CPB Memorandum

CPB Netherlands Bureau for Economic Policy Analysis

Sector	:	International Economics
Unit/Project	:	Trade in services for GTAP
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Number	:	212
Date	:	16 December 2008

The quality of bilateral services trade data:

contribution to GTAP7 database

This paper has two aims. First, it describes CPB's contribution on bilateral services trade data to version 7 of the GTAP database. Among others, it uses reliability indices to determine the quality of the data reported by exporting and importing countries. Second, this paper discusses briefly some alternative methods to make a choice between two available reporting data for the same bilateral flow.

1   Introduction

This paper has two aims. First of all, it presents CPB's contribution of bilateral services trade data to version 7 of the GTAP database (Narayanan and Walmsley, 2008). Among others, it uses reliability indices to determine the quality of the data reported by exporting and importing countries, using the Gehlhar (1996) method. Second, this paper discusses briefly alternative methods to make a choice between two available reporting data for the same bilateral flow.

In previous versions of the GTAP database services trade data in GTAP are basically composed of data of total imports and exports of services sectors according to International Monetary Fund balance of payments statistics data. The bilateral trade matrix and rebalancing is constructed using amongst others a RAS procedure and bilateral trade flows in goods.[1] These bilateral data are thus constructed and it would be desirable to obtain a statistical base for constructing the bilateral flows.

In the past these statistical databases were lacking, but this is changing now. Good statistical measurement of services trade becomes more and more important now trade in services gets the attention of policymakers. In 1995 many countries decided to liberalise services trade according to the General Agreement for Trade in Services (GATS). Also in the Doha round the WTO members aim to open their markets in services further. Moreover, the European Commission launched new policy proposals for the intra-EU service market (EC, 2004). To analyse the welfare impact of these (and other) policy proposals, it is necessary to depart from good bilateral data on services trade. With the new interest in services trade, efforts increase to raise the quality of services data on production and on trade. The OECD has cooperated with Eurostat, to create a comprehensive database on bilateral trade in services. This database is based on the concepts and framework of trade in services set out by the IMF in their balance of payments statistics.

In January 2007 we received the OECD database "*OECD Statistics of International Trade in Services: Detailed Tables by Partner Country (including unpublished data)"* which includes the year 2004. 2004 is the base year of version 7 of the GTAP database. Compared to earlier versions of the OECD database, the sector other commercial services is split into communication, construction, insurance, financial services, computer and information services, royalties and licences, and other business services. This improves the concordance to the GTAP sectors considerably. We provide a consistent trade dataset for 27 individual OECD countries, EU15 and 2 Non-OECD countries and deliver available data for all partner countries for the year 2004.

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[1] Chapter 15 of the documentation on version 6 of the GTAP data base (Dimaranan, 2006) provides more information.

In section 2 we present an overview of the available Bilateral Services Trade data for the GTAP-7 database. As outlined in Van Leeuwen and Lejour, 2006 we use the method of Gehlhar (1996) to check the reliability of the reporting country if there are two reporting observations available for the same bilateral flow. This is described in section 3. In section 4 we present the other decisions: if we only have one observation for a certain flow, we use this observation, and in case there is no flow at all, we have to construct a value based on total imports and exports. The database for 2004 contains many gaps, which means that many estimates are necessary to present a full matrix of bilateral services trade flows. These estimates are partly based on data for 2003. In section 5 we discuss briefly the concordance between the services sectors. The resulting matrices of bilateral services trade flows are presented in the appendix. In section 6 we discuss alternative methods to model the discrepancies, in particular the bias model of Tsigas, Hertel and Binkley (1992) and the variance model which is generally used to compile macro-economic statistics. Finally, we compare the results of the three methods for a small sample of 12 bilateral flows.

2   Coverage of the OECD data

In order to provide some more insight in the availability of the data we show 12 figures of the available sectors for the period 1999-2004 of bilateral trade in services between the 30 reporters. In these graphs we distinguish four types of observations for the same flow:

1. If we have both observations of the same flow (from exporter and importer) we consider this as "export + import"
2. If we only have an export observation by a reporter we refer to this as "export + missing"
3. If there is only an import observation by a reporter, we call this "missing + import"
4. If both observations are found as missing we count these observations as "missing + missing"

The total number of observations for each year is 900, because we have counted the observations of the 30 reporters and the same partners. Note that 29 observations are "missing + missing" by definition. These are the internal trade flows within a OECD country.[2]

From figure 2.1 we can see that more observations are available in the more aggregated sectors (travel, transport and other commercial services) than in the sub sectors within other commercial services. This is not surprising because the OECD published only data for the categories total services, transport services, other commercial services, travel and other government services in recent years. Many countries do not register or classify bilateral services trade flows at a more disaggregated level. For many of these sectors, we only have for about hundred flows two observations. That is about 10% of the total number of flows. Contrasting, for the sector transport we have two reporting countries for about 40% of the flows in 2002.

Moreover we conclude that over the years the number of "export + import" observations is increasing over the period 1999-2002. For the years 2003 and 2004 there are fewer observations available. This is more specifically the case for the sub sectors within other commercial services.

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[2] Note that EU15 is a special reporter. It is used as a reporter in this paper to estimate missing observations for other countries in section 5. The observations of this region however are not mentioned in the results of section 3 and 4 since the region is an aggregate of the 15 individual EU countries (prior to the enlargement in 2004).

Figure 2.1　Comparison of observations per year and sector

transport

travel

computer and information services

communication

insurance

financial services nec

■ **export + import**　■ **export + missing**　□ **missing + import**　□ **missing + missing**
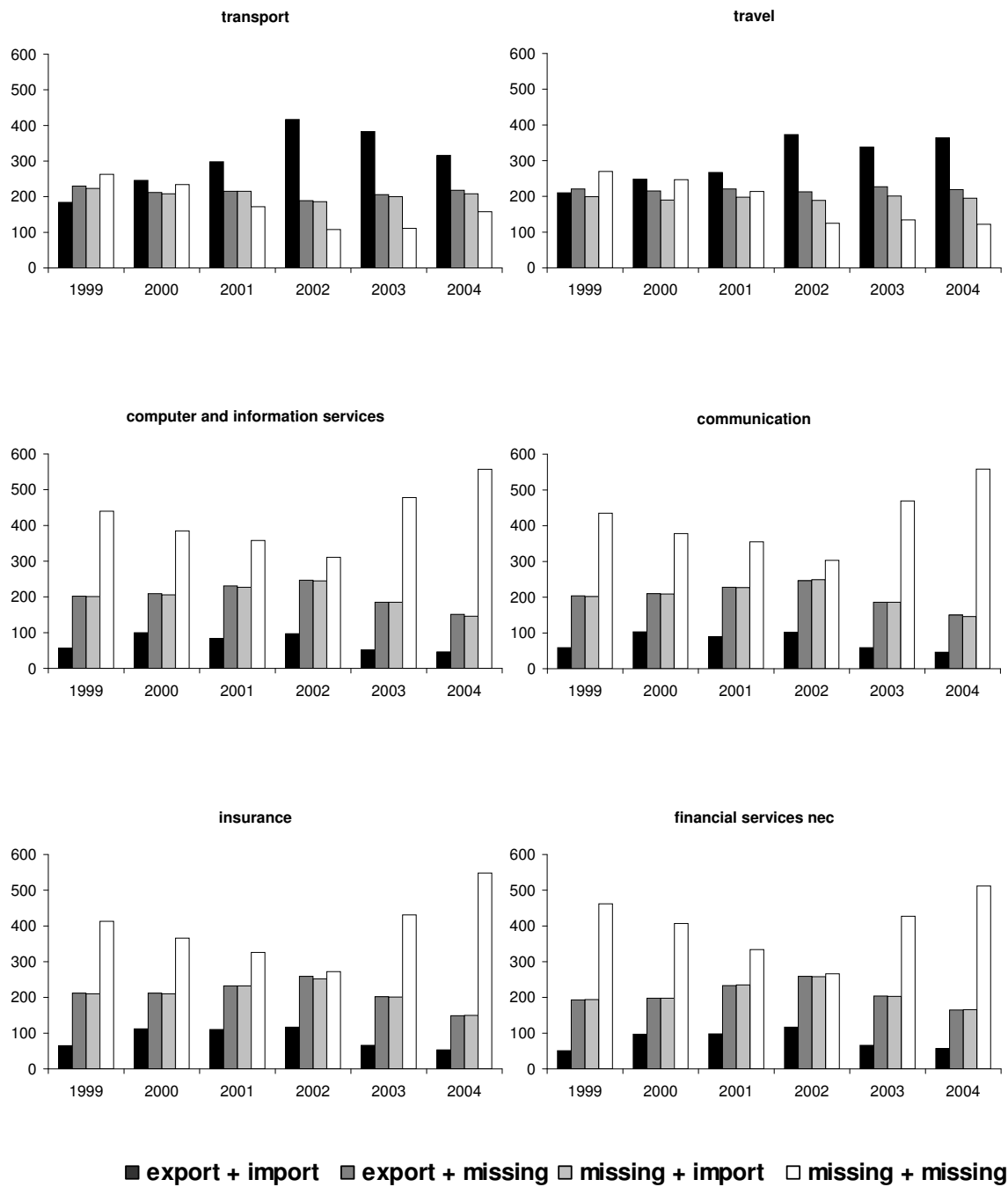
Figure 2.1   Comparison of observations per year and sector (continued)

construction

royalities and license fees

business services nec

recreational and other services

recreational and other services

other commercial services

■ **export + import**   ■ **export + missing**   ◻ **missing + import**   ◻ **missing + missing**
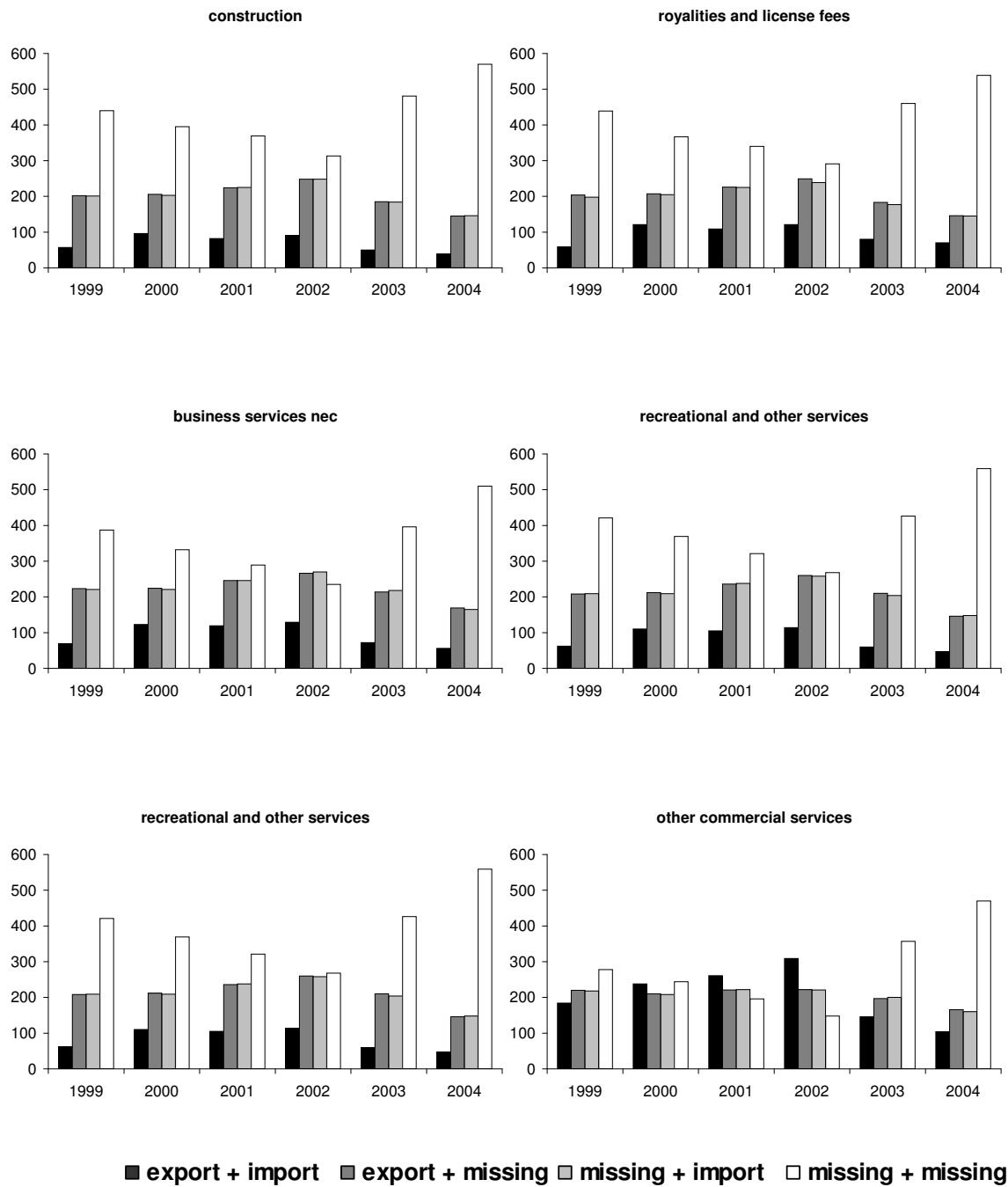
3   The Gehlhar method for establishing reliability

Gehlhar (1996) has developed a method for reconciling bilateral merchandise trade data for the GTAP data base. He constructs reliability indices for each flow. According to this philosophy, transaction data are reliable if the values of the reporting countries deviate less than 20%. An arbitrary reporting exporter trades with dozens of countries in a particular good. Some of the transactions are reliable according to the definition above and some are not. By aggregating the values of the reliable transactions of the reporters and comparing the aggregate to total reported exports for that particular good Gehlhar constructs reliability indices of the exporters. This is done for every reporting exporting and importing country per good item. The higher the index, the larger the share of reliable transactions, and the more reliable the reporter is. If the index for the reporting exporter is higher than for the reporting importer, the reported trade flow from the exporter is considered to be the most reliable.

We use the same method to identify the most reliable reporters for all available services sectors. We also use the criterion of 20% as indication for a reliably reported flow. This threshold is arbitrary. In first instance, we experimented with a lower number because some biases in reporting that occur in merchandise trade are not (or less) relevant in services trade, such as the classification of trade and transportation costs. However in that case only a few flows were considered to be reliable. For practical reasons we adopted to the 20% criterion. We have done this for the years 1999-2004, aggregated the reliability indices for these six years, and calculated the indices to percentages.

The denominator of the Gehlhar index includes all (28)[3] bilateral trade flows of an exporter or importer. For many of these flows we do not have two observations. As a consequence the index "produces" lower numbers for sectors with a limited number of two observations per flow. So, if for only about 10% of the flows we have two reporting countries, the Gehlhar index will not exceed the value of this percentage assuming that there are not systematic differences in the values of the flows.

