

Do Economic Integration Agreements lead to Deeper Integration of Services Markets?

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Abstract

Economic Integration Agreements (EIAs) covering services are proliferating against a backdrop of profound changes in services production and trade. After reviewing the basic economics of services trade, and the main features of EIAs in services, the paper provides an initial quantitative estimate of the effect of these agreements on bilateral trade in services, using the standard gravity model. At the same time, the paper estimates the effects of other – not institutionally or politically motivated – determinants of services trade "in the standard gravity tradition." The paper shows that services trade between two countries is positively related to their size and negatively related to the distance between them. In fact, there is evidence of a "home market effect" in services. Most importantly for the sake of this paper and this volume, PTAs appear to have positive effects on bilateral services trade, in the order of 12% to 15%. It has not been possible to find however a significant difference – in terms of their effect on services trade – between PTAs and deep integration initiatives like the European internal market. This may be pointing to fundamental differences between these two types of EIAs.

Keywords: Services, Trade, Economic Integration, trade barriers, gravity models.

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Do Economic Integration Agreements lead to Deeper Integration of Services Markets?¹

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Preferential liberalization of trade in services is not a new phenomenon, but has become a more common and prominent feature of the latest generation of bilateral preferential trade agreements (PTAs) negotiated in this decade. As of 1 September 2009, 73 economic integration agreements (EIAs) have been notified to the WTO under Article V of the GATS. This list includes all types of EIAs, including *inter alia* the successive European Union enlargements, the European Economic Area, EFTA, NAFTA, MERCOSUR; ASEAN, and more recent bilateral or plurilateral preferential trade agreements covering services. Most of those notifications arrived before the year 2000 – 61 compared to 12 before that year.³ And many more agreements are currently being negotiated.

One might expect that countries entering these PTAs do so with the objective of eliminating barriers to trade in services, but more importantly, in the hope that the agreements will actually increase bilateral services trade between the parties. Lack of reliable data on trade in services (especially of bilateral flows) has made it almost impossible to carry out empirical studies of the determinants of bilateral services trade flows and – in particular – of the effects of PTAs on trade flows in services. However, the availability of statistics on trade in services has improved over the last year, particularly among OECD countries. Taking those developments in the statistical field into account, the main purpose of this paper is to provide an initial quantitative estimate of the effect of PTAs on bilateral trade in services, using the standard gravity model. At the same time, the paper will provide an opportunity to look into other – not institutionally or politically motivated – determinants of services trade "in the standard gravity tradition." It will be then a way of gauging how well the gravity model works for services trade.

The paper is organized as follows. Section 1 gives a brief overview of the basic economics of trade and trade policy in services. Section 2 provides an overview of services trade flows. Section 3 looks into the law of PTAs. In doing so, the paper takes a broad view of preferential

¹ This is a slightly revised version of the paper "Do PTAs actually increase parties' services trade?" (forthcoming) in Bagwell, Kyle and Petros C. Mavroidis (eds), *Preferential Trade Agreements: A Law and Economic Analysis*, forthcoming Cambridge University Press. The data, econometric methodology and results are the same, though.

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³ The information on notifications was obtained from the WTO database on RTAs.

integration in services in order to cater for not only negative integration agreements, basically the new generation PTAs, but also positive integration agreements, such as the European Communities. Section 4 provides a selective survey of the gravity equation in international trade. Section 5 reviews previous literature on the application of the gravity equation to trade in services. Section 6 presents the empirical specification and the data used in this paper. Section 7 presents the estimation results. The final section concludes.

1. The basic economics of trade and trade policy in services

Simply defined, services are a diverse group of economic activities distinct from manufacturing, mining and agriculture. The term encompasses a broad range of industries that provide the basic economic infrastructure (communications, transport, distribution, energy-related services, construction, water supply, sanitation and sewerage services, waste collection and disposal), financial infrastructure (banking, insurance, financial markets), support to business (advertising, marketing, computer services, professional services), or social infrastructure (education, health and social services).

Services currently represent more than two thirds of world GDP. The share of services in GDP and employment tends to rise with income, but even for the poorest countries it is now significant. In 2001, service sectors accounted for 45% of GDP in low-income economies; 57% in middle-income economies; and almost 71% in high-income economies. Services activities in low- and middle-income countries have been expanding faster than GDP for the last two decades, and represent on average 5 to 10 percent points more of GDP than in the early 1980s. An implication of this continuous shift toward services is that the overall growth of productivity in the economy will be increasingly determined by what happens in the service sector.⁴

Economists have long debated the differences between goods and services. Services are usually characterized as intangible, non storable, and requiring simultaneous production and consumption; while goods, in contrast, are tangible and storable, and hence do not typically require simultaneity of supply and use. Intangibility is a common feature of services. One can physically touch a manufactured product, but services are intangible. One cannot touch a piece of legal advice or a journey, though can often see the results.

Arguably the most important difference between the goods and services is that the latter must be consumed as they are produced, and hence do require simultaneous interaction between the producer and the consumer. For many services, whose number is growing due to technological advances, this key feature is of course not necessary. Think of a variety of financial, entertainment, information, professional, education, and communication services, which can be produced in one country and delivered to consumers in another country, either through electronic means or stored in some medium (e.g. paper, CD-ROM). However, a good number of services do require proximity between the consumer and the producer to make trade possible, and therefore call for the movement of one or the other. Examples of such services are construction, tourism, haircuts, or most medical services, among many others. Even for the services that can actually be supplied at a distance, the personal contact

⁴ For further discussion on the relationship between services, economic development and the cost of protection, see Marchetti (2007).

between suppliers and consumers is often seen as necessary to build trust, to complete the transactions, and to remove information asymmetries between suppliers and clients.

The interaction between producers and consumers implies that a definition of trade in services must go beyond our traditional understanding of trade, to encompass provider and consumer mobility across national borders. We will see in subsequent sections of this paper that agreements dealing with services trade (both at the bilateral and multilateral levels) have taken account of this specific feature.

The nature of services has critical implications for what we understand as trade policy in services. Border measures, particularly tariffs, are almost impossible to apply to trade in services for the simple reason that customs agents will not be able to see the service cross the border. What customs agents, as well as most of us, will observe are service suppliers (either firms or persons) or consumers crossing the frontier. Other price-based measures, such as taxes, may be applied to services (including foreign services) although they will not be typically levied at the border but, rather, within a country's borders. Additionally, if services trade requires the movement of suppliers and/or consumers, then the ability of governments to impede international transactions on services will depend on regulations affecting the entry, establishment and operations of service suppliers (be them firms or persons) or the movement of consumers. Barriers to trade in services may therefore take the form of outright prohibitions, quantitative limitations on services or the number of service suppliers (both natural and juridical persons), local content requirements, foreign equity limitations, discriminatory taxation and subsidisation, and discriminatory access to distribution networks, to name just a few.⁵

What does the economics of services mean for the analysis and granting of preferential treatment in services trade? As explained by Fink and Mattoo (2004), the analysis of preferential agreements in services requires an extension of conventional theory to cater for two specific features of services trade: the need for physical proximity between the supplier and the consumer; and the fact that preferences in services trade will be most probably granted not through tariffs (which are unusual in services trade), but through discriminatory restrictions on the movement of persons and companies, as well as a variety of domestic regulations, such as technical standards, licensing and qualification requirements. This means that while traditional trade theory has focused on the impact of preferences when barriers are tariffs or quotas on sales of products, other forms of discrimination (or preferential treatment) will be more relevant for services trade, such as protectionist measures that increase the variable costs of production without generating rents for government; measures that affect the fixed costs of supply; and quantitative restrictions on the number of service suppliers.⁶

2. An overview of services trade flows

When analyzing the pattern of world trade in services, three aspects stand out. Firstly, services have been the fastest-growing sector of the global economy over the last three

⁵ See Hoekman and Primo Braga (1997).

