

WORKING PAPER NO. 154

TRADE AND FOREIGN DIRECT INVESTMENT IN SERVICES: A REVIEW

Rashmi Banga

FEBRUARY 2005



INDIAN COUNCIL FOR RESEARCH ON INTERNATIONAL ECONOMIC RELATIONS

Core-6A, 4th Floor, India Habitat Centre, Lodi Road, New Delhi-110 003

Website: www.icrier.org

TRADE AND FOREIGN DIRECT INVESTMENT IN SERVICES: A REVIEW

Rashmi Banga

FEBRUARY 2005

The views expressed in the ICRIER Working Paper Series are those of the author(s) and do not necessarily reflect those of the Indian Council for Research on International Economic Relations (ICRIER).

Contents

FOREWORD	I
1. INTRODUCTION	1
2. TRADE IN SERVICES	2
2.1. <i>HOW IS TRADE IN GOODS DIFFERENT FROM TRADE IN SERVICES?</i>	3
2.2. <i>DO WE NEED A SEPARATE THEORY OF TRADE IN SERVICES?</i>	7
2.3. <i>WHAT ARE THE IMPORTANT BARRIERS TO TRADE IN SERVICES?</i>	9
2.4. <i>HOW DO WE MEASURE BARRIERS TO TRADE IN SERVICES?</i>	15
2.5. <i>HOW DO DIFFERENT MEASURES OF BARRIERS TO TRADE COMPARE?</i>	21
3. FOREIGN DIRECT INVESTMENT IN SERVICES	22
3.1. <i>HOW RELEVANT IS THEORY OF FDI FOR FDI IN SERVICES?</i>	23
3.2. <i>WHAT ARE THE MOST IMPORTANT DETERMINANTS OF FDI IN SERVICES?</i>	27
4. IMPACT OF TRADE LIBERALISATION ON DEVELOPING COUNTRIES	33
5. CONCLUSION	38
REFERENCES	47

Foreword

Services sector has emerged as the largest and fastest-growing sector in the world economy in the last two decades, providing more than 60 per cent of global output and, in many countries, an even larger share of employment. Not only has the services sector grown in terms of its share in global output and employment, its share in total trade has also grown rapidly in this period. Along with this, we find that global FDI is also shifting away from manufacturing towards services sector. The growing importance of services sector and the corresponding rise in its role in integrating the world economy has led to a stream of literature that examines different aspects of trade and FDI in services. However, very few studies have focussed on the conceptual issues with respect to trade and FDI in services.

This paper undertakes a selective review of both theoretical as well as empirical studies on trade and foreign direct investment (FDI) in services. It identifies some of the conceptual issues in this area, e.g., whether theories of trade and FDI are relevant for services; what are the important barriers to trade in services; and what are the important determinants of FDI in services. The main objective of the paper is to provide policy insights that emerge from this literature for developing countries.

Arvind Virmani
Director and CE
ICRIER

February 2005

1. Introduction*

The growth of services sector in the global economy has been accompanied by a growth in its share in the world transactions. Testimony to the rise in international supply of services is the fact that services trade grew at the same rate as goods trade in the 1990s, i.e., about 6.5 per cent. In 2001, the value of goods trade fell by 4.5 per cent, while that of services trade declined by only half a percentage point. The value of services trade in 2001 was about 24 per cent of the value of merchandise trade¹. In the FDI mode, share of services investment in the global annual flow of FDI has been over 50% in the late 1990s. Consequently, the importance of service activities in the global stock of FDI has risen to a share of about 43 per cent².

The growing internationalisation of services has led to a vast literature and some of the fiercest debates on critical issues regarding trade and investment in services. The main objective of the paper is to identify some of these conceptual issues and provide a selective review of both theoretical and empirical studies on these issues. Emphasis is laid on the studies that not only discuss the conceptual issues but also provide insights for policy makers and help furthering research in these areas. Some of the conceptual issues identified under trade and FDI in services are:

I. Trade in Services

- a) *How is trade in goods different from trade in services?*
- b) *Do we need a separate theory of trade for services?*
- c) *What are the important barriers to trade in services?*
- d) *How do we measure barriers to trade in services?*
- e) *How do different measures compare with each other?*

II. Foreign Direct Investment in Services:

- a) *How relevant is the theory of FDI for FDI in services?*
- b) *What are the most important determinants of FDI in services?*
- c) *What are the implications of trade and FDI in services for developing countries?*

* I am really thankful to Sovanbrata Talukdar for his assistance.

¹ But it is noted that the relative importance and growth of services trade is underestimated, among others because of the difficulty in tracing services trade in the context of intra-firm trade in transnational corporations

² Source: World Bank (2002).

The paper is structured as follows: section 2 of the paper reviews literature on trade in services. 2.1 reviews studies that attempt to explain how trade in services differs from trade in goods; section 2.2 examines the theory behind trade in services, 2.3 identifies potential barriers to trade in services; 2.4 discusses the measurement of barriers to trade in services; 2.5 compares the different measures of trade barriers. Section 3 reviews the literature on FDI in services. 3.1 examines the conceptual framework for FDI in services. 3.2 discusses determinants of FDI in services. Section 4 examines the impact of trade liberalisation on developing economies; Section 5 concludes the study and draws policy insights with respect to the issues discussed and identifies areas of future research in services.

2. Trade in Services

Services were traditionally thought as non-tradable, consequently the theories that developed for explaining trade did not pay explicit attention to services. However, in the past two decades trade in services has grown rapidly. According to the WTO, the value of commercial services has grown sevenfold as compared to fivefold increase in trade in goods during the period 1980 to 1999. The increasing world trade in services can be partly attributed to the greater extent of liberalisation (unilateral, bilateral and multilateral) undertaken by different countries and partly to the technological advances that has enabled higher tradability of services. Development of a greater variety of discreet “service-oriented” products (such as software and interactive databases that can be easily accessed) has also been a key as it has created an effective medium for packaging and distributing storable knowledge and information.

We now discuss some of the critical issues that have been identified in the literature which arise with respect to trade in services:

2.1. *How is Trade in Goods Different From Trade in Services?*

The foremost issue that arises with respect to trade in services is how trade in goods different from trade in services? To answer this question we need to know how are goods different from services.

There exists an inconclusive debate on how to define services which began with the classical economists who characterised services as products of labour that perish at the moment the labour is performed, giving services an air of intangibility and transitoriness. Both of these apparent characteristics have loomed from the background ever since, and have caused great confusion later on when neo-classical economists, forced for reasons of internal consistency of their theories, saw themselves faced with the issue of how to interpret services.

The earliest attempt to explain how trade in services is different from trade in goods was made by Hill (1977 pp336) who argues that “goods and services belong to different logical categories.”³ He focuses on the fact that producers cannot accumulate a stock or inventory of services, stressing that services must be consumed as they are produced, unlike goods that can be produced and then stored. This makes it essential for the user and the provider of the service to *interact*.

But subsequent to this conceptualisation, there have been many studies that have noted the restrictiveness of Hills’s definition (e.g., Hindley and Smith 1984, Sampson and Snape 1985, Sapir 1985, Bhagwati 1984, King 1987). Melvin (1987) points out that Hill’s definition simply relates to *contact* services and that there exists a range of services which do permit a separation of the location of production and consumption in space as well as time, so that service trade may take place either at the factor or at the product level.

³Though questions were raised on the definition by Adam Smith and John Stuart Mill.

Bhagwati (1984) argues that services can be divided into two categories; first, those that necessarily require the physical proximity of the user and the provider; and second, those that do not essentially require this though it may be useful. Services that require essential physical proximity have been further categorised into three groups that are:

- a) Mobile provider and immobile user, e.g., shifting labour to the construction site in other country.
- b) Mobile user and immobile provider, e.g., hospital services
- c) Mobile user and mobile provider, e.g., lectures, haircuts, etc.

However, Bhagwati (1985) further argues that services for which physical proximity is inessential, i.e., long distance services, are on a rise due to technological progress. Services like banking and insurance fall under this category. However, unlike in the case of goods where factor mobility and trade are distinct phenomena, in the case of services the distinction vanishes as factor mobility and trade in services are two integral aspects of services transaction. But, Stern and Hoekman (1988) point out that services can be: (1) complementary to trade in goods; (2) substitute for trade in goods; (3) unrelated to goods.

Such characteristics have implications for how trade can occur. Their intangibility and non-storability implies that in order to become tradable, services have to be applied to, or embodied in objects, or information flow, or persons. Thus, for trade to occur, the means of transporting services often have to be able/permitted to cross national frontiers. This makes international transaction in services more complex conceptually than international transactions in goods.

Most economists have categorised international transaction in services into three groups; a) cross-border or separated trade analogous to trade in goods; b) transactions that require the movement of the producer to the location of the demander (demander-located services), and c) transactions that imply the movement of the consumer to the location of the provider (provider-located services)⁴. These typologies help in assessing the role played by technology on tradability of services. Trade may or may not be technically

⁴ Sampson and Snape 1985, Stern and Hoekman 1987

feasible, depending on the type of service. To the extent that it is feasible there may be different avenues available to the firms. However, the evolution of trade and investment in services between different countries depends on various factors [Hoekman and Stern (1993)], which include differences in per capita incomes, variations in factor endowments, technology and technological gaps, the degree to which capital, labour and demanders are mobile and government policies.

Though these factors also affect tradability of goods but what differentiate the two is that services have different avenues of trade as discussed above. Therefore technological and regulatory considerations that determine the relative costs associated with alternative ways of providing services become more important for services vis-à-vis goods. For example, the “right to establish” becomes an important policy issue for services since restrictions on factor inflows will be sufficient to hinge on service transactions without the need for restrictive border measures on trade. This also raises important question relating to labour mobility and immigration which has led to the notion of “right of presence” or “right of market access” as softer versions of “right to establish”.

For the purpose of classifying international transactions in services, the most commonly used classification is provided by Sampson and Snape (1985) and modified by Sapir and Winter (1994 page 27). This classification, which is based on the constraints on the physical location of producer and consumer in realising the transaction, has been adopted by the World Trade Organisation (WTO) under the General agreement on Trade in Services (GATS). GATS applies to four “modes of supply”

Mode 1: cross-border supply of service (i.e., not requiring the physical movement of supplier or customer)

Mode 2: Provision implying movement of the consumer to the location of the supplier;

Mode 3: services sold in the territory of a Member by (legal) entities that have established a presence there but originate in the territory of another Member; and

Mode 4: provision of services requiring the temporary movement of natural persons.

Thus, though studies have put forward alternative classification schemes, the basic characteristics of services on which most of the classifications are based are: *non-transferability and non-storability*. The other associated characteristics of services that need to be noted are that *services are heterogeneous and flexible in production* and *imperfect competition* is highly relevant for services. This implies that consumer preferences for variety can be easily met; also because of simultaneity in production and absorption, services can be regarded as heterogeneous products [Stibora and De Vaal (1995)].

The categorisation of services depends on the purpose of the study. It is found that the categorisation of services broadly used in the current literature on international transaction of services primarily follows the GATS classification scheme. According to the United Nations International Standard Industrial Classification (ISIC): the broad categories of services are electricity, gas and water; construction; wholesale and retail trade; hotels and restaurants; transport, storage and warehousing; post and telecommunications; financial institutions; insurance; real estate; business services; machinery and equipment rental and leasing; public administration and defense; sanitary and social services; social and related community services (including education, research and scientific institutions, medical, professional and labour associations, radio and television broadcasting, entertainment services); and personal and household services.

Alternatively, the United Nations has also developed the Central Product Classification (CPC) for identification of services. This classification is based on products and identifies more than 600 service products. The CPC classification is now used as reference for the identification of services under the GATS and also to describe the services components in the balance of payments as recommended in the IMF's Balance of Payments Manual (IMF 1993).

