

## Annex VII. Analysing the trade in services data

### Introduction

1. Trade in services time series are now collected and published at varying levels of detail by a large number of countries and several international organisations. What extra value can one get from trade in services data? What further insights can be gained about data quality?
2. Taking into account the needs of analysts using trade in services data, it is clear that **partner country data** are much in demand. There is also a need for trade in services by industry data in order to link to a wide range of production, investment, employment and enterprise data generally.
3. While acknowledging that there are conceptual and data quality issues, it is possible to use the existing and increasingly detailed trade-in-services statistics (by type of service and by partner country) as well as foreign affiliates statistics to do some interesting analyses and also to add value to trade data by calculating readily available trade indicators. This analytical annex of the Manual sets out to provide a basic resource or toolbox for analysts to make better use of trade in services data.
4. Proposals for six types of analyses are set out in the annex as follows:
  - a. providing a fuller picture of trade in services, combining balance of payments data and foreign affiliates statistics for analysis;
  - b. addressing linkages between services trade and production data;
  - c. bilateral asymmetries in trade in services data applying the data to models of world trade flows;
  - d. identifying services for which a country has a comparative advantage in trade;
  - e. market access;
  - f. example of global outsourcing.

An annex provided by the World Health Organisation sets out the health sector interest in trade in services.

### A. To provide a fuller picture of trade in services, combining balance of payments data and foreign affiliates statistics for analysis

5. Balance of payments services trade data can be combined with foreign affiliates statistics (FATS) to provide a more complete picture of the delivery of services in international markets. These two sets of statistics provide complementary views of international service supply for analysis.
6. The balance of payments serves as the standard framework for statistics on services transactions between an economy (residents) and the rest of the world (non-residents). The services trade data in the balance of payments are recorded as exports of services by the seller's country and as imports of services by the buyer's country.
7. FATS provide a complementary view on services supplied through foreign affiliates of multinational companies, which include sales to foreigners by foreign affiliates of domestic companies and sales to domestic residents by the domestic affiliates of foreign companies. These sales are not international transactions, because under the residency principle of balance of payments accounting, affiliates of multinational companies are regarded as residents of the countries where they are located rather than of the countries of their owners. Thus, sales abroad by foreign affiliates are transactions between foreign residents, and sales in the domestic economy by domestic affiliates are transactions between domestic residents. (However, the direct investors' shares of the profits earned on these sales are recorded as international transactions.)
8. Information on mode 4 trade flows would provide an additional perspective on services

supplied in international markets, which in this case, are associated with the movement of persons. The large majority of the value of mode 4 trade is included within the balance of payments services trade accounts. The one exception is the value of services trade provided by self-employed persons staying in the host country for more than one year. The only transactions by these persons that may appear in the balance of payments will be the amount they remit to their home countries (recorded under personal transfers) and the net acquisition of financial assets or the net incurrence of liabilities in the home economy (recorded in the financial account).

9. Mode 3 and mode 4 supply of services are not necessarily tied to the balance of payments residency concepts. Services supplied through GATS mode 4 are often connected with the cross-border supply (mode 1) of business, professional, and technical services. Supply through the presence of persons in the country of the consumer often occurs when the cross-border supply of services requires some direct contact between the service providers and their customers but does not require a commercial presence (mode 3) in the country of the consumer.

10. These channels of delivery typically differ in their effects on an economy. For example, services exports data in the balance of payments usually have a greater effect on an economy than the equivalent sales through foreign affiliates, because most, or all, of the income generated by the production generally accrues to domestic-supplied labour and capital. In contrast, for sales through foreign affiliates, only the domestic parent company's share in profits accrues to the domestic economy (and is recorded as an international transaction); the other income generated by production—including compensation of employees—typically accrues to foreigners. For GATS mode 4, portions of the income generated by services production may accrue to the domestic economy in the form of exports of services or remittances, but a portion may also accrue to the foreign host economy.

11. There are various ways to present these complimentary data sets to provide a fuller picture of trade in services. One way would be to present these data sets side by side<sup>1</sup>. This perspective will

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<sup>1</sup> For this type of presentation see U.S. International Services: Cross-Border Trade and Sales Through

often highlight the importance of affiliates that are located in—but owned outside of—the markets that they serve. Because a local commercial presence is often necessary to deliver services to foreign customers, many companies choose to serve foreign markets, in part or in whole, through their affiliates.

12. Sales of services delivered through cross-border trade cannot be precisely compared with sales through affiliates because of differences in coverage, measurement, and classification. For example, sales of services through cross-border trade are generally classified by type of service, whereas, for many countries, sales through affiliates are classified by the primary industry of the affiliate.

13. Another way to present these complementary data sets would be to take an in-depth look at a particular service in order to identify, and analyze, the various channels through which it is supplied. For example, computer and software-related services can be supplied through channels which would be recorded in the balance of payments services statistics and/or FATS. Within the balance of payments services statistics, computer and software-related services may be recorded under “computer and information services,” and software may be supplied to foreign markets through cross-border software-licensing agreements, such as licenses to reproduce, which are recorded under “charges for the use of intellectual property”. Within FATS, which are in principle classified by the industry of the affiliate, one might assume that most computer-related services are supplied by firms in the computer industry. Regarding mode 4, one might assess the value of services supplied by each of the four categories of persons associated with this mode: 1) Contractual service suppliers as employees of a juridical person; 2) Contractual service suppliers as self-employed; 3) Intra-corporate transferees. However, the services supplied by intra-corporate transferees are linked to mode 3 (supply of services through commercial presence), although the mode 4 commitment guarantees the right of the person to be present in country of the affiliate; 4) services

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Affiliates, Bureau of Economic Analysis, usually available each October in the *Survey of current business* :  
<http://www.bea.gov/international/ai1.htm#INTERNATSERV>

sellers / persons responsible for setting up commercial presence.

### *Alpha software example*

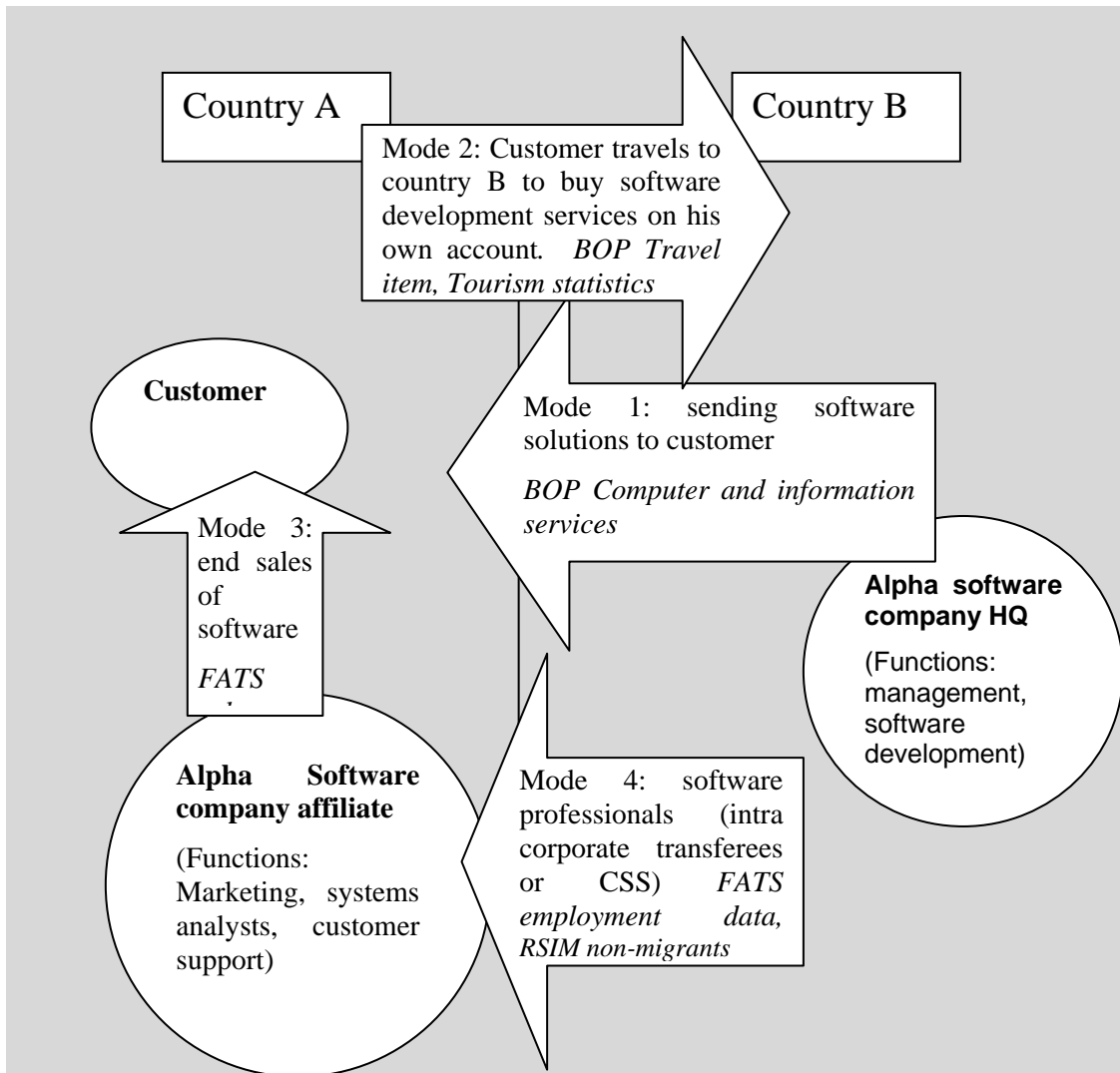
14. In order to illustrate how the different channels of service delivery can intervene in the day-to-day activity of a service provider, the example here below presents the Alpha software company which has an affiliate and a customer in country A and its headquarters and research and development activities in country B.

