

Export Potential in Services: Estimation for selected European Countries^{*}

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Non Technical Summary

A distinctive feature of the current wave of globalisation is the pronounced increase in trade in services. Over the past decade trade in service categories such as computer and information services, communication services or financial services has enjoyed double-digit growth rates. An increase in services trade may yield gains similar to the ones often associated with increased merchandise trade: gains from specialisation, from increased scale of production, from increased competition or from knowledge spillovers. Moreover, increased services trade may have particularly strong ‘knock-on’ effects on other sectors of the economy, in the sense that services serve as important inputs into manufacturing.

In this paper we evaluate the export competitiveness in services of selected European economies in a 2-step approach. In the first step, we estimate export potentials by fitting a fixed effects gravity model to bilateral Eurostat services exports data between 65 countries over the period 2000 to 2005. The fixed effects gravity model is compatible with recent structural derivations of the gravity equation and consists in a regression of bilateral export flows on exporter and importer fixed effects and bilateral trade costs (distance, common language, common border). In the second step, we extract the fixed effects estimated in the first step, the part of exports not directly determined by bilateral trade costs, and regress them on the following country specific determinants: GDP as a proxy of country size, GDP/capita as a proxy for the size of the services sector, and on a parametric control for ‘multilateral resistance’, as suggested by recent structural derivations of the gravity equation. The predicted value from this regression provides us with an estimate of a country’s export potential, and we interpret the deviation from this estimated potential as a measure of a country’s export competitiveness.

We focus on four Western European and three Central and Eastern European countries (CEEC) in five services export categories (total services, financial services, computer and information services, other business services, other commercial services). We find that the large continental Western European (Germany, France) economies and the CEEC (Czech Republic, Hungary, Poland) are exporting below potential in most of the disaggregated services subsectors whereas the Anglo-Saxon and small continental Western European economies (Great Britain, Netherlands) are exporting above potential. Having identified some scope for improving Germany’s, France’s and the new members’ export performance in commercial services, we proceed to evaluate the influence of a given country’s regulatory environment as measured by OECD regulation indicators. According to our estimates, regulatory reform would indeed boost exports to a certain extent, notably in other commercial services. We also find, however, that aligning regulatory regimes on the most loosely regulated economy in the sample, Great Britain, would not be sufficient in most countries and sectors to reach estimated potential. This suggests that regulatory reform would have to be accompanied by other reforms if the underperforming countries were to fully exploit their potential. In particular, details of the tax system, the availability of a

skilled services workforce and business size may act as important determinants of export performance.

Abstract

We estimate the potential for exports in services in a 2-step approach using a gravity model for a sample of bilateral service export flows in individual service categories between 65 countries over the period 2000 to 2005. In particular, we focus on four Western European and three Central and Eastern European countries (CEEC). We find that the large continental Western European economies and the CEEC are exporting below potential in most of the disaggregated services subsectors whereas the Anglo-Saxon and small continental Western European economies are exporting above potential. Regulatory barriers in the exporting country as measured by OECD regulation indicators only explain part of this difference which points to the importance of other structural features, as for instance the availability of a skilled services workforce.

JEL classification: F14, F15, L80

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1. Introduction

The global integration of markets has brought tremendous growth in Foreign Direct Investment and merchandise trade flows, and served as a catalyst for the development of trade in services. Growth in services trade has been on par with the expansion of merchandise trade – meaning that certain sectors have enjoyed double-digit growth over the past decade (such as computer and information, communication, and financial services). While trade is rarely an end in itself, it is often associated with many beneficial effects for the economy. A country may profit from gains from specialisation, an increased scale of production, cost efficiency improvements through the exposure to international competition or enhanced technological progress through embodied knowledge and other intangibles in the imported goods, yielding positive knowledge and technology spillovers. Many of these gains from trade can be extended directly to trade in services. Moreover, a deeper understanding of trade in services seems especially warranted given its increasing weight in overall trade, as well as its important role as an input for manufacturing production (e.g. commercial services.). Over time, and given an overall rise in the level of development, economies have seen the intermediate linkages between commercial services as inputs and the production of manufactured goods deepen. That trade in services can thus improve not only the performance of the service sector, but of the economy as a whole, has been shown in the literature (Arnold et al., 2006; Francois and Woerz, 2007). As a result, foregone trade may also imply foregone spillover effects from the services sector to the rest of the economy.

The importance of services trade is higher for the EU than for the US and Japan (measured as the shares of services exports and imports in GDP) while new and old member states show approximately the same intensity of cross-border trade in services. Over the past decades shares of cross-border services trade in GDP increased in most of the countries we are analysing (apart from Italy and some new member states). As for trade in goods, smaller countries in general show higher trade-to-GDP ratios. Austria and the Netherlands stand out with an average ratio of 8.2% and 11.9% respectively (3-year average 2004-2006). Also the UK is worth mentioning with a services trade-to-GDP ratio of 8.2%. Especially these latter two countries both represent services oriented, loosely regulated economies. In contrast, countries like France and Germany, being currently more heavily regulated and more manufacturing oriented have significantly lower shares of services exports and imports in GDP of 5.1% and 6.5% respectively. Within the new member states, a similar distinction between more service oriented economies – like Hungary with average services trade-to-GDP ratios of 10.8% over the period 2004-2006 - and structurally more traditional economies – like Poland with an average ratio of 5.3% - can be observed. With a services trade-to GDP ratio of 8.7% the Czech Republic lies in between these two extremes. The surprisingly large service trade-to-GDP ratios for the new member states arise mostly from large trade flows in travel and transportation services (Hungary being an exception here). When the focus is restricted to the worldwide most dynamically evolving category of other services, and in particular commercial services, there is a clear gap between old and new member states.

The importance of these modern, producer related services is considerably higher for old EU members, again with notable difference between individual countries.

In this paper we quantify the extent to which EU countries tap into their services export potential. We add to the existing literature in three important respects. For one, we use Eurostat database that has not been previously exploited for this purpose.¹ This database has the advantage of containing information on bilateral services exports at a detailed level of disaggregation, enabling us to look inside the ‘black box’ of total services which is composed of such heterogeneous categories as travel, transport, financial, insurance, communication, computer or other business services. For two, we use the gravity equation to estimate deviations from a country’s export potential. This has the advantage over simple descriptive statistics that we can control for a host of determinants of services exports flows that may only be difficult to influence by policy makers, at least in the short term, not least geography or the stage of economic development. For instance, it may be that a country has an above average services trade-to-GDP ratio but may nevertheless perform below potential, once geographical characteristics and per capita GDP are controlled for. Moreover, while the estimation of gravity equations in the context of services trade is not new in the literature, existing studies are in general not guided by economic theory (Nicoletti et al., 2003, Kimura & Lee, 2006, Ceglowski, 2006, Kox & Nordas, 2007). In contrast, we take recent structural derivations of the gravity equation as seriously as our data permit.² Finally, we use synthetic regulation indicators from the OECD (Conway et al., 2005) to evaluate to which extent policy makers would have to reduce services trade restricting regulations to reach export potential. In particular, we ask whether the level of regulation compatible with reaching export potential is feasible in the sense that it is not lower than lowest level currently observed in the OECD.