2.2 *Do We Need a Separate Theory of Trade in Services?*

We now come to the issue of whether the theory of trade is applicable to both goods and services. While Hill points out the differences in goods and services, many studies argue that these differences do not necessarily apply to trade (Hindley and Smith 1984). Accordingly, in the absence of a developed ‘theory’ of trade in services, the theories put forward to explain trade in goods are often applied to services. However, some of the studies have argued that the introduction of services does require a different approach, which necessitates a reinterpretation of the law of comparative advantage [e.g., Melvin (1989)]. To analyse whether the theories of trade in goods are applicable to services we briefly examine the theories of trade in goods.

The basic theory for trade in goods is the *comparative cost theory*⁵, which is based on the central concept of the opportunity cost. In an international market place, that is characterised by perfect competition, differences in the opportunity cost of production of a set of products between countries will cause these countries to specialise in those activities in which their opportunity costs are relatively low. And the lower opportunity cost will give the country a comparative cost advantage vis-à-vis the other country and therefore determine trade. This principle has been further extended in the Heckscher-Ohlin-Samuelson model.

Apart from the theory of comparative cost, the other major theory is the ‘*new trade theory*,’ which explains trade in an imperfect competition and under increasing returns. According to the theory, trade between countries is caused by the competitive advantages of specialising in a limited range of products. This explains trade between countries that do not differ in terms of their comparative costs in producing goods. Here the process of

⁵ It has two parts to it, that are, a) positive theory and b) normative theory. Positive theory attempts to explain why production of particular goods is cheaper (relative to other goods) in one location than in another and therefore why some classes of goods are exported from, and others imported to, a particular location. b) normative theory asks whether the pattern of production and specialisation which results from international cost differences is economically efficient and socially desirable.

competition leads to specialisation and therefore trade, so as to exploit the competitive advantages of scale economies that exist in most products.

Many studies apply the theory of comparative advantage to trade in services on the premise that the logic of trade theories is not limited to goods only (McCulloch 1988). Sapir and Winter (1994) in their survey of literature on service trade also conclude that “under perfect competition”, the theory of comparative advantage applies to international trade in services as well as to trade in merchandise. However, there are some studies that argue against this.

According to Melvin (1989) when the principle of comparative advantage and the H-O theorem are applied to services, they require different interpretation from those in the standard model. In particular, the study puts forward a theoretical model, which shows that if a mobile service is used intensively in the production of a mobile commodity, then the country that is well endowed with the k-factor will nevertheless import the k-intensive commodity. One reflection of the model is that a service-exporting country will have a merchandise trade deficit, this indicates a comparative advantage in the service sector. Tariff is found to be beneficial to an immobile domestic factor and a tax on the export of capital services is found to produce identical impact as that of tariff. Export or import subsidy, on the other hand, is found to have equivalent effects and that is to reduce welfare and deteriorate the terms of trade.

Further, Hindley (1990) argues that the non-transportability of services affects the basic economic concepts. For one, the integration of the world market for a service involves different interpretation as compared to a good. Unlike the case of goods, for services it is unlikely that the integrated world market will lead to uniform prices in different national markets. One reason for this is that provision of a service in a locality almost invariably entails the use of local as well as imported factors of production.

More importantly, establishment in a particular country is likely to require conformity with its regulatory system, and the regulatory system in effect is likely to affect

producers' costs. This would imply that it may not be possible to reproduce the price-quality combination of the services produced in country A as in country B. The trade in services will therefore depend on the regulatory system in a country.

From the limited literature on the theory of trade in services we can conclude that though in general, the theory of trade in goods has been applied to trade in services, but the unique characteristics of services (e.g., non-transportability and intangibility) emphasise the need for a new theory of trade in services that would help in explaining the cross-country pattern of specialisation in services.

2.3 *What Are the Important Barriers to Trade in Services?*

Numerous attempts have been made in the last two decades to liberalise trade in services. However, these attempts have not been very fruitful due to various barriers that restrict this trade. For examining the important barriers to trade, we first look at the attempts made in the last two decades to liberalise trade.

The first attempt to introduce trade in services came from the United States at the General Agreement on Tariffs and Trade (GATT) ministerial meeting of November 1982. The incentive came mainly from the U.S. private-sector service providers whose motives were to permit rationalisation of service activities along the lines of comparative advantage. It was thought that trade in services as in the case of goods would expand the sales and profits of those service providers who were operating from the base of such a comparative advantage. However, the attempt failed since the European Community was not interested and developing countries opposed the move. Some of the reasons on the basis of which developing countries opposed the move were as pointed out by Koekkoek (1988):

- a) They feared that it would lead to lower interest of developing countries in traditional issues.
- b) Since comparative advantages in services lie mainly with developed countries, especially in modern services, they saw no gains for themselves.

- c) They feared that the issue of foreign direct investment would be indirectly included and this was a politically sensitive issue.
- d) They considered services to be very important to the development process and so wanted to build their own service industries.

Although U.S. was not able to get more than a few references to services trade⁶ in the Tokyo Round agreements, it subsequently persuaded the other industrial countries of the Organisation for Economic Co-operation and Development (OECD) to undertake a study on services with a view to identify areas for future negotiations. Following U.S. efforts, the period between 1984 to 1986 saw a surge in national studies on how trade in services should be undertaken.

However, none of the studies was from a developing country. Preceding the Punta del Este, Uruguay Round in 1986, there were four main clusters that became apparent, as discussed by Richardson (1986). These were (1) the United States and some OECD countries, which favoured the original proposal; (2) the European Community, some OECD members, and some developing countries, which were working toward an overall compromise; (3) a group of ten developing countries (the G-10), led by Brazil and India, which strongly opposed the U.S. initiative; and (4) a group of twenty developing countries (the G-20) that were prepared to accept the U.S. proposal depending on the terms.

The inclusion of trade in services in the Ministerial Declaration was a result of a compromise between these four clusters. Services were finally included in the negotiations in a two-track procedure. Part I covered the negotiations in goods while negotiations on trade in services were launched in part II of the Punta del Este declaration of September 1986. Part II was drafted as a separate decision by ministers in their capacity as representatives of their governments.

⁶ Trade Act of 1974 stated that the term 'international trade' includes trade in both goods and services.

Despite this strict distinction between goods and services, however, the Uruguay Round (1986 to 1994) as a whole was considered a single undertaking to be conducted within the same time frame and under the same “umbrella,” i.e., the Trade Negotiations Committee. A substantive element in Part II, that stands out is the differentiation made between the expansion of trade on one hand and liberalisation as such on the other. This implied that liberalisation was to be the means of realising the ultimate goal of expansion in trade. The expansion of trade did not necessarily imply a liberal domestic economy. Other related points of significance are that there was no mention of preferential treatment for developing countries. Further, there was an explicit recognition of national policy objectives regarding services. Finally, although a multilateral framework of principles and rules for trade in services was aimed at, there was no reference to the basic GATT principles in this context.

Following the adoption of the Punta del Este declaration, in 1987, the Group of Negotiations on Services (GNS) was established, with a program for the initial phase of negotiations aiming at addressing underlying issues not resolved in the Ministerial Declaration while shedding some light on how to fulfill the guidelines and objectives agreed on in Punta del Este. After almost eight years of extensive discussions, the Uruguay Round of multilateral trade negotiations concluded in April 1994.

The participating countries agreed to establish a World Trade Organisation (WTO), which, among other things, will administer three multilateral trade agreements: the already existing GATT, as amended during the negotiations (the so-called GATT 1994), as well as the new General Agreement on Trade in Services (GATS) and the Agreement on Trade-Related Intellectual Property Rights (TRIPs).

Under the GATS, recurring rounds of negotiations have helped to gradually achieve higher extent of liberalisation of services and discipline the use of non-tariff measures. However, the efforts to remove institutional barriers so far yielded only limited multilateral commitments to effective liberalisation and even after the inception of the GATS there remains significant scope for liberalisation of international transactions in

services. There exists a vast literature that examines different provisions of the GATS and assess its relevance for different countries [e.g., UNCTC (1990), Balasubramanyam (1991), Bhagwati (1991), Chanda (1991), Hoekman (1995), Mukherjee (1995), Bhagwati (1996), Hoekman et al (1996), Greenway and Morissey (1996), Hoekman and Braga (1997), Self and Zutshi (2002), Mukherjee (2004), Findlay (2002), Srinivasan (2002, Hoda (2004)]. However, instead of reviewing the debate on the GATS, we attempt to analyse (a) what restricts trade and (b) whether trade in services is beneficial for developing countries or not?

Since services trade often requires (temporary) movement of provider or consumer, restrictions on services mostly arises from regulations and discriminating requirements regarding this movement. Therefore barriers to trade in services are particularly difficult to identify. Also, most of these barriers do not occur “at the border”. Most service industries are highly regulated by national governments so that non-tariff barriers may be inadvertent and also specifically designed to exclude foreign competition. Alternatively, foreign suppliers may have to pay an “entry fee” or may be subject to market share restrictions. Policy instruments that restrict trade in services may include measures such as quotas, local content restrictions, prohibitions, subsidies, tariffs, taxes, technical standards, licensing and procurement.

Hoekman and Braga (1997) discuss some of the important barriers to trade in services. In case of some services, trade is prohibited while in others there are important restrictions imposed. Prohibitions to trade occur in the case where foreign access to service markets is completely forbidden, e.g., in the case of transportation of goods within a country and basic telecommunication service providers. But restrictions to trade take various forms e.g., quantitative restrictions (QRs) are often used to restrict international trade in services, but unlike in the case of goods they are applied to providers of services rather than services per se. Along with QRs, price controls are also used to ensure that prices are not set at either market clearing levels or at the monopoly level. Some of the services, which are subject to price controls in many countries, are financial, telecommunications and air transportation services.

Alternatively, tariffs are imposed to restrict trade in services that occurs via the cross-border movement of natural persons, e.g., visa fees, entry-exit taxes, etc. But tariffs form a potential trade barrier for those services that are either embodied in goods e.g., films, television programs, etc. or for goods that are necessary inputs into the production of services, e.g., computers, telecommunication equipment, etc. Along with tariffs, service industries are also sometimes supported through explicit or implicit subsidies, especially in construction, communication and transport, which make it difficult for trade to occur.

Other important barriers to trade, as discussed by Hoekman and Braga, are standards, provision of licensing and procurement. In the service context, standard-type restrictions include non-recognition of imported services or services procured abroad (e.g., diplomas or degrees obtained from foreign country). Environmental standards may influence services related to transportation and tourism Certification or licensing may be required in case of professional and certain business services. These licensees are generally accorded by the government or professional business bodies and may limit entry into the industry. The government procurement policy may also be designed to discriminate in favour of domestic service providers. Examples of such services are education, data processing and non-medical professional services⁷.

Along with these barriers regulations regarding marketing and distribution can also be an important trade barrier. For example, in insurance, regulations on advertisements limit the ability of foreign firms to compete (Senti 1986). Also, in case of branded products, distribution arrangements (e.g., establishment of a dealer network) may act as an important indirect barrier to market access. Different types of non-tariff barriers that apply to trade and investment in services have been tabulated as follows:

⁷ Francois, Nelson and Palmetier (1997) find that in case of U.S. the government procurement regulations have maximum impact on these services.