⁶ For further analysis of the policy implications involved in preferential liberalization of services trade, see Fink and Mattoo (2007).

decades. After five years of stagnation in the early 1980s, global exports of services grew regularly, reaching US\$ 3,371 billion in 2008, a nine-fold value increase compared to 1980. Exports of services grew on average at around 8.61% a year in value terms over the period 1980-2008, faster than goods exports (7.96%), and definitely much faster than world GDP (6.39%). As a result, the share of commercial services exports in total world exports (goods and services) rose from 15.2% in 1980 to 18.8% in 2008, after reaching an all-time high of 19.7% in 2002 (Figure 1).

Secondly, reflecting new trends in services trade, between 1980 and 2008, the share of *travel* and *transport* in total *commercial services* decreased, to the benefit of *other commercial services*. Indeed, the share of transport in total commercial services declined steadily from 37% in 1980 to 23% in 2008. Exports of travel services expanded vigorously in the 1980s and mid-1990s, going from 28% to 34% of world services trade between 1980 and 1995; but then slowed down, representing "only" 25% of world services trade in 2008. On the other hand, the share of *other commercial services* rose from 35% to 51% of world services trade between 1980 and 2008. These *other commercial services*, which include many services prone to global outsourcing, such as business and computer-related services, have proven to be the most dynamic segment of world trade in the last decades (Table 1).⁷

And thirdly, developing countries' share in world trade in services has grown significantly in the last two decades. For example, if we compare OECD with non-OECD countries, we see that the latter's share in world services exports increased from 22.73% in 1980 to 29.80% in 2008. The share of non-high income countries (both OECD and non-OECD) has grown from 13.87% in 1980 to 20.73% in 2008.⁸ Technological advances increasingly allow the spatial fragmentation of goods and services production, and off-shoring to operational units abroad and even outsourcing to a foreign third party service supplier has become common practice among multinational corporations. Developing countries are indeed becoming exporters of so-called Business Process Outsourcing (BPO) services. Low-labour costs, the availability of a well-educated pool of workers, and the improvement in the quality and price of international telecommunications, have allowed several developing countries, most notably India, to take the lead in this field (Marchetti, 2007).

Having said that, it is worth clarifying that these statistics, which are based on Balance-of-Payments (BOP) information, greatly underestimate the value of services trade flows covered not only by the WTO General Agreement on Trade in Services (GATS) but by all Preferential Trade Agreements (PTAs) signed so far. This is because BOP statistics provide only a partial picture of trade in services, only reflecting cross-border trade and consumption abroad,⁹ but ignoring the supply of services through the presence of juridical and natural persons, which are part of the definition of "trade in services" in all trade agreements, be them multilateral or preferential. Only few countries produce statistics reflecting trade in services through the commercial presence of companies (so-called Foreign Affiliates Trade in Services or FATS statistics), while information on the supply of services through the temporary movement of natural persons is still more limited. Maurer and Chauvet (2002)

⁷ See Marchetti (2007) for a discussion of trends in services outsourcing and offshoring.

⁸ Based on statistics from the WTO statistics database. The World Bank defines "high income countries" as those with a GDP per capita above US\$11,906 in 2008.

⁹ For definitions of cross-border trade and consumption abroad in GATS and other PTAs, see the following section of this paper.

have estimated that trade through commercial presence of firms is as important as BOP-based cross-border trade, and that together they represent 80% of total world trade.¹⁰

3. The different liberalization approaches – from simple PTAs to deeper integration

For the sake of this paper, I take a rather broad view of preferential trade agreements (PTAs), going from those providing for deeper integration (positive integration-type of agreements seeking harmonization of at least basic regulatory requirements) to those envisaging the liberalization of specific restrictions to trade in services without aiming at regulatory harmonization (negative integration-type of agreements). The European Union and the European Economic Area belong to the first category; while all the other PTAs negotiated in the last decade belong to the second one. This second category can be further divided into those agreements providing for a GATS-type gradual approach to opening services markets, those adopting a more immediate NAFTA-type liberalization approach, and those adopting a hybrid approach (kind of mixture of the previous two).¹¹ A full analysis of the plethora of agreements covering trade in services would certainly be beyond the scope of this paper.¹² Instead, I will focus on the liberalization modalities and principles adopted by the different groups of agreements now in place.

a) GATS-type agreements

GATS-type agreements contain basically one chapter dealing with (almost) all aspects of services trade.¹³ These agreements apply to "measures affecting trade in services", with trade being defined by reference to four modes of supply which, as explained in the previous section, take account of the different modalities through which services can be supplied. The four modes are the following:

- Cross-border trade or mode 1, i.e. the supplier and the consumer interact over distance, and it is the 'service' that actually 'crosses' the border;
- Consumption abroad or mode 2, i.e. the consumer 'moves' (most probably physically but possibly also "virtually" through Internet) to the supplier's jurisdiction and 'consumes' the service there;
- Commercial presence or foreign suppliers or mode 3, i.e. the producer sells services directly to consumers in the latter's jurisdiction, through commercial establishments such as subsidiaries or branches; and
- Temporary presence of foreign natural persons supplying services or mode 4, i.e. the supplier (in this case a natural person, either employed or self-employed) supplies services directly to the consumers in the latter jurisdiction, through his temporary presence in the consumer's territory.

¹⁰ For further information on the measurement of trade in services, see Maurer et. al (2008).

¹¹ GATS stands for General Agreement on Trade in Services.

¹² For an analysis of liberalization commitments in several PTAs negotiated in this decade, see Roy, Marchetti and Lim (2006, 2007, and 2008).

¹³ See for example the following PTAs: EFTA-Korea, EFTA-Chile, EFTA-Mexico, EC-Chile, EC-Mexico, ASEAN, and MERCOSUR's protocol on services.

Safe for a few exceptions (e.g. sectoral exclusions in the PTA between Australia and Thailand, or the exclusion of financial services from the PTA between EFTA countries and Chile), the sectoral coverage of these agreements is the widest possible – all services are covered, except for the bulk of air transport services and "services supplied in the exercise of governmental authority", which are those supplied neither in competition nor on a commercial basis.¹⁴

As indicated in the first section of this paper, protectionist measures in services usually take the form of regulations. As explained elsewhere (Marchetti and Mavroidis, 2004) regulations are very heterogeneous, and while some may have been designed as protectionist devices others may be necessary to achieve legitimate economic or social objectives. The GATS, and all the bilateral PTAs including trade in services, deal with the question by distinguishing between trade restrictions and "domestic regulations". The disciplines on market access and national treatment are meant to capture the most outrageous or explicit forms of protection of national service industries, i.e. discriminatory measures or specifically identified limitations on market access; while the disciplines on "domestic regulation" deal with more implicit forms of barriers to trade in services stemming from licensing and qualification requirements and procedures, and technical standards.