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[3] EU15 and internal trade within a country are excluded,

Table 3.1   Reliability indices (in%) for reporting exporters in services, 1999-2004

reporting exporter	TTT	TRA	TRV	CMN	CNS	ISR	OFI	CIS	RLF	OBC	ROS	OSG	OCS
AUT	4.5	6.5	67.8	4.2	0.3	0.0	0.5	0.0	4.2	1.0	1.3	4.2	25.5
BEL	12.5	8.8	14.8	0.2	0.2	0.0	1.3	0.0	39.2	3.0	5.8	2.8	0.2
DNK	21.0	1.5	12.0	0.0	0.0	0.0	0.0	0.0	0.0	17.5	0.0	0.0	1.2
FIN	27.3	10.7	34.5	6.8	1.0	0.0	2.3	0.0	2.7	13.0	0.0	10.2	12.3
FRA	41.2	33.8	45.7	7.2	1.2	0.3	9.5	2.5	46.0	6.0	4.3	0.0	13.8
DEU	32.5	24.0	64.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	15.8
GBR	47.5	13.0	32.0	8.5	0.5	0.7	1.5	3.8	2.2	3.3	5.7	1.3	15.0
GRC	7.3	1.3	29.7	0.2	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2	1.8
IRL	4.7	2.2	29.8	0.0	16.7	0.0	0.0	0.0	0.0	0.0	3.7	15.8	0.0
ITA	32.8	33.0	41.7	0.2	0.0	0.8	0.7	0.8	5.3	4.8	1.8	5.8	4.3
LUX	6.0	12.0	4.8	0.0	3.3	0.2	0.0	0.0	0.0	0.0	0.0	3.3	0.0
NLD	33.5	33.2	57.5	0.5	19.3	8.3	0.2	2.7	5.2	5.3	10.7	3.3	26.7
PRT	30.5	12.7	28.7	4.5	0.3	7.8	3.2	0.5	5.7	1.8	0.5	1.8	8.0
ESP	11.2	23.5	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SWE	24.3	6.5	39.3	1.7	1.2	4.2	0.0	3.7	21.2	3.2	5.2	6.5	9.5
AUS	42.2	19.5	39.7	1.3	0.0	0.7	0.0	0.2	5.3	5.2	0.2	4.5	22.3
NZL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JPN	1.0	59.5	13.0	6.2	2.8	2.3	0.0	0.2	53.7	2.8	1.7	18.0	6.8
CAN	4.0	79.3	80.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.8	6.7
USA	0.0	38.2	45.0	0.0	0.0	0.0	0.0	0.0	21.3	0.0	0.0	22.2	17.7
MEX	0.0	0.0	96.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KOR	39.7	15.7	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0
HKG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOR	15.2	7.5	13.3	11.0	11.0	2.7	4.0	11.3	12.5	6.2	1.3	6.2	21.5
HUN	11.2	14.8	5.0	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.0	2.7	10.3
SVK	26.3	35.5	13.8	5.8	2.8	0.2	0.0	0.3	0.0	3.2	0.0	2.7	8.7
CZE	46.7	13.5	31.7	0.0	0.2	1.3	0.0	0.2	0.5	1.5	0.0	2.0	13.7
TUR	0.0	0.0	25.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

For an explanation of the sectors and country codes we refer tot Appendix A

From tables 3.1 and 3.2 we conclude that most reliability indices are smaller than 20%. Using the maximum value of 100% as a benchmark at most a quarter of the values of the reported flows is considered to be reliable also for the sectors transport and travel. The reliability of reporting is low in the sub sectors within other commercial services and in other government services: in a few cases the indices exceed the value of 40%, but in most cases the reliability is less than 5%. In transport services and travel the index sometimes exceeds the value of 50% indicating that at least more than half of the recorded trade values by these countries are reliable.

Table 3.2　　　　**Reliability indices (in %) for reporting importers in services, 1999-2004**

reporting importer	TTT	TRA	TRV	CMN	CNS	ISR	OFI	CIS	RLF	OBC	ROS	OSG	OCS
AUT	9.5	12.7	24.3	1.8	0.3	0.0	0.0	0.0	1.2	2.5	1.2	1.8	3.8
BEL	34.2	15.5	17.0	0.2	4.7	0.0	0.3	0.0	3.2	0.8	0.0	0.0	21.3
DNK	21.8	4.3	14.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0	0.0	0.2
FIN	10.8	8.2	16.3	0.0	0.5	5.2	5.2	0.3	1.5	10.8	1.5	2.3	5.3
FRA	57.3	29.8	26.3	10.2	5.2	4.3	0.0	2.3	9.2	3.7	0.0	4.2	29.0
DEU	43.5	22.8	57.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	25.0	17.2
GBR	22.5	16.2	32.0	4.7	0.0	2.5	2.2	1.7	1.3	1.8	5.2	19.3	5.2
GRC	5.5	4.0	11.8	0.0	0.0	1.5	0.0	0.0	0.0	2.3	0.0	0.5	8.5
IRL	10.5	2.2	3.0	0.0	7.8	0.0	0.0	0.0	0.0	0.0	7.8	12.5	0.0
ITA	19.5	25.2	47.3	0.3	0.2	0.8	0.0	0.0	1.5	2.3	0.0	0.8	20.8
LUX	9.7	5.8	0.0	0.0	0.0	0.0	0.2	0.0	1.3	0.0	0.0	0.0	0.2
NLD	50.8	8.8	42.8	6.5	9.8	5.7	1.5	6.7	5.3	5.7	14.7	10.0	53.5
PRT	45.3	7.5	27.2	5.8	0.7	3.3	9.2	0.2	2.7	6.3	0.0	0.0	21.2
ESP	5.2	22.3	30.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SWE	41.5	16.3	33.2	7.0	6.0	12.5	3.8	9.2	22.3	7.7	4.7	3.2	23.0
AUS	17.8	27.5	33.8	2.0	0.0	0.3	0.2	0.5	3.8	2.3	5.7	5.7	4.2
NZL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JPN	65.3	42.0	36.5	1.2	1.8	0.5	8.2	0.5	63.5	5.7	3.7	24.3	9.5
CAN	86.3	79.3	78.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.0	48.3
USA	28.5	40.7	53.8	0.0	0.0	0.0	0.0	0.0	40.3	0.0	0.0	2.7	7.7
MEX	0.0	0.0	83.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
KOR	4.7	28.2	16.8	3.8	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0
HKG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOR	24.5	8.8	28.2	2.2	3.8	9.2	0.0	8.0	18.0	12.7	15.7	5.3	32.8
HUN	17.7	30.3	2.8	0.2	0.7	0.0	0.0	0.0	0.0	0.3	0.0	2.3	13.0
SVK	20.2	18.5	0.3	0.7	1.2	2.5	3.2	1.0	0.0	0.5	0.0	8.0	9.0
CZE	27.8	17.8	7.0	0.0	0.0	0.0	0.5	0.0	1.5	0.0	0.5	3.0	11.7
TUR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RUS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

For an explanation of the sectors and country codes we refer tot Appendix A

Figure 3.1 presents the reliability indices in % for each sector: the average over all countries as reporter of exports and imports. Even for the bigger sectors the reliability is quite low. If all observations would be available and reliable the column should reach the value of 100%. In practice this is not achievable, but the low numbers for the sub sectors in other commercial services are worrisome. To a large extent the low average indices point to the relatively low number of available observations. The figures in section 2 suggest that availability will increase over time, but the current situation is very distant from reliable reporting of bilateral trade flows with two reporting countries.

Figure 3.1   Reliability indices (in %), average over all countries, 1999-2004
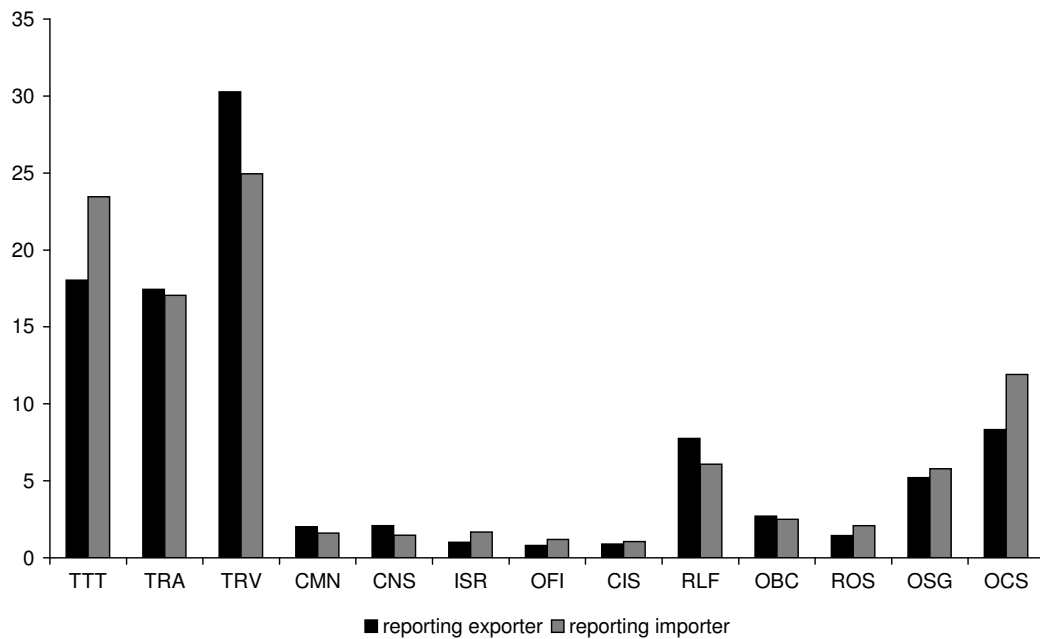
4 Choices and estimates

The previous sections showed that the choice in case of two observations is based on the method of Gehlhar (1996). If there is only one flow, this flow is considered to be the correct flow. In all other cases we have estimated the empty cells for the 30 by 30 matrix of bilateral services trade flows between OECD countries. The characteristics of the estimates are:

- The procedure to create one matrix out of the two matrices for which we have two or one observations per flow is carried out for both 2003 as 2004.
- This results in a matrix for all sectors of 30 reporters (27 OECD countries, EU15, Hong Kong and Russia) and the same 30 countries as partners.
- To calculate the remaining empty cells we have used three aggregate partners: total OECD, Non OECD and Total World
- For the matrices of all sectors in 2004 missing cells are estimated in the following order:
- For EU15 countries the export shares in the flow of EU15 of 2003 is used to calculate the flow for that sector in 2004
- For all reporters the export shares in the flow of total OECD of 2003 is used to calculate the flow for that sector in 2004
- For all reporters the export shares in the flow of total World of 2003 is used to calculate the flow for that sector in 2004
- For remaining cells of reporting countries and sectors within other commercial services, we first estimate the flows of that country to total world, using the share of that sector and total other commercial services of the flow of EU15 to total world in 2004. This total world number is then used to calculate the required flow using the share of total commercial services of this country and that of the total world.
- For any remaining cells we use the shares of total sectors of either total OECD, or even total world
- For remaining empty flows from non EU countries to several partners similar equations are used, but with import shares in EU15.
- For the final empty cells between non EU15 countries we use the export shares of Japan, since that country is the only country with an almost full range of observations. The only flow we have to set to zero is the one from and to Turkey of this country.

5   Results

We have constructed a spreadsheet containing a consistent set of 12 matrices of bilateral services trade flows for GTAP and other GTAP related sectors according to the concordance in the table A2. In the tables we have included the values of 30 reporters to the 30 partners. All the values are expressed in **bln** US dollars.

The 12 consistent tables can be used to create the flows for the required 9 GTAP services sectors. Therefore the following assumptions have to be made:

- Royalties and license fees is not a GTAP sector and can be ignored, except for foreign income transfers.
- OBS is the summation CIS and OBC
- OCS is the sum of CMN, CNS, ISR, OFI, CIS, RLF, OBC and ROS. Note that the table OCS in the spreadsheet is not necessarily equal to the sum of the above mentioned sectors. We have included it as an individual available sector in the original OECD database.
- We have ignored the data of "9842: Other commercial services transportation, excluding insurance services. (New Zealand)" and "205291: Transportation and government services (Canada)"

The tables can be downloaded from our website. We also print the results per sector in the Appendix

6 Alternative methods

On the GTAP board meeting of last year it has been decided to use the Gehlhar method to make a choice between two mirror data for bilateral service trade flows. This method is elegant for its simplicity, but also ad hoc. The criterion of 20% is debatable and crude: observations are reliable or not, there is no middle way. Also there is no optimal combination of the information of the two mirror values, only one value is used.

Econometric methods are more elegant and precise. In Ten Cate (2007) a review is given of various econometric models and estimation techniques for discrepancies in bilateral data, as follows. We present the results of the modelling for a small illustrative set of data, with four countries.

Table 6.1	Reported trade in services, OCS (2002, billion USD)					
reporting exporter	reporting importer	reported export	reported import	Δ	$|\Delta|$	$|\Delta|$ / import (GTAP)
FRA	DEU	1.3	4.8	-3.5	3.5	73
FRA	ITA	1.8	3.7	-1.9	1.9	51
FRA	GBR	3.8	3.3	0.5	0.5	15
DEU	FRA	4.7	3.6	1.1	1.1	31
DEU	ITA	1.8	3.6	-1.8	1.8	50
DEU	GBR	6.6	3.9	2.7	2.7	69
ITA	FRA	3.3	1.5	1.8	1.8	120
ITA	DEU	3.4	1.4	2.0	2.0	143
ITA	GBR	3.6	1.2	2.4	2.4	200
GBR	FRA	5.7	4.8	0.9	0.9	19
GBR	DEU	7.5	9.1	-1.6	1.6	18
GBR	ITA	2.9	7	-4.1	4.1	59
Total		46.4	47.9	-1.5	24.3	

Source: OECD (2006)

In the first place, we have the model for biased reporting errors: reporting is systematically too low, or systematically too high. For each country we have a typical expected percentage of over-reporting or under-reporting, separately for export reporting and import reporting.

This model has been discussed, and estimated with least squares regression, by Tsigas et al. (1992). Unfortunately, they have not solved the fundamental problem of such models: all these systematic biases are only identified up to an arbitrary shift between the export reporters and the import reporters. We proceed from here by adding a new element to the model: the model is symmetric in export reporting and import reporting; we do not consider a priori one of these

flows more or less reliable than the other. This is expressed by stating that the total of the export reporting biases plus the total of the import reporting biases is zero. With this addition the model is identified.

When using the estimated biases, including their sign, the optimal combination of two mirror values is not always closest to the most accurate reporter, see Ten Cate (2007) for details. The result of this model for the illustrative data is given in table 6.2. For instance, it shows that France as an export reporter has a downward bias of 56 %. As an import reporter France has a downward bias of 22 %. In total it appears that exports are over-reported and imports are under-reported by 2 %.