Types of Non-Tariff Barriers to Trade in Services:

	Category of Service Trade and Investment			
Barriers to	Trade		Investment	
	<i>Across-the-border</i>	<i>Domestic</i>	<i>Foreign-earnings</i>	<i>Third-country</i>
Product Movement	Market Access, Local Purchase, Telematics, Government activity, ♦ Technical standards Charges/taxes, Intellectual property.	Telematics*	Market Access, Local Purchase, Telematics, Government activity, Technical standards, Charges/taxes, Intellectual property,	Market Access, Local Purchase, Telematics, Government activity, Technical standards.
Capital Movement	Currency restrictions	Currency restrictions	Currency restrictions, Repatriation of profits	Currency restrictions, Repatriation of profits
Human Movement Labour Consumers	Work Permits, recognition and licensing requirements, economic and other labour market needs tests, nationality and residency conditions, and wage parity requirements	Visas, Departure tax.	Work Permits, Staffing and Management restrictions	Work Permits, Visas, Departure tax.
Producer establishments			Right of establishment, Access to production inputs.	Right of establishment, Access to production inputs.

*In consumer's home country.

♦ Subsidies, dumping, procurement, practices, regulations, monopolies.

Source: Adapted from Riddle 1986, R.J. Krommenacker 1984 and R.K. Shelp 1984.

The above identified barriers to trade in services have been categorised into five broad categories by Hoekman and Sauve (1994). These are:

- (a) Quantity -based barriers.
- (b) Price-based barriers.
- (c) Barriers that impose physical or corporate presence in a domestic market.
- (d) Barriers related to standards, certifications and industry-specific regulations.
- (e) Procedures of government procurement and subsidisation.

All in all, policy regimes in services are more difficult to assess and restrictiveness seems to be higher because of the pervasiveness of regulations. Institutional restrictions on contestability appear to complement the natural barriers of relatively high trading costs. Hence, institutional changes towards increased exposure to foreign competition have yet to make a significant contribution to (further) internationalisation of service markets. But to make any progress vis-à-vis lowering of barriers to trade in services, we first need to measure these barriers.

2.4 How Do We Measure Barriers to Trade in Services?

An important issue with respect to trade in services is how to measure barriers to services trade. Research into measurement of services trade barriers is fairly recent. Two different streams of research exist in this area. One that measures the size of barriers to trade in services and the other that attempts to estimate the impact of barriers to trade [Chen and Shambri 2001]. We discuss the two streams of research and examine their limitations.

Research on the **size of the barriers** use measures, that are categorised into three groups:

- a) Frequency based Measures
- b) Quantity based Measures
- c) Price-based Measures

Frequency Based Measures:

Hoekman (1995) uses GATS commitment schedules of member countries to develop frequency measures. The commitments are divided into three categories and a numerical score is assigned to each category. These categories are as follows:

1. If no restrictions are applied for a given mode of supply in a given sector, a value of 1 is assigned.
2. If no policies are bound for a given mode of supply in a given sector, a value of 0 is assigned.
3. If restrictions are listed for a given mode of supply in a given sector, a value of 0.5 is assigned.

These scores are called openness/binding factors. For each member country the number of openness/binding factors that exist is determined by taking a product of the number of non over-lapping services and four possible modes of supply. Using these factors Hoekman calculates three *sectoral coverage indicators* (i.e., Hoekman indices).

- a) the number of commitments made by a country in its GATS schedules divided by the maximum possible.
- b) “average coverage”, i.e., is equal to the sectors/modes listed as a share of maximum possible, weighted by the openness/binding factors.
- c) “no restriction” i.e., is equal to the share of no restriction commitments in either a member’s total commitments or relative to the possible sectors.

The above coverage ratios can be used to quantify relative restrictiveness of policy regimes pertaining to services because the coverage in each country’s schedule is an indicator of its policy stance (higher coverage implies more open regime). PECC (1995) measures the impediments to services trade in APEC member economies using Hoekman indices, i.e., one minus Hoekman indices measures restrictiveness of a country’s policy in a sector. Alternatively, “tariff equivalents” can be constructed using a country’s coverage ratio.

Apart from Hoekman and PECC, the Australia's Productivity Commission, (ANU) has constructed *trade restrictiveness indices* for six service industries: telecommunication (Warren 2001), banking (McGuire and Schuele (2001), maritime transport (McGuire et al 2001), education (Kemp 2000), distribution (Kalirajen 2000) and professional services (Nguyen-Hong 2000). These indices are constructed by assigning scores to different types of restrictions, which are then grouped and assigned weights based on the cost of restriction to economic efficiency. Using these weights the indices are then constructed.

For each industry, studies have estimated several indices, e.g., "foreign index" that covers restrictions on foreign service suppliers, "domestic index" that applies to all suppliers operating in the domestic market, etc. These indices give insights into the type of policy regime that exists in a country. Based on these indices comparisons can be made regarding deviations from national treatment or extent of restrictions on market access. Using similar methodology Hardin and Holmes (1997) have constructed indices for assessing the barriers to FDI across sectors.

There are some important differences that have been pointed out by Chen and Schembri (2001) between the above three approaches, i.e., Hoekman, PECC and the Australian team. First, Hoekman and PECC use the GATS commitment schedules, while the latter approach uses actual estimates⁸ of the size of impediments to trade obtained from a number of sources. Second, Hoekman and PECC use a simple weighting/scoring system with only three values (0, 0.5 and 1), while the Australian team uses more elaborate weighting/scoring systems. And finally, the Australian team covers a much broader spectrum of trade restrictions.

Using variations of Hoekman approach and the Australian approach several other studies have constructed frequency measures, e.g., Marko (1998), Classens and Glaessner (1998), Mattoo (1998), Colecchia (2001), etc. Some important variations in these studies need to be highlighted. Classens and Glaessner compute indices for both actual restrictions and GATS commitments. While Mattoo (1998) attaches different weights to

⁸ With the exception of Kemp (2001).

different modes of supply with maximum weight assigned to commercial presence. He also devises a more elaborate scoring system for commitments on commercial presence. The liberalisation index is then constructed using the weighted average of these scores given to a country's commitments. Colecchia's restrictiveness index differs from the Australian team since in place of taking simple weighted average of scores he uses deviation of the weighted average from some benchmark, which is defined to be a level of protection/openness considered to be the norm.

Quantity Based Measures

Quantity-based measures of trade restrictiveness are derived using econometric models based on the standard models of trade determination, e.g., the H-O model (based on principle of comparative advantage), Helman-Krugman model (based on product differentiation) and gravity model (based on relative size and proximity of trading partners in terms of distance and other factors such as language, culture, etc). Sizes of non-tariff barriers (NTB) are measured either by residuals from the estimated regression (i.e., the difference between the actual trade and the level predicted by the model) or by using various dummy variables (Deardorff and Stern 1998).

Many studies have used quantity-based measures to estimate NTBs for trade in goods and very few studies have applied them to services. Hoekman and Francois (1999) and Warren (2001) are some such studies. Hoekman and Francois fit a gravity model to bilateral trade in services between the US and its major trading partners and the residuals that indicate size of the barriers to trade are then normalised relative to the free trade benchmarks (which are assumed to be Hong Kong and Singapore). Warren (2001) develops a quantity-based measure for telecommunication services for 136 economies. But like Hoekman and Francois he does not use residuals or dummy variables but uses the trade restrictiveness index, which allows him to isolate the impact of these impediments from that of other factors. These quantity estimates are also converted into tariff equivalents using a price elasticity of demand.

Price-based Measures

Estimates of barriers to trade have also been derived from differences in domestic and foreign prices depending on the availability of sufficient data on prices (Deardorff and Stern (1998)). Such measures can be constructed directly by comparing the domestic price (P) of the imported good with a reference foreign price (P^*). Different prices have been used for P and P^* e.g., actual prices, c.i.f. invoice prices, quota transfer price, etc. The percentage difference between the domestic and foreign price is comparable to a tariff (T). Price wedges can also be derived from quantity-based measures with the help of elasticities of demand and supply.

Most of the empirical price comparison studies have been limited to NTBs in merchandise trade because of lack of prices in service trade. However, Francois and Hoekman (1999) proposes a measure based on gross operating margin, i.e., total sales revenue minus total average costs divided by total average costs. Hoekman (2000) suggests two methods to gauge the sizes of trade barriers. The first is to use the difference between the average margins of a benchmark country with relatively free trade and the margins of the other countries in the sample. The second method employs the difference between manufacturing and service margins, with the margins in manufacturing serving as the benchmark.

There are very few studies that use price-based measures for services [e.g., Trewin (2001) for telecommunications, Kalirajan et al (2001) for banking, Kang (2001) for maritime transport, Kalirajan (2000) for food distribution, and Nguyen-Hong (2000) for engineering services]. All these studies belong to the Australian productivity team. These studies use an econometric model at the industry level with price as the dependent variable. They identify a list of variables that affect the price. The list includes barriers to trade measured by trade restrictiveness indices as one of the dependent variable. The estimated coefficients of the regression model are then used to calculate the sizes of price wedges for individual economies.

Along with quantifying the barriers to trade in services, there has been a corresponding stream of literature that attempts to quantify the economic **impact of barriers** to trade in services. On the basis of the economic theory the studies construct a general or partial equilibrium models to capture the interactions among consumers, producers and government. In case of the general equilibrium model, the linkages among different sectors of an economy are also represented. The models are calibrated and used to simulate the effects of trade liberalisation. The impacts of barriers to trade are then computed by comparing the actual situation with the simulated free trade equilibrium.

Amongst the general equilibrium models, the most commonly used are the computable general equilibrium (CGE) models. The two most commonly used types of CGE models are various versions of the Global Trade Analysis Project (GTAP) model and the Michigan Model of World Production and Trade. Studies based on the GTAP model are Hertel et al (1999), The Australian Department of Foreign Affairs and Trade (1999), Dee and Hanslow (2000), and Verikios and Zhang (2000). Applications of the Michigan Model are Brown et al (1996), Chadha (2000), Chadha et al (2000) and Brown and Stern (2000).⁹

Very few studies have used partial equilibrium analysis to quantify the impact of liberalisation of trade in services. Johnson et al (2001) estimates the effects of increasing competition in international air services. The effects on economic welfare is quantified by the sum of consumer surplus and airline profits, associated with these changes. Three different scenarios are compared, i.e., first, if airlines of member countries are freed from restrictions on their operations, second, airlines enter into a regional kind of agreement and third, the two effects considered together. Simulations are used to arrive at results for the three scenarios. We now examine how these two kinds of measures compare.

⁹ OECD (2000) and Brown and Stern (2000) undertake a detailed survey of these studies.

2.5 *How Do Different Measures of Barriers to Trade Compare?*

Before comparing different measures of barriers to trade, we must recognise that the research in this area is fairly recent, which began with the pioneering work of Hoekman (1995). Further, the severe lack of data limits the scope of these measures. Therefore, at the outset it can be said that further research and data building is required to design more appropriate measures of barriers to trade.

The research on measures of trade barriers is divided into two broad categories, i.e., size measures and impact measures as discussed above. The size measures indicate the size of the barriers while the impact measures (e.g., CGE models) reveal the magnitude of the impact of the trade barriers. In this respect the scope of impact barriers is generally wider but they also require richer information content. More importantly, the impact measures are found to be weaker in terms of their accuracy and reliability. There are several reasons put forward for this, e.g.,

- a) The inadequacy of existing data is more serious problem for impact measures as compared to size measures
- b) The general equilibrium models are calibrated using one historic set of observations, leaving the estimated results potentially sensitive to the use of different sets of observations, especially if there has been some major changes in the economy.
- c) The CGE models are a black box and it is difficult to judge objectively the reliability of the estimates. As a result different studies arrive at different results for the same economy for the same period¹⁰. Admittedly various approaches to size measurement may also produce wide range of estimates, but the reliability of the estimates is much easier to gauge and differences less difficult to reconcile. For example, for price and quantity based measures obtained using econometric models test-statistics that determine the goodness of fit with a high degree of accuracy are available.

¹⁰ This variation arises due to differences in the structure and assumptions of the model.

Frequency Vs. Price/Quantity based measures.

