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**Research Report**

## Trade Effects of Services Trade Liberalization in the EU

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### Abstract

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This paper gives a quantitative assessment of possible trade effects resulting from different trade liberalization scenarios within the EU. The simulations are based on the GTAP model, a computable general equilibrium model. We use the GTAP database and own estimates of protection in the service sector. We compare different scenarios, which differ in the extent of their liberalization (linear versus sector country and specific cuts in existing trade barriers, including all sectors versus only selected sectors). Our findings point towards larger gains from more comprehensive cuts (i.e. including all service sectors) and larger gains for the – up to date more restricted – new EU members.

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## Trade Effects of Services Trade Liberalization in the EU

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Modul 4

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## **Abstract**

This paper gives a quantitative assessment of possible trade effects resulting from different trade liberalization scenarios within the EU. The simulations are based on the GTAP model, a computable general equilibrium model. We use the GTAP database V7 (pre-release, benchmarked to 2004) and own estimates of protection in the services sector. We compare different scenarios which differ in the extent of their liberalization (linear versus sector- and country-specific cuts in existing trade barriers, full versus partial liberalization). Our findings point towards larger gains from more comprehensive cuts (i.e. including all services sectors) and considerably larger trade gains for the – so far more restricted – new EU member states. We further observe a reinforcement of specialization patterns, with the new members intensifying their position as Europe's manufacturing base and the old members moving out of manufacturing and specializing increasingly in services.

*Keywords:* trade liberalization, computable general equilibrium modelling, services trade.

*JEL classification:* C68, F13, F17



## 1. Introduction

Trade liberalization in the services sector is a topic which has been on the table for more than ten years now. With the inception of the WTO in 1995, trade liberalization in the services sector has formally become part of the multilateral liberalization agenda. The GATS (General Agreement on Trade in Services) is an integral part of the WTO treaty. Nevertheless, the literature on trade and trade policy in services is comparably small. This is also due to a lack of knowledge with respect to the definition and measurement of barriers to trade in services. Since services themselves are often intangible, also barriers to trade in services are difficult to define. The situation is further complicated by the far-reaching definition of trade in services under the GATS, which includes cross-border trade, movement of persons as well as sales through foreign affiliates.

A key methodological issue in measuring services barriers is to distinguish between services restrictions which are protective and those which are designed to meet legitimate economic or social objectives (Dee, 2005). Often the application of certain restrictions can be justified, for instance, when they are aimed to provide for safety (air passenger transport sector) or financial stability (banking sector). Different approaches can be applied here: (1) to decide *a priori* which measures can be justified and exclude them from analysis; (2) to treat regulation on a continuum by allowing for a non-linear relationship between regulation and performance, and then identify at which point the degree of regulation has the least adverse effect on economic performance; (3) to include all regulatory measures in the analysis and identify whether they have an adverse effect on some measures of economic performance (even when the measures have a legitimate objective, it is useful to know their impact on performance – in case it turns out to be too high, regulators could possibly consider less burdensome measures which would reach the same objective).

The restrictions to services supply can be classified in several dimensions:

- affecting *establishment* (the ability of services suppliers to establish physical outlets in an economy and supply services through those outlets) or *ongoing operations* (the operations of a services supplier after it has entered the market);
- *non-discriminatory* (restricting domestic and foreign services suppliers alike) or *discriminatory* (restricting only foreign services suppliers);
- affecting *prices of services* or *costs of services providers*.

The methodologies of estimating barriers to trade and investment in services can be divided into two broad categories:

- *Direct methodology*.<sup>1</sup> This methodology directly measures the effects of restrictions, as measured by a trade restrictiveness index, on economic

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<sup>1</sup> This methodological approach is often referred to as method of the Australian Productivity Commission.

performance indicators of services suppliers. An econometric model is used to estimate the determinants of economic performance in that services sector (typically price, cost, price-cost margin, quantity or productivity), services supply restrictions being one of the factors.

- *Indirect methodology.* This methodology determines a benchmark price for a service and attributes part or all of a price above the benchmark price to the effect of restrictions. While applying this methodology it is important to distinguish between restrictions and other factors which may move prices above the benchmark, such as market size, market structure etc.

Many studies confirm that the main positive effects of trade liberalization in services are to be expected through increased efficiency and competitiveness of the domestic economy rather than through increases in exports (Nielson and Taglioni, 2003). Also Mattoo et al. (2006) find a growth-enhancing effect from openness to trade in services in the long run. Robinson et al. (2002) also stress the indirect effects from services sector trade liberalization on the efficiency and output of other sectors in the economy working through inter-industry input-output relations induced by imports of high-quality services. The few papers that attempt to assess the overall welfare effects of the current WTO Round of trade liberalization (the so-called Doha Round) often ascribe the largest welfare gains to services trade liberalization. For instance, Dee and Hanslow (2001) estimate a total effect of USD 260 billion from full liberalization, with USD 130 billion estimated to come from liberalization in the services sector (USD 50 and 80 billion arise from liberalizing trade in agricultural goods and manufactured goods respectively). Also Francois et al. (2005) note that services trade liberalization is likely to augment the gains from the Doha Round.

In this paper we restrict our attention to trade effects rather than welfare effects<sup>2</sup>. The analysis of the trade-creating and trade-diverting effects within Europe provides an interesting picture of underlying re-allocations of production as a consequence of the dismantling of barriers in the internal market for services. Austria is at the focus of our attention, but we also compare Austria's results with those of its major trading partners in the EU, other EU members, and the rest of the world, which does not liberalize services trade in our simulations.

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<sup>2</sup> Output and welfare effects for Austria, with a regional perspective, are studied in a related paper by the Austrian Institute of Economic Research (WIFO), commissioned within the same project (FIW Arbeitspaket No. 1, Dienstleistungsexport).



## 2. Model and data description

### 2.1. GTAP model

We use a multi-region general equilibrium model to estimate possible trade effects of different scenarios of cross-border services trade liberalization within the EU. The model is similar in structure to the one used by Francois et al. (2005). The data structure of the model follows the basic social accounting structure of GTAP (based on GTAPv7 data, benchmarked to 2004), while the theoretical structure has been modified to include investment effects and imperfect competition (Francois and McDonald, 1996; Francois 1998). It is formulated and solved using GEMPACK, a software package designed for solving non-linear general equilibrium models.