Quantifying a potential for exports requires reliable and accurate means of measuring exports in services. Yet, it should be mentioned that our work is not free of the data issues that continue to plague the services trade literature as a whole (such as ambiguities in the definition of trade in services, inconsistency or lack of data sources for certain modes of international service delivery). Given these data limitations, our paper focuses on the cross-border delivery of services and consumer movement, omitting trade through commercial presence abroad.

The paper proceeds as follows: The next section provides a detailed account of the data sources used. A thorough discussion of the database seems warranted since the quality of services trade data is still far from the quality we are accustomed to when examining

¹ Head et al. (2007) use this database to analyse the effect of distance on services trade over time and Bensidoun & Unal-Kensenci (2007) combine it with OECD data draw a descriptive picture of global services trade.

² More specifically, Anderson & van Wincoop (2003) argue forcefully that the gravity equation may yield biased estimates if it does not include implicit price indexes that are hard to measure empirically. Where possible, we follow the proposal of Feenstra (2004) to control for these implicit price indexes by exporter and importer fixed effects and include a parametric control similar to Baier & Bergstrand (2007) otherwise.

merchandise trade flows. Section 3 explains our estimation procedure. Section 4 reports and analyses the results. We find that the large continental Western European economies and the CEEC are exporting below potential in most of the disaggregated services subsectors whereas the Anglo-Saxon and small continental Western European economies are exporting above potential. Section 5 assesses the extent to which trade can be increased by changes in the existing regulatory regimes. Our main result here is that regulatory barriers as measured by OECD regulation indicators only explain part of this difference which points to the importance of other structural features, as for instance the availability of a skilled services workforce. Finally, Section 6 concludes.

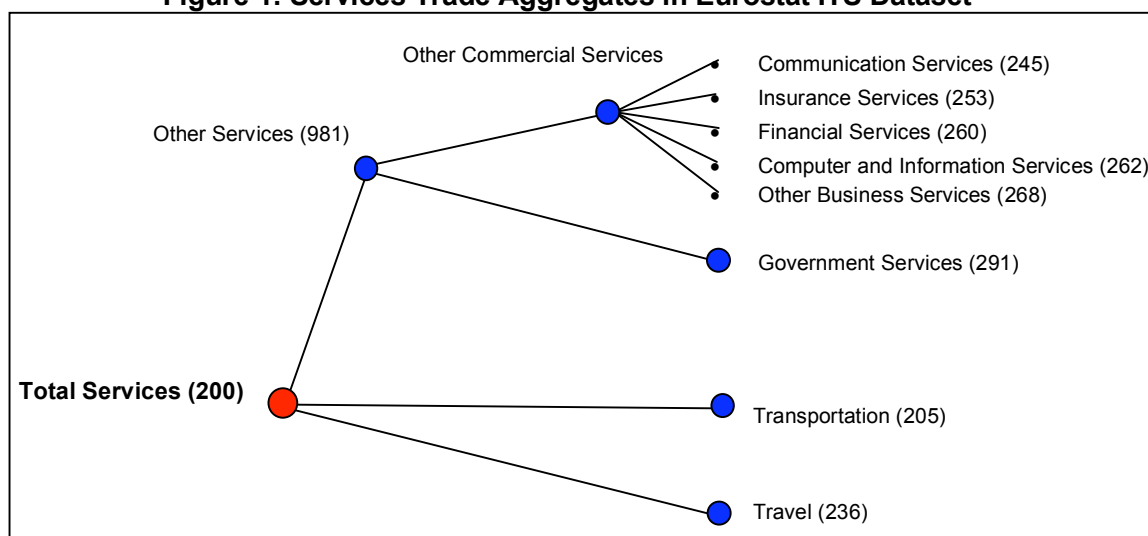
2. Data and Descriptive Statistics

2.1 Eurostat ITS Database

The trade in services data used in this study are drawn from the Eurostat ITS database. This database is in turn based on the Balance of Payments (BoP) information supplied by the member states of the European Union: each year either the national banks or the national statistical offices of the member states provide Eurostat with data according to a set of questionnaires approved by all member states and designed to fulfil a set of requirements. When it comes to services (BoP 200), the data come from a variety of surveys – they may be reported either by the banks or directly by the enterprises or households.³ The BoP records transactions between a member state's resident and non-resident entities, which covers to a varying extent three of the four modes defined under the General Agreement on Trade in Services (GATS). Let us briefly describe each of these modes in turn. Mode 1 (cross-border supply) includes the following service categories: communications, insurance, financial services, royalties and licence fees, most of the transactions recorded under transportation services, and parts of computer and information services, other services and personal, cultural and recreational services. Mode 2 (consumption abroad) is essentially comprised of travel services and a fraction of transportation services (supporting and auxiliary services to carriers in foreign ports). Mode 4 (presence of natural persons) is only partly covered by BOP statistics, mainly through construction services and parts of computer and information services, other business services – and personal, cultural and recreational services. Other elements of mode 4 are recorded in labour-related flows in the BoP statistics and in FATS (Foreign Affiliate Trade Statistics) through foreign employment in foreign affiliates. However, mode 3 (commercial presence) is excluded *a priori* from the Eurostat ITS database. This mode would be captured by FATS statistics and does not yet exist for most countries in the world. Hence, our analysis is restricted to modes 1, 2 and parts of mode 4.

³ The Eurostat ITS database can be downloaded at <http://epp.eurostat.ec.europa.eu/> under the *Economy and Finance* heading and the '*Balance of Payments – International Transactions, International Trade in Services (since 1985)*' subheading.

Figure 1: Services Trade Aggregates in Eurostat ITS Dataset



The Eurostat ITS database provides both trade in total services (BoP position 200) and trade in disaggregated service categories. In analysing unexploited export potential of individual EU members, some of these disaggregated categories will be of interest in their own right.⁴ These sub-categories can also be summed together to construct a number of services trade aggregates that come very close to the definition of cross-border trade in services. Namely, a ‘residual services’ position can be constructed by subtracting transport (BoP position 205) and travel (236) from total services (200). This aggregate includes both ‘non-allocated services’ (982) and government services (291). The Eurostat ITS database also reports an ‘other services’ position (981) that omits ‘non-allocated services’ from the ‘residual services’ category. Next, subtracting ‘government services’ from ‘other services’ yields an ‘other commercial services’ category. Figure 1 illustrates how the different services trade aggregates are directly reported in the Eurostat ITS database, and how additional aggregates are created. Appendix Table 1 provides a detailed account of all the service sectors included in this report.

The high level of sectoral disaggregation allows us to focus on cross-border trade in services, and the extensive time coverage (1985-2005) allows for the use of panel estimators – making the Eurostat ITS database useful in assessing the gap between observed and theoretically predicted export potential in services. In practice, we choose to restrict the sample to 2000-2005 for two reasons. Firstly, the reliability of bilateral services trade data is generally considered to increase over time: most central banks and international organizations did not publish bilateral services trade data until 1999. Secondly, the number of non-missing observations in 1998 and 1999 is low enough that discarding them constitutes a minor loss of information.

⁴ Sectors of interest that can be directly drawn from the BoP framework include: Financial Services (BoP position 260), Computer and Information Services (262), Transportation (205), Travel (236), Communication Services (245), and Insurance Services (253).

