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## South-South Services Trade

Nora Dihel,  
Felix Eschenbach,  
Ben Shepherd

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**SOUTH-SOUTH SERVICES TRADE**

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**by Nora Dihel, Felix Eschenbach and Ben Shepherd**

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## ABSTRACT

This paper contributes to the debate on the development potential of South-South trade in services. It represents the first attempt to identify key features governing the South-South dimension of services. Services trade between developing countries is predominantly regional and may reflect an increasing tendency to incorporate disciplines to liberalise services trade in regional agreements. It is estimated that cross-border South-South exports currently represent around 10 percent of world services exports. The bulk of developing countries' exports is destined to developed countries' markets save in the case of developing Asian countries whose services export markets are predominantly within the region. The results suggest that there is further scope for increasing developing countries' services exports in general and services trade between developing countries in particular.

The paper also shows that the gravity model can successfully be applied to trade in services using FDI stocks in services sectors as a proxy for trade in services through mode 3. The analysis points to the importance of policy barriers in hindering trade, and implies that countries could increase mode 3-related trade in services across all sectors by relaxing restrictions on foreign establishment. Finally, one important finding is that the impact of lifting restrictions on performance may increase more than proportionally with the scale of the liberalisation measure. Our results suggest that if services sectors are closed to foreign competition, the improvement of their performance requires a major rather than a minor or moderate liberalisation effort. More research is needed to further assess whether a courageous liberalisation effort is required for notable improvements in outcomes, which may particularly benefit goods exports of less developed countries.

*Keywords:* South-South trade, North-South trade, trade between developing countries, services trade, services barriers/restrictions, trade restrictiveness index, development, multilateral liberalisation, gains/benefits from liberalisation, efficiency gains, trade policy, World Trade Organisation (WTO) negotiations, Doha Development Agenda (DDA), Doha round.

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## **SOUTH-SOUTH SERVICES TRADE**

### **Executive summary**

This paper seeks to inform the debate on the development potential associated with South-South services liberalisation by examining key questions, including: (1) the impact of removing services barriers on South-South services flows, and (2) the role of South-South trade in services as a potential driver of increased developing countries' exports. The study also investigates the scale, potential and opportunities for South-South trade in services through various modes of supply as well as its impact on the direction and volume of services and goods trade.

While a number of studies provide systematic analyses of trends in the structure of intra-developing countries' goods trade at a relatively high level of product and country detail, such studies are not available for South-South services trade. This is primarily due to lack of partner country data for services trade among developing countries and the absence of data by modes of supply. This study represents the first attempt to shed some light on the nature and scale of South-South services trade. It combines statistical analyses with anecdotal evidence on examples of successful cases of intra-developing countries' trade in various modes of supply to derive some general findings about the determinants and the potential for South-South services trade.

The most important conclusion to emerge is that intra-developing services trade takes place predominantly at the regional level in terms of all modes of supply. Our findings suggest that South-South services exports via modes 1 and 2 represent around 10% of world services exports. While developing countries' exports to developed markets seem to be more important for the majority of non-OECD regions, the opposite is true for Asian developing countries: their services exports to developing regions represent more than half of their total services exports. In terms of mode 3, broad estimates show that in 2000 more than one third of FDI in developing countries originated in other developing countries.

The results of this analysis should be treated with caution given the quality and consistency of data employed in the analysis and the potential underreporting problems. They should be seen as a starting point for future analyses. Further refinements of estimates could be undertaken as soon as more data become available. Also, new information would enable future analyses of trends.

We find scope to increase developing country services exports in general and intra-developing countries' exports in particular. Initially, differences in short-term comparative advantage are expected to provide the main rationale for services trade between more advanced and less advanced countries. However, in the medium-long term, it is technological knowledge that will determine comparative advantage, and enable the development of more advanced services trade. There are already clear examples of developing countries exploiting market niche opportunities and developing firm specific intangible assets and there is a realistic potential for increased intra-developing trade in know-how intensive services in the short- to medium run.

This paper shows that the gravity model can successfully be applied to trade in services using FDI stocks in services sectors as a proxy for trade in services through mode 3. The results highlight the importance of policy barriers, and imply that countries have the ability to increase FDI in services across all sectors by relaxing restrictions on foreign establishment. There is little statistical evidence of systematic differences between South-South and other types of FDI in services. This means that the usual

determinants of services trade intensity, including policy factors, apply to South-South trade in much the same way that they do to other forms of trade. However, there remain many areas for future research. The main difficulty confronting modelling work in this area is the lack of data. The expedient adopted here, *i.e.* using services sector FDI stocks as a proxy for foreign affiliate sales, has given useful empirical results, but involves numerous approximations. Once foreign affiliates' sales data become available for a wider range of countries, it should be possible to obtain much more precise indications as to the determinants of services trade through mode 3. Future work will need to be based on a more detailed and wide-ranging dataset on services trade than is currently available.

Given the important role of services as intermediate inputs, services liberalisation has a positive impact on goods exports through induced improvements in the performance of respective services. These improvements potentially foster the export performance of goods producing sectors through better transport, communication, and financial infrastructure that reduce trade costs and facilitate the international division of labour. In addition, producer services are direct inputs into the production of manufactured export goods so that related productivity gains can increase the competitiveness of firms. As opposed to developed countries where these effects are weaker because the share of manufacturing and supply of exported goods in GDP decreases as economies mature, in the case of developing countries, service sector performance becomes significant at explaining goods exports. Services matter in particular where manufacturing activities are large-scale and require specialised labour, many intermediate inputs, and raw materials from geographically dispersed small-scale suppliers.

Preliminary results suggest that if services sectors are closed to foreign competition, the improvement of their performance requires a major rather than a minor or moderate liberalisation effort. The impact of lifting restrictions on performance may increase more than proportionally with the scale of the liberalisation measure. This may mean that it is not enough to liberalise moderately in order to achieve an impact on performance if the initial degree of restrictiveness is high. More research is needed to further assess whether a courageous liberalisation effort is required for notable improvement in outcome, which may particularly benefit goods exports of less developed countries.

## Motivation

1. The study on South-South<sup>1</sup> services trade aims at combining theoretical analyses with exploratory empirical exercises to investigate the scale, potential and the opportunities for South-South trade in services through various modes of supply as well as its impact on the direction and volume of services and goods trade. It aims at informing the debate on the development potential associated with South-South services liberalisation by examining key questions, including: (1) the impact of removing services barriers on South-South services flows, and (2) the role of South-South trade in services as a potential driver of increased developing countries' exports.

## Context

2. Theoretical analyses and policy discussions on the development potential of South-South co-operation have focused almost exclusively on the potential for promoting South-South trade in goods. This has been the case despite the fact that services in many developing countries account for about 50% of their aggregate GDP and employment opportunities, and contribute close to 15% to their total exports. Among the most important reasons behind such neglect are the theoretical challenges related to the applicability of goods theories to services trade, lack of data on intra-developing countries services trade, and difficulties related to identifying and quantifying services barriers.

3. More recently, discussions on South-South trade in services have begun to emerge as a way of exploring new and dynamic ways of addressing developing countries' concerns. For example, the increasing significance of South-South services trade and its impact on growth was highlighted in several interventions at the Doha High-Level Forum on Trade and Investment, organised on 5-6 December 2004. Participants underscored that: "Exploiting complementarities in South-South services trade can offer important trade and investment opportunities. South-South trade in services in all four modes of GATS is on the rise and has substantial possibilities. Actions need to be taken to build up South-South trade in services through closer cooperation at the bilateral, regional and interregional levels in services sectors with high growth potential such as education services, health services, professional services, construction services, computer and related services, tourism services and energy services, including on the movement of natural persons."<sup>2</sup>

## Structure of the study

4. This report presents results concerning the South-South dimension of services trade. The analysis here is the first ever attempt to investigate the nature and scale of South-South services trade. The report is structured as follows. Section 1 contains statistical investigations and exploratory empirical analyses concerning estimates of South-South services trade. Section 2 complements the statistical analyses with qualitative evidence on examples of successful cases of intra-developing countries' trade in various modes of supply to derive some general findings about the determinants and the potential for South-South trade. Section 3 presents empirical explorations that aim at quantifying the impact of services barriers on South-South FDI stocks in services and goods export performance in general. Section 4 concludes and enumerates areas for further research. For interested readers, Annex 1 presents the theoretical challenges associated with a more in-depth understanding of analyses related to services measurement issues and the

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<sup>1</sup> The study has attempted to use the categorisation described in the paper on South-South goods trade (see OECD Working Paper No. 40), including the countries in Eastern Europe and Central Asia with per capita GNI not exceeding USD 9.075 in 2003; however, some adjustments determined by availability of statistical information were made in certain cases. Whenever necessary, departures from this definition are noted.

<sup>2</sup> UNCTAD (2005a).



determinants and potential for South-South services trade. Annex 2 presents in more detail the gravity model employed in the paper.

## 1. South-South Services Trade – Stylised facts

5. There are virtually no systematic analyses of trends in the structure of services trade among developing countries because of the numerous difficulties related to measurement of trade in services. Chief among them are:

- (i) First, the current practice of gathering data on international services transactions (in both developed and developing countries) is not consistent with the four-type classification of trade in services adopted in the GATS<sup>3</sup>, as it does not recognise that a large part of services trade takes place in ways that are different from goods trade (given the special characteristics of services such as the proximity requirement for services provision); and
- (ii) Second, lack of partner country data for services trade between developing countries hinders meaningful quantitative analysis of South-South services trade.

6. Therefore, to shed some light on the nature and scale of South-South services trade, it is necessary to identify and analyse all possible sources of information and apply exploratory techniques to estimate the magnitude of services trade between developing countries.

### 1.1. Measurement issues

#### (i) Data by modes of supply

7. The new *Manual on Statistics of International Trade in Services*, developed jointly by the IMF, the OECD, Eurostat, WTO, UN and UNCTAD, provides a detailed analysis of measurement issues related to services trade. It also proposes a conceptual framework for the development of further statistics on international trade in services, introducing modes of supply for the first time in the statistical context. While this framework constitutes a significant improvement, implementation is likely to take some time.

8. Currently, the main source of information for services trade data is given by balance of payments (BOP) statistics compiled on the basis of the fifth edition of the International Monetary Fund's Balance of Payments Manual (BPM 5). These statistics generally refer to services traded internationally mainly by the first and second mode, and, to a limited extent, to trade via the movement of natural persons (part of computer and information services, of other business services, and of personal, cultural and recreational services) and via commercial presence (part of construction services). In addition, in terms of mode 4, labour-related statistics such as compensation of employees and migrants' remittances could provide some information related to trade via the temporary movement of people.

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<sup>3</sup> The four-part typology of international services transactions adopted in the GATS encompasses: (1) *Cross border supply* (mode 1) of a service from one jurisdiction to another; (2) *Consumption abroad* (mode 2) requires the presence of consumers in the supplier's country of residence; (3) *Commercial presence* (mode 3), in which case a service supplier establishes a foreign based corporation, joint venture, partnership, or other establishment in the consumer's country of residence, to supply services to persons in the host country; and (4) *Presence of natural persons* (mode 4), which involves an individual, functioning alone or in the employ of a service provider, temporarily travelling abroad to deliver a service in the consumer's country of residence. Individuals who are seeking access to the employment market of another country on a permanent basis or for citizenship or residency purposes are not included in this category.

9. Given the limited modal coverage of BOP statistics, additional sources of information need to be consulted with respect to the other supply modes.

10. In terms of mode 3, Foreign Affiliates Trade in Services (FATS) statistics are an important source of information. Data relating to the activity of majority-owned foreign affiliates of the compiling economy that are established abroad (outward FATS) and data on the activities of majority-owned foreign affiliates in the compiling economy (inward FATS) would be necessary. A range of variables such as: sales (turnover) and/or output, employment, value-added, number of enterprises, as well as additional variables (assets, compensation of employees, net worth, net operating surplus, gross capital formation, taxes on income, research and development expenditures) would be required. However, such statistics are available for a limited number of countries (mainly OECD economies). Therefore, FDI statistics (flows and stocks) could be used as a complement to FATS statistics, or in the absence of FATS statistics as very imperfect proxies for trade via commercial presence.

11. In terms of mode 4, additional information on services trade through the movement of persons may be collected from FATS statistics (number of foreign employees in foreign affiliates) and from the following sources:

- Information on the categories of foreign persons [(as defined by the International Labour Organisation (ILO) International Standard Classification of Occupations (ISCO 88)] participating in the delivery of services would be useful as some occupations defined under ISCO are relevant for services provision such as legal professions, accountants, engineering professionals, architectural professionals, and medical professionals; and
- Data on foreign employees according to status of employment (according to the International Classification of Status in Employment (ICSE -93) groups: employees, employers, own-account workers, members of producers cooperatives, and contributing family workers) could be useful.

12. Statistics on arrivals and departures monitored by immigration or tourism authorities may provide information about foreign nationals concerning their destination/origin, length of stay, purpose of visit. Also, the number of work permits issued to foreigners could provide some indication on the magnitude of temporary working residents.

13. While trade statistics are essential for identifying and measuring the *value* of services, FATS statistics and the enumerated employment- and immigration-related statistics as well as various sectoral statistics such as the International Telecommunication Union (ITU) World Telecommunication Indicators, the World Tourism Organisation statistics or the International Air Transport Association (IATA) statistics could provide useful information on the *volume* of services trade.

14. Box 1 summarises the various sources of information that need to be consulted for collecting information according to the various modes of services supply. The proposed allocation by modes of supply in Box 1 is based on the scheme presented in the Manual on Statistics of International Trade in Services. However, given the limited direct information on the GATS modes of supply in balance of payments statistics and other data sources, it should only be considered as an approximate estimate and treated with caution.

<b>Box 1. Statistical coverage of modes of supply</b>	
<b>Mode</b>	<b>Statistical coverage</b>
Mode 1 Cross border supply	<u>BPM5</u> : transportation (most of), communications services, insurance services, financial services, royalties, and license fees Part of: <i>computer and information services, other business services, and personal, cultural, and recreational services</i> <u>Sectoral statistics</u> : telecommunications, air transport
Mode 2 Consumption abroad	<u>BPM5</u> : travel (excluding goods bought by travellers); repairs to carriers in foreign ports (goods); part of <i>transportation</i> (supporting and auxiliary services to carriers in foreign ports) <u>Sectoral statistics</u> : Tourism
Mode 3 Commercial presence	<u>Foreign Affiliates Trade in Services</u> : FATS statistics <u>BPM5</u> : part of <i>construction services</i> <u>FDI statistics</u> : as a complement to FATS statistics
Mode 4 Presence of natural persons	<u>BPM5</u> : part of: <i>computer and information services; other business services; personal, cultural and recreational services; and construction services</i> <u>FATS</u> (supplementary information): foreign employment in foreign affiliates <u>BPM5</u> (supplementary information): labour-related flows <u>Other sources</u> : ILO International Standard Classification of Occupations (ISCO 88); International Classification of Status in Employment (ICSE -93): classifications according to status of employment; Migration statistics; Tourism statistics (business visitors); Statistics on number of work permits issued.
<i>Source</i> : Adapted from the Manual on Statistics of International Trade in Services Statistics	

(ii) *Partner country data*

15. In addition to difficulties related to the measurement of services trade in general, any analysis of the South-South dimension of trade in services requires bilateral trade data. Unfortunately, there is a dearth of disaggregated and internationally comparable statistics on the direction of international services trade in general and on intra-developing countries' trade in particular. While OECD countries have begun to collect information on services trade by partner countries, few developing countries report such information.

16. Currently, the following sources of partner country data contain information that is useful in studying South-South trade in services:

- The OECD database on trade in services by partner country (balance of payments (BOP) statistics).
- The UNCTAD database on FDI statistics.
- World Tourism Organisation statistics on number of visitors.
- International Air Transport Association (IATA) statistics that provide some information on international passenger and freight tones flows by regions.
- Migration statistics.

17. Based on these sources of information, essential features of the South-South dimension of services trade via the various modes of supply are briefly described in the next section.

## 1.2. *Services trade flows – the South-South dimension*

### (i) *Cross border trade and consumption abroad*

*Estimates based on BOP statistics*

18. BOP statistics cover mainly cross border trade and consumption abroad, and to a limited extent presence of natural persons, and give information on the value of services trade via these modes of supply.

19. Table 1 presents the estimated patterns of world and South-South<sup>4</sup> cross-border (total) services trade in 2002 based on reported data on exports of services available to OECD countries and regions and mirror statistics. It shows that South-South exports represent around 10% of world exports, while South-North exports seem to have a larger share of approximately 13% of total exports. In terms of South-South and South-North differentiation, it is worth noting that exports from Asian developing countries to other developing countries represent around 8% of world exports, accounting for more than half of their total exports (see Table 2). In contrast, for developing countries in all other regions, exports to developed countries appear to be more important: for non-OECD European countries they represented over 70% of their total exports and for developing countries in Africa and America over 80% of their total exports (in 2002). Intra-regional exports have the highest share in developing countries' total South-South exports.

20. The tables are primarily based on reported data on exports of services by partner country available to the OECD (75% of world exports). The data is described in detail in OECD (2004). Where data are not available, the corresponding partner countries' import figures (mirror export statistics) are used as estimates, bringing the coverage to about 92% of world exports. It is worth noting however that mirror exports may not always reflect the corresponding imports that would actually be declared by the reporting country, which leads to some data inconsistencies. Information was complemented as necessary using the 1995 estimated shares from the services bilateral export matrix used for OECD's international macroeconomic model Interlink.

21. Combining IMF balance of payments data with OECD mirror imports figures, more refined estimates for South-South transport, other commercial services and travel exports are presented in Tables 3 to 5. The figures reveal that in 2002, South-South transport exports represented around 8.5% of world transport exports, South-South other commercial services exports almost 15% of world other commercial services exports, while South-South travel exports approximately 16% of world travel exports.

22. In addition, more refined estimates at a higher level of regional/ country-specific disaggregation are presented in Tables 6.1 to 6.4. The tables present broad estimates of exports to non-OECD countries for selected economies (Argentina, Brazil, Chile, China, Chinese Taipei, Hong Kong, India, Indonesia, Malaysia, Philippines, Russia, Singapore, South Africa, and Thailand) for total services as well as for transport, travel and other commercial services. The estimates were calculated on the basis of partner country data reported in the OECD database on trade in services and IMF services export and import data reported by the selected economies. Although these estimates are subject to a high level of uncertainty it is interesting to observe that for a number of the analysed countries trade with other developing (non-OECD) countries represents more than 50% of their total and sectoral services exports.

23. While these new estimates based on existing reported data are useful starting points to understand current services trade flows and could be used as a basis for more refined estimates as more information becomes available, they should be interpreted with great care given the likelihood of undercoverage

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<sup>4</sup> South covers all non-OECD countries for the purpose of these estimations.

problems regarding trade in services data reported by developing countries and the uncertainties of mirror data from developed countries<sup>5</sup>.

*Estimates based on sectoral statistics*

24. The following sources cover separately cross border trade in air transport and consumption abroad (tourism) and provide information on the volume of such trade.

*Cross border trade*

25. IATA International Air Transport Statistics provide some information on international passenger and freight tonnes flows by regions. The data in Tables 7.1 and 7.2 show that except for flows between Asia and other developing regions, intra-developing countries' exchanges of international passengers and freight tonnes flows are at extremely low levels - very often under 1% of reported passenger flows or total freight tonnes flows. (The reported IATA data represent 90% of total passenger flows and 87% of scheduled freight tonnes carried).

*Consumption Abroad*

26. While the estimates based on BOP statistics for travel services (presented above) suggest that almost 30% of world travel exports come from developing (non-OECD countries), with South-South travel exports representing around 16% of world travel exports, data compiled from World Tourism Organisation statistics presents additional information on visitor arrivals by region in 2002 on a partner country basis for 208 countries (see Table 8.1). South-South movements represent approximately 20% of total visitors, South-North arrivals 14%, North-South arrivals 9% and North-North arrivals 57% of total visitor flows. Around 70% of visitors from non-OECD or developing countries go to other developing countries. Growth rates of these intra-regional flows between 1999 and 2002 suggest that South-South exchanges were the most dynamic with an average growth rate of 11% (see Table 8.2).

