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**International Trade in Services:
Issues and Concepts**

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Abstract: This paper analyses how tradable services have been treated, both in statistical work and in the academic economic literature. It is obvious that improvements still need to be made to the harmonisation of statistical definitions, as well on the data collection itself. However, the literature has not established any objections, either formal or empirical, to taking long-standing theories of trade in goods and applying them to trade in services, provided the particularities of services, as well as the shortcomings of the data, are taken into account.

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I. Introduction

In this paper we set out to discuss the issues involved in understanding services with a particular focus on international trade in services. In the past, most economic models of market-based transactions have been based on goods while the services sector has largely been ignored, for various reasons. First, many services have traditionally been considered as non-tradable. Moreover, the data for services may be subject to considerable measurement error, not least because until recently there was no consensus on what a service was, and how to measure it. In fact, the standard terminology is very unclear. For example, defence, which is classified as a public good, is clearly a service. Today the debate is ongoing, with organisations like the WTO, for example, working towards a better understanding of services classifications and data requirements. Finally, many services industries were heavily regulated, so trade in services was not an obvious issue.

Detailed services data have not been collected until recently, and are not necessarily reliable for analysis as rules and regulations have not yet completely been harmonised. Nevertheless, as services make up over 60 per cent of GDP in most developed countries, it is important that we understand the mechanisms and functioning of services sectors.

Despite their dominant share in GDP, services account for less than a quarter of world trade. But there are reasons to expect the importance of services in international trade to increase over time. Developments in technology, particularly in computerised information processing systems, telecommunications and transportation, and the increasing prevalence of the Internet, have increased the tradability (storability and transportability) of services, and have also created 'new' services. Moreover, services sectors are being liberalised, a process initiated by the General Agreement on Trade in Services (GATS) in 1995 (administered by the WTO), and continued in the GATS 2000 negotiations that have been ongoing since February 2000.¹ As a consequence, we expect to see an increase in the importance of services trade. However, wider economic repercussions can also be expected to result from the liberalisation of trade in services, as this is likely also to stimulate trade in goods. Indeed, Deardorff (2000) points out that trade in goods heavily relies on trade in services (especially trade in

trade services such as transportation, insurance, and finance). He also argues that services liberalisation may stimulate the international fragmentation of production of both goods and services. As a result, international trade, and therefore the gains from trade, are expected to increase. Given the likely increases in the importance of services, it is necessary to ask whether services are different from goods and, if so, what the implications are.

Recently, certain aspects of services have started to emerge in the literature. For example, there are papers looking at specific services sectors such as tourism, financial services, and various types of transportation (air, maritime). There is also a growing literature on the importance of the link between trade in financial services (and financial development) and economic growth, and attempts have been made to set up models designed for analysing trade in services and trade in intermediate (or producer) services. However, only a few of these models take explicit account of the various modes by which services trade can take place. A literature has also developed on the measurement of barriers to services trade, and their implications. Parallel to these strands in the traditional literature, new ideas have been developed in the literature on the 'Weightless Economy'² instigated by Danny Quah, discussing the process and the consequences of the dematerialisation of economic transactions.

While these topics are important for the analysis of the functioning of service sectors, this paper takes one step back and focuses on what is meant by (i) a service, and (ii) trade in services. This is not as straightforward as in the case of goods because changes in the nature of services, brought about mainly by technological developments, call into question the traditional definition of what constitutes a service and what is meant by an internationally traded service. In the context of continuing negotiations about reducing barriers to trade in services, with services markets remaining amongst the most heavily regulated markets in many countries despite

¹ See Sauvé (2002) for a discussion of the ongoing services negotiations under the GATS.

² The Weightless Economy is also sometimes termed: the knowledge economy, the intangible economy, the immaterial economy, or the new economy. While the idea that knowledge is important for the economy is not new, Quah (2002) argues that knowledge achieves its greatest significance in the context of the Weightless Economy, characterised by four main elements: (i) information and communication technologies (ICT) and the Internet, (ii) intellectual assets (patents, copyrights, namebrands, trademarks, advertising, financial and consulting services, and education), (iii) electronic libraries and databases (including new media, video entertainment, and broadcasting), and (iv) biotechnology: carbon-based libraries and databases, pharmaceuticals. (<http://econ.lse.ac.uk/staff/dquah>).

liberalisation efforts, it is important to establish what issues are involved. Moreover, regulation needs may vary according to the type of service in question.

The paper is organised as follows. We start by discussing the definition and measurement of services, as well as of international trade in services. We then discuss the nature of services, compared to goods, and the implication of this for the analysis of services sectors. Finally, we examine how services and trade in services have been discussed in the economic literature, keeping in mind the question of whether theories that traditionally relate to goods can be applied to services.

II What are services?