Market access and national treatment are thus central obligations in PTAs. Market access provisions are aimed at prohibiting a specific set of governmental measures restricting the supply of services. In GATS-type agreements, six types of market access limitations are contemplated: a) limitations on the total number of suppliers; b) limitations on the total number of transactions or assets; c) limitations on the total value of operations or output; d) limitations on the total number of employees; e) restrictions on the type of legal entity required to supply services; and f) restrictions on foreign equity participation. These corresponds to the measures listed in Article XVI:2(a)-(f) of the GATS. The national treatment obligation is usually defined in GATS-type agreements as in Article XVII:1 of the GATS, as the obligation to "accord to services and service suppliers of [the other party], in respect of all measures affecting the supply of services, treatment no less favourable than that it accords to its own like services and service suppliers." Unlike the market access obligation, the national treatment obligation does not identify specific limitations and hence any measure applied to the detriment of like foreign service and service suppliers, either *de jure* or *de facto*, would qualify as a departure from national treatment.

Market access and national treatment are not general and unconditional obligations in GATS-type agreements. In other words, these agreements do not contain any obligation to grant access to, or avoid discrimination of, foreign services and services suppliers. Rather, under these agreements the freedom to access the market through any of those modes of supply, as well as the extent of national treatment, are subject to negotiations, and the resulting commitments are entered into national schedules. As a consequence of this approach, unless the agreement provides for periodic rounds of negotiations, such as MERCOSUR and ASEAN, liberalization of services trade (understood as the granting of access and national treatment to foreign services and services suppliers) may be quite incomplete or, rather, cover a limited number of sectors.

¹⁴ For a discussion on "services supplied in the exercise of governmental authority", see Marchetti and Mavroidis (2004).

A critical element of any trade agreement covering services is its negotiating modality, which determines the sectoral coverage of those liberalization commitments, i.e., the sectors that will be subject to market access and national treatment obligations, and the extent to which these obligations will apply. GATS-type agreements adopt a so-called "positive-list" or "bottom up" modality whereby the liberalization obligations (market access and national treatment) only apply to the sectors listed, and subject to any limitations or conditions inscribed in the schedule of commitments. Limitations may be inscribed with respect to any of the six market access measures described above, and with respect to any discriminatory measure.¹⁵ Under a positive list approach, limitations may be introduced for existing non-conforming measures or for future measures. Moreover, since only "measures" are bound, no indication is given of the relevant laws/regulations on which these are based, which accentuates the lack of transparency of this scheduling mechanism.

Agreements generally adopting a GATS-type approach include MERCOSUR, ASEAN, Thailand-Australia, Singapore-Australia, Singapore-Japan, New Zealand-Singapore, the PTAs signed by the EC, and the PTAs subscribed by EFTA countries.

b) NAFTA-type agreements

These agreements have both a services chapter ("cross-border trade in services") and an investment chapter. The services chapter applies then to measures affecting "cross-border trade in services", which is defined as including the equivalent to GATS modes 1, 2, and 4; but does not cover the supply of a service through foreign direct investment (FDI), which is instead covered by a specific chapter on investment.¹⁶ Further provisions on the movement of some categories of natural persons are also typically found in an additional chapter. And some mode 4-related elements (e.g., national treatment obligation for senior managers) are included in the investment chapter.

With regard to sectoral coverage, NAFTA-type agreements also differ from the GATS-type in that they list the categories of services that parties to the agreement will not be prevented from supplying, such as law enforcement, correctional services, income security or insurance, social security or insurance, social welfare, public education, public training, health, and child care. Some of the new agreements signed by the US do contain "governmental services" carve-outs similar to the ones contained in the GATS.

¹⁵ As a matter of fact, three levels of commitments are possible in GATS-type schedules: 1) Full commitments, whereby a country commits itself not to apply any of the six market access limitations and not to discriminate foreign services and service suppliers. This is indicated by inscribing the word "none" in the sector and mode of supply concerned; 2) partial commitments, whereby the country indicates which market access limitations may apply, and any applicable limitation on national treatment; and 3) no commitment at all, whereby the country reserves the right to impose any of the six market access limitations or to discriminate like foreign services and service suppliers. This is indicated by inscribing the word "unbound" in the sector and mode of supply concerned.

¹⁶ Article 1201 NAFTA provides that Chapter 12 on 'Cross-Border Trade in Services' applies to measures relating to cross-border trade in services where 'cross-border trade in services' is defined as the "provision of a service (a) from the territory of a Party into the territory of another Party, (b) in the territory of a Party by a person of that Party to a person of another Party, or (c) by a national of a Party in the territory of another Party, but does not include the provision of a service in the territory of a Party by an investment, as defined in Article 1139 (Investment - Definitions), in that territory.

Older PTAs, such as NAFTA and Canada-Chile, do not have a specific provision on "market access", but contain a somewhat similar discipline addressing "quantitative restrictions", which are defined as non-discriminatory measures that impose quota-type limitations on a) the number of service providers, or (b) the operations of any service provider.¹⁷ Depending on the interpretation of the "limitations on the operations of any service supplier", this apparently more limited list of restrictions (compared to the six included in GATS Article XVI) may have a similar or broader coverage compared to the GATS list of market access limitations.

The new generation of NAFTA-type agreements, including those signed by the US, do contain a market access provision modelled on GATS Article XVI, but excluding foreign equity restrictions from the list of market access limitations. This omission however does not seem to modify the liberalization content of the cross-border services chapter in these agreements since foreign equity limitations may be captured by the national treatment principle, and are largely irrelevant for trade under modes 1, 2, and 4.

NAFTA-type agreements also have a national treatment obligation, defined differently from that in the GATS, as treatment no less favourable than the one accorded "in like circumstances" to one's own service providers. The comparator then is different: "like" services and service suppliers in the GATS, and "like circumstances" in the NAFTA-type agreements. A difference that may have relevant implications in the protection afforded by the national treatment principle in the different agreements.

As in the GATS, market access (or quantitative restrictions) and national treatment are not immediate and unconditional obligations, but negotiable obligations. In other words, parties to these agreements can impose limitations on market access and/or national treatment when making a liberalization commitment. In addition, limitations (or reservations, as they are called in this type of agreements) can be entered with regard to the Most-Favoured-Nation principle and the obligation to refrain from imposing a "local presence" requirement as a precondition for the cross-border supply of a service.