- i. The software was sold to the customer by Alpha's affiliate in country A. This illustrates the mode 3 (commercial presence) delivery of service. The FATS sales information would be the statistical source for measuring this activity.
- ii. The Alpha software company is also sending software solutions directly to the customer in country A. This would reflect Mode 1 (cross border supply) delivery of

services. The balance of payments components "computer and information services" as well as "charges for the use of intellectual property" would record this type of information.

- iii. At the same time, the headquarters can send software professionals to its affiliate. This would correspond to Mode 4, presence of natural persons and FATS employment data would be the statistical source of information regarding these flows.
- iv. Customers from country A can travel to country B to buy software development services on their own account. This flow illustrates the second mode (consumption abroad) of service delivery. The travel item of the balance of payments would provide some information regarding this flow.

**Figure 1 : Global outsourcing of computer and software related services**



[Question: Should a numerical version of the software example be included?]

## B. Addressing linkages between services trade and production data

15. Two aspects of these linkages are addressed here. First a **non-exhaustive list of examples of the most typical indicators** setting in the same picture production (GDP) and international trade in services are presented. A broader view of service trade is also taken by looking at value of exports of services and sales of foreign affiliate's side by side. Secondly a table produced by Statistics Canada presenting Trade in services by industry is shown. This second type of exercise linking trade in services information and industry classifications is for instance useful in the context of the analysis of outsourcing.

### *Indicators setting production and trade in the same picture*

16. Services play a relatively minor role in international trade in contrast to the contribution of services in the domestic economies of the most advanced countries where the proportion of total value added contributed by services is around 70 % and rising. So it might be of interest, and as advised in the Handbook of Economic Globalisation Indicators<sup>2</sup> (HEGI) in its selection of reference and supplemental trade globalisation indicators, to look at the indicators that are the most frequently used to assess the importance of international transactions of services relative to domestic transactions but also to take a broader view of services trade and consider also foreign affiliates sales of services statistics in the aggregation.

17. Looking at linkages between production and trade data helps **analysts to assess how open or dependent** (on services imports for instance) an economy, or a particular services industry is on foreign markets. Looking at the size of export or import of total services compared to GDP or domestic demand can give an idea of the dependencies of domestic producers. It might be of interest to firstly monitor the growth of this share over time, and secondly, if the statistics are available, to monitor the growth of the sum of the value of international trade in services and sales of services of foreign controlled multinationals overtime. It should be noted that if the main focus

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<sup>2</sup> Handbook of Economic Globalisation Indicators, (HEGI), OECD, 2005.

of the analysis is to look at trade to GDP in the context of the General Agreement on Trade in Services (GATS), Government services should be subtracted from Total services.

### **Trade-to-GDP-ratio**

18. A frequently used indicator of the importance of international transactions relative to domestic transactions is the trade-to-GDP ratio, which is the share of the sum of exports and imports of goods and services in GDP<sup>3</sup>.

19. International trade tends to be more important for countries that are small (in terms of size or population) and surrounded by neighbouring countries with open trade regimes than for large, relatively self-sufficient countries or those that are geographically isolated and thus penalised by high transport costs. Other factors also help explain differences in trade-to-GDP ratios across countries, such as history, culture, (trade) policy, the structure of the economy (especially the weight of non-tradable services in GDP), re-exports and the presence of multinational firms (intra-firm trade).

20. The trade-to-GDP ratio is often called the trade openness ratio. However, the term "openness" to international competition may be somewhat misleading. In fact, a low ratio does not necessarily imply high (tariff or non-tariff) obstacles to foreign trade, but may be due to the factors mentioned above, especially size and geographic remoteness from potential trading partners.<sup>4</sup>

$$\begin{aligned} & \textit{Trade in services to GDP ratio} \\ &= \frac{Xs + Ms}{GDP} \end{aligned}$$

Where

*Xs* = Total services exports

*Ms* = Total services imports

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<sup>3</sup> Considering services only here.

<sup>4</sup> Measuring Globalisation: OECD Economic Globalisation Indicators, OECD, 2005.

### Ratio of total services exports to GDP

21. The ratio of total Balance of payments (BoP) services exports to GDP measures the share of total final demand from abroad and is thus a measure of the degree to which domestic producers depend on demand from outside their own country. The share of exports in GDP can be interpreted in terms of level and in terms of growth. When interpreted as a measure of international orientation and openness of an economy, it has to be kept in mind that, generally, exports and imports play a smaller role in large economies than they do in small economies.

- Definition: Total services exports divided by GDP (of the home economy)
- Formula

$$Gs = \frac{Xs}{GDP}$$

22. Also in the case of some countries, this indicator may not show significant growth, if in the reference period, GDP grows more rapidly than services exports.

23. It is possible to sum up foreign affiliates' services sales information with the value of exports acknowledging that this could lead to some possible coverage issues. This might however give a better sense of the size of outward supply of services related to GDP.

### Outward Delivery of Services (ODS)

24. With this indicator, the value of exports of services and outward foreign affiliate's sales of services are simply "summed up" avoiding coverage and double counting issues as far as possible (see "Tackling coverage and double counting issues"). This kind of indicator can be seen as a broader measure of the services delivered (or sold) to foreign markets.<sup>5</sup>

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<sup>5</sup> Kenichi Ohmae, in *The Borderless World*, in 1990 already, looked at sales of foreign affiliates together with trade in order to assess the degree of openness of the different national economies. This way, he provided a view on how globalized the world economy really is. pp. 142-143.

### Tackling coverage and double-counting issues

25. Let us consider first the case of coverage issues for goods and services in the sales of foreign affiliates.

26. Depending on national statistical systems, countries can adopt two different approaches to avoid, if possible, counting goods items that in some cases cannot be clearly separated from service items within the sales of foreign affiliates services in the total service. The two different ways of calculating the aggregates are the following:

27. Countries could use a narrow definition of services that excludes construction (ISIC F), and wholesale and retail trade, and repairs (ISIC G)<sup>6</sup>;

28. If countries do have such information, they could use a broader definition of services that includes construction, wholesale and retail trade and repairs but remove estimates of goods transactions from these services categories.<sup>7</sup>

29. The example indicators shown below are presented following the narrow definition.

30. Second let us consider the case of coverage issues between cross-border services trade and the sales of services through affiliates.

31. There could be several ways to deal with these coverage issues (of which an example could be an export of a foreign affiliate that would be both registered in the balance of payments and in the foreign affiliate's statistics.) One way to eliminate radically these possible problems would be to only add the net payments of direct investment income that accrue to the parent companies to the value of services exports as registered by the balance of payments. However, this measure does not provide an ideal broad measure of the services delivered to foreign markets through exports and through affiliates because direct investment income could be very small although the sales revenue from services delivered by affiliates could be large. Also as these statistics may not be available for many countries, possible double counts between cross border services trade and the sales of services through

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<sup>6</sup> As the sales of firms whose main activity is in this sector include the value of goods sold together with the distribution services.

<sup>7</sup> These methods are drawn from "Globalisation in services: From Measurement to Analysis", *OECD Statistics Working Paper*, February 2008, pp.18-19.

affiliates are handled in the present analytical annex by reducing the sales of foreign services to “local sales” *i.e* by subtracting the foreign affiliates export of services to the country of the parent or to a third country from the foreign affiliates sales of services.<sup>8</sup>

32. The Outward Delivery of Services Indicator (ODS) would then look like this:

$$ODS = Xs + (SFos - XFos)$$

Where

*ODS*= Total exports of services and outward foreign affiliates sales of services.

*Xs*= BoP Total services exports

*SFos*= Outward foreign affiliates sales of services excluding Wholesale, retail trade and repairs (ISIC G) and construction (ISIC F)

*XFos*=FATS outward exports of services to the country of the parent or to a third country.