The model distinguishes five factors of production: land, natural resources, capital, skilled and unskilled labour, with the three latter factors considered to be perfectly mobile across sectors. Labour is immobile across international borders, while net capital flows are controlled by the macroeconomic closure of the model. While the net capital account balance in any general equilibrium model depends, in aggregate, on the macroeconomic features of the model, gross re-allocations of capital through FDI inflows and outflows are possible (though not explicitly tracked). In other words, the model is consistent with gross changes in FDI inflows and outflows linked proportionally to changes in cross-border trade,<sup>3</sup> even while it imposes a macro balance constraint on total net capital inflows. This net balance constraint is driven by macroeconomic and financial aspects of the model and not the by the sector results in services. Re-allocations of labour across sectors can be accounted for through changes in wages. The model further allows selecting whether a sector is characterized by monopolistic or perfect competition (Francois, 1998).

Trade liberalization is implemented in the model as an efficiency-enhancing reform, i.e. it has the same effect as technological progress in the respective sector. Thus, it reduces the costs of delivering a service. Short-run (SR) effects differ from the long-run (LR) ones in the following way: The former report only static effects, while in the long run prospective savings (and capital accumulation) become endogenous, which yields induced dynamic gains in addition to the purely static ones (see Francois and McDonald, 1996).

### 2.2. Regions and sectors

We distinguish the following regions in our model: the UK, Germany, France, the Netherlands, Italy and Austria (these five EU members are the largest services traders in

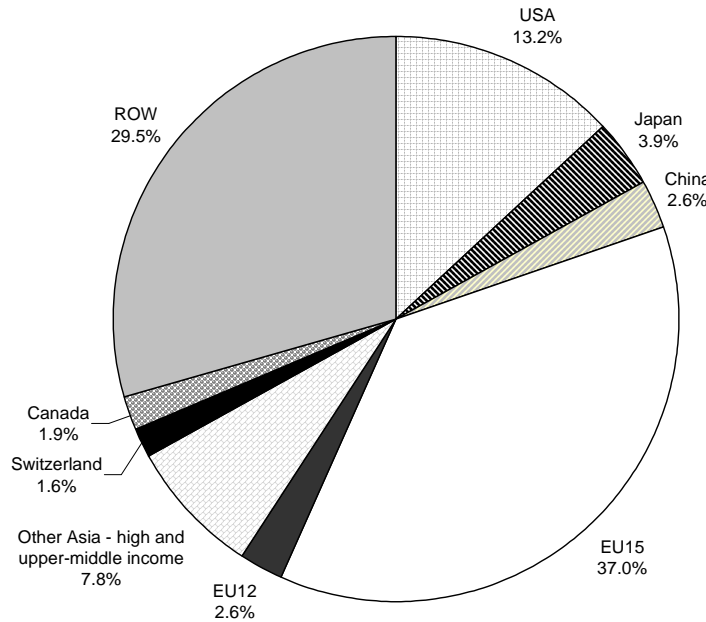
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<sup>3</sup> Thus, we are implicitly assuming here a complementary relationship between different modes of services supply, i.e. across borders and indirectly through foreign affiliates. This is consistent with recent empirical findings for the services sector, for instance by Fillat et al. (2008), Buch and Lipponer (2007), Moshirian et al. (2005) and Bos and van de Laar (2004).

the EU and all of them feature prominently among Austria's trading partners in cross-border services trade); the rest of the EU15 (REU15); the EU12 (the new EU members); Switzerland, Japan, Canada and the USA (these four countries have significant shares in the world services trade – see Figure 1); and the rest of the world (ROW – 75 countries).

Figure 1

**Geographic structure of global services exports in 2005**



Source data: TSD4

We aggregate 12 sectors (out of 57 possible GTAP sectors). Apart from primary production, utilities, and other services (comprising among others mainly personal and public services) we consider all sectors to be subject to monopolistic competition (for the sector description see Table 1).

<sup>4</sup> TSD – Trade in Services Database, which has been established by wiiw in collaboration with CEPII and Trade Partnership Worldwide, LLC supported by funding through BMWA: FIW Arbeitspaket No. 1 Dienstleistungsexport and the World Bank. Data on cross border trade and on FDI in services has been assembled from various sources (Eurostat ITS, IMF BOP and OECD IDI) to give the greatest possible coverage of countries, years, sectors and modes. More information about the database can be found in Pindyuk and Woerz (2008).

Table 1

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**Description of the sectors modelled**

	Abbreviation used	Trade substitution elasticities	Scale elasticities	Elasticity of substitution in value added	Sector type <sup>1)</sup>
Primary production	PRI	8.900	0.000	0.200	PC
Processed foods	PRF	5.000	0.000	1.100	MC
Manufacturing	MFG	7.200	0.161	1.200	MC
Utilities	UTI	5.600	0.000	1.300	PC
Construction	CNS	7.200	0.161	1.400	MC
Trade	TRD	7.200	0.161	1.700	MC
Transport	TSP	7.200	0.161	1.700	MC
Communication	CMN	7.200	0.161	1.300	MC
Financial services nec	FIN	7.200	0.161	1.300	MC
Insurance	INS	7.200	0.161	1.300	MC
Business services nec	BUS	7.200	0.161	1.300	MC
Other services	OSR	7.200	0.000	1.300	PC

1) PC = perfect competition, MC = monopolistic competition.

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### 2.3. Barriers to cross-border services trade

Up to date, no official estimates of barriers to trade in services for a large range of countries and sectors are available. Also, existing studies show rather large variations with respect to the methodology used, in their sector, country and time coverage and consequently in their results. Most studies focus on a limited number of sectors or countries. As inputs into our estimations we needed a comprehensive treatment of many sectors and countries in order to obtain comparable results across all sectors and countries. We therefore used the estimates by Francois et al. (2007), which are based on a residual approach, working with a gravity model of world-wide trade flows in services. The authors justify the use of this indirect, residual-based methodology by the fact that for the majority of countries comprehensive information on prevailing services policies is not available. Estimations are done separately for each services sector based on a pooled sample of 178 countries over the period 1994-2004.<sup>5</sup> This study covers all services sectors listed in Table 1 above, apart from trade and repair and the remainder category of 'other services' and yields average price variation equivalents of services sector protection. For the sectors not covered by Francois et al. (2007) – utilities, trade and other services – we assumed that barriers to

