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**Working Paper**

## Trade in health services: an analytical framework

Kiel Advanced Studies Working Papers, No. 441

**Provided in Cooperation with:**

Kiel Institute for the World Economy – Leibniz Center for Research on Global Economic Challenges

*Suggested Citation:* Waeger, Patricia (2007) : Trade in health services: an analytical framework, Kiel Advanced Studies Working Papers, No. 441, Kiel Institute for the World Economy (IfW), Kiel

This Version is available at:

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Working Paper No. 441

**Trade in Health Services - An Analytical Framework**

by

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July 2007

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# Trade in Health Services

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## An Analytical Framework

Patricia Waeger<sup>1</sup>

July 2007

### **Abstract**

The present paper deals with a topic that pertains to Health Economics as well as to Trade Theory – Trade in Health Services. It is intended to deliver an analytical framework for the assessments of this new sector of international trade which takes into account both the ‘general welfare aspects’ and the effects for the achievement of general ‘health system goals’. While the former will be scrutinized by the subcategories allocation, accumulation and location effects, the latter is aligned with the OECD Health System Performance Framework which mentions three major health system goals that are ‘Health Improvement & Outcome’, ‘Responsiveness & Access’ and ‘Financial Contribution & Health Expenditures’. For this purpose trade in Health Services is split up according to the four modes of service supply introduced by the General Agreement of Trade in Services (GATS). For each mode examples are enclosed and the current level of trade is analysed. It is also examined what are the major obstacles for trade in these modes and what liberalization perspectives are given. The subsequent discussion and plausibility considerations of how each mode may contribute to improve efficiency as well as equity in national health systems is a systematic starting point for further research. It provides a first insight in how trade in Health Services could help to overcome resource constraints in national health systems as well as allude to the potential risks of which sight shouldn’t be lost.

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<sup>1</sup> I am indebted to Michael Stolpe of the Kiel Institute of World Economics (IfW) for his comments, advice and support.

## 1. Introduction

Whilst the services sector replaced the industry sector as being the major contributor to GDP and employment in most OECD countries already in the mid 1970s, its share in international trade is still very small compared to trade in manufactures.<sup>2</sup> In 1995 with the conclusion of the General Agreement of Trade in Services (GATS), trade in services came into focus of international trade consideration and strong liberalization efforts were undertaken since then. These two aspects - globalisation and tertiarisation - nowadays increasingly concern the Health Service sector as well. Though being viewed as typically non-tradable, Health Services trade becomes a phenomenon of present time. A mix of technological change, especially in information and communication technologies, and institutional deregulation contribute to overcome the old *Uno-Actu* paradigm, which claims the temporal and spatial concurrence of service consumption on provision. In the face of the challenges of modern health systems – aging population, extended expectation of life, shortage of health professionals, sustainable founding of the health system, only to mention some – a closer look to the characteristics and possibilities of trade in Health Service seems to be a reasonable idea. Some of the scarcity and resource allocation problematic of the Health Sector might be solved with the help of increasing international exchange. Nevertheless we cannot assess the gains from trade in this field in the same way as in classical trade debates, i.e. as for manufactures and other services. What are appropriate measures for welfare gains here?

The present paper discusses the measurement possibilities and the appropriate assessment of trade in Health Services. By this it provides an analytical framework for further detailed research on each of the following questions: What is the current level of trade in Health Services and how fast is it growing? What hinders trade and where is the scope for further liberalization? What are the potentials and the risks of the international exchange with Health Services? Section 2 starts by defining Health Services in the sense of a statistical classification and shows what modes of provision can be differentiated. It is followed by an overview of empirical regularities and stylized facts concerning the health sector as a whole and trade in Health Services in particular in section 3. Section 4 describes what hinders trade in Health Services. The main barriers can be subsumed under the three broad categories *general tradability*, *health insurance* and *other regulatory constraints* to trade. In section 5 the main arguments pro and

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<sup>2</sup> Nonetheless high growth rates for trade in service can be observed, particularly in the business service sector. See for example Amiti/Wei 2004.

contra liberalization to trade in Health Services are presented. Thereby the achievement of the various objectives of health systems is especially emphasized. Section 6 concludes.

## 2. Trade in Health Services – Definition and Statistical Treatment

Numerous approaches for the definition of *services* and the differentiation from manufactures can be found in economic literature. Generally we distinguish between four classes of definitions: positive approaches, constitutive approaches, negative definitions and the enumerative lists. As there is no widely accepted definition in one of the first three classes it is economic practice to use enumerations which are provided in the classification systematic of national and international statistical authorities e.g. EUROSTAT, UN or GATS.

The same problematic holds true for Health Services. A definition by identifying certain constitutive features for the huge diverse and constantly progressing amount of single services that could be subsumed under this category is not possible. Instead the enumerative method is applied. Negotiations and commitments under the *General Agreement on Trade in Services (GATS)* for example, usually follow the “*GNS/W/120 Services Sectoral Classification List*”,<sup>3</sup> which was proposed by the WTO Secretariat during the Uruguay Round. It is based on the *United Nations Central Product Classification (CPC)*.<sup>4</sup> Health Services as a specific form of services are further confined in a background note by the WTO Secretariat, which gives the definition of *Health and Social Services* in the GATS Scheduling Guidelines.<sup>5</sup> In *Tab. 1* this enumerative definition is given together with the appending classification numbers in GNS/W/120 and CPC Vers. 1.1. As the next section gives an overview about the status quo and the development of trade in Health Services the corresponding *Extended Balance of Payments Services Classification (EBOPS)* codes are also included. Taking the entire list given in *Tab.1* would be a too broad definition concerning our object of investigation and therefore veterinary and social services will be excluded in the following analysis.

An important issue when talking about trade in Health Services concerns health insurance. There are significant interdependencies between health insurances and trade in Health Services, which will be examined in detail in section 3.2 and 4.2. However it has to be noted that health insurance itself does not belong to Health Services in general. According to the above mentioned GATS classification GNS/W/120 it rather is treated as being part of “7. Financial Ser-

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<sup>3</sup> World Trade Organization (1991).

<sup>4</sup> Mattoo, Sauvé (2003), p. 199. The current version of the CPC is Version 1.1 dating from March 2002.

<sup>5</sup> World Trade Organization (1998), Tab. A1.

vices”, subcategory “A. All Insurance and Insurance-Related Services”.<sup>6</sup> For this reason *trade in health insurances* will not be part of the discussion in the present paper.<sup>7</sup> The same holds for *medical education* and *medical & pharmaceutical research*.

Tab. 1: Classification of Health and Social Services

CPC Vers. 1.1	GNS / W / 120	EBOPS
93 Health and social services		
931 Human health services		
9311 Hospital services	8. Health related and Social Services	
<b>93110 Hospital services</b>	<b>8.A Hospital Services</b>	<b>896</b>
9312 Medical and dental services	1. Business Services	
	1.A Professional Services	
<b>93121 General medical services</b>	<b>1.A.h Medical and Dental services</b>	<b>896</b>
<b>93122 Specialized medical services</b>		
<b>93123 Dental services</b>		
9319 Other human health services		
<b>93191 Deliveries and related services, nursing services, physiotherapeutic and paramedical services</b>	<b>1.A.j Services provided by midwives, nurses, physiotherapists and para-medical personnel</b>	<b>896</b>
	8. Health related and Social Services	
<b>93192 Ambulance services</b>	<b>8.B Other Human Health Services</b>	<b>896</b>
<b>93193 Residential health facilities services other than hospital services</b>		
<b>93199 Other human health services n.e.c.</b>		
932 Veterinary services	1. Business Services	
9321 Veterinary services for pet animals	A Professional Services	
<b>93210 Veterinary services for pet animals</b>		<b>897</b>
9322 Veterinary services for livestock		
<b>93220 Veterinary services for livestock</b>	<b>1.A.i Veterinary Services</b>	<b>283</b>
9329 Other veterinary services		
<b>93290 Other veterinary services</b>		<b>283</b>
933 Social services	8. Health related and Social Services	
9331 Social services with accommodation		
<b>93311 Welfare services delivered through residential institutions to elderly persons and persons with disabilities</b>		
<b>93319 Other social services with accommodation</b>		
9332 Social services without accommodation		
<b>93321 Child day-care services</b>	<b>8.C Social Services</b>	<b>897</b>
<b>93322 Guidance and counselling services n.e.c. related to children</b>		
<b>93323 Welfare services without accommodation</b>		
<b>93324 Vocational rehabilitation services</b>		
<b>93329 Other social services without accommodation</b>		

Source: World Trade Organization (1991), World Trade Organization (1998), Table A1, United Nations et al. (2002), Table A.III, own illustration.

After having given this general overview of services included in the group of Health Services we also have to look at the different ways of trading services in general and Health Services in particular. Being defined in the very first article, the so called “*Modes of Supply*” are central to GATS. Hereby trade in services is differentiated in “*Cross-Border Supply*” (mode 1), “*Consumption Abroad*” (mode 2), “*Commercial Presence*” (mode 3) and “*Presence of Natural*

<sup>6</sup> See Lipson (2001), p. 3 for a justification. “A. All Insurance and Insurance-Related Services” is further divided in 4 sectors and despite of the first being named “a) Life, Accident and Health insurance Services”, many country commitments under GATS concerning health insurance are actually covered by “b) Non-life Insurance Services.

<sup>7</sup> For a good entry into this topic Lipson (2001) is recommended.

Persons” (mode 4). In Tab. 2 a short definition of these variants of international service provision is given as well as examples for Health Services fitting in each category.

Tab. 2: Modes of Service Supply according to GATS

	Definition	Health Services
<b>Mode 1 Cross-Border Supply</b>	Consumer remains in home territory. Service crosses national border. Supplier is located in a different country.	E-health, telehealth, telematic, telemedicine: drugs online, telelinked diagnosis, patient monitoring, remote surgery assistance.
<b>Mode 2 Consumption Abroad</b>	Consumer moves outside home territory and consumes services in another country	Patients treated outside of their home country.
<b>Mode 3 Commercial Presence</b>	Service is supplied through a commercial presence of the foreign producer in the consumers home territory. (Any type of business or professional establishment: constitution, acquisition or maintenance of a juristical person, or creation or maintenance of a branch or representative office)	Foreign investment in health facilities such as hospitals or clinics.
<b>Mode 4 Presence of Natural Persons</b>	Individual moves into the territory of the consumer to provide a service (self-employed or employee, non permanent)	Doctors, nurses working abroad.

Source: Based on Blouin, Gobrecht et al. (2006), p. 229,<sup>8</sup> Chanda (2002a, b), own presentation.<sup>9</sup>

On the basis of this differentiation the following section provides an impression about the status quo and the development of Health Services trade. However there are substantial problems in mapping the modes of supply into existing international classification schemes - not only for Health Services but also for the entire service sector. As a comprehensive statistical treatment of modes of supply according to their legal definition in GATS would fail to ensure compatibility with international statistical systems, the *Manual on Statistics of International Trade in Services* provides a simplified approach for the statistical allocation of trade in services into the different modes.<sup>10</sup> According to this the *Foreign Affiliates Trade in Services Statistics* (FATS) provides information of services supplied through mode 3.<sup>11</sup> Furthermore it states that in general service transactions between residents and non-residents that are captured

<sup>8</sup> Blouin, Gobrecht et al. (2006) also include education and training of health workers and professionals via telecommunication channels in mode 1.