### Outward Delivery of Services divided by GDP (ODS)

33. It is possible to divide this above presented sum (the ODS) by the GDP (or total value added or total population) for international comparisons, the indicator should then be interpreted as services delivered (or sold) to foreign markets as a share of GDP. If the analysis of the ODS indicator aims at getting a sense for the effect (or benefits) of trade on a home economy, then the numerator should not include both affiliate sales and cross-border trade with, effectively, equal weights.

34. This is because most of the income generated from the production of services exports for cross-border trade accrues to the home economy supplied labour and capital. In contrast, only the home economy’s parent company’s share of profits of its affiliates accrues to the home economy. Countries can then put bigger weight on the value of the services exported by multiplying the value of

foreign affiliates “local” sales by a coefficient where  $0 < w < 1$ . It is up to the countries to decide how much this coefficient should be, depending on national circumstances.<sup>9</sup>

$$ODS' = \frac{Xs + (SFos - XFos) * w}{GDP}$$

Where

*ODS'*= Share of total exports of services and outward foreign affiliates sales of services in GDP (of the home economy).

*Xs*= BoP Total services exports

*SFos*= Outward foreign affiliates sales of services excluding Wholesale, retail trade and repairs (ISIC G) and construction (ISIC F)

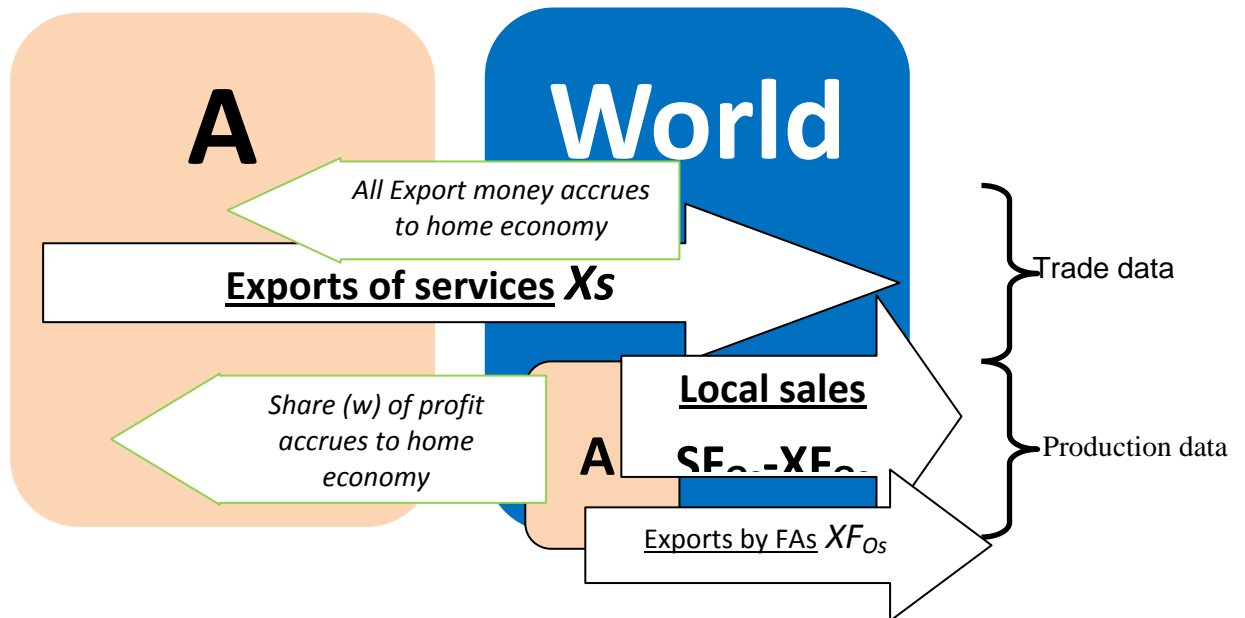
*XFos*=FATS outward exports of services to the country of the parent or to a third country

*w*=weight applied on the value of services local sales of foreign affiliates where  $0 < w < 1$  if the aim of the analysis is to look at the affects of trade on the home economy.

<sup>8</sup> As suggested in the OECD Handbook of Economic Globalisation, p. 183, If imports by foreign affiliates for their own production are available, it is possible to adjust the sales of foreign affiliates by subtracting both the exports of the foreign affiliates and their imports for their own production. HEGI, 2005, OECD.

<sup>9</sup> One possibility for approximating *w* could be to use the rate of return of direct investment. This could be defined as the ratio of direct investment income to direct investment position (stocks) in respect to both inward and outward investment. The possible values of this ratio depend on how stocks are valued. See OECD Economic Globalisation Indicators, OECD, 2005, p.50.

Figure 1: Outward delivery of services of country A



### Import penetration for services.

35. The import penetration rate shows the degree of domestic demand satisfied by imports. It represents a measure of the importance of imports in the domestic economy, either by sector or overall, usually defined as the value of imports divided by the value of apparent consumption that is domestic production plus imports minus exports, sometimes also adjusted for changes in inventories. This indicator, hence, measures the dependence of a country's domestic demand on imports. A low penetration rate does not necessarily imply import barriers. It may for example reflect greater price competitiveness on the part of national firms and/or can be biased by the country size/geography.

36. As in the case of the share of total exports to GDP ratio, some care should be made in interpretation. Also the relative size of the service sector has to be taken into account.

- Definition: The import penetration ratio shows to what degree domestic demand is satisfied by imports of services)

- Formula:

$$IP = \frac{Ms}{D}$$

Ms= Imports of services, D= Domestic Demand where the domestic demand is the difference between the GDP and the net exports (exports-imports) [D=GDP-X+M]. We are referring in the indicators presented below to the domestic demand of the home economy. Domestic Demand should be understood in its usual sense, i.e. the subtracted exports and imports refer to exports and imports of goods and services.

### Inward Delivery of Service indicator (IDS)

37. A "foreign services penetration indicator" can be calculated by adding the value of services imports and inward foreign affiliates local sales of services. The same methods for tackling coverage issues as in paragraph xxx (tackling coverage issues) apply here.

$$IDS = Ms + (SFis - XFis)$$

IDS = total imports of services and inward foreign affiliates sales of services

Ms = BoP Total services imports



*SFis = Inward foreign affiliates sales of services excluding Wholesales, retail sales and repairs (ISIC section G) and construction (ISIC section F)*

*XFis = Exports of services of inward foreign affiliates to the country of the parent or a third country.*

### **Inward Delivery of Services divided by Domestic Demand (IDS')**

38. As for the Outward Delivery of Service (ODS') indicators, if the IDS' aims at getting a sense of the cost of trade for the home economy, then the numerator should not include both affiliate sales and cross-border trade with, effectively, equal weights. Countries can put bigger weight on the value (the cost) of the services imported by multiplying the value of foreign affiliates sales by a coefficient  $w$  where  $0 < w < 1$ . This is because all the income generated from the production of services imports for cross-border trade accrues to the foreign economy supplied labour and capital. Indeed, in the case of imports of services, all the money for paying the imports leaves the home economy. In contrast, and in the case of Inward foreign affiliates sales, only a proportion of the benefits would leave the home economy (for instance the fee to the foreign parent company) but the foreign affiliate inward activity would generate income in the home economy through the jobs created. Once again it is up to the countries to decide how much this

coefficient should be, depending on national circumstances.

$$IDS' = \frac{Ms + (SFis - XFis) * w}{D}$$

Where

*IDS' = Share of total imports of services and inward foreign affiliates sales of services in Domestic demand (of the home economy).*