II.1 The definition and classification of services

One longstanding definition of a service is ‘a change in the condition of a person, or of a good belonging to some economic unit, which is brought about as the result of the activity of some other economic unit, with the prior agreement of the former person or economic unit’ (Hill, 1977, p. 318). This definition originated from the specific nature of a service, traditionally considered to be non-storable and intangible. The non-storability aspect was seen as having two important implications. First, it meant that the service had to be consumed at the same time as it was produced, and secondly, the producer³ and the consumer had to be in the same place (with either the producer or the consumer moving to the ‘location’ of the service).

There are some limitations to this definition. The extension proposed by Bhagwati (1987) took two other features of services into account, namely *(i)* that services do not always require the movement of consumers or producers (e.g. digitized radio and television broadcasts), and *(ii)* that some services may be embodied in a good, which can make it difficult to distinguish between goods and services.

Some non-storable services can be transported. One example would be power generation (e.g. electricity), where production can take place in a different location to consumption. The non-storability of services itself is also questionable, especially

³ Note on terminology: in the literature on services, the term ‘provider’ is generally employed instead of ‘producer’. However, given that we will argue that, allowing for particularities of certain types of services, theories applying to goods will also be valid to services, we will continue to employ the same terminology and refer to the producer of a service.

when the service is embodied in a good, but also for example for insurance or consultancy services where the consumption of certain aspects of the service (e.g. expertise in the case of consultancy) may be spread over time.

The intangible nature of services also has implications for their tradability. One important consequence is that it is more difficult to assess the quality of a service before purchase than it is for goods. With a service, its quality may not become clear until during, or after, its consumption, resulting in problems of asymmetric information between the producer and the consumer, and related moral hazard and adverse selection problems. This asymmetric information may lead to a more frequent use of reputation to signal quality and habit persistence in consumption. Consequently, there may be considerable non-price competition in service markets, although prices can of course be used to signal quality.

The importance of reputation may also increase the incentive to go abroad to maximise the rents from a proprietary service, which may involve an increase in foreign direct investment (FDI). This is enhanced by a need for interaction between the producer and the consumer of a service, especially in the presence of asymmetric information. The use of reputation itself may form a barrier to entry for new firms, thus highlighting the likeliness of imperfect competition in service industries.

In order to take the various characteristics of services into account when labelling services, one useful classification of services is that proposed by Stern and Hoekman (1987), which is very similar to the classification in Sampson and Snape (1985). They distinguish between four different types of services:

- 1) separated services where neither the consumer nor the producer need to move (for example, services embodied in goods⁴ (books, floppy discs etc.) or services that are traded electronically),
- 2) demander-located services where the producer moves to the consumer (for example, certain types of consultancy),
- 3) provider-located services where the consumer moves to the producer (for example, tourism)

⁴ As Sampson and Snape (1985), for example, note: the problem with these separated ('separated' because they can be separated from both producer and consumer) services is that they may be identified as goods rather than as services.

- 4) footloose or non-separated services where both the consumer and the producer move (for example, entertainment services such as the World Cup organised in Japan and Korea in 2002).

However, while this classification helps to clarify ways to think about services, it is not a definition as such. The *Manual on Statistics of International Trade in Services* (MSITS) (2001) argues that the term ‘services’ refers to a wide range of intangible products and activities that cannot easily be captured by a single definition. Moreover, it recognises that many services are bundled to goods, which may make it difficult to identify them.

Therefore, the MSITS tends to adopt the System of National Accounts 1993 approach which defines services as follows: ‘Services are not separate entities over which ownership can be established. They cannot be traded separately from their production. Services are heterogeneous outputs produced to order and typically consist of changes in the condition of the consuming units realised by the activities of the producers at the demand of the customers. By the time their production has been completed they must have been provided to the consumers.’ (*Manual on Statistics of International Trade in Services*, 2001, p. 21).

The 1993 System of National Accounts elaborates on this definition in the following manner: ‘There is a group of industries, generally qualified as services industries, that produce outputs that have many of the characteristics of goods, i.e. those concerned with the provision, storage, communication and dissemination of information, advice and entertainment in the broadest sense of those terms – the production of general or specialised information, news, consultancy reports, computer programs, movies, music, etc. The outputs of these industries, over which ownership rights may be established, are often stored on physical objects – paper, tapes, disks, etc. – that can be traded like ordinary goods. Whether characterised as goods or services, these products possess the essential characteristic that they can be produced by one unit and supplied to another, thus making possible division of labour and the emergence of markets’ (*Manual on Statistics of International Trade in Services*, 2001, p. 21).

This definition is translated to the data as follows. Service industries or activities are classified under sections G through Q of ISIC revision 3.⁵ The products or outputs of services industries are classified using the United Nations Central Product Classification (CPC) version 1.0, sections 5 through 9, as recommended by the 1993 System of National Accounts.