<sup>9</sup> While telehealth is used for mode 1 Health Services in North America, telematic is usually used in Europe. It comprises more than the term telemedicine, which is only used for the integration of interactive methods of audio-video- and data-communication in connection with consultation, diagnosis, knowledge and date transfer in curative medicine (Lindl (2005), p. 91).

<sup>10</sup> United Nations et al. (2002), pp. 20 - 25.

<sup>11</sup> Only to the extent that foreign affiliates are a good approximation of commercial presence.

in the balance of payment cover *mode 1*, *mode 2* and part of *mode 4*. Important classification systems hereby are the fifth edition of the *IMF Balance of Payments Manual* (BPM5) and more up to date the *Extended Balance of Payments Services classification* (EBOPS), on which most national balances of payments are based.

While FATS and EBOPS should be enough to obtain the information needed to get a picture about mode 1-3 service trade, additional data is needed for *mode 4*. For this purpose the UN Manual suggests to look at the “*Compensation of employees*” in the BPM5 *supplement*, the *FATS supplement information*, i.e. at foreign employment in foreign affiliates as a subcategory and additionally to *migration and labor market statistics*.<sup>12</sup> But it also states that the measurement problem for mode 4 cannot be solved within the BPM5 and the FATS framework. So in Annex I of the Manual the UN reviews existing statistical frameworks and tries to identify relevant aspects for measuring mode 4 in the future. Typically the statistics mentioned in the Annex I of the Manual are mainly concerned with flows and stocks of persons rather than with trade volumes.

Parts of this broad mapping for the whole service sector can now be applied for the Health Services sector. At first when searching for *mode 3* trade of Health Services, e.g. through foreign owned hospitals, the FATS is also the primary source to look at. Secondly, as one can as well retain from Tab. 1, *mode 1* trade is nearly congruent with the EBOPS Classification Category “10.2.2 Health Services” which has code no. 896.<sup>13</sup> Some parts of the latter belong to *mode 4* as well since it also gives information on services rendered by health professionals going temporarily abroad. The major part however is mode 1.<sup>14</sup> Finally *mode 2* trade in Health Services corresponds to “2.2.1 Health-related expenditure in travel” (EBOPS code no. 241).<sup>15</sup>

### 3. Empirical Regularities and Stylized Facts

#### 3.1 National Expenditures on Health

In order to give a first overview about the importance of the health sector Fig. 1 shows the 2002 health care expenditures for all OECD countries as a share of GDP and the magnitude of public and private contributions. The data range from 5.3 % in Korea to 14.6 % in the United

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<sup>12</sup> United Nations et al. (2002), p. 24f.

<sup>13</sup> For the complete EBOPS classification list see for example United Nations et al. (2002), Annex II, OECD (2005b), p. 30f or <http://www.oecd.org/dataoecd/24/34/2507956.pdf>.

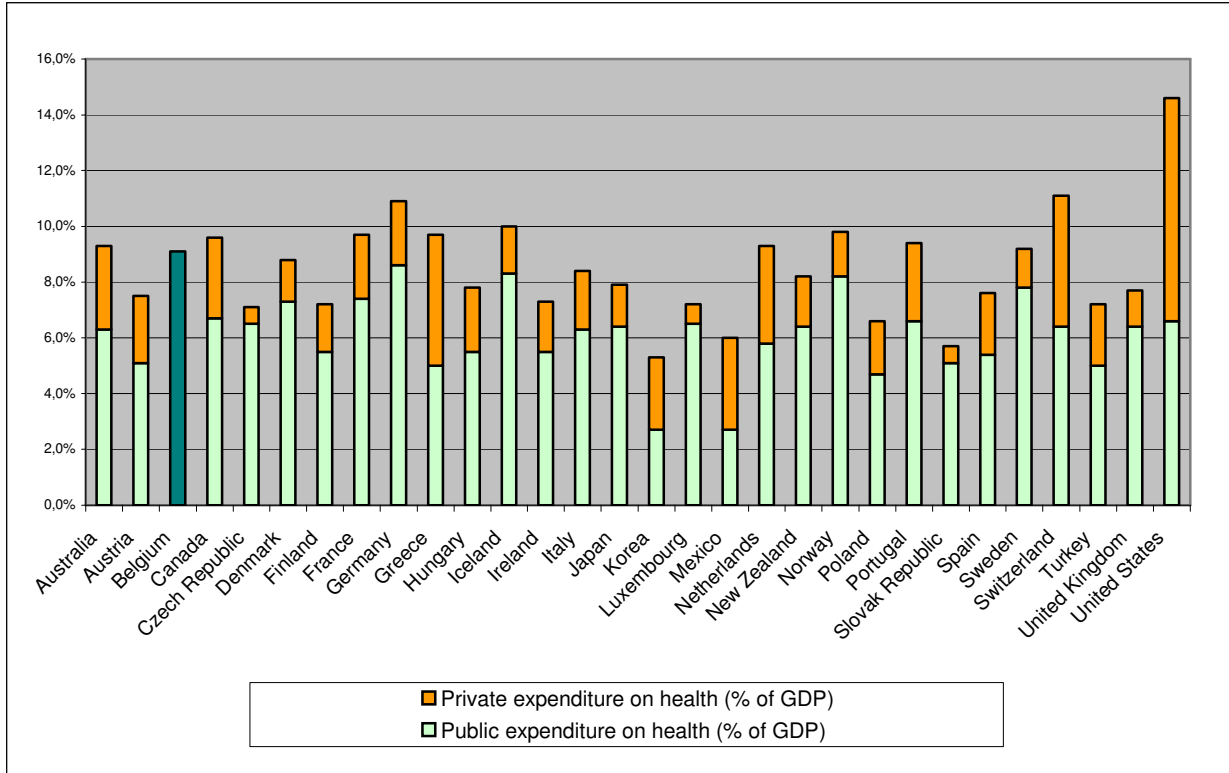
<sup>14</sup> Hereby the definition of “temporary” is a big problem because in balance of payments statistics “temporary” means 12 month and in GATS mode 4 “temporary” is up to 5 years. See Blouin, Drager et al. (2006), p. 237.

<sup>15</sup> A good overview about possible statistical data sources and desirable data collection by country is given in Blouin, Drager et al. (2006) Table 8.2 and 8.3.



States. On average countries spent 8.5 % of their GDP on health ( 6.1 % public and 2.4 % private ),<sup>16</sup> which shows the enormous importance of the health sector for all countries. In the US it nearly accounts for one sixth of GDP.

Fig. 1: Health Expenditure as a share of GDP in 2002 and its Division in Public and Private Expenditures - all OECD countries



Source: Data taken from OECD (2005a), own illustration.

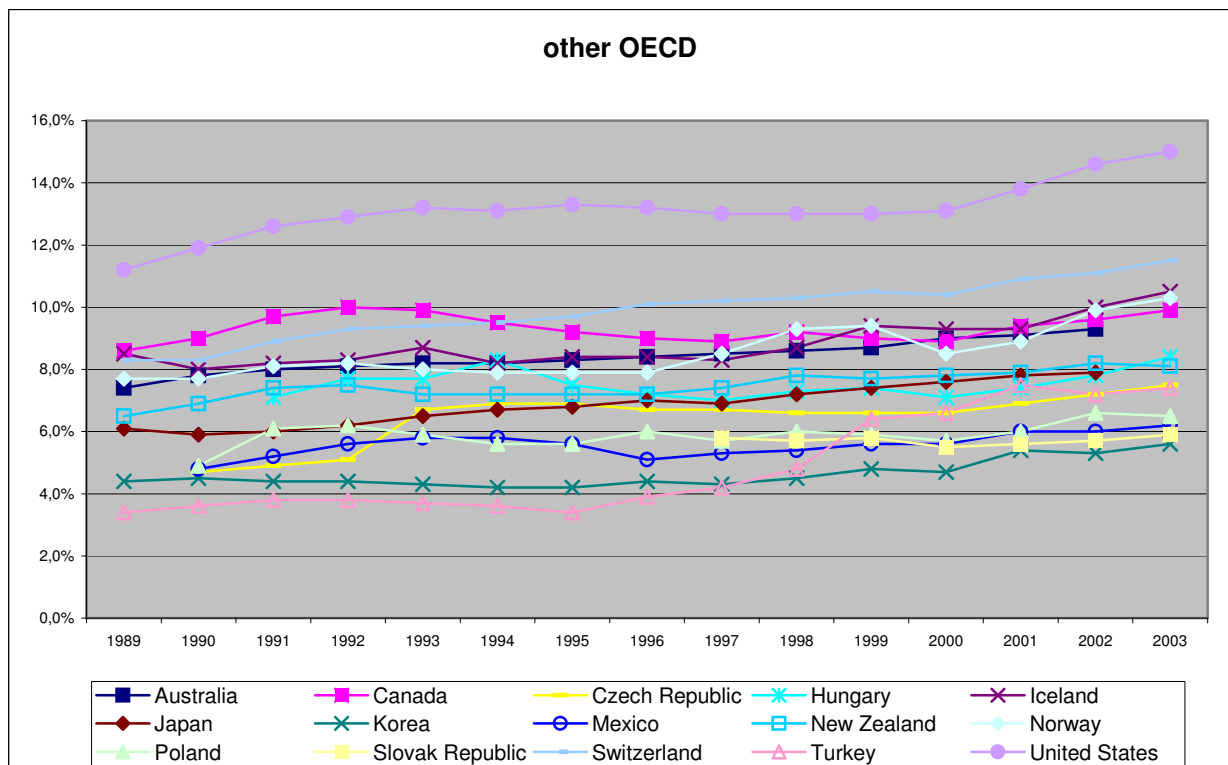
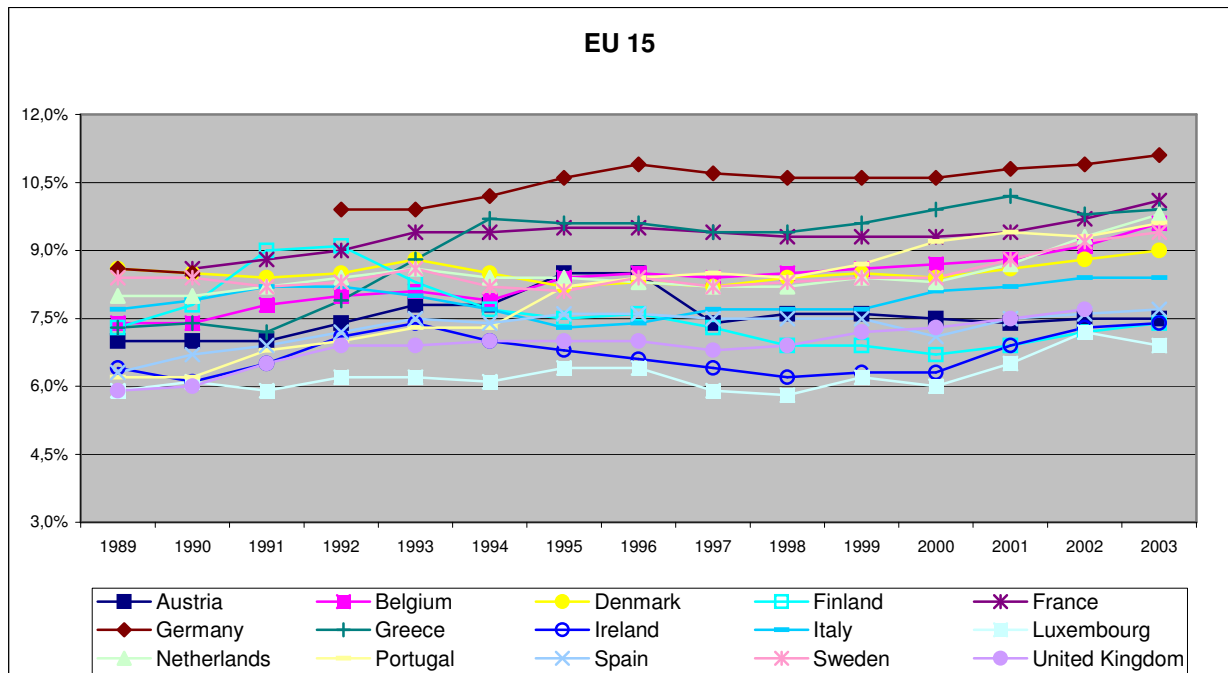
In addition the importance of the Health Sector is further growing. This can be seen by looking the development of the percentage expenditure for health for 1989 to 2003 and the growth rates of absolute expenditures 1989 to 2002 given in Fig. 2 and Fig. 3.