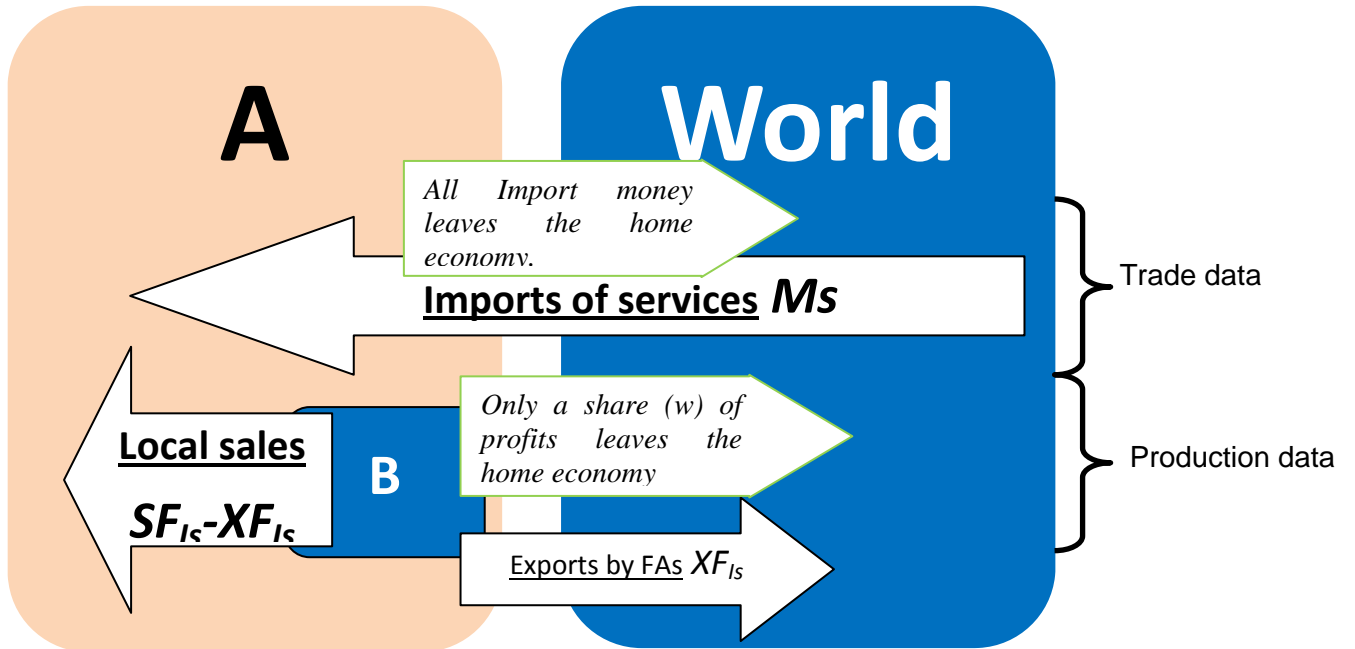
*Ms = BoP Total services imports*

*SFis = Inward foreign affiliates sales of services excluding Wholesales, retail sales and repairs (ISIC section G) and construction (ISIC section F)*

*XFis = Exports of services of inward foreign affiliates to the country of the parent or to a third country.*

*w = weight applied on the value of services local sales of foreign affiliates where  $0 < w < 1$  if the aim of the analysis is to look at the affects of trade on the home economy.*

Figure 2: Inward delivery of services of country B



*Practical linkages: Trade in services information presented by industry*

39. In some cases, when surveys of trade in services and service production are available, a business register by activity as well as by trade information may be also available. When this is the case, better linkage of trade data to other economic data become possible and this facilitates the analysis of economic phenomena as for instance outsourcing.

40. Some National agencies like Statistics Canada <sup>10</sup> have produced tables showing commercial services exports and imports flows broken down by industry based on their national industrial classification. This can be seen as a first step to improve the compatibility between the service trade and the service production frameworks given that generally speaking the EBOPS classification corresponds only very poorly with the ISIC. This kind of initiative necessarily improves compatibility between the trade and production frameworks.

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<sup>10</sup> Cf. item 21a of OECD-Eurostat Meeting of Experts in Trade in Services Statistics (TIS), Paris, 18-19 September 2007.  
[http://www.oecd.org/document/45/0,3343,en\\_2649\\_34235\\_39003053\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/45/0,3343,en_2649_34235_39003053_1_1_1_1,00.html)

2005

## Based on North American Industrial Classification System

Commercial services by category and by industry	Total, goods producing industries	Manufacturing [31-33]	Other goods producing industries	Total, services producing industries	Trade and transportation	Information, culture and arts	Finance and insurance [52]	Professional, scientific & technical services [54]	Management of companies & enterprises [55]	Other services producing industries	Memorandum item: Information & communication technology
<b>CREDITS (in millions of C\$)</b>											
<b>Total, commercial services</b>	<b>6,158</b>	<b>5,401</b>	<b>757</b>	<b>30,731</b>	<b>3,800</b>	<b>7,337</b>	<b>6,351</b>	<b>9,991</b>	<b>921</b>	<b>2,330</b>	<b>10,163</b>
<b>Communications services</b>	<b>200</b>	<b>195</b>	<b>5</b>	<b>2,430</b>	<b>998</b>	<b>1,278</b>	<b>0</b>	<b>68</b>	<b>30</b>	<b>55</b>	<b>1,519</b>
<b>Construction services</b>	<b>57</b>	<b>52</b>	<b>5</b>	<b>165</b>	<b>11</b>	<b>0</b>	<b>0</b>	<b>125</b>	<b>28</b>	<b>1</b>	<b>0</b>
<b>Insurance services</b>	<b>11</b>	<b>11</b>	<b>0</b>	<b>3,877</b>	<b>0</b>	<b>0</b>	<b>3,640</b>	<b>1</b>	<b>231</b>	<b>5</b>	<b>0</b>
<b>Other financial services</b>	<b>8</b>	<b>3</b>	<b>5</b>	<b>1,914</b>	<b>2</b>	<b>39</b>	<b>1,719</b>	<b>64</b>	<b>12</b>	<b>78</b>	<b>41</b>
<b>Computer and information services</b>	<b>168</b>	<b>147</b>	<b>20</b>	<b>4,585</b>	<b>313</b>	<b>1,559</b>	<b>174</b>	<b>2,423</b>	<b>36</b>	<b>81</b>	<b>3,811</b>
<b>Royalties and licence fees</b>	<b>812</b>	<b>799</b>	<b>13</b>	<b>2,635</b>	<b>379</b>	<b>1,285</b>	<b>10</b>	<b>884</b>	<b>36</b>	<b>41</b>	<b>1,685</b>
<b>Non-financial commissions</b>	<b>104</b>	<b>97</b>	<b>7</b>	<b>738</b>	<b>569</b>	<b>14</b>	<b>86</b>	<b>59</b>	<b>6</b>	<b>3</b>	<b>311</b>
<b>Equipment rentals</b>	<b>15</b>	<b>2</b>	<b>13</b>	<b>305</b>	<b>190</b>	<b>0</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>111</b>	<b>0</b>
<b>Management services</b>	<b>1,110</b>	<b>892</b>	<b>218</b>	<b>4,018</b>	<b>385</b>	<b>309</b>	<b>647</b>	<b>1,860</b>	<b>468</b>	<b>350</b>	<b>863</b>
<b>Advertising and related services</b>	<b>40</b>	<b>40</b>	<b>0</b>	<b>462</b>	<b>53</b>	<b>185</b>	<b>41</b>	<b>168</b>	<b>1</b>	<b>13</b>	<b>34</b>
<b>Research and development</b>	<b>1,030</b>	<b>1,011</b>	<b>19</b>	<b>1,778</b>	<b>539</b>	<b>216</b>	<b>11</b>	<b>978</b>	<b>0</b>	<b>35</b>	<b>1,159</b>
<b>Architectural, engineering, and other technical services</b>	<b>1,265</b>	<b>890</b>	<b>375</b>	<b>3,418</b>	<b>160</b>	<b>5</b>	<b>21</b>	<b>3,001</b>	<b>40</b>	<b>192</b>	<b>304</b>
<b>Miscellaneous services to business</b>	<b>1,078</b>	<b>1,001</b>	<b>78</b>	<b>2,144</b>	<b>170</b>	<b>470</b>	<b>1</b>	<b>339</b>	<b>33</b>	<b>1,131</b>	<b>413</b>
<b>Audio-visual services</b>	<b>260</b>	<b>260</b>	<b>0</b>	<b>2,034</b>	<b>1232</b>	<b>1,977</b>	<b>0</b>	<b>18</b>	<b>0</b>	<b>6</b>	<b>21</b>
<b>Personal, cultural and recreational services</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>229</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>229</b>	<b>0</b>



### C. Bilateral flows and asymmetries in trade in services data

41. In general bilateral flows and the mirror data, that is the same flow as reported by the partner country, should give a measure of comparability following bilateral or multilateral approaches. They can be useful information for analysing following situations:

- Mirror data can help in checking whether the flows reported by each reporting country are reflected by its partner country<sup>11</sup>.
- To check whether the reported flows are the same or compatible.
- To detect systematic differences in the reporting process.
- To detect differences in definitions from one country to the other.

#### *Some reasons for asymmetries in trade in services data*

42. As noted in the introduction of The Eurostat-European commission working paper *Asymmetry in EU Current Account Data*<sup>12</sup>, asymmetries can mainly be attributed to a number of different factors, such as:

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<sup>11</sup> A study presented at the 2008 Conference of European Statisticians looks at asymmetries between the United States and the United Kingdom. See “Preliminary investigations into asymmetries in bilateral trade in services between the USA and the UK”. The paper is available on line on the Conference’ site. <http://www.unece.org/stats/documents/ece/ces/2008/15.e.pdf>

<sup>12</sup> During the past years, the situation concerning intra-EU asymmetries has been extensively analysed and reported by Eurostat (in collaboration with Member States and the European Central Bank) within the framework of Ad Hoc Committee on Asymmetries, Technical Group on Asymmetries, Technical Group on Travel, Technical Group on Merchandise Transport and Task Force reconciliation. “Asymmetries in EU current account data ‘The report of the Committee can be viewed here: [http://epp.eurostat.ec.europa.eu/cache/ITY\\_OFF\\_PUB/KS-DB-06-002/EN/KS-DB-06-002-EN.PDF](http://epp.eurostat.ec.europa.eu/cache/ITY_OFF_PUB/KS-DB-06-002/EN/KS-DB-06-002-EN.PDF)

- Different data collection systems leading to different coverage
- Differences in the classification of items within the accounts
- Discrepancies in the time of recording transactions
- Incorrect geographical identification of the counterpart
- Different treatment of complex transactions (brokers in London, for instance) even where a resident may be the ultimate beneficiary.