In terms of their liberalization modality, NAFTA-type agreements are based on a "top down" or "negative list" approach, whereby all sectors are supposed to be subject to the obligations on market access, national treatment, MFN, and local presence, unless otherwise specified in lists of reservations. Reservations are typically for existing non-conforming measures (Annex 1) and for future measures (Annex 2). Contrary to PTAs following the GATS approach, NAFTA-type agreements provide a high degree of transparency since, save for the normally limited number of Annex 2 reservations, the actual level of openness is spelled out, along with an indication of the piece of legislation (e.g. law, regulation) giving ground to the measure. In addition, the PTAs signed by the US, as well as others, contain a "ratchet mechanism" for the reservations listed in Annex I. This clause means that if a Party liberalizes a non-conforming measure listed in Annex I (i.e. it makes such a measure less inconsistent with an obligation), then it cannot subsequently make it more restrictive. In other words, the ratchet mechanism means that the liberalized measure becomes "bound" as part of the Agreement's treaty commitments.

c) *"Deeper integration" agreements*

¹⁷ See NAFTA Article 1213 and Canada-Chile Article H-12.

This category includes basically the set of legislation providing for the European internal market. The central principles governing the internal market for services are set out in the EC Treaty. This guarantees to EC services suppliers the freedom to establish themselves in other Member States, and the freedom to provide services on the territory of another EC Member State other than the one in which they are established. The free movement of services (complemented by the freedom of establishment) is one of the four fundamental freedoms on which the EC internal market is founded.¹⁸

Any discrimination concerning the provision of services on the basis of nationality is prohibited directly by the EC Treaty, without the need of specific Community legislation. Services covered under this "freedom" include all activities of an industrial or commercial character or of craftsmen and the activities of the professions. "Services" do not include transport, banking and insurance, which have their own liberalization frameworks.¹⁹

The EC Treaty provisions have direct effect. This means, in practice, that Member States must modify those national laws that restrict the freedom of establishment, or the freedom to provide services; and that the treaty provisions are directly enforceable via the European Court of Justice. EC Member States may only maintain restrictions if they are justified by reasons of general interest (e.g. on grounds of public policy, public security or public health), and provided they are proportionate.

Although the Treaty refers to the freedom to provide services, the European Court of Justice has held that the freedom established by the Treaty includes the freedom, for the recipient of services (such as tourists, persons seeking medical treatment, people travelling for business or study purposes) to go to another Member State in order to receive the service there. So this freedom is not just the freedom to provide (akin to mode 1 of the GATS) but also the freedom to consume services anywhere across the EU (akin to mode 2 of the GATS).

The principles of freedom of establishment and free movement of services have been clarified and developed over the years through the case law of the European Court of Justice. In addition, important developments and progress in the field of services have been brought about through specific legislation in fields such as financial services, telecommunications, broadcasting and the recognition of professional qualifications

Home-country regulation and mutual recognition – within a common framework of minimum requirements – are essential to this approach. In other words, if a service is lawfully authorised in one EC Member State it must be open to users in the other Member States without having to comply with every detail of the legislation of the host country, except those concerning consumer protection. Over the years however, numerous and diverse national regulations were found to prevent the full development of the internal market, and made it necessary to take specific actions to remove the barriers affecting both the freedom of establishment for providers in Member States and the free movement of services between Member States. This was the initial aim of the Services Directive adopted in 2006 that

¹⁸ The other freedoms include the free movement of goods, the free movement of persons, and the free movement of capital.

¹⁹ The free movement of services rules can also be extended to nationals of a non EU country who provide services and who are established within the EU.

sought to establish a general legal framework facilitating the exercise of the freedom of establishment for service providers and the free movement of services.²⁰

In the case of the freedom of establishment, the Directive provides for a new framework for authorisation schemes including conditions for the granting of authorisation, duration, procedures, etc. Member States will be able to establish or maintain authorisation schemes only if certain conditions are met and these schemes will have to be non-discriminatory, necessary and proportionate. The Directive also provides for the creation of single points of contact in each EC (in fact EEA) Member State through which providers can complete all procedures and formalities.

In the case of freedom to provide services, Member States shall no longer be able to prevent a foreign service provider from offering his/her services on their territory. Member States may still stipulate their own national requirements, but only for reasons of public policy, public security, public health or protection of the environment. Such national requirements must also respect common Internal Market principles of non-discrimination, proportionality and necessity. In order to make it easier to monitor such requirements, and to give service providers better and easier access to information on national requirements, all Member States are obliged to report and justify their national requirements to the Commission.

The sectoral coverage of the Directive is limited though. Services covered by the Directive are only business-related services, such as management consultancy services; testing and certification services; advertising and marketing services; distribution services; recruitment services; legal and fiscal advisory services; estate agency services; installation and maintenance services; building and construction services; car rental and travel agency services; and tourism, sport and entertainment services. Public services (water, electricity and gas) and waste management services are covered by the provisions related to the freedom of establishment, but not by the provisions relating to cross-border trade in services. Most importantly, the Directive does not apply to the following: services that are already covered by Community legislation (such as financial services, telecommunication services and transport services); services of non-economic general interest (education and health); social services provided for by the State; audiovisual services, including cinematographic services; gambling; activities connected with the exercise of official authority; private security services; and services provided by notaries.

The Agreement on the European Economic Area (EEA), which entered into force on 1 January 1994 brought together the EC Member States (now 27) and three EFTA countries (Iceland, Liechtenstein, and Norway) in a single market for services.²¹

²⁰ Directive 2006/123.

²¹ Switzerland is not part of the EEA Agreement, but has a series of bilateral agreements with the EU, including an insurance agreement signed in 1989. The Vaduz Convention between the four EFTA countries, which entered into force in June 2002, introduced provisions on investments and trade in services (defined as covering the equivalent to modes 1, 2, and 4 of the GATS) into the EFTA framework. Under the Convention, trade and investment in services between EFTA States is liberalized, subject to reservations lodged by each EFTA State at the conclusion of the negotiations. Liberalization was thus subject to a negative list approach. These reservations are to be reviewed with a view to their removal. It is worth noting that Iceland, Liechtenstein and Norway as Member States of the EEA had already lifted most of these limitations to investment and trade in services among themselves and vis-à-vis the other EC Member States, while this is not the case in respect of Switzerland. Most of the reservations maintained by the EFTA States under the revised Convention reflect their current commitments under the GATS.

4. An introduction to the gravity equation in international trade

Tinbergen (1962) pioneered the use of the gravity equation in international trade. Since then, the gravity equation has been a popular instrument in empirical foreign trade analysis, and it has been successfully applied to flows of varying types such as workers' remittances, foreign direct investment, cross-border lending, and of course international trade flows. According to this equation, which draws from Newton's law of gravity, exports from country i to country j (X_{ij}) are explained by the economic sizes of the two countries, typically measured by GDP (Y_i and Y_j), and the geographic distance between them, D_{ij} (usually measured centre to centre).

$$X_{ij} = G \frac{Y_i Y_j}{D_{ij}}$$

In log linear form, the equation has been usually expressed in the following manner:

$$(1) \quad \ln(X_{ij}) = \beta_0 + \beta_1 \ln(Y_i) + \beta_2 \ln(Y_j) + \beta_3 \ln(\text{Distance}_{ij}) + \varepsilon_{ij}$$

The gravity equation can be thought of as a representation of supply and demand forces. If country i is the origin, then Y_i represents the total amount it is willing to supply to all customers; while Y_j represents the total amount destination j demands. Distance may be interpreted as a sort of tax "wedge" that imposes trade costs, and results in lower equilibrium trade flows. The expected signs are therefore positive for β_1 and β_2 , and negative for β_3 .