Thus, the definition of a service, and therefore the definition and measurement of trade in services can be complex. Indeed, certain services have to be defined through abstract concepts rather than through physical characteristics or functions. Also, in contrast to merchandise trade, it is unlikely that there will be many, if any, ‘packaged’ services marked with an international code crossing national borders. Thus the information required to collect data on trade in services (e.g. description of contents, quantitative information, origin and destination) may not necessarily be readily available.

A further complication is that it may be difficult to differentiate between trade, FDI, and sales by foreign affiliates in services. Indeed, it may not always be clear where the actual transaction has taken place, or whether or not it has taken place between residents and non-residents, especially when services are traded electronically. Thus data on services transactions tend to be less timely and less reliable than for goods. Further complications arise for services with an intangible nature (‘invisibles’), when services are embodied in goods, or where there is ‘bundling’ of goods and services (e.g. a warranty or insurance attached to a certain good).

II.2 The definition of trade in services

Stern and Hoekman (1987) define international trade in services as ‘occurring when domestic factors receive income from non-residents in exchange for their services’. The advantage of this definition is that it is not conditional on the location where the service is produced. Given that one characteristic of many services, especially of non-transportable services, is the requirement of physical proximity of provider and consumer, the GATS definition of trade in services is based on the physical location

⁵ ISIC stands for International Standard Industrial Classification of All Economic Activities (revision 3)

of the producer and the consumer of the service. Thus, under the General Agreement on Trade in Services (GATS), trade in services is defined as ‘the supply of a service:

- 1) from the territory of one Member into the territory of any other Member (mode 1: cross-border supply), for example services that are embodied in goods or services that can be traded electronically;
- 2) in the territory of one Member to the service consumer of any other Member (mode 2: consumption abroad), for example expenditure by tourists abroad, or by students on education abroad;
- 3) by a service supplier of one Member, through commercial presence in the territory of any other Member (mode 3: commercial presence), for example services delivered through subsidiaries, e.g. of banks; note that such commercial presence abroad takes place as result of foreign direct investment;
- 4) by a service supplier of one Member, through presence of natural persons of a Member in the territory of any other Member (mode 4: presence of natural persons), for example on-site consultancy abroad;’

(Manual on Statistics of International Trade in Services, 2001, p. 26).

This definition can be, more or less, matched up with the classification of various services in section II.1 proposed by Stern and Hoekman (1987). Thus, trade in separated services could be considered under GATS mode 1, demander-located services as GATS modes 3 and 4, provider-located services as GATS mode 2, and footloose services possibly as GATS modes 3 and 4.

One important feature of the GATS approach is that it basically identifies all services as tradable. For example, a service traditionally thought of as non-tradable, such as hairdressing, can now be consumed as a traded service (provider-located) under ‘Mode 2: consumption abroad’. Such trade is also likely to occur at cross-border areas where there is free access for locals of the other country (for example, many Dutch people shop and bank across the border in Belgium, and vice versa). Moreover, other services will also be consumed in order to ‘make the service tradable’, e.g. travel or passenger fares.

However, the GATS definition does not necessarily always match with the conventional statistical definition of trade in services as set out in the Fifth edition of

the IMF's *Balance of Payments Manual* (BPM5). The latter considers trade in services to be transactions between residents and non-residents of an economy. The mismatch between the GATS and Balance of Payments (BOP) data is significant, as BOP data are typically used in most empirical analyses. This may lead to problems with the interpretation of data and results.

Indeed, as Cave (2002) notes, the BPM5 will account for most trade under GATS modes 1 and 2, a significant amount of that under mode 4, but only some of that under mode 3. He also argues that in order to cover mode 3 comprehensively, the provision of foreign controlled enterprises needs to be taken into account. This has been proposed in MSITS (2001) which seeks to extend the traditional BPM5 definition of trade in services by including the value of services provided through foreign affiliates (Foreign Affiliate Trade in Services, FATS). The aim is to achieve compatibility between FATS product-based data on trade between residents and non-residents and the ISIC Categories for Foreign Affiliates (ICFA) which are based on the activities of (services) firms. Cave (2002) also points out that in order to cover mode 4 fully, data on individuals moving abroad as employees of services firms on a non-permanent basis should be taken into account. The MSITS (2001) recommends the use of the Extended Balance of Payments Services (EBOPS) classification for recording balance of payment data on services trade between residents and non-residents.

Karsenty (2002) presents some rough estimates of the global importance of each mode of supply using BOP proxies (except for mode 3, FATS). The largest mode of supply is mode 3, which if approximated by FATS statistics on turnover is worth approximately \$2000 billion. Mode 1, as approximated by BOP commercial services exports (excluding travel) is estimated to be around \$1000 billion. Mode 2 is evaluated at around \$500 billion, based on BOP travel exports. Finally, Mode 4, as approximated by BOP compensation of employees, is worth around \$50 billion. Thus the failure to account fully for mode 3 transactions is likely to mean that there is a significant under-recording of international services trade in current BOP statistics.