Comparing frequency based measures to price based measures we find that frequency based measures have greater transparency but price/quantity based measures provide richer information content though have generally greater data and resource requirements and therefore have a narrower scope of application. An important exception to this is Francois and Hoekman (1999) approach that is based on operating margins which can be applied uniformly to a broad range of sectors and countries.

Also, the price/quantity based measures that apply an indirect approach, i.e., measures are inferred indirectly from the estimation residuals and are therefore relatively subject to deficiencies in accuracy and reliability more since they are very sensitive to the specification of the empirical model. This approach also suffers from an inherent bias towards exaggerating the size of government-erected barriers to trade as all deviations from the competitive levels are attributed to barriers erected by the government. But, on the other hand frequency-based measures also suffer from over or under estimation of the size of barriers if weighing/scoring system is not specified properly. However, such a bias is not systematic in nature.

In short, each of the approaches discussed has its strengths and weaknesses. Which of the approach is best to use largely depends on the objectives of the study. On balance, the literature supports and widely uses Hoekman approach and Australian approach of using frequency measures to estimate the size of the trade barriers. Efforts are however required to improve on these indices and generate new approaches to estimate trade barriers.

3. Foreign Direct investment in Services

Foreign Direct Investment (FDI) has grown faster than the global output and trade over the last two decades. This has given rise to a number of theoretical and empirical studies that have investigated its determinants and impact on the host economies. However, much of this literature has focussed on FDI in manufacturing and very few studies exist

for the services sector. This is an important lacuna in the literature since FDI in services has been found to grow even more rapidly than FDI in manufacturing¹¹. Also, liberalisation of trade has become one of the key issues in multilateral negotiations and much of this trade is carried out via FDI¹² (UNCTC 1990, Dunning 1993). This is also recognised in the GATS as FDI is categorised as one of the modes of trade in services. We first examine the conceptual framework behind FDI in services and then examine its determinants.

3.1 How Relevant is Theory of FDI for FDI in Services?

Like trade, FDI exploits profit potential that cannot be captured in one's own country. Studies differ with respect to the framework used for service FDI. Some studies have applied theories that are applicable for FDI in goods (for example Chanda 1997, Schroath and Korth 1988, Gray and Gray 1981) while others have applied trade theories to service FDI (for example Helpman 1984, Markusen et al 1996).

Of the various theories put forward to explain FDI, Dunning's eclectic paradigm of international production (Dunning 1981) has been used by many studies (e.g., Chanda 1997). The theory combines the traditional theory of factor endowments with the theory of economic organisation. According to this theory, the extent, pattern and growth of value added activities by transnational corporations (TNCs) depend on their competitive advantages relative to local firms. These advantages include ownership, locational and internalisation advantages (OLI), i.e., the propensity for a firm to invest in foreign locations depends on a combination or any one of the following three elements:

- (i) its ownership of core competencies or specific intangible assets that enhance competitive advantage;
- (ii) locational advantages that would derive from a transfer of operations onto a new region;
- (iii) internalisation advantages that may accrue to such investing firms.

¹¹ FDI in services now accounts for nearly 60% of the total stock of outbound FDI in U.S.

¹² Karsenty (1999) estimates this to be around 37.8% of total trade taking place in the four modes.

Dunning (1989) identifies different ownership, locational and internationalisation advantages of services transnational corporations. Rugman and Verbeke (1992) propose that a firm can successfully undertake direct investment abroad if it possesses some asset advantages, which may be location-bound or non-location bound¹³. In case of 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, etc.

However, enterprises would engage in foreign production whenever they perceive that it is in their best interest to combine spatially transferable advantages with at least some immobile factor endowments or other locational advantages in host countries. These advantages may be in the form of tariff barriers, large markets, availability of resources at low cost, etc in the case of goods. While in the case of services, important locational determinants are input costs, infrastructural provisions, government regulations, size and character of local market, economies of being close to suppliers, customers, competitors, etc.

But mere ownership of assets and locational advantages are not considered to be a sufficient condition for FDI, firms must also be able to internalise their ownership advantages to undertake FDI successfully. The need to internalise arises from transaction costs, which are the result of imperfect nature of product and technology market (Hymer 1976, Buckley and Casson 1976, Vernon 1966) and/or imperfections in financial markets (Rugman 1982). Without the advantages of internalisation, FDI might be replaced by exports or licensing. Internalisation 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.

¹³ Non-location bound firm specific advantages are defined as those advantages that can be exploited globally and lead to benefits of scale, scope or exploitation of national differences. These advantages can be transferred abroad at low marginal costs and used effectively in foreign locations while location- bound

Alternatively, studies that apply trade theory to FDI in services argue that the theory of FDI follows in many respects the theory of international trade, except that it has also to explain why FDI rather than trade is used in order to capture the potential profit. Attempts have been made to endogenise multinational firms into general equilibrium trade models. Firm-level characteristics combine with country-level characteristics and trade costs to determine what types of firms exist in equilibrium. Like in trade there are two distinct patterns of FDI: the “vertical” or inter-industry pattern, often found in FDI from developed to developing countries, exploiting industry-wide comparative advantages (as in Helpman 1984). The second pattern is “horizontal” or intra-industry, where usually relatively specific advantages within given industries between developed countries are exchanged. As in trade, most FDI is of the latter type.

Markusen et al (1996) show that vertical multinationals dominate production when countries differ significantly in relative factor endowments, but are similar in size. Horizontal multinationals dominate when countries are similar in both size and relative endowments and trade costs are moderate to high. National firms dominate (a) when trade costs are low and relative endowments are similar or (b) when trade costs are moderate, relative endowments are similar, and countries differ significantly in size. The “trade regime” could however differ substantially from standard Heckscher-Ohlin theory and its trade-industrial-organisation extensions (e.g., Helman and Krugman).

While in the trade theory, the increasing returns sector (X) is assumed to be skilled-labor intensive relative to the competitive sector (Y), multinationals unbundle this sector into separate activities, one of which is more skilled-labor intensive than Y (headquarters) and one of which is less skilled-labor intensive (final production). If differences in relative endowments are moderate, then the skilled-labor-abundant country exports X. But, if the relative endowment difference is large vertical multinationals enter, fragment the X sector, concentrating headquarters activities in the skilled-labour-abundant country and

advantages are those advantages which cannot be easily transferred and require significant adaptation in order to be used in other location.

production in the unskilled-labour abundant country. This reverses the direction of trade, with the skilled labour-abundant country importing. X.

Also, if trade costs are low, the ratio of sales by affiliates of multinationals to the sum of trade flows and affiliates sales is highest, when countries differ significantly in relative endowment but are of similar size (vertical multinationals dominate). If trade costs are high, the ratio is highest when countries are similar in both relative endowments and size (national firms dominate).

Further, production across borders is advantageous if it combines inputs from two countries that are cheaper, better or unavailable in one of them and if such inputs are either non-tradable for some reason or if there are artificial barriers to trade in them. The non-tradability issue of services necessitates FDI. Some of the most important inputs provided by FDI are knowledge capital, managerial services, engineering services, financial services, marketing services and information services, and similar business services. These services are mostly centered in the headquarters of multinationals of the developed countries. They require high levels of human capital, enjoy returns to scale (due, among others to the high information content in them), which is the source of the comparative advantage enjoyed by developed countries.

Since these services included under knowledge capital are not easily tradable, because their dissemination requires the presence of the people with appropriate skills in the host country, in order to be transferred they require FDI. Also, much of this tacit knowledge is disseminated through learning-by-doing and not through formal instructions or by foreign experts.

The two theories of FDI in services therefore differ with regards to their explanation as to why FDI rather than trade occur and what kind of FDI occurs. Both theories have their merits. While the theory of FDI that is used to explain FDI in goods is easier to empirically estimate, the theory of trade when applied to FDI is able to explain the nature of FDI that takes place and also why FDI takes place rather than trade. However, there

are certain characteristics of FDI in services that merit exclusive attention, which are not covered in either of the two theories:

- a) In manufacturing, the segmentation of production process can take place as a result of which FDI can establish value chain of production by splitting labour intensive part and less labour intensive part of production process in different countries. But because of low tradability in services, such segmentation in services is very difficult. How do FDI in services then transnationalise?
- b) Services affiliates have a lower propensity to engage in intra-firm trade than manufacturing affiliates (again because of problem with respect to splitting up), but at the same time they are more skill and capital intensive (precisely for the same reason) than manufacturing affiliates. What are the implications of this on the direction of service FDI?

Apart from the above characteristics, regulations play a much more important role with respect to FDI and trade in services as compared to FDI and trade in goods. This merits an exclusive exposition to FDI in services.

3.2 *What are the most important determinants of FDI in services?*

As discussed earlier, though a vast literature is available on the determinants of FDI in goods, very few empirical studies exist on the determinants of FDI into services. Among them are UNCTC (1993), Fukao and Ito (2000), Buch (2000), Chanda (2000) and Raff and Ruhr (2001). But, most of these studies are mainly undertaken for some of the prominent producer services, e.g., banking and insurance. The determinants of service FDI that are identified in the literature can be categorised as follows UNCTC (1993):

- a) Market size/ local customer base
- b) Home-country business presence
- c) Host government policies
- d) Local customer base

- e) Cultural distance
- f) Competitive advantages
- g) Tradability of services
- h) Global oligopolistic reaction
- i) Industry concentration
- j) Growth of the firm size

These determinants are drawn from various theories, for example, eclectic paradigm (Dunning 1988), internalisation theory (Buckley and Casson 1976), oligopolistic reaction (Knickerbocker 1973), cultural distance (Hofstede 1980, Kogut and Singh 1988) and firm strategy (Kogut 1988, Porter 1990). Markusen (1989) points out two main characteristics of producer services, which are knowledge based and differentiated. Knowledge based implies that acquiring knowledge to produce this service entails huge initial investment costs but the marginal cost of supplying the service once it is gained is considerably low. Hence scale economies become important with respect to producer services. Differentiated implies that producer services are horizontally and vertically differentiated. Horizontal differentiation implies that there are many symmetric varieties of producer services while vertical differentiation implies that within each variety quality can vary. Both these characteristics imply that it is difficult for the customers to know a priori what they are purchasing. These characteristics differentiate services from goods and this has implications on the determinants of service FDI.

(a) Market Size/ Local Customer Base

Market size is found to be the most important determinant of inward FDI in good by most of the studies. A number of studies have tried to estimate the impact of host country market size on the inflow of FDI in services and have arrived at mixed results. It is found to be a significant determinant for transnational banks [Gray and Gray (1981), Rugman (1981)], international advertising agencies [Weinstein (1977), UNCTC (1979), Trepstra and Yu (1988)], transnational insurance firms [UNCTC (1980), Schroth and Korth (1988)] for services FDI by UNCTC (1992).

However, UNCTC (1993) conducts an analysis of the impact of market size on developed country service FDI, (i.e., service FDI from U.S., Canada, Japan, Europe and “other developed countries”) and for developing regions service FDI, (i.e., Latin America, Africa and Asia) for two sub-periods, 1976-1980 and 1980-86, to developed countries and developing countries. The results show that developed countries’ market size measured by GDP is a significant determinant for services FDI from U.S. and Europe; and developing countries market size is significant determinant for U.S. and Japan for the latter period. On the whole, it can be derived that though market size is an important determinant for FDI in services but its importance is lower than for FDI in goods.

(b) Home-country business presence

Studies have found that home business presence is one of the most important determinant for FDI in services as this increases the number of informed customers in the host country, who are aware of the services and therefore are more likely to create demand for these services. That is to say that producer services firms locate where they find a large customer base. They therefore follow FDI by downstream firms from the same home country and only later become more responsive to local demand since they find it initially difficult to attract local customers.