Over time, the original equation was "augmented" to include other explanatory variables of foreign trade, such as income per capita, geographical adjacency, common language, colonial links, institutions, and infrastructure. The equation has been also used to estimate the effects of various economic integration frameworks, such as the WTO, regional trade agreements, and currency unions.

In spite of its empirical success, the equation remained for a long time a purely empirical proposition to explain bilateral trade flows, with little or no theoretical underpinnings. However, since the end of the 70s, the gravity equation has been "legitimized" by a series of theoretical articles by prominent economists that demonstrated that the basic equation was indeed consistent with various models of trade. Anderson (1979) made the first formal attempt to derive the gravity equation from a model that assumed product differentiation. Bergstrand (1985, 1989) also explored the theoretical determination of bilateral trade in a series of papers in which gravity equations were associated with simple monopolistic competition models. Helpman and Krugman (1985) used a differentiated product framework with increasing returns to scale to justify the gravity model. More recently Deardorff (1995) has proven that the gravity equation characterizes many models and can be justified from standard trade theories. Finally, Anderson and Wincoop (2001) derived an operational gravity model that helps solve the so-called border puzzle (more on this below).

Additionally, several authors have discussed the econometric specification of the gravity equation, contributing to the improvement of its performance (e.g. Cheng and Wall (1999), Egger (2000), Feenstra (2004), and Baldwin and Taglioni (2006)).

5. The gravity equation and trade in services

Only a few studies using the gravity equation has been devoted to services, mainly due to the lack of reliable and consistent data on bilateral trade. Grunfeld and Moxnes (2003) apply a gravity equation to bilateral export of services and FDI flows for 1999. Data for services trade comes from the OECD, and covers 22 OECD members and their trading partners, including non-OECD countries. Their regressors (or explanatory variables) include the level of GDP and GDP per capita in the importing and exporting countries, the distance between them, a dummy variable if they are both members of a free trade area (FTA), a measure of corruption in the importing country, and a trade restrictiveness index (TRI) to measure the barriers to services trade in the importing country. The TRI is the augmented frequency index based on research by the Australian Productivity Commission. Their results suggest that the standard gravity model effects found in studies on trade in goods apply to services too. Trade between two countries is positively related to their size and negatively related to the distance between them and barriers to services in place in the importing country (measured by the TRI). They find that the presence of a FTA is not significant in the case of services. This result might be expected as many of the FTAs covered at the time did not cover trade in services.

Kimura and Lee (2006, but the original working paper had been circulated in 2004) apply the standard gravity framework to services trade with the aim of comparing the results to the estimates for trade in goods. They also use OECD statistics on trade in services, but for the years 1999 and 2000. They use the standard explanatory variables (GDP, distance), plus adjacency, common language, and the existence of a regional trade agreement (RTA) between the countries concerned. They innovate by including as regressors a measure of remoteness (a trade weighted measure of the distance between the two countries), and a measure of trade restrictiveness (the Economic Freedom of the World Index developed by the Fraser Institute). Kimura and Lee estimate their gravity equation using a mixture of ordinary least-squares (OLS) and time-fixed effects. The major difference they report is that distance between countries is more important in services trade than in goods trade. They suggest this implies there are higher transport costs for services but fail to provide any reason why this may be the case. Common language between the importer and the exporter is not found to be significant, while RTAs are found to correlate positively with trade in services, which contradicts the finding by Grünfeld and Moxnes. Kimura and Lee argue that whilst many FTAs do not explicitly cover trade in services, their presence may indirectly facilitate the process.

Walsh (2003) also estimates a gravity equation of services trade, using import data for 27 OECD countries and up to 50 trading partners over a three-year period (1999-2001). The gravity model is estimated with total services, government services, transport services, travel and other commercial services as dependent variables. He includes a dummy variable to cater for membership in the European Union. The standard gravity framework explains the determinants of services well. The GDP per capita of the importing and exporting countries

and a common language are found to be the most important determinants of trade between two countries. However, adjacency and membership of the European Union are not found to increase services trade. Walsh's results also show that distance is not a significant determinant of services trade flows.

In a more recent paper, Ceglowski (2006) estimated a gravity equation for services trade in a sample of 28 OECD countries, for the period 1999-2000. Apart from standard gravity variables, the study includes a dummy variable to cater for membership in various preferential trading arrangements, namely CER (between Australia and New Zealand), the EFTA, the EU, NAFTA, and the EEA (European Economic Area). She finds that geographical and linguistic proximity are key determinants of services trade. Additionally, common membership in a PTA has a significant, positive effect on bilateral services trade. According to the author, much of this effect of PTAs appears to reflect the impact of bilateral trade in goods on services trade.

6. Methodology and data

In its most basic form, the gravity model estimates the trade between two countries as a positive function of their economic sizes and a negative function of the distance between them. As explained before, I will use an "augmented" gravity equation, to cater for other determinants of bilateral trade in services, including preferential trade agreements. In log linear form the equation to be used will take the following form:

$$(2) \quad \ln(X_{ijt}) = \beta_0 + \beta_1 \ln D_{ij} + \beta_2 \ln(Y_{it}) + \beta_3 \ln(Y_{jt}) + \beta_4 \text{Comlang}_{ij} + \beta_5 \text{Cont}_{ij} + \beta_6 \text{EIA}_{ijt} + e_{ijt}$$

where i and j denotes trading partners (exporter and importer, respectively), t denotes time, and the variables are defined as:

- X_{ijt} denotes services exports from i to j at time t .
- Y_{it} is the exporter's current GDP in dollars.
- Y_{jt} is the importer's current GDP in dollars.
- D_{ij} is the distance between the exporter and the importer, measured as the distance between the most populated cities in each country.
- Cont_{ij} is a binary "dummy" variable which is unity if the exporter and the importer share a land border.
- Comlang_{ij} is a binary "dummy" variable which is unity if the exporter and the importer share the same language.
- EIA_{ijt} is a binary "dummy" variable which is unity if both countries are parties to any type of economic integration agreement (i.e. free trade area or a common market) covering services trade in year t .
- e_{ijt} represents the omitted other influences on bilateral trade.

We should expect positive signs for all the coefficients of the explanatory variables, except for the one on distance, which should be negative. In the case of GDP, a higher income level in the exporting country should be positively related to the country's ability to produce more

services for export, while a higher level of income in the importing country should indicate a higher level of demand for services (produced domestically or imported).

One should also expect the distance variable to yield a negative coefficient. Physical distance may be considered a proxy of various transaction costs affecting trade in services, such as travel costs, costs associated with cultural unfamiliarity with the foreign market, costs associated with communications, costs of market research, and costs of establishing trust and reputation (which are essential in services that in many cases are affected by asymmetric information). Therefore, the larger the distance between the seller and the buyer, the more difficult for the former to actually sell (export) his services. By the same token, common language and contiguity may be considered as "positive" forces that would help diminish the adverse effects of transaction costs; thus their expected positive signs.