#### *Possible asymmetry coefficients*

43. The simplest way of generating such a coefficient is to divide the mirror flow by the reported flow.

$$AC1 = mF/F$$

Where  $F = \text{flow } \{x,m\}$  and  $mF = \text{mirror flow}$

44. There is perfect symmetry (exports are equal to mirror imports) if AC1 equals 1. The more the coefficient diverges from 1, the more the asymmetry between exports and mirror imports becomes important.

45. Other simple coefficients can be calculated by subtracting the flow from the mirror flow and dividing it by the sum of the flow and the mirror flow (see AC2) or the mean of the Flow and the mirror flow (see AC3).

If  $X = \text{exports}$  and  $mM = \text{Mirror imports}$ ,

$$AC2 = (X - mM)/(X + mM)$$

where  $-1 < AC2 < 1$

$$\text{and } AC3 = (X - mM)/[(X + mM)/2]$$

where  $-2 < AC3 < 2$

46. There is perfect symmetry (exports are equal to mirror imports) when the AC2 or AC3 coefficient equal zero. The more the coefficient diverges from zero, the more the asymmetry between exports and mirror imports becomes important.

47. The asymmetry coefficient is potentially useful because it can be monitored over time. This coefficient is also useful as it can be either positive or negative, so it can then be used to estimate if a country is globally declaring higher or lower level

of trade compared with the mirror trade declared by its partner countries.

48. Mirror statistics and the asymmetry coefficient are of interest to look at bilateral trade statistics as in the example here below where the

AC3 coefficient was calculated for Japan for data with reference year 2002.

49. In the first column the exports of the reporting country Japan are shown with a selection of its partner.

SERIES: TOTAL SERVICES						asymmetry coefficient	
Millions of \$							
REPORTg COUNTRY: Japan			PARTNER COUNTRY: Japan				
Partner		2002	Reporting		2002		2002
Australia	Exports	1245	Australia	Imports	982	Australia	0.24
Canada	Exports	1857	Canada	Imports	1873	Canada	-0.01
EU-15	Exports	12519	EU-15	Imports	8465	EU-15	0.39
France	Exports	1050	France	Imports	977	France	0.07
Germany	Exports	2327	Germany	Imports	2146	Germany	0.08
Italy	Exports	540	Italy	Imports	602	Italy	-0.11
Korea	Exports	3122	Korea	Imports	4601	Korea	-0.38
Netherlands	Exports	2146	Netherlands	Imports	698	Netherlands	1.02
Spain	Exports	301	Spain	Imports	344	Spain	-0.13
Sweden	Exports	198	Sweden	Imports	296	Sweden	-0.40
United Kingdom	Exports	4312	United Kingdom	Imports	2083	United Kingdom	0.70
United States	Exports	21561	United States	Imports	18938	United States	0.13
OECD TOTAL	Exports	40304	OECD TOTAL	Imports	34859	OECD Total	0.14

“OECD Total” is here calculated as the sum of Australia, Canada, EU-15, Korea, United States.

The Total asymmetry coefficient highlighted in grey here above is calculated the following way:

Asymmetry Coefficient for OECD total =  $(X-mM)/((X+mM)/2)$ .

$(40304-34859)/((40304+34859)/2) = 0.14$

The Asymmetry coefficient for Australia would be calculated following way:

$(1245-982)/((1245+982)/2) = 0.24$

*Possible interest of mirror data in case of lack of reported data*

50. Mirror data may also be useful in case of the absence of directly reported data. For instance for Africa, in the next table, no reported data were available in 2005 but about three-quarters of Africa’s reported services can be estimated by

reported imports of services from the 28 OECD countries plus other sources ( Eurostat, UN Service Trade and national sources). The table below also illustrates that OECD partner country data cover about 78.4% of world exports and about 88.4% if reported data are supplemented with mirror data.

## Coverage of reported exports in partner country data and estimates based on mirror statistics

Exporting Region	Total exports (billion USD) 2005	Total available exports data by partner country - % of total exports		
		OECD TISP database	OECD TISP + other sources of reported data	Reported data supplemented by mirror import data
World	2,498.0	75.0	78.4	88.4
OECD	1,898.2	94.2	94.2	97.5
NAFTA	446.5	97.8	97.8	98.8
OECD Asia and Oceania	194.8	93.4	93.4	95.8
OECD EU 19	1,151.9	97.8	97.8	97.8
OECD Europe Other	105.0	41.0	41.0	92.7
Africa	59.8	0.0	6.7	71.4
America	511.3	85.4	88.0	100*
Asia and Oceania	608.1	40.0	48.4	71.1
Europe	1,316.6	90.6	91.9	92.6
International Organisations	2.2	0.0	0.0	100.0

\* Reported imports from non-OECD America exceed reported exports of the region

## D. Identification of services for which a country has a comparative advantage in trade

### Annual Growth Rates of Services Exports and Imports

51. This indicator is used to compare rates of growth of exports and imports of broad classes of services, at current price, in one country with those for world trade or the trade of its competitors, including the major services in exports and imports. The annual compound growth rate (G) over the period can be calculated as:

$$G_{is} = 100 \times \left\{ \left[ \frac{X_{ist_2}}{X_{ist_1}} \right]^{\frac{1}{t_2 - t_1}} - 1 \right\}$$

### Export Dynamics

**Rank the annual growth rates  $G_{is}$  presented here above**

52. Although some services may not constitute a large share of exports in a country, there are several reasons to identify dynamic (fast growing) services in exports. If above average growth in these services continues for an extended period, these items may eventually become an important source

of a country's export earnings. In addition, if the dynamic services have specific production characteristics, this could also convey important information on export opportunities in relation to other similar services. Finally, there is an obvious interest in identifying dynamic services to focus future multilateral or bilateral negotiations on the removal of trade barriers on such services in export markets. The most straightforward method of identifying dynamic services is to sort services on the basis of their growth rate over a given period.

### Revealed Comparative advantage

53. The **Balassa index of Revealed Comparative Advantage (RCA)** measures the intensity of trade specialization of a country within a region or the world. For instance one would expect France to be specialized in tourism (travel) and Greece to be specialized in maritime transport. In general practice, RCA indices should be only used in product categories where trade is not distorted by export incentives and trade barriers, because they are likely to obscure whether a country has a real comparative advantage or disadvantage in these goods.

54. The calculation is the following: Export share of a service of the total exports of services of country, divided by the export share of this service of the region/world.



RCA will then range from -1 to +1. Ref ECO/WKP(2007)46.

Formula:

$$RCA_{c,s} = \frac{\frac{X_{c,s}}{NX_{c,s}}}{\frac{wx_s}{WX_s}}$$

$$RCA_{normalised} = \frac{(RCA_{c,s} - 1)}{(RCA_{c,s} + 1)}$$

Where

$X_{c,s}$  = Export of service  $s$  for the country  $c$ .  
 $NX_{c,s}$  = Total (national) exports of services of the country  $c$   
 $wx_s$  = Total world exports of service  $s$   
 $WX_s$  = Total world exports of services

55. If the RCA takes a value less than 1, this implies that the country is not specialised in exporting the service. The share of service  $s$  in country  $c$  exports is less than the corresponding world share.