2.2 OECD PMR Database

From a policy-making point of view it is important to isolate those variables that can be changed to improve a country's export potential as opposed to immutable characteristics such as distance, or sharing a common border. To this end, we find that an important policy variable is the domestic regulatory environment, which is highly relevant for services trade since it can be viewed as an indirect trade barrier. Measures for domestic regulation are provided by the OECD's aggregate product market regulation (PMR) indicator. While it can be said that the OECD PMR indicator has the disadvantage of not dealing exclusively with domestic regulations in the services sector, it does cover a wide array of services sector-specific regulations – and can therefore be considered as strongly correlated with domestic regulations in the services sector. As such, the OECD PMR indicator is chosen over other indices for this present study.⁵ For a detailed account of the database we refer the reader to Conway et al. (2005). It is important to point out that the OECD PMR index only covers regulations that have the potential to reduce competition in areas where technology and market conditions make competition viable. Lastly, the indicator is normalized over a scale of 0 to 6, where higher values indicate more restrictive domestic regulation. It is available for the years 1998 and 2003.

2.3 Other Explanatory Variables

Aside from the Eurostat ITS and the OECD PMR datasets, the gravity analysis that follows draws on several other data sources.

- **Trade cost proxies** (distance, common border, common language) are taken from the CEPII's bilateral database. Specifically, distance is measured as the population weighted average of the great circle distances⁶ between the 20 largest cities in the origin and destination countries. Common border is a dummy that is equal to one when two countries share a border, and zero otherwise. Common language is based on the ethnological definition and takes on the value of one when a language is spoken by at least 9% of the population in both countries.
- **GDP and population data** are chiefly provided by the World Bank's 'World Development Indicators Online' database – and complemented by the IMF's 'World Economic Outlook' database when observations are missing.

⁵ Another good choice might be the World Bank's 'Governance' indicator. However, instead of summarizing objective regulatory measures (as for the OECD PMR), it assembles individual perceptions on the regulatory environment into an indicator. Thus, in the present study, an 'objective' indicator is chosen over a more 'subjective' one.

⁶ Distance is most often measured using the 'great circle' formula, which approximates the shape of the earth as a sphere and calculates the minimum distance along the surface.

2.4 Trends in the Data

Trade in services is a rapidly growing phenomenon as is also shown in Table 1. Starting from low initial levels, certain commercial services, such as computer and information, communication and financial services, have experienced an extremely rapid expansion. We observe a long-term structural shift away from transportation and travel services, which have traditionally been the dominant categories, towards other services. Even the UK, the largest exporter of services in the EU, continues to exhibit high growth rates, of more than 9% on average, for total services. The most important service exporters in the EU (in decreasing order: Germany, Spain, France, Italy, the Netherlands and Austria, followed closely by Ireland, Belgium and Luxembourg) often exhibit continuously strong trade growth (at double-digit rates in Ireland and Luxembourg). From a global perspective, the EU is by far the most important exporter of services. Including all intra-EU trade it accounts for roughly 75% of world service exports. It also represents the most integrated area with rather low barriers to trade in services, even if such barriers (explicit or implicit through differences in national regulations) still exist.

In this paper we focus in particular on a few selected, large service exporters among the old and the new EU member states, the UK, Germany, France and the Netherlands as well as Hungary, the Czech Republic and Poland. These countries span a wide range in terms of the importance of services trade for their economies, the structure, volume and growth of their service exports, as well as their services trade balances. The UK was chosen on account of being the largest service exporter in Europe (on a global scale it ranks second behind the US). A particular feature of UK service exports is the dominance of financial services, which represent about one fifth of total UK service exports. As can be read from Table 1, export growth is also particularly strong in this category. But also other business services, computer and information as well as insurance services show a dynamic performance. As is typical for most old member states the UK runs a deficit in intra-EU trade in total services (due mostly to strong travel imports) and shows a (in this case sizeable) surplus in extra-EU trade. Germany is the only country to run a deficit in both, intra- and extra-EU trade. It is the second largest service exporter in Europe (rank three worldwide) and shows a rather traditional structure in its service exports. Transportation services still play an important role, while most commercial services - with the notable exception of other business services - are of minor importance. Apart from a more prominent role of travel services, a similar structure is observed for France. Both countries are characterised by below average export growth rates in general and in most service categories. The Netherlands are ranking seventh in world trade in services and number four within the EU. They show a strong dominance of other business services and royalties and license fees in their exports. The latter is related to the large number of international headquarters located within the country, which consequently distribute patents and licence fees to their foreign affiliates abroad. As such it does not reflect to the same extent the

R&D activity taking place within the country. Further, transportation services play a strong role for the Netherlands, given the location of Europe's largest sea port (by tonnage) in Rotterdam.

Among the new member states, we observe again substantial heterogeneity between individual countries, ranging from Hungary with its highly modern structure of service exports to still strongly manufacturing based countries like the Czech Republic and Poland. The share of other business services, royalties and license fees and computer and information services in Hungarian total service exports is far above the average for the new member states while the importance of transportation services is below average. As such, Hungary's export structure is rather comparable to the Western European average, while most new member states still show the traditional dominance of travel and especially transportation services. This is also true for the first and third largest service exporters among the new members, Poland and the Czech Republic. In addition, construction services are of importance for Poland while the Czech Republic also shows a non-negligible amount of financial service exports (still below the western European average but comparable to Germany for example). In contrast to the old members, the new member states are in general net exporters of services, both in intra- and extra-EU trade. Poland is an exception, running a deficit in trade with partners outside the EU. Growth of service exports is generally higher for the new members, especially so in the quantitatively small categories of computer and information services and royalties and license fees. But also in other business services, which implies some re-structuring towards a greater importance of commercial services.