The sign of more interest to me in this exercise is of course β_6 , which measures the effect on bilateral trade if both countries belong to a common market or free trade area covering services trade. This EIA dummy is an all-encompassing variable, capturing every type of agreement on trade in services. The agreements included in this dummy, based on the availability of data on bilateral trade in services, are the following: Australia-New Zealand, Australia-Singapore, Australia-Thailand, Australia-US, Canada-Chile, Hong Kong-China, EC25, EC-Chile, EC-Mexico, EEA, EFTA, Japan-Mexico, Japan-Singapore, NAFTA, US-Chile, and US-Singapore. See Table 2 for the agreements included in this variable, and the direction of trade flows.

But as has been explained in section 2 above, free trade agreements (or PTAs stricto sensu) and common market initiatives involve different degrees of liberalization and economic integration. Therefore, in order to isolate the impact of each type of agreement, I also estimate an extension of equation (2), where the EIA variable is actually decomposed according to the different types of economic integration agreement. Accordingly, I will also estimate the following equation:

$$(3) \ln(X_{ijt}) = \beta_0 + \beta_1 \ln D_{ij} + \beta_2 \ln(Y_{it}) + \beta_3 \ln(Y_{jt}) + \beta_4 \text{Comlang}_{ij} + \beta_5 \text{Cont}_{ij} + \beta_6 \text{PTA}_{ijt} + \beta_7 \text{EC}_{ijt} + e_{ijt}$$

where PTA_{ijt} is a binary "dummy" variable which is unity if both countries are parties to a PTA (typically known as free trade areas) covering services trade; and where EC_{ijt} is a binary "dummy" variable which takes the value 1 if the exporter and the importer are both EC member states. The EC variable includes the 10 countries that joined the EC in 2004. In the case of the EC member states then, the Internal Market will be basically covered by this variable, while the PTAs between the EC and Chile, and between the EC and Mexico will be covered by the PTA variable.

Further detail on the construction of these dummies is warranted. Firstly, the bilateral PTA dummy includes all the bilateral agreements entered into force between 1999 and 2006, or already in force throughout that period, between the pairs of countries for which there is data on bilateral services trade. Agreements such as ASEAN and MERCOSUR, whose members do not report figures of services exports or imports broken down by partner have been therefore omitted. Other more "ancient" agreements, such as ANZCERTA and NAFTA, have been included in the sample.

Secondly, in order to assign the date of entry into force to the different agreements, I used the following rule: the agreement that entered into force before end-June of a given year will carry as a date of entry into force that same year, while the agreement that entered into force as of 1 July of a given year will carry as the date of entry into force the following year. For example, if the agreement entered into force on 1 February 2003, the date of entry into force will be 2003; and if the agreement entered into force on 1 December 2003, the date of entry into force will be 2004. The date of entry into force is the one that prompts the value "1" for the dummy variable.

Thirdly, in the case of European countries, I have used data on individual countries' services exports, which allows to capture the effect of both intra-EC trade and extra-EC trade. Intra-european trade among the 25 EC member states will be captured by the EC dummy, which will for example, take the value 1 for the period 1999-2006 for France's exports to Germany, and the value 1 as of 2004 for France's exports to the Czech Republic. Extra-EC trade (e.g. France's or Czech Republic's exports to Chile) will be captured by the PTA dummy.

Some clarifications with regard to the estimation are also in order. Firstly, to be closely aligned with theories surrounding the gravity equation, I focus on unidirectional trade in services, and not on total trade. In particular, I focus on services from country i to country j as the dependent variable. The reason for this is that, as explained by Baldwin and Taglioni (2006) and Subramanian and Wei (2007), the basic theory tells us that the gravity equation is a modified expenditure function; it explains the value of spending by one nation on the goods produced by another nation. In other words, the gravity equation explains unidirectional bilateral trade. In this case, the choice of exports of services, instead of imports, has been on purpose. Indeed, contrary to trade in goods, where import figures are generally more reliable than export figures, in the case of services, the contrary is true –export figures are more reliable than import figures, because surveys of domestic exporters in specific sectors are generally more reliable than survey of importing entities throughout the whole economy.²²

Secondly, I use country (importer and exporter) fixed effects, to cater for the so-called "multilateral resistance" term. As explained by Anderson and van Wincoop (2003), many omitted factors can influence trade between pairs of countries. The most important of these omitted factors is the so-called "multilateral resistance term". Trade between any two countries depends negatively on the trade barriers of each country relative to the average barrier of the two countries with all trade partners. In other words, when multilateral trading costs (the barriers *vis-à-vis* the "rest of the world") rise relative to bilateral costs (the barriers *vis-à-vis* the bilateral trading partners), trade flows rise between the country pair i and j ; and vice versa. Anderson and van Wincoop argue that multilateral resistance cannot be measured using remoteness variables based on measures of distance as these do not capture border effects, rather the gravity equation must be solved by taking into account the impact of barriers on prices. Anderson and van Wincoop show that the estimation of the gravity equation can be greatly improved by incorporating what they refer to as multilateral resistance measures. The importance of Anderson's and van Wincoop's (2003) contribution is acknowledged in the literature. However, as Feenstra (2004) and others have noted, it has not been widely adopted in empirical research given the difficulties in its implementation (a customised programme is needed as the endogenous nature of the price terms requires a non-

²² I thank Andreas Maurer and Joscelyn Magdeleine, from the WTO, for pointing this out to me.

linear solution). Feenstra (2004) shows that the inclusion of country-specific fixed effects generates the same results as Anderson and van Wincoop (2003) with little loss of efficiency. Since trade between any two countries depends on the multilateral resistance of both importers and exporters, I will use time-varying fixed effects for both importers and exporters, to account for factors specific to each countries, such as the level of barriers (see Subramanian and Wei (2006) for a similar approach).

Thirdly, following Baldwin's and Taglioni's (2006) recommendation, I use (undeflated) nominal trade and GDP data combined with time (year) dummies. As explained by these authors, the usual procedure of deflating trade and GDP figures back to a common year using for example the US price index can introduce important biases. They therefore recommend the use of time fixed effects (or time dummies) to cater for variations in inflation. These time fixed effects would also cater for other changing factors, such as the value of the dollar, the global business cycle, and so forth.

While data on total services trade, as well as trade in selected Balance-of-Payments (BoP) categories such as transport, travel and other commercial services, have been generally available for a long time, only a few countries had offered a breakdown of these data (at least for total services) by trading partner. This explains the fact that previous gravity studies on services trade were only able to focus on very short periods of time – one, two, or three years at most. However, data availability has improved markedly over the last few years, prompted by initiatives at the international level to improve services data collection with a view to *inter alia* match the GATS definitions of trade and the sectoral classification used in negotiations.²³ There are currently three main sources of Balance-of-Payments services trade data at the international level: Eurostat, OECD, and the UN. The country and time coverage offered by these sources are not identical, however.

In a nutshell, the Eurostat Cronos database offers the longest time series, but focus only on European countries and their partners (70 in total, including partner regions). The UN Services Trade Database covers around 80 reporters, with data broken down by partner (although not in all cases). Data are available since 2000. This dataset covers many reporters not included in the OECD database. Finally, the OECD Statistics on International Trade in Services includes data since 1999, for 27 OECD countries, plus Hong Kong, and the Russian Federation.²⁴ It contains data broken down by partner, covering 55 partner countries and partner regions. This is the database used in this study. I used data on total services exports for the period available as of the date of writing (1999-2006).