This has also been found by a number of case studies of individual service industries. FDI stock (lagged by one period) has generally been used as an indicator of home business presence in the host countries. Empirical studies in international banking and advertising that have observed this follow-the-client motive are Weinstein (1977), Khoury (1979), UNCTC (1979), Goldberg and Saunders (1980), Ball and Tschoegi (1982), Nigh et al (1986), Terpstra and Yu (1988), Davis, Hanlon and Kay (1993), UNCTC (1993). Raff and Ruhr (2001) also find this to be true for FDI in producer services.

(c) Host Government Policies/ Openness

Similar to FDI in goods, the “rule of law” is the major barrier to service FDI. Categorical refusal to permit FDI in selected services still exists in many countries. However, post GATS, many countries, mainly developing countries, are now changing their policies and allowing FDI into selected services sectors although restrictions on the extent of foreign ownership still exists. According to studies by the OECD (1982, 1987), the UNCTC (1988) and Walter (1985), government policies and regulations are one of the most important determinants of the location of service FDI.

With respect to host country’s openness, Chanda (1997) shows that in a situation where exportables are more intensive in the use of producer services than the import-competing sector, if the exportables sector expands following trade liberalisation, then there is increased demand for service sector specific inputs. Therefore, given the limited domestic endowment of this input, higher trade in final goods may lead to higher investment in intermediate services. The extent of openness, which is determined by government policies, is therefore an important determinant of FDI inflows into services.

Some of the studies (UNCTC 1992) have constructed an openness index on the subjective evaluation of degrees of government controls and impediments [e.g., controls of entry, establishments and ownership of FDI] and estimated its impact on inward FDI in service industry and find the index to have a significant impact on inward services FDI.

(d) Cultural Distance

Different host countries have different cultures, tastes and needs and FDI in services need to adapt themselves to the tastes of local customers. In this respect cultural distance is also found to be an important determinant of FDI in services (Hofstede 1980, Prahalad and Doz 1987, Kogut and Singh 1988, UNCTC 1993).

(e) Competitive Advantages

Competitive advantages of service firms have been elaborated in terms of ownership, location and internalisation advantages by Dunning (1989). As international competition in services grow, competitive advantages become increasingly important determinant of services FDI. However, competitive advantages in services are difficult to measure and also transfer, especially if they are culturally and institutionally embedded. A country's competitive advantage in a particular sector is revealed by either higher exports from that sector or by outbound FDI from that sector. Since the services sector is characterised by location-boundedness and varying degree of tradability (Sauvant, 1986), outbound FDI in services has been used by studies to estimate the impact of competitive advantage. UNCTC (1993) estimates international competitiveness index (ICI) that combines Balassa's revealed comparative advantage (RCA) (Balassa 1965,1977) and the intra-industry FDI as developed by Norman and Dunning (1984) and Dunning (1988). The ICI Is computed as follows:

$$ICI_{ij} = (Q_{ij} - I_{ij}) / (Q_{ij} + I_{ij})$$

Where

Q_{ij} is the number of foreign affiliates in industry i formed by firms based in country j and I_{ij} is the number of foreign affiliates in industry i formed in country j by firms not based in country j .

It is found that FDI in services is positively affected by the international competitiveness of the home country's service industry. However, when the impact of ICI is estimated for different services we find that it is not a significant determinant in case of trade-related services and business-services. Only in case of finance-related services it has some effect.

(f) Tradability of Services

The fact that services are largely intangible and non-storable implies that international transaction in services can occur mainly by inward FDI or by an indigenous firm

producing under a licensing arrangement with a foreign TNC. However, the tradability of services has improved considerably with the advances made by information technologies (Sauvant 1986 and 1990). This has led to an emergence of network-based trade. Thus, the location-bounded-ness of FDI has reduced. Higher the tradability of services lower will be the chances of providing services via FDI route. UNCTC (1993) measures the tradability of services by the ratio of export sales over total foreign sales in a service industry and finds it to have a negative impact on services FDI.

(g) Global Oligopolistic Reaction

Oligopolistic reactions occur when firms are mutually interdependent. FDI in manufacturing have been found to follow their competitors (both domestic and international) in setting up their units in the host countries as a defensive strategy (Knickerbocker 1973, Flowers 1976, Graham 1978). Trrpstra and Yu (1988) test this for FDI in the U.S. advertising industry and find that such an oligopolist strategy does explain FDI in this service industry. To measure the global oligopolistic reaction (GOR) the following measure is used:

$$GOR_{ij} = C_{ij} / P_{ij}$$

Where C_{ij} is the number of other foreign parents with affiliates in service industry i , in host-country j , excluding the service firm in question; and P_{ij} is the total number of all foreign parent service firms with a potential for establishing affiliates in industry i , in host-country j . It therefore includes all other firms in the sample based in a particular country. GOR_{ij} is found to influence inward FDI in the host countries FDI in services also need to compete on the basis of global strategy (Hout et al 1982).

(h) Firm Size

International expansion is one of the major growth strategies of the firm. Larger firms are more likely to become transnational as compared to smaller firms. Like in manufacturing of goods, firms size has also been found to be a significant factor in the international

behaviour of several service industries such as banking and advertisement (Ball and Tschoegl 1982, Terpstra and Yu 1988).

With respect to determinants of FDI in services we find that the determinants that are found to be significant for FDI in goods are also found to be significant for FDI in services. However, the importance of determinants differs. Some of the most important determinants for FDI in services are: government regulations and policies, cultural distance and tradability of services. While for FDI in goods the most important determinants are market size, barriers to trade and cost differentials in production.

There is a tremendous scope in the literature to test the significance of different determinants of FDI in services. The results of UNCTC (1993) suggest that even if services are categorised into different groups, e.g., finance related services, trade-related services, business services and other services, the factors that are found to be significant are similar to the ones found significant for all services. The significance of factors also does not differ much across developed and developing regions. The competitive structure of industries and government policies that encourage openness are found to significantly affect the international behaviour of service FDI. However, much has changed in the 1990s. Therefore it would be interesting to undertake such an analysis for 1990s.

The above analysis of the determinants of FDI in services further strengthens the need for a separate theory for FDI in services that would be able to incorporate distinct characteristics of services and also explain the cross-country pattern of FDI in services.

4. Impact of Trade Liberalisation on Developing Countries

Before we assess the present state of literature with regards to the impact of trade liberalisation of services in developing economies, it is important to note that developing economies are themselves a heterogeneous group of economies ranging from rapidly growing Asian economies, hardly growing African economies and very slow growing least developed economies. The impact of trade liberalisation of services may therefore

differ in these countries as these economies differ in terms of their absorptive capacity vis-à-vis services and also level of specialisation acquired with respect to services. 'Services' also, in turn, is a term used broadly for different kinds of activities. These activities are also not uniform-they are as termed by Bhagwati (1989) "a vector of characteristics"-that is, it has several dimensions. Within the same service industry, several different countries can have different comparative advantages.

The impact of trade liberalisation of services has been analysed by different studies for different economies and for different services. However, broadly the *arguments put forward in favour of trade liberalisation* are as follows:

1. The role of services as producer inputs is very important. Since services constitute a number of intermediate inputs, like banking and insurance, to the industry it is important for developing economies to have efficiency in these inputs so as to be able to compete in international as well as domestic markets. The efficiency in producer services can be reached by liberalisation of these services. This would also in a way imply efficiency in export-oriented production (Bhagwati 1989).
2. Along with horizontal linkages as envisaged by Bhagwati (1989), services also provide the producers with vertical linkages, i.e., link between upstream and downstream services, which provides the producer with the key to remain competitive. "Upstream" services include product designs, market feasibility studies, etc; "downstream" services include services which follow production, e.g., advertising, marketing, packaging and transport. And "on-stream" services are used during manufacturing of a product, e.g., quality controls, banking, software services, administrative services, etc. The feedback between upstream and downstream services permits the producer to react to developments in the international market by conceiving new designs and transmitting them to production through on-stream services and become quickly competitive in the world market (Gibbs 1989).
3. Import substitution programmes, particularly in the area of data processing, can be extremely expensive for users and in turn may affect the productivity. For example, if acquiring a computer is expensive, efforts to increase computer literacy will be frustrated adding to both consumer cost as well as political costs.

4. If there is a free emigration for people, these people can work abroad for a temporary period and learn technology at the cutting-edge. This will provide the developing country to with know-how learnt by their nationals and also lead to higher efficiency at a lower cost as compared to the programme of import-substitution.
5. Domestic consumers gain from lower prices and higher efficiency of the consumer services provided to them.
6. The trade in services will also follow the rules of comparative advantage and therefore joint benefit will accrue to both exporting and importing countries from exploiting comparative advantage and improved market access opportunities abroad. Further, it has been stressed that the production of many services is labour intensive and therefore should be a source of comparative advantage for developing countries in services provision. In fact, it is considered that many developing countries have a comparative advantage in providing services that require skilled labour and unskilled labour (for example, construction team). Data shows that export of these kinds of services from the developing countries are not negligible.
7. The least developed and developing countries will also benefit from the increased South-South trade, the scope of which is generally ignored by these countries when discussing liberalisation of trade in services. This increased access to each other's markets will also allow for economies of scale (as in banking, for instance).

However, despite the above arguments least developed and developing countries have shown lot of concern about liberalising their services sectors. Their concern stems from a number of reasons. The *reasons for restraints on liberalising services by developing countries* are broadly as follows:

1. Many services, such as, banking and insurance, are considered to be a part of the infrastructure of developing countries. Policy makers in developing countries argue that they must have control over their infrastructure. Since they do not have comparative advantage necessary to succeed in international competition, trade in services might mean that they lose control over their basic infrastructure.
2. Another concern that developing countries express is in terms of the nature and size of the adjustments in domestic economies that would be needed with trade in services. One dimension of adjustment relates to potential foreign majority ownership

and control of provision in key service sectors, and the related security and cultural concerns. For instance, a vibrant and vital domestic broadcast or film industry may be viewed as integral to national identity.

3. Added to such concerns is the potential size of labour market adjustments if domestic banks are displaced by foreign banks, domestic by foreign airlines, and other large changes in the organisation of labour intensive sectors which might follow after liberalisation.
4. If the arguments in favour of trade liberalisation in services rests on the theory of comparative advantage, similar to that in goods, then the arguments put forward supporting protection from trade in goods should also apply to services. That are, arguments for optimal tariff (terms of trade improvement from protection), infant industry protection argument, tariffs for transfer rents (rent shifting) argument, and argument in favour of tariffs that offset other domestic distortions. These arguments should then apply to protection in services and qualify the presumption that developing and least developed countries would benefit from freer global trade.
5. Also, like in goods, the theory that trade can be immiserising due to terms of trade deterioration should also follow for services. For instance, in the Lewis Model with average rather than marginal product pricing of labour, protection of traded goods is favoured to pull labour into import competing modern sectors.
6. Developing and least developed countries have less bargaining power than larger developed countries in trade negotiations, and this applies equally to trade in goods and services and hence globally negotiated outcomes may well be asymmetric.

The literature that estimates the impact of trade liberalisation on developing countries dates back to Goldsmith (1969) who emphasised the role of financial services in allowing financial investments to flow to their most productive uses, and hence in generating growth of output. He drew a “rough parallelism” between the growth performance and the level of financial development. Much of the latter work pointed in the similar direction, namely openness and degree of development of services sector is associated with stronger growth performance.

Some of the theoretical models based on this typically treat services as goods and producer services are modeled as an intermediate good (Robinson et al 1999, Dee and Hanslow 2000, Brown, Deardorff and Stern 2002) and show that multilateral trade liberalisation of services will increase global income and welfare. Banga and Goldar (2004) empirically determine the impact of trade liberalisation and find that trade liberalisation and development of services sector in the 1990s had a significant impact on use of services in the Indian industry, which has further contributed to industrial output and productivity growth.