*(ii) Commercial Presence*

*Estimates based on FDI statistics*

27. Information on non-OECD countries' FDI in services or FATS flows on a partner country basis is scarce. Using data from sources such as the World Bank, the IMF, the OECD and UNCTAD, Aykut and Ratha (2004) estimate South-South FDI flows in the 1990s indirectly (Table 9).<sup>6</sup> They posit that in 2000, more than one-third of FDI in developing countries originated in other developing countries, with India, China, Brazil and South Africa among the main sources. They also indicate that South-South FDI is driven by similar "push" and "pull" factors as well as similar structural, cyclical and policy factors. They note, however, that these figures should be interpreted with great care given the quality of data, the round-tripping problems (as in the case of China) and the impossibility of clearly distinguishing between North-

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<sup>5</sup> For example, while most African countries report services trade as a whole to IMF, no African country reports bilateral services trade data. Although many developed countries report service exports to and imports from Africa, the residual taken to represent African trade with other countries, depends both on the quality of African countries' reporting of trade in services (possible undercoverage problems) and the bilateral mirror data reported by developed countries. There is good reason to be cautious about both.

<sup>6</sup> South is here defined as a group of 31 developing countries for which reasonably detailed FDI data are available. FDI data cover not only services, but also agriculture and manufacturing. Notwithstanding these limitations, these general indications on FDI flows among developing countries could be used for further sectoral and/or country-specific disaggregations.

South flows routed through locations in the South (*e.g.* Mexican affiliate of a United States company investing in Brazil) and genuine South-South flows.

28. Finally, UNCTAD (2004) provides some information on intra-developing countries' mergers and acquisition (M&A) and non-equity arrangements: M&A sales/purchases in services among developing countries represented around 40% in world total during 1991-1994, 1995-1997 and 2001-2003, and 17% during 1998-2000. More variation is observable with respect to transition economies: M&A sales/purchases in services among them accounted for around 6% in world total during 1991-1994 and 1998-2000 and for 13% during 2001-2003 (see Table 11).

*(iii) Movement of natural persons for services provisions*

29. While migration statistics are very imperfect proxies for trade in services via the temporary movement of people, they could be helpful in providing a big picture on migratory trends.

*Estimates based on migration statistics*

30. Building on existing migration statistics, Parsons *et al.* (2005) constructed a database on the international bilateral migration stock for 226 countries. The database represents a first attempt to provide a general overview of current migration trends in terms of the overall magnitude of migrant stocks and regional migration patterns. Primary data sources are national population censuses and migration statistics from the United Nations and the Economic Commission for Latin America and the Caribbean (ECLAC). Databases produced by Eurostat, the OECD, the Migration Policy Institute, the ILO and the Middle East Central Asia Databook constitute secondary sources.

31. Table 12 gives information on the proportion of all world migrants recorded bilaterally across selected sub-continental regions, on the percentages of immigrants hosted by other sub-continental regions, and on the percentages of emigrants sent from these states. The table shows that Europe is home to a third of the world immigrants, while approximately a quarter each resides in both Asia and North America. Europe and Asia are the most significant senders of migrants abroad. The table is also useful in terms of analysing the importance of regional migration: overall it would be fair to assume that global migration does occur at the regional level. As already indicated, the figures should be interpreted with care in the context of mode 4 trade in services.

*(iv) Developing countries' participation in world services trade*

32. This is the first attempt to rigorously identify the share of South-South services trade in world trade according to the four modes of supply. As opposed to goods trade, for which the evolution of trade is more easily documented, the empirical evidence presented here should be seen as a starting point for future analysis and should be treated with caution in light of the quality of the data and the potential underreporting. It can be further refined as more data become available. New information can also make it possible to analyse trends. At this stage, the most important conclusion to emerge is that services trade between developing countries takes place predominantly at the regional level for all modes of supply; this might be due to the increasing tendency to incorporate disciplines to liberalise services trade within regional trade agreements.

33. Where then does South-South services trade stand in world services trade? It is rather difficult to find benchmarks against which to compare the figures derived here. However, given the dynamism of developing countries in world services trade, there appears to be a certain potential for developing South-South services trade.

34. As far as cross border trade is concerned, the role of developing countries in international trade in services has increased on both the export and import sides. As a group, low- and middle-income countries' share in world services trade rose from 26% in 1994 (284 billion US dollars) to 28% (648 billion US dollars) in 2004, representing a growth of 9% per year on average. The comparable figure for growth in services in industrialised countries is 7% per annum. The share of developing countries in world services exports rose from 26% to 29% between 1994 and 2004. Developing countries now account for 33% of exports in transportation, 35% of global travel services, and 23% of world exports in other commercial services.

35. As far as consumption abroad is concerned, travel and tourism appear to be dynamic sectors for most developing countries and the top currency earner for 40 developing countries. From a regional perspective, between 1990 and 2000, exports from low- and middle-income Asia, Central and Eastern Europe, and Latin America and the Caribbean grew at higher average annual rates than world services exports.

36. Commercial presence through FDI in services has expanded, with the world's inward stock of FDI in services quadrupling between 1990 and 2002, and the share of services in world FDI stock rising from 25% in the 1970s to about 60% in 2002. Developed countries remain the main source of outward FDI, but the developing countries' share has grown, from 1% in 1990 to 10% of global outward FDI services stock in 2002. On the inward side, developing countries' FDI has increased (to 25% of inward FDI stock in services), although developed countries remain the main recipients. In 2002, services accounted for about 55% of the total stock of inward FDI in developing countries and some 85% of the inward FDI stock of developing countries (UNCTAD, 2004b).

37. Finally, there are at present no reliable global figures on the size of mode 4 trade. Very rough estimates suggest that mode 4, valued at USD 30 billion in 1997, is the smallest of all modes of services supply defined in the GATS. This is likely to be a significant underestimate, however. Also, this is not to be a reflection of the potential for mode 4 but an indication of the existing limits and restrictions imposed on the movement of people.

38. Some studies highlight that while permanent migration is mainly a South-North phenomenon, triggered by wage differentials and the expectation of better living standards, temporary flows (which come closer to mode 4) are mainly a result of bilateral agreements between governments wishing to foster co-operation. Additional demographic complementarities between different developing countries could provide a strong reason to utilise some countries' human resources without having to consider longer term immigration. Therefore, contrary to the general belief, mode 4 is not only a developed versus developing country issue. Developing countries seem to be important exporters of services via mode 4 and there seems to be scope for further expansion of South-South mode 4 trade.

### ***1.3. Is there further potential for South-South services trade?***

39. Notwithstanding the limitations on data on trade in services, exploratory empirical analyses can be undertaken to identify services sectors with a potential for increased South-South trade. First of all, the extent to which international trade in various services sectors are intra-industry (simultaneous import and export of essentially the same services) or inter-industry can help understand the underlying forces that generate trade in the selected services sectors. For that purpose, the most widely used measure of intra-industry trade, the Grubel-Lloyd (GL) index, was employed. The GL index is defined as:

$$GL_{ij} = 1 - \left| \frac{X_{ij} - M_{ij}}{X_{ij} + M_{ij}} \right|$$

Where  $X_{ij}$  are exports of a service  $i$  by country  $j$  and  $M_{ij}$  are imports of a service  $i$  by country  $j$ .

40. A GL index that approaches zero implies low levels of intra-industry trade while a GL index that approaches 1 suggests high levels of intra-industry trade. Calculations were undertaken for all of the countries for which data were available in the IMF BOP database.

41. Computation of the index indicates wide diversity across sectors and countries. The results suggest that for all analysed sectors – transport, travel, insurance, other business services, construction services – both intra-industry and inter-industry trade are important. While insurance services are in most cases a wholly intra-industry phenomenon, in other sectors two-way trade is common. The findings suggest that theories of both inter-industry and intra-industry trade may be complementary in explaining the observed trade flows.

42. To further investigate inter-industry trade, the so-called revealed comparative advantage (RCA) indices can be computed and compared. The most common RCA index was developed by Balassa (1965).<sup>7</sup> Calculation of RCA indices for all developing countries for which data were available reveals a relatively uniform pattern of specialisation in services: in general, developing countries seem to be relatively specialised in (low-skill) labour-intensive services (such as construction services) and (in some cases) natural-endowment-intensive services (such as transport or travel services). Recent evidence indicates that some developing countries are in the process of developing a comparative advantage in more sophisticated sectors, such as “Other business services”. This is especially true for a number of more advanced developing countries such as China, India, Malaysia, Thailand, Mexico, Egypt and Brazil (Table 13).

43. These results have to be interpreted in light of the general evolution of developing countries’ services trade. Given the dynamic growth in the share of low- and middle-income countries in world services trade and their increased participation in all segments of services exports, it can be expected that technological progress, together with business practices, will allow developing countries to develop modern services and acquire a competitive advantage in more advanced services sectors (Marchetti, 2004). Given the growing concentration of trade in some developing countries – in 2003, 12 more advanced developing countries were among the world’s leading exporters of services and accounted for 71% of services exports of all developing countries, compared to 66% in 1998 – it is to be expected that intra-developing country services exports will be concentrated among these more advanced developing economies and, in a next stage, between them and poorer developing countries. While the results are subject to the stated caveats, these findings could mean that such developing countries may become aware of their comparative advantage in certain services and of the potential of South-South and North-South trade and may give their support to greater services trade liberalisation.

## **2. Reality check: Does previous qualitative evidence confirm our statistical findings?**

44. Given that current statistical concepts and methodologies do not enable an in-depth analysis of South-South services trade, additional examples of successful intra-developing countries’ services exports may contribute to a greater awareness of the extent of current participation by developing countries in trade in services and of the potential that exists to expand that participation. They might also provide a useful reality check of the quantitative results discussed above. The study “Services Trade Liberalisation:

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<sup>7</sup> RCA indices of a service are defined as the ratio of exports of a “service” category to a country’s total service exports, divided by the ratio of world exports of this “service” to total world service exports. The value of this index may range from zero to a very large number. If the index is greater than 1 this implies that the country is relatively specialised in the service concerned and has a comparative advantage in such exports compared with the world average. A value less than 1 indicates a comparative disadvantage. An RCA index is in many ways a crude measure of comparative advantage. For example, it does not take into consideration the presence of trade barriers; and, since it is based on BOP data, it does not give any indication of a country’s comparative advantage in supplying services through commercial presence or the movement of individual service suppliers.



Identifying opportunities and Gains”[OECD(2003)] identified numerous examples of developing countries exports towards other developing and developed countries in sectors such as audiovisual and cultural services; business services; computer and related services; construction services; distribution services; financial services; health services; higher education and training services; port and related, and shipping services; professional services; telecommunication services and tourism and related services.

45. The examples provided in the previous study confirm our findings in this paper and provide additional information on the determinants and potential of South-South services trade. And, in particular,

- (i) The 2003 study found, as we have, that *developing countries in general seem to be particularly successful in certain labour-intensive sectors* (such as construction services) and *natural-endowment-intensive services* (such as port and shipping services as well as tourism). For example, companies in a number of developing countries, including Chinese Taipei, China, Singapore, Malaysia, Kuwait and the Republic of Korea, have also taken a lead role in world shipping, while others, such as Mexico, Colombia and Chile, are playing an important regional role. In addition, among the leading container service operators, measured by the number of vessels and total shipboard capacity, there are several companies from developing countries.
- (ii) Also, our findings reinforce the observations of the previous study that *some developing countries are starting to develop a comparative advantage in highly-skilled labour intensive services and more sophisticated business services sectors*. Complementing the above statistical analysis, the study has identified these sectors and sub-sectors at a more detailed level. For example, low costs of unskilled and skilled construction labour are no longer the only competitive strength of developing country companies. Managerial and organisational improvements coupled with substantial progress in producing professionals with specific skills such as engineers, architects, designers, economists, IT-specialists, financial analysts and ecologists contribute to their attractiveness. Many firms in Asia and Latin America are nowadays able to offer a wide range of post-construction operations and maintenance services, based on maintenance management software while information and communication networks have allowed entrepreneurs from any wired developing country to compete more systematically even in far away markets.

Research in Latin America carried out in the 1980s by UNCTAD found that one of the critical differentiating factors between developed and developing economies was the availability of high quality, specialised business and professional services. However, this picture is now changing. A growing number of developing countries are able to offer high quality professional services thanks to a combination of highly skilled human capital, cutting-edge technology and competitive prices. This demonstrates that *developing countries were able to develop firm specific intangible assets in a number of business services sectors*.

- (iii) Supplementing the statistical analyses, the 2003 study indicates that in a number of sectors such as banking, insurance, or health services developing countries were able to *exploit market niche effects*. There are examples of developing country financial services exports that have been successful in developing indigenous financial services, including by catering to the strong market in developing countries for micro-finance operations. In other cases, the financial services industry has been able to create a niche market in offshore activities. The development of offshore activities in Mauritius includes investment funds, investment holding and international trading. In 1999, UNCTAD estimated the total direct and indirect benefits of the offshore sector at 2.5% of GDP.

Other niche markets may be internet banking, ecommerce and the development of secure payment and other supporting systems for electronic commerce. However, electronic payment clearing services depend on the successful mix of advanced technologies and an understanding of

the market and legal frameworks constraining these services and defining their possibilities. The emerging “wellness” industry is likely to offer new niche markets in support services. Several developing countries have also diversified into areas such as medical and paramedical education, health tourism, and alternative medicine and treatment.

- (iv) In terms of modal issues, the 2003 study and additional empirical evidence suggest that in the context of the rapid expansion of FDI in services and the faster growth of South-South FDI flows as compared to North-South flows, *South-South services flows via commercial presence seem to have an important potential for development*, especially for poor countries. More advanced developing countries like China, Brazil, South Africa, and India have become important source of FDI for poor countries. Regional trade agreements also contribute to the growth in South-South FDI as well as increased growth and capital liberalisation. This means that developing countries are more financially linked than one would think. As highlighted by a number of case studies, transnational corporations (TNCs) from the South seem to invest in developing countries at lower levels of development due to their comparative advantage.<sup>8</sup>
- (v) In terms of *mode 4*, the 2003 study highlights that while permanent migration is mainly a South-North phenomenon triggered by wage differentials and the expectation of better living standards, temporary flows are mainly the result of bilateral agreements between governments wishing to encourage co-operation. Both China and Cuba, for example, send health personnel on temporary remunerated contracts to Africa. A very recent example is the two year programme started in February 2003 under which seventy-four Cuban doctors and medical specialists have been deployed in provincial and district hospitals across Zimbabwe. The medical practitioners, who included fifty general medical officers and specialists in urology, dentistry, gynaecology and paediatrics, are expected to ease the critical shortages of doctors and specialists in the country. Similarly Ghana sends health care professionals to Jamaica and India to the Eastern Mediterranean. The latter is an important host market for physicians, nurses, X-ray technicians, laboratory technicians, dental hygienists, physiotherapists, and medical rehabilitation workers from many developing countries.

In addition, demographic complementarities between different developing countries could be a strong reason to utilise some countries’ human resources without having to consider long term immigration. For example, Asher and Sen (2005) demonstrate that there are important complementarities between India, on the one hand, and Singapore and China, on the other hand. India is entering the phase of demographic expansion for the next three to four decades, while the share of working age population in China and Singapore will begin to decline around 2015. Following the model of businesses from OECD that experienced rapid ageing earlier, Singapore and China could substantially enhance their competitiveness by partnering with India in a variety of knowledge-intensive service activities. Therefore, contrary to the general belief, *mode 4* is not only a developed versus developing country issue. There is *real scope for expansion of South-South services trade via temporary labour movements*.

- (vi) The *importance of regional trade in the context of intra-developing trade* is also highlighted by the anecdotal evidence presented in the 2003 study. This also reinforces the results of the statistical analysis. For example, in shipping services, the formation of regional joint ventures for the operation of specific types of services on selected trade routes, the concentration on intra-regional trade or the provision of feeder services in co-operation with global mainline carriers have contributed to the emergence of the above mentioned developing countries as market leaders.

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<sup>8</sup> See UNCTAD (2005b) and OECD (2003).

Another telling example is in telecommunication services. While many of the world's major telecommunication companies are based in OECD countries, some developing country companies are significant players, both regionally and, in some cases, globally. The picture that emerges for many developing country companies is one of largely intra-regional trade, with Latin American companies largely serving the Latin American market and companies from Egypt and South Africa serving other countries on the African continent. However, the study also shows that in some sectors, while regional markets are important, they constitute a stepping stone to more global operations. While also involved in regional trade, companies in Asia seemed to have more global operations; although this may also be attributable in some cases to the different types of services being provided.

- (vii) An additional interesting finding concerning the pattern for the development of trade is given by cases where a *global domestic export capacity had been developed by imported services*. This is especially relevant for trade in services via commercial presence. For example, it is highlighted that in financial services, while little evidence was found on indigenous developing country financial firms exporting services, subsidiaries of developed country firms based in those countries were active in export markets, both to the home country of the parent company and to other countries, developed and developing. Many of the examples of developing country exports of financial services take the form of joint ventures or subsidiaries of large financial service or insurance companies based in OECD countries. These developing country subsidiaries provide services not only to the parent company and the local market, but are also involved in export trade, including to other developing country markets. As for banking and other financial services, a number of large insurance companies have created subsidiaries in developing countries, with these subsidiaries in turn exporting services both to the parent company's offices around the world and to other clients in a range of countries.
- (viii) Finally, the case studies are extremely helpful to identify the drivers and evolution of trade. This might helpfully *illustrate the different avenues in which South-South trade in services might develop*. For example, case studies on health services (presented in the study) indicate that there are two main models which have started to develop: a pure government-led strategy implemented by Cuba and the increasing integration of health services in southern Latin America spurred by the privatisation of medical providers. Another example is Costa Rica's approach in software services. A critical element of Costa Rica's approach has been the focus on education. The country has high national standards of education, and has also worked on ensuring that educational institutions produce appropriately skilled worker and professionals. Given the limited number of engineers and professionals, the government has embarked on an aggressive campaign to transform the knowledge base of the country in alignment with the requirements of the high-tech sector.

### **3. Empirical investigations**

46. This Section explores in more detail the general findings about the determinants and the potential for South-South trade. The analysis considers the impact of services barriers on South-South FDI in services (as a proxy for trade in services through mode 3) using a gravity model. Given the important role of services as intermediate inputs, this part also seeks to analyse the impact of services barriers on developing countries' goods trade.

#### ***3.1 Barriers to trade in service: differences between developing and developed countries***

47. While GATS schedules of commitments do not necessarily involve liberalisation, their examination could be useful as they provide an indication of countries' past intention, and the prospects and challenges

for the current round of negotiations. There is a high level of diversity of commitments across groups WTO members in terms of sectoral and modal coverage and levels of commitments. In terms of sectoral coverage, out of a total of 160 sub-sectors, LDCs have made commitments on average in 24 sub-sectors and developing economies have done the same in respect of 42 sub-sectors (with wide variations between countries: some LDCs or developing countries have committed one sector only, while a few others have included over 100). By contrast, transition economies have made commitments in more sectors than even developed countries. Overall, least developed and developing countries have made commitments in fewer sectors than developed and transition countries.<sup>9</sup>

48. From a modal perspective, the level of unrestricted commitments for modes 1 and 2 does not differ significantly between developed and developing countries, while transition and least-developed countries have tended to undertake more open commitments. The situation is different for mode 3 where developing countries have more restrictions than all other groups.<sup>10</sup> However, in terms of the various types of market access and national treatment restrictions affecting mode 3, commitments do not seem to differ significantly between groups except in cases where developing countries include more often limitations on the admissible types of legal entity and foreign equity participation (for market access restrictions) and land-related restrictions (for national treatment restrictions), and where they rely more heavily on discriminatory subsidies and nationality and residency requirements (for national treatment restrictions).<sup>11</sup> Finally, with respect to mode 4, it is worthwhile noting that all country groupings have restrictive commitments.

49. Recent work on sectoral restrictiveness indices undertaken by the OECD Trade Directorate<sup>12</sup> shows that a high number of non-OECD countries record restrictiveness indices well above the OECD average in banking, insurance, telecommunications, distribution and engineering. Figures 1 to 6 reproduce in graphical form the aggregate TRI results for selected countries; the horizontal line represents the OECD sample average (*i.e.* the selected OECD countries included in our sample).

50. It is worth noting that Asian non-OECD countries such as Malaysia, China, India and Thailand, are the most restrictive in banking, insurance, mobile telecom, engineering and distribution. The analysed MENA countries represent the most restrictive group in fixed telecom services. The analysis confirms that among the selected non-OECD countries, transition economies are leading the process of liberalisation in almost all sectors. Russia, however, is in general the most restrictive of the analysed transition economies. In most analysed sectors, Latin American countries record rather moderate restrictiveness indices as compared to the analysed Asian countries or Russia. The impact of these barriers on services trade is analysed below using a gravity model, and in a next step, their impact on goods export is analysed on the basis of an export supply function.

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<sup>9</sup> Adlung and Roy (2005) and Marchetti (2004).