It is worth noting that bilateral BoP figures correspond *grosso modo* to modes 1, mode 2 (through the category Travel), and partially mode 4. See Maurer et. al (2008) for further details.

²³ See the Manual of Statistics of International Trade in Services, issued in 2002 by Eurostat, the IMF, OECD, the UN, the World Bank, and the WTO, and which is currently being reviewed. The new version is expected to be completed in 2009.

²⁴ The 30 member countries of OECD are: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States. However, Korea, Mexico, and Switzerland do not publish data broken down by partner country.

Data on GDP were taken from the World Bank World Development Indicators. Data on distance, contiguity, and common language were taken from the geographical datagbase compiled by CEPII (Centre d'Etudes Prospectives et d'Informations Internationales). The distance variable used in this study is the distance between the most populated cities in the two countries concerned.

As said, the regressand is the natural log of services exports. I first estimated the gravity equation using only as regressors the "traditional" gravity variables: GDP, distance, contiguity, and common language. I applied successively ordinary least squares (OLS) with year fixed effects; and then OLS with year, importer and exporter fixed effects. I then repeated the same procedures but adding the dummies capturing the different PTA arrangements. In all cases, I computed robust standard errors.

7. Estimation results

As can be seen from the results in Table 2, the model works well for trade in services, with R-squares between 71% and 84%, with 90%, 95%, and 99% confidence intervals.

The signs of the traditional gravity variables are as expected: negative for the distance variable, and positive for GDP, contiguity, and common language. The results improve significantly – in terms of their goodness of fit – with the simultaneous introduction of year, importer and exporter fixed effects. The distance coefficient is significant (around 1), when year, importer and exporter fixed effects are introduced. In all cases, contiguity and common language appear as important determinants of services trade, and in all cases more significant than the dummies catering for economic integration agreements, PTAs and the EC.

The estimated coefficients for GDP variables are all significant. When the year, importer and exporter fixed effects are introduced, the exporter's GDP coefficient becomes much larger than the importer's GDP coefficient. This could be interpreted as evidence of a "home market effect" in services trade, as derived by Krugman (1980). The "home market effect" is the tendency for large countries to be net exporters of products (in this case services) with high transport costs and strong scale economies. In the presence of fixed costs, and thus scale economies, firms prefer to concentrate global production of a product or service in a single location; in the presence of transport costs, it makes sense for this location to be a market with high product demand. The home-market effect implies a link between market size and exports that does not exist in models in which trade is based solely on comparative advantage. In terms of the gravity equation, this effect should translate into a significantly higher coefficient for the exporter's GDP variable than for the importer's GDP. See also Feenstra et. al (1998).

The effect of membership in an economic integration agreement, whether a free trade area or a common market, is positive and significant. In column 3, the coefficient of EIA implies that services trade between EIA signatories is 31% higher than for other country pairs, after controlling for economic size, distance, adjacency, and linguistic ties.²⁵ Controlling for

²⁵ The formula to compute these effects is $(e^{\beta_i} - 1) \times 100$, where β_i is the estimated coefficient.

country-specific (importer and exporter) fixed effects in column 4 reveals a smaller effect of membership in an EIA, suggesting intra-bloc services trade is about 12% higher.

An interesting question is whether the effect of membership in an economic integration agreement covering services trade depends on the type of agreement. For the sake of this empirical estimation, I have distinguished between typical free trade areas, like the NAFTA, or the agreement between Australia and the US, and deeper integration agreements, primarily exemplified by the European internal market. A relevant question in that regard is: is there any difference in the effect of these different types of agreements on services trade? The answer may be negative, or at least not significant. In column 5, computing only year fixed effects, both types of agreements appear to have very significant effects on bilateral services trade – 35% for the EC and 47% for bilateral PTAs. However, controlling also for importer and exporter fixed effects in column 6 leads again to a smaller effect on bilateral services trade (between 13% and 15%), with a slight advantage to deeper integration agreements.

Why isn't there a bigger difference between the EC and other PTAs? At this stage one can only throw some hypotheses. On the one hand, since the EC is relatively open to the rest of the world, the internal preference margin may thus be smaller than in other PTAs, where trading parties maintain more restrictions towards non-PTA members. On the other hand, intra-EC services trade flows are probably below their potential. Further integration will have to come probably from the reduction of regulatory diversity, e.g. elimination and enhanced harmonization of regulatory barriers.

Concluding remarks

EIAs on services are on the rise and have become a notable feature of current trade policy for this sector. They are proliferating against a backdrop of profound changes in services production and trade. However, very little research has been carried out with regard to the impact of these agreements on bilateral services trade – compared to the more extensive research exploring the effects of these agreements on trade in goods. Several factors can explain that apathy, from the novelty of the issue to the paucity of reliable data. With that question in mind, the paper took a deliberate empirical approach.

Making use of the – still limited but improving – availability of statistics on bilateral trade in services, the main purpose of this paper was to provide an initial quantitative estimate of the effect of PTAs on bilateral trade in services, using the standard gravity model. At the same time, the paper also added to the – again still limited – literature on the other – not institutionally or politically motivated – determinants of services trade "in the standard gravity tradition."

Although preliminary, and most probably incomplete, the empirical exercise has led to some interesting findings that would certainly deserve further research. Firstly, my findings show that distance (which here probably represents transaction costs in general rather than the costs of physical distance between markets) is relevant for trade in services. In fact, it turns out to be very significant once time and country-fixed effects are taken into account. Secondly, there seems to be evidence of a "home market effect" in services, which would deserve further attention with a view to achieving a better understanding of trade in services. Thirdly,

and most importantly for the sake of this paper and this volume, PTAs appear to have positive effects on bilateral services trade, in the order of 12% to 15%.

It has not been possible to find however a significant difference – in terms of their effect on services trade – between PTAs and deep integration initiatives like the European internal market. This may be due to the inherent limitations of the methodology followed in this paper – the gravity equation – which can only give a partial indication of the effect of agreements on bilateral services trade. But it can also point to more fundamental differences between these two types of economic integration schemes. In fact, while the relative openness of the EC to the rest of the world may imply a smaller internal preference margin than in other PTAs, where trading parties maintain more restrictions towards the rest of the world; the results may also be an indication that intra-EC services trade flows are still below their potential, and that further expansion of those flows will necessarily have to come from more ambitious initiatives intra-EC to reduce regulatory diversity.

Further research is certainly needed. Apart from methodological issues that need to be further explored and eventually tackled in future estimations (such as the existence of zero flows, and the endogenous nature of PTAs), it would be interesting to consider other aspects of PTAs in services, such as the effect of PTAs on trade in individual service services (particularly taking into account that service sectors differ in their tradability); the effect of PTAs on trade through commercial presence (which is at least as important in value terms as cross-border trade); and the potential diversion effects of PTAs on trade in services. Further analysis along these lines will of course be confronted with significant methodological challenges, but will be essential in order to get a better understanding not only of services trade but of economic integration in general.