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<sup>5</sup> The estimation of protection in each services sector is done via a two-step procedure: in the first stage the authors regress services imports on the gravity variables (GDP per capita, population, and distance). In the second stage the residuals from the first stage are regressed on individual country dummies. The second stage gives an indication of how protected individual markets are. The resulting coefficients are used to estimate trade costs as a percentage of delivered prices.

cross-border services trade are equal to the average protection rates for total services trade.<sup>6</sup>

Table 2

**Barriers to cross-border services trade (trade costs as a percentage of delivered price), %**

	UTI	CNS	TRD	TSP	CMN	FIN	INS	BUS	OSR
AUT	26.8	53.3	26.8	40.0	69.4	31.8	39.3	14.8	26.8
DEU	12.3	48.8	12.3	22.3	53.8	19.6	2.7	6.2	12.3
FRA	19.7	48.8	19.7	24.6	85.4	19.6	29.5	6.2	19.7
GBR	16.3	65.5	16.3	23.1	58.9	10.2	18.2	13.0	16.3
ITA	17.8	48.8	17.8	25.7	0.0	31.6	25.3	6.2	17.8
NLD	24.5	59.7	24.5	30.0	58.9	19.6	16.4	6.2	24.5
REU15	31.4	56.3	31.4	38.5	65.2	35.9	35.6	27.4	31.4
EU12	43.1	61.0	43.1	47.1	74.7	45.6	46.2	42.3	43.1
CHE	35.3	-	35.3	38.9	64.6	34.8	-	36.3	35.3
JPN	15.0	48.8	15.0	20.6	85.5	19.6	14.5	6.2	15.0
CAN	23.5	65.7	23.5	31.3	58.9	19.6	22.7	18.3	23.5
USA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROW	31.6	43.7	31.6	35.0	75.7	46.0	46.8	35.1	31.6

Source data: Francois et al. (2007).

According to Francois et al. (2007) the highest barriers to services trade within the EU are observed for the new member states. Inside the old members, Finland and Portugal emerge as being most highly protected. Austria also shows relatively high rates of protection as compared to its biggest trading partners. By sectors, communication services represent the most protected sector, followed by the construction sector. The estimates of barriers to cross-border services trade are presented in Table 2.

### 3. Cross-border services trade liberalization scenarios

The EU Directive on Services in the Internal Market does not, again due to a lack of clear definitions and measurement of barriers to trade in services, provide quantitative estimates on the scope and scale of liberalization across services sectors, thus we constructed different liberalization scenarios based on economically meaningful considerations. In order to be able to assess the sensitivity of trade flows to changes in the legal and regulatory environment (representing explicit or implicit barriers to trade), we estimated the effect of a homogenous 25% reduction in services trade barriers across all services sectors in the EU. We then implemented the same shock with a 50% liberalization of services

<sup>6</sup> The GTAP database does not distinguish travel services – which account for nearly one-quarter of global trade in services – as a separate sector. Travel services are subsumed in several other sectors in the GTAP database, such as transport, trade and repair, and other services. Since we have no information about the proportion of travel services in each of these categories, we simply had to assume that the econometrically derived estimates of protection in the respective sector net of travel services were appropriate inputs into the simulation model.

trade by the EU members to see how strongly trade flows react to this deeper liberalization. In both cases, we deemed it realistic to assume that liberalization will take place only among EU members and not vis-à-vis third countries.

However, an even more realistic scenario is one in which EU members do not liberalize services uniformly, but rather proportionate to their current level of protection in order to harmonize their regulation of services supply. In this scenario, countries which have higher initial barriers to services trade will reduce them at a higher rate, while those countries, which are relatively liberal already, will have to decrease their barriers only slightly.

In order to estimate to what extent each country will liberalize its services trade, we used the OECD product market regulation indicators taken from Conway and Nicoletti (2006) and Conway et al. (2005). Indicators of product market regulation (PMR) measure the degree to which policies inhibit competition (both domestically and in foreign trade and investment). The indicators are constructed from the perspective of regulations that have the potential to reduce the intensity of competition in areas of the product market where technology and market conditions make competition viable.<sup>7</sup> Where available we use indicators for specific services sectors (i.e. PMR in the non-manufacturing sectors): transport (an average of indicators for airlines, railway and road transport sectors), utilities (an average of indicators for gas and electricity supply sectors), communications (an average of indicators for telecom and post sectors), and business services (proxied for by an indicator for professional services). For other sectors we used general, economy-wide PMR indicators.

To construct the liberalization scenarios we assumed the following: for each sector the respective EU member which has the highest barriers to competition as measured by PMR indicators decreases its barriers to services trade by 50%; all other countries decrease their barriers to services trade by  $50\% * [PMR_{ij} / PMR_{hj}]$ , where  $i$  denotes a country,  $j$  denotes a services sector, and  $h$  stands for a country with the highest barriers to competition as measured by PMR indicators. The resulting ratios are shown in Table 3. The following example should explain how these figures have to be interpreted: For instance, Italy, being the most restricted country in other business services according the PMR indicators, would liberalize this sector by 50% (=  $1 * 50\%$ ). On the other hand, the United Kingdom, which appears to be very liberal in most sectors, but especially in utilities, would reduce barriers in this sector by 8.5% (=  $0.17 * 50\%$ ).

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<sup>7</sup> PMR indicators are constructed as a weighted average of a wide range of formal rules and regulations measures which are obtained as answers of OECD member governments to a standardized questionnaire.

Table 3

**Product market regulation ratios (PMR<sub>ij</sub>/PMR<sub>hj</sub>)**

	<b>UTI</b>	<b>CNS</b>	<b>TRD</b>	<b>TSP</b>	<b>CMN</b>	<b>FIN</b>	<b>INS</b>	<b>BUS</b>	<b>OSR</b>
Country with the highest PMR	Poland	Poland	Poland	Greece	Hungary	Poland	Poland	Italy	Poland
AUT	0.43	0.50	0.50	0.69	0.66	0.50	0.50	0.54	0.50
DEU	0.35	0.52	0.52	0.42	0.55	0.52	0.52	0.87	0.52
FRA	0.80	0.62	0.62	0.73	0.72	0.62	0.62	0.54	0.62
GBR	0.17	0.33	0.33	0.19	0.49	0.33	0.33	0.29	0.33
ITA	0.36	0.68	0.68	0.84	0.65	0.68	0.68	1.00	0.68
NLD	0.37	0.50	0.50	0.36	0.48	0.50	0.50	0.44	0.50
REU15	0.58	0.50	0.50	0.59	0.62	0.50	0.50	0.52	0.50
EU12	0.80	0.72	0.72	0.76	0.94	0.72	0.72	0.73	0.72

Source data: OECD, authors' calculations.