<sup>10</sup> Marchetti (2004).

<sup>11</sup> Adlung and Roy (2005).

<sup>12</sup> OECD (2005), "Modal estimates of services barriers", TD/TC/WP(2005)36. In a first stage, the qualitative information on GATS commitments and sectoral regulatory reform is translated into quantitative scores using a system of weights and scores. In a second stage, the tax equivalent corresponding to these restrictions is calculated using econometric techniques.

### 3.2 *South-South Trade in services: a gravity model approach*

51. The “gravity model” has been used in hundreds of papers modelling international trade in goods, since it was first proposed by Jan Tinbergen in 1962<sup>13</sup>. However, it is only much more recently that its application to international trade in services has been made feasible by the compilation of extensive new datasets, including by the OECD. When applied to services, the basic idea behind the model remains the same, namely that trade between two countries is directly proportional to their economic size and inversely proportional to the distance between them. Indeed, many of the customary gravity variables (geography, cultural & historical links, etc.) tend to find their way into services models, making for relatively easy comparability amongst studies in these two areas.

52. To provide guidance on the choice of methods to be employed in this study, Table 14 provides summary information on recent papers that have used gravity-based approaches to analyse international trade in services.<sup>14</sup> It is worthwhile noting that these are recent working papers and the results are contradictory in some cases and should be interpreted with care. Also, these models cover exclusively OECD countries and are based on the recent statistics on trade in services by partner data published by the OECD starting with 2000. Finally, it is interesting to observe that only two<sup>15</sup> of the existing models analyse FDI/mode 3 in the context of services despite this being the most important mode of services supply.

53. Building on the work presented in Table 14, the present paper employs the gravity model to assess the impact of services barriers on FDI flows (as a proxy for services trade through mode 3), following the specification described in Annex 2. The paper seeks to extend the analysis in four ways:

#### (i) South-South dimension

- Country coverage is expanded to include up to 18 non-OECD countries, both as importers and exporters (FDI receivers and senders). Our dataset includes flows amongst non-OECD countries, not just between OECD and non-OECD countries, meaning that it is possible to look for differences in behaviour affecting South-South trade.

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<sup>13</sup> For a recent application to South-South trade in goods, see OECD (2006b).

<sup>14</sup> Buch (2005) and Guerin (2006) also deserve mention, since they use the gravity model to analyse the related questions of international asset and liability positions of banks, and capital flows respectively. Neither, however, directly deals with international trade in services. In addition, Hoekman (2000) reports partial results for a gravity-based exercise covering business/construction and financial services; however, full details are not provided.

<sup>15</sup> To explain bilateral direct investment stocks Kox and Lejour (2002) adapt the gravity model with elements of the knowledge-capital model developed by Markusen et al (2000). The latter model is becoming the standard explanation for direct investment decisions by multinational enterprises. It allows for an integrated treatment of trade and direct investment decisions in international services markets. To explain bilateral direct investment stocks the authors use the following variables: the distance and differences in languages between countries (as a measure for trade costs), GDP in the country of origin and destination (as a measure for market size and scale effects), the labour productivity level in the service sector of the origin country (as a measure for technological advantage), and regulatory barriers. In terms of regulatory barriers, they investigate both the level and the heterogeneity of national product market regulations and FDI restrictions, correcting for unobserved variables in origin and destination country. Grünfeld and Moxes (2003) base their gravity model on the theory developed by Markusen & Venables (1995) that explains national and foreign affiliate activity as a function of country income and transport costs. Some of their results are in line with the predictions of the gravity model. For example, the theory predicts that affiliate sales increase with income in both the foreign and domestic market, which is also a feature of the gravity model.

(ii) Expanded sectoral and country coverage for FDI stock in services sectors (as a proxy for trade in services through mode 3)

- Sectoral coverage and country coverage are made wider by using service sector FDI stocks as a proxy for foreign affiliate sales (mode 3). The dependent variable used in this paper is a bilateral measure of FDI stock by service sector, taken from a bilateral capital stock matrix for 2001 that was developed in-house. Bilateral FDI stocks covering 57 sectors and 92 countries/regions were estimated from the new OECD FDI database, UNCTAD World Investment Directory, local government sources for China, Hong Kong, China, Russia, Singapore, Chile, Peru, and Brazil, and ASEAN (2004) for Malaysia, Philippines, Thailand and Vietnam. This information allowed the construction of a consistent database of bilateral FDI stocks by region and sector following the methodology employed for the construction of previous FTAP databases.<sup>16</sup>
- It is important to highlight that the FTAP data do not directly measure international trade in services via mode 3, which involves sales by foreign affiliates rather than the act of investing itself (*i.e.* establishing a foreign affiliate). However, it is reasonable to expect that FDI stock will be correlated with foreign affiliate sales, and that it may therefore constitute an acceptable proxy variable. It would obviously be preferable to use data that measure foreign affiliate sales directly, but problems of availability currently preclude a gravity analysis on that basis. In particular, it would be impossible to use gravity to look at South-South trade under mode 3. The approach taken here is therefore a pragmatic one, designed to give some indicative results in relation to mode 3 trade, which is relatively under-researched in the literature. Assuming that more complete foreign affiliates' sales data become available at some point in the future, it would be important to reassess the results presented here in light of that new information.

(iii) Inclusion of direct measures affecting policies in services sectors

- In an important addition to previous work, the present paper also includes direct measures of trade policy affecting services in the form of OECD trade restrictiveness indices for individual services sectors (OECD 2005) and an index of “FDI friendliness” of regional trade agreements (RTAs) taken from OECD (2006a). OECD (2005) presents trade restrictiveness indices (TRIs) for five services sectors (banking, insurance, telecom, engineering<sup>17</sup> and distribution), disaggregated by mode of supply. In addition to the sectors dealt with in that paper, this one also covers air and maritime transport, using data on trade restrictions in those sectors taken from (respectively) Doove et al. (2001) and Fink *et al.* (2001).<sup>18</sup>
- Combining TRIs with data on “investment friendliness” of RTAs from OECD (2006) allows us to create an approximate measure of bilateral trade policy, in the form of MFN restrictiveness weighted by RTA liberalisation. To our knowledge, this paper is the first to include such detailed measures of trade policy in the case of services.<sup>19</sup> The papers in Table 14 that take account of the

<sup>16</sup> See Phamduc (2000) and Verikios and Zhang (2001b).

<sup>17</sup> The TRI for engineering services is used here as a proxy for restrictions relating to “other business services” in terms of the FTAP sectoral classification. While engineering has previously been used as one example of trade restrictiveness in professional services (Nguyen-Hong, 2000), its appropriateness as a proxy in the present context is doubtful to say the least. Future work could usefully concentrate on producing a more broad-based TRI covering the other business services sector.

<sup>18</sup> The TRI used here is the simple average of the index numbers for cargo handling restrictions and mandatory services calculated by Fink *et al.* (2002).

<sup>19</sup> In addition, models for the finance and insurance sectors contain a 0/1/2 dummy variable to take account of one or both countries in a given exporter-importer pair signing onto the WTO Understanding on Commitments in Financial Services. This is included on the basis that it is relevant both to the degree of liberalisation of both

potential impact of RTAs do so using only a binary dummy variable that does not provide anything like the level of detail in the OECD (2006) measure. Moreover, only Grünfeld & Moxnes (2003) include a trade restrictiveness index, but their measure is a simple average of six sectoral TRIs applied to total (aggregate) services trade, which does not allow for possible differences in cross-sectoral impacts.

- The availability of information on policy determinants determines the aggregation used in the paper. The aggregation used here covers 7 sectors and up to 41 countries for the year 2001. (For more details on coverage by individual sector, see Table 15).

(iv) Model specification

- On a technical level, this paper sticks closely to the “theoretical” gravity model of Anderson & Van Wincoop (2003, 2004)<sup>20</sup>. The right-hand side of equation (3b) includes geographical, historical and cultural data from CEPII (Mayer & Zignago, 2006).<sup>21</sup> In addition, dummy variables are included to take account of the impact of common language (on an ethnographic basis, not limited to official languages), common border, common coloniser and existence at any time of a colonial link between the exporting and importing countries.

54. The main results of this exercise (see Tables 16 to 18) are summarised below:

- Firstly, the distance effect on trade is less strong (-0.65 to -0.89) than is usually found in work with goods trade [around -1; see OECD (2006b)]. The inclusion of distance as a measure of trade costs is more problematic for services than for goods. In the latter context, inclusion of distance between trading partners has at least two appealing interpretations: as an indicator of the cost of shipping goods from the exporter to the importer, and as an indicator of the difficulty of accessing market information (*e.g.* Buch, 2005). The first interpretation generally will not apply in relation to services trade (except potentially in relation to modes 2 and 4, in which consumers and producers respectively have to be transported). Applied work therefore relies, at least implicitly, on the second interpretation only. Future work could usefully challenge that assumption, in particular by extending Freund & Weinhold (2002, 2004) to look more broadly at the interplay between distance and communication technology in determining information costs. However, such an exercise is not embarked on here, and we rely on the straightforward interpretation of distance as a proxy for information costs—which is in line with the approach taken in all of the papers listed in Table 14.
- Our finding sits well with the interpretation of the role of distance in services trade set out above, which argued that in services it reflects only information costs and not transport costs; in a gravity equation for goods, it reflects both effects and therefore should be correspondingly

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parties and to the certainty of their trade policy, since it represents a binding WTO commitment. General indicators of sectoral regulatory practice are not included, since they do not carry such an interpretation and indeed would take the research in quite a different direction, namely the general impact of regulation and regulatory heterogeneity on trade flows in services (*cf.* Kox et al., 2005).

<sup>20</sup> None of the papers in Table 14 explicitly takes account of the resistance (relative price) terms predicted by the Anderson & Van Wincoop (2003, 2004) model, although some of them employ empirical specifications that are robust to the presence of those terms since they include appropriate fixed effects. However, some of the estimates in Table 14 remain potentially subject to significant mis-specification bias in this regard.

<sup>21</sup> Specifically, the distance measure used is the simple great circle distance between each country’s largest city. In sensitivity analysis (not reported, available on request), it was found that the choice of CEPII distance measure (standard, weighted, capital cities) made little difference to results.

stronger. This finding is in accordance with the bulk of results presented in the papers listed in Table 14.

- Secondly, the TRI always has an estimated negative impact on trade, but only in three of seven cases is that impact statistically significant. While the possible causes of such a result are many and varied, it should be stressed that one likely problem relates to measurement error in the TRIs themselves, as well as in the dependent variable. In the former case, measurement error is due to the inherent complexity of transforming qualitative information on services barriers into a quantitative measure (OECD, 2005), while in the latter it is due to the fact that the variable is used as a proxy for data that, at this stage, cannot be observed directly. Moreover, the sectoral correspondence between the TRIs and the FTAP data is not always exact, which introduces a further dimension of error. While the estimated signs for the TRI coefficients (negative) are likely to prove robust, additional work with new and more detailed data will be required before more precise conclusions can be made as to magnitude.
- A final aspect of the estimated coefficients that deserves mention relates to the so-called “border effect”. In the goods market context, it is usually expected that countries with a common (land) border trade relatively more than do countries without such a connection.<sup>22</sup> However, Tables 16 and 17 suggest that this effect is only in evidence in three out of seven cases here. For the two transport sectors, this finding accords well with the fact that adjacent countries are likely to trade with each other through road and rail links, and therefore mode 3 trade in air and maritime transport might tend to be relatively less. In the case of distribution and other business services, one possible explanation is that adjacent countries privilege trade in these sectors through Modes 1, 2 and 4, and as such trade relatively less through mode 3. However, this remains a conjecture at the present time, and could usefully be tested in future work using more detailed data.
- In order to use the above framework to investigate the particularities of South-South trade in services, we adopted the simple expedient of including a set of dummy variables to take account of possible differences in the impact of policy variables and selected geographic variables on trade flows according to the income groups involved. (The definition of “South” used here includes all countries that are not members of the OECD.) Results from those regressions appear in Table 18, along with tests of the null hypothesis that the South-South coefficients are equal to zero. It is necessary to be circumspect in interpreting these regressions, as the number of South-South observations is relatively limited (see Table 15); indeed, for two sectors (air transport and professional services) it was impossible to run regressions with South-South dummies due (effectively) to the small number of observations involved.
- It can be seen from Table 18 that the South-South coefficients are in all but one case jointly statistically significant at the 10% level; however, only in one case are they significant at the 1% level. In four out of five cases, the South-South intercept dummy is negative, suggesting that for given importer and exporter characteristics, such trade flows tend to be systematically smaller than is the case for other flows (North-North and North-South); however, the effect is never statistically significant. The positive estimated coefficient for maritime transport services is puzzling, but also statistically insignificant. The remaining South-South interaction coefficients are statistically significant only in one case, and should be treated with care since they suggest results that are generally counter-intuitive, namely: i) that the distance effect is less strong for South-South trade than for other forms of trade; and ii) that the effect of trade policy is lesser for South-South trade than for other forms of trade.

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A similar result is reported by Lejour & Verheijden (2004) using data for Canadian provinces, as well as for one sector (other commercial services) within the EU.



55. Formally, we conclude that in the context of this model, there is little statistical evidence of systematic differences between South-South and other types of FDI in services, based on the fact that the individual coefficient estimates are generally not statistically significant. This means that the usual determinants of services trade intensity, including policy factors, apply to South-South trade in much the same way that they do to other forms of trade. In order to have more precise indications on this question, future work will need to be based on a more detailed and wide-ranging dataset on services trade than is currently available.

### 3.3 *Impact of services liberalisation on goods exports*

56. Given the important role of services as intermediate inputs, the central question of this analysis relates to the impact of backbone producer services on production and export of goods, and the extent to which this impact is different for developing and developed economies. We want to explore if and to what extent openness and performance of important producer service sectors may affect the performance of goods exporting sectors. Therefore, we first discuss the general two-stage link between (1) service sector openness and performance, and (2) service sector performance and goods exports. We then exemplify the second stage of the link by examining the impact of the performance of three crucial sectors (finance, telecom, transport) on goods exports. The analysis proceeds in two steps:

57. Step 1: The first assumption is that liberalisation of services improves the performance of the respective sectors. Liberalisation and privatisation of services induces entry of new domestic and foreign providers. This may (i) improve the quality and reliability of existing services due to new investment and stronger competition (*e.g.* infrastructure investment, more efficient credit allocation by banks). It may (ii) make new types of services (*e.g.* digital value added services in telecommunications) accessible and (iii) make formerly user-specific services generally available (*e.g.* business consulting services for small firms instead of only large ones). Foreign entrants in particular are likely to bring not only physical investment, but also know-how and management techniques to the respective country. This has a direct impact on the performance of their own firms which may in addition spill over to domestic firms.

58. Step 2: The second step of the analysis is concerned with the relation between service sector performance and the volume of goods exports. There are two mechanisms linking the two. First of all services such as transport, communication, and finance reduce trade costs and allow for greater specialisation. Secondly many services are direct inputs into the production process of manufacturing firms. Improved performance of these activities may therefore lead to productivity gains in the goods exporting sectors that improve the international competitiveness<sup>23</sup> of relevant firms.

59. The arguments presented here should be interpreted with caution, however. There are reasons to believe that the mechanisms explained here play a more important role in developing than in developed countries. More specifically the relationship between service sector performance and goods exports can be conjectured to be U-shaped. The reason for this assumption, that will be tested econometrically, is that in the long run (*i.e.* as economies mature) service sector performance is positively correlated with the share of services and negatively with the share of manufacturing in GDP. This fact may weaken the causal chain to a considerable extent, at least as long as we consider a sample of countries that includes the richest and most developed economies in the world. This highlights the particular policy relevance of service sector liberalisation with respect to the goods exporting sectors in developing countries as opposed to more advanced economies.

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<sup>23</sup> Arnold, Javorcik, and Mattoo (2006) find evidence for a positive relationship between service sector reform and the performance of domestic firms in downstream manufacturing sectors in the Czech Republic over the period 1998-2003.

(i) *How do services activities affect the composition and volume of goods trade?*

60. Efficient transport services and infrastructure imply lower trade costs. Internet access and IT technology might increase export performance by making it easier for enterprises to communicate with foreign buyers, by improving access and information on markets, or by allowing enterprises to bid for contracts over the internet or to participate in business to business exchanges. This decline in trade costs has an impact on the volume of both exports and imports.

61. A number of recent papers emphasise the importance of transport costs and infrastructure in explaining trade, access to markets and increases in per capita income. Transport costs can be severe obstacles to trade. Among the potential causes of high transport costs are restrictive trade policies, lack of infrastructure, anti-competitive practices of service suppliers, inefficient and time-consuming handling of cargo in ports, airports etc. Prices of the respective products in importing countries may go down if these artificial trade barriers are reduced. This is particularly relevant as the effect of transport costs on the volume of trade may in some cases even outweigh the impact of customs duties (see for instance Amjadi and Yeats (1995)).

62. Limao and Venables (2000) show that raising transport costs by 10% reduces trade volumes by more than 20%. They also show that poor infrastructure accounts for more than 40% of predicted transport costs. In a different analysis, Radelet and Sachs (1998) show that shipping costs reduce the rate of growth of both manufactured exports and GDP per capita. Clark et al (2002) analyse the determinants of shipping costs and, in a further step, their impact on trade on the basis of a gravity model. The authors find that transport costs and port inefficiency indexes have the expected negative sign on trade and are highly significant. In terms of the considered sample, the authors find that an increase in country-specific transports costs from the 25<sup>th</sup> to 75<sup>th</sup> percentiles implies a reduction in bilateral trade of around 22%. For example, if a country like Peru (in 1998) decreases its seaport's inefficiencies to a level similar to Iceland or Australia, it would be able to increase its trade by roughly 25%.

63. In terms of communication costs, efficient telephone and internet services lower communication costs which are important inputs into international transactions involving movable goods. More specifically, theory suggests that communication networks such as internet reduce sunk costs associated with trade (see for example, Freund and Weinhold (2000)). These authors also find that, since the mid-1990s, internet connectivity has become increasingly important as an explanatory factor for bilateral merchandise trade flows in a cross-section of countries. Using 1999 data Fink, Mattoo, and Neagu (2002) show that telecom calling charges had a significant impact on bilateral trade flows in a large cross-section of countries. Clarke (2002) argues that internet access and IT technology might increase export performance by making it easier for enterprises to communicate with foreign buyers, by improving access to and information on markets, consumers, and standards, by linking the enterprise directly to consumers, or by allowing enterprises to bid for contracts over the internet or to participate in business to business exchanges. He finds that internet access had affected exports of both industrial and service enterprises in selected transition economies.

64. Efficient transport services and infrastructure imply lower trade costs. Internet access and IT technology might increase export performance by making it easier for enterprises to communicate with foreign buyers, by improving access and information on markets, or by allowing enterprises to bid for contracts over the internet or to participate in business to business exchanges. This decline in trade costs has an impact on the volume of both exports and imports.

65. The relevance of the financial sector in facilitating international exchange in goods (and services) is twofold. Banks finance export activities through provision of appropriate lines of credit to the buyer or to the seller. This is the more straightforward view. It is less straightforward to see that the financial sector

fosters the supply of exports by promoting specialisation. Specialisation in production requires transactions and information. If the associated costs are low and the services provided by financial institutions are efficient, it is more likely that specialisation will actually occur (see Greenwood and Smith, 1997 for a formal model). Specialisation then translates into improved export performance provided other bottlenecks (e.g. transport) do not inhibit this process (see Levine (1997) for a more extensive review of the mechanisms linking financial development and specialisation).

66. As far as the globalisation of asset portfolios is concerned, Obstfeld (1994) makes the point that international risk-sharing is productivity enhancing because it allows for a shift from safe and low-yield to more risky and higher-yield capital investment. This implies the possibility of increased specialisation as international portfolios allow for more risk-hedging. In a similar vein Beck (2002) puts forward the argument that economies with better developed financial systems have a comparative advantage in export-oriented manufacturing industries. This is due to the role financial intermediaries play in facilitating the funding of large-scale, high-return investment projects. He also finds evidence for this hypothesis using a 30-year panel for 65 countries.

(ii) *Econometric Evidence*

67. The econometric exercise conducted in this section involves a standard cross-country analysis for the period from 1995 to 2003 where the supply of export goods is a function of various macroeconomic variables. In addition, we use a set of indicators reflecting performance of specific service sectors. Table 19 gives an overview of the first set of regressions based on the entire sample of developed and developing countries as well as some transition economies (see Table 26 for an overview of the sample countries). Table 27 provides information on data and their sources and the statistical appendix in Table 28 includes descriptive statistics and correlation coefficients.