56. Similarly, if the index exceeds 1, this implies that the country is specialised in exporting the item.

57. The range of variation can be symmetric if the normalisation presented below is applied. The

**Calculated example for Canada**

Detailed explanation of the RCA calculations (non normalised and normalised)

			1999	2000	2001	2002	2003	2004
Canada	TRANSPORTATION: CREDIT	$X_{c,s}$ : exports of transportation services for Canada.	6529.37	7539.11	6863.98	7021.64	7049.49	8495.53
Canada	SERVICES: CREDIT	$NX_{c,s}$ : Total (national) Exports of all services of Canada.	36117.4	40229.7	38804.1	39759.4	42624.4	47534.2
All Countries	TRANSPORTATION: CREDIT	$wx_s$ : Total World exports of Transportation services	320461	343450	339609	354183	405456	497242
All Countries	SERVICES: CREDIT	$WX_s$ : Total world exports of all services	1437300	1522740	1525760	1639240	1884560	2234800
		$RCA_{Canada,transportation} = (X_{c,s}/NX_{c,s}) / (wx_s/WX_s)$	0.81	0.83	0.79	0.82	0.77	0.80

$RCA_{Canada,transportation}$  in 1999 =  $(X_{c,s}/NX_{c,s}) / (wx_s/WX_s)$  in 1999 =  $(6529.37/36117.4) / (320461/1437300) = 0.81$

Normalised RCA = $(RCA_{c,s} - 1) / (RCA_{c,s} + 1)$	1999	2000	2001	2002	2003	2004
	-0.10	-0.09	-0.11	-0.10	-0.13	-0.11

Normalised RCA in 1999 =  $(RCA_{c,s} - 1) / (RCA_{c,s} + 1)$  in 1999 =  $(0.81 - 1) / (0.81 + 1) = -0.10$

**RCA for Canada (non normalized)**

Canada RCA		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	TRANSPORTATION: CREDIT	0.84	0.82	0.85	0.83	0.81	0.81	0.83	0.79	0.82	0.77	0.80
	PASSENGER SRVS: CREDIT	0.73	0.78	0.82	0.82	0.82	0.87	1.00	0.99	1.00	0.82	0.94
	FREIGHT: CREDIT	0.80	0.81	0.82	0.77	0.69	0.72	0.73	0.69	0.72	0.68	0.66
	OTH TRANSP: CREDIT	0.99	0.87	0.92	0.95	1.04	0.91	0.85	0.81	0.83	0.89	0.94
	TRAVEL: CREDIT	0.92	0.95	0.92	0.90	0.90	0.91	0.88	0.92	0.92	0.88	0.97
	OTHER SERVICES: CREDIT	1.19	1.18	1.19	1.18	1.20	1.18	1.18	1.16	1.15	1.19	1.12

(source IMF)

*RCA for Canada (normalised)*

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Canada RCA normalised TRANSPORTATION: CREDIT	-0.09	-0.10	-0.08	-0.09	-0.10	-0.10	-0.09	-0.11	-0.10	-0.13	-0.11
PASSENGER SRVS: CREDIT	-0.16	-0.12	-0.10	-0.10	-0.10	-0.07	0.00	-0.01	0.00	-0.10	-0.03
FREIGHT: CREDIT	-0.11	-0.10	-0.10	-0.13	-0.18	-0.16	-0.16	-0.18	-0.17	-0.19	-0.21
OTH TRANSP: CREDIT	-0.01	-0.07	-0.04	-0.02	0.02	-0.05	-0.08	-0.11	-0.09	-0.06	-0.03
TRAVEL: CREDIT	-0.04	-0.03	-0.04	-0.05	-0.05	-0.05	-0.06	-0.04	-0.04	-0.06	-0.02
OTHER SERVICES: CREDIT	0.09	0.08	0.09	0.08	0.09	0.08	0.08	0.07	0.07	0.09	0.06

(source IMF)

According to RCA, Canada has a comparative advantage for Other services. For this category, the non-normalised RCA is greater than 1, the normalised RCA is positive.

*Example for Uganda*

*RCA for Uganda (non normalised)*

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ouganda RCA TRANSPORTATION: CREDIT	1.08	0.73	0.58	0.57	0.60	0.62	0.66	0.70	0.74	0.68	0.49
PASSENGER SRVS: CREDIT	..	..	..	..	..	..	..	2.32	2.47	2.53	1.92
FREIGHT: CREDIT	2.40	1.62	1.28	1.19	1.22	..	..	..	..	..	..
OTH TRANSP: CREDIT	..	..	..	..	..	..	..	0.49	0.52	0.43	0.27
TRAVEL: CREDIT	1.98	2.35	2.54	2.63	2.65	2.49	2.54	2.51	2.53	2.22	2.13
OTHER SERVICES: CREDIT	0.28	0.18	0.13	0.11	0.11	0.10	0.09	0.14	0.14	0.41	0.57

(source IMF)

*RCA for Uganda (normalized)*

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ouganda RCA normalised TRANSPORTATION: CREDIT	0.04	-0.16	-0.26	-0.27	-0.25	-0.23	-0.21	-0.17	-0.15	-0.19	-0.34
PASSENGER SRVS: CREDIT	..	..	..	..	..	..	..	0.40	0.42	0.43	0.31
FREIGHT: CREDIT	0.41	0.24	0.12	0.09	0.10	..	..	..	..	..	..
OTH TRANSP: CREDIT	..	..	..	..	..	..	..	-0.34	-0.32	-0.40	-0.57
TRAVEL: CREDIT	0.33	0.40	0.43	0.45	0.45	0.43	0.44	0.43	0.43	0.38	0.36
OTHER SERVICES: CREDIT	-0.57	-0.70	-0.78	-0.80	-0.80	-0.81	-0.84	-0.76	-0.75	-0.42	-0.27

(source IMF)

**E. Market Access Analysis.**

60. According to the RCA, Uganda has a comparative advantage for Travel (and also passenger services after 2001 and freight before 1999). This example shows that the normalised RCA may give a more “balanced” idea of the comparative advantage as the range of variation of the index is limited to -1/+1 (whereas the non-normalised RCA ranges from -1 to a value that can be greater than 2).

61. There is a growing interest in identifying Barriers to service trade and to find out what gains could be achieved by removing those barriers.

62. An Australian Productivity Commission paper<sup>13</sup> notes that “Barriers to services trade are

<sup>13</sup> Philippa Dee, *Trade in services*, Australia Productivity Commission (2001), p.1. in

significant. Because they are primarily regulatory, and differ substantially from traditional tariffs or quotas, there is no simple tariff equivalent with which to compare to Merchandise trade barriers. But the effects of removing them can be substantial".(...) "global gains from eliminating barriers to trade in services, based on preliminary estimates of those barriers, could be about the same as those from eliminating all remaining barriers to trade in agriculture and industrials. And significant gains would accrue to developing economies."

63. Restrictions on services trade are usually related to behind the border regulations and often take the form of fixed costs that cannot meaningfully be translated into a tariff equivalent. Another complication is that it is not straight forward to aggregate trade costs in services. Fixed costs from complying with regulatory measures may not be additive, and one binding barrier may render the *elimination* of other barriers irrelevant. If modes of supply are complimentary, trade barriers that restrict one mode of supply will in effect affect all modes, while if modes of supply are substitutes, restrictions on one mode can induce a shift to a less restricted mode, and have little effect other than diverting trade from the preferred mode of supply and increase costs. Binding trade barriers differ between sectors and modes of services delivery and need to be estimated by sector, based on in-depth sector studies."<sup>14</sup>

64. Work is being undertaken to set up sectoral trade in services restrictiveness indexes in organisations such as OECD.

65. The Productivity Commission and the Australian National University<sup>15</sup> have been measuring restrictions on trade in services for a

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<http://www.cepii.fr/anglaisgraph/communication/s/pdf/2001/washington/dee.pdf>

<sup>14</sup> *Towards a services trade restrictiveness index (STRI), A proposal for a Road Map for future Trade Committee Work on Services*, Dale Andrew, OECD.

number of economies in Europe, Asia, and North and South America.

#### References on internet

- The results from the work of the Australian Productivity Commission, the [Trade Restrictiveness Index](#) and [Price and/or Cost Effect Measures](#) databases, have produced tax equivalents of the price and/or cost effects of restrictions in selected service sectors.
- UNCTAD produced a report, dealing specifically with developing countries and drawing on the work of the Australian Productivity Commission. [http://r0.unctad.org/ditc/tab/publications/itcdtab20\\_en.pdf](http://r0.unctad.org/ditc/tab/publications/itcdtab20_en.pdf)

#### F. Global outsourcing: The Herfindahl Index, an indicator of geographic diversification

66. If trade intensity indicators, such as X/GDP are similar for two countries, it may be helpful for some comparative purposes to measure the geographical diversification of exports using the Herfindahl index of concentration. The most internationalised country will be the one which exports its services to the largest number of countries which are very far away and which have no common borders.<sup>16</sup>

67. We assume that X represents the total exports of services of compiling country A, which are destined for n different countries.

68. Herfindahl's index of geographic concentration for country A's exports of services is the sum of the squares of the market shares held in each country of destination I, *i.e.*

$$H = \sum_{i=1}^n [X_i / \sum_{i=1}^n X_i]^2$$

$\sum_{i=1}^n X_i$  being the sum of exports of country A in all country i.

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<sup>16</sup> Handbook of Economic Globalisation Indicators, OECD, 2005, p.186.

69. If each of the  $n$  countries of destination received the same export value, the Herfindahl index  $H$  would be equal to:  $1/n$

*Herfindahl index: Calculated examples*

70. First example: The total exports of services of country A1 is 200. Country A1 exports an amount of 50 to  $n=4$  partners *i.e.* in each of these partner countries, country A1 holds 25 % of market shares. The Herfindahl index is

$$H = 0.25^2 + 0.25^2 + 0.25^2 + 0.25^2 = 0.25 = 1/n$$

71. Second example: The total exports of services of country A2 is 200. Country A2 exports an amount of 25 to 8 partners, the Herfindahl index is  $8 * 0.125^2 = 0.125$

Country A2 has a lower index so it is less geographically concentrated and thus more highly internationalised.