But, models typically do not explicitly represent the different modes of supply in the GATS, although more recent models capture FDI flows and labour mobility restrictions. Winters (2002) explicitly capture mode 4 of GATS restrictions to service flows. The mode 3 of GATS is also captured in some models (e.g., Markusen et al 1999) that allow for multinational activity and endogenous choice by multinational forms of whether to export or set up branch plant. The results of these models typically show that liberalisation involving commercial presence could be an important factor in services trade liberalisation.

Another set of models exists that quantify the impact of trade liberalisation in services on global and individual country's output growth. Most of these models involve numerical simulation exercises using general equilibrium models based on conventional models of trade liberalisation in goods. Barriers to trade in these models are taken as equivalent to tax or tariff. The size of initial barriers, how they change under liberalisation, elasticities, and the size of service trade flows, along with relative country size and market structure then determine results just like in goods model.

Using CGE models, Mattoo et al (2001) show that growth rates increase by 1.5 percentage points for economies that liberalise their telecom and financial services. Dee and Hanslow (2000) show that there will be large gains from service liberalisation in the Uruguay Round for certain developing countries (e.g., 14.6% of GDP gain for China) and globally more than half of the total gains (gains from liberalisation of both goods and services) accrue due to services liberalisation. However, Verikios and Zhang (2000) show

losses to Malaysia from telecom liberalisation and losses to Indonesia from financial service liberalisation. Brown et al (2002) show global gains from Doha Round liberalisation of \$413 billion per year from service liberalisation but suggests that the largest absolute gains go to developed countries.

Thus, the literature that analytically purports and quantifies the impact of liberalisation of trade in services on growth is ambiguous. There are many conflicting and contradictory results as a result, which lead to several problems that are encountered in interpreting these results. From the existing literature it cannot be concluded whether trade liberalisation of services has benefited or adversely affected developing countries.

5. Conclusion

The importance of services is increasing rapidly in the international economic scene in the in the twenty-first century. Services along with high-tech industries are now playing a leading part in the development of the world economy. Accordingly, we find that the share of services in GDP has increased steadily in both developed as well as developing countries in the last two decades. This growth in services has been supported by two main factors. These are technological innovation and increased tradability of services. The role of transnational corporations in this regard can also not be denied. FDI is an important channel for capital flows and transfer of technology. Supported by technology, know-how, information networks and the ability to procure funds, they can be major suppliers of services in the developing countries stimulating the efficiency of services. From the above selective review of studies on trade and FDI we state the current status and attempt to provide future directions to research in this area.

Restrictions on world trade and investment in services are central issues in international policy debate. A case for restricted liberalisation of services is put forward on the following grounds:

- a) Restrictions offer protection from competitive pressure for emergent service industries.

- b) Restrictions are required on the entry to, or scale of, services which could impose external costs, e.g., in air transport or energy distribution.
- c) It is necessary to prevent foreign participation in “essential” service industries, e.g., banks and other financial institutions if independence in monetary and credit policies is to be guaranteed.
- d) Unrestricted competition may be pernicious in services characterised by high fixed costs and fluctuating demand such as transport and communication and these service provisions may cater to only the most lucrative market segments.
- e) Retaliation may also lead to restrictions as country’s own enterprises are subject to similar restrictions in other countries.

Based on the above arguments non-tariff barriers have been constructed to restrict trade and investment in services. These mainly take the forms of export subsidies and taxes, discriminatory procurement policies, selective indirect taxes, restrictive technical and administrative regulations, etc. However, the obstacles to lowering restrictions on global services fall into two categories, first are those indicating a lack of incentives to, or practical difficulties in negotiations and second represent outright opposition, particularly by developing countries, to any negotiations.

The obstacles that fall in the first category mainly stem from the complexities of defining and delineating services and estimating the potential economic gains from liberalising services. Uncertainty about likely duration of a period of comparatively free trade in services compounds any cost-benefit analysis of liberalisation, and for nations facing probable costs of concession curtails the relevant benefit payback period (Aronson and Cowley 1985). The measurement problems do not simply impede the demonstration of gains but also hinder the process of monitoring acceptance of, and adherence to, any agreement. The expectation of ‘free-riding’ by non-adherents reduces the estimated benefits for adherents compounding the problem of achieving initial agreement. Additional to this is the problem of merging any new proposals with existing

agreements¹⁴. The question that arises is whether further liberalisation is best achieved within existing agreements or whether new initiatives and structures are likely to be more successful?

Opposition to any further liberalisation by a number of developing countries, i.e., the second category of opposition, mainly stems from the fact that many developing countries have only reached the peak of their competitiveness in visible, particularly manufactured, goods and wish to see first a greater transparency in the global market for these commodities. Also, these countries are at different stages of economic development and therefore have different trade aspirations. U.S. for instance has been criticised for aspiring higher trade liberalisation in those service sectors in which it has strong competitive profile such as educational, financial and business services. It is not keen to lower barriers in services where developing countries have an edge, e.g., construction.

The nationalist perspective is predominant in determining the extent of liberalisation in services rather than a global perspective. According to Sapir (1985) globally the lowering of barriers is not a zero-sum game. The probable benefits are likely to outweigh the costs. But it is the differential incidence of benefits and costs that create obstacles to liberalisation. One way to overcome this can be to devise suitable mechanisms for compensating the “losers.” But this too requires efforts at a multilateral level.

Regarding the issue of investment in services, there is a general consensus in the literature regarding the beneficial economic effects of investments in services, particularly producer services like finance, distribution and research and development. These services raise economic growth and performance. Where such services are in short supply all enterprises, both manufacturing and non-manufacturing will be at a disadvantage. Furthermore, such a shortage could encourage, within larger enterprises, the internal sourcing of services. For multi-locational enterprises this sourcing could occur outside the host region leading to loss of economic activity. These services also

¹⁴ Important agreements have been achieved within a number of forums including OECD, The European Community and UNCTAD.

influence the adaptability of the nation's producers to changing economic conditions and advancing technology.

Keeping the potential advantages of investment in services in mind, there is need for the developing countries to attract more FDI in services. But to attract higher FDI in services there is a necessity of clearly distinguishing between the barriers to trade in services and barriers to investment in services¹⁵. This distinction will ease the task of bringing the type and extent of restrictions within manageable limits. This will also help in reducing frictions between developed and developing countries regarding trade via different modes. For example, the developed countries object to lowering restrictions with respect immigration of labour.

Keeping these in mind, in view of the important role that services can play in the development process, it is important for the policy makers in the developing countries to formulate policies that not only support the growth of services sector but also stimulates its growth further. To this end, we draw some policy implications from the above review for developing countries to see what is needed to maximise the contribution that services can make to the development process.

Policy Implications:

1. Services trade plays a crucial role in developing countries. Proportionally higher services exports are characteristic of high-growth countries, while excessive dependency on imported services is characteristic of low-growth countries. Over emphasis on merchandise exports is also characteristic of low-growth countries. Effective development planning must include a strengthening of both domestic and international service sector-to reduce relative dependency on imported services while providing incentives for services exports.
2. With respect to trade in services, it is important to note that with markets becoming increasingly globalised, comparative advantage theory loses its significance since it is

¹⁵ This has also been emphasised by Rugman (1987)

valid only if there is no mobility of factors of production. What is of relevance in a globalised world is advantages that are not necessarily linked to resource endowments and the key to them is information. Trade in services therefore crucially depends on the degree to which a society possesses information resources. These resources would serve as infrastructural backing for the development in most of the services.

3. But there are also other factors that are closely linked with information in determining trade in services and these are country's telecommunications infrastructure. Services such as telefax, electronic mail, aligned databases and data processing in general must be interconnected with a proper telecommunications infrastructure to be marketed internationally. The volume of funds spent on investment and development and in learning the "new know-how" also directly impacts on the volume of services traded as it helps in drastically reducing the cost of providing services. One example of this is the introduction of computerised reservation system in the air and rail transport services which has drastically cut the costs. Development of telecommunication sector is therefore of foremost importance with respect to trade in services.
4. Industrialised countries have maintained a comparative advantage in services primarily through reputation and competitive costs. One of the reasons for their success has been development of organisational forms, such as business format franchising¹⁶, that reduce producer risk while creating increasing possibilities to achieve economies of scale. These "franchise miracle" can definitely be replicated by the developing countries.
5. The other sources of comparative advantage that can be exploited by the developing countries are geographical location and natural endowments-exploited in both

¹⁶ Franchising is essentially a marketing concept – an innovative method of distributing goods and services. "Franchising" is used to describe a number of business models, the most commonly identified of which is business format franchising, which is a comprehensive system for the conduct of the business, including such elements as business planning, management system, location, appearance and image, and quality of goods. Standardisation, consistency and uniformity across all aspects are hallmarks of the business format franchise. It includes the product, service and trademark, as well as the entire business concept itself from marketing strategy and plan, operational standards, systems and formats, to training, quality control and ongoing assistance, guidance and supervision. In short, it provides small business (the franchisee) with the tools of big business (provided by the franchiser).

transportation and tourism services. Other aspects of geographical location that are now being exploited is ability to communicate worldwide with little atmospheric interference and time zone location. For example, Singapore is exploiting time zone location as part of a vital link for 24-hour financial transactions.

6. The need of the hour is to concentrate on the development of a good infrastructure in the economy. Adequate transportation facilities and state-of-the-art telecommunication facilities will not only enhance the country's attractiveness to foreign investment but will also improve competitiveness of domestic investment.
7. Language ability can also constitute a potential comparative advantage. As the service sector becomes more dependent on information technology, a literate workforce with knowledge of popular international language becomes an asset for a developing country. Since telematics technology enables support staff to be located anywhere in the world, telematics training can also constitute a comparative advantage in attracting offshore offices.
8. The importance of FDI as a vehicle to deliver services to foreign markets vis-à-vis trade should not be overlooked. Also, one should realise the considerable potential that exists in transnationalisation in the services sector as compared to the industrial sector. One of the major reasons that has been put forward in the literature for preferring FDI in services is the fact that TNCs in services have little potential for transferring hard technology.¹⁷ However, hard technology may constitute a very important component of manufacturing activity but it has completely different dimensions in the services sector. What is of utmost importance to services sector is the soft technology: the kind of technology, which is embodied in skills, in know-how and creations. For example, the kind of knowledge that is required to design an insurance policy. An important implication of this is regarding the movement of technical personnel. If the movement of technical personnel is restricted then it in fact implies restriction on transfer of technology. It is therefore not possible to maximise the potential benefits from FDI in services with restricted movement of technical personnel.

¹⁷ Data for United States show that TNCs in service undertake very little research and development expenditure. See Sauvart (1989)

9. One of the target groups for increasing investment in services are the firms currently serving the local markets through some non-equity mode (exporting, licensing, etc). The reason for this is that there is evidence that direct investment often precedes exports from the source nation (Dunning and Norman 1983, 1987). Some familiarity with the local markets through initial servicing by export reduces investment risk, which is often significant in the case of services with the need to impose immediate and strict quality control or the attainment of minimum critical mass (Enderwick 1989).

Areas of Future Research

Though a vast literature has emerged on services, it can still be said that this literature concentrates on only few aspects of services and there exists a vast scope to explore further many different aspects of services. In particular, we find that there is an ever-growing literature on trade in services, but studies on contribution of services to growth and productivity in services are limited. A wide range of theoretical and empirical challenges exists in these areas. We attempt to identify few such areas, where future research is much needed.

1. There is a need to develop separate theories for trade and investment in services, as distinct from theories that exist for trade and investments in goods. The need for theory for FDI in services arises because of various reasons, already discussed above. In particular three reasons stand out. First, it is difficult to identify firm-specific advantages in case of services; second, ‘non-equity’ forms of foreign involvement, e.g., licensing, management contracting and franchising are widely used in some services; third, in the international context the difficulty of splintering services from output becomes more complex. In relation to trade in services, it is important to note that foreign sales by multinational enterprises in service industry does not constitute trade in services but is production in services industries. But, multinational enterprises in manufacturing industries can be involved in trade in services. In view of these complexities, more research efforts are required in this direction.