68. The dependent variable for the models presented in Table 19 is the share of goods exports in GDP. Model 1 is the reduced form or standard export supply function in which national absorption, the price ratio between exports and GDP, net FDI inflows and the size of the economy are explanatory factors. In models (2) to (8) we alternatively use various indicators of service sector performance. The following services sectors are covered: telecom, finance, and transport. In models (2) and (3) we measure the performance of the telecom sector in terms of the number of internet users and (fixed and mobile) telephone subscriptions per 1000 people. In models (4) to (6) we proceed by using three different indicators that directly or indirectly measure transport sector performance: Port efficiency, air passengers (per capita of the population), and the size of the road network<sup>24</sup> (per square kilometre). Port efficiency is a one-to-seven index which measures if port facilities and inland waterways are extensive and efficient (based on survey answers). Financial service sector performance (models (7) and (8)) is measured by the share of credit allocated to the private sector (in percent of GDP) and by the value of stocks traded on the country's exchanges (also scaled by GDP). It can easily be seen that the link between goods exports and these indicators is weak at best.

69. The general result is robust in the sense that all indicators have the expected positive sign, but fail to be significant explanatory factors of the dependent variable (except for a weakly significant effect of the banking variable in model 7). Given that there are two different channels through which service sector performance may affect the supply of export goods in opposite ways, the result is not surprising. Services improve the logistical framework required to export and induce higher productivity in manufacturing firms

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<sup>24</sup> The road network is strictly speaking an indicator of the quality of infrastructure, not a service performance index. Limao and Venables (2000), however, show that infrastructure is an important determinant of transport costs and thus with service sector performance. Clark, Dollar, and Micco show that port efficiency is an important determinant of shipping costs.

but their increasing sophistication also reflects the shift towards a service-oriented economy in developed countries. This finding is in line with our hypothesis. In order to test for the policy relevance in developing countries we use a small sample without developed economies.

70. The sample we use is documented in Table 20 and the countries we omit are presented in italic letters in Table 26. The main results are:

- As far as the service sector variables are concerned, the results all point in the same direction. In models (2) to (8) all previously insignificant variables now become significant at the five or one percent level. This gives additional backing to the hypothesised non-linear relationship between service sector development and goods export performance.
- Internet connectivity, for instance, seems to be a very important factor in this respect. Holding all other factors constant, the coefficient in model (2) suggests that an increase by 100 users per 1000 people is associated with an increase in the goods export ratio by 14 percentage points. This finding is underlined by an impressive improvement in the model fit relative to model (1). The result for telephone connections is similar, even though weaker in magnitude.
- All three transport indicators are significant at the five percent level. One more passenger carried per capita of the population is associated with a 43.3 percentage point increase in the dependent variable (the coefficient 0.43 must be multiplied by 100 because the variable is measured in percent). One more road kilometre per square kilometre implies a 17 percentage point increase in the goods exports ratio. The port efficiency index is more difficult to interpret, but also highly significant.
- Both coefficients for banks and stock markets are highly significant. If credit to the private sector doubled from 25 % to 50% of GDP the coefficient implies that goods exports increase by 5 percentage points of GDP. An identical increase in the ratio of value traded on stock exchanges would even imply almost twice as much in terms of export performance.
- In terms of other variables, absorption has in general a stronger explanatory power than in the full sample. This is not surprising as in developed countries the services sector expands relative to goods production. Therefore domestic demand pressure exerts a greater impact on the supply of export goods in the small sample. In less developed economies an increase in national absorption squeezes the supply of goods for export markets by more than in rich countries. A second interesting observation can be made with respect to FDI. Relative to the large sample it loses some explanatory power which is a signal that FDI inflows tend to shift towards export related activities as countries become richer.

71. We expand this exercise by analysing selected sectoral goods exports' performance: In Table 21 we focus on a selection of sectors where the impact of service sector performance is expected to be particularly strong. The dependent variable is the sum of the exports of textiles, motor vehicles, machinery, and equipment and manufactures not elsewhere classified measured as a share of GDP. The sectors we look at require large-scale investment and specialised labour inputs. Financial services play a key role because they intermediate between small-scale savings and large-scale investment. Transport and telecom services are also very important because the manufacturing activities in question require intermediate inputs or raw materials from many geographically dispersed small-scale suppliers. In line with Francois (1990) we therefore expect scale and specialisation of production to be heavily dependent on appropriate logistical services.

72. We use the same specifications as before even though the dependent variable is a subset of the one in Tables 19 and 20. The macroeconomic indicators remain good proxies for factors determining the supply of the relevant goods, however. While most of the macroeconomic variables (with the exception of

the price ratio) turn out to be less robustly related with the dependent variable, the opposite holds for the services indices. In general the coefficients are only slightly smaller than in the previous set of regressions. The financial sector variables are particularly significant and the coefficient of the banking variable is higher than in Table 20. This finding is interesting and suggests that the impact of service sector liberalisation and performance on goods exports is stronger in relative terms (for banking even in absolute terms) than for the sample with total goods exports as the dependent variable. On average the selected sectors account for less than 40% of total goods exports in the sample countries. If the variation in the explanatory variable suggests an identical (*e.g.* one percentage point) increase in export performance, this is relatively a lot more if the dependent variable comprises only a selection of sectors instead of total exports. These regression results therefore point at the particular relevance of service sector liberalisation with respect to the manufacturing sectors in question. They also emphasise the role of financial services as a driving force of manufacturing sector development as hypothesised earlier on.

73. Finally, Tables 22 to 25 present evidence about the relationship between restrictiveness and performance in the financial, telecom<sup>25</sup>, and transport sectors<sup>26</sup>. The regressions are reduced form models and deliberately ignore other factors determining service sector performance as the causal relationship is too complex and would require a lot of additional information. Financial sector performance, for instance, is highly correlated with economic performance in a broader sense. But this unclear causal relationship implies the existence of a simultaneity bias so that measures of the level or growth rate of GDP may be inappropriate explanatory factors.

74. Tables 22 and 23 indicate that the predicted negative relationship between restrictiveness and performance can be confirmed for both the financial and the telecom sectors and for two different performance indicators respectively. The tables also show that the relationship is non-linear. Interpreting the coefficients of the non-linear specifications correctly (which is a priori difficult to see) implies that the impact of lifting restrictions on performance may increase more than proportionally with the scale of the liberalisation measure. This may mean that it is not enough to liberalise moderately in order to achieve an impact on performance if the initial degree of restrictiveness is high. More research is needed to further assess whether a courageous liberalisation effort is required for notable improvement in outcomes, which may particularly benefit goods exports of less developed countries.

75. In Table 24 we present results from a related exercise, where we use the concentration index of the banking sector as an indirect measure of restrictiveness. The result is similar: the more concentrated (restricted) the sector, the worse the performance. The second conclusion remains valid, too. Only a significant reduction in market concentration may boost performance if the initial level of concentration is high.

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<sup>25</sup> See OECD (2005) for a description of the data. Restrictiveness is measured by mode of supply (1-4) and as separate indices for banking, insurance, fixed line and mobile telecom respectively. To have the broadest possible coverage the variables used here are the averages of the indices for fixed and mobile telecom, and for banking and insurance so that there is only one measure for finance and telecom each averaged over all four modes.

<sup>26</sup> We use maritime transport to exemplify the relationship between restrictiveness and sectoral performance. The related literature has also established more general links between restrictiveness and transport sector performance/transport costs. Fink, Mattoo, and Neagu (2002 a), for instance, find that anti-competitive practices have a greater impact on transport costs than restrictive trade policies. Francois and Wooton (2001) show that trade liberalisation in the presence of an imperfectly competitive transport sector will not result in significant gains from trade because the shipping firms will grab a portion of these gains.

76. Table 25 presents the results for the relationship between port efficiency and cargo handling restrictiveness. The latter is measured by an index from 0 to 1 with 0.25 and 0.75 as intermediate steps. It relates to the question whether and to what extent foreign suppliers are allowed to provide cargo handling services and assumes that a 0 indicates no restrictions. The results remain in line with the previous ones in the sense that there is a significantly negative non-linear relationship between restrictiveness and performance.

77. To test the robustness of the regressions presented in Tables 22 to 25, we added two variables to the respective specifications. The results presented in Table 29 below are the non-linear specifications used before plus the variables INFLATE and SERVICE, which we assume to be (relatively) exogenous with respect to the performance indicators.

- The variable INFLATE is the average of consumer price inflation. We introduced this variable as a measure of country risk or macroeconomic instability, which is expected to be negatively associated with our service performance indicators. High risk or instability should lead to lower performance scores as investment in these areas is likely to suffer.
- The variable SERVICE is the share of the service sector in GDP. The rationale for using this as a control variable is the assumption that an existing services infrastructure makes investment in specific services sectors more likely. Synergies between different types of services, such as between financial and internet services, fosters investment in certain areas.

78. The results of the robustness check confirm the relationships between restrictiveness and performance indicators, even though the coefficients are not always significant. However, the sign is always what we would expect and the R-squared is higher than in the reduced form models. More importantly, the introduction of the control variables leaves the other variables relatively unchanged. With the exception of one case [Model (3), the non-linear term] all coefficients remain highly significant. The coefficient in question is still almost significant, but we report it without a single asterisk. This gives some more backing to our hypothesis that a significant liberalisation effort is required in order to improve performance in the respective services areas.

79. To summarise, service sector liberalisation has a positive impact on goods exports through induced improvements in the performance of respective services. These improvements potentially foster the export performance of goods producing sectors through better transport, communication, and financial infrastructure which reduce trade costs and facilitate the international division of labour. In addition, producer services are direct inputs into the production of manufactured export goods so that related productivity gains can increase the competitiveness of firms. We assume that these effects are weaker for developed countries because on average (i) the share of manufacturing in GDP and (ii) the supply of goods relative to services decrease as economies mature. The results of the econometric analysis give support to our conjectures and can be summarised under four headings:

- Firstly, performance of backbone (financial, telecom, and transport) service sectors is not significantly positively associated with goods exports (as a share of GDP) as long as a broad sample of developed and developing countries is analysed.
- Secondly, eliminating the most advanced economies from the sample and considering only developing countries and transition economies yields a different result. Service sector performance becomes significant at explaining goods exports.
- Thirdly, services matter in particular where manufacturing activities are large-scale and require specialised labour, many intermediate inputs, and raw materials from geographically dispersed small-scale suppliers.

- Finally, if services sectors are closed to foreign competitors it requires a major rather than a small or intermediate liberalisation effort to improve the performance of the respective service activities.

#### 4. Conclusions and directions for future research

80. This paper reports on the results of an attempt to identify the key features governing the South-South dimension of services trade via the various modes of supply. The most important conclusion to draw from the analysis is that services trade among developing countries takes place predominantly at the regional level for all modes of supply; this may be due to the increasing tendency to incorporate disciplines to liberalise services trade within regional trade agreements. In terms of the magnitude of South-South services trade via different modes of supply, the estimates based on BOP statistics suggest that South-South exports via modes 1 and 2 represent around 10% of world exports. While developing countries' exports to developed countries seem to be more important for the majority of non-OECD regions, the opposite is true for Asian developing countries: their exports to developing regions represent more than half of their total services exports. Except for Asia, air transport exchanges between developing countries seem to be negligible. In terms of mode 3, indirect estimates suggest that in 2000 more than one-third of FDI in developing countries originate in other developing countries.

81. These results also suggest that there is scope for increasing developing country services exports in general and services trade between developing countries in particular. In the first stage, differences in short-term comparative advantage are expected to provide the main rationale for services trade between more advanced and less advanced countries. However, in the medium-long term, it is technological knowledge that will determine comparative advantage and enable the development of more advanced services trade. There are already clear examples of developing countries exploiting market niche opportunities and developing firm-specific intangible assets, and there is a realistic potential for increased trade in know-how-intensive services between developing countries in the short to medium term.

82. This paper has shown that the gravity model can successfully be applied to trade in services using FDI stock in services sectors as proxies for trade in services through mode 3. The gravity model of international trade in services presented here has built on previous work in a number of ways. Firstly, use of the latest version of the FTAP database has allowed us to consider additional country groups (particularly developing countries) and sectors. Secondly, we have included a measure of trade restrictiveness based on detailed information compiled at the sectoral level for individual modes of supply (Mode 3 in this case). Finally, we have taken care to use an empirical specification that accords with recent theoretical work.

83. In line with much previous work, we find that the effect of distance on services trade appears to be less strong than for goods trade, which is consistent with an interpretation in terms of information rather than transport costs. Our results also highlight the importance of policy barriers, and imply that countries have the ability to increase trade in services across all sectors by relaxing restrictions on foreign establishment. The results also highlight the importance of policy barriers, and imply that countries have the ability to increase trade in services across all sectors by relaxing restrictions on foreign establishment. There is little statistical evidence of systematic differences between South-South and other types of trade in services, based on the fact that the individual coefficient estimates are generally not statistically significant. This means that the usual determinants of services trade intensity, including policy factors, apply to South-South trade in much the same way that they do to other forms of trade.

84. However, there remain many areas for future research. As highlighted at various points in the text, the main difficulty confronting modelling work in this area is the lack of data. The expedient adopted here, *i.e.* using service sector FDI stocks as a proxy for foreign affiliate sales, has given useful empirical results,

but involves numerous approximations. Once foreign affiliates sales data become available for a wider range of countries, it should be possible to obtain much more precise indications as to the determinants of services trade. Moreover, there are conceivably gains in estimating efficiency (*i.e.* precision) to be had in simultaneously modelling trade in services across the four different modes of supply. As more and more detailed data become available, future work could usefully move in that direction.

85. Given the important role of services as intermediate inputs, services liberalisation has a positive impact on goods exports through induced improvements in the performance of respective services. These improvements potentially foster the export performance of goods producing sectors through better transport, communication, and financial infrastructure which reduces trade costs and facilitates the international division of labour. In addition, producer services are direct inputs into the production of manufactured export goods so that related productivity gains can increase the competitiveness of firms. As opposed to developed countries where these effects are weaker because the share of manufacturing and supply of exported goods in GDP decreases as economies mature, in the case of developing countries, service sector performance becomes significant at explaining goods exports. Services matter in particular where manufacturing activities are large-scale and require specialised labour, many intermediate inputs, and raw materials from geographically dispersed small-scale suppliers.

86. Preliminary results suggest that if services sectors are closed to foreign competition, the improvement of their performance requires a major rather than a minor or moderate liberalisation effort. The impact of lifting restrictions on performance may increase more than proportionally with the scale of the liberalisation measure. This may mean that it is not enough to liberalise moderately in order to achieve an impact on performance if the initial degree of restrictiveness is high. More research is needed to further assess whether a courageous liberalisation effort is required for notable improvement in outcome, which may particularly benefit goods exports of less developed countries.



## TABLES AND FIGURES

Table 1. Estimated patterns of world and OECD Trade in services, % of total world exports, 2002

Exporter \ Importer	World	Total OECD	NAFTA	OECD Asia and Oceania	EU	OECD Europe other	Total non OECD	Africa	America non OECD	Asia and Oceania non OECD	Europe non OECD
World	100.0	73.8	19.6	9.0	40.5	4.7	24.9	2.3	4.0	16.2	2.4
Total OECD	76.3	61.1	15.4	5.9	35.3	4.4	14.0	1.6	3.3	7.4	1.7
NAFTA	20.9	15.1	4.7	3.0	6.7	0.7	5.6	0.4	2.3	2.6	0.3
OECD Asia and Oceania	7.2	4.7	2.3	1.0	1.3	0.1	2.5	0.1	0.2	2.1	0.1
EU total	42.7	36.4	7.5	1.7	23.8	3.4	5.2	1.1	0.8	2.5	0.9
OECD Europe other	5.5	4.9	0.9	0.1	3.5	0.2	0.7	0.0	0.0	0.2	0.4
Total non OECD	23.6	12.7	4.2	3.1	5.1	0.3	10.9	0.8	0.7	8.8	0.7
Africa	2.1	1.5	0.2	0.2	1.1	0.0	0.6	0.4	0.0	0.2	0.0
America non OECD	3.4	2.9	1.7	0.4	0.7	0.0	0.6	0.0	0.4	0.1	0.0
Asia and Oceania non OECD	15.4	6.6	2.0	2.4	2.1	0.1	8.7	0.3	0.2	8.0	0.2
Europe non OECD	2.7	1.7	0.2	0.1	1.2	0.2	1.0	0.0	0.0	0.5	0.5

Derived from source: OECD (2004), Statistics on International Trade in Services

Table 2. Estimated patterns of world and OECD Trade in services, millions USD and %, 2002

Exporter \ Importer	World	Total OECD	NAFTA	OECD Asia and Oceania	EU	OECD Europe other	Total non OECD	Africa	America non OECD	Asia and Oceania non OECD	Europe non OECD
World	1,641,291	73.8%	19.6%	9.0%	40.5%	4.7%	24.9%	2.3%	4.0%	16.2%	2.4%
Total OECD	1,251,939	80.0%	20.2%	7.7%	46.3%	5.8%	18.3%	2.1%	4.3%	9.7%	2.2%
NAFTA	342,775	72.5%	22.3%	14.6%	32.0%	3.5%	26.6%	1.7%	11.0%	12.7%	1.3%
OECD Asia and Oceania	118,316	65.0%	31.4%	14.1%	18.0%	1.4%	35.0%	1.6%	3.1%	29.6%	0.7%
EU total	700,318	85.2%	17.7%	3.9%	55.8%	7.9%	12.3%	2.6%	1.8%	5.8%	2.2%
OECD Europe other	90,531	88.2%	17.2%	2.7%	63.9%	4.3%	11.8%	0.4%	0.7%	2.8%	7.9%
Total non OECD	387,533	53.8%	17.7%	13.1%	21.7%	1.3%	46.2%	3.2%	2.8%	37.2%	3.0%
Africa	34,048	70.8%	8.3%	9.2%	52.7%	0.5%	29.2%	18.5%	0.6%	9.0%	1.1%
America non OECD	56,486	83.2%	50.8%	11.6%	20.4%	0.3%	16.8%	0.2%	12.4%	3.9%	0.2%
Asia and Oceania non OECD	252,000	43.3%	13.3%	15.8%	13.6%	0.6%	56.7%	2.2%	1.2%	52.2%	1.3%
Europe non OECD	44,998	63.0%	8.2%	2.9%	45.1%	6.9%	37.0%	1.3%	1.2%	16.7%	17.8%

Derived from source: OECD (2004), Statistics on International Trade in Services

**Table 3. Estimated patterns of world and OECD trade in transport services, % of world transport exports, 2002**

Exporter \ Importer	WORLD	OECD TOTAL	OECD				OECD EUROPE OTHER	NON-OECD TOTAL
			NAFTA	ASIA AND OCEANIA	EUROPE	EU15		
WORLD	100.0	76.5	20.2	11.8	43.5	39.8	4.1	25.2
OECD TOTAL	74.6	55.8	14.4	6.3	35.1	31.5	4.0	16.8
NAFTA	15.2	11.1	3.4	2.5	5.2	4.7	0.5	4.6
OECD ASIA AND OCEANIA	11.9	6.6	2.9	1.4	2.4	2.2	0.1	4.4
OECD EUROPE	47.6	38.0	8.1	2.4	27.5	24.6	3.4	7.8
EU15	41.0	32.2	6.6	2.2	23.4	20.4	3.0	7.1
OECD EUROPE OTHER	6.6	5.8	1.5	0.2	4.1	4.2	0.3	0.7
NON-OECD TOTAL	29.1	20.7	5.9	5.5	8.5	8.3	0.2	8.4

Note: Non-OECD total credits to OECD countries refer in fact to mirror data for OECD debits from non-OECD countries.

Source: OECD data are taken from OECD (2004), Statistics on International Trade in Services, non-OECD country data are from IMF Balance of Payments Current Account statistics

**Table 4. Estimated patterns of world and OECD trade in other services, % of world other services exports, 2002**

Exporter \ Importer	WORLD	OECD TOTAL	OECD				OECD EUROPE OTHER	NON-OECD TOTAL
			NAFTA	ASIA AND OCEANIA	EUROPE	EU15		
WORLD	100.0	77.1	22.6	7.0	47.6	41.8	5.9	27.1
OECD TOTAL	80.7	67.4	18.7	5.3	43.4	37.8	5.8	13.2
NAFTA	22.6	18.0	4.9	3.0	10.1	8.8	1.2	5.5
OECD ASIA AND OCEANIA	6.9	4.6	2.8	0.5	1.3	1.2	0.1	2.1
OECD EUROPE	51.3	44.8	11.0	1.8	32.1	27.8	4.4	5.7
EU15	46.6	39.8	9.7	1.7	28.4	24.1	4.2	5.5
OECD EUROPE OTHER	4.7	5.1	1.2	0.2	3.7	3.7	0.2	0.2
NON-OECD TOTAL	23.5	9.6	3.8	1.7	4.1	4.0	0.2	13.8

Note: Non-OECD total credits to OECD countries refer in fact to mirror data for OECD debits from non-OECD countries.