## **Annex VII.1 - Health services as an example of an analysis on a sectoral basis of trade in services**

*(The following text would need to be reviewed against the final BPM6 and MSITS Chapters 3 and 5)*

### *Background:*

1. This annex provides an example of how to collect data in one particular services sector, namely health services. The purpose is to illustrate how to collect data from different sources in order to obtain an overview of the activity of the sector. The health sector is particularly appropriate for this exercise since trade in health services is delivered in several GATS sectors and in all four modes of supply. The example of trade in health services also highlights several data collection issues that also apply to other sectors.

### *Scope:*

2. The health care sector covers medical, dental, nursing and paramedical services, hospital, and other human health services. It is one of the most rapidly growing sectors in the world economy. In 2005, OECD countries spent, on average, around 9 % of their GDP on health care with the lion's share in health services (OECD, 2007). A growing number of health services are now being delivered across borders, through, for example, the cross-border movement of health personnel or patients. Technological advances, market opening, and cost pressure in the health sector have been the main driving forces of this process.

3. The International Classification for Health Accounts (ICHA) developed by the Organization for Economic Co-operation and Development (OECD) defines the different personal health services. Overall, one can distinguish services of curative care, rehabilitative services, services of long-term care, ancillary services to health care, and medical goods dispensed to outpatients. The basic functions of care (curative, rehabilitative and long-term care) can also be classified by the mode of production (inpatient, outpatient in hospitals or in the ambulatory sector, and home care).

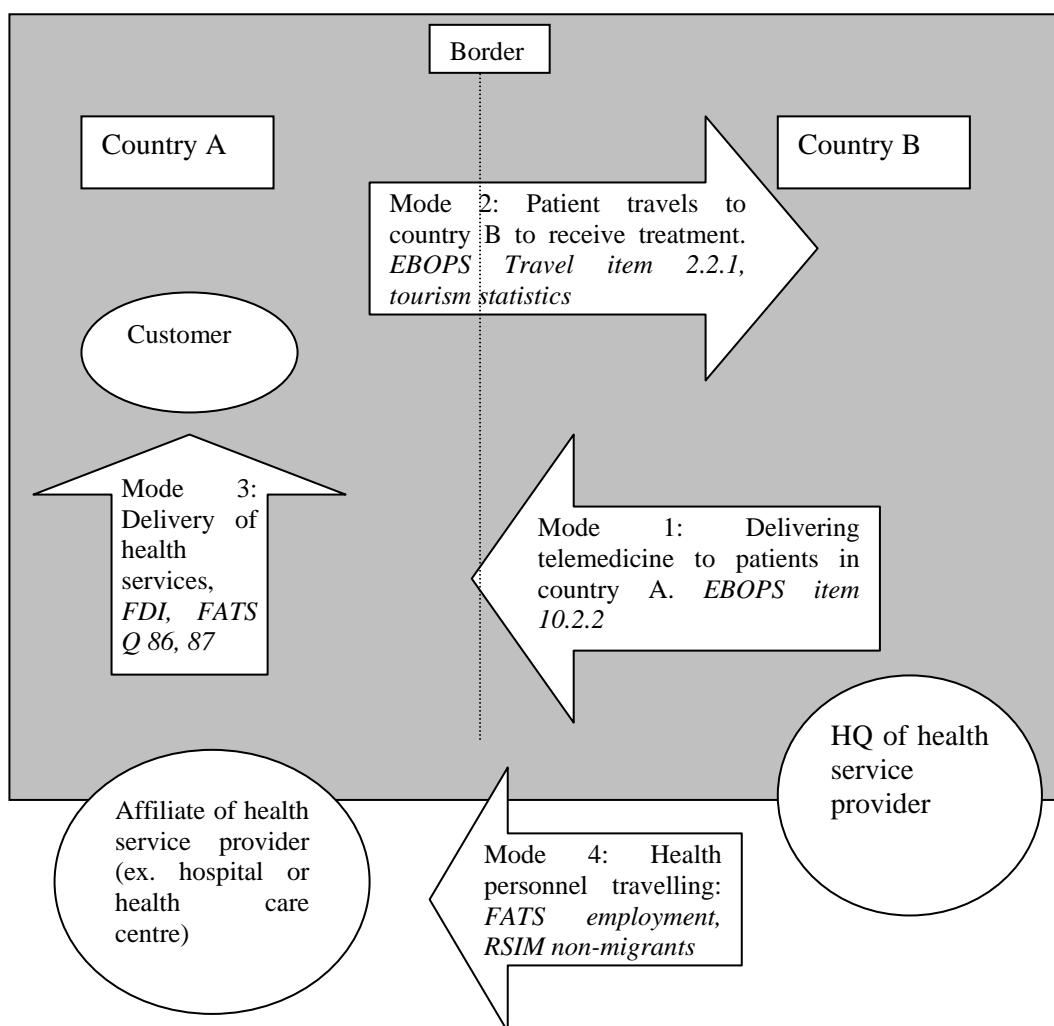
### *Modes of Supply:*

4. The supply of health services can take place in all four GATS modes. An example of mode 1 would be telemedicine or tele-diagnosis. If a health service is consumed abroad, as in the case of patients who get treated in a foreign country, it belongs to mode 2. Mode 3 covers the commercial presence of health service suppliers abroad. Finally, mode 4 applies to the presence of natural persons abroad, such as health professionals that work abroad. Under GATS WTO members can choose which service sector and mode they would wish to open up to trade. As of today, WTO Members have only made relatively limited commitments in health services (Mattoo et al., 2008). However, services are an important part of the current round of multilateral trade negotiations and a further liberalization is expected in the future.

### *Data Needs:*

5. Data on trade flows in services is sparse. The quality of existing data varies considerably from country to country and from mode to mode. One of the major problems is that the data largely do not originate from a coordinated, international agreed data collection approach. One of the main purposes of this annex is therefore to give guidance on how to collect data on trade in health services. In the following, we will present for each mode of delivery how trade data in health services can be collected, including the possible data sources. Figure A1 gives an overview of how health services can be delivered in the different modes with possible data sources. Table 1 provides a summary of all the recommended variables for trade in health services by mode. The last columns in Table 1 indicates the possible sources of data.

Figure A1: An illustration of International Trade in Health Services and related statistics



6. The liberalization of health services may have important impacts on the health system of a country offering new opportunities, but also risks. For example, health related tourism (mode 2) generates considerable revenues for the receiving country, but it may draw away critical resources from the local patients. Blouin et al. (2006) analyse in detail the possible implications of trade in health services on public health systems.

7. Policy makers and trade negotiators need reliable data on the international supply of health

services to better understand the dynamics of trade liberalization and the impact on public health. This data would enable to gauge the magnitude and trends of services trade flows as well as the openness for a country for trade in health services. Most importantly, it would allow them to assess risks and opportunities of liberalization commitments on public health and thus to craft the appropriate policies in order to move to coherence between health and trade objectives.

Table 1: Health Services Data by Modes of Supply

Mode	Flow		Recommended Variable (by origin or destination) for Trade in Health Services	Classification	Data Source
Mode 1	Imports		<ul style="list-style-type: none"> <li>▪ Value of health service consumed</li> <li>▪ Type of health service</li> </ul>	EBOPS 2002 <i>item 10.2.2</i>	Statistical offices, central banks, surveys of hospitals and private companies
	Exports		<ul style="list-style-type: none"> <li>▪ Value of health service delivered</li> <li>▪ Type of health service</li> </ul>		
Mode 2	Imports	Imports	<ul style="list-style-type: none"> <li>▪ Value of health service consumed</li> <li>▪ Type of health service</li> </ul>	EBOPS 2002 <i>item 2.2.1</i>	Surveys of households and border surveys
	Outward	Exports	<ul style="list-style-type: none"> <li>▪ Value of health service delivered</li> <li>▪ Type of health service</li> </ul>		Surveys of health service providers
Mode 3	Inward		<ul style="list-style-type: none"> <li>▪ Value of FDI inflow</li> <li>▪ Type of investment</li> <li>▪ Inward stock of investment</li> </ul>	FDI statistics	Central banks, statistical offices, and surveys
	Outward		<ul style="list-style-type: none"> <li>▪ Value of FDI outflow</li> <li>▪ Type of investment</li> <li>▪ Outward stock of investment</li> </ul>		
	Inward		<ul style="list-style-type: none"> <li>▪ Turnover, Employment, Value added, exports and imports of goods and services; number of enterprises.</li> <li>▪ Number of patients</li> <li>▪ Type of health service</li> </ul>	FATS statistics, ISIC: Q: Human health and social activities, 86: Human health activities, 87: Residential care activities.	Surveys of foreign affiliates
	Outward		<ul style="list-style-type: none"> <li>▪ Turnover, Employment, Value added, exports and imports of goods and services; number of enterprises.</li> <li>▪ Number of patients</li> <li>▪ Type of health service</li> </ul>		
Mode 4	Inward		<ul style="list-style-type: none"> <li>▪ Number of foreign health personnel</li> <li>▪ Category of foreign health personnel</li> </ul>	FATS employment	National agencies issuing working permits, professional registers, hospitals, and industry
	Outward		<ul style="list-style-type: none"> <li>▪ Number of domestic health personnel abroad</li> <li>▪ Category of domestic health personnel abroad</li> </ul>		