Tab. A1 in the Appendix shows the National Expenditures on Health from 1995 to 2000 as a share of GDP for the rest of the 191 WHO Member States. This is given for the sake of completeness. In the further analyses only OECD countries are considered because just for them trade data were available. One has to state however, that expenditures for health in the WHO member countries ranged from 1 – 5 % of GDP in very low-income countries (< US\$ 1000), to 6 – 12 % of GDP in very high-income countries (> US\$ 7000) during this period.<sup>17</sup>

<sup>16</sup> Belgium not taken into account since any split data was available.

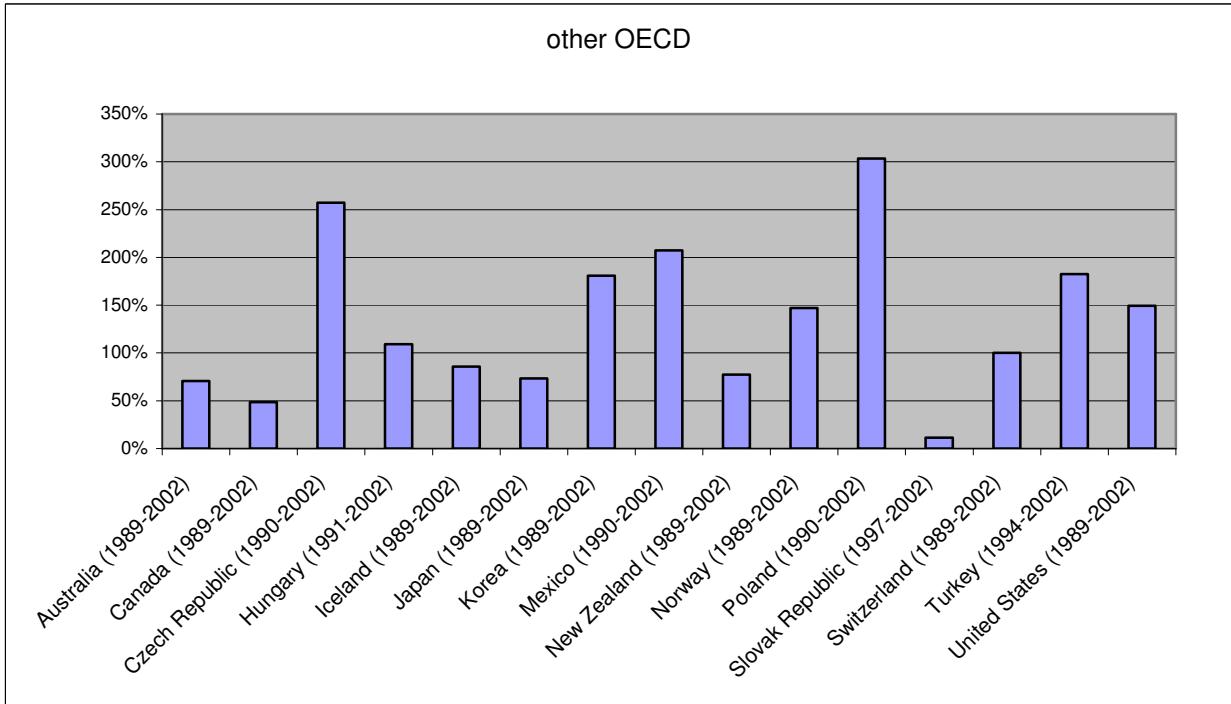
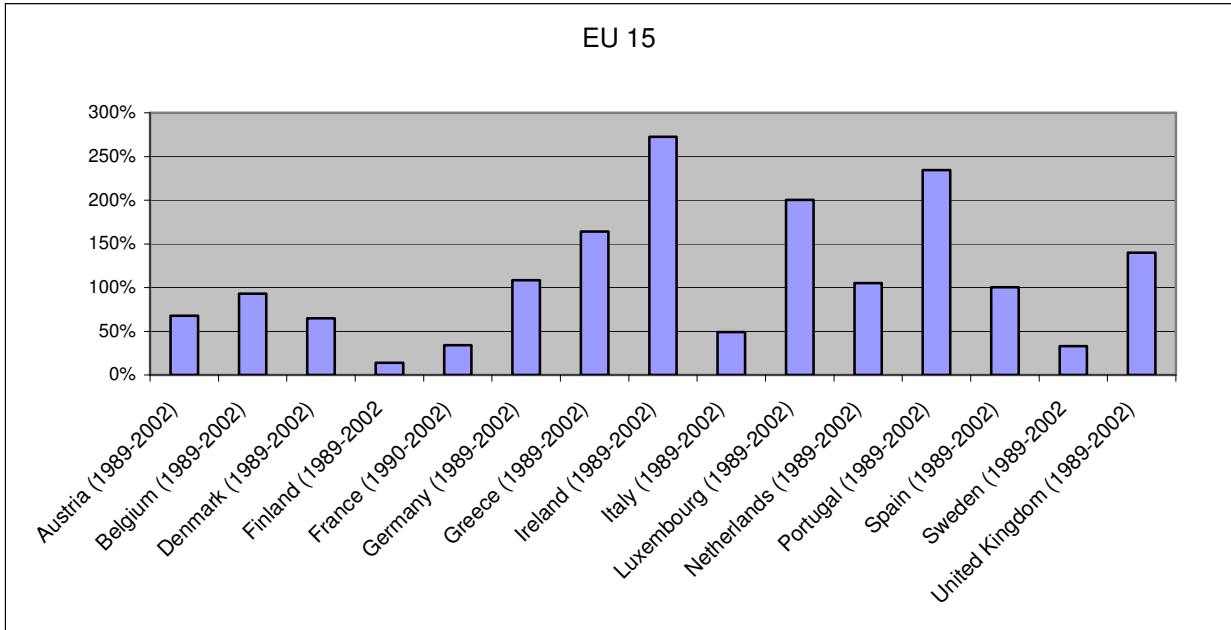
<sup>17</sup> Country Grouping by income per capita according to WHO can be found in Musgrove et al. (2002), Table 2. For further information about health expenditure structure and development Musgrove, Zeramdini (2001) and Musgrove et al. (2002) are recommended.

Fig. 2: Health Expenditure as share of GDP, 1989-2003



Source: Data from OECD (2005a), own illustration.

Fig. 3: Growth Rates of absolute Health Expenditures, 1989-2002



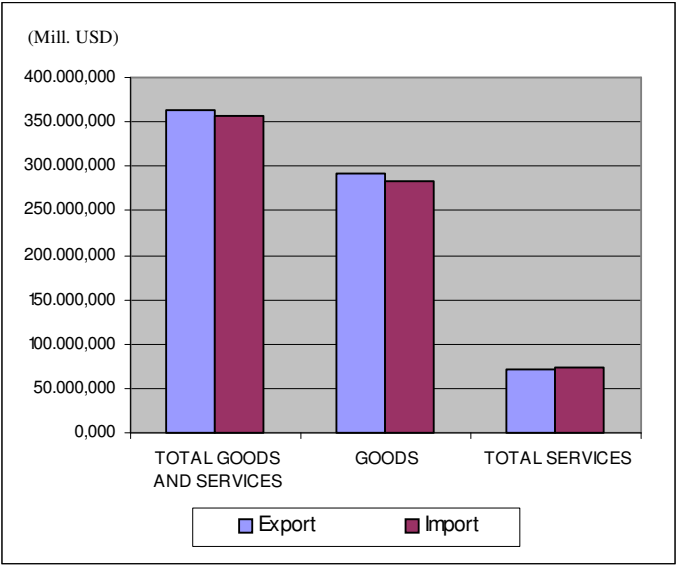
Source: Data from OECD (2005a), own illustration.

### 3.2 Volume and Growth of Trade in Health Services

The last section demonstrated that one has to consider different sources when searching for data about the trade in Health Services since there are different modes of supply that have to be taken into account. For *modes 1* and *2* the balance of payments statistics was added to be the primary data source, with mode 1 being nearly congruent with EBOPS code no. 896 “Health Services”, and mode 2 corresponding to Code No. 241 “Health-related expenditure in Travel”. By developing the EBOPS Classification the UN has created the opportunity to deliver concise data especially in the field of Health Services. However as not every country has already adopted this new classification scheme, only few data are available so far even for the OECD countries.

As it is the only country reporting figures for no. 241 and no. 896 Health Services simultaneously Fig. 4 shows the trade structure of Italy in 2003 as a first overview. Like in all industrialized countries Italian trade in services is far below trade in goods, accounting only for 19.48 % in total goods and services export and 20.8 % in import. Italian exports and imports of goods are approximately 4 times bigger than exports and imports of services and net trade in services is negative while that of goods is positive (see Fig. 4). This holds for most industrialized economies.

Fig. 4: General Trade Structure Italy 2003



Source: Data from SourceOECD (2006), own calculations.

As a next step we look at the structure of trade in services, which is given in Tab. 3. It shows that trade in Health Services is minimal compared to the other services.<sup>18</sup> Health Services *mode*

<sup>18</sup> Also asserted by Woodward et al. (2002), p. 7.