Table 1: Long-Run Average Annual Growth in Service Exports, 1994-2005

BOP position	Total 200	Transport- ation 205	Travel 236	Other Services 981	Comm- unication 245	Cons- truction 249	Insurance 253	Finance 260	Computer& Information 262	Other Business 268
AT	3.5	10.5	1.1	20.2	2.4	11.6	3.4	11.4	2.2	3.8
BE	3.5	2.2	6.0	7.0	10.1	-7.5	-4.4	7.7	5.4	12.2
DE	6.3	5.9	4.6	8.4	4.3	9.7	9.2	19.7	6.8	7.0
DK	11.3	2.6	4.7	0.0	0.0	0.0	0.0	0.0	2.3	0.0
ES	8.3	9.2	6.1	9.3	11.8	-4.9	12.7	13.4	14.7	12.4
FI	8.0	0.9	2.0	8.6	11.2	4.8	-3.4	-0.6	15.9	12.5
FR	2.3	2.3	4.2	21.0	0.0	-4.8	-12.2	15.7	2.8	2.1
GB	9.4	5.4	3.7	12.3	-5.5	6.2	17.2	18.7	12.8	12.4
GR	9.3	17.4	10.3	10.1	-6.6	19.2	-19.8	-8.3	-8.1	-5.7
IE	26.3	8.5	7.4	27.1	-15.7	8.3	37.0	63.9	27.3	36.7
IT	2.7	-1.5	2.1	18.0	-5.5	0.2	-14.0	12.7	13.6	7.5
LU	9.7	8.5	6.7	7.1	11.6	7.7	11.1	23.4	6.1	25.0
NL	5.8	-0.2	5.1	18.2	-3.7	7.8	10.4	14.3	8.8	9.3
PT	6.7	8.1	5.3	3.1	6.3	2.9	0.1	15.2	13.4	8.9
SE	9.5	4.9	6.9	10.1	-13.9	7.9	7.9	16.4	18.5	13.4
EU-15	6.7	5.8	4.5	11.0	13.2	-0.2	8.1	10.1	22.3	9.4
BG	9.1	9.5	12.1	7.5	2.0	4.0	-3.7	4.4	23.7	6.8
CY	8.2	14.4	3.0	8.3	0.6	0.6	0.8	1.1	6.8	26.0
CZ	3.7	7.5	3.1	-2.3	1.4	-17.9	13.1	19.6	1.0	1.8
EE	12.9	11.1	12.9	15.4	9.6	25.3	23.5	28.1	23.4	18.8
HU	9.3	19.8	6.0	14.0	9.8	-3.3	-0.5	9.9	5.1	8.2
LT	16.6	16.0	19.3	13.3	-7.2	-8.3	4.7	11.2	27.4	15.8
LV	8.7	4.9	19.0	17.3	10.3	1.3	21.0	17.0	27.6	22.3
MT	3.7	3.9	1.2	10.1	0.0	7.0	0.0	12.5	9.5	11.0
PL	4.6	5.0	8.7	-1.6	-5.4	-17.8	4.0	34.5	6.3	0.2
RO	12.0	12.3	2.5	19.7	10.4	3.3	6.2	49.5	26.1	18.1
SK	5.8	10.1	5.7	-2.2	-0.7	7.5	-0.6	16.8	0.3	1.9
SI	5.6	6.9	3.9	20.6	-1.1	12.8	11.7	23.2	7.3	7.8
EU-12	6.9	8.6	6.0	9.2	6.3	-0.4	-6.7	11.4	39.9	9.9

Source: own calculations based on Eurostat ITS.

3. Estimation Procedure

The gravity equation is a common formulation for the statistical analysis of bilateral flows between different geographical entities. Its fundamental intuition is that trade flows between two countries can be accurately captured by an analogue of Newton's Law of Universal Gravitation: trade flows are proportional to the product of their masses (GDPs) and inversely related to the distance between them. Ever since Tinbergen (1962) and Poyhonen (1963) first proposed this analogue, the gravity equation has known great empirical success. That said, while the gravity equation has become the workhorse model for trade economists, it has often been criticized for its tenuous theoretical foundations – the past decade has seen a clear move towards structural specifications that are derived from standard economic theory. A common lesson that has emerged from a more theory-conscious literature is that the

determinants of bilateral trade flows can be separated into origin-specific, destination-specific and bilateral-specific components where part of any one of these components may be unobserved by the analyst. In particular, it has been shown that theoretically the unobserved origin- and destination-specific terms are necessarily correlated with unobserved country characteristics, leading to omitted variable bias if this correlation is not appropriately taken into account. More specifically, bilateral distance can be shown to be correlated with a country's implicit price index which is hard to measure empirically and which Anderson & van Wincoop (2003) interpret as 'multilateral resistance'.⁷ The current paper adopts a two-stage estimation procedure that minimises the omitted variable bias given the data limitations for services trade.

3.1 First Stage

The first stage regresses the natural log of bilateral exports on the three aforementioned trade cost proxies (the log of distance, geographical contiguity, common language) as well as a full vectors of exporter-period and importer-period fixed effects. Note that we therefore follow the strategy to control for the unobserved 'multilateral resistance' terms by country and period specific fixed effects proposed by Feenstra (2004). Our estimated coefficients on the bilateral trade cost proxies should therefore be unbiased. We further include a vector of period fixed effects to control for a potentially non-linear time trend in the services trade data. To minimise the influence of measurement error in the services exports data on our results, we average yearly services exports data over the periods 2000-2002 and 2003-2005.

$$\ln exports_{ijt} = \beta_0 + \beta_1 \ln dist_{ij} + \beta_2 \ln comlang_{ij} + \beta_3 \ln comborder_{ij} + \alpha_{it} + \alpha_{jt} + \varepsilon_{ijt}, \quad (1)$$

where α_{it} and α_{jt} are the vectors of country-time fixed effects and α_t is the vector of time fixed effects. The period fixed effect captures the existence of any time series variation that is common to *all* countries. The two remaining fixed effects are what we are interested in: the reporter-period and partner-period fixed effects. In particular, their coefficients (referred to as α hereon) capture the volume of bilateral trade that is explained by observed and unobserved period-specific country characteristics. For instance, the α corresponding to Austria in 2002 can be interpreted as the volume of Austria's trade that is explained by observed and unobserved characteristics *particular* to Austria in that given period – i.e. the total observed flow *parsed* of the volume of trade explained by bilateral characteristics and the common time trend. This country-specific portion of the bilateral trade volume is then used as the dependent variable in the second stage.

⁷ See Baldwin & Taglioni (2006) for a succinct discussion.

3.2 Second Stage

Before delving into the second-stage specification in detail, we note that the underlying purpose of the second-stage regression is to compare country-specific exports⁸ (α_{it}) with the volumes ($\hat{\alpha}_{it}$) predicted by observed country-specific variables. In fact, this predicted volume ($\hat{\alpha}_{it}$) is what may be called a country's *export potential*, in the sense that it measures a country's services exports predicted by its observable characteristics. Specifically, we are interested in the residual of the second-stage regression, which is nothing more than $\alpha_{it} - \hat{\alpha}_{it}$. This residual can be interpreted as the *deviation* from export potential for a given country in a given period. In particular, a *negative* residual indicates that observed trade lies below its volume predicted by observable country characteristics, meaning that the country is 'under-performing'. Put differently, a negative residual is synonymous with 'untapped' potential. Conversely, a positive residual is indicative of over-performance.⁹

Our second-stage specification is given in equation 2:

$$\alpha_{it} = \gamma_0 + \gamma_1 \ln POP_{it} + \gamma_2 \ln(GDP / capita)_{it} + \gamma_3 MO_{it} + \ln PMR_{it} + \varepsilon_{it} \quad (2)$$

A parsimonious specification of the gravity equation in the second stage would include only two explanatory variables commonly found in the gravity literature: population and GDP/capita. The natural log of population is included as a proxy for economic size and the estimated coefficient is expected to be positive. The idea behind including the log of per-capita incomes ($\ln GDP/capita$) is that higher-income countries have a higher share of services in GDP, leading to higher services exports at a given size. It is therefore expected that the estimated coefficient on GDP/capita is positive.

Following Baier & Bergstrand (2007) we augment our parsimonious specification by including a parametric control for the abovementioned multilateral resistance terms. More specifically, we create an inverse measure of multilateral resistance – multilateral openness - using a combination of distance data from the CEPII database and GDP data from the World Bank and IMF databases. Essentially it is the distance-weighted sum of a country's actual and potential trading partners GDPs.¹⁰ The multilateral openness term controls for the fact that trade flows do not only depend on bilateral trade barriers, but also on trade barriers across all trading partners. A forceful demonstration of this point can be found in

⁸ As explained above, these country-specific exports are estimated in the first stage and parsed of the component determined by bilateral variables.