Source: OECD data are taken from OECD (2004), Statistics on International Trade in Services, non-OECD country data are from IMF Balance of Payments Current Account statistics.

**Table 5. Estimated patterns of world and OECD trade in travel services, % of world travel exports, 2002**

Exporter \ Importer	WORLD	OECD TOTAL	OECD				OECD EUROPE OTHER	NON- OECD TOTAL
			NAFTA	ASIA AND OCEANIA	OECD EUROPE	EU15		
WORLD	100.0	69.8	16.3	8.2	45.3	41.0	4.5	27.6
OECD TOTAL	72.7	56.0	11.4	5.6	39.0	35.0	4.3	11.7
NAFTA	22.1	14.3	5.8	3.2	5.3	4.7	0.5	6.6
OECD ASIA AND OCEANIA	4.4	2.2	0.5	1.1	0.6	0.6	0.0	1.4
OECD EUROPE	46.2	39.6	5.2	1.3	33.1	29.7	3.7	3.7
EU15	39.9	35.9	4.8	1.2	30.0	26.4	3.5	3.3
OECD EUROPE OTHER	6.3	3.6	0.3	0.1	3.1	3.2	0.2	0.4
NON-OECD TOTAL	29.6	13.7	4.9	2.6	6.3	6.1	0.2	15.9

Note: Non-OECD total credits to OECD countries refer in fact to mirror data for OECD debits from non-OECD countries.

Source: OECD data are taken from OECD (2004), Statistics on International Trade in Services, non-OECD country data are from IMF Balance of Payments Current Account statistics.

**Table 6.1. Estimates of selected developing countries' total services exports (transport, travel and other commercial services) to non-OECD countries, million USD and %**

Exporters	1999			2000			2001			2002			2003		
	Total services exports	Estimates of non-OECD exports to countries	Non-OECD exports as % of total exports	Total services exports	Estimates of non-OECD exports to countries	Non-OECD exports as % of total exports	Total services exports	Estimates of non-OECD exports to countries	Non-OECD exports as % of total exports	Total services exports	Estimates of non-OECD exports to countries	Non-OECD exports as % of total exports	Total services exports	Estimates of non-OECD exports to countries	Non-OECD exports as % of total exports
Argentina	4455	2373	53%	4648	2527	54%	4469	2487	56%	3223	1854	58%	4125	2224	54%
Brazil	6873	2013	29%	8961	3587	40%	8718	3527	40%	8790	3583	41%	9570	3801	40%
Chile	3780	2919	77%	3995	3124	78%	4071	2613	64%	4315	2935	68%	4870	3377	69%
China	26165	7321	54%	30146	10590	55%	32901	12635	57%	39381	16481	57%	46375	23360	50%
Hong Kong, China	35568	25724	72%	40362	30303	75%	41056	28828	70%	44546	30053	67%	46500	31971	69%
India	14006	9401	67%	16030	11244	71%	16799	11907	71%	19125	14250	75%	23092	17157	74%
Indonesia	4452	1550	36%	5061	2395	49%	5361	2219	43%	6519	3535	56%	5143	1558	30%
Malaysia	11800	8778	76%	13812	11278	83%	14331	10648	76%	14753	10853	75%	13459	9690	72%
Russian Federation	9071	4729	52%	9565	4972	52%	11215	6515	58%	13450	8527	64%	16088	12158	76%
Singapore	26285	17573	69%	29475	20379	71%	28928	16669	59%	30737	17950	60%	34482	20866	61%
South Africa	5041	3829	76%	4888	3669	76%	4533	683	16%	4576	488	11%	7328	1909	26%
Thailand	14542	10686	77%	13785	9816	75%	12932	6534	54%	15304	8637	60%	15694	8801	56%

Source: OECD (2004), IMF BOP Statistics (2005).

**Table 6.2. Estimates of selected developing countries' transport services exports to non-OECD countries, million USD and %**

Exporters	1999			2000			2001			2002			2003		
	Total services exports	Estimates of non-OECD exports to countries	Non-OECD exports as % of total exports	Total services exports	Estimates of non-OECD exports to countries	Non-OECD exports as % of total exports	Total services exports	Estimates of non-OECD exports to countries	Non-OECD exports as % of total exports	Total services exports	Estimates of non-OECD exports to countries	Non-OECD exports as % of total exports	Total services exports	Estimates of non-OECD exports to countries	Non-OECD exports as % of total exports
Argentina	1052	554	53%	1106	551	50%	893	392	44%	761	276	36%	932	344	37%
Chile	2039	1793	88%	2188	1943	89%	2294	1740	76%	2205	1621	74%	2647	2063	78%
Hong Kong, China	11502	8044	70%	12772	9197	72%	12012	6857	57%	13303	NA	NA	13832	8067	58%
India	1844	984	56%	1979	1079	58%	2050	892	47%	2473	1332	57%	3062	1743	57%
Malaysia	2492	1465	62%	2802	1684	63%	2748	1068	42%	2855	1166	44%	2767	1062	38%
Russian Federation	3008	1301	43%	3555	1371	39%	4654	2470	54%	5487	3226	59%	6119	3924	64%
Singapore	10692	6972	67%	11890	7651	68%	11463	5841	54%	11956	5744	51%	12501	5274	42%
Thailand	3017	2180	76%	3250	2246	74%	3057	1416	52%	3265	1614	54%	3503	1768	50%
Uruguay	261	247	95%	374	358	96%	313	243	78%	265	198	74%	259	173	67%

Source: OECD (2004), IMF BOP Statistics (2005).

**Table 6.3. Estimates of selected developing countries' other commercial services exports to non-OECD countries, million USD and %**

Exporters	1999			2000			2001			2002			2003		
	Total services exports	Estimates of exports to non-OECD countries	Non-OECD exports as % of total exports	Total services exports	Estimates of exports to non-OECD countries	Non-OECD exports as % of total exports	Total services exports	Estimates of exports to non-OECD countries	Non-OECD exports as % of total exports	Total services exports	Estimates of exports to non-OECD countries	Non-OECD exports as % of total exports	Total services exports	Estimates of exports to non-OECD countries	Non-OECD exports as % of total exports
Brazil	4106	2443	60%	5742	4018	70%	5566	3783	68%	5256	3479	66%	5270	3575	68%
Chile	830	667	80%	988	848	86%	978	664	68%	1212	903	74%	1364	1096	80%
China	9647	5409	56%	10244	6315	62%	10474	6488	62%	13276	9028	68%	21062	16330	78%
Hong Kong, C	18544	15182	82%	21684	18555	86%	23099	19327	84%	23788	NA	NA	25527	19613	77%
India	9153	7403	81%	10591	8748	83%	11551	9542	83%	13550	11601	86%	16143	13726	85%
Malaysia	5719	4499	79%	5999	5325	89%	4719	3790	80%	4781	3681	77%	4791	3845	80%
Russian Fede	2340	771	33%	2580	1066	41%	2990	1321	44%	3796	2258	59%	5467	5272	96%
Singapore	10503	7467	71%	12443	9654	78%	12838	8201	64%	14344	9789	68%	18191	13527	74%
Thailand	4497	3725	83%	3052	2408	79%	2800	1612	58%	4138	2953	71%	4335	3371	78%

Source: OECD (2004), IMF BOP Statistics (2005).

**Table 6.4. Estimates of selected developing countries' travel exports to non-OECD countries, million USD and %**

Exporters	1999			2000			2001			2002			2003		
	Total services exports	Estimates of exports to non-OECD countries	Non-OECD exports as % of total exports	Total services exports	Estimates of exports to non-OECD countries	Non-OECD exports as % of total exports	Total services exports	Estimates of exports to non-OECD countries	Non-OECD exports as % of total exports	Total services exports	Estimates of exports to non-OECD countries	Non-OECD exports as % of total exports	Total services exports	Estimates of exports to non-OECD countries	Non-OECD exports as % of total exports
Argentina	2898	2130	74%	2904	2092	72%	2642	1912	72%	1535	1104	72%	2006	1180	59%
Chile	911	459	50%	819	332	40%	799	210	26%	898	411	46%	859	218	25%
China	14098	4082	67%	16231	6368	68%	17792	8343	72%	20385	9854	69%	17406	7417	43%
Hong Kong, C	5522	2498	45%	5906	2552	43%	5945	2644	44%	7454	NA	NA	7141	4291	60%
India	3010	1013	34%	3460	1417	41%	3198	1473	46%	3102	1317	42%	3887	1688	43%
Indonesia	4352	3033	70%	4975	3787	77%	5276	3895	75%	5285	3904	75%	4037	2243	56%
Malaysia	3588	2813	82%	5011	4269	88%	6863	5791	86%	7118	6005	86%	5901	4782	81%
Philippines	2554	1256	57%	2134	608	38%	1723	245	25%	1740	451	36%	1545	168	11%
Russian Fede	3723	2656	71%	3430	2534	74%	3572	2724	76%	4167	3043	73%	4502	2962	66%
Singapore	5089	3134	66%	5142	3075	64%	4627	2627	61%	4437	2417	60%	3790	2065	54%
South Africa	2800	2416	86%	2677	2261	84%	2569	1029	40%	2923	1243	43%	5185	2806	54%
Thailand	7028	4781	73%	7483	5162	74%	7075	3506	54%	7901	4071	57%	7856	3662	47%

Source: OECD (2004), IMF BOP Statistics (2005).

**Table 7.1. International Scheduled Passenger flows by region as percentage of total thousands of passengers (2000)**

	North America	Central America	South America	Europe	Middle East	Africa	Asia	South West Pacific
North America	0.03	0.05	0.02	0.11	0.00	0.00	0.05	0.01
Central America		0.01	0.00	0.01			0.00	
South America			0.01	0.01		0.00	0.00	0.00
Europe	0.37				0.02		0.05	0.01
Middle East					0.01		0.02	
Africa				0.04	0.01	0.01	0.00	0.00
Asia	0.09							0.03
South West Pacific	0.00							

Source: IATA (2004).

**Table 7.2. International Scheduled freight tonnes flows by region as a percentage of total**

	North America	Central America	South America	Europe	Middle East	Africa	Asia	South West Pacific
North America	0.02	0.02	0.03	0.18	0.01	0.00	0.15	0.01
Central America		0.00	0.00	0.01			0.00	
South America			0.01	0.02		0.00	0.00	0.00
Europe				0.09	0.04		0.16	0.01
Middle East					0.01		0.02	
Africa				0.04	0.01		0.00	0.00
Asia							0.14	0.03
South West Pacific								0.00

Source: IATA (2004).

**Table 8.1. Visitor arrivals by region, % of total visitor arrivals**

Importer \ Exporter	OECD	OECD			OECD	NON	America	Asia and		Europe		Total
	Total	NAFTA	Asia and Oceania	EU	Europe other	OECD total	non OECD	Oceania non OECD	MENA	non OECD	AFRICA	
OECD total	56.7%	10.9%	1.6%	38.3%	5.9%	13.8%	2.7%	4.9%	1.0%	3.7%	1.5%	70.4%
NAFTA	11.5%	8.6%	0.3%	2.3%	0.3%	3.0%	1.8%	0.9%	0.2%	0.1%	0.1%	14.5%
OECD Asia and Oceania	2.7%	0.8%	0.9%	0.9%	0.1%	2.7%	0.0%	2.6%	0.0%	0.1%	0.0%	5.5%
EU	38.3%	1.4%	0.3%	32.3%	4.2%	6.6%	0.8%	1.3%	0.7%	2.5%	1.2%	44.9%
OECD Europe other	4.2%	0.2%	0.0%	2.8%	1.2%	1.4%	0.1%	0.1%	0.1%	1.0%	0.1%	5.6%
NON OECD Total	8.8%	1.0%	0.9%	3.5%	3.4%	20.7%	2.0%	6.8%	3.4%	6.0%	2.6%	29.6%
NON OECD nec	0.4%	0.0%	0.1%	0.3%	0.0%	1.9%	0.3%	0.4%	0.1%	0.6%	0.5%	2.3%
America non OECD	1.2%	0.6%	0.0%	0.5%	0.0%	1.7%	1.6%	0.1%	0.0%	0.0%	0.0%	2.9%
Asia and Oceania non OECD	1.9%	0.3%	0.8%	0.7%	0.2%	6.8%	0.0%	5.8%	0.7%	0.2%	0.1%	8.7%
MENA	0.4%	0.1%	0.0%	0.2%	0.1%	2.5%	0.0%	0.1%	2.0%	0.1%	0.2%	2.9%
Europe non OECD	4.5%	0.0%	0.0%	1.5%	3.0%	5.7%	0.0%	0.3%	0.2%	5.1%	0.1%	10.2%
AFRICA	0.4%	0.0%	0.0%	0.3%	0.0%	2.1%	0.0%	0.1%	0.3%	0.0%	1.7%	2.5%
TOTAL	65.5%	12.0%	2.5%	41.8%	9.2%	34.5%	4.7%	11.7%	4.3%	9.7%	4.1%	100.0%

Notes: OECD Europe Other may include non OECD countries recorded under a general category "ALL C/E EUR" or "ALL EUROPE".

Source: 206 countries from World Tourism Organisation (2004).

**Table 8.2. Visitor Arrivals by Region - Annual Average Growth Rates (1999-2002)**

Importer \ Exporter	OECD Total	NAFTA	OECD Asia and Oceania	EU	OECD Europe other	Non OECD Total	Africa	America non OECD	Asia and Oceania non OECD	Europe non OECD	MENA	Total
	OECD Total	2.1%	-0.8%	4.7%	2.8%	2.4%	5.8%	4.2%	1.7%	6.1%	13.3%	-3.5%
NAFTA	0.7%	1.3%	3.6%	-1.3%	-3.6%	3.1%	6.3%	2.9%	5.4%	9.1%	-9.7%	1.2%
OECD Asia and Oceania	-1.1%	-6.4%	5.0%	-1.7%	1.1%	8.0%	5.8%	2.0%	8.1%	19.2%	-3.6%	3.1%
EU	2.7%	-7.9%	5.4%	3.3%	2.8%	5.5%	4.2%	-0.5%	3.9%	12.8%	-2.9%	3.1%
OECD Europe other	2.0%	-8.4%	4.0%	2.3%	2.8%	10.3%	1.4%	-1.1%	-4.9%	14.9%	5.9%	3.8%
Non OECD Total	3.7%	-7.0%	5.0%	3.5%	8.4%	11.0%	17.9%	-5.7%	10.4%	13.1%	18.7%	8.6%
AFRICA	1.5%	-4.6%	1.7%	2.0%	6.0%	20.6%	22.0%	-4.4%	8.3%	0.9%	18.6%	16.4%
America non OECD	-5.6%	-7.7%	3.2%	-3.4%	-3.2%	-4.8%	9.3%	-5.2%	13.9%	11.3%	-24.5%	-5.1%
Asia and Oceania non OECD	3.7%	-3.2%	5.1%	5.0%	5.9%	11.6%	14.1%	0.8%	10.2%	10.7%	27.2%	9.7%
Europe non OECD including Europe	8.3%	-4.3%	10.8%	7.5%	9.3%	14.2%	-0.1%	-12.9%	4.2%	16.5%	5.9%	11.4%
MENA	0.9%	-6.5%	3.1%	-2.3%	12.0%	17.6%	22.2%	3.8%	4.9%	12.9%	18.4%	14.3%
Non OECD	-4.1%	-45.9%	1.3%	2.2%	-21.4%	3.8%	10.8%	-6.7%	21.3%	-6.3%	21.7%	2.2%
Total	2.3%	-1.4%	4.8%	2.8%	4.4%	8.8%	12.3%	-1.8%	8.5%	13.2%	11.9%	4.4%

Source: World Tourism Organisation (2004).

**Table 9. Estimation of South-South FDI flows 1994-2000 (Billion dollars)**

	1994	1995	1996	1997	1998	1999	2000
South-South flows	4.6	15.3	25	57.4	56.6	49.7	53.9
Share of total South - South FDI flows	6	16.2	22.3	38.7	36.8	31	36.4

Source: D.Aykut, D. Ratha, Transnational Corporations, South-South FDI flows: How big are they?, UNCTAD 2003

**Table 10. FDI outflows from some major developing countries (Millions of dollars)**

	China 2002		India (2002/03)	
	shares	values	shares	values
Developed	21%	207	25%	367.6
Developing	71%	700.7	75%	1104.6

China: Approved FDI outflows, top 30 destinations

India: Approved FDI outflows with geographical distribution

Source: Calculations based on UNCTAD WIR, 2004



**Table 11. Cross-border M&A sales/purchases in services, by region, 1987-2003**

Seller/Purchaser	United States	European Union	Other Western Europe	Other developed countries	Developing countries	Central and Eastern Europe	Total region
<b>1987-1990</b>							
United States	33%	36%	3%	23%	5%	..	100%
European Union	12%	60%	3%	21%	4%	..	100%
Other Western Europe	54%	38%	..	7%	0%	..	100%
Other developed countries	44%	22%	0%	26%	7%	0%	100%
Developing countries	22%	61%	0%	<b>11%</b>	<b>6%</b>	..	100%
Central and Eastern Europe	..	100%	..	..	..	..	100%
Total world (a)	27%	45%	3%	21%	4%	0%	100%
<b>1991-1994</b>							
United States	19%	47%	0%	28%	6%	..	100%
European Union	24%	62%	2%	7%	5%	0%	100%
Other Western Europe	6%	82%	0%	7%	5%	..	100%
Other developed countries	34%	25%	0%	26%	15%	..	100%
Developing countries	25%	21%	1%	<b>9%</b>	<b>43%</b>	0%	100%
Central and Eastern Europe	18%	50%	2%	<b>8%</b>	<b>16%</b>	7%	100%
Total world (a)	23%	48%	1%	15%	12%	0%	100%
<b>1995-1997</b>							
United States	22%	48%	6%	21%	3%	..	100%
European Union	24%	58%	8%	1%	9%	0%	100%
Other Western Europe	9%	64%	11%	0%	16%	..	100%
Other developed countries	46%	18%	0%	27%	8%	..	100%
Developing countries	32%	27%	1%	<b>4%</b>	<b>37%</b>	..	100%
Central and Eastern Europe	17%	58%	1%	<b>0%</b>	<b>24%</b>	1%	100%
Total world (a)	27%	45%	5%	10%	13%	0%	100%
<b>1998-2000</b>							
United States	13%	65%	6%	10%	6%	0%	100%
European Union	14%	76%	6%	2%	2%	0%	100%
Other Western Europe	17%	70%	1%	3%	9%	..	100%
Other developed countries	36%	46%	0%	13%	5%	..	100%
Developing countries	22%	56%	1%	<b>3%</b>	<b>17%</b>	0%	100%
Central and Eastern Europe	5%	87%	2%	<b>0%</b>	<b>0%</b>	6%	100%
Total world (a)	17%	69%	5%	5%	5%	0%	100%
<b>2001-2003</b>							
United States	9%	62%	1%	20%	8%	..	100%
European Union	19%	72%	2%	5%	2%	0%	100%
Other Western Europe	16%	67%	6%	0%	11%	0%	100%
Other developed countries	39%	23%	0%	23%	14%	..	100%
Developing countries	24%	26%	2%	<b>7%</b>	<b>41%</b>	0%	100%
Central and Eastern Europe	5%	74%	8%	<b>0%</b>	<b>0%</b>	13%	100%
Total world (a)	18%	58%	2%	11%	10%	0%	100%

Note: The data cover deals involving the acquisition of an equity stake of more than 10% only. For sales/purchases made by the United States with itself, the ultimate seller/acquirer is a country other than the United States.

(a) Totals include sales/purchases involving more than two economies.

Source: UNCTAD (2004b) cross-border M&A database.