I (no. 896) is only a tiny fraction of total trade in services: exports amount for 0.10 % and imports for 0.06 %. Approximately the same dimension can reasonably be assumed for the other OECD countries. Twice as high but still very small are the “Health-related Expenditures in Travel”, i.e. *mode 2* trade in services. Here exports account for 0.25 % and imports for 0.10 % of all trade in services.

Tab. 3: Services Trade in Italy 2003

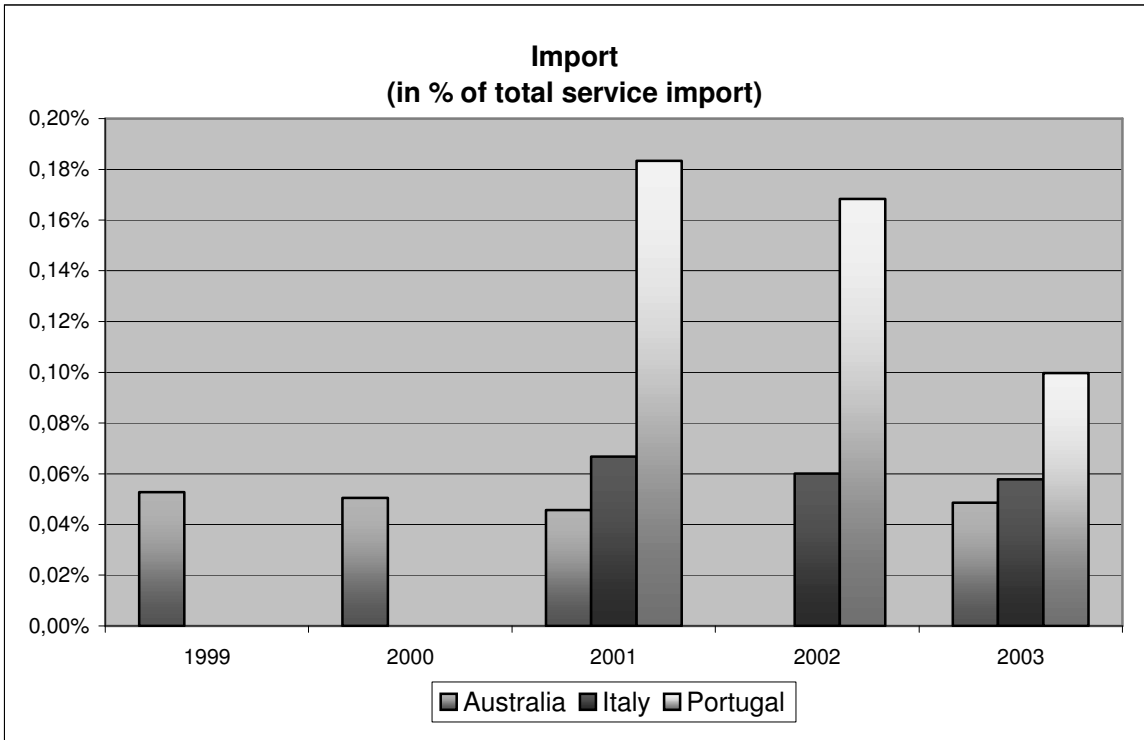
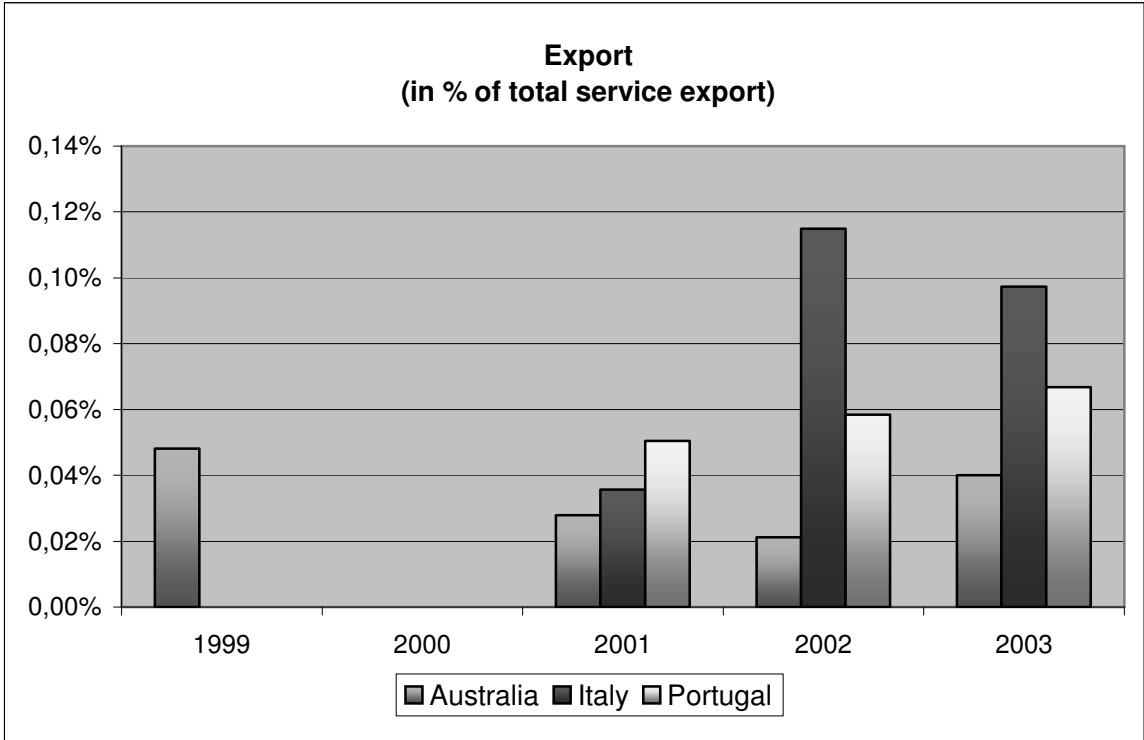
EBOPS Classification Category (Code No.)	% of total service export	% of total service import
1. Transportation (205)	14,06%	21,49%
2. Travel (236)	44,05%	27,70%
2.1 Business Travel (237)	9,58%	11,07%
2.2 Personal Travel (240)	34,47%	16,63%
<b>2.2.1 Health-related travel expenditures (241)</b>	<b>0,25%</b>	<b>0,10%</b>
2.2.2 Education-related travel expenditures (242)	1,98%	1,32%
2.2.3 Other travel expenditures (243)	32,24%	15,21%
3. Communications services (245)	2,66%	4,36%
4. Construction services (249)	2,93%	3,26%
5. Insurance services (253)	1,58%	2,37%
6. Financial services (260)	1,25%	1,07%
7. Computer and information services (262)	0,70%	1,41%
8. Royalties and license fees (266)	0,73%	2,28%
9. Other business services (268)	29,44%	33,04%
10. Personal, cultural, and recreational services (287)	0,99%	1,36%
10.1 Audiovisual and related services (288)	0,25%	0,93%
10.2 Other personal, cultural and recreational services (289)	0,74%	0,43%
10.2.1 Education services (895)	0,20%	0,11%
<b>10.2.2 Health services (896)</b>	<b>0,10%</b>	<b>0,06%</b>
10.2.3 Other (897)	0,45%	0,26%
11. Government services (291)	1,62%	1,64%

Source: Data from SourceOECD (2006), own calculations.

In order to give a crude idea of the dynamics Fig. 5 and 6 additionally deliver the development of these services over time for Italy, Portugal and Australia.<sup>19</sup> Up to now one cannot speak about a certain trend. Too few data is available so far.

<sup>19</sup> These are the only OECD countries for which data were available. OECD Countries which only report net data or only since two or less years are excluded.

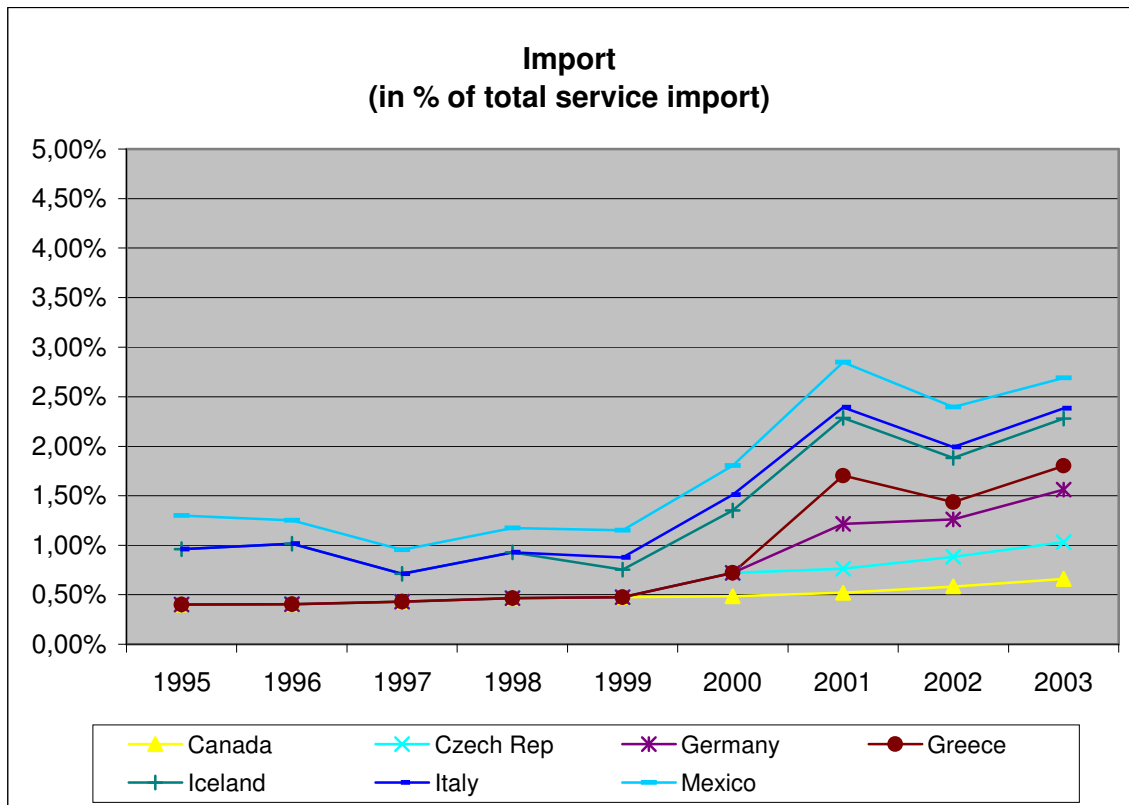
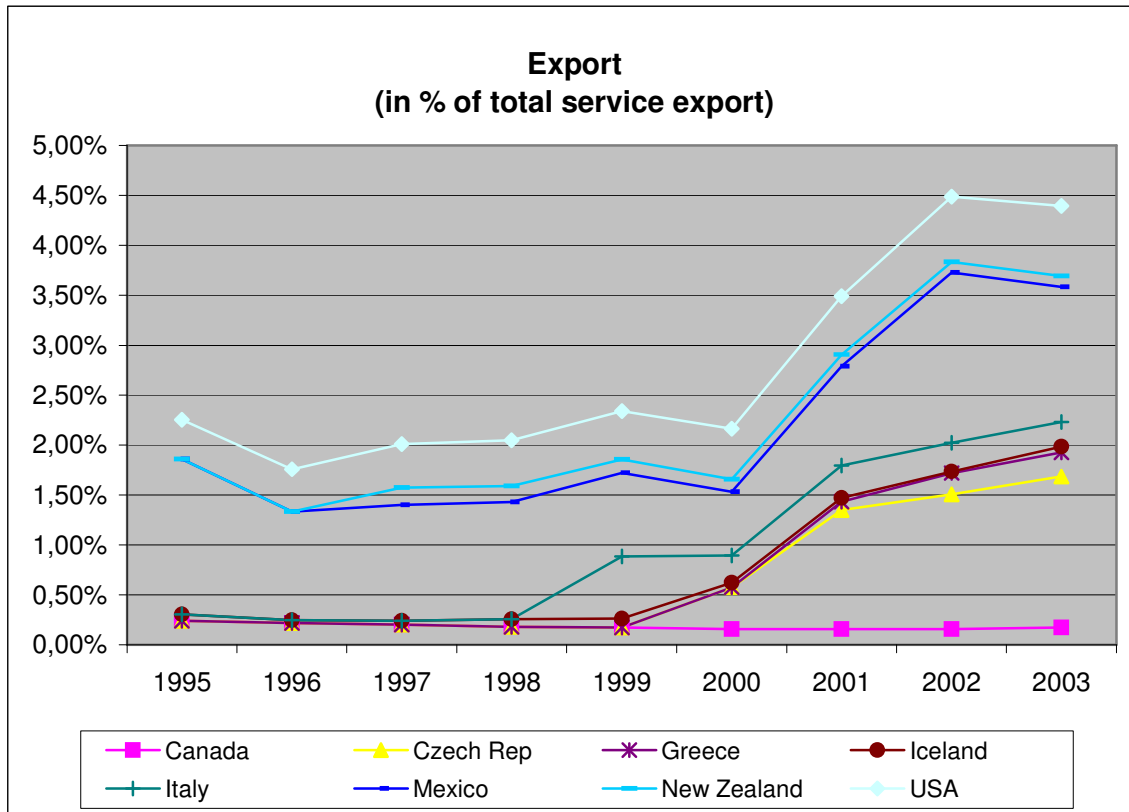
Fig. 5: Mode 1 Trade in Health Services in selected OECD countries over time<sup>20</sup>