To further illustrate the differences that can arise in the classification of services, the table below shows the services categories recognised by the BPM5 and the GATT (General Agreement on Tariffs and Trade). In 1991, the GATT provided the Services Sectoral Classification list in the GNS/W/120. Sectors and sub-sectors are identified

according to national services regulations in order to identify sectors where commitments could be established and negotiated. Thus, this list is intended for negotiation rather than as a statistical classification. The sub-sectors were defined using the provisional version of the UN CPC.⁶ Contrary to the GATT list, the BPM5 classification includes government services. There are also some conceptual differences between the BPM5 and the GATT/GATS approach where the recording of trade is concerned, which may be important in empirical analysis. For example, what the GATS would record under ‘Mode 2: consumption abroad’ specifically refers to the consumption of services abroad. Under the BPM5 classification, consumption abroad is recorded as ‘travel’, which will include expenditure on non-services. Moreover, under the BPM5, consumption abroad will also include cases where the supplier has moved abroad. Thus BPM5-based statistics are likely to over-estimate this mode of supply.

Table 1: BPM5 and GATT classification of services

	GATT, GNS/W/120 (MSITS, 2001, p. 27-28)	BPM5 (MSITS, 1999, p. 23)
1	Business services	Other business services
		Royalties and licence fees
		Computer and information services
2	Communication services	Communication services
3	Construction and related engineering services	Construction services
4	Distribution services	
5	Educational services	
6	Environmental services	
7	Financial services	Financial services
		Insurance services
8	Health related and social services	
9	Tourism and travel related services	Travel
10	Recreational, cultural, and sporting services	Personal, cultural, and recreational services
11	Transport services	Transportation
12	Other services, n.i.e.	
		Government services, n.i.e.

Notes: n.i.e. stands for ‘not included elsewhere’

While the classification of some these categories seems similar, their actual composition may differ. Their order of appearance is simply illustrative and is not intended as a correspondence.

⁶ The UN CPC is part of the international system of interrelated classifications of economic activities and products, covering both goods and services, and it fully conforms to the Harmonised Commodity Description and Coding System (HS) of the World Customs Organisation. The CPC is the first international classification covering the whole range of outputs of services industries.

The use of Balance of Payments statistics to analyse trade in services may also be problematic as they do not allow for intra-firm trade within multinational firms to be dealt with adequately. Multinationals are likely to use internal markets to transfer services such as managerial or accounting skills across national borders. Due to their intangible nature, it is unlikely that all of these services will be recorded in BOP statistics, even though some will be captured by the category royalties and licence fees.

Rugman (1987) suggests the use of the returns on FDI as a proxy for these services.⁷ One advantage of doing this is that it would allow intra-firm trade in services by multinationals operating in non-service sectors to be accounted for. But as Rugman notes, payments made for intangible firm-specific knowledge transfers are likely to be only a fraction of the total return on FDI, and it is impossible to distinguish this fraction with any degree of accuracy in the available data. Whilst it would be helpful to find a way of capturing these intra-firm transfers of services, using the return on FDI may prove to be such an imperfect proxy that it introduces distortions that outweigh the benefit of trying to deal with unrecorded intra-firm services trade. Thus, until a better proxy has been found, it may be better to ignore this part of trade in services.

III The nature of services, and its implications

The focus of the previous section was on the definition of services in order to help classify them and identify the level of international trade in services. These are largely statistical issues. This section examines how services have been considered in the economic literature and considers what the implications of the various definitions are.

A key issue is whether a service is economically different from a good, and, if so, whether such a distinction actually matters. Theories relating to goods are typically applied to 'all' goods, even if these are inherently very different from each other. Hindley and Smith (1984, p. 369) give the example of a bunch of flowers, a ton of

⁷ Rugman (1987) proposes to classify services into three main categories: (i) visible services, or TROT – travel, passenger fares, and other transportation (including travel, freight, and shipping); (ii) non-visible services, or FROS – fees, royalties, and other services (including business services, government transactions, and other services); and (iii) returns on FDI.

coal, and a jet airliner. Given this, it may not matter if services and goods are different in nature.

The extant literature does not provide a single encompassing definition of a service, but does highlight many characteristics that could form the basis for a universal definition. Deardorff (1985) suggests that adoption of the definition of a service proposed by Hill (1977) (see section II.1) would permit goods and services to be distinguished in terms of the locational requirements of production. Hill's definition implies simultaneity of the production and consumption of a service, and, therefore it requires that production and consumption take place in the same location. Melvin (1985) suggests that services should be considered as a separate class of commodities with characteristics that distinguish them from what is generally thought of as a commodity. He also suggests that a distinction should be made between services that are linked with commodities, and those that are associated with factors. Two-way links are possible within this approach, since some commodities and factors can be thought of as providing a service.