Table 4

**Services trade barriers reduction in scenario OECD1, p.p.**

	<b>UTI</b>	<b>CNS</b>	<b>TRD</b>	<b>TSP</b>	<b>CMN</b>	<b>FIN</b>	<b>INS</b>	<b>BUS</b>	<b>OSR</b>
AUT	5.76	13.33	6.69	13.81	22.91	7.94	9.83	3.99	6.69
DEU	2.14	12.68	3.19	4.68	14.80	5.10	0.70	2.69	3.19
FRA	7.89	15.12	6.11	8.98	30.73	6.08	9.14	1.67	6.11
GBR	1.39	10.81	2.70	2.20	14.43	1.69	3.00	1.89	2.70
ITA	3.21	16.59	6.06	10.80	0.00	10.75	8.60	3.09	6.06
NLD	4.53	14.93	6.12	5.40	14.14	4.91	4.09	1.36	6.12
REU15	9.11	14.07	7.85	11.37	20.21	8.98	8.91	7.13	7.85
EU12	17.26	21.97	15.53	17.88	35.10	16.41	16.64	15.42	15.53

Source data: Francois et al. (2007), authors' calculations.

The outcome of this proportionate trade barrier reduction based on the suggested method is presented in Table 4. We estimate two scenarios based on these data: in the first scenario (OECD1) we assume that liberalization takes place in all services sectors; in the second, more realistic, scenario (OECD2) we assume that liberalization takes place in all sectors except for the most sensitive ones – utilities and other services (which include among others government procurement services, personal, cultural and recreational services). The services trade barriers resulting from scenario OECD1 are presented in Table 5. Scenario OECD2 then assumes the same reductions in all sectors, except for utilities (UTI) and other services (OSR) where no change is assumed.

Table 5

**Services trade barriers resulting from scenario OECD1  
(trade costs as a percentage of delivered price), %**

	UTI	CNS	TRD	TSP	CMN	FIN	INS	BUS	OSR
AUT	21.0	40.0	20.1	26.2	46.5	23.8	29.5	10.8	20.1
DEU	10.1	36.1	9.1	17.6	39.0	14.5	2.0	3.5	9.1
FRA	11.8	33.7	13.6	15.6	54.6	13.5	20.4	4.5	13.6
GBR	14.9	54.7	13.6	20.9	44.5	8.5	15.2	11.1	13.6
ITA	14.6	32.2	11.8	14.9	0.0	20.9	16.7	3.1	11.8
NLD	20.0	44.8	18.4	24.6	44.8	14.7	12.3	4.8	18.4
REU15	22.3	42.2	23.6	27.2	45.0	27.0	26.7	20.3	23.6
EU12	25.9	39.1	27.6	29.2	39.6	29.2	29.6	26.8	27.6
CHE	35.3	-	35.3	38.9	64.6	34.8	-	36.3	35.3
JPN	15.0	48.8	15.0	20.6	85.5	19.6	14.5	6.2	15.0
CAN	23.5	65.7	23.5	31.3	58.9	19.6	22.7	18.3	23.5
USA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ROW	31.6	43.7	31.6	35.0	75.7	46.0	46.8	35.1	31.6

Source data: Francois et al. (2007), authors' calculations.

## 4. Results

The simulation results of these different shock scenarios are presented in Tables 6 to 11. As a word of caution, we wish to stress that the results are comparative-static, showing only the trade impact on the economy of the defined scenario of trade liberalization in services. Since our simulations do not take into account any other factors but trade liberalization, our results must not be seen as forecasts of the actual state after trade liberalization has taken place in Europe, but as the *ceteris paribus* outcome of the decrease in services sector protection. In presenting our results, we distinguish between short-run effects (SR), which include only static gains and losses from trade liberalization, and long-run effects (LR), which include the dynamic effects arising from savings and capital accumulation.

### 4.1. European-wide effects

As may be expected, services trade liberalization in the EU first of all results in trade creation. Depending on the scenario, the resulting increase in world services exports is between 1.27% (25% and OECD2 scenario) and 3% (50% scenario) in the short run and marginally larger in the long run (1.48% in the 25% scenario and 3.53% in the 50% scenario). Thus, deeper liberalization implies a roughly proportionate increase in exports and imports. The 50% scenario yields on average more than twice as much increase in exports and imports in the EU members than the 25% scenario. In the long run, as the reallocation of factors of production takes place and resources are used more efficiently in

sectors with higher productivity, changes in exports and imports are predictably higher than in the short run, with exports speeding up faster on average than imports.

Table 6

**Changes in exports value resulting from 4 shock scenarios, %**

Scenarios	25%-SR	25%-LR	50%-SR	50%-LR	OECD1-SR	OECD1-LR	OECD2-SR	OECD2-LR
AUT	4.0	4.9	8.1	10.3	4.3	5.3	3.8	4.8
DEU	1.6	2.1	3.2	4.4	1.8	2.4	1.6	2.1
FRA	2.8	3.1	5.6	6.3	3.6	3.9	3.0	3.3
GBR	4.4	4.7	9.1	9.6	4.1	4.3	3.7	3.9
ITA	2.5	2.9	5.0	6.0	3.5	4.2	3.1	3.8
NLD	2.9	3.8	5.8	7.7	2.9	3.8	2.5	3.3
REU15	4.6	5.1	9.2	10.6	4.9	5.6	4.3	4.9
EU12	5.0	5.5	10.7	12.0	8.1	9.0	6.9	7.6
CHE	-0.1	-0.1	-0.2	-0.3	-0.1	-0.2	-0.1	-0.2
JPN	0.0	-0.1	0.1	-0.2	0.0	-0.1	0.0	-0.1
CAN	-0.1	-0.1	-0.3	-0.2	-0.2	-0.1	-0.1	-0.1
USA	-0.2	-0.2	-0.2	-0.4	-0.2	-0.3	-0.2	-0.2
ROW	-0.1	-0.1	-0.2	-0.1	-0.1	-0.1	-0.1	-0.1

*Note:* In scenario '25%' trade barriers to cross-border services trade in the EU are cut in all services sectors by 25%; in scenario '50%' trade barriers to cross-border services trade in the EU are cut in all services sectors by 50%; in scenario 'OECD1' trade barriers to services trade are cut in all services sectors by each EU member proportionate to its product market regulation index as measured by the OECD; scenario 'OECD2' assumes equal cuts as 'OECD1' except that sensitive sectors (UTI and OSR) are not liberalized; SR denotes the short run, LR the long run.