Source: SourceOECD (2006), own calculations.

<sup>20</sup> Missing bars because of missing data values.

Fig. 6: Mode 2 Trade in Health Services in selected OECD countries 1995-2003



Source: SourceOECD (2006), own presentation.

For “Health Service Trade through commercial presence/FDI” it is even harder to find comparable macro data. As stated above, concerning this mode of supply (*mode 3*) one has to look at the FATS (Foreign Affiliates Trade in Services) statistics. A comprehensive analysis would hereby distinguish between flows and stocks as well as between country of origin and receiving country. But as Blouin, Drager et al. (2006) assert, the issue “FDI and Health Services trade” is practically “data free”. FATS statistics is basically at its infancy stage and some countries have not started collecting data yet.<sup>21</sup> The only data found are represented in Tab. 4 and are not detailed enough to allow a comprehensive analyses.

Tab. 4: Health Services FDI 2000

Outflowing FDI in Health Service Sector			Inflowing FDI in Health Service Sector		
<i>Number of transactions 2000</i>			<i>Number of transactions 2000</i>		
USA	15		USA	12	
UK	5		Canada	5	
Argentina	3		France	4	
Australia	3		other	13	
other	13				
<i>Volume of transactions 2000</i>			<i>Volume of transactions 2000</i>		
UK	340	Mill. US\$	USA	385	Mill. US\$
USA	216	Mill. US\$	France	74	Mill. US\$
Canada	77	Mill. US\$	Ireland	13	Mill. US\$
other	95	Mill. US\$	other	27	Mill. US\$

Source: Lindl (2005), p. 291f.

With regards to the last mode of supply “Temporary Movement of Natural Persons in the Health Services Sector” (*mode 4*) the data availability is better but on a micro level. There exist a lot of country specific studies looking at health professionals leaving or entering a single country.<sup>22</sup> Diallo (2004) provides an overview of methods for collecting and analysing statistics on the migration of health workers. The two largest groups are physicians and nurses. It is estimated that 20 % of all physicians working in Australia, Canada and the USA come from other countries.<sup>23</sup> For example 179.978 of the 771.491 active non-federal physicians in the

<sup>21</sup> Blouin, Drager et al. (2006), p. 216.

<sup>22</sup> See for example Buchan, Sochalski (2004) or Hagopian et al. (2004).

<sup>23</sup> Diallo (2004), p. 601.



USA in 2002 received their medical qualification in another country.<sup>24</sup> In contrast to the figures for the other modes of supply in Health Services these numbers are very high and are affecting developed and developing countries so much that it is one of the priority issues being addresses by the GATS.

On the supply side one can observe that 56 % of all migrating physicians come from developing countries.<sup>25</sup> This brain drain leads to a deep fear of a further worsening of the already disastrous health care situation in these countries. The main exporters of health workers are the Caribbean states, the Philippines, South Africa, Bangladesh and India. For example life science and health associates professionals, caregivers and personal service workers leaving the Philippines accounted for 104.000 people in 2002.<sup>26</sup> To a lesser extend Eastern Europe, Canada, the United Kingdom, Sweden, Australia and New Zealand are also exporting health workers.<sup>27</sup>

The major importers of health workers are the United Kingdom, USA, Australia, Canada and Norway. All of them are characterized by a growing elderly population and shortage of health professionals. Thereby the United States are the main destination of migration. From only October 1999 to February 2000, 2635 visas for temporary migration of health professionals were approved, therefrom 1155 physicians and surgeons, 851 with other occupation in medicine and health and 629 therapists. 26.506 nurses applied for the so-called “Registered Nurses Licensure” in the period 1997-2000. In a survey for the Department of Health and Health Services, it was estimated that by 2000 about 100.000 foreign-trained nurses were living in the US, with 86 % of them unregistered.<sup>28</sup>

Now that an overall impression about the definition, the statistical treatment and the actual amount of trade in Health Services is given, the next section discusses why trade in this sector is so low and what can be done to further increase it.

#### 4. Impediments to Trade in Health Services

The main barriers to trade in Health Services can be divided in three broad categories. These are the *tradability* of services in general and Health Services in particular (1.), *health insurance* (2.) and *other regulatory constraints* to trade in services (3.).

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<sup>24</sup> Hagopian et al. (2004), p. 4.

<sup>25</sup> Díaz Benavides (2002), p. 60.

<sup>26</sup> Blouin, Gobrecht et al. (2006), p. 227.

<sup>27</sup> Blouin, Gobrecht et al. (2006), p. 226. See also Hagopian et al. (2004).

<sup>28</sup> Blouin, Gobrecht et al. (2006), p. 228.

## 4.1 Tradability

Before coming to artificial, i.e. man-made barriers to trade, the general tradability of Health Services has to be analysed. By definition the classical idea of the imperative for the consumer and the producer of a service being at one place at same time (the so-called *Uno-Actu principle*), holds for the GATS trading *modes 2 to 4*. So technically mode 2 - 4 Health Services would be tradable without impediments, if there were no legal and administrative barriers. Concerning mode 2 Health Services even increased tradability can be observed. Rising per capita income and better information possibilities enhanced the mobility of potential patients.<sup>29</sup> However *mode 1* is an exception. Until recently the scope for this kind of trade, i.e. trading at arm's length, was limited but it existed. Examples are the shipment of laboratory samples or the diagnosis and clinical consultation via traditional mail and telephone channels.<sup>30</sup> With the emergence of modern information and communication technologies (ICT) the trade possibilities broadened. Nowadays communication channels like email or internet, which provide the ability to send data electronically, give rise to new areas that are subsumed under the terms of e-health, telehealth or telematic (see Tab. 2).<sup>31</sup> World wide diffusion of these techniques, further innovations and price reduction of ICT hardware and communication facilities as well as improvements in the stability and speed of data transfer, promise that mode 1 trade in Health Services will continue to grow fast in near future.

Nevertheless there are still large obstacles for trade here. Especially in developing countries or remote regions, poor or inadequate telecommunication facilities still hinder arm's lengths Health Services to fully unfold their possibilities. Also missing qualification in the use of the technical equipments may act as barriers to trade.<sup>32</sup>

## 4.2 National Health Insurance Systems

Beside the general tradability, legal and administrative issues constitute large barriers to trade in Health Services for *mode 1* as well as for *mode 2 - 4*. National health insurance systems – the biggest obstacle to trade in this sector – have to be distinguished from other legal or administrative regulations.

While most people spend few on health care, a small fraction of people are faced with enormous health care cost that, without having an insurance, would have a ruinous impact or hinder

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<sup>29</sup> Adlung, Carzaniga (2001), p. 362. For a deeper analysis of the motivation for health and medical tourism see for example Carrera, Bridges (2006 a, b).

<sup>30</sup> Chanda (2002a), p. 158.

<sup>31</sup> Lindl (2005), p. 91.

<sup>32</sup> Lindl (2005), p. 141.

them to obtain the necessary health care at all. A skewed distribution of spending concerning health can be observed which makes insurance to an imperative in a health system.<sup>33</sup> On the other side, as patients are tied to the financial help they receive from their insurance company – either being public or private - they are also tied to the rules of consumption settled by this company. These rules are certainly justified as the insurance drives a wedge between the costs of producing health care and the cost consumers face when ill, which makes them to demand more than they would have actually done without insurance. In order to avoid this moral hazard problem inherent in every insurance system,<sup>34</sup> health insurances set up rules like what kind of care or treatment is allowed or which health professional has to be consulted.

In a simple model framework Mattoo, Rathindran (2005) show how the moral hazard problem is amplified in the case of trade liberalization with a country that has a lower price level for health care goods and services initially. With having the same coinsurance rate for both consumption at home and abroad, trade would lead to an additional welfare loss. Even though they additionally prove that it is possible to design health insurance contracts, which lead to unambiguous welfare improvement through opening up the trade, most insurers in countries with expensive health care deny coverage for non-emergency treatment abroad. For example Medicare and Medicaid, the two public health insurance systems in the USA, do not cover treatments abroad in general, or the German public insurances only pay for non-emergency surgeries abroad for which there is no qualified specialist available within the country.

Beside the intention to control the misuse of health insurance through wasteful spending several other reasons are mentioned for justifying these restrictive policies. Most frequently apprehensions about quality as well as universal and non-discriminatory access to health care are expressed.<sup>35</sup> Also concerns regarding malpractice of law, liability law, costs of monitoring health care consumption abroad or legal binding in the home country are mentioned.<sup>36</sup> One can also guess that implicit protection for domestic health care providers, in order to sustain and develop supply structures for Health Services in specific regions or to protect employment in the health sector, is a reason for not allowing consumption abroad by the public health insurers. Concerning private insurances it might be the case that the oligopolistic structure of the health insurance market makes them to seek the “high-cost-low-competition” equilibrium rather than the “high competition-low-cost” environment.<sup>37</sup>

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<sup>33</sup> See Feldstein (2006), p. 1.