⁹ Note that it is not possible to extract these residuals by one-stage estimation procedure, since the country-year specific variables would be perfectly collinear with the country-year fixed effects.

¹⁰ Algebraically we express the multilateral openness term as for instance in Francois et al. (2007):

$$MO_{it} = \sum_{j=1}^J \frac{GDP_j}{dist_{ij}}, \text{ where } J \text{ is the set of country } i\text{'s all potential trading partners.}$$

Anderson and Van Wincoop (2003) who show that bilateral trade depends on the bilateral trade barriers between two countries relative to the product of their multilateral openness terms. More specifically, they show that bilateral trade decreases with the product of the multilateral openness terms. The intuition is readily grasped by an example provided by Head (2003). Imagine comparing trade flows between two country pairs: Australia-New Zealand, a country pair with low multilateral openness due to its geographical remoteness, and Austria-Portugal, a country pair with a high multilateral openness due to its proximity to large European economies. The distance between each pair's economic centres is roughly the same (Lisbon-Vienna and Auckland-Canberra both happen to be 1430 miles apart), and the product of their GDPs is also comparable (the latter is 20% smaller).¹¹ In the absence of a multilateral openness control, the gravity equation would predict that Austria-Portugal trade would be slightly larger (on account of their greater GDPs). Yet, in 1993 Australia-New Zealand trade flows were nine times greater than for Austria-Portugal. This straightforward example reveals the extent of overestimation or underestimation of export potentials that can emerge in the absence of a multilateral openness control. It should also be clear from the above example that we expect a negative sign of the estimated coefficient on the multilateral openness variable.

The specification we are eventually adopting for the present purpose further includes the OECD's PMR indicator. Given the intangible nature of services that precludes the imposition of tariffs, policy-induced barriers to services trade take the form of specific domestic regulations. These domestic regulations can either discriminate against foreign service providers, as would be the case of a restriction on the number of foreign service providers allowed in the domestic market, or be non-discriminatory but nonetheless act as a barrier to services trade, as would be the case of a licensing requirement that applies equally to domestic and foreign service providers. We therefore expect a negative sign of the estimated coefficient on the OECD PMR indicator. In including the OECD PMR indicator, our purpose is twofold. That domestic regulation should have an impact on services trade seems natural enough, but we are interested in observing whether there is statistically robust evidence for this relationship. Secondly, if the OECD PMR index proves to be statistically significant, gauging the variable's *economic* significance becomes important: how does the estimated magnitude of this policy variable compare with the other explanatory variables? In other words, if a country were to reduce the restrictiveness of its domestic regulation – does our model predict a notable increase in services exports?

4. Results

The first- and second-stage results for six service sectors are presented in Table 2 below. Before moving on, let us comment on the structure of the panel used in the estimation. After running the estimates on both an unbalanced and a balanced panel, the latter was chosen

¹¹ See Head (2003).

for the more consistent deviations in export potential it provides. In other words, for any given country, the unbalanced panel tended to exhibit a large degree of variability in the estimated export potentials from one period to the next – whereas the balanced panel yielded more plausible yearly deviations. The greater stability provided by the balanced panel is probably due to the fact that we restrict entry and exit of countries into the panel. Balancing the panel leaves us with a maximum of 6306 observations on bilateral export flows for BoP position 200 (total services) and with a minimum of 738 observations for the financial services sector.¹² The second-stage regressions have fewer observations, given that the bilateral dimension of the data is suppressed. Additionally, we restrict the second-stage regressions to OECD countries by using the OECD PMR indicator. Thus, the second stage has a maximum of 58 observations (for total services) and a minimum of 36 (for financial services). One benefit that arises from circumscribing the sample to OECD countries is that we are comparing structurally relatively similar countries.

¹² Note that averages of yearly export flows over the periods 2000-2002 and 2003-2005 have been used as the dependent variable to minimize the influence of measurement error on our results. The number of observations reported in Table 2 corresponds therefore to the total number of export observations divided by three.

Table 2: First and Second Stage Estimation Results

Dependent variable:					
In services exports	Total	Financial	Computer & Information	Other Business	Other Commercial
BoP position	200	260	262	268	
1st stage					
In distance	-1.359*** (0.082)	-0.336** (0.152)	-0.268 (0.182)	-1.114*** (0.118)	-0.972*** (0.162)
common border	0.699*** (0.182)	1.230** (0.507)	0.861 (0.627)	0.127 (0.272)	0.634* (0.351)
common language	0.586*** (0.129)	-0.184 (0.453)	0.096 (0.503)	0.273 (0.264)	0.001 (0.252)
N	2102	246	342	1016	780
Fixed effects:					
exporter-year	yes	yes	yes	yes	yes
importer-year	yes	yes	yes	yes	yes
year	yes	yes	yes	yes	yes
R ²	0.86	0.91	0.88	0.88	0.90
2nd stage					
In population	0.946*** (0.053)	0.302 (0.208)	0.706*** (0.220)	0.969*** (0.073)	1.007*** (0.088)
In gdp/capita	1.105*** (0.164)	1.240*** (0.370)	1.062* (0.557)	1.136*** (0.283)	0.924*** (0.325)
In multi openness	-0.872*** (0.158)	0.216 (0.355)	0.126 (0.315)	-0.197 (0.250)	0.155 (0.239)
In oecd pmr	-0.700** (0.328)	-1.232 (1.112)	-1.763 (1.273)	-1.213 (0.715)	-1.659** (0.692)
N	58	36	40	50	44
R ²	0.90	0.67	0.63	0.85	0.89

Robust standard errors in parentheses (adjusted for clustering by country pair in 1st stage and country in 2nd stage). * denotes significant at 10%; ** significant at 5%; *** significant at 1%

4.1 First-Stage Results

The first-stage regressions reveal that the coefficient on the natural log of distance is significantly negative at the 1 percent level and close to -1 for total services, other business services and other commercial services. Given that the estimated distance coefficient hovers around unity, the log-log specification implies that a 50% decrease in distance corresponds to a 50% increase in trade flows. The magnitude of the distance coefficient is about one third lower for financial services and not significant for computer & information services. At first sight, this discrepancy does not seem too surprising given that these two service sectors are distinguished by the high informational content of their trade (as opposed to 'other business services' which tends to involve the movement of persons). In

other words, that distance should matter less in the context of trade in financial or IT services does not seem too puzzling.

Sharing a common border has a significantly positive influence on trade flows in most service sectors. It is not significant for computer and information services and other business services, which are generally traded over larger distances.

The common-language dummy has a significantly positive influence on trade in services in general as well as for the aggregate of other services. However, when looking at individual commercial service sectors, this influence disappears. Thus, the common language seems to matter more for non-commercial services, such as travel, personal, cultural and recreational, etc.

As for explanatory power, in the context of gravity analysis it is often held that an ' R^2 of 0.7 on cross-section data is par for the course' (Baldwin and Taglioni, 2006). This is indeed the case with the present regressions, which have an R^2 ranging from 0.85 to 0.9.