Table 6.2   **Estimate of the bias model**

	export		import	
	+Δ	estimated bias	-Δ	estimated bias
	billion USD	%	billion USD	%
FRA	−4.9	−56	−3.8	−22
DEU	2.0	−4	3.1	22
ITA	6.2	75	7.8	52
GBR	−4.8	−12	−5.6	−54
Total	−1.5	+2	+1.5	−2

Not all columns add up tot the total, due to rounding

An altogether different model states that each country reports unbiased, or in other words correctly on average. Here the countries have a different spread (variance) of the reporting error. This is the statistical model of Stone et al. (1943), used by national statistical bureaus to compile macro-economic statistics. See Annex A of Wroe et al. (1999) for a literature review. With this model, the optimal combination of two mirror values is always closest to the most accurate reporter (i.e., the reporter with the smallest variance). A similar symmetry condition as above is applied here to identify the model. In Ten Cate (2007) two methods for the simultaneous estimation of the variances are presented: least squares and maximum likelihood. The latter is numerically more complicated and less robust, but statistically correct. Hence we have chosen the latter here. Please recall that this is only a small numerical example to illustrate how the various alternative methods work, and not a full scale application to base a choice on.

Table 6.3 shows the square root of the estimated variances. For the export reporting, the results are quite different depending on the estimation method; for the import reporting, this is not the case.

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Table 6.3   **Estimates of the variance model**

	export reporting				import reporting			
	total	|Δ|	rel |Δ|	√variance	total	|Δ|	rel |Δ|	√variance
	billion USD		%		billion USD		%	
FRA	6.9	5.9	86	0	9.9	3.8	38	0
DEU	13.1	5.6	43	40	15.3	7.1	46	83
ITA	10.3	6.2	60	101	14.3	7.8	55	71
GBR	16.1	6.6	41	17	8.4	5.6	67	14
Total	46.4	24.3			47.9	24.3		

Fortunately it is possible to judge empirically the bias model and the variance model. Ten Cate (2007) finds that the bias model fits best for his small illustrative dataset (independently of the estimation method of the variance model). It might be useful to estimate and test these models on more extended bilateral trade data sets.

The Gehlhar method is implicitly based on the no-bias notion: the accuracies have no sign and the attention is only for the most accurate reporter of two mirror values. Also, the above mentioned symmetry rule is implied here: together the exporters are judged on the same discrepancies as the importers together.

7   Comparing results of Gehlhar with bias and variance model

It is interesting to compare the results of the models in section 6 with those of the Gehlhar method in section 3. For a complete overview we have calculated the reliability indices in percentages of the Gehlhar method for the sample of data in table 6.1.

Table 7.1	Reliability indices (in %) for reporting exporters and importers in OCS, 2002	
	exporter	importer
FRA	55	48
DEU	0	59
ITA	0	0
GBR	82	39

Note that the variance model is also sign-free. From table 6.1 we can see that only three out of our 12 discrepancies are below the 20% relative discrepancy. From table 7.1 it can be seen that Italy has a zero GTAP reliability for export reporting and for import reporting. This agrees with the results in table 6.3, as does the good result for France and the United Kingdom. The result for Germany differs from Gehlhar. According to the results in table 7.1, Germany is an unreliable export reporter, and in table 6.3 it is an unreliable import reporter.

In table 7.2 we present the numbers from the original mirror data of table 6.1 followed by the outcomes of the Gehlhar method, bias and variance models respectively[4].

Table 7.2	Results of the various methods					
from country	to country	reported export	reported import	Gehlhar	bias	variance
FRA	DEU	1.3	4.8	4.8	3.0	1.3
FRA	ITA	1.8	3.7	1.8	2.6	1.8
FRA	GBR	3.8	3.3	3.8	6.1	3.8
DEU	FRA	4.7	3.6	3.6	4.7	3.6
DEU	ITA	1.8	3.6	2.7	2.0	2.1
DEU	GBR	6.6	3.9	3.9	6.8	4.1
ITA	FRA	3.3	1.5	1.5	1.7	1.5
ITA	DEU	3.4	1.4	1.4	1.3	2.0
ITA	GBR	3.6	1.2	1.2	1.9	1.2
GBR	FRA	5.7	4.8	5.7	6.2	4.8
GBR	DEU	7.5	9.1	7.5	7.9	7.6
GBR	ITA	2.9	7.0	2.9	3.7	3.0

As expected, the results for Gehlhar are either the reported export or the reported import observation[5].

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[4] For calculations we refer to Ten Cate (2007)

The results for the bias model depend on estimated bias values in table 6.2 and are in most cases between the reported export and import. An exception is the result for the flow of France to United Kingdom. This is almost twice as high as that of the individual mirror values. According to this method both countries under-report their reported values by more than 50%, which means that this value will have to be more than doubled. The results for the flows from Germany and United Kingdom are close to the reported exports from these countries, since the value of the estimated bias is quite close to zero. For the latter country these results are in line with those of the Gehlhar method, since the reliability index is the highest in this sample. Finally for the flows from Italy we notice that the results are close to the reported imports since Italy over-reports the export by 75 %.

For the variance method we notice that the results for the flows for France to the other countries equal the value of the reported export of this country, since this country has a zero variance. For the flows from other countries to France we see the values of reported import into this country as the result. According to this method France is the perfect reporter. United Kingdom is also a good reporter and this is reflected in the results as well. For the remaining flows we see a value in between both mirror values, except for the flows from Italy, where the variance is so high that the results are close the reported imports.

The differences between the results of the three methods are striking but maybe not surprising. We should also remember that the results are based on a relatively small sample of 12 mirror observations. Results could change substantially if we increase the number of observations of a exporting or importing country. Moreover, we can also cumulate the indices over years, as we have done in section 3 for the Gehlhar method. If we would use the indices of table 3.1 and 3.2, aggregated over six years, on the mirror values of table 7.1, we would see different results for some of the mirror values.

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[5] For the flow between Germany and Italy both reported export and reported import don't meet the Gehlhar conditions. Therefore the average value is calculated.

8   Summary and conclusions

In this paper we have described our construction of 12 matrices of bilateral flows of 27 OECD countries, Hong Kong and Russia for the year 2004. In case of two observations for one flow we have used the Gehlhar method to identify the most reliable reporter. However for most trade flows at most one reporting observation is available. At a more detailed sub sectors in other commercial services many flows are even not reported, although the number of observation is increasing over time.

We have also discussed alternative methods to make a choice out of two mirror data for an identical flow. These includes the bias en variance method, both based on econometric methods. These methods use the information of reporting mirror data more systematically and effectively. Comparisons of the results of the Gehlhar method with these two methods have been presented for a small, illustrative set of data and led to striking differences. This leads to the suggestion that it could be worthwhile to conduct a full scale comparison of these methods.

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Appendix A: List of available countries[6], sectors and results

Table A1: List of available countries as reporters

AUS	Australia
NZL	New Zealand
JPN	Japan
CAN	Canada
USA	United States
MEX	Mexico
KOR	Korea
E15	EU15
AUT	Austria
BEL	Belgium
DNK	Denmark
FIN	Finland
FRA	France
DEU	Germany
GBR	United Kingdom
GRC	Greece
IRL	Ireland
ITA	Italy
LUX	Luxembourg
NLD	Netherlands
PRT	Portugal
ESP	Spain
SWE	Sweden
NOR	Norway
CZE	Czech Republic
HUN	Hungary
SVK	Slovakia
TUR	Turkey
HKG	Hong Kong
RUS	Russia

[6] Note that three OECD countries do not report: Iceland, Switzerland and Poland, EU15 is mentioned as a separate reporter and Hong Kong and Russia are Non-OECD reporters

Table A.2: Concordance between OECD (TISPW special) and GTAP sectors

OECD names	GTAP and GTAP related names
200: 200: TOTAL SERVICES	
205: 205: TRANSPORTATION	TRA transport
236: 236: TRAVEL	TRV Travel
245: 245: COMMUNICATION SERVICES	CMN communication
249: 249: CONSTRUCTION SERVICES	CNS construction
253: 253: INSURANCE SERVICES	ISR insurance
260: 260: FINANCIAL SERVICES	OFI financial services nec
262: 262: COMPUTER AND INFORMATION SERVICES	CIS COMPUTER AND INFORMATION SERVICES (OBS)
266: 266: ROYALTIES AND LICENSE FEES	RLF ROYALTIES AND LICENSE FEES
268: 268: OTHER BUSINESS SERVICES	OBC business services nec (OBS)
287: 287: PERSONAL, CULTURAL AND RECREATIONAL SERVICES	ROS recreational and other services
291: 291: GOVERNMENT SERVICES, N.I.E.	OSG public admin. and defence, education, health
9842: 9842: Other commercial services transportation, excluding insurance services. (New Zealand)	
205291: 205291: Transportation and government services (Canada)	
984A: 984a: OTHER COMMERCIAL SERVICES	OCS OTHER COMMERCIAL SERVICES

Table A.3: Matrix of flows of transportation services from reporting countries to partner countries, 2004, in bln US dollars

from / to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	94.27	2.09	6.48	4.65	2.07	10.31	18.86	17.10	1.58	1.89	10.34	0.83	7.74	1.61	5.43	3.28	2.99	0.62	8.54	3.28	31.88	1.21	2.64	3.27	1.06	0.23	0.82	1.35	3.16	1.06
AUT	3.67	0	0.06	0.09	0.03	0.23	1.64	0.34	0.03	0.02	0.84	0.09	0.16	0.02	0.11	0.02	0.13	0	0.16	0.07	0.59	0	0	0	0.29	0.06	0.04	0.10	0.02	0.04
BEL	6.88	0.26	0	0.33	0.09	0.88	1.69	0.80	0.02	0.09	0.28	0.35	1.79	0.04	0.11	0.13	0.77	0.05	0.36	0.05	0.77	0	0.04	0.18	0.07	0.02	0.08	0.02	0.21	0.01
DNK	4.51	0.02	0.38	0	0.14	0.19	1.41	0.71	0.09	0	0.23	0.01	0.56	0.02	0.25	0.51	0.35	0.11	1.08	0.48	2.01	0.41	0.35	0.48	0.02	0	0	0.06	0.60	0.07
FIN	1.37	0.02	0.04	0.04	0	0.10	0.30	0.11	0	0	0.13	0	0.15	0	0.10	0.37	0.01	0	0.09	0.03	0.06	0	0	0.03	0.01	0	0	0	0.02	0.06
FRA	10.05	0.19	0.94	0.16	0.11	0	1.76	2.86	0.21	0.15	1.45	0.09	0.80	0.22	0.91	0.20	0.13	0.02	0.69	0.34	2.88	0.19	0.31	0.19	0.14	0.04	0.16	0.19	0.43	0.22
DEU	15.41	0.78	1.01	1.41	0.51	2.37	0	3.09	0.15	0.18	2.60	0.10	1.53	0.17	0.76	0.75	0.60	0.19	1.39	0.52	5.79	0.20	0.94	0.33	0.34	0.04	0.35	0.40	0.67	0.24
GBR	13.27	0.12	1.59	0.94	0.24	2.03	2.91	0	0.18	1.23	0.78	0.02	1.26	0.20	1.30	0.48	0.71	0.18	2.51	1.13	7.48	0.10	0.44	0.28	0.07	0.02	0.03	0.13	0.44	0.12
GRC	4.99	0.06	0.18	0.06	0.01	0.25	1.19	0.89	0	0	1.89	0.05	0.28	0.01	0.06	0.06	0.01	0	0.13	0.07	7.32	0	0.15	0.47	0	0	0.01	0.03	0.24	0.01
IRL	2.13	0.01	0.14	0.11	0.02	0.11	0.33	1.09	0.03	0	0.15	0.01	0	0.02	0.10	0.01	0	0	0	0.01	0.21	0	0	0.01	0	0	0.01	0	0	0
ITA	5.71	0.36	0.21	0.11	0.04	1.13	1.38	0.60	0.62	0.11	0	0.02	0.36	0.09	0.61	0.08	0.11	0.01	0.71	0.19	1.33	0.03	0.05	0.06	0.05	0.02	0.07	0.31	0.11	0.08
LUX	0.78	0.02	0.17	0.01	0.01	0.15	0.26	0.04	0	0	0.03	0	0.04	0	0.02	0.01	0	0	0.07	0.02	0.16	0.01	0.02	0	0.01	0	0	0.01	0.18	0
NLD	10.02	0.11	1.38	0.46	0.20	1.03	3.45	1.41	0.14	0	0.79	0.05	0	0.13	0.46	0.39	0.12	0.06	1.09	0.24	2.29	0.10	0.11	0.31	0.04	0.01	0.04	0.06	0.21	0.12
PRT	2.22	0.02	0.05	0.05	0	0.32	0.20	0.70	0.01	0.01	0.20	0.01	0.11	0	0.55	0	0	0	0	0.03	0.18	0	0	0.01	0	0	0	0	0	0
ESP	9.77	0.06	0.21	0.25	0.07	1.33	1.35	4.18	0.08	0.07	0.82	0.01	0.40	0.67	0	0.27	0.03	0	0.02	0.04	0.47	0.16	0.11	0.04	0.01	0	0.01	0.03	0.01	0.04
SWE	3.49	0.05	0.13	0.64	0.60	0.20	0.99	0.27	0.02	0.02	0.13	0.02	0.30	0.02	0.10	0	0.01	0	0.21	0.06	0.36	0	0.13	0.87	0.01	0	0	0	0.02	0.04
AUS	2.19	0.01	0.88	0.23	0.02	0.13	0.12	0.57	0.07	0	0.04	0	0.08	0	0.03	0	0	0.37	1.25	0.04	1.00	0	0.07	0.07	0	0	0	0	0.22	0.01
NZL	0.26	0	0	0.06	0	0.02	0.04	0.11	0	0	0	0	0.02	0	0	0	0.32	0	0.22	0.03	0.61	0	0.11	0	0	0	0	0	0.05	0
JPN	7.58	0.03	0.23	0.60	0.05	0.34	1.74	2.04	0.08	0.12	0.40	0.01	1.68	0.03	0.12	0.13	0.81	0.11	0	0.36	7.19	0.12	2.07	0.26	0	0	0.01	0	2.41	0.06
CAN	2.74	0.03	0.02	0.29	0.06	0.27	0.38	1.08	0.02	0.02	0.24	0.01	0.15	0.01	0.10	0.05	0.06	0.01	0.42	0	4.12	0.08	0.09	0.07	0	0	0.01	0.01	0.21	0.03
USA	20.25	0.33	0.88	1.17	0.11	1.81	3.69	6.08	2.39	0.43	0.84	0.05	1.46	0.15	0.63	0.25	0.85	0.19	5.17	4.61	0	2.53	2.48	0.53	0.15	0.04	0.09	0	0.67	0.39
MEX	0.71	0	0	0.23	0	0.09	0.07	0.12	0	0	0.02	0	0.03	0	0.14	0	0	0	0.04	0.18	1.91	0	0.11	0	0	0	0	0	0	0
KOR	1.52	0.01	0.09	0.20	0.01	0.30	0.58	0.14	0.06	0	0.10	0	0.02	0.01	0	0.13	0.13	0	2.39	0.14	3.44	0	0	0	0	0	0	0	0.21	0.11
NOR	3.78	0.02	0.26	0.36	0.05	0.30	1.20	0.44	0.05	0.01	0.24	0.03	0.32	0.01	0.12	0.36	0.06	0	0.60	0.20	1.36	0	0.11	0	0	0	0	0	0	0.12
HUN	0.74	0.13	0.02	0.01	0.02	0.15	0.14	0.09	0	0	0.12	0	0.05	0	0.01	0	0	0	0	0.04	0.12	0	0	0	0	0.03	0.01	0	0	0
SVK	0.45	0.11	0.01	0.01	0	0.01	0.24	0.02	0	0	0.02	0	0.01	0	0.01	0.01	0	0	0	0.01	0.03	0	0	0	0.05	0	0.18	0	0	0.61
CZE	1.06	0.13	0.02	0.01	0.01	0.16	0.25	0.18	0.01	0.01	0.13	0	0.11	0	0.03	0.04	0.01	0	0.01	0	0.19	0	0	0.01	0.03	0.15	0	0.01	0	0.20
TUR	2.45	0.06	0.07	0.08	0.01	0.22	0.45	0.38	0.06	0	0.87	0	0.12	0	0.07	0	0.01	0	0	0.02	1.45	0	0.11	0	0	0	0	0	0.08	0.25
HKG	3.24	0.03	0.35	0.42	0	0.27	1.07	0.42	0.05	0	0.31	0.01	0.28	0.01	0.01	0.54	0.54	0.07	2.90	0.42	1.75	0	0.72	0.05	0	0	0	0.02	0	0.01
RUS	2.64	0.12	0.02	0.26	0.34	0.37	0.88	0.18	0.07	0	0.17	0	0.05	0.01	0.15	0.03	0	0	0.12	0.13	0.74	0	0.15	0.04	0	0.01	0.01	0.17	0.04	0