Table 12. Migrants recorded by origin and destination, by continent, % of total migrants

Host region \ Sending region	Sending region						Total
	Oceania	Asia	North America	South America	Europe	Africa	
Oceania	0.4	0.2	0.2	0.0	0.2	0.1	1.0
Asia	0.8	14.9	6.2	0.1	9.5	2.5	34.1
North America	0.1	1.7	10.8	0.1	1.5	1.0	15.1
South America	0.0	0.7	1.3	1.3	1.0	0.3	4.6
Europe	1.4	9.2	4.8	0.7	17.1	2.9	36.0
Africa	0.1	2.2	0.7	0.0	3.7	2.3	9.1
Total	2.9	28.7	24.1	2.2	33.0	9.1	100.0

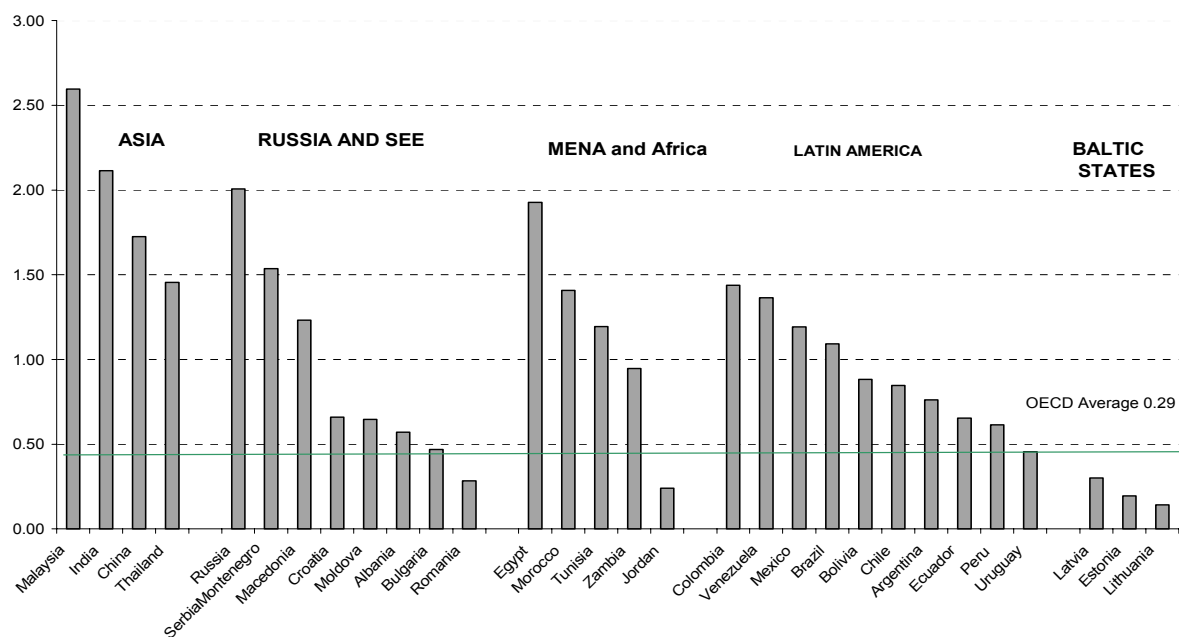
Source: GTAP Migration Database (2005).

Table 13. Revealed comparative advantage, selected countries

	Transport			Travel			Insurance and Financial Services			Computer, Information, communications and other commercial services		
	1990	2002	% change	1990	2002	% change	1990	2002	% change	1990	2002	% change
Argentina	1,77	0,58	-67,13	1,05	0,94	-10,75	0,00	0,01	-	0,22	0,30	40,85
Brazil	0,86	0,54	-37,10	0,72	0,50	-30,37	0,28	0,54	95,86	0,38	0,91	139,73
Chile	1,58	2,29	45,19	0,89	0,57	-36,09	0,73	0,27	-63,61	0,69	0,54	-21,36
China	0,89	0,37	-58,82	0,44	0,97	121,75	0,28	0,05	-82,89	0,24	0,48	96,45
Costa Rica	1,05	0,81	-22,76	2,39	2,82	18,01	0,37	0,20	-45,66	1,54	0,81	-47,69
Dominican Rep	0,42	0,21	-50,89	3,79	5,80	52,89	0,06	0,00	-100,00	1,41	0,26	-81,19
Egypt	6,52	4,87	-25,34	2,26	4,81	112,56	0,49	0,51	4,51	2,34	2,44	4,53
India	0,95	0,81	-15,26	1,17	0,71	-39,81	0,47	0,32	-32,26	1,35	3,40	152,39
Indonesia	0,06	0,39	604,35	1,30	1,44	10,31	0,00	0,00	0,00	0,15	0,04	-74,51
Jamaica	1,84	2,89	56,93	6,00	6,98	16,37	0,54	0,80	47,49	0,25	1,22	380,71
Malaysia	0,81	0,62	-23,26	0,86	1,14	31,77	0,01	0,12	1160,84	0,41	0,57	38,39
Mexico	0,42	0,16	-62,74	1,96	0,88	-54,95	0,59	0,44	-24,55	0,15	0,10	-35,26
Philippines	0,50	0,38	-24,68	0,72	0,76	6,06	0,11	0,11	-3,54	3,04	0,20	-93,35
Singapore	0,76	1,74	127,97	1,21	0,49	-59,61	0,12	0,30	163,01	1,36	1,13	-16,71
South Africa	0,59	0,71	18,96	1,16	1,38	18,62	1,12	0,44	-60,71	0,23	0,16	-30,03
Thailand	1,01	0,91	-9,96	2,51	1,62	-35,18	0,04	0,07	89,82	0,33	0,64	92,26

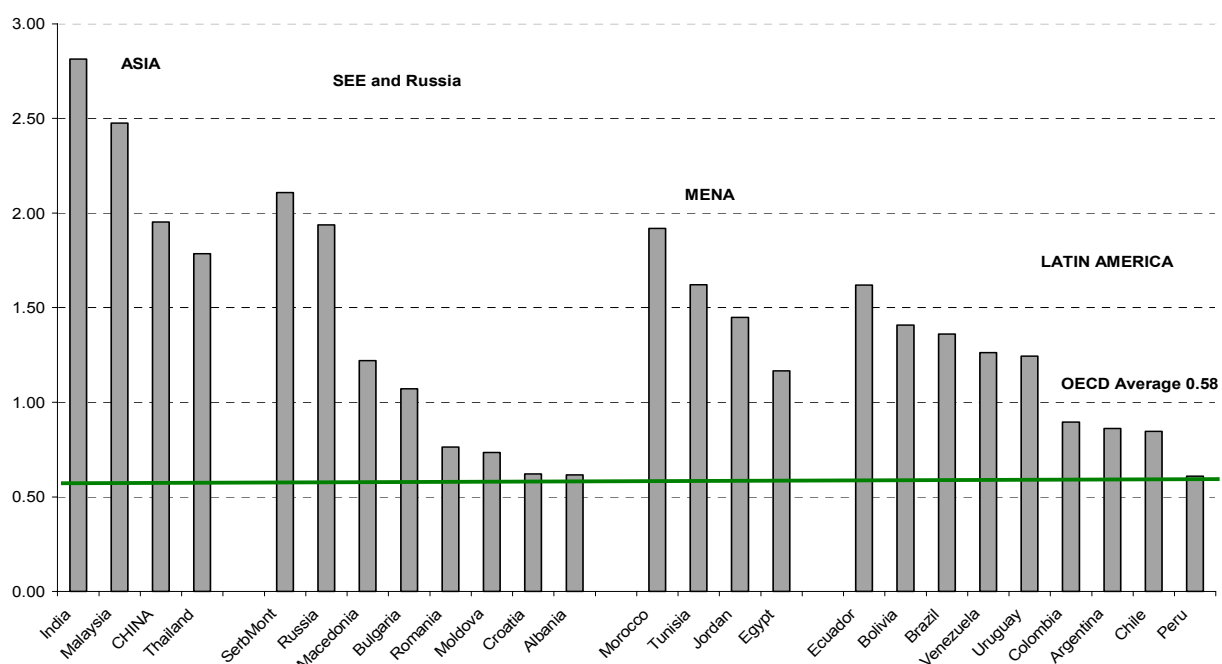
Source: Marchetti (2004)

Figure 1. Aggregate Trade Restrictiveness Index - Banking



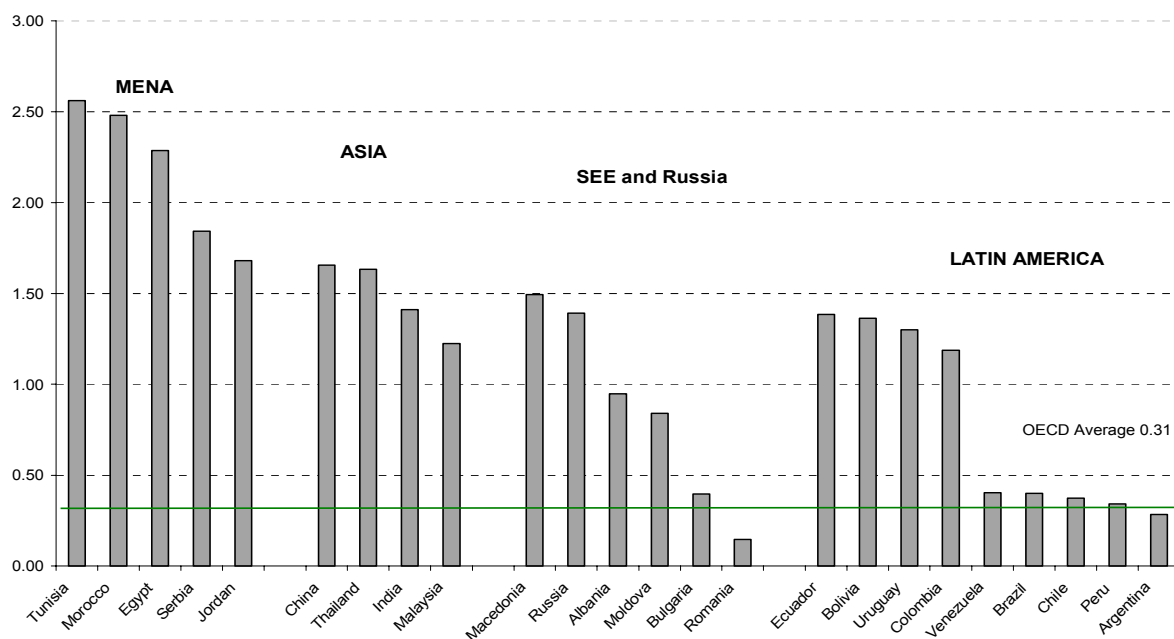
Source: OECD(2005)

Figure 2. Aggregate Trade Restrictiveness Index – Insurance



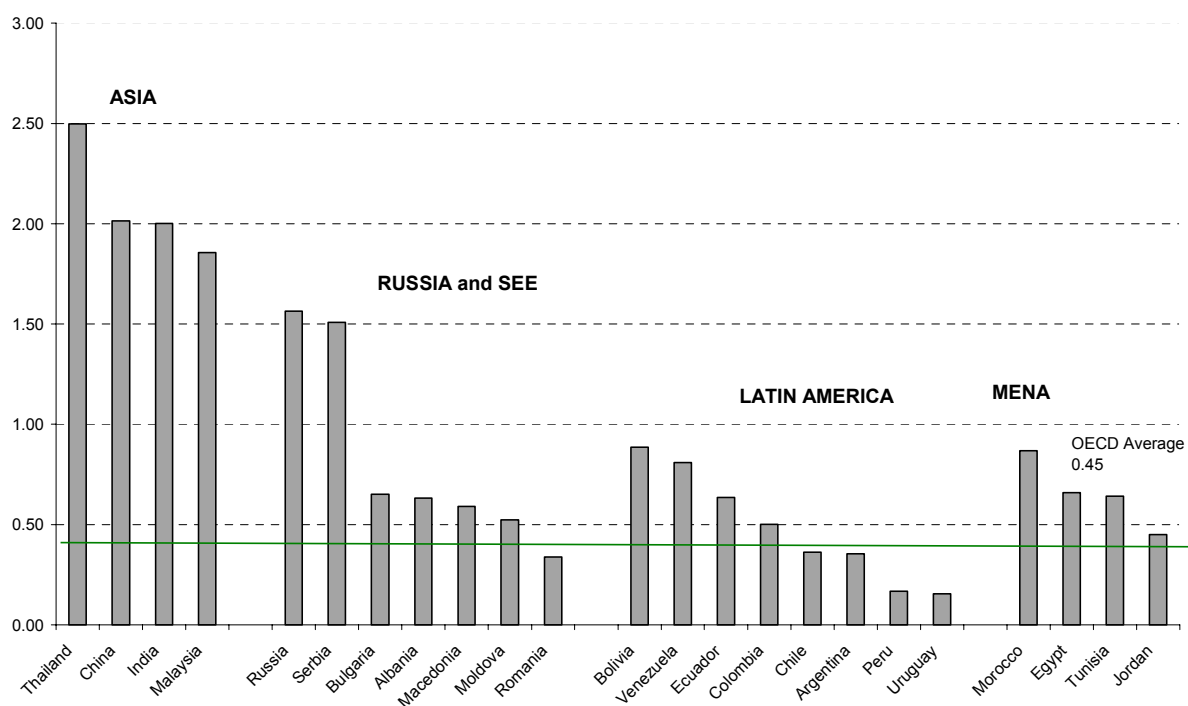
Source: OECD(2005)

**Figure 3. Aggregate Trade Restrictiveness Index – Fixed telecommunication**



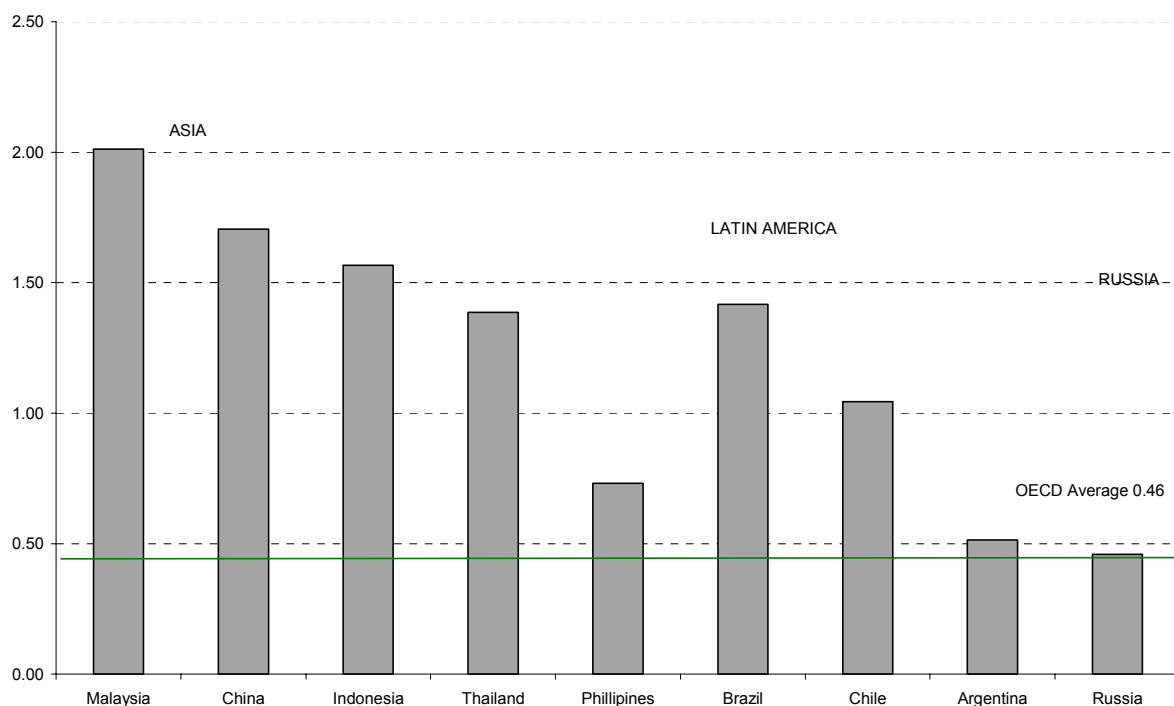
Source: OECD(2005)

**Figure 4. Aggregate Trade Restrictiveness Index – Mobile telecommunication services**



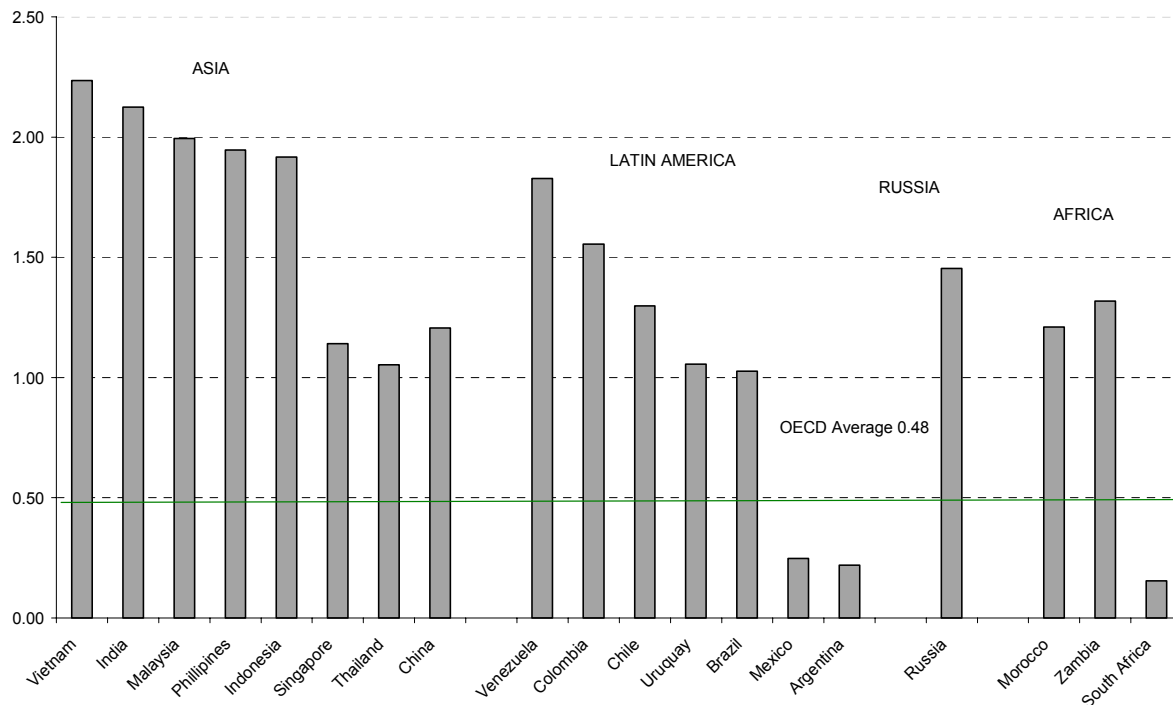
Source: OECD(2005)

**Figure 5. Aggregate Trade Restrictiveness Index – Engineering services**



Source: OECD(2005)

**Figure 6. Aggregate Trade Restrictiveness Index – Distribution services**



Source: OECD(2005)

Table 14. Previous gravity models of international trade in services

Paper	Countries	Years	Modes	Sectors	Explanatory Variables
<b>Freund &amp; Weinhold (2002)</b>	US + 31 partners	1996-1999	BOP data (mainly modes 1 and 2)	Education, financial, telecom, advertising, data processing, information, R&D, consulting and PR, legal, construction and engineering, maintenance, other business and other services.	GDP, population, distance, language, common border, financial depth, internet penetration.
<b>Grünfeld &amp; Moxnes (2003)</b>	22 OECD exporters/importers + non-OECD importers	1999-2000	BOP data (mainly modes 1 and 2) and FDI stocks in services for OECD (mode 3)	Aggregate services trade	GDPs and GDPs per capita (raw, total and “similarity”), distance, TRI, corruption, RTA.
<b>Jansen &amp; Piermartini (2004)</b>	US and UK (exporters) + up to 50 importers	1999-2001 (ave.)	BOP data (mainly modes 1 and 2)	Aggregate services trade	GDP, GDP per capita, distance, language, Mode 4 trade, corruption, common border.
<b>Kimura &amp; Lee (2006)</b>	10 OECD exporters + 47 OECD and non-OECD importers	1999-2000	BOP data (mainly modes 1 and 2)	Aggregate services trade	GDPs, distance, remoteness, common border, RTA, economic freedom, common language.
<b>Kox et al. (2005)</b>	EU-15	1999-2001	BOP data (mainly modes 1 and 2)	Other commercial services	GDPs, distance, language, product market regulation, barriers to entrepreneurship, regulatory heterogeneity
<b>Lejour &amp; Verheijden (2004)</b>	EU-15, Canadian provinces	1997-1999 (Canada) 1999-2001 (EU)	BOP data (mainly modes 1 and 2)	<u>Canada</u> : transport & storage, wholesale & retail distribution, hotels & restaurants, business, finance, communication, education, health, other. <u>EU</u> : other commercial, transport, travel, government.	GDPs, distance, language, common border, product market regulation.
<b>Nicoletti et al. (2003)</b>	20 OECD exporters and 27 OECD importers	1999-2000	BOP data (mainly modes 1 and 2)	Aggregate services trade	Total GDP, size similarity, factor dissimilarity, human capital dissimilarity, distance, product market regulations