4.2 Second-Stage Results

The estimated coefficients for the natural log of population are very close to 1 for four out of the six sectors. The finance sector is the only one to exhibit a statistically insignificant coefficient and, interestingly enough, also the sector to have the highest estimate for GDP per capita. This seems to be a reasonable result, given that financial services tend to be concentrated in areas with high GDP per capita, regardless of the GDP as a whole (e.g. Luxembourg, Qatar, etc.).

The multilateral openness control is only relevant for trade in services as a whole, where it is statistically significant at the 5 per cent level. As expected, the multilateral openness control takes on a negative sign. It is not significant for all other service categories, implying that bilateral trade relations play a much more important role here. This may be particularly true for commercial services, where well-established, often personal relationships have been known to mature over time between producers and consumers of a given service.

The domestic regulation variable, as measured by the OECD PMR indicator, is negative in all sectors and statistically significant for total services, other services and other commercial services. As expected, domestic regulation appears to exert a negative influence on services trade. Yet, on a more disaggregated level, this indicator does not show a significant influence on service trade flows in individual producer-related activities. However, recall that our measure of regulation is an economy-wide indicator that captures the overall regulatory environment. While regulation clearly displays the expected influence on services trade, for a deeper understanding of its exact influence within individual service sectors, one should probably rely on more precise measures of sector-specific

regulations.¹³ Indeed, the influence of individual components within the aggregate OECD indicator is likely to vary widely across specific service activities.

4.3 Comparing Export Potentials Across Countries

The countries chosen for the graphical comparison of export potentials are Germany, France, Great Britain, the Netherlands, Hungary, Poland and the Czech Republic. As mentioned previously, they were chosen on account of constituting interesting case studies: The UK and the Netherlands represent small, open and services oriented economies with a very modern structure of their services exports. France and Germany can be classified as more regulated and manufacturing oriented economies. While the Eastern European catching-up countries show a higher ratio of service exports to GDP in general, they are still characterised by a more traditional export structure. Nevertheless, we can again distinguish here between Hungary with its very modern service trade structure (reflected in a dominance of commercial services) and Poland and the Czech Republic with a predominance of transportation and travel services. The results for the remaining countries and services subsectors are reported in Table A2 in the annex.

Note that we calculate the export potentials below using the OECD regulation indicator for Great Britain over the 2003-2005 period: we want to avoid that the level of regulation influences a country's export potential. This would favour highly regulated economies by tending to reduce their export potential and making their deviations from potential more positive. Our export potentials can therefore be interpreted as the level of exports predicted by GDP, GDP/capita and the level of regulation of Great Britain in 2003-2005. Since all other countries in the sample have higher levels of regulation than Great Britain in 2003-2005, deviations from export potentials reported below are negative on average.¹⁴

Total Services (200). Great Britain and the Netherlands are strong over-performers, whereas France and Germany and the new members are underperforming. This probably reflects the fact that the latter countries show a strong specialisation on manufacturing. For instance, service exports as a share of GDP amounted to only 5% for France and 6.5% for Germany in the 3-year average 2004-2006, compared to the weighted EU-15 ratio of 8%. The new member states had higher exports to GDP ratios of roughly 9%, on the one hand reflecting their smaller economic size and hence higher openness and on the other hand hiding a more traditional structure of service exports. In comparison, the Netherlands had a trade-to-GDP ratio of nearly 12%, while Great Britain's ratio was at more than 8%. Note, however, that the particularly strong underperformance of the CEEC in terms of exploited export potential does not simply reflect their status as catching up countries: the stage of

¹³ However, in our model this might also induce problems related to endogeneity, therefore we opted for the more aggregate measure of regulation.

¹⁴ Strictly speaking, we drop all variables that turn out to be insignificant and re-estimate our second-stage regression before calculating export potentials. The level of regulation therefore only enters the calculation of export potentials in total services and other commercial services and the multilateral openness control only in total services.

economic development is controlled for in the second stage by including GDP/capita as a regressor. Hence, we can expect to obtain more information as for the reasons of this underperformance from looking into individual service sectors.

Figure 2: Total Services

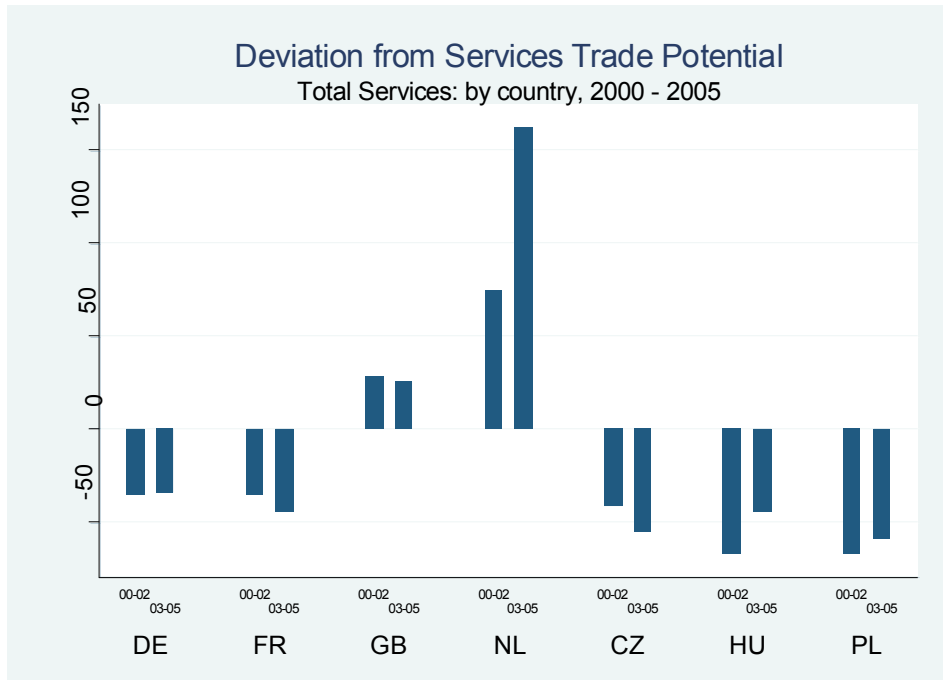
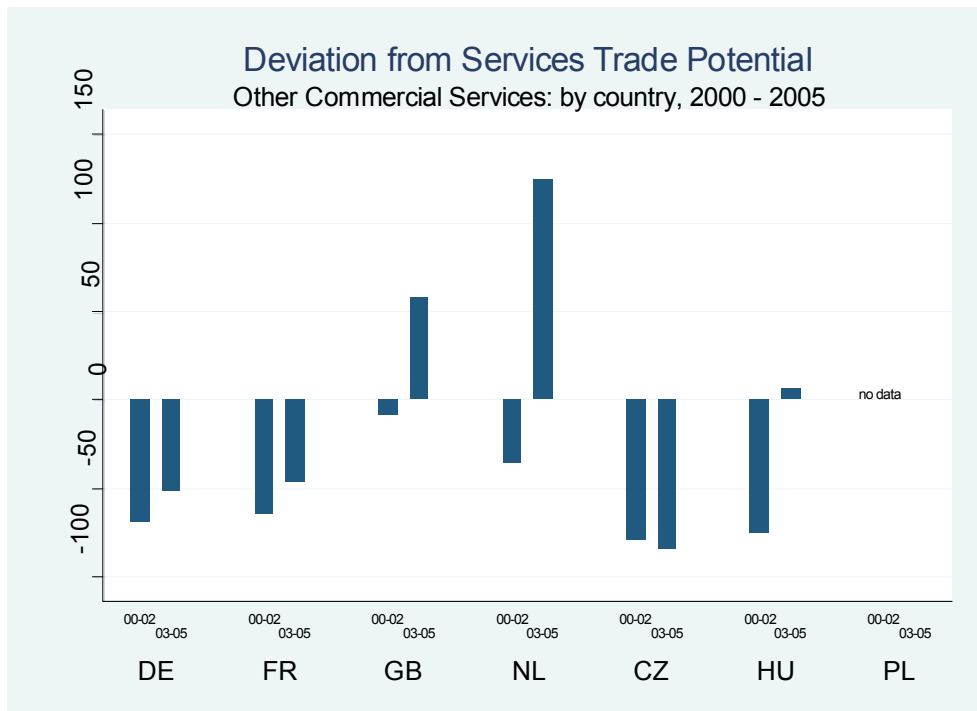