2. A practical question, which can be addressed in empirical analysis, is whether trade and FDI in services are determined by the same factors as their manufacturing counterparts. More research is also required in estimating the competitive advantages of different countries with respect to various services and manufacturing goods. Analysis for different countries will throw light on the cross-country pattern of trade and FDI in services.
3. The circular causation between evolution of services FDI and manufacturing FDI needs to be further examined. A suspicion that arises is with services becoming an integral part of production process, it is FDI in manufacturing that may follow FDI in services.
4. In most services, horizontal FDI is most likely to take place given the difficulty in fragmenting services. In such a situation, there is a strong case of the relationship between FDI and trade being that of “substitutes” rather than “complementary.” However, further research is needed in this area to explore the relationship between different kinds of FDI and trade in services.
5. What remains a biggest hurdle in future research on trade and investment in services is not the prevalence of barriers but the lack of reliable, timely and easily interpretable data. The data that is more widely available do not currently encompass all forms of trade in services, in particular intra-firm trade in services is not recorded. What is required is trade data on services at a more disaggregated level which is consistent with value-added and employment data and is comparable across time.
6. There is a dire need for further research on productivity in services. In particular, to develop improved methods of estimating outputs and inputs of services. A promising line of research could be to examine productivity differentials between service and non-services sectors and formulate theoretical and analytical frameworks to find possible explanations for the existing differentials and ways for making the convergence occur.
7. Low productivity in services indicates that with the growth in services sector the impact on employment can be substantial. However, research on implications of services liberalisation on labour markets is almost non-existent.

8. Finally, another direction of research can be to identify determinants of productivity and growth in services sectors and estimate the implications on welfare and growth of the economy.

After examining the different streams of literature on services, we can therefore say that research in services is still in its infancy and has a long way to go. Along with macro-effects, it is time to concentrate on micro-economic effects of liberalisation and growth of services sector.

References

- Balassa,-Bela (1977), 'Revealed' Comparative Advantage Revisited: An Analysis of Relative Export Shares of the Industrial Countries, 1953-1971', *Manchester-School-of-Economic-and-Social-Studies. Dec., 45(4): 327-44.*
- _____ (1965), 'Trade liberalization and revealed comparative advantages', *The Manchester School of Economic and Social Studies, vol. 33: 99-123.*
- Balasubramanyam, V.N (1991), 'International Trade in Services: The Real issues', *Greenaway, David, et al, eds. Global protectionism, New York; St. Martin's Press, pages 119-42.*
- Ball,-Clifford-A; Tschoegl,-Adrian-E (1982), 'The Decision to Establish a Foreign Bank Branch or Subsidiary: An Application of Binary Classification Procedures', *Journal-of-Financial-and-Quantitative-Analysis. September; 17(3): 411-24.*
- Bhagwati,-Jagdish (1996), 'International Trade in Services and Its Relevance for Economic Development', Bhagwati,-Jagdish; Political economy and international economics. Edited by Douglas A. Irwin. Cambridge and London: MIT Press, 1996; 235-69. Previously published: 1987.
- _____ (1991), 'Trade in Services and the Multilateral Trade Negotiations', Bhagwati Jagdish, Political economy and international economics, edited by Douglas A. Irwin, Cambridge, Mass and London: MIT Press pp 282-306, previously published 1987.
- _____ (1989), 'Is Free Trade Passe after All?', *Weltwirtschaftliches-Archiv.; 125(1): 17-44.*
- Brown,-Drusilla-K, et-al (1996), 'The Liberalization of Services Trade: Potential Impacts in the Aftermath of the Uruguay Round', *Martin,-Will; Winters,-L.-Alan, eds. The Uruguay Round and the developing countries. Cambridge; New York and Melbourne: Cambridge University Press, 1996; 292-315.*
- Brown, Drusilla and Robert M. Stern.(2000), 'Measurement and Modeling of the Economic Effects of Trade and Investment Barriers in Services', *Review of International Economics, forthcoming.*
- Brown,-Drusilla-K; Deardorff,-Alan-V; Stern,-Robert-M (2003), 'Multilateral, Regional and Bilateral Trade-Policy Options for the United States and Japan', *World-Economy. June, 26(6): 803-28.*
- Buch, Claudia M. (2000), 'Why do Banks Go Abroad? Evidence from German Data', *Financial Markets, Institutions and Instruments, forthcoming.*
- Buckley, P.J. and Casson, M.C. (1976), 'The Future of the Multinational Enterprise', *Homes & Meier: London.*
- Chanda Rupa (2000), 'Impact of Trade Liberalization on Foreign Direct investment in Producer Services', *working paper 103, IIM, Bangalore, September.*
- _____ (1997), 'Trade Liberalization and Foreign Direct Investment in Producer Services: A Theoretical and Empirical Study', *Working Paper, IIM Bangalore, September 1997.*
- Chadha,-Vikram (2000), 'Qualifications and Emoluments of Research Personnel in India's Science and Technology Sectors: A Cross-Section Study', *Indian-Journal-of-Labour-Economics. Oct.-Dec; 43(4): 927-3.*

- Chadha,-Rajesh, et-al (2000), 'Developing Countries and the Next Round of WTO Negotiations', *World-Economy. April; 23(4): 431-36.*
- Chen and Schembri (2001), Report commissioned by the Department of Foreign Affairs and International Trade (DFAIT), Canada.
- Classens, S., and T. Glaessner (1998), 'Internationalization of financial services in Asia', *Working paper, World Ban.*
- Colecchia, A (2001), 'The New Economy and the Role Played by the ICT Producing Sectors: Recent Trends and Comparisons Across OECD Countries', *Proceedings of the Official Statistics and the New Economy IAOS Conference.*
- Cowhey,-Peter-F; Aronson,-Jonathan-D (1985), 'Trade in Communications and Data Processing', *Stern,-Robert-M., ed. Trade and Investment in Services: Canada/U.S. Perspectives. Ontario Economic Council Special Research Report Canadian Trade at a Crossroads Series Toronto: Ontario Economic Council 1985; 256-90*
- Davis,-Evan; Hanlon,-Gerard; Kay,-John (1993), 'What Internationalisation in Services Means: The Case of Accountancy in the UK and Ireland', *Cox,-Howard; Clegg,-Jeremy; Ietto-Gillies,-Grazia, eds. The growth of global business.. Comparative and International Business Series: Modern Histories. London and New York: Routledge; 105-18.*
- Deardorff,-Alan-V; Stern,-Robert-M (1998), 'Measurement of nontariff barriers', *Studies in International Economics. Ann Arbor: University of Michigan Press, x, 137.*
- Dee, P. and Hanslow, K. (2000), Multilateral Liberalisation of Services Trade, *Productivity Commission Staff Research Paper.*
- Dunning,-John-H (1993), 'International Direct Investment Patterns', *Oxelheim,-Lars, ed. The global race for foreign direct investment: Prospects for the future.. New York; Heidelberg; London and Tokyo: Springer, 107-32.*
- _____ (1989), 'Trade and Foreign-Owned Production in Services: Some Conceptual and Theoretical Issues', Giersch,-Herbert, ed. Services in world economic growth: Symposium 1988. Tübingen, West Germany: Mohr (Siebeck); Boulder, Colo. and London: Westview Press ; 108-50.
- _____ (1988), 'Transnational Corporations in a Changing World Environment: Are New Theoretical Explanations Required?', *Teng,-Weizao, ed; Wang,-N.-T., ed; Transnational corporations and China's open door policy. Lexington, Mass. and Toronto: Heath, Lexington Books; 3-26.*
- _____ (1981), 'Explaining the International Direct Investment Position of Countries: Towards a Dynamic or Developmental Approach', *Weltwirtschaftliches-Archiv. 117(1): 30-64.*
- Findlay, C (2002), 'Multilateral Liberalisation of Services Trade and Investment in a Globalising World: Scope and Limitations', *Asia Pacific School of Economics and Management, NECP No. 55.*
- Flowers,-Edward-Brown (1976), 'Oligopolistic Reactions in European and Canadian Direct Investment in the United States', *Journal-of-International-Business-Studies. Fall/Winter; 7(2): 43-55.*
- Francois,-Joseph; Nelson,-Douglas; Palmeter,-N-David (1997), 'Public Procurement in the United States: A Post-Uruguay Round Perspective', *Hoekman,-Bernard-M.; Mavroidis,-Petros-C., eds. Law and policy in public purchasing: The WTO*

- agreement on government procurement. Studies in International Trade Policy. Ann Arbor: University of Michigan Press, 105-24.*
- Fukao Kyoji and Keiko Ito (2000), 'Foreign Direct Investment and Service Trade : The Case Of Japan', *Hitotsubashi University, mimeo.*
- Gibbs,-David,-ed (1989), 'Government policy and industrial change', *Geography and Environment series London and New York: Routledge, xvi, 317.*
- Goldberg,-Lawrence-G; Saunders,-Anthony (1980), 'The Causes of U.S. Bank Expansion Overseas: The Case of Great Britain', *Journal-of-Money,-Credit,-and-Banking. Part 1, Nov.; 12(4): 630-43.*
- Goldsmith, Raymond W. (1969), 'Financial Structure and Development', *New Haven, CT: Yale U. Press.*
- Graham,-Edward-M (1978), 'Transatlantic Investment by Multinational Firms: A Rivalistic Phenomenon?', *Journal-of-Post-Keynesian-Economics. Fall; 1(1): 82-99.*
- Gray, Jean M. and Peter H. Gray (1981), 'The multinational bank: A financial multinational corporation?', *Journal of Banking and Finance 5(1), 33-63.*
- Greenan,-Nathalie; Mairesse,-Jacques (1996), 'Computers and Productivity in France: Some Evidence', National Bureau of Economic Research, Inc, NBER Working Papers: 5836.
- Hardin, Alexis and Leanne Holmes (1997), 'Services Trade and Foreign Direct Investment', *Staff Research Paper, Industry Commission. Canberra: Australian Government Publishing Services.*
- Helpman,-Elhanan (1984), 'A Simple Theory of International Trade with Multinational Corporations', *Journal-of-Political-Economy. June, 92(3): 451-71.*
- Hertel,-T et al (1999), 'Why Do the Gains from Trade Reform Vary between Countries?', *Review-of-International-Economics. February, 7(1): 68-86.*
- Hill,-T-P (1977), 'On Goods and Services', *Review-of-Income-and-Wealth. Dec.; 23(4): 315-38.*
- Hindley,-Brian; Smith,-Alasdair (1984), 'Comparative Advantage and Trade in Services', *World-Economy. December; 7(4): 369-89.*
- Hindley,-Brian (1990), 'Principles in Factor-Related Trade in Services', Messerlin,-Patrick-A.; Sauvart,-Karl-P., eds. *The Uruguay Round: Services in the world economy. With contributions by Bela Balassa et al Washington, D.C.: World Bank; New York: United Nations Centre on Transnational Corporations; 12-18.*
- Hoda-Anwarul (2004), 'Market Access Negotiations On Non-Agricultural Products: India And The Choice Of Modalities' ICRIER, *Working Paper 132.*
- Hoekman,-Bernard (2000), 'Toward a More Balanced and Comprehensive Services Agreement', *World Bank, Schott,-Jeffrey-J., ed. The WTO after Seattle. Washington, D.C.: Institute for International Economics, 119-35.*
- _____, (1995) Tentative First Steps: An Assessment of the Uruguay Round Agreement on Services, *CEPR Discussion Papers 1150, C.E.P.R. Discussion Papers.*
- Hoekman, B. and Francois, J.(1999), 'Market access in the service sectors', *Tinbergen Institute, manuscript.*
- Hoekman, B et al (1996), 'Trade in Services, the GATS and Asia', *Asia Pacific Economic Review; 2(1), April, pp 5-20.*