Table A.4: Matrix of flows of travel services from reporting countries to partner countries, 2004, in bln US dollars

from \ to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	157.07	6.71	10.09	4.48	1.81	15.81	40.67	32.08	1.61	3.65	9.17	2.20	13.18	2.18	7.25	6.19	3.12	0.51	4.91	2.80	21.54	1.18	1.35	5.77	0.90	0.45	1.19	0.77	0.83	2.05
AUT	12.73	0	0.56	0.19	0.06	0.41	7.80	1.12	0.08	0.08	0.86	0.06	1.14	0.04	0.16	0.16	0.08	0.01	0.20	0.07	0.45	0.01	0.02	0.03	0.11	0.05	0.09	0.04	0.01	0.06
BEL	6.59	0.34	0	0.04	0.07	1.10	1.10	0.81	0.03	0.05	0.18	0.51	2.03	0.07	0.16	0.11	0.02	0.05	0.22	0.04	0.26	0.01	0	0.02	0.01	0	0	0.01	0.01	0.01
DNK	3.04	0.03	0.05	0	0.06	0.07	1.21	0.22	0.01	0	0.09	0.03	0.16	0.01	0.07	1.04	0.01	0	0.02	0.03	0.27	0	0	1.36	0.02	0	0	0	0	0
FIN	1.09	0.02	0.03	0.05	0	0.06	0.17	0.13	0.01	0.01	0.06	0	0.09	0.01	0.05	0.40	0	0	0.06	0.02	0.10	0	0	0.08	0.01	0	0.01	0	0	0.47
FRA	24.42	0.38	3.58	0.38	0.14	0	4.85	6.12	0.36	0.25	2.60	0.54	2.40	0.30	1.90	0.61	0.14	0	0.99	0.66	3.34	0.10	0.06	0.19	0.02	0	0.03	0.12	0.19	0.12
DEU	17.50	2.47	1.02	1.65	0.16	2.40	0	1.71	0.25	0.54	1.63	0.55	3.25	0.21	0.89	0.77	0.19	0.06	1.07	0.22	2.80	0.21	0.31	0.54	0.06	0.11	0.29	0.13	0.13	0.55
GBR	10.46	0.20	0.45	0.36	0.12	1.65	2.14	0	0.40	1.47	1.01	0.05	0.73	0.19	1.13	0.55	1.46	0.25	1.20	0.81	6.93	0.19	0.72	0.44	0.16	0.05	0.15	0.13	0.40	0.29
GRC	8.23	0.47	0.30	0.18	0.09	0.61	2.16	2.34	0	0.16	0.76	0.02	0.42	0.01	0.12	0.59	0.15	0.03	0.03	0.11	0.62	0.02	0.02	0.18	0.07	0.03	0.17	0.11	0	0.19
IRL	2.93	0	0	0	0	0.17	0.17	1.90	0	0	0.17	0	0.10	0.17	0.17	0.06	0.11	0	0.03	0.15	0.87	0	0	0	0	0	0	0	0	0
ITA	19.36	2.04	0.88	0.29	0.21	3.27	6.61	3.14	0.29	0.27	0	0.15	0.68	0.12	1.08	0.34	0.75	0.09	0.50	0.31	3.01	0.11	0.09	0.18	0.29	0.19	0.33	0.10	0.03	0.20
LUX	2.91	0.01	0.69	0.02	0	0.82	0.77	0.05	0	0	0.03	0	0.47	0.01	0.01	0	0	0	0	0.01	0.03	0	0	0.01	0	0	0	0	0	0.01
NLD	8.00	0.06	0.91	0.12	0.05	0.46	3.99	1.59	0.04	0.09	0.30	0.03	0	0.04	0.23	0.10	0.07	0.01	0.13	0.10	0.76	0	0.01	0.07	0.02	0.01	0.03	0.03	0	0
PRT	5.60	0.06	0.19	0.08	0.06	1.13	0.72	1.60	0.02	0.18	0.12	0.07	0.18	0	1.08	0.12	0.03	0	0.07	0.08	0.28	0	0	0.10	0.01	0	0.01	0.01	0	0.02
ESP	31.00	0.58	1.37	0.50	0.27	3.52	8.28	10.90	0.05	0.54	1.24	0.19	1.26	0.98	0	1.34	0.10	0	0.33	0.17	1.65	0.53	0.11	1.07	0.12	0	0.06	0.09	0.05	0.14
SWE	3.22	0.06	0.05	0.63	0.52	0.14	0.71	0.45	0.07	0.01	0.13	0	0.26	0.02	0.18	0	0	0	0.05	0.03	0.16	0	0	1.50	0	0	0	0.01	0.01	0
AUS	3.31	0.05	0.04	0.16	0	0.17	0.43	1.83	0.02	0.15	0.21	0	0.06	0.01	0.07	0.11	0	1.11	1.45	0.21	1.36	0.02	0.68	0.09	0.02	0	0	0	0.57	0.03
NZL	0.78	0.01	0.02	0.01	0	0.09	0.01	0.53	0	0	0.02	0	0.08	0	0	0	1.04	0	0.39	0.09	0.60	0	0.11	0	0	0	0	0	0.13	0
JPN	0.87	0.04	0.04	0.01	0.02	0.11	0.22	0.21	0	0	0.17	0.03	0.03	0.01	0.03	0	0.20	0.05	0	0.19	2.53	0.05	2.15	0.01	0.02	0	0	0.01	0.33	0.08
CAN	2.18	0.04	0.06	0.03	0.01	0.43	0.33	0.90	0.01	0.04	0.08	0.01	0.12	0.02	0.05	0.05	0.24	0.04	0.47	0	7.58	0.03	0.21	0.02	0.02	0	0.01	0.02	0.20	0.04
USA	23.49	1.04	0.53	0.34	0.16	2.17	3.77	9.79	0.10	0.59	1.73	0.02	1.20	0.12	1.17	0.75	2.15	0.49	11.00	8.87	0	6.26	3.29	0.39	0.09	0.09	0.11	0	0.54	0.61
MEX	1.56	0.01	0.03	0.05	0	0.30	0.01	0.47	0	0	0.29	0	0.07	0.01	0.33	0	0.01	0	0.14	0.29	9.24	0	0.11	0	0.02	0	0	0	0	0
KOR	0.17	0	0.01	0.02	0	0.02	0.01	0.08	0.01	0	0.02	0	0.01	0	0	0	0.05	0	3.90	0.05	0.92	0	0	0	0	0	0	0	0.36	0
NOR	2.16	0.03	0.03	0.24	0.07	0.18	0.74	0.21	0.01	0.01	0.07	0	0.16	0.01	0.03	0.37	0.02	0	0.03	0.03	0.21	0	0.11	0	0.01	0.01	0.01	0	0	0.02
HUN	2.11	0.37	0.04	0.03	0.02	0.12	1.08	0.14	0.04	0.02	0.13	0	0.07	0	0.04	0	0.02	0.01	0.04	0.04	0.16	0.01	0.02	0	0	0.22	0.01	0.01	0	0.02
SVK	0.33	0.09	0.01	0	0	0.04	0.10	0.03	0	0	0.05	0	0.02	0	0	0	0.02	0	0	0	0.09	0	0	0	0.03	0	0.20	0	0	0
CZE	3.35	0.15	0.04	0.06	0.03	0.11	2.01	0.44	0.03	0.02	0.17	0	0.17	0.01	0.10	0.07	0.01	0	0.06	0.02	0.18	0.01	0.02	0.03	0.04	0.36	0	0.02	0	0.19
TUR	7.55	0.33	0.35	0.16	0.02	0.37	4.16	0.97	0.27	0.02	0.21	0	0.55	0	0.07	0	0.01	0	0.03	0.03	0.23	0.01	0.02	0.03	0.03	0	0.01	0	0.04	1.19
HKG	0.50	0.01	0.03	0.01	0	0.09	0.08	0.22	0	0	0.04	0	0	0	0.01	0.07	0.26	0.04	1.80	0.16	1.02	0.01	0.16	0.01	0	0	0	0	0	0.01
RUS	2.03	0.07	0.05	0.06	0.18	0.35	0.66	0.20	0.05	0	0.24	0	0.07	0.01	0.10	0.01	0.03	0	0.05	0.05	0.50	0	0.10	0.06	0.01	0	0	0.08	0.02	0

Table A.5: Matrix of flows of communication services from reporting countries to partner countries, 2004, in bln US dollars

from / to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	12.00	0.33	0.95	0.42	0.26	1.26	2.23	1.89	0.14	0.61	0.90	0.38	1.26	0.15	0.55	0.66	0.11	0.03	0.13	0.18	3.12	0.08	0.05	0.24	0.15	0.04	0.10	0.08	0.20	0.16
AUT	0.34	0	0.01	0	0	0.01	0.20	0.01	0	0	0.04	0	0.03	0	0	0.01	0	0	0	0	0.06	0	0	0	0.02	0	0.01	0	0	0
BEL	1.09	0.01	0	0.03	0.01	0.19	0.16	0.13	0.01	0.04	0.07	0.11	0.26	0.01	0.03	0.03	0	0	0	0.01	0.37	0	0	0	0.01	0	0.01	0.01	0.01	0
DNK	0.32	0	0.03	0	0	0.01	0.03	0.03	0	0.01	0.03	0.01	0.07	0.01	0	0.12	0	0	0	0	0.03	0	0	0.02	0	0	0	0	0.02	0
FIN	0.23	0	0.01	0.01	0	0.01	0.03	0.02	0	0.01	0.01	0	0.02	0	0.01	0.09	0	0	0	0	0.01	0	0	0.01	0	0	0	0	0	0.01
FRA	1.76	0.03	0.24	0.03	0.01	0	0.46	0.34	0.03	0.05	0.21	0.04	0.23	0.03	0	0.08	0.01	0	0.01	0.03	0.26	0	0	0.01	0.02	0	0.01	0.02	0.01	0.03
DEU	1.74	0.11	0.10	0.05	0.02	0.21	0	0.43	0.02	0.10	0.12	0.11	0.21	0.02	0.14	0.08	0.01	0	0.01	0.04	0.51	0.03	0.02	0	0.05	0.02	0.04	0.02	0.02	0.03
GBR	1.54	0.01	0.10	0.05	0.04	0.22	0.35	0	0.02	0.21	0.10	0.02	0.22	0.02	0.08	0.10	0.03	0.01	0.09	0.03	0.92	0.01	0.02	0.10	0.01	0	0.01	0.01	0.03	0.03
GRC	0.12	0	0.01	0	0	0.01	0.04	0.02	0	0	0.02	0	0.01	0	0	0.01	0	0	0	0	0.03	0	0	0	0	0	0	0	0	0
IRL	0.21	0.01	0.01	0	0	0.02	0.05	0.04	0	0	0.04	0.01	0.01	0	0.02	0.01	0	0	0	0	0.05	0	0	0	0.01	0	0	0	0	0
ITA	0.86	0.08	0.06	0.01	0.01	0.17	0.16	0.11	0.03	0.03	0	0.06	0.05	0.01	0.07	0.02	0.01	0	0	0.03	0.41	0	0	0	0.01	0.01	0.01	0	0	0
LUX	0.35	0.01	0.10	0	0	0.05	0.05	0.01	0	0.02	0.04	0	0.03	0	0.02	0.01	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
NLD	1.92	0.04	0.22	0.07	0.03	0.17	0.49	0.48	0.02	0.11	0.12	0	0	0.02	0.08	0.05	0.03	0.01	0	0.02	0.33	0.02	0	0	0.02	0	0.01	0	0.10	0.02
PRT	0.26	0	0.01	0.01	0	0.04	0.04	0.03	0	0.01	0.02	0	0.01	0	0.07	0	0	0	0	0.01	0.03	0	0	0	0	0	0	0	0	0
ESP	0.48	0.01	0.03	0.01	0	0.09	0.08	0.07	0	0.02	0.05	0.01	0.04	0.03	0	0	0	0	0	0.01	0.03	0.01	0	0	0	0	0	0.01	0	0
SWE	0.78	0.02	0.02	0.14	0.10	0.05	0.13	0.17	0.01	0	0.03	0.01	0.07	0	0.03	0	0.01	0	0	0.01	0.08	0	0	0.09	0.01	0	0.01	0	0	0.02
AUS	0.10	0	0.01	0.01	0	0.01	0.01	0.03	0.01	0	0	0	0.02	0	0	0.01	0	0.04	0.01	0.01	0.06	0	0.01	0	0	0	0	0	0.07	0
NZL	0.02	0	0	0	0	0	0	0.01	0	0	0	0	0.01	0	0	0	0.02	0	0	0	0.01	0	0	0	0	0	0	0	0.01	0
JPN	0.07	0	0	0	0	0	0.01	0.04	0	0	0	0	0.01	0	0	0	0.02	0	0	0	0.14	0	0.07	0	0	0	0	0	0.02	0
CAN	0.18	0	0.01	0	0	0.01	0.03	0.09	0	0	0	0	0.01	0	0	0.02	0.01	0	0	0	0.29	0	0	0	0	0	0	0	0	0
USA	3.46	0.02	0.16	0	0.03	0.13	0	1.94	0.05	0.14	0.24	0.07	0.53	0.01	0	0.13	0.07	0.03	0.18	1.13	0	0.12	0.24	0.03	0.02	0	0.01	0	0.06	0.04
MEX	0.04	0	0	0	0	0	0.01	0	0	0	0	0	0.01	0	0.01	0	0	0	0	0	0.09	0	0	0	0	0	0	0	0	0
KOR	0.03	0	0	0	0	0	0.02	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0.16	0	0	0	0	0	0	0	0.01	0
NOR	0.23	0	0.01	0.02	0.01	0.01	0.01	0.04	0	0	0	0	0.01	0	0	0.11	0	0	0	0	0.07	0	0	0	0	0	0	0	0	0
HUN	0.13	0.03	0	0	0	0.01	0.03	0.01	0	0	0.01	0	0	0	0.01	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
SVK	0.04	0.01	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0	0	0
CZE	0.09	0.01	0	0	0	0.01	0.03	0.01	0	0	0.01	0	0.01	0	0	0.01	0	0	0	CZE	0.02	0	0	0	0	0	0	0	0	0
TUR	0.20	0.01	0	0.01	0	0.01	0.08	0.01	0	0	0	0	0.04	0	0.01	0.01	0	0	0	0.01	0.03	0	0	0	0	0.01	0	0	0	0.03
HKG	0.11	0	0.01	0	0	0.01	0.01	0.05	0	0	0	0.01	0.02	0	0	0.01	0.01	0	0.02	0.01	0.03	0	0.01	0	0	0	0	0	0	0
RUS	0.15	0	0	0.01	0.02	0	0.04	0.03	0	0	0.01	0	0.01	0	0.01	0.01	0	0	0	0	0.03	0	0.01	0	0	0	0	0.01	0	0