Table 15. Gravity model - Breakdown of country coverage by sector

Sector	No. of Exporting Countries	No. of Importing Countries	South-South Pairs (% of Total)
Finance	36	36	12.4%
Insurance	35	35	11.1%
Telecom	35	34	10.1%
Other Business	33	33	3.7%
Distribution	41	41	11%
Air Transport	38	38	7.3%
Maritime Transport	41	41	9.7%

Table 16. Regression results for finance, insurance, telecom and professional services. Dependent variable = log(FDI), estimation by OLS with White robust standard errors. Estimated standard errors are in italics. (Estimated fixed effects suppressed)

Variable	Finance	Insurance	Telecom	Other Business
Log(Distance)	-0.654679*** <i>0.138768</i>	-0.554004*** <i>0.098672</i>	-0.709075*** <i>0.107074</i>	-0.890904*** <i>0.084565</i>
Log(TRI_RTA)	-0.141548 <i>0.272779</i>	-0.796146 <i>1.023085</i>	-0.471211 <i>1.029979</i>	-0.469127 <i>0.519283</i>
Colony	1.647908*** <i>0.334579</i>	1.068628*** <i>0.293324</i>	1.484965*** <i>0.371881</i>	0.653636** <i>0.316587</i>
Common Coloniser	0.623869 <i>0.850413</i>	0.700443 <i>1.470533</i>	0.99204 <i>1.535444</i>	0.952352* <i>0.542011</i>
Common Language	0.217934 <i>0.200148</i>	0.221513 <i>0.188822</i>	0.358205* <i>0.209694</i>	0.625243*** <i>0.199779</i>
Common Border	0.433204 <i>0.307953</i>	0.002959 <i>0.301107</i>	0.176964 <i>0.31581</i>	-0.494147* <i>0.262754</i>
UCFS	0.427629 <i>0.26218</i>	0.536658** <i>0.239182</i>	NA	NA
R2	0.755106	0.795228	0.718478	0.813505
Adj. R2	0.735766	0.778498	0.696188	0.797735
Jarque-Bera	32.291***	84.631***	39.089***	99.818***
RESET(2)	0.497	10.412***	0.421	0.166
Observations	1053	994	996	886

**Table 17. Regression results for distribution, air transport and maritime transport services. Dependent variable = log(FDI), estimation by OLS with White robust standard errors. Estimated standard errors are in italics. (Estimated fixed effects suppressed)**

<b>Variable</b>	<b>Distribution</b>	<b>Air Transport<sup>27</sup></b>	<b>Maritime Transport</b>
<b>Log(Distance)</b>	-0.845555*** <i>0.105669</i>	-0.671851*** <i>0.099608</i>	-0.777034*** <i>0.077352</i>
<b>Log(TRI_RTA)</b>	-0.580986** <i>0.226676</i>	-0.703199* <i>0.380886</i>	-2.811131** <i>1.234122</i>
<b>Colony</b>	1.103263*** <i>0.291238</i>	0.417227 <i>0.272673</i>	0.762626*** <i>0.266244</i>
<b>Common Coloniser</b>	0.204804 <i>0.341964</i>	0.548726 <i>0.600443</i>	-0.524178 <i>0.334446</i>
<b>Common Language</b>	0.251467 <i>0.164004</i>	0.792015*** <i>0.194461</i>	0.498164*** <i>0.170493</i>
<b>Common Border</b>	-0.155138 <i>0.264395</i>	-0.417876 <i>0.285525</i>	-0.074168 <i>0.332644</i>
<b>R2</b>	0.754927	0.779000	0.724221
<b>Adj. R2</b>	0.738754	0.751375	0.703474
<b>Jarque-Bera</b>	63.869***	27.845***	84.909***
<b>RESET(2)</b>	1.105	0.589	0.053
<b>Observations</b>	1374	712	1173

<sup>27</sup> In the case of air transport services, the TRI is already bilaterally disaggregated and therefore is not interacted with the RTA index.



**Table 18. South-South regression results for finance, insurance, telecom and professional services. Dependent variable = log(FDI), estimation by OLS with White robust standard errors. Estimated standard errors are in italics. (Estimated fixed effects suppressed).**

Variable	Finance	Insurance	Telecom	Distribution	Maritime Transport
<b>Log(Distance)</b>	-0.70292*** <i>0.138641</i>	-0.584729*** <i>0.098443</i>	-0.798192*** <i>0.105893</i>	-0.817704*** <i>0.120094</i>	-0.727266*** <i>0.11434</i>
<b>Log(Distance)*South-South</b>	0.21453 <i>0.311131</i>	0.055572 <i>0.282904</i>	0.473039 <i>0.309019</i>	0.224417 <i>0.3158</i>	-0.204411 <i>0.244956</i>
<b>Log(TRI_RTA)</b>	-0.072736 <i>0.279331</i>	-0.769688 <i>1.050688</i>	-0.545049 <i>1.058795</i>	-0.387594 <i>0.248809</i>	-1.449345 <i>1.796201</i>
<b>Log(TRI_RTA)*South-South</b>	0.349261 <i>0.886002</i>	1.295091** <i>0.611234</i>	0.643945 <i>0.75848</i>	0.140558 <i>0.136379</i>	1.056474 <i>1.783434</i>
<b>Colony</b>	1.639944*** <i>0.333335</i>	1.058047*** <i>0.291156</i>	1.313171*** <i>0.369739</i>	1.541379*** <i>0.30586</i>	0.992633*** <i>0.320143</i>
<b>Common Coloniser</b>	0.35997 <i>0.886765</i>	-0.117541 <i>1.526873</i>	0.751108 <i>1.682151</i>	0.337043 <i>0.846017</i>	0.481435 <i>1.375696</i>
<b>Common Language</b>	0.238171 <i>0.201899</i>	0.262723 <i>0.189907</i>	0.419312** <i>0.206846</i>	0.13884 <i>0.183601</i>	0.458791** <i>0.215846</i>
<b>Common Border</b>	0.417374 <i>0.307513</i>	-0.050919 <i>0.304766</i>	0.091805 <i>0.301568</i>	-0.026402 <i>0.281901</i>	-0.178491 <i>0.371763</i>
<b>UCFS</b>	-0.029139 <i>0.304026</i>	0.082764 <i>0.26803</i>	NA	NA	NA
<b>South-South</b>	-1.070094 <i>2.821878</i>	-0.662587 <i>2.495337</i>	-3.959273 <i>2.742423</i>	-1.396361 <i>2.861081</i>	2.502948 <i>2.137515</i>
<b>R2</b>	0.757214	0.797980	0.736268	0.768353	0.729725
<b>Adj. R2</b>	0.737232	0.780759	0.713938	0.750077	0.702376
<b>Jarque-Bera</b>	33.657***	88.648***	45.118***	39.150***	51.881***
<b>RESET(2)</b>	1.278	9.331***	3.667*	2.983*	0.003
<b>Observations</b>	1053	994	949	1054	741
<b>F-Statistic<sup>28</sup></b>	2.350732*	4.258314***	3.364923**	1.372669	3.052228**

<sup>28</sup> Wald test of the null hypothesis that the South-South coefficients in an equation are jointly zero.

**Table 19. Export Supply Functions with Service Sector Performance Indicators as Explanatory Factors (Full Sample)**

Dependent variable	EXGDP	EXGDP	EXGDP	EXGDP	EXGDP	EXGDP	EXGDP	EXGDP
Model No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent variables								
A	-1.00 (-2.37)**	-0.85 (-1.92)*	-0.96 (-2.12)**	-1.83 (-2.51)**	-0.89 (-2.03)**	-1.00 (-2.32)**	-0.51 (-1.05)	-0.73 (-1.46)
PxPd	31.99 (2.13)**	27.71 (1.81)*	30.15 (1.91)*	25.08 (1.14)	29.62 (1.95)*	31.48 (2.07)**	26.11 (1.69)*	27.73 (1.79)*
FDI	2.06 (4.27)***	1.91 (3.91)***	2.02 (4.06)***	1.72 (3.11)***	1.90 (3.81)***	1.87 (2.72)***	1.95 (4.11)***	2.07 (4.28)***
SIZE	-0.79 (-2.00)**	-1.03 (-2.38)**	-0.85 (-2.01)**	-0.87 (-1.79)*	-0.97 (-2.28)**	-1.06 (-1.32)	-1.45 (-2.84)***	-1.02 (-2.19)***
INT		0.027 (1.34)						
TELE			0.002 (0.41)					
PORT				1.66 (0.75)				
AIR					0.03 (1.17)			
ROAD						0.01 (0.38)		
BANK							0.10 (1.96)*	
STOCKS								0.05 (0.88)
No. of observations	53	53	53	37	53	53	52	52
R-squared	0.44	0.46	0.44	0.52	0.46	0.44	0.48	0.44

Note: reported are coefficients, t-values in brackets, and the level of significance (\*\*\*=1%, \*\*=5%, \*=10%), constant term included but not reported

**Table 20. Export Supply Functions with Service Sector Performance Indicators as Explanatory Factors (Small Sample)**

Dependent variable	EXGDP	EXGDP	EXGDP	EXGDP	EXGDP	EXGDP	EXGDP	EXGDP
Model No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Independent variables								
A	-2.21 (-3.04)***	-1.91 (-2.99)***	-2.16 (-3.16)***	-2.65 (-2.34)**	-1.18 (-1.49)	-2.93 (-3.94)***	-1.04 (-1.21)	-1.38 (-2.12)**
PxPd	44.03 (2.50)**	33.39 (2.14)**	35.64 (2.09)**	30.85 (1.28)	31.58 (1.85)*	39.15 (2.36)**	36.48 (2.09)**	33.18 (2.22)**
FDI	3.80 (2.46)**	2.51 (1.79)*	3.23 (2.19)**	4.85 (2.89)**	3.06 (2.11)**	3.95 (2.75)**	2.32 (1.43)	4.16 (3.16)***
SIZE	-7.89 (-2.11)**	-7.37 (-2.28)**	-7.75 (-2.21)**	-6.78 (-1.71)	-6.42 (-1.83)*	-8.50 (-2.44)**	-8.64 (-2.42)**	-11.36 (-3.47)***
INT		0.14 (3.19)***						
TELE			0.027 (2.16)**					
PORT				13.64 (2.59)**				
AIR					0.43 (2.43)**			
ROAD						0.17 (2.30)**		
BANK							0.20 (2.21)**	
STOCKS								0.39 (3.52)***
No. of observations	33	33	33	19	33	33	32	32
R-squared	0.37	0.54	0.46	0.71	0.48	0.47	0.47	0.57

Note: reported are coefficients, t-values in brackets, and the level of significance (\*\*\*=1%, \*\*=5%, \*=10%), constant term included but not reported

Table 21. Export Supply Functions with Service Sector Performance Indicators as Explanatory Factors (Small Sample and Selected Sectors)

Dependent variable	SELEXGDP	SELEXGDP	SELEXGDP	SELEXGDP	SELEXGDP	SELEXGDP	SELEXGDP	SELEXGDP	SELEXGDP
Model No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)
Independent variables									
A	-1.28 (-2.10)**	-1.05 (-2.00)*	-1.24 (-2.13)**	-1.00 (-0.93)	-0.28 (-0.44)	-1.88 (-2.99)***	0.04 (0.08)	-0.62 (-1.17)	
PxPd	28.03 (2.18)**	28.03 (2.18)**	31.83 (2.19)**	27.98 (1.21)	26.19 (1.92)*	33.64 (2.40)**	27.46 (2.18)**	28.23 (2.31)**	
FDI	1.72 (1.31)	0.68 (0.59)	1.28 (1.00)	2.67 (1.65)	0.97 (0.82)	1.89 (1.53)	0.14 (0.12)	2.24 (2.07)**	
SIZE	-2.69 (-0.87)	-2.18 (-0.82)	-2.59 (-0.87)	-1.56 (-0.41)	-1.30 (-0.47)	-3.13 (-1.08)	-3.41 (-1.32)	-5.66 (-2.17)**	
INT		0.12 (3.35)***							
TELE			0.02 (1.90)*						
PORT				12.19 (2.39)**					
AIR					0.42 (2.96)**				
ROAD						0.14 (2.22)**			
BANK							0.23 (3.66)***		
STOCKS								0.36 (4.04)***	
No. of observations	32	32	32	19	32	32	32	32	32
R-squared	0.27	0.49	0.36	0.56	0.45	0.38	0.52	0.55	

Note: reported are coefficients, t-values in brackets, and the level of significance (\*\*\*=1%, \*\*=5%, \*=10%), constant term included but not reported

**Table 22. Telecom Sector Performance and the OECD Restrictiveness Index**

Dependent variable	INT	INT	TELE	TELE
Model No.	(1)	(2)	(3)	(4)
Independent variables				
OECDTEL	-187.14 (9.52)***	-274.63 (-3.38)***	-445.58 (-6.71)***	-1163.74 (-4.81)***
OECDTEL^2		92.69 (2.15)**		394.43 (3.07)***
No. of observations	47	47	47	47
R-squared	0.36	0.42	0.50	0.59

Note: reported are coefficients, t-values in brackets, and the level of significance (\*\*\*=1%, \*\*=5%, \*=10%), constant term included but not reported

**Table 23. Financial Sector Performance and the OECD Restrictiveness Index**

Dependent variable	BANK	BANK	STOCKS	STOCKS
Model No.	(1)	(2)	(3)	(4)
Independent variables				
OECDFIN	-33.74 (-2.92)***	-118.63 (-3.10)***	-28.33 (-2.64)**	-125.87 (-3.53)***
OECDFIN^2		40.47 (2.32)**		46.27 (2.85)***
No. of observations	46	46	46	46
R-squared	0.16	0.26	0.14	0.27

Note: reported are coefficients, t-values in brackets, and the level of significance (\*\*\*=1%, \*\*=5%, \*=10%), constant term included but not reported

**Table 24. Banking Sector Performance and Concentration**

Dependent variable	BANK	BANK
Model No.	(1)	(2)
Independent variables		
CONC	-1.59 (-5.67)***	-3.89 (-3.42)***
CONC^2		0.02 (2.08)**
No. of observations	50	50
R-squared	0.40	0.45

Note: reported are coefficients, t-values in brackets, and the level of significance (\*\*\*=1%, \*\*=5%, \*=10%), constant term included but not reported

**Table 25. Port Efficiency and Cargo Handling Restrictiveness**

Dependent variable	PORT	PORT
Model No.		
Independent variables		
CARGO	-1.64 (-2.24)**	-5.92 (-2.69)**
CARGO^2		5.82 (2.05)**
No. of observations	32	32
R-squared	0.14	0.25

Note: reported are coefficients, t-values in brackets, and the level of significance (\*\*=1%, \*\*=5%, \*=10%), constant term included but not reported

**Table 26. The Sample Countries**

Albania	<i>Finland</i>	<i>New Zealand</i>
Argentina	<i>France</i>	Peru
<i>Australia</i>	<i>Germany</i>	<i>Portugal</i>
<i>Austria</i>	<i>Greece</i>	Romania
<i>Belgium</i>	India	Russia
Bolivia	<i>Ireland</i>	Serbia/Montenegro
Brazil	<i>Italy</i>	<i>Spain</i>
Bulgaria	<i>Japan</i>	<i>Sweden</i>
<i>Canada</i>	Jordan	<i>Switzerland</i>
Chile	Korea	Thailand
China	Latvia	Tunisia
Colombia	Lithuania	Turkey
Croatia	Macedonia	<i>UK</i>
Czech Republic	Malaysia	Uruguay
<i>Denmark</i>	Mexico	<i>USA</i>
Ecuador	Moldova	Venezuela
Egypt	Morocco	Zambia
Estonia	<i>Netherlands</i>	

Note: Industrialised countries excluded in the small sample are in italic letters

**Table 27. The Variables and their Sources**

EXGDP	Goods Exports in % of GDP	Calculated from IMF BoP and GDP data
SELEXGDP	Selected categories of goods exports in % of GDP (textiles, motor vehicles, machinery and equipment nec, manufactures nec)	Comtrade and IMF GDP data
A	Domestic absorption in % of GDP	Calculated from World Bank World Development Indicators
PxPd	Ratio of export vs. GDP price indices	Calculated from World Bank World Development Indicators
FDI	Net FDI inflows as a share of GDP	World Bank World Development Indicators
SIZE	Share of domestic GDP in World GDP in %	Calculated from World Bank World Development Indicators
INT	Internet users (per 1000 people)	International Telecommunication Union
TELE	Fixed and mobile phone subscribers (per 1000 people)	International Telecommunication Union
PORT	Scale and efficiency of port facilities and inland waterways from 1 (worst) to 7 (best)	Global Competitiveness Report
AIR	Air transport, passengers carried (Per capita of population, in %)	International Civil Aviation Organization
ROAD	Roads, total network (km per sq km, expressed in %)	International Road Federation, World Road Statistics
BANK	Credit to Private Sector in % of GDP	IMF International Financial Statistics (line 32 d scaled by GDP)
STOCKS	Value traded on stock exchange in % of GDP	Emerging Stock Markets Factbook S&P, formerly published by IFC
OECDFIN	Financial sector restrictiveness index (banking and insurance)	OECD Trade Directorate estimates
OECDTEL	Telecom sector restrictiveness Index (fixed and mobile)	OECD Trade Directorate estimates
CONC	Concentration of the banking sector (share of 3 largest banks assets in total commercial bank assets)	Bankscope database, Bureau van Dijk and Fitch IBCA
CARGO	Cargo Handling Restrictiveness from 0 (no restrictions on foreign Suppliers) to 1 (foreign suppliers forbidden to provide services)	Fink, Mattoo, and Neagu (2002 a)

Note: the data are averaged over the period 1995-2003, the OECD restriction indices refer to the periods 2001-2003

Table 28. Statistical Appendix (Pair wise Correlations and Descriptive Statistics)

	A	PxPd	FDI	SIZE	INT	TELE	PORT	AIR	ROADS	BANK	STOCKS	OECDFIN	OECDTEL	CONC	CARGO
A	1.00	0.05	-0.14	-0.09	-0.30	-0.30	-0.35	-0.28	-0.16	-0.43	-0.46	0.00	-0.08	0.34	0.20
PxPd	0.05	1.00	0.02	0.16	0.24	0.29	0.34	0.17	0.18	0.26	0.21	-0.23	-0.15	-0.25	0.05
FDI	-0.14	0.02	1.00	-0.17	0.16	0.18	0.20	0.23	0.34	0.03	-0.06	-0.31	-0.24	0.02	-0.28
SIZE	-0.09	0.16	-0.17	1.00	0.40	0.31	0.35	0.32	0.75	0.62	0.52	-0.19	-0.24	-0.43	0.19
INT	-0.30	0.24	0.16	0.40	1.00	0.89	0.88	0.70	0.52	0.65	0.62	-0.64	-0.60	-0.45	-0.44
TELE	-0.30	0.29	0.18	0.31	0.89	1.00	0.82	0.68	0.51	0.60	0.62	-0.74	-0.71	-0.49	-0.35
PORT	-0.35	0.34	0.20	0.35	0.88	0.82	1.00	0.57	0.55	0.61	0.63	-0.69	-0.48	-0.27	-0.38
AIR	-0.28	0.17	0.23	0.32	0.70	0.68	0.57	1.00	0.41	0.62	0.57	-0.53	-0.48	-0.37	-0.35
ROADS	-0.16	0.18	0.34	0.75	0.52	0.51	0.55	0.41	1.00	0.58	0.55	-0.44	-0.43	-0.34	-0.14
BANK	-0.43	0.26	0.03	0.62	0.65	0.60	0.61	0.62	0.58	1.00	0.71	-0.40	-0.22	-0.63	-0.04
STOCKS	-0.46	0.21	-0.06	0.52	0.62	0.62	0.63	0.57	0.55	0.71	1.00	-0.37	-0.27	-0.42	-0.35
OECDFIN	0.00	-0.23	-0.31	-0.19	-0.64	-0.74	-0.69	-0.53	-0.44	-0.40	-0.37	1.00	0.90	0.15	0.32
OECDTEL	-0.08	-0.15	-0.24	-0.24	-0.60	-0.71	-0.48	-0.48	-0.43	-0.22	-0.27	0.90	1.00	0.14	0.31
CONC	0.34	-0.25	0.02	-0.43	-0.45	-0.49	-0.27	-0.37	-0.34	-0.63	-0.42	0.15	0.14	1.00	0.14
CARGO	0.20	0.05	-0.28	0.19	-0.44	-0.35	-0.38	-0.35	-0.14	-0.04	-0.35	0.32	0.32	0.14	1.00
Mean	101.37	0.96	3.90	1.79	113.49	552.30	4.37	58.30	90.11	66.69	33.40	0.84	0.71	42.21	0.19
Median	101.52	0.99	3.10	0.38	67.82	470.10	4.11	21.40	48.38	56.59	12.53	0.64	0.48	38.62	0.00
Maximum	108.85	1.19	26.10	30.45	334.00	1262.50	6.64	358.80	717.93	217.37	182.68	2.46	2.07	100.00	1.00
Minimum	90.30	0.56	0.10	0.01	1.92	14.90	1.61	0.60	0.10	4.84	0.02	0.09	0.03	12.10	0.00
Std. Dev.	4.32	0.12	3.86	4.69	105.85	373.49	1.33	72.30	129.45	49.21	44.39	0.59	0.59	19.69	0.29
Skewness	-0.32	-1.15	3.93	4.90	0.74	0.22	0.12	2.14	2.97	0.89	1.81	0.75	0.67	0.78	1.13
Kurtosis	2.55	4.20	22.31	28.72	2.22	1.53	2.04	8.01	13.17	3.43	5.98	2.66	2.10	3.20	3.03
Jarque-Bera	1.35	14.93	959.91	1673.54	6.17	5.22	1.50	95.72	306.73	7.26	47.77	4.66	5.11	5.18	7.48
Probability	0.51	0.00	0.00	0.00	0.05	0.07	0.47	0.00	0.00	0.03	0.00	0.10	0.08	0.07	0.02
Sum	5372	51	207	95	6015	29272	162	3090	4776	3468	1737	39	34	2110	6.75
Sum Sq. Dev.	972	1	774	1143	582666	7253659	64	271799	871326	123501	100496	16	16	18992	2.89
Observations	53	53	53	53	53	53	37	53	53	52	52	47	47	50	35