Trade creation is largest among the EU member states themselves. We observe increases in both exports and imports<sup>8</sup> for all EU members, while the EU trading partners – who do not liberalize – experience declines in their trade flows as they lose their comparative advantages with now less protected countries. Thus, we observe both, trade creation and trade diversion. Trade creation is greater in initially more protected sectors; this refers to both exports and imports. Among the EU members it is the EU12 which experience the biggest boost in exports and imports in all scenarios (except for imports in the 25% scenario). One possible reason is that these countries are more protective with respect to services trade at the outset. Austria has the highest exports and imports growth rates as compared to the major EU countries in all scenarios (apart from the 25% and 50% SR results where it lags behind the UK). This reflects the fact that – according to the estimates used here – the country has relatively high barriers to cross-border services trade compared to these countries in all sectors but communications and construction.

<sup>8</sup> We analyse here changes in exports and imports inclusive of price changes; i.e. we are looking at value and not volume changes.



Table 7

**Changes in imports value resulting from 4 shock scenarios, %**

Scenarios	25%-SR	25%-LR	50%-SR	50%-LR	OECD1-SR	OECD1-LR	OECD2-SR	OECD2-LR
AUT	4.6	4.9	9.5	10.4	5.0	5.4	4.5	4.8
DEU	2.3	2.4	4.6	5.0	2.5	2.7	2.2	2.4
FRA	2.9	3.1	5.8	6.3	3.7	4.0	3.1	3.4
GBR	3.9	3.9	8.0	8.0	3.7	3.6	3.4	3.3
ITA	2.6	2.9	5.3	6.1	3.7	4.2	3.3	3.8
NLD	3.5	4.1	7.1	8.3	3.5	4.1	3.0	3.6
REU15	4.9	5.2	10.0	10.8	5.3	5.7	4.7	5.0
EU12	4.7	5.1	10.0	11.0	7.7	8.3	6.4	7.0
CHE	-0.3	-0.2	-0.6	-0.3	-0.3	-0.2	-0.3	-0.2
JPN	-0.3	-0.1	-0.7	-0.2	-0.4	-0.1	-0.4	-0.1
CAN	-0.2	-0.1	-0.5	-0.2	-0.3	-0.2	-0.3	-0.1
USA	-0.4	-0.2	-0.7	-0.3	-0.4	-0.2	-0.4	-0.2
ROW	-0.2	-0.1	-0.5	-0.1	-0.3	-0.1	-0.3	-0.1

*Note:* In scenario '25%' trade barriers to cross-border services trade in the EU are cut in all services sectors by 25%; in scenario '50%' trade barriers to cross-border services trade in the EU are cut in all services sectors by 50%; in scenario 'OECD1' trade barriers to services trade are cut in all services sectors by each EU member proportionate to its product market regulation index as measured by the OECD; scenario 'OECD2' assumes equal cuts as 'OECD1' except that sensitive sectors (UTI and OSR) are not liberalized; SR denotes the short run, LR the long run.

Exports grow at a slower pace than imports in all scenarios and in all liberalizing countries apart from the UK and the EU12. As a consequence, trade balances sometimes deteriorate for liberalizing countries in individual services sectors. However, we also observe a general deterioration in the aggregate trade balance for almost all EU countries. This points towards a pronounced structural shift within Europe, which is revealed only by the general equilibrium framework and could not have been identified in a partial equilibrium model. We observe a clear differentiation in specialization patterns between old and new EU members. The old members increasingly specialize in the production and trade of services, while the production of manufactures is moving to the new members. Thus, the latter countries strengthen their position as Europe's manufacturing base. By contrast, the selected old EU members, including Austria, either reinforce or start to develop a comparative advantage in services. Since manufacturing trade is nevertheless still much more important quantitatively, the gain in net services exports is substantially smaller in absolute value than the decline in net manufacturing exports, resulting in an overall deterioration of the trade balance. The rest of the EU15 differ from the former countries. Here, declining net exports in services account for most of the negative change in the trade balance. The EU12 stand out within the EU as the countries which after liberalization noticeably increase their manufacturing exports (and decrease manufacturing imports). Despite a substantially improving goods trade balance, net manufacturing exports for the region as a whole remain negative. Further, growth in services imports considerably outperforms growth in services exports, leading to a widening deficit in this sector.

In the long run, the negative changes of EU members' trade balances tend to diminish, as the decline in manufacturing exports (and also in primary production and processed foods) becomes less profound, and growth of services exports speeds up. Hence, the situation improves again, relatively speaking, leading to an absolute improvement in the aggregate trade balance in countries such as Germany and Italy.

Table 8

**Changes in trade balances resulting from 4 shock scenarios, USD million**

Scenarios	25%-SR	25%-LR	50%-SR	50%-LR	OECD1-SR	OECD1-LR	OECD2-SR	OECD2-LR
AUT	-2378	-1645	-5804	-4168	-2905	-2036	-2926	-2093
DEU	-586	702	-2480	698	-1412	-524	-2077	-1002
FRA	-4493	-3992	-11176	-10048	-5953	-5336	-3070	-2615
GBR	-3634	-2832	-8119	-6618	-3464	-2241	-4131	-2861
ITA	-208	206	-104	865	77	887	-3	867
NLD	-2209	-1443	-5607	-3664	-2364	-1641	-2330	-1789
REU15	-16167	-13038	-38190	-30881	-18211	-14760	-17244	-13979
EU12	-2092	-1483	-5582	-3911	-2718	-1806	-875	-498
CHE	338	49	774	82	381	79	331	66
JPN	3062	669	7403	1611	3515	779	3248	789
CAN	376	38	906	84	424	54	391	61
USA	3652	326	8767	747	4216	415	3912	453
ROW	6042	1214	14178	2395	6714	1102	6317	1461

*Note:* In scenario '25%' trade barriers to cross-border services trade in the EU are cut in all services sectors by 25%; in scenario '50%' trade barriers to cross-border services trade in the EU are cut in all services sectors by 50%; in scenario 'OECD1' trade barriers to services trade are cut in all services sectors by each EU member proportionate to its product market regulation index as measured by the OECD; scenario 'OECD2' assumes equal cuts as 'OECD1' except that sensitive sectors (UTI and OSR) are not liberalized; SR denotes the short run, LR the long run.

