
- Yannopoulos, G. (1989). *European Integration and the Iberian Economies*, Great Britain: Macmillan Press in associations with the Graduate School of European and International Studies, University of Reading.
- Yoshitomi, M. (1991). *Japanese Direct Investment in Europe, Impact and Policy Implications*, Sumitomo-Life Research Institute, vol. 2, Aldershot, Hans, England; Brookfield, USA : Avebury Publishers.

Statistics on FDI in Services

Table A.1 : Distribution of outward affiliates of major investing countries, by sector
(number and percentage)

Country	Year		Sectors			
			All	Primary	Manufacturing	Services
Germany, Federal Republic of ^a	1984	Number	14657	558	4936	9163
		Percentage	100	4	34	63
	1990	Number	19352	422	5729	13201
		Percentage	100	2	30	68
Japan ^b	1980	Number	3567	194	1587	1786
		Percentage	100	5	44	50
	1990	Number	7986	194	3408	4384
		Percentage	100	2	43	55
United States ^c	1982	Number	18339	995	7005	10339
		Percentage	100	5	38	56
	1989	Number	18899	785	7552	10562
		Percentage	100	4	40	56

Source: United Nations (1993). *World Investment Report 1993: Transnational Corporations and Integrated International Production*, New York, Table I.7, p.23.

a: Includes only affiliates whose balance sheet total exceeds DM 500,000.

b: Includes only non-bank affiliates that responded to a questionnaire on FDI and that continued their foreign operations.

c: Includes only affiliates whose assets, sales, or income exceeded \$3 million.

Table A.2 : Share of finance and trade-related services in the stock of foreign direct investment in services of selected countries (percentage)

Country	Year	Outward FDI		Inward FDI	
		Financial Services	Trading	Financial Services	Trading
<u>Developed countries</u>					
Austria	1982	61.8	6.3	...	...
Australia	1984	53.1 ^a	22.2	...	...
Canada	1984	58.7	14.8	55.9	27.1
France	1983	47.9	25.9	16.1	30.1
Germany, Fed. Republic	1985	42.2 ^b	42.2	50.9 ^b	36.2
Italy	1984	84.2	12.5	40.9	24.6
Japan	1986	29.9	24.0	35.2	43.7
Netherlands	1984	31.5	32.2	24.5	42.2
Spain	1983	65.3	21.3	...	...
United Kingdom	1984	27.2	39.1	33.8	24.1
United States	1986	53.9 ^b	32.4 ^c	27.8 ^b	41.3
<u>Developing countries/territories</u>					
Argentina	1985	...	...	62.0	9.7
Bangladesh	1982	...	...	...	81.7
Brazil	1985	...	...	63.4 ^b	17.7
Colombia	1986	...	...	49.6	39.6
Ecuador	1985	...	...	26.6	26.3
Egypt	1984	...	...	39.0	...
Korea, Republic	1986	...	...	12.7	...
Malaysia	1984	...	...	17.2	64.3
Mexico	1981	...	...	58.4	33.3
Morocco	1982	...	...	9.7	9.3
Nigeria	1982	...	...	7.5	43.3 ^d
Paraguay	1984	...	...	75.7	...
Peru	1985	...	...	23.3	40.1
Philippines	1983	...	...	55.0	19.9 ^e
Singapore	1981	...	...	57.8	32.1
Taiwan Province	1985	...	...	20.3	2.1 ^f
Thailand	1984	...	...	14.0	39.1

Source: UNCTC (1989). *Foreign Direct Investment and Transnational Corporations in Services*, United Nations, New York, Annex table A.5, p.169.

a: Includes property

b: Includes holding companies

c: Includes petroleum wholesale

d: Includes business services

e: Includes real estate

f: Foreign trade

A Note on Services

Any formal analysis of services suffers from various conceptual, definitional, and data-related limitations. Firstly, there is a basic problem in defining what activities constitute services. While most countries consider a core group of activities such as transportation, banking, finance, insurance, etc. as making up the service sector, opinions vary on the scope of this coverage and the types of transactions that should be included. Some definitions include while others exclude activities like public utilities and construction. Other definitions simply lump services into tertiary activities, which constitute all activities outside of agriculture, mining, and manufacturing.