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World exports of commercial services, 1980-2008 (US\$ billion and percentage of total world trade)

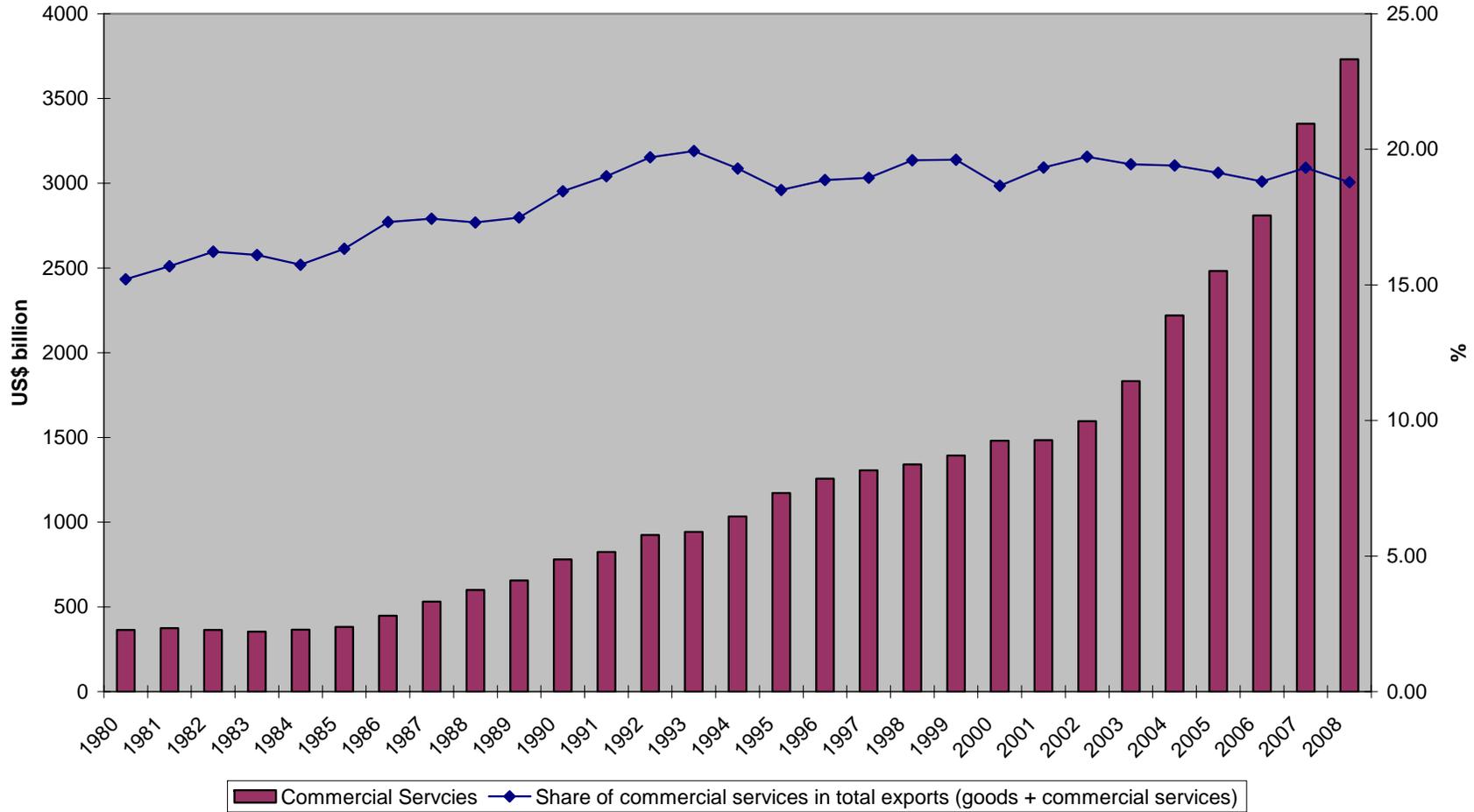


Figure 1: World exports of commercial services 1980 – 2008 (US\$ billion and percentage of total world trade)

Source: own elaboration based on WTO statistics database

Table 1. Changing patterns of trade in services (in % of total world trade)

	1980	1995	2008
Transport	37	26	23
Travel	28	34	25
Other Commercial Services	35	40	51

Source: WTO statistics database.

Table 2. Economic Integration Agreements covered by the study (and direction of trade flow).

Agreement	Date of entry into force
Australia-New Zealand	1-Jan-89
Australia-Singapore	28-Jul-03
Australia-Thailand	1-Jan-05
Australia-US US-Australia	1-Jan-05
Canada-Chile	5-Jul-97
China-Hong Kong, China	1-Jan-04
EC 15 (intra-EC15 trade)	1-Jan-95
EC 25 (intra-EC25 trade)	1-May-04
EC-Chile (exports from individual EC Member States to Chile)	1-Mar-05
EC-Mexico (exports from individual EC Member States to Mexico)	1-Oct-00
EEA (exports from EC countries to Iceland, Liechtenstein, and Norway)	1-Jan-94
EFTA (exports from Iceland, Liechtenstein, and Norway to Switzerland)	1-Jun-02
Japan-Mexico	1-Apr-05
Japan-Singapore	30-Nov-02
NAFTA Canada-Mexico Canada-US US-Mexico US-Canada	1-Jan-94
US-Chile	1-Jan-04
US-Singapore	1-Jan-04

Note: The first trading partner mentioned is the exporter. In some cases, two-way flows were available, such as between Australia and the US, Canada and the US, and the trade between individual EC member states.

Table 3. Estimation results

	(1)	(2)	(3)	(4)	(5)	(6)
Log exporter's GDP	0.82*** (0.01)	0.94*** (0.08)	0.82*** (0.01)	1.02*** (0.08)	0.82*** (0.01)	1.02*** (0.08)
Log importer's GDP	0.78*** (0.01)	0.61*** (0.07)	0.77*** (0.01)	0.65*** (0.07)	0.78*** (0.01)	0.64*** (0.07)
Log distance	-0.63*** (0.01)	-0.94*** (0.02)	-0.60*** (0.01)	-0.93*** (0.02)	-0.60*** (0.01)	-0.93*** (0.02)
Contiguity	0.57*** (0.07)	0.61*** (0.07)	0.60*** (0.07)	0.62*** (0.07)	0.59*** (0.07)	0.62*** (0.07)
Common language	1.39*** (0.04)	0.80*** (0.04)	1.39*** (0.04)	0.80*** (0.04)	1.39*** (0.04)	0.80*** (0.04)
EIA			0.27*** (0.03)	0.11*** (0.03)		
PTA					0.39*** (0.05)	0.12*** (0.04)
EC25					0.30*** (0.03)	0.14*** (0.03)
Observations	9,942	9,942	9,942	9,942	9,942	9,942
R ²	0.71	0.84	0.71	0.84	0.71	0.84

Notes: Regressand: log of services exports. Ordinary least squares (OLS) estimates of a log-linear gravity model.

Robust standard errors are in parenthesis. Equations (1), (3), and (5) have been estimated with OLS and year fixed effects.

Equations (2), (4), and (6) have been estimated with OLS, and year, importer, and exporter fixed effects.

* Significant at 10%; ** significant at 5%; *** significant at 1%.