Table A.6: Matrix of flows of construction services from reporting countries to partner countries, 2004, in bln US dollars

from / to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	7.11	0.22	0.45	0.17	0.13	0.73	1.59	1.30	0.08	0.27	0.51	0.28	0.71	0.10	0.32	0.23	0.05	0	0.41	0.13	1.42	0.08	0.05	0.02	0.11	0.04	0.08	0.10	0.12	0.50
AUT	0.57	0	0.02	0.01	0	0.03	0.35	0.02	0	0	0.07	0.01	0.05	0	0.01	0.01	0	0	0	0	0.02	0	0	0	0.03	0.01	0.01	0.06	0	0.01
BEL	0.89	0.01	0	0.03	0.01	0.16	0.13	0.11	0	0.03	0.06	0.09	0.21	0.01	0.02	0.01	0.01	0	0	0	0.07	0	0	0	0.01	0	0.01	0	0.01	0
DNK	0.12	0	0.02	0	0.02	0.01	0	0	0	0	0.02	0	0.02	0	0	0.04	0	0	0.02	0	0.02	0.01	0	0	0	0	0	0	0.01	0.01
FIN	0.27	0	0.01	0.01	0	0.01	0.08	0.05	0	0.01	0	0	0.02	0	0.01	0.08	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0.01
FRA	1.29	0.01	0.12	0.01	0.01	0	0.48	0.36	0.02	0.02	0.10	0.02	0.11	0.01	0	0	0.01	0	0.02	0.01	0.35	0.01	0.03	0	0.01	0	0.01	0	0.02	0.02
DEU	1.51	0.09	0.09	0.04	0.02	0.19	0	0.37	0.01	0.09	0.11	0.09	0.18	0.02	0.13	0.07	0.01	0	0.11	0.04	0.44	0.03	0.02	0	0.04	0.01	0.03	0.02	0.01	0.02
GBR	0.17	0	0.01	0.01	0	0.02	0.04	0	0	0.02	0.01	0	0.03	0	0.01	0.01	0.01	0	0.18	0	0.10	0	0	0.01	0	0	0	0	0	0
GRC	0.07	0	0	0	0	0.01	0.02	0.01	0	0	0.01	0	0	0	0	0	0	0	0	0	0.04	0	0	0.01	0	0	0	0	0	0
IRL	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ITA	0.72	0.06	0.05	0.01	0.01	0.13	0.16	0.11	0.02	0.02	0	0.04	0.04	0.01	0.05	0	0	0	0.04	0.01	0.23	0	0	0	0.01	0.01	0.01	0.01	0.02	0.01
LUX	0.04	0	0.01	0	0	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NLD	0.69	0.01	0.08	0.03	0.01	0.06	0.18	0.18	0.01	0.04	0.04	0	0	0.01	0.03	0.01	0.01	0	0.02	0.01	0.07	0.01	0	0	0.01	0	0	0	0.04	0.01
PRT	0.19	0	0.01	0	0	0.03	0.03	0.03	0	0.01	0.02	0	0.01	0	0.05	0	0	0	0	0	0.03	0	0	0	0	0	0	0	0	0
ESP	0.40	0.01	0.03	0.01	0	0.08	0.07	0.06	0	0.02	0.04	0.01	0.03	0	0	0	0	0	0.01	0	0.03	0.01	0	0	0	0	0	0	0	0
SWE	0.16	0.01	0.01	0.02	0.05	0.01	0.03	0.01	0	0	0.01	0	0	0	0.01	0	0	0	0	0.06	0.02	0	0	0.01	0	0	0	0	0	0.03
AUS	0.02	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0.04	0	0	0	0	0	0	0	0	0	0	0
NZL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JPN	0.18	0	0	0.01	0	0	0.03	0.09	0	0	0.01	0	0.01	0	0.01	0	0.02	0	0	0.01	0.11	0.06	0.01	0	0	0	0	0	0.09	0.05
CAN	0.08	0	0	0	0	0.01	0.02	0	0	0	0.04	0	0	0	0	0	0.01	0	0.13	0	0.22	0.01	0	0	0	0	0	0	0	0.01
USA	0.67	0.07	0.05	0	0	0.14	0	0.05	0.02	0	0.18	0.02	0.12	0	0	0.02	0	0	0.16	0.71	0	0.56	0.40	0	0.01	0	0	0	0.03	0.20
MEX	0.08	0	0	0.01	0	0.01	0.03	0	0	0	0	0	0	0	0.02	0	0	0	0.10	0	0.40	0	0	0	0	0	0	0	0	0
KOR	0.14	0	0	0	0	0.01	0	0	0	0	0.13	0	0	0	0	0	0	0	0.13	0	0.02	0	0	0	0	0	0	0	0	0
NOR	0.09	0	0	0.01	0	0	0.02	0.02	0	0	0	0	0	0	0	0.03	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
HUN	0.06	0.02	0	0	0	0.01	0.02	0	0	0	0.01	0	0	0	0.01	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
SVK	0.05	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0
CZE	0.06	0	0	0	0	0	0.03	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0
TUR	0.08	0.02	0	0	0	0.01	0.03	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0.17
HKG	0.07	0	0	0	0	0.03	0.01	0	0	0	0	0	0	0	0	0	0	0	0.04	0.01	0.02	0	0.01	0	0	0	0	0	0	0.01
RUS	0.46	0	0	0.02	0.26	0.01	0.13	0	0	0	0	0	0	0	0.02	0	0	0	0.07	0	0.11	0	0.02	0	0	0	0.01	0.02	0.01	0

Table A.7: Matrix of flows of insurance services from reporting countries to partner countries, 2004, in bln US dollars

from /to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	12.43	0.49	1.10	0.31	0.17	1.58	2.03	1.31	0.24	0.97	1.54	0.52	1.01	0.14	0.70	0.31	0.52	0.12	1.03	1.00	8.45	0.23	0.12	0.44	0.18	0.05	0.14	0.14	0.39	0.14
AUT	0.88	0	0.03	0.01	0	0.04	0.55	0.02	0	0.01	0.12	0.01	0.08	0	0.01	0	0	0	0	0	0.05	0	0	0	0.04	0.01	0.02	0	0	0
BEL	0.42	0	0	0.01	0	0.07	0.06	0.05	0	0.01	0.03	0.04	0.10	0.01	0.01	0.01	0	0	0.01	0	0.06	0.02	0	0.02	0	0	0	0	0	0
DNK	0.19	0.01	0.01	0	0.01	0.01	0	0.01	0.01	0.05	0.02	0.01	0.01	0	0	0.03	0	0.01	0.07	0.01	0.04	0	0	0.05	0	0	0	0	0.04	0
FIN	0.04	0	0	0	0	0	0.01	0.01	0	0	0	0	0.01	0	0	0.01	0.01	0	0	0	0	0	0	0.01	0	0	0	0	0	0
FRA	0.77	0.01	0.12	0.01	0.01	0	0.23	0.09	0.02	0.02	0.10	0.02	0.11	0.01	0	0.01	0.01	0	0.10	0.06	0.02	0	0	0.02	0.01	0	0.01	0.02	0.02	0.01
DEU	2.56	0.16	0.15	0.07	0.03	0.32	0	0.63	0.02	0.15	0.18	0.16	0.31	0.03	0.21	0.12	0.01	0	0.26	0.06	0.74	0.05	0.03	0.02	0.07	0.02	0.06	0.03	0.02	0.04
GBR	2.24	0.01	0.33	0.08	0.02	0.36	0.34	0	0.09	0.26	0.30	0.07	0.16	0.02	0.11	0.08	0.40	0.05	0.33	0.65	5.47	0.09	0.07	0.20	0	0	0.01	0.05	0.11	0.06
GRC	0.08	0	0	0	0	0.01	0.02	0.01	0	0	0.02	0	0	0	0	0	0	0	0	0	0.03	0	0	0	0	0	0	0	0	0
IRL	2.38	0.15	0.14	0.07	0.05	0.33	0.52	0.07	0.01	0	0.54	0.13	0.08	0.03	0.24	0.04	0.08	0.04	0.06	0.11	1.60	0.05	0.01	0.01	0.02	0	0.01	0	0.05	0
ITA	0.69	0.06	0.05	0.01	0.01	0.14	0.13	0.08	0.03	0.02	0	0.05	0.05	0.01	0.06	0	0	0	0.01	0.01	0.13	0.01	0	0	0.01	0.01	0.01	0.02	0.01	0
LUX	0.54	0.01	0.16	0.01	0	0.08	0.07	0.02	0	0.03	0.07	0	0.06	0	0.03	0	0	0	0.01	0.01	0.07	0	0	0	0	0	0	0	0	0
NLD	0.97	0.05	0.08	0	0.01	0.13	0	0.12	0.04	0.38	0.12	0.01	0	0.01	0	0.01	0	0.01	0.17	0.10	0.04	0	0	0.01	0.02	0.01	0.01	0.01	0.14	0.01
PRT	0.07	0	0	0	0	0.01	0.02	0.01	0	0	0.01	0	0	0	0.02	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0
ESP	0.22	0	0.01	0.01	0	0.04	0.04	0.05	0	0.01	0.02	0	0.02	0.01	0	0	0	0	0.01	0	0.01	0.01	0	0	0	0	0	0	0	0
SWE	0.39	0.01	0.02	0.02	0.02	0.04	0.06	0.13	0.01	0.02	0.01	0.01	0.02	0	0.01	0	0	0	0.01	0	0.14	0	0	0.09	0	0	0	0	0.01	0.01
AUS	0.06	0	0	0.01	0	0	0	0.01	0	0.02	0	0	0.01	0	0	0	0	0.05	0.02	0.01	0.21	0	0	0	0	0	0	0	0.02	0
NZL	0.02	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0.06	0	0	0.01	0.01	0	0	0	0	0	0	0	0.01	0
JPN	0.40	0	0	0.01	0	0.02	0.07	0.04	0	0.06	0	0	0.17	0.01	0	0	0.01	0	0	0.05	0.22	0	0.04	0	0	0	0	0	0.09	0.01
CAN	0.17	0.02	0	0	0	0.01	0.05	0.02	0	0.04	0.01	0	0	0	0	0	0.02	0	0.01	0	0.58	0.02	0.01	0	0	0	0	0	0.01	0
USA	1.84	0.04	0.03	0	0.01	0	0	0.18	0.07	1.24	0.09	0.07	0.10	0.01	0	0.01	0.22	0.07	0.74	5.51	0	0.80	0.20	0.14	0.04	0.01	0	0	0.13	0.04
MEX	0.03	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0.01	0	0	0	0	0.02	0.11	0	0	0	0	0	0	0	0	0
KOR	0.04	0	0	0	0	0	0	0.02	0.01	0	0	0	0	0	0	0	0	0	0.03	0	0.06	0	0	0	0	0	0	0	0	0
NOR	0.20	0	0.01	0.02	0	0.01	0.04	0.10	0.01	0	0.01	0	0.01	0	0	0.01	0	0	0	0	0.09	0	0	0	0	0	0	0	0	0
HUN	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SVK	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CZE	0.07	0	0	0	0	0	0	0.06	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUR	0.09	0	0	0	0	0.01	0.04	0.02	0	0.01	0.01	0.01	0.01	0	0	0	0	0.01	0	0	0.04	0	0.01	0	0	0	0	0	0	0.03
HKG	0.07	0	0	0	0	0	0.01	0.03	0	0.01	0	0	0	0	0	0	0	0	0.07	0.06	0.03	0	0	0	0	0	0	0	0	0
RUS	0.08	0	0	0	0	0	0.02	0.02	0.01	0.01	0.01	0	0	0	0	0	0	0	0	0.01	0.02	0	0	0	0	0	0	0.02	0	0