<sup>34</sup> See for example Cutler, Zeckhauser (2000), p. 576f.

<sup>35</sup> For a detailed discussion see section 5.

<sup>36</sup> See Mattoo, Rathindran (2005), p. 21f.

<sup>37</sup> Mattoo, Rathindran (2005), p. 23.

How high the actual impediments to trade coming from national health insurances are, is at best seen when looking at the potential gains from trade that would arise if treatment abroad were allowed. For this purpose Mattoo, Rathindran (2005, 2006) compare the costs of fifteen highly tradable, low-risk treatments like knee surgery, hysterectomy, shoulder arthroplasty, rhinoplasty, etc. in the United States and abroad including round-trip travel expenditures. They estimate that if one of ten patients, who needs one of these fifteen treatments would be served abroad, the savings for the US health system would amount to 1.4 billion \$ a year.

#### 4.3 Other legal or administrative regulations

In order to give a structure of the other legal and administrative barriers to trade beside national health insurance systems, these regulations are discussed according to the modes of supply. At first one has to state that concerning *mode 1* – the arm's lengths provision of Health Services - relatively few regulatory limitations exist.<sup>38</sup> Bhagwati et al. (2004) see it as a historical irony that when trade in services came into focus of international trade rules via GATS in 1995, mode 1 service trade in general, i.e. not only Health Services, were the least controversial and most commitments as part of the GATS negotiations in the Uruguay Round were made under mode 1. Except for the health insurance restrictions for consumption abroad as discussed above, very few other legal or administrative obstacles exist concerning *mode 2* trade in Health Services.<sup>39</sup> Of course countries control the border crossing of natural persons but mainly for economic, security or health reasons with regard to disease control. There are certainly restrictions for entry or exit, visa or custom rules but they are not specifically designed to regulate health consumption abroad. So impediments to mode 2 trade in Health Services are in general subject to the same rules as the exchange of tourist services. These are normally very lax because tourism is often an important economic factor of the economy.

However there are far more obstacles that hinder free trade in the both other modes of supply. While developed countries in general demand the expansion of the right to have commercial presence abroad (*mode 3*), they are concerned about the inward movement of natural persons (*mode 4*). Developing countries, on the other hand, are normally opposed to liberalization in *mode 3* services and seek for opening up *mode 4* services trade, which gives their unskilled population the possibility of offering services in developed countries.<sup>40</sup> The provision of Health Services through a commercial presence is subject to diverse restrictions on foreign direct investments (FDI). These are for example foreign equity ceilings or even prohibition, limitations

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<sup>38</sup> Adlung, Carzaniga (2001), p. 359.

<sup>39</sup> Adlung, Carzaniga (2001), p. 359.

<sup>40</sup> Bhagwati et al. (2004), p. 96.

for the repatriation of business profits, insurance requirements, guidelines motivated by economic, social or structural policy goals, discriminatory policies concerning taxation and land acquisition, tests and authorization requirements for the provided Health Services and restrictions on accompanying movement of health professionals and managers.<sup>41</sup>

Finally when looking for barriers to the exchange of Health Services through the temporary movement of health practitioners abroad, it strikes that the regulative goals of governments in developed and developing countries are different from them in other service sectors. While there are indeed many obstacles to come and to work in developed countries, the barriers for health personnel are usually lower than for other professions. This is due to a shortage of health professionals and workers which is experienced most industrialized countries. On the other hand developing countries face increasing numbers of mostly skilled and high-trained health professionals - doctors as well as nurses – which leave in order to work abroad. This brain drain heavily harms the countries, not only from a financial but also from a general health perspective since the provision of medical treatment for the population is not guaranteed anymore or even further worsened. Restrictions on the entry and practice of foreign Health Service providers are for example immigration and labor market regulations, authorization requirements in the home and the host country, admission restrictions for some occupations because of economic and local market needs, certification and licensing requirements, residency and nationality conditions and rules imposed by professional associations.<sup>42</sup>

Before now turning to the discussion about the possible gains and dangers from trade in Health Services, it has to be stated that there are further obstacles not mentioned yet. These are in particular transaction costs that arise from travel expenditures, language barriers, information costs and lack of transparency. In addition cultural differences, attitudes and prejudices may prevent trade in Health Service from being free.<sup>43</sup>

## 5. Gains from Trade or Detriment for Health

When talking about gains and losses from trade in Health Services one cannot simply say that liberalization in this field leads to a wider array of choices and lower prices for consumers in all countries.<sup>44</sup> Instead the specific importance of the health sector for economic welfare and

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<sup>41</sup> See Lindl (2005), p. 143f and Chanda (2002c).

<sup>42</sup> See Chanda (2002c).

<sup>43</sup> See Birch, Boxberg (2004) and Lindl (2005), p. 134ff.

<sup>44</sup> As said in WTO Council for Trade in Services (1998).

growth has to be taken into account. Particularly *other objectives* of the government in the design of the health sector - beside low prices and broad varieties – mustn't be forgotten. In order to give a complete picture about gains and losses from trade liberalization in this sector, always three different perspectives have to be considered the evaluation: first the *general trade perspective*, which means looking at the potential gains and losses from a pure trade theory angle of view, second the *health objective perspective*, which means controlling for the implications in reaching the general objectives of national health systems and finally the public *health insurance perspective*, which concerns to potential influence on the health insurance system arising from greater liberalization. Since the latter has already been discussed in section 4.2, the following is confined to the discussion of the first two perspectives. It is intended to largely stick to the differentiation between the four modes of supply.

### 5.1 General trade perspective

It is useful to have a framework for categorizing the possible sources of welfare changes when opening up an economy to free trade - not only for trade in Health Services. For instance Baldwin, Venables (1995) provide this by differentiating three possible welfare effects arising from trade liberalization: the *allocation*, the *accumulation* and the *location* effect.

The first one is well-known and is always the major argument for everybody being in favor for trade openness: liberalization entails a more efficient factor allocation between sectors. So theoretically this should lead to an increase of the total amount of - in this case - Health Services available worldwide and furthermore cause a reduction of the relative price of Health Services relative to other goods and services in countries where they have been initially very high. Birch, Boxberg (2004) for example, provide an overview of the possibilities from opening up the trade in orthopaedic surgeries between UK and Germany. Here dramatic price reductions in Britain could follow if the huge British lack of supply is met by the Germany excess capacities. Also Mattoo, Rathindran (2006), as already mentioned above, estimate huge gains from liberalizing trade in Health Services. Additionally the allocation effects concern scale economies and variety impacts. Traditionally there are huge fixed costs especially in the health sector. Think about acquisition prices for medical equipment like computer-tomography scanner (cat scans) or x-ray machines. The possibility to serve a bigger market, i.e. patients, leads to lower average costs or even makes the provision possible at all. Good examples are laboratories analysing e.g. DNA samples. It would not be efficient for each little medical practice to do it by themselves. Instead they send it to certain specialised centers. This argument holds on the national level as well as on the international level.

The second broad category of welfare effects – the *allocation effects* – address the issue of how countries could spur economic growth by further accumulation of factors of production and fostering technological progress. In the case of the Health Sector that means attracting international health professionals, health-related FDI and getting access to new medical technology as well as medical fundamental research. All of this could advance economic growth both directly through the ‘neoclassical growth theory’ chain of causation and indirectly through the improvement of the overall health status of the population, i.e. via the improvement of the existing stock of human capital.

Concerning *location effects* a possible scenario could be the creation of agglomerations of clusters, i.e. regions devoted only to certain medical issues, like Silicon Valley for the IT industry. Certainly this could lead to regional disparities with regard to health suppliers but as long as patient mobility and or mode 1 supply is further improved, this may also give the possibility to gain through specialized input suppliers, knowledge spillovers between health care suppliers, quality improvements and enhanced patient experience networks etc.

## 5.2 Health System Objective Perspective

As stated above one cannot simply follow the traditional gains from trade argumentation when looking at the gains from trade in Health Services. It has to be taken into account that in general a national health system is designed to reach also other objectives on a par with the pure efficiency goals. What are the objectives of national health systems? Answering this question depends on which country you are looking at. Some countries seek for general access to all medical treatment including Health Services for all people. Others do not seem to do so. For instance, huge differences between ethnical groups and income classes with regard to their insurance protection can be observed in the US. Approximately 16 % of the population is not insured at all. Other often mentioned goals, when talking about the health system beside general access are high quality and improvement of quality in health care, financial sustainability of the health system, reducing costs, avoiding wasteful spending, cost/benefit balancing of products and treatment and efficiency and effectiveness of provision. But instead of differentiating between the various goals of numerous systems it is better to refer to one common framework. For example to the OECD “Health System Performance Framework” on which the present paper focuses on.<sup>45</sup> According to this, there are three “Health System Goals”: *Health Im-*

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<sup>45</sup> Also the WHO has developed such a system but it is slightly different from that of OECD. Hurst, Jee-Hughes (2001) report three main differences concerning the goals between the OECD and the WHO framework: At first access is not a component of responsiveness for WHO, secondly the level of health expenditure is not a goal in WHO framework and finally WHO is weighting the goals.

provement / Outcomes (1), Responsiveness to the Expectations of the Consumer & Access (2) and Financial Contribution / Health Expenditure (3). Furthermore there are two components for assessing the goal achievement in this framework: *Average Level* and *Distribution*. Whereas the latter means distribution concerning social, economic, demographic, ethnical and location dimensions. Tab. 5 gives an overview of the OECD framework.

Tab. 5: OECD Health System Performance Framework

Health System Goals	Assessment Components	
	Average level	Distribution
Health Improvement / Outcomes (+)	✓	✓
Responsiveness and Access (+)	✓	✓
Financial Contribution / Health Expenditure (-)	✓	✓
	<b>Efficiency</b>	<b>Equity</b>

Source: Hurst, Jee-Hughes (2001), p. 28.

The *first goal* and its assessment components are quite obvious. It concerns the average level of population health and health distribution inequalities within the population. While access to health care is also easy to understand, the other part of the *second goal* “responsiveness” needs a little explanation. According to Murray, Frenk (2000) it deals with the responsiveness of the health system to the legitimate<sup>46</sup> expectations of the population. It has two major elements, ‘respect for persons’ and ‘client orientation’, which themselves can further be differentiated.<sup>47</sup> Both responsiveness and access are assessed by the average level and inequalities in its distribution. The *third goal* “Financial contribution and health expenditures” involves the idea of fair contribution (which entails ‘financial risk pooling’ in order to prevent household to impoverish and payments of households according to their ‘financial abilities’) as well as the idea of including a specific desirable level of health expenditure as an actual goal.<sup>48</sup>

It is important to state that the OECD framework embodies two concepts of efficiency. First microeconomic efficiency, which means comparing the measured productivity of the health system (health outcome and responsiveness per Dollar) with some estimate about the maximum attainable productivity, holding the level of resources constant. Secondly macroeconomic

<sup>46</sup> Legitimate means no frivolous expectations. See Murray, Frenk (2000), p. 720.