As a general remark, these mostly negative net trade effects are one aspect of trade liberalization. Welfare effects may turn out to be quite different, since the trade effects calculated here do not take full account of all effects arising from trade in services. As is often mentioned in the literature (Nielson and Taglioni, 2003; Robinson et al., 2002), backward and forward linkages imply an important positive role for services imports as efficiency-enhancing inputs in other sectors.

It is worth noting that the trade deficit in some countries (Austria, Germany, the UK, Italy and the Netherlands) obtained from the OECD2 scenario is higher than that from scenario OECD1. This indicates that a limited scope of liberalization (i.e. partial liberalization, excluding some sectors) can inhibit its positive effects on trade. In other words, exports grow at a slower rate as compared to a full liberalization scenario.

#### 4.2. Trade effects for Austria

Looking more closely at Austria's case, one can make the following observations, summarized in Tables 9 to 11:

- In the long run, the decline in manufacturing net exports is smaller than in the short run in all scenarios, as these sectors can benefit from cheaper services used as their inputs.
- Financial services and insurance services will experience a strong impetus from trade liberalization.
- Exports increase fastest in communications and construction (between roughly 60% in the 25% scenario and as much as 150% in the 50% scenario); these sectors are the most protected in the EU. In both cases, these high numbers are partially a result of low initial levels.<sup>9</sup> Nevertheless, we can expect strong dynamics in these sectors as a result of trade liberalization.
- Imports of construction services, where the trade changes are most profound, grow very fast as well, indicating increased intra-industry trade. Also other business and trade and repair services experience stronger import growth.
- Exports grow faster than imports in all scenarios in the following sectors: communications and insurance, financial services, transport, and utilities (apart from the OECD2 scenario). Only in few of these sectors has Austria a comparative advantage at the moment. Financial services, when taking into account trade through foreign establishment, is one exception: here Austria is likely to increase its comparative advantage – especially with respect to the new member states – in a more liberalized environment. In transport services, Austria may build up comparative advantages through liberalization, benefiting from its geographic location within Europe, likewise in the remaining sectors.
- In scenario OECD2, the exclusion of utilities and other services from the liberalization reform results in a decrease of exports of these sectors. At the same time their imports increase, albeit at a slower rate than in other scenarios. Although in this partial liberalization scenario the deterioration of the manufacturing trade balance is smaller than in the full liberalization scenario (OECD1), the overall decline of the trade balance is larger due to negative trends in trade balances of non-liberalized sectors (utilities and other services).
- Negative changes in the country's overall trade balance are generated primarily by a decline in manufacturing net exports. Processed foods, as well as primary production, construction, trade and repair, business and other services in some scenarios also contribute negatively to the change in the trade balance.

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<sup>9</sup> With 0.7% and 0.9% respectively of total trade, or 3% and 2% respectively of trade in services, these categories are under-represented in Austria's trade structure.

Table 9

**Changes in Austria's exports value resulting from 4 shock scenarios, %**

Scenarios	25%-SR	25%-LR	50%-SR	50%-LR	OECD1-SR	OECD1-LR	OECD2-SR	OECD2-LR
Primary production	-0.4	-0.5	-0.9	-1.0	0.0	0.1	0.0	0.1
Processed foods	-1.0	-0.9	-2.5	-2.3	-1.2	-1.1	-1.2	-1.0
Manufacturing	-3.2	-2.6	-7.8	-6.6	-4.1	-3.4	-3.9	-3.3
Utilities	18.9	19.1	40.7	41.2	21.2	21.6	-1.9	-1.7
Construction	55.0	54.6	152.1	150.0	62.8	62.3	63.0	62.4
Trade	16.6	17.6	37.1	39.5	18.1	19.2	18.3	19.3
Transport	19.8	20.4	49.4	51.1	22.7	23.4	21.9	22.5
Communications	57.4	58.4	144.9	148.1	81.6	83.0	81.9	83.3
Financial services	34.5	37.6	80.4	90.4	36.5	40.1	36.7	40.1
Insurance	35.8	39.2	96.1	108.7	38.2	42.0	38.4	42.1
Business services	8.0	10.4	15.9	22.0	9.5	12.2	9.6	12.2
Other services	11.3	13.3	25.5	30.7	12.1	14.4	-3.4	-1.7

Table 10

**Changes in Austria's imports value resulting from 4 shock scenarios, %**

Scenarios	25%-SR	25%-LR	50%-SR	50%-LR	OECD1-SR	OECD1-LR	OECD2-SR	OECD2-LR
Primary production	-1.0	0.2	-2.6	0.0	-1.5	-0.2	-1.4	-0.2
Processed foods	1.0	1.9	2.5	4.6	1.2	2.2	1.2	2.0
Manufacturing	0.9	1.4	2.2	3.4	1.1	1.6	1.0	1.5
Utilities	17.3	18.6	37.5	40.9	15.4	16.7	1.3	2.4
Construction	60.8	62.6	164.5	172.2	61.1	63.1	60.8	62.7
Trade	17.3	17.5	38.0	38.9	17.0	17.2	16.9	17.1
Transport	12.0	12.5	28.2	29.6	16.0	16.6	16.1	16.6
Communications	7.3	8.1	23.7	25.7	10.5	11.3	10.5	11.3
Financial services	2.6	3.1	6.0	7.4	2.6	3.2	2.6	3.2
Insurance	7.1	8.5	19.7	24.1	7.7	9.3	7.7	9.3
Business services	11.4	10.7	25.9	24.5	12.3	11.6	12.1	11.4
Other services	17.0	16.9	41.1	40.8	17.6	17.4	5.7	5.5

*Note:* In scenario '25%' trade barriers to cross-border services trade in the EU are cut in all services sectors by 25%; in scenario '50%' trade barriers to cross-border services trade in the EU are cut in all services sectors by 50%; in scenario 'OECD1' trade barriers to services trade are cut in all services sectors by each EU member proportionate to its product market regulation index as measured by the OECD; scenario 'OECD2' assumes equal cuts as 'OECD1' except that sensitive sectors (UTI and OSR) are not liberalized; SR denotes the short run, LR the long run.