With a similar idea in mind, Jones and Ruane (1990) build a model of trade in services that distinguishes between trade in the 'service factor' and trade in the 'service product' itself. The 'service factor' is a non-separable service implying that the producer and the consumer need to be in the same location. Thus, the 'service factor', e.g. management skills, can relocate to combine with local factors to produce a then non-traded 'service product'. This can also be important when local knowledge (of rules and regulations, culture and language) is required or when local markets are heavily regulated, in which case a right to establish is needed before any such trade can take place. The 'service product' is comparable to a separated service and can be produced anywhere.

However, when a service is used as an intermediate input into the production process it is not entirely obvious why it should be distinguished from any other intermediate input. Services can also be seen as an intermediate input into the consumption process, in particular those services that allow time and space dimensions to be overcome. For example, the consumption of a transportation service may be a prerequisite to the consumption of another service, or a good, that may be produced elsewhere and which needs to be consumed at the location of production (i.e. a service

that traditionally is thought of as ‘non-tradable’). Similar points can be argued for production factors. Indeed, the usefulness of factors like land, labour, and capital is actually derived from the services they render.

Hindley and Smith (1984) also note that one of the most important characteristics of services is their role as intermediate inputs. Thus, services that are consumed by producers are complementary both to production and to trade. Deardorff (1985) notes that many services are, indeed, intermediate inputs into production and are not actually directly sold as ‘final services’ to consumers, or into another activity such as trade in goods. One example is trade in trade services (e.g. transportation). As a consequence, trade in goods is linked to trade in trade services in two ways: (i) trade in goods constitutes the (only) source of demand for trade services, and (ii) such services are a prerequisite to trade in goods taking place. In terms of the classifications discussed in section II of this paper, intermediate services would mainly be classified under GATS modes 3 and 4, or as demander-located and footloose services in the Stern and Hoekman (1987) classification.

The non-tradable nature of many services has been mentioned in the literature. However, this point may be becoming irrelevant, as many services are increasingly becoming tradable due to technological advances and increasing globalisation. Indeed, as mentioned above, services that have to be consumed at the location of their production can often be traded by consumers travelling to the location of the service. Advances in information and communication technologies have also greatly increased the tradability of services. For example, consultancy services can be traded electronically without necessitating the movement of either the producer or the consumer of the service. The international outsourcing of the location of call centres is another example. Thus, under both the BPM5 and the GATS definitions of a service, it has become difficult to think of a completely non-tradable commercial service.⁸

Another complication of services that has been pointed out in the literature is that they may be ‘bundled’ to goods. While this complicates the analysis of trade in services in one sense, as it may make it difficult to actually identify the services, it may also

⁸ However, there may be certain government services, for example, that are only available for residents and are, therefore, not tradable internationally. The provision of passports is one example.

constitute an argument for believing that theories of goods apply to services if services essentially follow goods and are, therefore, indirectly determined by the same factors.

A practical question which can be addressed in empirical analyses is whether trade and FDI in services are determined by the same factors as their manufacturing counterparts. It would seem from the discussion above that both services exports and services FDI may be linked to trade and FDI in goods. It has also been suggested (Caves, 1996) that it is possible for some services FDI to occur due to a 'follow the client' motive (for example, banks following large clients abroad). This would imply that this type of services FDI is indirectly determined by the same factors as that of the manufacturing clients.

Raff *et al.* (2001), in a study of the location of Japanese manufacturing and service multinationals in Germany for the period 1970-1995, find evidence of some kind of circular causation between the evolution of services FDI and manufacturing FDI. In the 1970s, the presence of Japanese manufacturing FDI was found to attract Japanese investment in both manufacturing and services (possibly giving support to the idea that some service firms become multinationals in order to follow their clients). But in the latter part of the sample period this causality was reversed, with the presence of Japanese service firms attracting manufacturing investment.

It is generally harder to imagine the production process of a service as being divided into different stages than it is for a good, even though services can easily be imagined as part of the vertical fragmentation of the production of goods (for example, headquarter services in the model of Helpman, 1984). Thus, intuitively, it seems more likely that services will be horizontally rather than vertically integrated, i.e. it is more likely that the whole of the production process of any one service will be found in a number of different locations rather than being divided into sequences that take place in different locations. If most services FDI is of the horizontal type, the relationship between services trade and services FDI may be one of substitution.

However, this conclusion is not straightforward. Indeed, another feature of trade in certain types of services is that it may require a local presence, i.e. the exporting firm may need to establish a presence in the importing country, before any trade at all

could occur. This would imply a complementary relationship between trade and FDI in services and/or total FDI (for example, after-sales services, if sold separately, linked to manufacturing FDI). Nevertheless, FDI is not the only way for a firm to establish a presence in a foreign market. Other possibilities include joint ventures or licensing and franchise agreements. The latter generate income that is recorded in the BOP as 'royalties and licence fees'. Thus, it may be more appropriate to use affiliate sales data, if available, when examining the relationship between foreign production and trade performance.