Table A.8: Matrix of flows of financial services from reporting countries to partner countries, 2004, in bln US dollars

from / to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	30.88	0.66	3.40	0.53	0.58	5.07	4.88	3.48	0.29	1.73	2.94	0.82	3.58	0.31	1.92	0.68	0.40	0.27	1.66	0.60	11.79	0.24	0.33	0.54	0.29	0.07	0.19	0.20	0.76	0.62
AUT	0.50	0	0.01	0.01	0	0.02	0.33	0.01	0	0	0.05	0	0.04	0	0.01	0	0	0	0.02	0.01	0.08	0	0.01	0.01	0.02	0.01	0.01	0.01	0	0.04
BEL	1.39	0.02	0	0.04	0.02	0.25	0.21	0.17	0.01	0.05	0.09	0.15	0.34	0.02	0.04	0	0	0	0.02	0.01	0.32	0	0.01	0.01	0.01	0	0.01	0.01	0.05	0
DNK	0.27	0	0.04	0	0	0.01	0	0.05	0	0.01	0.01	0.04	0.03	0	0	0.05	0	0.01	0.06	0	0.33	0.01	0	0.01	0	0	0	0	0.09	0.01
FIN	0.33	0	0	0	0	0	0.01	0.08	0	0	0	0	0	0	0	0.22	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FRA	1.08	0.01	0.08	0.01	0.01	0	0.22	0.54	0.01	0.02	0.07	0.01	0.08	0.01	0	0.02	0	0	0.01	0.01	0.29	0	0	0	0.01	0	0	0.01	0	0.01
DEU	5.06	0.31	0.30	0.13	0.06	0.62	0	1.25	0.05	0.30	0.36	0.32	0.62	0.07	0.42	0.24	0.01	0.01	0	0.12	1.47	0.10	0.05	0.01	0.13	0.04	0.11	0.05	0.05	0.07
GBR	11.55	0.08	0.77	0.17	0.35	2.65	2.50	0	0.15	0.89	1.10	0.17	1.65	0.10	0.88	0.11	0.34	0.03	1.20	0.36	6.51	0.05	0.21	0.37	0.04	0	0.02	0.08	0.38	0.45
GRC	0.05	0	0	0	0	0	0.01	0.01	0	0	0.01	0	0	0	0	0	0	0	0	0	0.03	0	0	0	0	0	0	0	0	0
IRL	1.23	0.07	0.06	0.03	0.02	0.15	0.26	0.16	0.01	0	0.25	0.06	0.04	0.01	0.11	0	0.02	0	0.16	0.07	1.24	0.01	0.01	0	0.01	0	0.01	0	0.03	0
ITA	0.55	0.04	0.03	0.01	0	0.08	0.07	0.20	0.01	0.01	0	0.03	0.03	0	0.03	0	0	0	0	0	0.10	0	0	0	0.01	0	0.01	0	0	0
LUX	6.69	0.11	1.97	0.07	0.01	1.04	0.93	0.21	0.04	0.36	0.84	0	0.69	0.04	0.37	0.02	0.02	0	0.02	0.02	0.95	0.01	0.04	0	0.04	0.01	0.01	0.03	0.11	0.01
NLD	0.94	0.01	0.07	0.02	0.01	0.05	0.15	0.51	0.01	0.03	0.04	0	0	0	0.03	0.01	0	0	0.18	0	0.16	0.01	0	0.01	0.01	0	0	0	0.03	0.01
PRT	0.11	0	0.01	0	0	0.02	0.02	0.02	0	0	0.01	0	0	0	0.03	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0
ESP	0.85	0.01	0.06	0.02	0.01	0.15	0.14	0.19	0.01	0.04	0.08	0.02	0.06	0.05	0	0.01	0	0	0	0	0.05	0.02	0	0	0	0	0	0	0	0.01
SWE	0.27	0	0	0.02	0.09	0.01	0.02	0.06	0	0.01	0.01	0.02	0.01	0	0.02	0	0	0.20	0	0	0.22	0.02	0	0.12	0.02	0	0	0	0	0.01
AUS	0.13	0	0	0.01	0	0.01	0.01	0.07	0	0.01	0	0.01	0.01	0	0	0	0	0.03	0.01	0	0.21	0	0	0	0	0	0	0	0.05	0
NZL	0.01	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0.06	0	0	0	0	0	0	0	0	0	0	0	0.03	0
JPN	1.19	0	0.02	0.04	0	0.10	0.10	0.41	0	0.08	0	0.43	0.01	0	0	0.01	0.01	0	0	0.01	1.66	0.01	0.03	0	0	0	0	0	0.50	0.01
CAN	0.12	0	0	0	0	0.02	0.02	0.06	0	0	0	0.01	0.01	0	0	0	0	0	0	0	0.25	0.01	0	0	0	0	0	0	0.01	0.01
USA	5.22	0.07	0.28	0	0	0.58	0	1.51	0.01	1.15	0.07	1.27	0.15	0.01	0	0.10	0.22	0.16	0.81	3.07	0	0.52	0	0.06	0.04	0.01	0.04	0	0.32	0.18
MEX	0.05	0	0	0	0	0	0.01	0.02	0	0	0	0	0	0	0.01	0	0	0	0	0.01	0.11	0	0	0	0	0	0	0	0	0
KOR	0.10	0	0.01	0	0	0	0	0.09	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.33	0	0	0	0	0	0	0	0.03	0.01
NOR	0.48	0.01	0.01	0.06	0	0.02	0.07	0.09	0	0	0.04	0	0.02	0	0.03	0.13	0	0	0.01	0	0.10	0	0	0	0	0	0	0	0	0.01
HUN	0.11	0.03	0	0	0	0.01	0.03	0.01	0	0	0.01	0	0	0	0.01	0	0	0	0	0	0.06	0	0	0	0	0	0	0	0	0
SVK	0.04	0.01	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0.02	0	0	0
CZE	0.15	0.01	0	0	0	0.01	0.09	0.01	0	0	0.01	0	0.01	0	0	0.01	0	0	0	0	0.01	0	0	0	0	0.02	0	0	0	0
TUR	0.13	0	0.01	0	0	0	0.03	0.01	0	0	0	0.03	0.02	0	0.01	0	0	0	0	0	0.33	0	0	0	0	0	0	0	0	0
HKG	0.63	0	0.02	0.02	0	0.22	0.07	0.18	0	0.01	0	0.09	0.01	0	0	0	0.01	0.02	0.12	0.03	0.19	0	0.07	0	0	0	0	0	0.02	0.01
RUS	0.13	0.01	0	0	0	0	0.03	0.07	0	0	0	0	0.01	0	0	0	0	0	0.02	0.01	0.02	0	0	0	0	0	0	0.02	0.01	0

Table A.9: Matrix of flows of computer and information services from reporting countries to partner countries, 2004, in bln US dollars

from / to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	21.45	0.66	1.58	0.71	0.54	2.57	3.63	3.07	0.19	1.21	2.06	0.73	2.10	0.29	1.16	0.95	0.17	0.06	0.79	0.30	6.98	0.18	0.33	0.38	0.24	0.07	0.18	0.16	0.31	0.51
AUT	0.13	0	0	0	0	0	0.08	0	0	0	0.02	0	0.01	0	0	0	0	0	0	0	0.01	0	0	0	0.01	0	0.01	0	0	0
BEL	1.27	0.01	0	0.04	0.01	0.23	0.17	0.15	0.01	0.04	0.08	0.14	0.30	0.02	0.04	0.03	0	0	0	0.01	0.29	0.02	0	0	0.01	0	0	0	0	0
DNK	0.34	0	0.02	0	0.04	0.01	0	0.04	0	0	0.01	0	0.08	0	0	0.13	0	0	0.02	0	0.14	0	0	0.09	0	0	0	0	0.02	0.01
FIN	0.40	0.01	0.01	0.02	0	0.03	0.08	0.05	0	0.01	0.01	0	0.05	0	0.02	0.10	0	0	0.01	0.01	0.04	0	0	0.01	0	0	0	0	0	0.02
FRA	0.93	0.02	0.14	0.02	0.01	0	0.22	0.16	0.02	0.03	0.11	0.02	0.13	0.02	0	0.05	0	0	0.01	0.01	0.57	0	0.01	0.01	0.01	0	0.01	0	0	0
DEU	3.99	0.25	0.24	0.11	0.05	0.49	0	0.98	0.04	0.24	0.29	0.25	0.49	0.05	0.33	0.19	0.02	0.01	0.08	0.09	1.16	0.08	0.04	0.02	0.10	0.03	0.09	0.04	0.04	0.06
GBR	4.31	0.03	0.28	0.14	0.12	0.62	1.00	0	0.05	0.60	0.29	0.06	0.64	0.04	0.22	0.23	0.05	0.02	0.23	0.10	2.62	0.02	0.05	0.06	0.03	0	0.02	0.03	0.09	0.10
GRC	0.06	0	0	0	0	0.01	0.02	0.01	0	0	0.01	0	0	0	0	0	0	0	0	0	0.04	0	0	0	0	0	0	0	0	0
IRL	4.37	0.22	0.20	0.10	0.07	0.49	0.95	0.72	0.02	0	0.81	0.20	0.13	0.04	0.35	0.06	0.07	0.02	0.31	0	1.00	0	0.22	0.05	0.03	0	0.02	0.05	0.01	0.29
ITA	0.25	0.02	0.02	0	0	0.05	0.05	0.03	0.01	0.01	0	0.02	0.02	0	0.02	0.01	0	0	0.01	0	0.05	0	0	0	0	0	0	0.01	0	0
LUX	0.83	0.01	0.25	0.01	0	0.13	0.11	0.03	0	0.05	0.11	0	0.09	0	0.05	0	0	0	0	0	0.01	0	0	0	0.01	0	0	0	0	0
NLD	2.25	0.05	0.25	0.08	0.04	0.19	0.56	0.55	0.03	0.13	0.14	0.01	0	0.02	0.10	0.13	0.01	0.01	0.01	0.04	0.79	0.02	0	0.01	0.03	0	0.01	0.01	0.12	0.03
PRT	0.07	0	0	0	0	0.01	0.01	0.01	0	0	0.01	0	0	0	0.02	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
ESP	1.07	0.01	0.08	0.03	0.01	0.21	0.20	0.16	0.01	0.06	0.11	0.03	0.08	0.08	0	0	0.01	0	0	0.01	0.07	0.03	0	0	0.01	0	0	0.01	0	0.01
SWE	1.16	0.02	0.09	0.16	0.19	0.10	0.19	0.17	0.01	0.04	0.07	0.01	0.10	0.01	0.02	0	0.01	0	0.10	0.03	0.19	0.01	0.01	0.12	0.01	0.02	0.01	0.01	0.02	0.01
AUS	0.11	0	0	0.01	0	0.01	0	0.06	0	0.01	0	0	0	0	0	0	0	0.03	0.05	0	0.25	0	0	0	0	0	0	0	0.01	0
NZL	0.01	0	0	0	0	0	0	0.01	0	0	0	0	0.01	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0
JPN	0.10	0	0	0.01	0	0	0.01	0.04	0	0	0.01	0.01	0.01	0	0	0.01	0	0	0	0	0.67	0	0.01	0	0.01	0	0	0	0	0
CAN	0.26	0	0.01	0	0.02	0.03	0.04	0.09	0	0	0	0	0.01	0	0	0.03	0	0	0.03	0	0.47	0.02	0.01	0	0	0	0	0	0	0.01
USA	4.39	0.03	0.62	0	0.10	0.62	0	2.08	0.03	0.06	0.16	0.04	0.43	0.02	0	0.22	0.28	0.02	1.05	3.17	0	0.73	0	0.23	0.06	0.02	0.01	0	0.06	0.15
MEX	0.02	0	0	0	0	0	0	0.01	0	0	0	0	0.01	0	0	0	0	0	0	0.01	0.02	0	0	0	0	0	0	0	0	0
KOR	0.02	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0.03	0.01	0.14	0	0	0	0	0	0	0	0.01	0.01
NOR	0.41	0.02	0.01	0.09	0.01	0.03	0.04	0.08	0	0	0	0	0.02	0	0	0.10	0	0	0	0.01	0.13	0	0	0	0	0	0	0	0	0
HUN	0.16	0.04	0.01	0	0	0.02	0.03	0.01	0	0	0.02	0	0.01	0	0	0	0.01	0	0	0	0.04	0	0	0	0	0	0	0	0	0
SVK	0.05	0.01	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0	0	0	0	0	0.03	0	0	0
CZE	0.05	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0.01	0	0	0	0
TUR	0.07	0	0	0	0	0.01	0.01	0.01	0	0	0	0	0.04	0	0	0	0	0	0	0	0.14	0	0	0	0	0	0	0	0	0
HKG	0.09	0	0	0	0	0.01	0.01	0.05	0	0	0	0	0.02	0	0	0	0.01	0	0.02	0.03	0.01	0	0.01	0	0	0	0	0	0	0.13
RUS	0.07	0	0	0	0	0	0.01	0.03	0	0	0	0	0.01	0	0	0	0	0	0	0.01	0.01	0	0	0	0	0	0	0.02	0	0

Table A.10: Matrix of flows of royalties and license fees from reporting countries to partner countries, 2004, in bln US dollars

from / to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	20.42	0.45	1.72	0.75	0.42	2.91	3.86	3.14	0.24	1.41	1.41	0.43	1.81	0.23	0.86	0.80	0.35	0.07	3.00	0.39	11.11	0.22	0.29	0.30	0.23	0.05	0.15	0.14	0.51	0.25
AUT	0.08	0.01	0	0	0	0	0.05	0	0	0	0.01	0	0.01	0.01	0.01	0	0	0	0.01	0	0.02	0	0	0	0	0	0	0	0	0
BEL	0.51	0.01	0	0.02	0.01	0.09	0.07	0.06	0	0.02	0.03	0.06	0.12	0.01	0.01	0	0	0	0.09	0	0.32	0.02	0	0	0	0	0	0	0	0
DNK	0.35	0.01	0.01	0	0.02	0.01	0.01	0.05	0	0.06	0.01	0	0.07	0.01	0	0.09	0	0	0.13	0.01	1.41	0	0.02	0.04	0	0	0	0	0.03	0
FIN	0.31	0.01	0.01	0.01	0	0.02	0.09	0.06	0	0.01	0.01	0	0.04	0	0.01	0.03	0	0	0.01	0.01	0.16	0	0	0.01	0	0	0	0	0	0
FRA	3.08	0.05	0.44	0.05	0.03	0	0.76	0.56	0.05	0.08	0.38	0.07	0.41	0.05	0	0.13	0.03	0	0.86	0.07	1.91	0.03	0.09	0.02	0.03	0.01	0.02	0.03	0.02	0.01
DEU	2.97	0.18	0.18	0.08	0.03	0.37	0	0.73	0.03	0.18	0.21	0.19	0.36	0.04	0.25	0.14	0.09	0	0.53	0.07	2.53	0.06	0.03	0.01	0.08	0.03	0.07	0.03	0.03	0.04
GBR	4.72	0.03	0.32	0.16	0.13	0.70	1.14	0	0.06	0.69	0.33	0.07	0.72	0.05	0.26	0.07	0.14	0.02	0.67	0.11	2.21	0.03	0.06	0.07	0.03	0	0.02	0	0.11	0.11
GRC	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRL	0.19	0	0.01	0	0	0.01	0.01	0.01	0	0	0.01	0	0	0	0	0.13	0.02	0	0.03	0	0.13	0	0	0.01	0	0	0	0	0	0
ITA	0.32	0.03	0.02	0.01	0	0.06	0.06	0.04	0.01	0.01	0	0.02	0.02	0	0.03	0	0	0	0.08	0	0.15	0	0	0	0	0	0	0	0.01	0
LUX	0.06	0	0.02	0	0	0.01	0.01	0	0	0	0.01	0	0.01	0	0	0	0	0	0.01	0	0.01	0	0	0	0	0	0	0	0	0
NLD	5.86	0.12	0.68	0.21	0.10	0.51	1.49	1.46	0.08	0.33	0.37	0.01	0	0.05	0.25	0.20	0.05	0.03	0.43	0.10	1.54	0.05	0.02	0.02	0.07	0.01	0.03	0.03	0.32	0.07
PRT	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ESP	0.18	0	0.01	0.01	0	0.04	0.03	0.03	0	0.01	0.02	0	0.01	0.01	0	0	0	0	0	0	0.06	0.01	0.02	0	0	0	0	0	0	0
SWE	1.75	0.01	0.02	0.21	0.09	1.07	0.14	0.13	0	0.01	0.02	0	0.03	0.01	0.03	0	0.02	0	0.15	0.01	0.66	0.01	0.06	0.12	0	0	0	0.01	0	0.01
AUS	0.89	0	0.76	0.01	0	0.01	0.01	0.08	0.01	0	0	0	0	0	0	0	0	0.04	0.04	0	0.15	0	0	0	0	0	0	0	0	0
NZL	0.02	0	0	0	0	0	0	0.01	0	0	0	0	0.01	0	0	0	0.01	0	0	0	0	0	0.02	0	0	0	0	0	0.01	0
JPN	2.67	0	0.15	0.12	0.02	0.39	0.19	1.11	0	0.17	0.06	0	0.33	0	0.04	0.08	0.09	0	0	1.20	7.02	0.15	0.33	0	0.06	0	0	0	0.43	0.01
CAN	0.35	0	0	0	0.01	0.02	0.08	0.12	0	0.05	0.02	0	0.01	0	0	0.01	0.03	0	0.02	0	0.77	0.02	0.01	0	0	0	0	0	0	0
USA	24.12	0.06	0.76	0.44	0.38	2.34	3.49	4.52	0.06	7.97	1.27	0.02	1.52	0.08	0.69	0.52	1.05	0.08	9.08	3.58	0	1.25	1.66	0.19	0.49	0.01	0.03	0	0.52	0.37
MEX	0.02	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0.04	0.01	0.24	0	0.02	0	0	0	0	0	0	0
KOR	0.11	0	0	0.01	0	0	0.06	0.03	0	0	0	0	0	0	0	0	0.01	0	0.05	0.01	0.03	0	0	0	0.02	0	0	0	0.03	0.01
NOR	0.11	0	0	0.01	0	0	0.01	0.02	0	0	0	0	0.01	0	0	0.06	0	0	0	0	0.12	0	0.02	0	0	0	0	0	0	0
HUN	0.28	0.08	0.01	0	0.01	0.03	0.06	0.01	0	0	0.03	0	0.01	0	0.03	0	0	0	0.17	0.01	0.29	0	0	0	0	0.01	0	0	0	0
SVK	0.02	0.01	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0.01	0	0	0
CZE	0.02	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
TUR	0.03	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	1.41	0	0.02	0	0	0	0	0	0.01	0
HKG	0.11	0	0	0.01	0	0.01	0.02	0.06	0	0	0	0	0.02	0	0	0	0	0.01	0.03	0.02	0.04	0.01	0.02	0	0	0	0	0	0.01	0.04
RUS	0.12	0	0	0	0	0	0.02	0.04	0	0.03	0	0	0.01	0	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0.01	0	0