Table 11

**Changes in Austria's trade balance by sectors resulting from 4 shock scenarios,  
USD million**

Scenarios	25%-SR	25%-LR	50%-SR	50%-LR	OECD1-SR	OECD1-LR	OECD2-SR	OECD2-LR
Primary production	7	-7	20	-9	16	3	15	2
Processed foods	-118	-167	-297	-419	-144	-195	-137	-183
Manufacturing	-3569	-3495	-8733	-8708	-4522	-4403	-4312	-4184
Utilities	16	5	32	3	58	48	-31	-40
Construction	-70	-98	-151	-269	21	-10	27	-3
Trade	-26	6	-39	24	47	80	58	90
Transport	827	841	2261	2297	711	727	614	629
Communications	444	447	1075	1085	630	635	634	639
Financial services	262	284	610	681	278	303	280	303
Insurance	672	718	1785	1976	712	766	716	767
Business services	-618	-47	-1801	-462	-514	120	-458	149
Other services	-206	-132	-567	-367	-200	-110	-332	-261

*Note:* In scenario '25%' trade barriers to cross-border services trade in the EU are cut in all services sectors by 25%; in scenario '50%' trade barriers to cross-border services trade in the EU are cut in all services sectors by 50%; in scenario 'OECD1' trade barriers to services trade are cut in all services sectors by each EU member proportionate to its product market regulation index as measured by the OECD; scenario 'OECD2' assumes equal cuts as 'OECD1' except that sensitive sectors (UTI and OSR) are not liberalized; SR denotes the short run, LR the long run.

Finally, we compare the long-run results for Austria to other countries across sectors in the 50% scenario (see Tables 12 to 14, see Appendix Table A1 for the description of sector codes). We selected this scenario because deeper and more protracted trade liberalization is more likely to reveal in what sectors countries tend to specialize.

Table 12

**Changes in exports value resulting from 50%-LR scenario, %**

	AUT	DEU	FRA	GBR	ITA	NLD	REU15	EU12	CHE	JPN	CAN	USA	ROW
PRI	-1.0	-0.4	1.0	1.6	0.0	0.9	-0.7	-2.8	1.4	2.9	0.8	1.6	1.3
PRF	-2.3	3.7	-0.3	-1.6	-0.5	-1.4	1.3	1.2	-0.3	0.3	-0.1	0.3	0.1
MFG	-6.6	-1.2	-0.1	-3.6	-0.3	-3.1	1.1	9.8	1.9	0.3	0.5	0.8	0.6
UTI	41.2	51.9	37.4	28.3	24.8	28.3	37.9	51.0	-2.5	-1.1	-0.8	-1.2	-1.5
CNS	150.0	141.6	156.6	134.2	148.4	155.3	153.8	166.8	-0.7	-0.7	-0.2	-0.5	-0.6
TRD	39.5	50.7	41.6	36.9	44.5	44.7	41.7	46.3	-3.4	-3.2	-2.0	-2.2	-2.0
TSP	51.1	16.0	23.7	17.9	30.8	16.5	37.5	21.6	-6.0	-2.1	-4.5	-5.1	-4.0
CMN	148.1	156.2	100.7	117.4	138.6	199.2	141.2	133.6	-21.5	-16.3	-20.4	-20.4	-18.8
FIN	90.4	67.6	54.3	69.7	44.2	49.5	57.4	49.7	-11.8	-9.2	-7.2	-9.1	-7.4
INS	108.7	32.3	21.6	26.7	15.8	32.3	28.1	22.9	-8.7	-5.6	-7.2	-8.1	-6.3
BUS	22.0	39.9	23.7	21.3	22.8	19.4	22.2	23.0	-6.0	-5.0	-5.1	-5.5	-5.1
OSR	30.7	26.9	39.7	34.0	30.3	27.8	30.9	41.5	-0.2	0.4	1.0	0.9	0.6

Table 13

**Changes in imports value resulting from 50%-LR scenario, %**

viwcif	AUT	DEU	FRA	GBR	ITA	NLD	REU15	EU12	CHE	JPN	CAN	USA	ROW
PRI	0.0	1.6	0.9	-1.2	1.6	-0.6	2.5	11.2	0.6	-0.3	0.5	0.2	0.7
PRF	4.6	-1.7	1.2	2.0	1.5	2.4	0.2	0.8	0.0	-0.3	-0.2	-0.4	0.1
MFG	3.4	2.7	1.1	2.1	1.4	3.2	1.5	-1.4	-0.7	-0.3	-0.4	-0.5	-0.3
UTI	40.9	19.1	42.5	29.4	16.6	27.7	62.5	84.5	-1.1	-0.6	-0.2	-0.4	-0.1
CNS	172.2	126.9	138.6	255.7	144.9	213.2	192.9	210.8	-1.4	-1.0	-1.2	-0.9	-0.7
TRD	38.9	9.9	31.4	28.4	26.6	28.6	53.4	95.3	-0.1	-0.9	-1.1	-0.8	-0.6
TSP	29.6	26.3	36.3	33.9	36.9	29.7	41.1	98.2	1.9	1.7	1.7	1.4	1.8
CMN	25.7	51.9	337.5	131.5	4.2	50.0	110.6	231.2	3.7	1.4	2.1	1.6	1.6
FIN	7.4	26.4	39.8	15.3	77.6	40.7	58.8	99.6	2.5	0.3	0.2	0.7	0.4
INS	24.1	4.0	61.5	29.0	29.2	12.5	54.4	116.1	0.3	2.3	3.5	3.5	2.1
BUS	24.5	-0.1	11.5	24.4	10.1	14.9	28.6	100.4	0.4	-0.2	-0.5	-0.4	-0.2
OSR	40.8	17.1	28.2	21.9	30.0	34.8	58.7	79.9	-1.2	-1.7	-2.2	-2.3	-1.6