Trade in services may be further complicated by factors such as the difficulty of enforcement of the conditions inherent in certain services (such as the purchase of insurance), especially when several countries are involved, and the presence of trade barriers. Indeed, it is generally believed that barriers can be particularly important in the services sector and affect both trade and investment.

As Sampson and Snape (1985) and Sapir and Winter (1994) note, barriers to international transactions in the services sector can take various forms: *(i)* barriers to services trade, *(ii)* barriers to the movement of consumers of services, *(iii)* barriers to the movement of the producers of services, and *(iv)* barriers to services FDI. These regulations are generally argued to be justified because of the market failures thought to be present in the services sector, such as imperfect competition, imperfect (and asymmetric) information, and (network) externalities. There have been some attempts to estimate the importance and the effects of barriers to international services transactions (Findlay and Warren, 1999), but this is a fairly recent development. One implication of the presence of trade barriers, especially when they take the form of national rules and regulations, is that it provides an incentive for so-called 'tariff-jumping' FDI which occurs in order to bypass tariff- and/or non-tariff barriers.

Many international trade and investment transactions in the services sector may simply go unrecorded. A common problem is posed by services that can be traded without the producer or the consumer having to move (separated services in the Stern and Hoekman (1987) classification discussed in section II.1), especially when they can be traded electronically. In this case it may be difficult to establish exactly where, when, and between whom transactions have taken place.

The type of transaction that has occurred can also be unclear. For example, take the expenditure of a night in a hotel. Depending on where the consumer of this service is from, the location of the hotel, and the nationality of the ownership of the hotel, this could be consumption, exports, or FDI. The latter, and foreign activities of domestic companies more broadly, are often proxied by affiliate sales. Affiliate sales can be considered as trade in the GATS classification under 'Mode 3: commercial presence', which can take place only if FDI has occurred. Indeed, this mode records sales through commercial presence, or affiliate sales, which may act as a substitute to exports. However, this type of data is not recorded in the Balance of Payments statistics at present, although it is included in FATS (Foreign Affiliates Trade in Services) Statistics.

The approach to services taken in the economic literature has pointed to many aspects of services and of trade in services, but has failed to come up with an economic definition (as opposed to the statistical definitions of the BPM5 and GATS, for example). Moreover, it seems to have largely ignored the obvious characteristic that distinguishes a service from a good, namely its intangibility: we cannot hold a service in our hand, or break it in two. Thus, it appears that the fundamental difference between a good and a service comes down to the issue of the measurement of price and quantity, possible in the case of a good, but harder for a service. Nevertheless, it is not obvious that the intangible nature of a service should make a difference to its economic analysis. As has been noted, another distinction that could be important is whether it is a final or intermediate good or service, as that is where the relationship between trade and FDI can be expected to differ. The next step is to examine the analysis in the literature on the question of whether theories that are traditionally based on goods can be applied to services.

IV The applicability of goods theories to services

Intuitively, it is possible to imagine cases where traditional trade theories based on comparative advantage would still apply to services. For example, when the production of a service requires a particular type of skilled labour, countries with a relative abundance of that factor would have a comparative advantage. Equally, in the

case of tourism,⁹ a site containing particular types of natural resources could have a comparative advantage over other sites. But, as with goods, such theories are unlikely to be able to explain the significant volume of trade in services between highly developed countries with similar factor endowments.

New trade theories, and in particular theories of intra-industry trade, could also still apply as many services are produced in industries exhibiting economies of scale (increasing returns to scale (IRS), imperfect or monopolistic competition, and product differentiation). However, as Deardorff (1985) notes, even though imperfect competition is present in many services industries, it is also present in many goods industries. Thus, imperfect competition cannot be used as a (sole) characteristic defining trade in services and distinguishing it from trade in goods.

Theories explaining trade in goods can, broadly, be divided into two categories. First, in a perfect competition, constant returns to scale framework, trade flows are induced by comparative advantage arising from (i) international differences in technologies (Ricardian model), (ii) international differences in relative factor endowments (H-O model), and (iii) international differences in tastes and preferences (Linder hypothesis). Secondly, trade can also arise when countries are identical, but only when comparative advantage is due to a context of IRS and imperfect competition.

Hindley and Smith (1984) examine whether theories of comparative advantage aimed at explaining trade in goods can be applied to services. They note that while services may be different from goods, this in itself does not constitute a reason for believing that the logic of the theory of comparative advantage, or comparative cost, does not apply to them since, after all, many goods are also very different from each other. Moreover, they note that failure to identify the determinants of trade, or the sources of comparative advantage, does not necessarily imply that the predictions of the theory are not valid. They argue that the characteristics of the goods in trade theory proofs are never specified. Thus, they claim that e.g. Ricardo's proof involving wine and cloth would still be valid had it concerned wine and insurance policies (p. 374).

⁹ Sapir and Lutz (1981, p. 4) refer to tourism as a 'Ricardian service': a service whose comparative advantage is largely determined by natural endowments.