Table A.11: Matrix of flows of other business services from reporting countries to partner countries, 2004, in bln US dollars

from / to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	106.54	3.09	9.28	3.45	2.23	11.89	20.62	13.79	1.24	6.08	7.39	3.55	11.71	1.50	4.89	5.82	0.97	0.20	6.02	1.52	36.68	0.99	0.98	3.24	1.48	0.39	1.19	1.50	2.10	1.85
AUT	3.65	0	0.10	0.04	0.02	0.16	2.25	0.14	0.02	0.02	0.44	0.03	0.31	0.01	0.05	0.07	0.01	0	0.04	0.01	0.45	0	0.01	0.01	0.17	0.05	0.08	0.04	0.01	0.08
BEL	8.39	0.09	0	0.24	0.09	1.48	1.17	0.98	0.04	0.28	0.53	0.87	1.97	0.10	0.23	0.32	0.02	0.01	0.52	0.02	3.01	0.04	0.02	0.49	0.07	0.02	0.06	0.03	0.01	0.02
DNK	1.95	0.02	0.24	0	0.08	0.06	0.46	0.20	0.01	0.04	0.08	0.01	0.23	0.02	0.05	0.59	0.01	0	0.04	0.02	0.49	0	0.02	0.24	0.01	0	0	0.01	0.02	0.03
FIN	1.38	0.03	0.09	0.08	0	0.09	0.24	0.19	0.01	0.04	0.04	0.01	0.14	0.01	0.05	0.44	0	0	0.02	0.02	0.18	0	0	0.06	0	0	0	0	0.02	0.12
FRA	12.50	0.21	1.69	0.19	0.10	0	3.79	2.15	0.21	0.32	1.43	0.27	1.57	0.20	0	0.38	0.10	0	0.44	0.20	4.98	0.09	0.25	0.11	0.11	0.02	0.07	0.74	0.41	0.16
DEU	18.03	1.11	1.06	0.48	0.21	3.79	0	4.45	0.18	1.08	1.29	1.13	2.20	0.24	1.49	0.87	0.03	0.03	1.71	0.42	5.24	0.35	0.19	0.74	0.47	0.16	0.40	0.19	0.17	0.26
GBR	18.61	0.10	1.35	0.63	0.59	2.48	3.80	0	0.15	2.24	0.95	0.30	3.58	0.23	0.88	1.33	0.53	0.06	2.14	0.48	11.73	0.04	0.15	0.59	0.07	0.01	0.10	0.15	0.42	0.47
GRC	0.57	0.02	0.03	0.02	0.01	0.05	0.15	0.07	0	0.01	0.13	0	0.03	0	0.01	0.04	0	0	0.01	0	0.18	0	0.01	0.04	0.01	0	0	0.01	0	0.01
IRL	2.53	0.10	0.09	0.05	0.03	0.23	0.52	0.58	0.01	0	0.37	0.09	0.06	0.02	0.16	0.23	0.04	0.01	0.07	0.07	0.90	0.10	0.10	0.01	0.01	0	0.01	0.03	0.01	0.01
ITA	9.71	0.88	0.71	0.16	0.10	1.88	1.90	0.81	0.35	0.32	0	0.63	0.62	0.12	0.78	0.44	0.05	0.01	0.20	0.04	2.17	0.01	0.03	0.04	0.13	0.07	0.14	0.09	0.06	0.31
LUX	1.04	0.02	0.30	0.01	0	0.16	0.14	0.03	0.01	0.06	0.13	0	0.11	0.01	0.06	0.01	0	0	0.01	0.01	0.35	0.01	0.01	0	0.01	0	0	0	0.01	0.01
NLD	14.19	0.33	1.87	0.58	0.28	1.42	4.10	1.67	0.21	0.92	1.02	0.04	0	0.13	0.70	0.91	0.06	0.09	0.62	0.14	4.18	0.15	0.03	0.24	0.20	0.03	0.08	0.10	0.88	0.19
PRT	1.21	0.02	0.07	0.03	0.02	0.19	0.17	0.11	0.01	0.04	0.12	0.02	0.06	0	0.36	0.01	0	0	0	0	0.09	0	0	0.01	0	0	0	0	0.01	0
ESP	5.66	0.08	0.42	0.17	0.06	1.15	1.08	0.60	0.04	0.30	0.59	0.14	0.45	0.40	0	0.19	0.04	0	0.12	0.03	0.40	0.18	0.03	0.17	0.04	0	0.01	0.03	0.02	0.05
SWE	7.11	0.08	1.45	0.80	0.65	0.31	0.86	1.82	0.01	0.39	0.27	0.01	0.38	0.01	0.07	0	0.07	0.01	0.09	0.04	2.33	0.01	0.12	0.50	0.19	0.01	0.23	0.07	0.08	0.13
AUS	0.59	0.01	0.05	0	0	0.04	0.02	0.24	0	0.11	0	0	0.04	0	0.01	0.07	0	0.14	0.39	0.03	0.66	0	0.01	0.01	0	0	0	0.03	0.08	0
NZL	0.19	0	0	0	0	0	0.02	0.05	0	0.05	0.01	0	0.05	0	0	0.01	0.06	0	0.04	0.01	0.08	0	0.03	0	0	0	0	0	0.13	0
JPN	5.65	0.02	0.24	0.02	0.03	0.22	1.81	2.35	0	0.17	0.14	0.11	0.18	0	0.20	0.15	0.51	0.10	0	0.37	8.43	0.06	0.59	0.02	0.03	0	0.01	0	0.34	0.02
CAN	1.90	0.05	0.04	0.01	0.01	0.49	0.40	0.25	0	0.11	0.07	0.01	0.13	0	0.02	0.28	0.03	0	0.26	0	4.42	0.11	0.07	0.03	0.04	0	0.01	0.03	0.06	0.04
USA	29.64	0.37	1.74	0.36	0.52	2.96	0.05	4.44	0.20	6.99	3.54	0.21	5.14	0.12	0	2.99	0.71	0.10	10.55	9.22	0	4.76	3.59	0.50	0.34	0.05	0.13	0	1.60	0.59
MEX	0.40	0	0.06	0	0	0.02	0.09	0.03	0	0.01	0.02	0	0.09	0	0.07	0.01	0	0	0.09	0.03	1.20	0	0.03	0	0	0	0	0	0	0
KOR	0.60	0.01	0.01	0.01	0	0.05	0.28	0.10	0	0.02	0.09	0	0	0	0	0.02	0.04	0	0.57	0.06	3.08	0	0	0	0.01	0	0	0	0.15	0.04
NOR	3.49	0.02	0.23	0.35	0.08	0.13	0.33	1.42	0.02	0.03	0.04	0.01	0.13	0.01	0.11	0.60	0.02	0	0.04	0.05	1.42	0	0.03	0	0	0	0	0	0	0.05
HUN	1.01	0.27	0.04	0.01	0.03	0.10	0.21	0.01	0.01	0.01	0.10	0	0.04	0	0.10	0.08	0	0	0.01	0.01	0.27	0.01	0.02	0	0	0.02	0.01	0.01	0	0.02
SVK	0.28	0.06	0.01	0	0	0.03	0.12	0	0	0	0.01	0	0.02	0	0	0.02	0	0	0	0	0.05	0	0	0	0.02	0	0.15	0	0	0.01
CZE	0.66	0.05	0.02	0.01	0	0.06	0.37	0.01	0.01	0.01	0.04	0	0.04	0	0.02	0.03	0	0	0	0.01	0.07	0	0	0	0.01	0.08	0	0	0	0.01
TUR	1.10	0.02	0	0.09	0	0.06	0.33	0.03	0.01	0.08	0.08	0.01	0.35	0	0.02	0.01	0.01	0	0	0.01	1.70	0	0.03	0	0	0	0	0	0.07	0.50
HKG	1.36	0.05	0.05	0.01	0	0.20	0.25	0.27	0	0.06	0.21	0.02	0.18	0.01	0.02	0.04	0.10	0.01	0.83	0.10	0.65	0.03	0.24	0.02	0	0	0.01	0.01	0	0.02
RUS	1.55	0.07	0.02	0.01	0.12	0.10	0.50	0.25	0	0.10	0.07	0	0.13	0	0.08	0.11	0	0	0.09	0.02	0.39	0	0.08	0.03	0.05	0.01	0.03	0.18	0.04	0

Table A.12: Matrix of flows of personal, cultural and recreational services from reporting countries to partner countries, 2004, in bln US dollars

from / to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	5.51	0.15	0.53	0.22	0.09	0.56	1.18	0.67	0.07	0.20	0.60	0.17	0.55	0.10	0.23	0.18	0.19	0.02	0.24	0.09	2.05	0.07	0.06	0.27	0.07	0.02	0.05	0.04	0.09	0.06
AUT	0.17	0	0	0	0	0.01	0.10	0.02	0	0	0.02	0	0.02	0	0.01	0	0	0	0.02	0	0.01	0	0	0	0.01	0	0	0	0	0
BEL	0.23	0	0	0.01	0	0.04	0.03	0.03	0	0.01	0.02	0.02	0.06	0	0.01	0	0	0	0.01	0	0.02	0	0	0	0	0	0	0	0	0
DNK	0.08	0	0.01	0	0	0.01	0	0.01	0	0	0.01	0	0.02	0.01	0	0.01	0	0	0.01	0	0.01	0.01	0	0.02	0	0	0	0	0.01	0
FIN	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FRA	1.13	0.02	0.19	0.02	0.01	0	0.34	0.08	0.02	0.04	0.16	0.03	0.18	0.02	0	0	0	0	0.05	0.01	0.35	0	0.01	0.03	0.01	0	0.01	0.01	0.01	0.01
DEU	0.86	0.05	0.05	0.02	0.01	0.11	0	0.21	0.01	0.05	0.06	0.05	0.10	0.01	0.07	0.04	0	0	0.03	0.02	0.25	0.02	0.01	0	0.02	0.01	0.02	0.01	0.01	0.01
GBR	1.10	0	0.10	0.08	0.02	0.13	0.30	0	0.01	0.03	0.13	0.02	0.09	0.02	0.05	0.11	0.06	0.01	0.08	0.01	0.58	0.02	0.01	0.16	0	0	0	0.01	0.04	0.01
GRC	0.32	0.02	0.02	0.01	0	0.04	0.09	0.01	0	0	0.09	0	0.02	0	0.01	0	0.01	0	0.03	0.01	0.37	0	0.03	0	0	0	0	0	0	0
IRL	0.10	0.01	0	0	0	0.01	0.02	0.01	0	0	0.02	0	0	0	0.01	0	0	0	0	0	0.17	0	0	0	0	0	0	0	0	0
ITA	0.33	0.03	0.02	0.01	0	0.06	0.06	0.06	0.01	0.01	0	0.02	0.02	0	0.03	0	0	0	0	0	0.09	0	0	0	0	0	0	0	0	0.01
LUX	0.06	0	0.02	0	0	0.01	0.01	0	0	0	0.01	0	0.01	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
NLD	0.54	0.01	0.06	0.02	0.01	0.04	0.12	0.18	0.01	0.03	0.03	0	0	0	0.02	0.01	0.12	0	0	0.02	0.14	0	0	0	0.01	0	0	0	0.03	0.01
PRT	0.09	0	0.01	0	0	0.02	0.01	0	0	0	0.01	0	0	0	0.03	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
ESP	0.34	0	0.03	0.01	0	0.07	0.07	0.04	0	0.02	0.04	0.01	0.03	0.02	0	0	0	0	0.01	0	0.02	0.01	0	0	0	0	0	0	0	0
SWE	0.14	0	0.02	0.03	0.02	0.01	0.03	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.06	0	0	0	0	0	0
AUS	0.03	0	0	0	0	0	0	0.02	0.01	0	0	0	0	0	0	0	0	0.03	0	0	0.05	0	0	0	0	0	0	0	0.03	0
NZL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JPN	0.03	0	0	0	0	0	0	0.01	0.01	0	0	0	0	0	0	0	0	0	0	0	0.03	0	0.01	0	0	0	0	0	0	0
CAN	0.08	0	0	0	0	0.03	0.02	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0.26	0.01	0	0	0.01	0	0	0	0	0
USA	1.98	0.04	0.07	0	0	0.49	0	0.69	0.07	0.09	0.29	0.03	0.15	0.04	0	0.02	0.41	0.01	0.61	0.43	0	0.31	0	0.08	0.78	0.01	0.01	0	0.03	0.01
MEX	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0
KOR	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0	0.01	0	0	0	0.01	0	0	0	0	0
NOR	0.08	0	0	0.03	0	0	0	0.01	0	0	0	0	0	0	0	0.02	0	0	0.01	0	0.03	0	0	0	0	0	0	0	0	0
HUN	0.55	0.15	0.02	0.01	0.02	0.06	0.12	0	0	0.01	0.06	0	0.02	0	0.06	0.02	0	0	0.44	0	0	0	0.05	0	0	0.01	0.01	0	0	0
SVK	0.05	0.01	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0.03	0	0	0
CZE	0.05	0	0	0	0	0.01	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0.01	0	0	0	0
TUR	0.02	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0.01	0	0	0	0.01	0	0	0	0	0	0	0	0	0.01
HKG	0.03	0	0	0	0	0.01	0	0.01	0	0	0	0	0.01	0	0	0	0	0	0.01	0	0.01	0	0	0	0	0	0	0	0	0
RUS	0.03	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0