There are also difficulties in classifying certain outputs as goods or services. The fact that many services are embodied in goods and sold jointly with goods often makes it difficult to value the two separately. Although many definitions use concepts of tangibility, storability, and portability to distinguish between the two, there is much scope for under or overvaluation of services. There are also difficulties in delineating boundaries between individual service sectors as many service activities overlap.

These problems associated with the classification, aggregation, coverage, collection, and recording of data in services lead to poor international comparability of statistics in this sector. Presently, no country or international organization compiles data in a way that fully and accurately measures services and disaggregates the data finely by different service activities. Work is required to develop a common methodology for the classification of services and also the data collection systems and techniques for improving service sector statistics. This is currently under review by agencies like the IMF, OECD, GATT, and the UN.

FDI Data in Services

The availability and quality of data on FDI in services has been adversely affected by these conceptual and definitional problems related to services. In most countries the service sector is not formally defined for the purpose of FDI statistics. Few developed countries provide FDI data broken down by major service industries with the geographic distribution of FDI stocks and flows both for countries of origin and destination. Even then, systematic time series data on FDI in services are available for only a few countries. Most countries also limit their collection of data on service FDI to one or two variables, usually the value of stocks and flows. Few give data on variables like assets, sales, and employment. Finally, there are problems with interpreting data on FDI in services. The presence of offshore affiliates and flags-of-convenience and payment flows between parent companies and their affiliates can lead to over or underestimation of FDI in services. Thus FDI data in services must be interpreted with caution.

Estimated Figures for FDI Trends in Spain

Table C.1 : Annual Growth Rates of the Sectoral Share of Manufacturing in US FDI in Spain (percent)

Year	Net Property, Plant, Equipment	Sales
1983-84	-3.2	0.5
1984-85	3.7	-0.2
1985-86	4.2	-0.2
1986-87	2.9	-3.1
1987-88	0.2	-2.7

Source: Estimated using data from US Department of Commerce (1983-89), Annual and Benchmark Surveys, *US Direct Investment Abroad*.

Table C.2 : Annual Growth Rates of the Sectoral Share of Trade-Related Services in US FDI in Spain (percent)

Year	Sales	Employment	Assets
1983-84	2.8	2.0	0
1984-85	5.7	11.7	13.4
1985-86	8.6	1.7	10.5
1986-87	15.8	31.0	10.7
1987-88	9.4	6.6	11.8
1988-89	11.7	20.9	16.3

Source: Estimated using data from US Department of Commerce (1983-89), Annual and Benchmark Surveys, *US Direct Investment Abroad*.

Table C.3: Annual Growth Rate of the Sectoral Share of Finance-Related Services in US FDI in Spain (percent)

Year	Assets	Local Sales
1983-84	22.4	17.6
1984-85	30.7	10.0
1985-86	62.5	0
1986-87	80.0	32.7
1987-88	41.9	17.8
1988-89	n/a	29.4

Source: Estimated using data from US Department of Commerce (1983-89), Annual and Benchmark Surveys, *US Direct Investment Abroad*.

Deregulation of Financial Services in Spain

Table D.1: Summary of some deregulatory measures in Spain's financial services since the 1960s

Period	Deregulation
Restrictions on Interest Rates	
1961-87	Deregulation of interest rates on loans of various maturities, on all lending instruments, all demand deposits, savings deposits, and time deposits. No remaining restrictions on interest rates at the end of 1987.
Deregulation and Diversification of Financial Service Activities	
1962-87	Liberalisation of foreign currency operations of authorised banks, foreign banks' permissible operations same as those of domestic banks, abolition of limits on fixed assets and securities portfolio investments and risk concentration. Most deregulation occurred between 1980-86.
Bank Ownership and Branch Banking	
1971-87	Establishment of banks under discretion of Ministry of Finance. Bill under consideration to enable equity holdings of 15 percent without prior authorisation by Bank of Spain. In early 1980s, relaxation of regulations concerning setting up of new banks and bank branches. Branch banking liberalised and by 1985 subject only to capital ratio requirements.
Deregulation of Foreign Bank Entry	
1978-87	Foreign banks allowed to set up in Spain subject to some limitations as of 1978. Minimum capital required adjusted to equal that of domestic banks in 1987. Limits on operating conditions being gradually eased till full equality achieved with domestic banks.

Source: G. Broker (1989). *Competition in Banking*, OECD, Paris, Annex III, pp.153-225.