Nevertheless, there are categories of both goods and services with characteristics that may make the applicability of traditional Ricardian, or other, comparative cost theories seem doubtful. For example, many services industries are still heavily regulated. Moreover, the Ricardian argument was about trade whereas in certain services industries, serving a foreign market efficiently may require a presence in that market. For certain services, such as insurance, trade and foreign production may be close substitutes, whereas for other services, such as management and consultancy services, trade and labour mobility may be close substitutes.

However, this does not imply that standard trade theories are not valid.¹⁰ Certainly from a normative point of view, a country will gain from importing a service, or allowing labour migration or FDI, if the terms on which these transactions take place are more favourable than those for domestic transactions. Thus, if these three modes of delivery of a service are close substitutes, the welfare effects will also be very similar. Regarding the decision to invest abroad, FDI will occur if both the investor and the recipient believe they are better off with this type of transaction than with another. This should be true for FDI in the goods as well as services sectors. In this case, there is no apparent reason why the theory of FDI in manufacturing should not be applied to services.

Deardorff (1985) evaluates the extent to which the law of comparative advantage can explain the pattern of international trade in services in a perfectly competitive setting. Three characteristics of services are considered. The first is complementarity between trade in services, especially trade services such as transportation, and trade in goods. Allowing for this characteristic, comparative advantage can explain the pattern of services trade.

Secondly, trade in services often goes together with international factor movements. However, trade in goods can be considered, in a Heckscher-Ohlin context, as trade in the factor services embodied in those goods. In such a framework, movement of goods and movement of factors are determined by the same factors and can be considered as substitutes. Thus, if the same principle applies to services, comparative advantage will apply to services in the same way as it does to goods. Moreover, Deardorff notes that the complementarity of services trade and factor movements does

not imply that the principle of comparative advantage no longer matters. Indeed, if exporting a particular service also requires the export of a factor, then it can be expected that the country exporting that particular type of service is also relatively abundant with the complementary factor (capital, or specifically skilled labour for instance).

Finally, certain types of services may be produced internationally by multinational firms whose factors of production contribute from a distance. While this may appear to be in contradiction with the premise of simultaneity of production and consumption in the same location, in fact it is not. Indeed, a multinational firm producing abroad does not necessarily have to move factors there from the home country, as it may hire them on the local factor markets. In that case, what is actually being exported from the home country and what is contributing to the local production of the service are the intangible and/or proprietary assets of the firm, such as reputation, brand name, managerial capabilities, or production techniques.¹¹ As Deardorff argues, if an international transaction is recorded, it must be the case that something, an ‘absent factor’, flows from the firm in the home country to the foreign affiliate and contributes to the firm’s profitability. Otherwise the firm would pay the entire revenue to the local factors and there would not be any recorded international transaction. Thus, these absent factors, say ‘headquarter services’ or ‘management’ have public goods properties within the firm since they can be used in any number of affiliates without their utility being reduced (non-rival). This is similar to the point made by Rugman (1987) about the intra-firm transfer of firm-specific knowledge mentioned in section II, and the suggestion that the return on FDI be used as a proxy for these ‘internal transactions’.

The conclusion of Deardorff (1985) is that the law of comparative advantage applies to services if (i) one allows for certain specific characteristics of services, and (ii) the comparative advantage arises from differences in factor endowments. Moreover, even where it is not valid, it is not necessarily less invalid than for certain cases involving goods.

¹⁰ Indeed, some of these points could also be raised for certain types of goods trade.

¹¹ Exports of these services may in some cases be difficult to record, but some will fall under the ‘royalties and licence fees’ or ‘other affiliated services’ categories.

Sapir and Lutz (1981) examine the question of the empirical applicability of goods theories to services by looking at the determinants of comparative advantage in services. They adopt a two-step approach, where in the first stage trade patterns are regressed on a limited number of explanatory variables, and in the second stage, the residuals obtained from the first stage are examined to draw inferences about unobservable influences.¹² They use the ratio of exports over imports by service category as their dependent variable. The explanatory variables consist of various measures of relative endowments representing different trade theories. First, the capital to labour ratio for the Heckscher-Ohlin-Samuelson (H-O-S) model. Second, various proxies of human capital endowments¹³ to represent the extended H-O-S model, accounting for international differences in national resources and human capital. Third, technological factors, proxied by the ratio of national R&D expenditure to GDP, accounting for the neo-technology theory. Fourth, GDP is included as a measure capturing economies of scale (to account for theory relying on economies of scale). Market imperfections, such as tariff and non-tariff barriers are dealt with in the second stage of the analysis. Market imperfections are considered as unobservables and are, therefore, absent from the regression equation, but are taken into account when performing the qualitative analysis of the residuals. These equations are estimated over a cross-section of countries for the following services categories: (i) freight, (ii) passenger services, (iii) insurance, and (iv) other services, including communications, financial services, and professional and technical services.