<sup>47</sup> According to Murray, Frenk (2000), ‘Respect for persons’ comprises the aspects of ‘Respect for dignity’, ‘Respect for individual autonomy’ and ‘Respect for confidentiality’. ‘Client orientation’ is made of the aspects ‘Prompt attention to health needs’, ‘Basic amenities’, ‘Access to social support networks for individual receiving care’ and ‘Choice of institution and individual providing care’.

<sup>48</sup> WHO excludes such an expenditure level as it claims that health financing is a key policy choice of a society and not an intrinsic goal. See Murray, Frenk (2000), p. 721.



Efficiency, which deals with how changes in the resource level would bring health outcomes and responsiveness closer to or further away from their desired level, compared with other goods and services.<sup>49</sup> This latter measurement of efficiency is especially important when talking about the effects of liberalization since trade leads to changes in resource allocation and relative supply. Beside the efficiency concepts, one can also find the familiar concepts of equity and quality in this framework: The overall level of goal attainment is viewed as the overall *quality* of the health system and distribution with regard to all of the three goals can be seen as the overall *equity* of the system.<sup>50</sup>

Now that an overview of the general goals is given, the implications of trade liberalization in the Health Services sector for the attainment of the health sector goals have to be discussed. This is done in the following section by means of plausibility considerations looking at each mode of supply, whereas no claim of completeness is raised. It is also clear that one can dispute about the arguments and nothing is proven yet. The results are summarized in Tab. 6.

Tab. 6: Assessment of the four modes of trade in Health Services in the OECD Health System Performance Framework

Health System Goals	Assessment Components	
	Average level *	Distribution *
Health Improvement / Outcomes (+)	mode 1: + mode 2: + mode 3: + mode 4: +/-	mode 1: + mode 2: +/- mode 3: ~/- mode 4: +/~
Responsiveness and Access (+)	mode 1: +/- mode 2: +/-/- mode 3: + mode 4: -	mode 1: +/- mode 2: +/-/- mode 3: +/- mode 4: ~
Financial Contribution / Health Expenditure (-)	mode 1: + mode 2: + mode 3: + mode 4: +	mode 1: ~ mode 2: ~/- mode 3: ~/- mode 4: ~
	<b>Efficiency</b>	<b>Equity</b>

\* + / - / ~ indicates a positive/negative / ambiguous impact of the respective mode of service trade on the assessment component of the specific health system goal.

Source: Own representation.

<sup>49</sup> See Hurst, Jee-Hughes (2001), paragraph 17.

<sup>50</sup> See Murray, Frenk (2000), p. 721.

### 5.2.1 Health Improvement / Outcome

Clearly the provision of Health Services at arm's length (*mode 1*) is a chance to overcome some distributional tilts. It enables the delivery to remote and underserved areas, provided the infrastructure is given and it is known how to use it.<sup>51</sup> By this, it alleviates human and physical resource constraints and all in all certainly contributes to improve the average level of health.

The same holds when patients are allowed to travel in order to receive health care. Take the United Kingdom for example. *Mode 2* trade in Health Services could contribute to raise the average level of health by avoiding long waiting lists. Also in countries with large private contribution to health care payment, the possibility of receiving treatment abroad for much lower prices could help to make the health care provision more independent of income and wealth. An important caveat to mention here is however the danger that domestic consumers may be crowded out by foreign wealthy patients.

Despite huge initial public investment to attract FDI,<sup>52</sup> the delivery of Health Services through foreign commercial presences (*mode 3*) may raise quality standards and the availability of Health Services in the destination countries. It also eases physical resource constraints by providing additional Health facilities. To what extent this will serve for a more equal distribution of health is questionable because access often depends on high payments.

As already mentioned above, a big problem arises for developing countries through *mode 4* trade in Health Services. The permanent outflow of skilled health professionals and workers deteriorates the average health level within these countries. On the other hand, in the countries where these people are heading for, it is sometimes impossible to sustain the health system without foreign health practitioners – again think about the United Kingdom. Clearly both the average health status and the distribution of health in the host country are improved.

### 5.2.2 Responsiveness and Access

As far as the “responsiveness to consumers’ expectations” and its several components<sup>53</sup> is concerned, one can say that *mode 1* trade in Health Services improves the subcategories ‘prompt attention to health needs’, the ‘access to social support networks for individual receiving care’ and widen the ‘choice of institution and individual providing care’. This is due to the new possibilities given by technical progress in ICT. Provided that adequate communication infrastructure and qualification in the use of the technical equipment is given, it is also likely to overcome distributional tilts. Problems may arise with regard to the ‘respect for confidentiality’

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<sup>51</sup> See Chanda (2002c).

<sup>52</sup> Ibid.

<sup>53</sup> See footnote 47.

since it is more difficult to uphold the notion of privacy and individual control over personal information when it is not clear which nation's law to apply.

'Basic amenities' cannot be guaranteed for patients travelling abroad, but both in *mode 2* and in *mode 3* trade in Health Services, increased competition probably leads to more than fulfil this goal - on average and in a distributional sense - since offering patients a comfortable surrounding is a possibility to differentiate oneself from competitors. 'Access to social support' will also be improved by mode 2 and mode 3 Health Services trade,<sup>54</sup> particularly when thinking about trade creating agglomerations/clusters specialized in certain medical branches where a lot of people with equal experiences and needs can be found. Both also clearly support a wider 'choice of institutions and individuals providing care'.<sup>55</sup> The aspect of 'respect for persons' and its subcategories can be ensured by official approval of foreign health-related FDI but it cannot be controlled for when patients travel abroad in order to receive medical treatment.

The goal of "access to health care" is affected by openness to trade in several opposed ways. As already stated above *mode 1* trade enhances access to health care on average and in distributional sense as long as the infrastructure is provided. *Mode 2* trade however makes it in general possible to get access to Health Services not available before but this may come with an unequal distribution of access. Not being under force by law a supplier can pick only the rich patients and keep others out. In principle absolutely the same holds for *mode 3* trade in Health Services. The WHO Commission on Macroeconomics and Health states that shifting the scope of profits through trade and investment opportunities only leads to shifting the focus of health care services in developing countries towards the rich and foreign patients and aggravating the existing dualism between the public and private health care segments.<sup>56</sup>

Also the movement of health personnel abroad (*mode 4*) is a mixed blessing. On the one hand one can definitely conclude that both "responsiveness to patients' expectations" and "general access to health care" will deteriorate in the sending countries on average and in distributional sense. On the other hand the situation in the destination countries will improve as far as the problems in the specific health sector stem from a shortage of health professionals and workers.

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<sup>54</sup> Judged by both assessment components.

<sup>55</sup> As a possible caveat language barriers could be mentioned here. But this is only an obstacle for improving the specific health system goal, not a reason for worsening the situation by opening up for this kind of trade.

<sup>56</sup> WHO Commission on Macroeconomics and Health (2002), p. 9.

### 5.2.3 Financial contribution / Health expenditure

The third goal that comprises the ideas of ‘financial risk pooling’, ‘payments according to financial abilities’ as well as a ‘sustainability of health financing’, is problematic to discuss from a trade point of view. Clearly openness to trade means that more and more rich and basically healthy people receive treatment abroad (*mode 2*) or in specialized private health facilities (*mode 3*), leaving only the worst and most expensive cases for the public insurance system at home. But the question is, if this is an argument against openness to trade in Health Services. Even if trade is aggravating the situation, the problems of ‘financial risk pooling’ and ‘payments according to financial abilities’ is inherent in the general design of the health insurance systems.

Additionally, the positive effects for the health system funding arising from trade liberalization should not be forgotten (average contribution and expenditure level). It will lead to price reductions in developed countries which contribute to ease the cost pressure in health caring and it will extend the markets for services with high fixed costs whose provision was not affordable before. This argument certainly holds for *mode 2 – 4* trade in Health Services and after an undeniable period of initial investment also for *mode 1*.

In developing countries however, a new export sector may be created where foreign exchange can be earned and unemployment can be reduced. Due to its immense labor intensity it is likely that these countries have a comparative advantage in the Health Service sector.

## 6. Conclusion

In this paper it was intended to provide an analytical framework for the assessment of a new subject of globalization - trade in Health Services. For this purpose it was at first defined what belongs to the category of Health Services and how trade in this sector looks like. That means the four modes of service supply according to the GATS and its specific occurrence in the Health Service sector were presented. Subsequently the current level of trade in Health Services was analysed with the result that it is still very low. It was also asserted that one cannot say much about growth rates in this sector because of the poor data availability. Further data collection and evaluation of different data sources needs to be done here.

As a result of economic, social, technical and global factors Health Services became increasingly tradable in recent time. However still a lot of impediments to trade exist in this area with one of the major obstacles being national insurance systems. These were the conclusion of the study of different impediments to trade which were divided in three broad categories - tradability of Health Services, health insurance and other regulatory constraints to trade in services.

In order to finally assess the gains from trade in Health Services it was stated that one cannot simply say that liberalization in this field leads to a wider array of choices and lower prices for consumers in all countries. The specific importance of the health sector for economic welfare and growth was explicitly pointed out and it was shown that so as to give a complete picture about gains and losses from trade liberalization in this sector, more than the general trade perspective has to be considered. While the latter was scrutinized by its subcategories allocation, accumulation and location effects, a second assessment framework was utilized. The OECD Health System Performance Framework with its three major health system goals - 'Health Improvement & Outcome', 'Responsiveness & Access' and 'Financial Contribution & Health Expenditures' – was used for a detailed study of the consequences of each mode of international Health Service supply. It was seen that there are potential risks from trade in Health Services but also possibilities to overcome problems health systems all over the world face nowadays.

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## Appendix

Tab. A1: National Expenditures on Health as a share of GDP, 1995 – 2000, all WHO member countries except OECD.