	Inward		<ul style="list-style-type: none"> <li>▪ Number of short-term migrants</li> <li>▪ Number of long-term migrants</li> <li>▪ Category of short-term migrants</li> <li>▪ Category of long-term migrants</li> <li>▪ Inward stock of short-term migrants</li> <li>▪ Inward stock of long-term migrants</li> <li>▪ Duration of stay of short-term migrants</li> </ul>	RSIM	surveys.
	Outward		<ul style="list-style-type: none"> <li>▪ Number of short-term migrants</li> <li>▪ Number of long-term migrants</li> <li>▪ Category of short-term migrants</li> <li>▪ Category of long-term migrants</li> <li>▪ Outward stock of short-term migrants</li> <li>▪ Outward stock of long-term migrants</li> <li>▪ Duration of stay of short-term migrants</li> <li>▪ Duration of stay of long-term migrants</li> </ul>		

N.B. Mode 4 as used here goes beyond GATS definitions and includes labour mobility.

### Mode 1: Cross-border supply of health services

8. Mode 1 health services can take different forms. Tele-health is the most prominent health services under mode 1 and covers preventive and curative tele-health services. The service can be delivered in real time (for example through video conferences) or by store-and-forward, which means that the analysis is done at a different moment in time. For example, several hospitals in the US send X-ray images electronically to India where they are analyzed by radiologists (Pollack, 2003). A suitable proxy for this cross-border-supply of health services, is found in Item '10.2.2 Health services' in the EBOPS classification under '10.2 Other personal, cultural, and recreational services' ('10 Personal, cultural, and recreational services'). Unfortunately, we do not yet have a separate category in EBOPS that records health insurance services.

9. The source data for EBOPS 2002 10.2.2 will probably come from the public as well as private sector. In public sector one could imagine using sources of statistical offices or central banks. Data sources in the private sector include among others hospitals, insurance companies, and information technology companies. Surveys might be necessary to approximate the trade flows coming from both sectors. The data collected should be in value terms, but ideally also contain information on type of service as well as the origin or destination of the service provided.

### Mode 2: Consumption of health services abroad

10. If patients travel abroad to receive medical treatment, the services delivered fall under mode 2. Hypothetically, all health services could be purchased abroad, however, there exists practical constraints, such as non-portability of health insurance or the capacity of the providing county.



In many cases, the patients travel on purpose abroad to get treated, in other cases, tourists become sick and need seek health care in the destination country. The boundaries between leisure and health tourism are often blurred as many international travellers combine both activities. In EBOPS 'Health-related expenditure' (under 'Travel Personal travel') countries report health-related travel expenditure. Unfortunately, only a small number of countries have collected this data so far. In the best case, this data contains not only the health-related expenditure data, but also information on number of patients and their country of origin as well as the type of treatment that they receive.

11. We find evidence that health tourism is growing at fast pace internationally, e.g. Thailand reports to have treated over one million foreign patients in 2006 (Thai Board of Investment, 2008). Given the considerable risks and benefits for public health generated by this trend, timely and comprehensive data collection is crucial. In order to generate reliable data for EBOPS 2002 2.2.1., surveys of households and travellers (for imports) as well as of health service providers (for exports) might be necessary.

### **Mode 3: Commercial Presence of foreign health service providers**

12. Commercial presence of a foreign health care providers through for example capital investment, branches or affiliates, falls under mode 3. Commercial presence is mainly represented by the activities of foreign-controlled affiliates trade. Information on these is collected in Foreign Affiliates Statistics (FATS). FATS are broken down into inward FATS and outward FATS, i.e. the activities of foreign affiliates in the compiling country, and activities abroad of affiliates of the compiling country. FATS are compiled using ISIC categories to distinguish between the different activities and hence according to the fourth revision of ISIC, health services would be found under section Q: Human health and social activities, 86: Human health activities and 87: Residential care activities. This Manual recommends that FATS include at least the following basic measures of foreign affiliate activity: sales (turnover) and/or output; employment; value added; exports and imports of goods and services; number of enterprises. In the case of health services it might

be helpful to complement these indicators with number of patients receiving treatment and the type of health services delivered.

13. Considering that commercial presence first requires foreign direct investment (FDI) to establish or maintain the presence and then to run the business, i.e. to deliver the health service, FDI data could in the absence of FATS be used to give an indication of the potential for this mode of supply. Data on FDI in health services are usually collected separately from data that measures the economic activity of foreign-controlled affiliates. FDI data ideally records the value of the investment received or sent, the country of origin or destination, as well as the type of investment. Most countries report the FDI flows in different industry categories according to the United Nations International Standard Industrial Classification of All Economic Activities (ISIC). In the current draft version of the fourth revision, FDI in health services would fall under section Q: Human health and social activities, 86: Human health activities or 87: Residential care activities.

14. FDI statistics are usually recorded by central banks or the national statistical offices. However, only few countries have so far collected separate FDI data in health services. The reason is that the data are usually based on the exchange records of central banks and hence limited in detail. Countries need to supplement this data with surveys or secondary sources. In the best case, countries might then also be able to gauge the actual stock (inward and outward) of FDI.

### **Mode 4 and labour mobility: Temporary presence of health care workers abroad**

15. GATS Mode 4 covers the temporary presence of natural persons abroad for the delivery of a specific service. Examples in the health field include the movement of nurses, physicians, or pharmacists from one country to another to provide health services. Currently, we do not have a well established definition of "temporary presence", yet mode 4 explicitly excludes the movement of persons who seek permanent employment in the receiving country. It should be noted that much of the movement of health personnel is simply mobility of labour rather than mode 4 in the strict sense. Data on mode 4 should cover the value and

type of health service delivered as well as the number of foreign health personnel received or sent during a particular reference period, including their origin or destination. Furthermore, it would be desirable to record the category of the health professionals that move and their duration of stay.

16. In order to measure the extent to which health services are delivered through mode 4 different approaches are possible. One possible source of information on mode 4 delivery of health services could be the Item '10.2.2 Health services' in the EBOPS classification, under which both mode 1 and mode 4 could fall. But it is still not clearly defined how to split this item into the two different modes of supply. Another possible source of information on mode 4 delivery of health services could be FATS. As explained in Chapter 5, FATS might detail the foreign employment of foreign affiliates. A more comprehensive source constitutes the United Nations Recommendations on Statistics of International Migration (RSIM). RSIM distinguishes between short-term migrants (admitted in another country for at least 3 months, but less than 12 months) and long-term migrants (stay more than one year in the receiving country). It would be important to record for both categories the type of service supplied, the industrial activity of the self-employed or the enterprise employing, the occupation and skills of the persons and the duration of stay. In the case of health, this would allow to retrieve valuable information on the nature and the extent of health services provided. It needs to be emphasized that from a public health perspective generating information on both, short-term and long-term migration of health personnel, is highly important. Currently, we are lacking of reliable cross-country data on the migration of health personnel, even though it often has major implications on public health in the sending as well as receiving country. The original data could come from different sources, such as government agencies issuing working permits, professional registers, hospitals, or industry surveys.

### **Upcoming Work**

17. The OECD in collaboration with WHO is currently developing an updated version of the International Classification for Health Accounts. This work should lead to a common international approach for data collection in the area of health services. It will include several guidelines that are

relevant for the collection of trade data in health services, such as, detailed classifications of health care providers.

18. Furthermore, WHO is currently working with WTO, the World Bank, WIPO, UNCTAD, international experts and trade and health policy makers from various countries to develop a diagnostic tool and companion workbook on trade and health<sup>17</sup>. The tool examines all linkages between trade and health, including trade in health services, and gives guidance on which data needs to be collected. The objective of the diagnostic tool is to enable policymakers to develop national policies and strategies related to trade and health and to identify their capacity building needs in this area. The diagnostic tool and workbook will also assist countries in preparing positions for trade and health related bilateral and multilateral negotiations as well as current multilateral global health diplomacy issues that have trade related issues. It is planned to start implementing the diagnostic tool in 2009.

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<sup>17</sup> The project is a response to implement the resolution on International Trade and Health of the World Health Assembly in 2004 (WHA59.26).

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