The results of Sapir and Lutz suggest that traditional trade theories can explain the pattern of trade in services reasonably well, even in the presence of varying but substantial degrees of protectionism. They find that the availability of physical and human capital are the main factors determining comparative advantage in services trade. Specifically, they find that comparative advantage is determined by (i) capital intensity, scale, composition of trade and distance from trading partners in the case of freight services, (ii) capital abundance and the flow of passengers for passenger

¹² They note that problems with sample size and multi-collinearity restrict the number of explanatory variables that can be included in the regression equation at any one time.

¹³ The human capital endowment proxies used by Sapir and Lutz (1981) are (i) the ratio of professional, technical and related workers to the labour force, (ii) the percentage of the labour force with secondary-school education, proxied by the ratio of secondary-school enrolment to the whole of the population, and (iii) the percentage of the labour force with third-level education, proxied by the ratio of third-level enrolment to the population as a whole.

services, and *(iii)* the availability of human capital and economies of scale for insurance services. Moreover, they note that certain traded services (such as consultancy and engineering services, licensing, or technical assistance) constitute a means of technology transfer and, therefore, are important not only in terms of their import or export, but also because they have an important role to play in the development process.

Stibora and de Vaal (1999) constitutes another example of a study examining the empirical validity of a theory traditionally thought of in the context of manufacturing industries. They find that the OLI framework (Dunning, 1977), where FDI occurs in the presence of Ownership – Location – Internalisation advantages, still works for Dutch service sector multinationals, but that proximity advantages are the main motivation to expand abroad.

Some papers have sought to model trade in services directly. Hung and Viana (1995) model US services trade flows in an effort to examine what accounted for the surge in the US services surplus between 1985 and 1992. They use data covering the period from the start of the floating exchange rate (1973) to the early 1990s to estimate a forecastable model of real non-military and non-transportation services trade between the US and the rest of the world. They find that, contrary to common belief, improvements in data collection had a negative effect on the services surplus as imports were more affected than exports, and implied frequent revisions and discontinuities and breaks in the data. Furthermore, they find that strong foreign growth, and, to a lesser extent, dollar depreciation could explain the bulk of the increase in the services surplus. Finally, they find that while an increase in either outward or inward FDI assets had a significant and positive effect on both exports and imports of other private services, it had only a modest net effect on the US services balance. Their work suggests that standard empirical time-series models of international trade in goods can be applied to services.

Ansari and Ojemakinde (2003) examine the difference in the performance of the goods and services components of the US trade account. Indeed, while the merchandise account declined from a deficit of around 2 billion US\$ in 1971 to one of around 245 billion US\$ in 1998, the services account increased from a deficit of less than 3 billion US\$ to a surplus of around 81 billion US\$ over the same period. At the

same time, the GDP share of services has also grown faster than that of the goods sector. They find that this divergence in the behaviour of the merchandise and service accounts can be explained by differences in both income and price elasticities of imports and exports of goods and services, respectively, as well as by the rapid growth of the service sector itself.

Finally, Freund and Weinhold (2002) model the impact of the Internet, as measured by the number of web hosts in a country, on US trade in business services. They find that while the Internet contributed significantly and positively to the growth of US imports of business services, the effect on US exports is less conclusive.

Overall it appears that the literature has not established any objections against using goods theories when analysing services, formally or empirically.

VI. Conclusion

This paper attempts to provide an overview of the issues involved in analysing trade in services. This is essential not only for understanding and interpreting the existing data, but also for comprehending the requirement for new types of services data and the appreciation of the unresolved analytical and policy issues.

The nature of services has changed over time, generating pressures for changes in the definition and classification of services. This is particularly important in the context of the ever increasing significance of services sectors in the economy and the continuing efforts to harmonise services categories internationally in order to improve data collection and further international negotiations on services liberalisation.

Technological developments have brought about a change in the nature of services. While services were traditionally considered as non-tradable, these days it is difficult to imagine a commercial service that is not tradable within the current classifications in use. This has also contributed to the increasing prevalence of services, and of trade in services, in the economy.

Whilst intangibility seems to be the main difference between goods and services, it appears that the literature has not established any clear reasons why using theories

that traditionally apply to goods cannot also be applied to services, either formally or empirically.

What remains a problem for the analysis of services sectors, and for understanding the prevalence and importance of barriers to international services markets, however, is the lack of reliable, timely, and easily interpretable data. Balance of payments data are the most widely available data, but they do not currently encompass all forms of international trade in services. In particular, the existence of multinational firms is not dealt with adequately. Trade in services that occurs under GATS mode 3: commercial presence (or demander-located services) is not recorded, even though this is estimated to be the largest mode of supply. Moreover, some part of intra-firm trade in services is also likely to remain unrecorded. With the increasing importance of multinational firms in the global economy, the gap between what is recorded in the BOP data on present definitions and what constitutes international trade in services is likely to continue to widen.

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