Member State	Total expenditure on Health (share of GDP in %)					
	1995	1996	1997	1998	1999	2000
Afghanistan	1,3	1,3	1,4	1,6	1,5	1
Albania	3,3	3,6	3,2	3,3	3,4	3,4
Algeria	4,8	4,4	4,1	4,4	4,2	3,6
Andorra	9,6	8,7	9,3	10,6	8,1	7,9
Angola	4,8	3,9	3,9	3,5	3,3	3,6
Antigua and Barbuda	5,7	5,7	5,4	5,3	5,3	5,5
Argentina	8,2	7,9	7,8	8	8,5	8,6
Armenia	7,8	7,8	7,8	7,3	7,6	7,5
Azerbaijan	2,7	2,2	2,2	2,3	2,4	2,1
Bahamas	5,8	6,6	6,7	7,3	7,7	8
Bahrain	4,5	4,4	4,8	5	4,8	4,1
Bangladesh	3,5	4	3,9	3,8	4	3,8
Barbados	6,2	6,1	5,9	5,6	5,8	6,4
Belarus	5,7	5,5	6,2	5,4	5,7	5,7
Belize	3,8	3,7	4	4,3	4,7	4,6
Benin	3,1	3,2	3,1	3,3	3,2	3,2
Bhutan	2,9	3,4	3,6	3,8	3,7	4,1
Bolivia	4,4	4,6	4,5	5	5,2	6,7
Bosnia and Herzegovina	4,6	4,1	3,4	3,8	4	4,5
Botswana	5,4	5,6	5,4	5,3	5,8	6
Brazil	7,2	7,4	7,5	7,5	7,9	8,3
Brunei Darussalam	2,6	2,6	2,8	3	3,2	3,1
Bulgaria	4,4	3,8	4,3	4	4,1	3,9
Burkina Faso	3,1	3,7	3,9	3,9	4,3	4,2
Burundi	3,5	3,2	2,5	2,8	2,6	3,1
Cambodia	6,7	7,5	8,3	8,4	8,1	8,1
Cameroon	4,1	4,1	4,1	4,2	4,3	4,3
Cape Verde	2,4	2,5	2,4	2,6	2,6	2,6
Central African Republic	2,1	2	2,4	2,5	2,8	2,9
Chad	3	3,1	3,1	2,9	2,9	3,1
Chile	6,7	6,9	7,2	7,5	7,3	7,2
China	3,9	4,2	4,5	4,7	5,1	5,3
Colombia	7,4	8,8	9,3	9,3	9,9	9,6
Comoros	4,8	4,6	4,5	4,5	4,4	4,4
Congo	3,3	2,8	2,8	3,5	2,9	2,2
Cook Islands	6,1	5	5,3	5,3	4,9	4,7
Costa Rica	6,3	6,2	6,3	6,5	6,4	6,4
Côte d'Ivoire	2,9	2,9	2,8	2,7	2,6	2,7
Croatia	8,6	8,9	8,1	8,8	8,6	8,6
Cuba	5,7	5,8	6,3	6,4	6,9	6,8
Cyprus	7	7,7	8,2	7,9	7,8	7,9
Democratic People's Republic of Korea	3,1	3	3	3	2,6	2,1
Democratic Republic of the Congo	1,8	1,7	1,6	1,7	1,6	1,5
Djibouti	4,8	5	4,6	4,9	5	5
Dominica	6,1	6,2	6,3	6,1	6,4	6,1
Dominican Republic	4,9	5,1	6,4	6,5	6,4	6,3
Ecuador	4,6	5,1	4,6	4,3	3,9	2,4
Egypt	3,7	3,8	3,9	4	3,9	3,8
El Salvador	6,6	7,6	8,1	8,3	8,5	8,8
Equatorial Guinea	4,2	4,7	3,6	4,2	3,4	3,4
Eritrea	3,4	3,9	4,4	5,4	4,1	4,3
Estonia	8,6	7,2	6,3	6	6,6	6,1
Ethiopia	3,8	3,8	4,4	4,9	4,6	4,6

Member State	Total expenditure on Health (share of GDP in %)					
	1995	1996	1997	1998	1999	2000
Fiji	3,8	3,9	3,9	4,1	3,7	3,9
Gabon	3,1	3	2,9	3,2	3,3	3
Gambia	3,9	3,6	3,5	3,8	4,2	4,1
Georgia	4,6	6,9	6,9	7,1	6,9	7,1
Ghana	4,2	4,1	3,9	4,1	4,2	4,2
Grenada	4,4	4,8	4,7	4,8	4,8	4,8
Guatemala	4,1	4,1	4,3	4,5	4,7	4,7
Guinea	3,5	3,5	3,6	3,6	3,8	3,4
Guinea-Bissau	3,6	4,3	3,9	4	3,9	3,9
Guyana	4,7	4,5	4,8	4,8	5	5,1
Haiti	5,8	5,1	4,9	5,1	4,9	4,9
Honduras	6,8	6,8	6,1	6,6	6,3	6,8
India	5	5,2	5,3	5	5,1	4,9
Indonesia	1,7	2,3	2,4	2,5	2,6	2,7
Iran, Islamic Republic of	5,6	5,4	5,7	5,6	5,4	5,5
Iraq	4,9	4,6	5	4,4	3,7	3,7
Israel	9,9	10,2	10,1	10	10,9	10,9
Jamaica	4,5	4,5	4,9	5,3	5,8	5,5
Jordan	9,6	9,9	8,8	8,8	8	8,1
Kazakhstan	6	6	6,2	5,1	4,2	3,7
Kenya	8,1	8,1	8,3	8,4	8,4	8,3
Kiribati	9	8,8	9	8,4	8,3	8,1
Kuwait	3,6	3,1	3,3	3,9	3,5	3
Kyrgyzstan	7,8	6,7	6,4	6,8	6,1	6
Lao, People's Democratic Republic	2,8	2,9	3,5	3,3	3,4	3,4
Latvia	6,5	6,3	6,2	6,6	6,4	5,9
Lebanon	10,8	10,9	11,3	11,6	11,7	11,8
Lesotho	6,2	5,6	5,3	5,9	6,4	6,3
Liberia	2,9	3	3,2	3,5	3,9	4
Libyan Arab Jamahiriya	3,6	3,6	3,5	3,7	3,3	3,3
Lithuania	5,2	5,5	5,9	6,3	6,1	6
Madagascar	2,7	2,7	2	2,8	3	3,5
Malawi	6,1	6,5	7,3	6,8	6,9	7,6
Malaysia	2,2	2,3	2,3	2,5	2,5	2,5
Maldives	5,9	6,4	6,5	6,4	6,8	7,6
Mali	3,2	3,3	4,2	4,5	4,7	4,9
Malta	8,3	8,4	8,6	8,4	8,4	8,8
Marshall Islands	7,8	8,8	9,2	9,5	9,8	9,4
Mauritania	3,2	3,2	3,3	3,8	4,2	4,3
Mauritius	3,6	3,6	3,5	3,4	3,6	3,4
Micronesia, Federated States of	12,1	11,4	11,4	11,2	10,9	10,5
Monaco	7,1	7,3	7	7,2	7,4	7,4
Mongolia	4,2	5,2	5	6,2	6,1	6,6
Morocco	4,6	4,5	4,4	4,3	4,4	4,5
Mozambique	4,9	5	4,6	4,3	4,1	4,3
Myanmar	2,1	2,2	2,1	2	2	2,2
Namibia	8,2	7,4	7,4	7,6	7,3	7,1
Nauru	10	10,6	11,7	11,8	11,4	11,3
Nepal	5,1	5,2	5,5	5,7	5,5	5,4
Nicaragua	6,4	6	5,2	4,8	4,7	4,4
Niger	3,8	3,8	3,8	3,9	3,8	3,9
Nigeria	2,8	2,6	2,4	2,5	2,4	2,2
Niue	7,4	7,9	7,6	6,7	8,2	7,6
Oman	3	2,9	2,7	3,1	2,9	2,8

Member State	Total expenditure on Health (share of GDP in %)					
	1995	1996	1997	1998	1999	2000
Pakistan	4,2	4	4	4	4,1	4,1
Palau	7,5	6,5	6,1	6,4	6,5	6,4
Panama	7,8	8	7,4	7,4	7,6	7,6
Papua New Guinea	2,9	2,7	3,2	3,9	4,2	4,1
Paraguay	7,8	7,2	7,6	7,3	7,9	7,9
Peru	4,6	4,5	4,5	4,7	4,9	4,8
Philippines	3,4	3,5	3,6	3,6	3,6	3,4
Qatar	4,8	4,8	4	4,5	4,1	3,2
Republic of Moldova	6,2	7,1	6,4	4,7	3,4	3,5
Romania	2,8	4,5	4	3,5	3,3	2,9
Russian Federation	5,5	5,4	5,8	5,9	5,6	5,3
Rwanda	6,2	6,1	5,5	5	5,4	5,2
Saint Kitts and Nevis	4,7	5,1	4,7	4,7	4,9	5,2
Saint Lucia	3,8	4	4,2	4,3	4,1	4,3
Saint Vincent and the Grenadines	5,8	5,7	6,1	5,9	6,1	6,3
Samoa	5,3	5,6	5,4	5,7	6,4	6,6
San Marino	10,8	10,9	10,9	11,9	11,6	11,7
Sao Tome and Principe	3,3	3,5	3	2,9	2,3	2,3
Saudi Arabia	5,3	5,1	5,1	5,7	5,4	5,3
Senegal	4,7	4,9	4,9	4,7	4,7	4,6
Seychelles	6,2	6,4	6,6	6,7	6,5	6,2
Sierra Leone	2,8	2,6	2,8	3	3,5	4,3
Singapore	3,7	3,7	3,6	4,1	4	3,5
Slovenia	9,1	8,8	8,9	8,7	8,7	8,6
Solomon Islands	4,3	4,2	4,6	5,3	5,6	5,9
Somalia	2,6	2,3	2,4	2	1,6	1,3
South Africa	8,4	9,2	9	8,7	8,8	8,8
Sri Lanka	3,4	3,3	3,2	3,4	3,6	3,6
Sudan	3,8	3,5	3,3	4,2	4,2	4,7
Suriname	8,3	8,8	9,1	9,9	9,7	9,8
Swaziland	3,3	3,9	3,3	3,7	4	4,2
Syrian Arab Republic	2	2	2,1	2,3	2,5	2,5
Tajikistan	2	2,9	3	2,5	2,8	2,5
Thailand	3,4	3,6	3,7	3,9	3,7	3,7
The former Yugoslav Republic of Macedonia	5,2	5,8	6,1	7,6	5,9	6
Togo	2,9	2,6	3,1	2,7	2,7	2,8
Tonga	7,5	7,3	7,9	7,7	7,8	7,5
Trinidad and Tobago	4,5	4,6	4,8	5,3	5,3	5,2
Tunisia	6,8	6,6	6,4	6,8	7	7
Turkmenistan	2,4	2,8	4	5	5,3	5,4
Tuvalu	8,9	8,3	8,4	8,6	8,8	7,8
Uganda	3,5	3,4	3,4	3,7	4	3,9
Ukraine	5,8	5	5,4	5,1	4,3	4,1
United Arab Emirates	3,4	3,2	3,7	4,1	3,7	3,2
United Republic of Tanzania	5,3	5,1	5,2	5	5,5	5,9
Uruguay	9,2	9,6	10	10,2	10,8	10,9
Uzbekistan	4,8	4,8	4,5	3,9	3,9	3,7
Vanuatu	3,3	2,8	3,3	3,5	3,9	3,9
Venezuela, Bolivarian Republic of	4,6	3,9	4,3	5	4,6	4,7
Viet Nam	3,9	4,6	4,5	4,7	5,5	5,2
Yemen	5,1	4,4	4,6	5,2	5	5
Yugoslavia	6,5	7,1	6,7	5,6	5,6	5,6
Zambia	5,2	5,8	6	5,6	5,2	5,6
Zimbabwe	7,1	7,5	9,3	11,4	8,1	7,3

Source: [http://www.who.int/whr/2002/en/annex\\_table5.xls](http://www.who.int/whr/2002/en/annex_table5.xls), access date 04/24/06.