Figure 3: Other Commercial Services

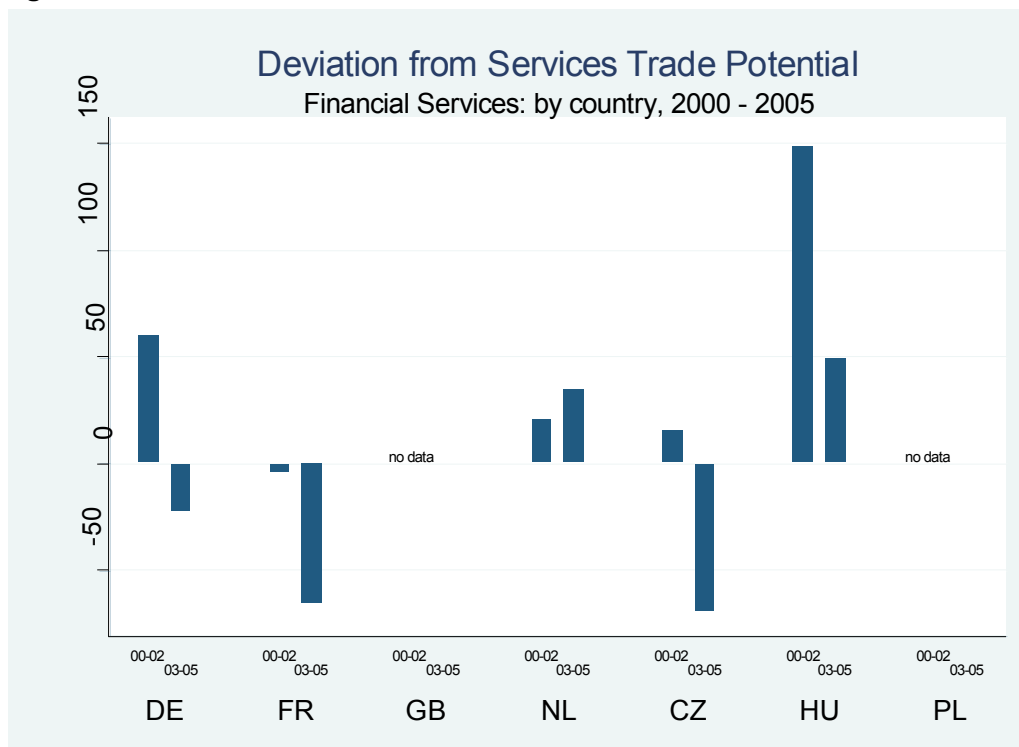


*Other Commercial Services (984a). Travel (BoP 236), transport (BoP 205) and government services (BoP 291) are subtracted from 'other services' to form this aggregate:*¹⁵ Again Great Britain and the Netherlands are above their theoretically predicted potential, both countries have switched from underperformance to overperformance only recently. While also having improved in terms of export performance, all other countries are still far below their potential, the gap to full potential is often considerably higher than for total services. A notable exception is Hungary which also exceeds its trade potential in the period 2003-2005. This is in line with our previous observation of Hungary's relatively advanced trade structure in services and may be related to the presence of multinational firms and the resulting trade of producer services between headquarters and Hungarian based affiliates.

Financial Services (260). Great Britain as a likely over-performer is missing from the bilateral Eurostat data in this BoP position. If data on Great Britain were available, the deviations from export potentials in Figure 4 would probably be more negative. Nevertheless, the displayed deviations should give a correct picture of the relative export performances of the countries in the sample. Most countries show an initial over performance and a subsequent decline in fulfilling their potential. Notably Germany and the Czech Republic even fall below potential in the period 2003-2005. Hungary is strongly above potential in both subperiods, which may be related to strong multinational activity in and from the country. In general, results for this category can only be interpreted meaningfully when taking into account also trade through mode 3 (i.e. through the establishment of foreign affiliates). While cross-border trade in financial services is mostly related to the existence of large financial centres (like London and Frankfurt), the trade in financial services which shows an impact on the performance of the real economy runs primarily through foreign establishment. Since Hungary does not represent an important financial hub, not even regionally, a possible explanation for this result can be seen in the fact that 30% of Hungary's outward FDI stock is generated by financial intermediation. For example, Hungary's largest bank OTS is very active in the Western Balkans. As a consequence, a fair amount of the observed cross-border exports of financial services may be explained by intra-company transactions between the Hungarian mother companies and affiliates abroad. The Netherlands also emerge as a strong trader of financial services, increasingly surpassing their predicted performance over time. Again, the role of Dutch headquarters for this strong performance would need to be examined.

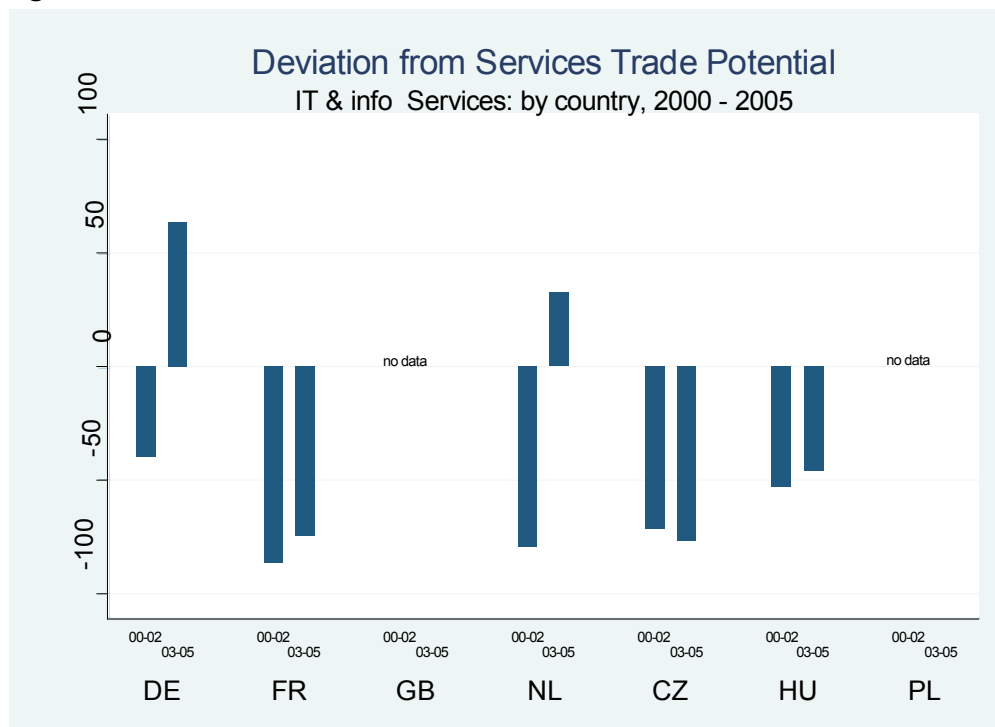
¹⁵ See Appendix Table 1 for the breakdown of this services aggregate.