Table A.13: Matrix of flows of government services N.I.E. from reporting countries to partner countries, 2004, in bln US dollars

from / to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	5.52	0.08	0.34	0.07	0.05	0.46	0.41	2.76	0.08	0.12	0.30	0.16	0.43	0.07	0.14	0.04	0.63	0.01	0.28	0.15	6.94	0.04	0.06	0.05	0.04	0.01	0.03	0.06	0.02	0.09
AUT	0.12	0	0.01	0	0	0.01	0.01	0.04	0	0	0.02	0.10	0	0	0	0.01	0.01	0	0.03	0.01	0.11	0	0	0	0.01	0	0	0	0	0
BEL	0.86	0.01	0	0.03	0	0.17	0.06	0.11	0	0.03	0.06	0.10	0.22	0.01	0.03	0.01	0.53	0	0.02	0.01	0.05	0	0	0.01	0.01	0	0.01	0	0	0.01
DNK	0.10	0	0	0	0.01	0	0.01	0.05	0	0	0.01	0	0.01	0	0	0.01	0	0	0.01	0	0.35	0	0.01	0.01	0	0	0	0	0	0
FIN	0.04	0	0	0.01	0	0	0	0	0	0	0	0.01	0.01	0	0	0	0	0	0	0	0.03	0	0	0	0	0	0	0	0	0
FRA	0.44	0.01	0.05	0	0	0	0.12	0.12	0.01	0.01	0.05	0	0.05	0.01	0	0	0.01	0	0.04	0	0.41	0	0	0.01	0	0	0	0	0	0.01
DEU	1.66	0.01	0.04	0.01	0	0.04	0	1.52	0.01	0	0.05	0.02	0.01	0	0.01	0	0	0	0.04	0.07	4.29	0	0	0	0	0	0	0.02	0	0.03
GBR	0.44	0.01	0.08	0.01	0.01	0.06	0.12	0	0.02	0.04	0.01	0	0	0.01	0.04	0	0.07	0.01	0.11	0.04	1.15	0.01	0.01	0.01	0.01	0	0	0.01	0.01	0.02
GRC	0.12	0	0	0	0	0	0	0.08	0	0	0.02	0.02	0	0	0	0	0	0	0	0	0.06	0	0	0.01	0	0	0	0	0	0
IRL	0.08	0	0	0	0	0.01	0	0.03	0	0	0	0	0	0	0.01	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0
ITA	0.28	0.02	0.02	0	0	0.05	0.05	0.06	0.01	0.01	0	0	0.02	0	0.02	0	0	0	0.01	0.01	0.04	0	0	0	0	0	0	0	0	0
LUX	0.07	0	0.02	0	0	0.01	0.01	0	0	0	0.01	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NLD	0.57	0	0.06	0	0.01	0.01	0.04	0.38	0.02	0	0.03	0	0	0.01	0	0	0.01	0	0.01	0	0.35	0	0.01	0	0.01	0	0	0	0.01	0.01
PRT	0.12	0	0.01	0	0	0.01	0.01	0.04	0	0	0.01	0	0	0	0.03	0	0	0	0	0	0.03	0	0	0	0	0	0	0	0	0
ESP	0.40	0	0.02	0.01	0	0.06	0.03	0.18	0	0.01	0.03	0	0.02	0.02	0	0	0	0	0	0	0.03	0.01	0.01	0	0	0	0	0	0	0
SWE	0.21	0.01	0.02	0.01	0	0.01	0.01	0.14	0	0	0	0	0.01	0	0	0	0	0	0	0	0.03	0	0.01	0	0	0	0	0	0	0.01
AUS	0.05	0	0	0	0	0.01	0.01	0.01	0	0	0.01	0	0	0	0	0	0	0	0.04	0	0.14	0	0	0	0	0	0	0	0.01	0
NZL	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0.01	0	0.01	0	0.01	0	0	0	0	0	0	0
JPN	0.15	0	0	0.02	0.01	0.02	0.02	0.01	0.01	0	0.01	0	0.01	0	0.01	0	0.03	0.01	0	0.03	1.74	0.02	0.18	0	0	0	0	0	0.03	0
CAN	0.20	0	0	0.01	0	0.02	0.03	0.09	0	0	0.01	0	0.01	0	0.01	0	0	0.01	0.02	0	0.36	0.01	0.01	0	0.01	0	0	0	0.01	0
USA	2.19	0.01	0.05	0.13	0.03	0.19	0.29	0.48	0.14	0.01	0.31	0	0.29	0.02	0.21	0.02	0.19	0.05	0.49	0.20	0	0.03	0.23	0.03	0.01	0	0.03	0	0.17	0.11
MEX	0.04	0	0	0	0	0.01	0.01	0.01	0	0	0	0	0	0	0.01	0	0	0	0	0.01	0.22	0	0.01	0	0	0	0	0	0	0
KOR	0.03	0	0	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0.03	0.01	1.18	0	0	0	0	0	0	0	0.03	0.01
NOR	0.07	0	0.01	0.01	0	0.01	0.01	0.01	0	0	0.01	0	0	0	0	0.01	0	0	0.01	0.01	0.03	0	0	0	0	0	0	0	0	0
HUN	0.03	0.01	0	0	0	0	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02	0	0	0	0	0	0	0	0	0
SVK	0.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CZE	0.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0	0
TUR	0.10	0	0.04	0	0	0.01	0.02	0.01	0	0	0.01	0	0	0	0	0	0	0	0	0	0.35	0	0.01	0	0	0	0	0	0	0.03
HKG	0.03	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.01	0	0.09	0	0	0	0	0	0	0	0	0	0	0
RUS	0.08	0	0.01	0	0	0.01	0.03	0.01	0	0	0.01	0	0	0	0	0	0	0	0.06	0	0.03	0	0	0	0	0	0	0	0	0

Table A.14: Matrix of flows of other commercial services from reporting countries to partner countries, 2004, in bln US dollars

from / to	EU15	AUT	BEL	DNK	FIN	FRA	DEU	GBR	GRC	IRL	ITA	LUX	NLD	PRT	ESP	SWE	AUS	NZL	JPN	CAN	USA	MEX	KOR	NOR	HUN	SVK	CZE	TUR	HKG	RUS
EU15	214.82	5.76	18.38	5.82	4.43	25.87	39.68	28.46	2.38	14.80	17.35	6.92	23.38	2.76	9.47	9.38	3.03	0.51	12.78	3.40	69.43	2.07	2.33	5.02	2.83	0.71	2.08	2.35	5.81	3.80
AUT	6.35	0	0.17	0.08	0.03	0.28	3.90	0.24	0.03	0.04	0.77	0.05	0.55	0.01	0.09	0.09	0.01	0	0.07	0.07	0.70	0	0.01	0.01	0.29	0.08	0.14	0.11	0.02	0.14
BEL	14.19	0.15	0	0.40	0.16	2.53	2.01	1.67	0.07	0.47	0.90	1.49	3.35	0.17	0.39	0.41	0.01	0.01	0.65	0.08	1.50	0.01	0.02	0.53	0.11	0.03	0.10	0.04	0.10	0.02
DNK	5.04	0.05	0.27	0	0.25	0.23	0.66	0.43	0.03	0.27	0.34	0.08	0.94	0.06	0	1.44	0.01	0.04	0.58	0.03	2.09	0.20	0.06	0.47	0.03	0.01	0.02	0.04	0.67	0.04
FIN	2.79	0.06	0.08	0.10	0	0.18	0.54	0.33	0.01	0.09	0.08	0.02	0.27	0.02	0.10	0.93	0	0	0.04	0.03	0.40	0	0	0.06	0.01	0	0.01	0	0	0.54
FRA	23.02	0.37	3.03	0.34	0.19	0	6.51	4.78	0.37	0.58	2.56	0.49	2.82	0.36	0	0.63	0.18	0	0.82	0.46	8.73	0.14	0.39	0.21	0.20	0.04	0.13	0.84	0.48	0.25
DEU	36.72	2.27	2.17	0.97	0.43	4.53	0	9.07	0.36	2.21	2.63	2.30	4.48	0.50	3.04	1.77	0.21	0.05	1.92	0.86	10.68	0.71	0.39	0.79	0.96	0.32	0.81	0.38	0.34	0.54
GBR	49.23	0.34	3.32	1.62	1.33	7.09	11.51	0	0.60	6.97	3.29	0.74	7.33	0.50	2.58	2.02	2.01	0.24	5.55	1.11	30.19	0.27	0.56	1.30	0.30	0.03	0.20	0.34	1.07	1.11
GRC	1.35	0.06	0.07	0.05	0.02	0.12	0.35	0.20	0	0.01	0.31	0.01	0.07	0	0.03	0.05	0.01	0	0.05	0.01	0.70	0	0.04	0.04	0.01	0	0.01	0.02	0.01	0.01
IRL	11.22	0.55	0.51	0.25	0.18	1.24	2.33	1.77	0.05	0	2.03	0.50	0.32	0.10	0.89	0.49	0.07	0.05	0.64	0.10	5.09	0.12	0.56	0.07	0.07	0.01	0.05	0.13	0.11	0.30
ITA	13.75	1.20	0.98	0.21	0.13	2.57	2.59	1.75	0.48	0.44	0	0.86	0.85	0.16	1.06	0.48	0.06	0.01	0.34	0.09	1.20	0.02	0.04	0.05	0.17	0.10	0.19	0.14	0.10	0.35
LUX	9.62	0.15	2.82	0.10	0.02	1.49	1.32	0.30	0.05	0.52	1.21	0	0.99	0.06	0.53	0.05	0.02	0	0.09	0.05	1.49	0.02	0.05	0.01	0.06	0.01	0.02	0.03	0.13	0.03
NLD	18.36	0.26	2.50	0	0.36	2.02	4.71	3.48	0.22	2.16	1.66	0.09	0	0.13	0	0.77	0.24	0.09	1.35	0.37	2.09	0.21	0.06	0.30	0.31	0.05	0.12	0.14	2.64	0.20
PRT	2.08	0.03	0.11	0.05	0.03	0.31	0.29	0.27	0.01	0.07	0.19	0.03	0.09	0	0.58	0.01	0	0	0.01	0.01	0.20	0	0	0.01	0	0	0	0	0	0
ESP	9.36	0.12	0.67	0.27	0.10	1.83	1.72	1.37	0.06	0.49	0.94	0.22	0.72	0.64	0	0.23	0.06	0	0.15	0.04	0.64	0.29	0.06	0.18	0.06	0	0.02	0.05	0.03	0.08
SWE	11.74	0.15	1.66	1.38	1.22	1.44	1.25	2.80	0.04	0.49	0.43	0.06	0.60	0.04	0.18	0	0.15	0.01	0.52	0.09	3.74	0.05	0.10	0.98	0.24	0.02	0.26	0.10	0.11	0.21
AUS	1.55	0.01	0.09	0.10	0	0.14	0.06	0.74	0.02	0.13	0.01	0.01	0.11	0	0.03	0.10	0	0.37	0.21	0.12	1.61	0	0.03	0	0.01	0	0	0	0.25	0
NZL	0.29	0	0.01	0.01	0	0.01	0.03	0.09	0	0.06	0.01	0	0.07	0	0	0	0.17	0	0.04	0.02	0.12	0	0.06	0	0	0	0	0	0.20	0.01
JPN	9.59	0.02	0.21	0.38	0.05	0.48	1.59	4.83	0.02	0.48	0.24	0.27	0.52	0.01	0.24	0.27	0.67	0.12	0	1.44	10.37	0.27	1.09	0.03	0.12	0.01	0.01	0	0.79	0.09
CAN	3.70	0.05	0.09	0.04	0.03	0.62	0.75	1.10	0.01	0.21	0.15	0.03	0.18	0.01	0.04	0.37	0.29	0.01	0.46	0	8.29	0.20	0.13	0.04	0.05	0	0.01	0.05	0.09	0.09
USA	85.42	0.70	3.22	1.49	1.05	5.84	11.40	24.23	0.50	17.64	4.95	0.96	6.82	0.28	2.48	3.86	3.86	0.45	17.47	20.95	0	8.87	3.35	1.17	1.77	0.11	0.23	0	2.35	1.25
MEX	0.65	0	0.05	0.06	0	0.03	0.15	0.06	0	0.02	0.03	0.01	0.12	0	0.12	0.01	0	0	0.20	0.06	2.00	0	0.06	0	0	0	0	0	0.01	0
KOR	1.07	0.02	0.02	0.07	0	0.07	0.41	0.21	0.01	0.02	0.23	0.01	0.01	0	0	0.01	0.05	0	0.88	0.08	0.46	0	0	0	0.04	0	0.01	0	0.22	0.06
NOR	5.28	0.04	0.27	0.60	0.16	0.13	0.52	1.77	0.04	0.03	0.10	0.02	0.19	0.02	0.15	1.25	0.04	0	0.06	0.09	2.00	0	0.06	0	0.01	0	0.01	0	0	0.07
HUN	2.39	0.63	0.08	0.03	0.07	0.23	0.50	0.13	0.02	0.03	0.23	0.01	0.09	0	0.24	0.09	0.02	0	0.61	0.02	0.67	0.01	0.07	0	0	0.04	0.02	0.01	0	0.03
SVK	0.53	0.12	0.01	0.01	0	0.05	0.23	0.01	0	0	0.03	0.01	0.03	0	0.01	0.02	0	0	0	0	0.11	0	0	0	0.04	0	0.29	0	0	0.01
CZE	1.13	0.08	0.03	0.02	0.01	0.10	0.60	0.10	0.01	0.01	0.06	0	0.06	0	0.03	0.02	0	0	0	0.01	0.14	0	0	0	0.02	0.14	0	0	0	0.01
TUR	1.66	0.04	0	0.05	0	0.10	0.53	0.10	0.02	0.08	0.12	0.04	0.46	0.01	0.04	0.08	0.01	0	0	0.02	2.09	0	0.06	0	0.01	0	0	0	0.11	1.06
HKG	2.87	0.05	0.09	0.22	0	0.49	0.68	0.57	0.01	0.08	0.22	0.08	0.23	0	0.06	0.09	0.29	0.07	1.14	0.22	1.79	0.05	0.66	0.03	0.01	0	0.01	0.02	0	0.04
RUS	2.57	0.09	0.05	0.12	0.40	0.12	0.77	0.39	0.01	0.12	0.08	0.01	0.18	0.01	0.12	0.09	0	0	0.16	0.04	0.61	0	0.12	0.04	0.05	0.01	0.04	0.28	0.06	0