Table 14

**Changes in trade balances resulting from 50%-LR scenario, USD million**

	AUT	DEU	FRA	GBR	ITA	NLD	REU15	EU12	CHE	JPN	CAN	USA	ROW
PRI	-9	-185	2	544	-99	220	-1270	-1098	8	30	69	578	2329
PRF	-419	1916	-589	-672	-422	-1148	673	34	-12	18	26	250	-115
MFG	-8708	-31239	-4233	-14506	-5171	-7317	-3219	27729	3053	3395	2065	9105	22342
UTI	3	852	-199	-10	10	3	-661	-1295	-38	0	-11	-11	-109
CNS	-269	950	568	-1356	69	-1136	-2638	-737	0	16	2	15	8
TRD	24	3778	850	991	1978	835	-4331	-2584	-152	-269	-31	-179	-1558
TSP	2297	-2123	-2745	-3723	-1145	-1283	-2598	-11106	-480	-578	-474	-3103	-9710
CMN	1085	3951	-8080	-804	3103	5146	2947	-1781	-361	-138	-517	-1521	-3665
FIN	681	1569	186	13345	-267	67	-322	-618	-982	-306	-106	-2106	-1360
INS	1976	2100	-1087	-291	-275	219	-5109	-628	-452	-106	-456	-1278	-1189
BUS	-462	17447	2645	-1836	3045	1176	-5523	-8854	-547	-592	-693	-3611	-6072
OSR	-367	1683	2634	1700	40	-446	-8828	-2973	43	141	209	2608	1493
<b>Total</b>	<b>-4168</b>	<b>698</b>	<b>-10048</b>	<b>-6618</b>	<b>865</b>	<b>-3664</b>	<b>-30881</b>	<b>-3911</b>	<b>82</b>	<b>1611</b>	<b>84</b>	<b>747</b>	<b>2395</b>

Overall the EU region is quite diverse in terms of trade performance, the EU12 standing out as primarily specializing in manufacturing, while the EU15 has more relative advantages in services. But even within the EU15 the picture is far from being uniform: for example, Germany is the only country in the EU to increase its processed food export after trade liberalization; France and the UK are the only countries to experience a decline in their trade balances in communication services trade.

Austria shows the fastest growth in exports of transport services and is the only country which experiences a positive change in its trade balance in the transport sector. Austria also displays the highest growth of financial and insurance services exports in the region. This result indicates a significant potential for comparative advantages in these sectors, which can be realized more fully when trade is more liberalized.

Austria experiences a decline in its trade balance in construction, business and other services trade (as does the UK), indicating that the country neither has current comparative advantages in these sectors nor the potential to build up such advantages (as in the transport, finance and insurance sector) as opposed to countries such as Germany and France.

## **5. Conclusions**

In this paper we simulated possible trade effects of services sector trade liberalization within the EU. Despite the fact that services trade liberalization has been on the agenda for multilateral trade negotiations for more than ten years, the number of studies on the subject is still limited. This is related to underlying difficulties in defining and measuring barriers to trade in services. We are using here a computable general equilibrium model (GTAP model in the version by Francois and McDonald, 1996) augmented by econometrically derived estimates of barriers to services trade from Francois et al. (2007). We assume that the EU liberalizes trade in services, while no liberalization in the rest of the world takes place. More specifically we simulate four scenarios: A flat cut in barriers by 25% and 50% respectively, as well as a proportionate cut (in proportion to initial protection, i.e. the most strongly protected country liberalizes by 50% while other countries liberalize less in proportion to their initial protection level) in all sectors, and finally a proportional cut in all sectors except sensitive ones (such as utilities, personal, cultural and recreational and government services). We find strong similarities between the 25% scenario and both proportionate scenarios, while the 50% cut in trade barriers yields substantially stronger trade effects.

In general, our results point towards global trade creation, and also to substantial trade diversion towards the liberalizing EU members. Among these, the initially most protected new members, but also Austria, experience the largest increases in services trade. Savings and capital reallocations reinforce the short-run effects, yielding somewhat larger trade creation effects. However, we mostly see a clear deterioration of overall trade balances. The reasons for this negative net trade effect differ between old and new EU members. The largest services traders among the old EU members specialize increasingly in services, experiencing a decline in net manufacturing exports with consequent negative effects on the total trade balance. Also Austria belongs into this group. In the long run, the decline in manufacturing net exports becomes smaller and services exports speed up, resulting in a smaller deterioration of the trade balance. The remaining old member states also see a decline in their trade balances which, however, arises from a worsening services trade balance. The new members, on the other hand, increasingly specialize in the production and exports of manufactured goods. Despite a greatly improving manufacturing trade balance, they remain net importers in general. This is due to a worsening services trade balance while manufacturing trade remains in deficit for this group of countries.

Finally, a full liberalization scenario (including all services sectors) results in a better net outcome of the liberalization, while the exclusion of certain sectors can inhibit its effects on trade.

For Austria, we estimate a particularly strong increase in both, services exports and imports. Especially communication services, construction services and financial and insurance services will grow strongly – often, but not always, because of their small initial value in Austria's services trade. This points towards an unexploited potential for Austrian trade in these services categories. It further shows that – unlike the general trend where trade liberalization reinforces existing specialization patterns – Austria may actually develop new comparative advantages in some services sectors in a more liberal environment.

To summarize, we find mostly a deterioration of the overall trade balance, especially also for the liberalizing countries. This is consistent however with the existing literature, which stresses that the main gains from liberalizing trade in services are not expected to come from increased net exports, but rather from better and cheaper services imports which can be used as inputs in other sectors of the economy. Hence, in order to give a comprehensive picture of the effects of liberalizing services trade, a full welfare analysis is necessary. Nevertheless, our results reveal interesting effects. While the old member states specialize increasingly in the production of services, the new member states deepen their comparative advantage in the manufacturing sector within Europe. Although Austria is currently also highly specialized in manufacturing trade (at least this is revealed by current comparative advantages), it clearly belongs into the group of old member states which increasingly specialize on services as a result of more liberal trade in the sector. As such, our results are consistent with earlier findings that trade liberalization reinforces existing comparative advantages.



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## Appendix

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Table A1

### GTAP Sector codes and description

<b>Sector Code</b>	<b>Description</b>
PRI	primary goods
PRF	processed food
MFG	manufactured goods
UTI	utilities
CNS	construction services
TRD	trade and repair services
TSP	transportation services
CMN	communication services
FIN	financial services
INS	insurance services
BUS	business services
OSR	other (personal & government) services

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