- Hoekman, Bernard; Primo-Braga, Carlos (1997), 'Protection and Trade in Services: A Survey', *C.E.P.R. Discussion Papers, CEPR Discussion Papers: 1705*.
- Hoekman, B. and P. Sauvé (1994): 'Liberalizing Trade in Services', *World Bank Discussion Papers, 243, Washington, D.C.*
- Hofstede, Geert (1980), 'Culture's consequences: International differences in work-related values', *Beverly Hills: Sage Publications*.
- Hout, T., Porter, M.E. and Rudden, E. (1982) 'How global companies win out', *Harvard Business Review 60(5):98-108*.
- Hymer, S. (1976), International operations of national firms: A study of direct investment. *Cambridge, Mass: MIT Press*.
- Johnson, M., et al (2001), 'Modelling the impact of regulatory reform', in *Christopher Findlay and Tony Warren (eds), Impediments to Trade in Services: Measurement and Policy Implications, New York: Routledge*.
- Kalirajan, K (2000), 'Restrictions on Trade in Distribution Services', *Productivity Commission Staff Research Paper, Ausinfo, Canberra*.
- Kalirajan, K et al, (2001), 'The Price Impact of Restrictions on Banking Services', in *Christopher Findlay and Tony Warren (eds.) Impediments to Trade in Services: Measurement and Policy Implications, New York: Routledge*.
- Kang (2001), 'Price Impact of Restrictions on Maritime Transport Services', in *Christopher Findlay and Tony Warren (eds.) Impediments to Trade in Services: Measurement and Policy Implications, New York: Routledge*.
- Karsenty, 1999, 'Just How Big are the Stakes?: An Assessment of Trade in Services by Mode of Supply', www.iie.com/publications/wp/1999/99-12.pdf.
- Kemp, The Hon D. (2001), 'Vocational Education and Training and International Education', address to the Annual Conference of the Australian Council for Private Education and Training Providers.
- Khoury, Sarkis-J (1979), 'International Banking: A Special Look at Foreign Banks in the U.S.', *Journal-of-International-Business-Studies. Winter; 10(3): 36-52*.
- Knickerbocker, F.T (1973), 'Oligopolistic reaction and Multinational Enterprise', *Havard University Press, Cambridge, M.A.*
- Koekkoek, K-A (1988), 'Trade in Services, the Developing Countries and the Uruguay Round', *World-Economy. March ; 11(1): 151-55*.
- Kogut, Bruce; Singh, Harbir (1988), 'Entering the United States by Joint Venture: Competitive Rivalry and Industry Structure', Contractor, Farok-J.; Lorange, Peter; Cooperative strategies in international business. Lexington, Mass. and Toronto: Heath, Lexington; 241-51.
- Kogut, Bruce (1988), 'County Patterns in International Competition: Appropriability and Oligopolistic Agreement', *Hood, Neil, ed; Vahlne, Jan-Erik, ed; Strategies in global competition: Selected papers from the Prince Bertil Symposium at the Institute of International Business, Stockholm School of Economics. London and Sydney: Croom Helm; distributed by Methuen, New York 1988; 315-40*.
- Marko, M (1998), 'An Evaluation of the Basic Telecommunications Services Agreement', *CIES Policy Discussion Paper 98/09, Centre for International Economic Studies, University of Adelaide*.
- Markusen, James-R (1989), 'Trade in Producer Services and in Other Specialized Intermediate Inputs', *American-Economic-Review. March 1989; 79(1): 85-95*.

- Markusen, James-R et al (1996), 'A Unified Treatment of Horizontal Direct Investment, Vertical Direct Investment, and the Pattern of Trade in Goods and Services', *National Bureau of Economic Research, Inc, NBER Working Papers: 5696*.
- Markusen, James-R et al (1999), 'Trade Liberalization in a Multinational-Dominated Industry', Brewer, Thomas-L., ed. *Trade and investment policy. Volume 2. Elgar Reference Collection. Globalization of the World Economy, vol. 6. Cheltenham, U.K. and Northampton, Mass.: Elgar; distributed by American International Distribution Corporation, Williston, Vt., 1999; 285-307*
- Mattoo, A (1998), 'Financial Services and the WTO: Liberalization in the Developing and Transition Economies', for presentation at the Workshop, "Measuring Impediments to Trade in Services," Productivity Commission, Canberra, April 30 – May 1, 1998.
- Melvin, James R. (1989), 'Trade in Producer Services: A Heckscher-Ohlin Approach', *Journal of Political Economy* 97:5, October, 1180-1196.
- McCulloch, R. (1988): 'International Competition in Services', in M. Feldstein (ed.), *The United States in the World Economy, University of Chicago Press, Chicago*.
- McGuire, Greg and Michael Schuele (2001), 'Restrictiveness of International Trade in Banking Services,' in Christopher Findlay and Tony Warren (eds.), *Impediments to Trade in Services: Measurement and Policy Implications*. New York: Routledge.
- McGuire, Greg, Michael Schuele and Tina Smith (2001), 'Restrictiveness of International Trade in Maritime Services,' in Christopher Findlay and Tony Warren (eds.), *Impediments to Trade in Services: Measurement and Policy Implication*. New York: Routledge.
- Mukherjee, Arpita (2004), "India and GATS 2000 Negotiations: Issues and State of Play" in Bibek Debroy and M. Saqib (eds), *Future Negotiations Issues at WTO: An India China Perspective*, Globus Books, New Delhi.
- Nguyen-Hong,-Duc (2000), 'Restrictions on trade in professional services', *Staff Research Paper series. Melbourne: Australian Productivity Commission; distributed by AusInfo, Canberra, XIII, 72*.
- Nigh, Douglas et al (1986), 'The role of location-related factors in U.S banking involvement abroad', *Journal of International Business Studies, vol 17, No. 3 (Fall)*, pp.59-72.
- Norman,-George; Dunning,-John-H (1984), 'Intra-industry Foreign Direct Investment: Its Rationale and Trade Effects', *Weltwirtschaftliches-Archiv.; 120(3): 522-40*.
- Porter, M.E. (1990) 'The Competitive Advantage of Nations'. *New York (NY): Free Press*.
- Prahalad, C.K. and Doz, Y. L. (1987), 'The Multinational Mission: Balancing Local Demand and Global Vision', *The Free Press: New York*.
- OECD (2000), *Science, Technology and Industry Outlook*.
- OECD (1987). 'Introduction to the OECD Codes of Liberalisation' *OECD, Paris*.
- OECD (1982), 'Finland. Reviews of National Policies for Education', *Paris: OECD*.
- Raff, H. and M. von der Ruhr (2001), 'Foreign Direct Investment in Producer Services: Theory and Empirical Evidence', *mimeo, University of Kiel*.

- Richardson, Bob (1986), 'Some Current Issues in the Marketing of Agricultural Products', *Australian-Journal-of-Agricultural-Economics*. August/December; 30(2-3): 89-102.
- Rugman, A.M. (1982). 'Internationalization and non-equity forms of international involvement' In Rugman, Alan M. (Ed.), *New Theories of the Multinational Enterprise* (pp. 9-23). New York: St. Martin's Press.
- _____ (1981), 'Research and Development by Multinational and Domestic Firms in Canada', *Canadian-Public-Policy*. Autumn. 7(4): 604-16.
- Robinson, Sherman, et-al (1999), 'From Stylized to Applied Models: Building Multisector CGE Models for Policy Analysis', *North-American-Journal-of-Economics-and-Finance*. 10(1): 5-38.
- Rugman, Alan-M; Verbeke, Alain (1992), 'Shelter, Trade Policy and Strategies for Multinational Enterprises', *Rugman, Alan; Verbeke, Alain, eds. Corporate response to global change. Research in Global Strategic Management series, vol. 3. Greenwich, Conn. and London: JAI Press*, 3-25.
- Sapir, A. and C. Winter (1994): 'Services Trade', in D. Greenaway and L. Winters (eds.), 'Surveys in International Trade, Blackwell economic Theory and the Role of Government in East Asian Industrialization', Princeton University Press, Princeton.
- Sauvant, Karl-P (1990), 'The Tradability of Services', *Messerlin, Patrick-A.; Sauvant, Karl-P., eds. The Uruguay Round: Services in the world economy. With contributions by Bela Balassa et al Washington, D.C.: World Bank; New York: United Nations Centre on Transnational Corporations*, 114-22.
- _____ (1986), 'International Transactions in Services: The politics of transborder data flows', *Atwater Series on the World Information Economy*, no. Boulder, Colo., and London: Westview Press, xxiii, 372.
- Schroath, Frederick-W; Korth, Christopher-M (1989), 'Managerial Barriers to the Internationalization of U.S. Property and Liability Insurers: Theory and Perspectives', *Journal-of-Risk-and-Insurance*. December; 56(4): 630-48.
- Self, Richard and B.K Zutshi (2002), 'Movement of Natural Persons (Mode 4) Under the GATS', *WTO, Geneva, April*.
- Senti, Richard (1986), 'Forms and Causes of the New Protectionism', *Eucken, Walter, ed. Bohm, Franz, ed. ORDO: Jahrbuch fur die Ordnung von Wirtschaft und Gesellschaft. Band 37. Stuttgart and New York: Fischer*; 219-34.
- Srinivasan, T.N (2002), 'Developing Countries and the Multilateral Trading System after Doha', *Yale University, Economic Growth Centre, Centre Discussion Papers 842, 37 pages*.
- Terpstra, V. and C. Yu (1988), 'Determinants of foreign investment of US advertising agencies', *Journal of International Business Studies*, vol. 19, 1, 33-46.
- Trewin, Ray (2001), 'A Price-Impact Measure of Impediments to Trade in Telecommunications Services', *Impediments to Trade in Services: Measurement and Policy Implications*, London, Routledge, pp. 101-118.
- UNCTC (1993), *The Transnationalization of Service Industries*.
- _____ (1992), 'The Determinants of Foreign Direct Investment, a Survey of Evidence', *United Nations, New York*.

- _____ (1990), 'Regional economic integration and transnational corporations in the 1990s: Europe 1992, North America, and Developing Countries. New York: United Nations.
- _____ (1988),. International Accounting and Reporting Issues: 1984 Review. New York: UNO. pp.58-59.
- _____ (1980), 'Transnational Reinsurance Operations', *A Technical Paper*. pages: 51.
- _____ (1979), 'Transnational Corporations in Advertising', *Technical Paper E, F, S* pages: 54.
- Verikios, G. and X. Zhang (2000), 'Sectoral impact of liberalising trade in services', *paper presented to the Third Conference on Global Economic Analysis, Melbourne, 27-30 June* <http://www.monash.edu.au/policy/conf/53Verikios.pdf>
- Vernon, R. (1966), 'International investment and international trade in the product cycle.' *Quarterly Journal of Economics*, May, 80 (2), p. 190-207.
- Walter, I (1985), 'Barriers to Trade in Banking and Financial Services', *London: Trade Policy Research Centre*.
- Warren, Tony (2001), 'The Impact on Output of Impediments to Trade and Investment in Telecommunications Services', *Impediments to Trade in Services: Measurement and Policy Implications, London, Routledge*, pp. 85-100.
- Weinstein,-Arnold-K (1977), 'Foreign Investments by Service Firms: The Case of Multinational Advertising Agencies', *Journal-of-International-Business-Studies*. Spr.-Summer ; 8(1): 83-91.
- Winters,-L-Alan (2002), 'Making the Case for Free Trade', *International-Finance*. Winter; 5(3): 471-84.