Table 29: Robustness check for the regressions presented in Tables 22-25

Dependent variable	INT	TELE	BANK	STOCKS	BANK	PORT
Model No.	(1)	(2)	(3)	(4)	(5)	(6)
Independent variables						
OECDTEL	-237.27 (-2.95)***	-1.061.47 (-4.65)***				
OECDTEL^2	94.56 (2.17)**	421.99 (3.41)***				
OECDFIN			-77.00 (-1.98)**	-87.44 (-2.54)**		
OECDFIN^2			27.34 (1.61)	37.35 (2.49)**		
CONC					-3.94 (-3.70)***	
CONC^2					0.03 (2.52)**	
CARGO						-4.47 (-2.40)**
CARGO^2						4.00 (1.68)*
INFLATE	-0.58 (-1.13)	-0.43 (-0.29)	-0.56 (-2.18)**	-0.13 (-0.55)	-0.33 (-1.48)	-0.04 (-3.17)***
SERVICE	4.15 (2.49)**	16.27 (3.44)***	0.80 (0.89)	1.34 (1.61)	0.36 (0.50)	0.04 (2.26)**
No. of observations	45	45	45	44	49	32
R-squared	0.47	0.65	0.34	0.31	0.54	0.55

Note: reported are coefficients, t-values in brackets, and the level of significance (\*\*\*=1%, \*\*=5%, \*=10%), constant term included but not reported

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## ANNEX 1 - THEORETICAL CONSIDERATIONS

### Services versus goods

A key issue that needs to be addressed is whether services are different from goods, and, if so, whether such distinctions actually matter to identify the determinants of trade and the effects of liberalisation.

At first sight, the conceptual distinction between goods and services may seem relatively straightforward. Crucial features<sup>1</sup> which differentiate services from goods are their *intangibility*, *invisibility* and *perishability*<sup>2</sup>, their *non-storability* and *non-transportability*<sup>3</sup> as well as the *requirement of direct interaction*<sup>4</sup> between consumer and producer in certain cases. The proximity aspect of many services transactions creates the need for *factor mobility* to provide certain services. These characteristics-related definitions of services and the classic definition proposed by Hill (1977)<sup>5</sup> gradually lead to a better understanding of the nature of services and services transactions.

Therefore, trade in services consists of transactions which can occur without the movement of factors of production or of the receiver, and transactions which necessitate the movement of factors of production and/or of receivers. Accordingly, the following four-part *typology of international service transactions*<sup>6</sup> that was adopted in the General Agreement on Trade in Services (GATS) as a basis for liberalising trade in services constitutes the generally recognised framework for the analysis of services:

- *Cross border supply* of a service from one jurisdiction to another (mode 1). This mode of delivery is analogous to international trade in goods, in that a product crosses a frontier. Neither the consumer is moving physically nor the supplier is establishing itself abroad, interacting instead through a postal or a telecommunication network.
- *Consumption* abroad (mode 2) requires the movement of consumers to the supplier's country of residence. Tourism or students travelling abroad are good examples of this mode, involving the

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<sup>1</sup> Among all special features attributed to services, the characteristic proposed by Nicolaides (1989): "something you cannot drop on your foot" is probably the nicest.

<sup>2</sup> For example, see Nicolaides (1989).

<sup>3</sup> For example, Herman and Van Holst (1981), Bhagwati (1984) and Sapir (1991) have emphasised the non-storability and non-transportability of services.

<sup>4</sup> For example, see Hirsch (1989) and Bhagwati (1987).

<sup>5</sup> Hill defines services "as a change in the condition of a person, or of a good belonging to some economic unit, which is brought about as a result of the activity of some other economic unit, with the prior agreement of the former person or economic unit". He also notes that "services are consumed as they are produced in the sense that the change in the condition of the consumer unit must occur simultaneously with the production of that change by the producer". The central element in Hill's definition is the change in the condition of a person or a good as a result of an economic transaction between two economic agents. By focusing on the change in the condition of a person or a good, this definition avoids the characterisation of services as intangible. Non-storability and intangibility become logical requirements for services, instead of physical attributes.

<sup>6</sup> This four-part *typology of international service transactions* was first outlined by Sampson and Snape (1984) and was used in a slightly modified form by other authors as well. See for example, Bhagwati (1984), Kierzkowski (1987), Grubel (1987), and Stern and Hoekman (1987).

movement of (mobile) services consumers to (immobile) tourist or education facilities in another country.

- *Commercial presence* (mode 3), in which case a service supplier establishes a foreign based corporation, joint venture, partnership, or other establishment in the consumer's country of residence, to supply services to persons in the host country
- *Presence of natural persons* (mode 4), which involves an individual, functioning alone or in the employ of a service provider, temporarily travelling abroad to deliver a service in the consumer's country of residence. Individuals who are seeking access to the employment market of another country on a permanent basis or for citizenship or residency purposes are not included in this category.

Furthermore, these special characteristics of services - their heterogeneity as well as the high prevalence of regulatory intervention to avoid market failure and achieve non-economic social benefits - determine the *nature of restrictions* in services trade. The restrictions to international services transactions typically take the form of non-tariff barriers and are designed to limit not only the access of foreign services, but mostly the access of suppliers or consumers to the domestic market. Moreover, in addition to the larger spectrum of barriers than in the case of goods, services are characterised by high regulatory density. Therefore, it is necessary to determine whether regulations constitute barriers and establish whether the incidence of the regulation is more burdensome than necessary to achieve a legitimate policy objective.

In terms of theoretical analyses, the questions that need to be addressed is whether the features which differentiate services from goods, the resulting factor mobility associated with trade in services, as well as the nature of services barriers actually matter to identify (i) the determinants of services trade and (ii) the effects of liberalisation.

(i) In determining the pattern to trade in services in a perfectly competitive environment, the literature is dominated by attempts to apply the traditional factors underlying goods trade to services trade, which are either (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). In addition, the applicability of new trade theories (focusing on increasing returns to scale (IRS), imperfect or monopolistic competition, and product differentiation) to services trade has been explored in detail in more recent studies.

Different models taking into account the various idiosyncratic characteristics of services as well as the requirement of physical proximity have analysed these questions<sup>7</sup>. Despite on-going debates concerning the applicability of goods theories to services trade, there is now widespread acceptance that the characteristics that differentiate services from goods do not change the underlying economic rationale for trade. The two main explanations for trade between countries apply to services trade as well as to goods trade. In a perfectly competitive environment comparative advantage explains the pattern of services trade, while specialisation arising from increasing returns to scale and agglomeration effects explain the direction of trade in imperfect competition. Concerning this latter case, Mattoo and Copeland (2004) summarise four ways in which scale effects can generate trade in services:

- (1) Market niche effects: The possibility of establishing a market niche or increasing/developing a new product variety in a larger market represents an important motivation for trade in a number of sectors such as tourism, architectural and engineering services, entertainment services;

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<sup>7</sup> For example, Sapir and Lutz (1981), Hindley and Smith (1984), Melvin (1985), and Markusen (1988). Stibora and de Vaal (1995) provide a comprehensive review of literature specifying the different services characteristics considered more explicitly in the various models.

- (2) Firm specific intangible assets: Specialised knowledge of organisational and production processes, distribution and supply networks, reputation for quality and reliability could explain the direction for trade in a number of sectors where quality aspects are important;
- (3) Agglomeration effects: Agglomeration can be explained by spillover effects or the interaction between scale economies and transportation costs/trade barriers. There are positive externalities with important spill over effects between firms that are closely located. It could be in terms of specific knowledge as well as lowered transport costs when the concentration of production locates in the same place. This could result in less cost reductions for trade in intermediate services and often ends up with the development of cores and peripheries.
- (4) Networks: Access to networks is another scale-related motive for trade. For many important services such as telecommunications, shipping, financial services and transports, there are scale related motives for trade. The prices can then be lowered and the frequency of services could be higher.

Moreover, these explanations apply not only to cross-border trade but also to other modes of supply, including commercial presence and the presence of natural persons. The appropriateness of concepts that rely on differences between countries in terms of endowments to explain the patterns of trade for factor-relocation requiring services in a perfectly competitive environment has been highlighted by a number of authors in earlier studies.

Still, some additional elements need to be considered in certain cases. For example, the factor mobility required to supply trade in some services introduces further dimensions relating to the reasons for and implications of such movements for both home and host countries that are not directly addressed in theories that explain goods trade. In order to bridge this gap, models that combine trade theories with factor mobility theories could be used to explain the reasons for trade. Recent efforts concerning the integration of the theory of multinational enterprise (MNC) into the theory of international trade are extremely relevant to explain trade in services via commercial presence. In this context it is worthwhile mentioning the “knowledge-capital” models that connect trade models that capture increasing returns to scale and imperfect competition with frameworks that explain the reasons for doing business abroad by MNCs (in general explained by the advantages proposed by Dunning, *i.e.* ownership advantage, location advantage and internationalisation advantage).

Also, in addition to analysing the motives that explain trade through the various modes of supply, it is important to examine which particular mode of supply is chosen, and why. For that purpose, the asymmetric costs across modes of supply as well as the substitutability and/or complementarity across modes need to be considered (for example, it is not clear whether comparative advantage will manifest itself as a trade flow, investment flow or labour flow if the different modes of supply are close substitutes)<sup>8</sup>.

Finally, differences in the level of barriers and the regulatory frameworks in services sectors should be taken into account when explaining the patterns of services trade. Further determinants for trade in services could be differences in regulation between countries. Historically, services have been characterised by high regulatory density. The underlying economic and social reasons for the high degree of regulation in services sectors are related to market failures as well as the need of ensuring social objectives. In the past two decades many services sectors have been liberalised, including in developing countries; however, given the different initial conditions across countries, and different pace and extent of regulatory reform, the degree of friendliness to market mechanisms of regulatory

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<sup>8</sup> For example, see Mattoo and Copeland (2004).



environments remains uneven across countries in many services sectors and it influences the patterns of trade. In addition, as opposed to goods trade, as the traded service is partly produced where it is consumed, costly institutions or regulations in either country could result in a higher price of the same traded service and hence provoke lower bilateral trade. This is clearly not the case for trade in manufacturing where, for instance, costly regulations in one country may increase the relative competitiveness of its trading partners<sup>9</sup>.

- (ii) With respect to the effects of liberalisation, numerous theoretical and empirical studies show that, as with trade in goods, liberalisation of trade in services induces global welfare gains from increased specialisation according to the principle of comparative advantage, reaping economies of scale and stronger competition in the form of access to larger markets and lower prices for producers and access to a larger variety of cheaper imported services for consumers, while potential welfare losses could be generated by (i) possible trade-offs between advantages of economies of scale and the cost of concentration of power in the case of networks, and (ii) potential losses to those in the periphery (contrasting with gains for those in core) in the case of agglomeration effects. However, recent contributions<sup>10</sup> that deal with the role of services as intermediate inputs show that the fragmentation of production processes induced by services could modify the distributional welfare implications associated with agglomeration.

The gains from services liberalisation are expected to be greater than those from goods trade liberalisation given the more restrictive initial barriers to trade in services than those to trade in goods, the importance of services in an economy, and their significant role as intermediate inputs in all sectors. For example, Deardorf (2000) 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. Also, when considering the role of services as intermediate inputs in a “knowledge-capital” model that incorporates FDI [Markusen (2000)] the welfare effects are expected to be even bigger. In this case, the essence of imported services is captured through two channels: the special knowledge needed to produce the foreign services and the imports of specialised intermediate inputs. Liberalisation of producer services has a powerful positive impact on the income and welfare of the country receiving the FDI because the additional intermediate services firms and the resulting increase in the variety of imported services lead to increased total factor productivity in downstream industries. Also, producer services complement domestic skilled labour as they foster the accumulation of skilled labour.

It is worth noting that, in the case of services liberalisation, the self-evident gains from trade via export opportunities are supplemented with potentially significant gains from increased imports of services inputs, which, at first sight, are less obvious. The import of services inputs could generate real gains to the economy by increasing its production, export and consumption of both goods and services with the same resources.

Equally important in terms of generating specific welfare and distributional effects are the various modes of services supply. In general, higher gains, but uneven across countries, are obtained when factor mobility is explicitly incorporated into the analyses.<sup>11</sup> However, different modes of supply have different effects on income distribution (for example, allowing FDI will have different effects on wages and employment than policies that allow labour to move across countries). The distributional

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<sup>9</sup> Mirza and Nicoletti (2004).

<sup>10</sup> See for example, Jones and Kierzkowski (2004).

<sup>11</sup> OECD (2003).

implications further depend on the temporary aspect of “factor-relocation-requiring” services<sup>12</sup> (the distributional aspects for the home and host country are different in the case of temporary factor mobility as compared to permanent factor mobility). Finally, the gains also depend on whether the modes are complements or substitutes (for example, when modes are complements and policy restrictions are maintained on one mode, this would affect either the cost or the quality of services provision; nevertheless, even if modes are substitutes, restrictions on access to foreign markets via one mode but not others can lead to increased costs of provision of the services and therefore potentially reduce the gains from trade. Therefore, an important conclusion to emerge is that fully effective liberalisation of services trade requires that all modes be opened up.

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<sup>12</sup> Bhagwati (1996) shows that while global/world welfare and the welfare of the host country (country of immigration) improve, the home country (country of emigration) is better off only if migration is temporary. In this case the welfare of temporary service providers (in the form of remittances) is included in the overall calculation of the home country’s national benefits, while in the case of permanent migration it is excluded.

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## ANNEX 2 - SOUTH-SOUTH TRADE IN SERVICES: A GRAVITY MODELS APPROACH

### The Gravity Model<sup>1</sup>

The international trade literature includes numerous different specifications of the gravity model. Here, we use a specification that is to all intents and purposes identical to the one used by OECD (2006b) to analyse South-South trade in goods, and which is strongly grounded in the theoretical approach of Anderson & Van Wincoop (2003, 2004). Those authors set out conditions under which it is possible to derive a gravity-type model for goods from first principles. As is the case for the papers in Table 1, the approach adopted here is simply to transpose that model into the services context—essentially assuming away the fact that trade in services, particularly under mode 3, is likely to involve a combination of production factors from both the exporting and importing countries (Mirza & Nicoletti, 2004). Future work could usefully explore the implications of relaxing that assumption. In this paper, however, it is maintained as a first approximation, thereby leading to a gravity model of the following form:

$$(1) \log(X_{ij}) = \log(Y_j) + \log(Y_i) - \log(Y) + (1 - \sigma)\log(t_{ij}) - (1 - \sigma)\log(P_j) - (1 - \sigma)\log(\Pi_i) + \varepsilon_{ij}$$

Where:

$X_{ij}$  = Exports from country i to country j

$Y_i$  = GDP of country i

$Y_j$  = GDP of country j

$Y$  = Aggregate (world) GDP

$\sigma$  = Elasticity of substitution

$t_{ij}$  = trade costs facing exports from country i to country j

$$P_j^{1-\sigma} = \sum_{i=1}^N \Pi_i^{\sigma-1} \omega_i t_{ij}^{1-\sigma}$$

$$\Pi_i^{1-\sigma} = \sum_{j=1}^N P_j^{\sigma-1} \omega_j t_{ij}^{1-\sigma}$$

$\omega_i$  = country i's expenditure share

$\varepsilon_{ij}$  = random error term

In the goods context, it is usual to specify the trade cost function as follows:

$$(2) \quad t_{ij} = d_{ij}^{\rho} \tau_{ji}^{\theta} \prod_{m=1}^M (b_m^{z_{ij}^m})$$

$$\Leftrightarrow \log(t_{ij}) = \rho \log(d_{ij}) + \sum_{m=1}^M \log(b_m) z_{ij}^m$$

Where:

$\rho$  = elasticity of exports with respect to distance

$d_{ij}$  = distance between countries i and j.

$b_m$  = set of m constants

$z_{ij}$  = set of observable bilateral determinants of trade costs, usually covering geographical, cultural-historical and policy factors

Combining (1) and (2) gives the baseline “theoretical” gravity model:

<sup>1</sup> This section draws heavily on OECD (2005b).

$$(3a) \quad \log(X_{ij}) = \log(Y_j) + \log(Y_i) - \log(Y) + (1 - \sigma) \left[ \rho \log(d_{ij}) + \sum_{m=1}^M \log(b_m) z_{ij}^m \right] - \dots$$

$$\dots - (1 - \sigma) \log(P_j) - (1 - \sigma) \log(\Pi_i) + \varepsilon_{ij}$$

Rather than estimate (3a) directly, most analysts choose to specify fixed effects (*i.e.* dummy variables) to take account of the resistance terms  $P$  and  $\Pi$  (cf. Anderson & Van Wincoop, 2003). The fixed effects approach still yields consistent and unbiased estimates of the main parameters of interest, and the efficiency loss compared with direct estimation is usually negligible. The most common empirical specification of (3a) is therefore as follows (with  $\delta_i$  and  $\delta_j$  indicating exporter and importer fixed effects respectively):

$$(3b) \quad \log(X_{ij}) = \mu + \beta_1 \log(d_{ij}) + \sum_{m=1}^M \gamma_m z_{ij}^m + \sum_{i=1}^N \delta_i + \sum_{j=N+1}^{2N} \delta_j + \varepsilon_{ij}$$

Equation (3b) represents a simple transposition to international trade in services of the standard gravity model for goods. Before proceeding to estimate such a model, it is important to enter some caveats based on possible theoretical and empirical differences between trade in goods and services. As noted above, services trade (particularly under mode 3) will often involve production factors from both the exporter and the importer, a fact from which equation (3b) abstracts. Secondly, the inclusion of distance as a measure of trade costs is more problematic for services than for goods. In the latter context, inclusion of distance between trading partners has at least two appealing interpretations: as an indicator of the cost of shipping goods from the exporter to the importer, and as an indicator of the difficulty of accessing market information (*e.g.* Buch, 2005). The first interpretation generally will not apply in relation to services trade (except potentially in relation to Modes 2 and 4, in which consumers and producers respectively have to be transported). Applied work therefore relies, at least implicitly, on the second interpretation only. Future work could usefully challenge that assumption, in particular by extending Freund & Weinhold (2002, 2004) to look more broadly at the interplay between distance and communication technology in determining information costs. However, such an exercise is not embarked on here, and we rely on the straightforward interpretation of distance as a proxy for information costs—which is in line with the approach taken in all of the papers listed in Table 14.

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