Figure 5: Financial Services



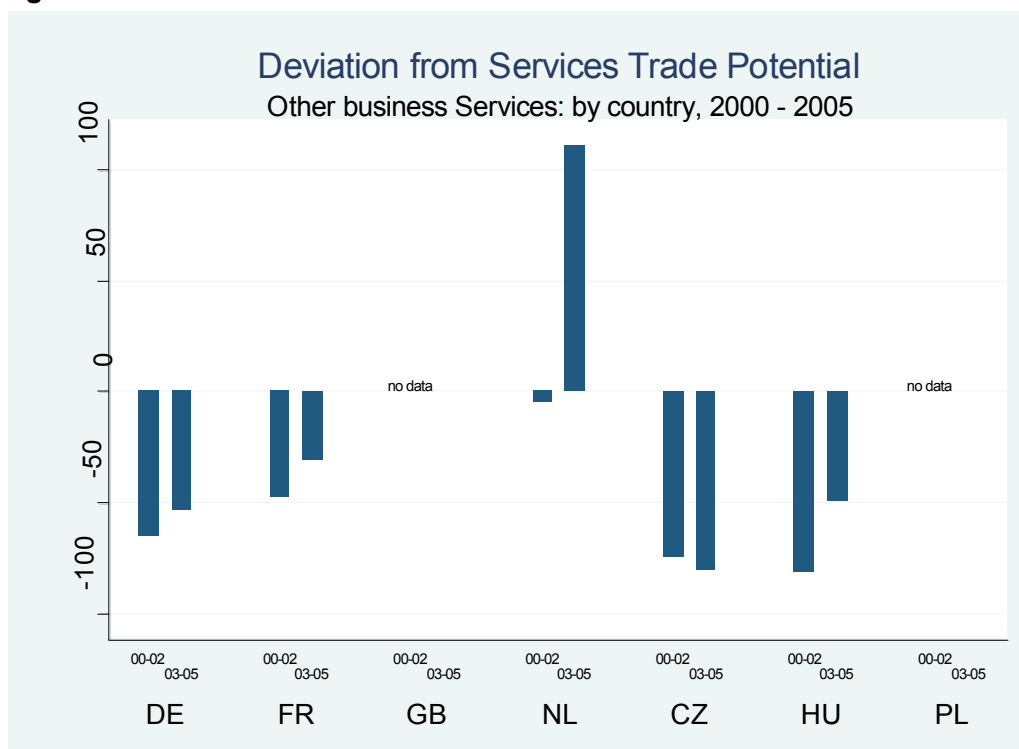
Computer and Information Services (262). Again Great Britain could not be included in the balanced sample due to lack of bilateral data. Most countries are far away from reaching their full potential, especially so France and the new members. Germany and the Netherlands have both increased exports substantially and export more than their predicted potential in the second period. In general, we would expect rather high volatility in this quantitatively still small but very dynamically evolving category. Most countries are approaching their potential, i.e. exports are growing in line with global developments and above the domestic trend. Only the developments in the Czech Republic are less positive, here the gap between actual and predicted trade potential is widening.

Figure 6: IT & Info Services



Other Business Services (268). This aggregate includes (i) merchandising and other trade-related services, (ii) operational leasing services, and (iii) miscellaneous business, professional, and technical services (such as management and consulting activities, legal services, advertising, etc.). Great Britain had again to be excluded for lack of data, potentially biasing the displayed deviations from export potentials upward if it is effectively an over-performer in IT & information services. Relative export performances of the countries displayed in Figure 6 should, however, not be affected by this. Most countries are under performing in this important category. However, with the exception of the Czech Republic, all countries show improvements in fulfilling their potential. The Netherlands are again performing substantially better than expected. Compared to the smaller commercial service sectors analysed above, the extent of underperformance is smaller in this category.

Figure 7: Other Business Services



5. Simulating Regulatory Reform

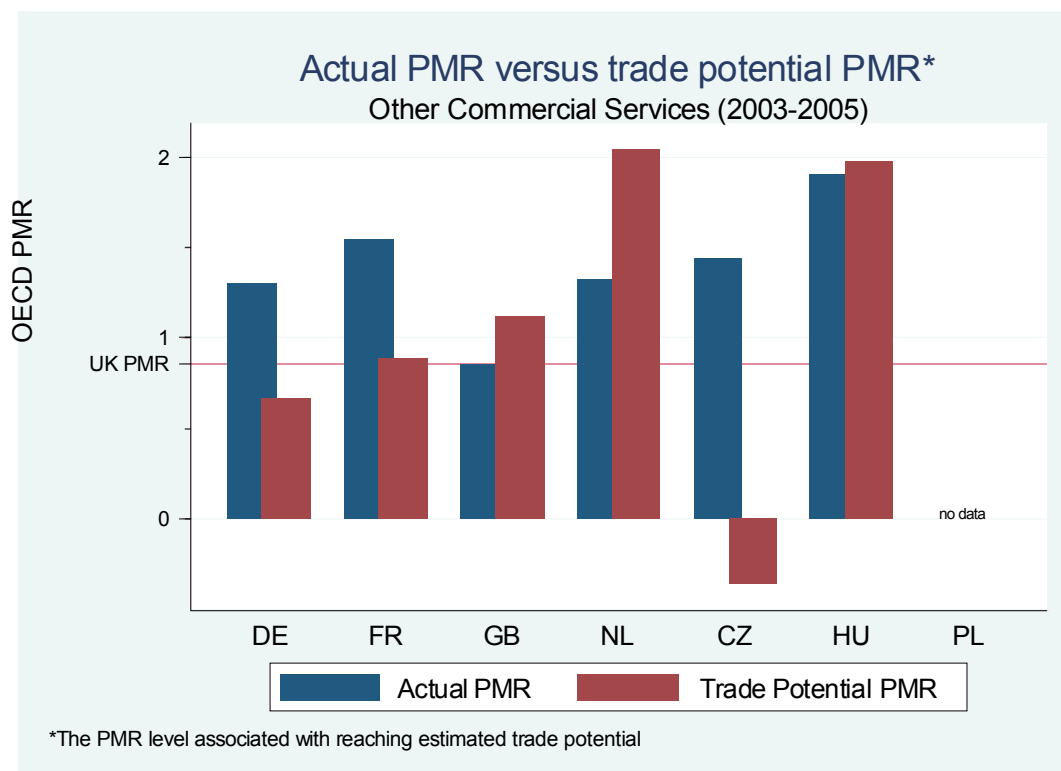
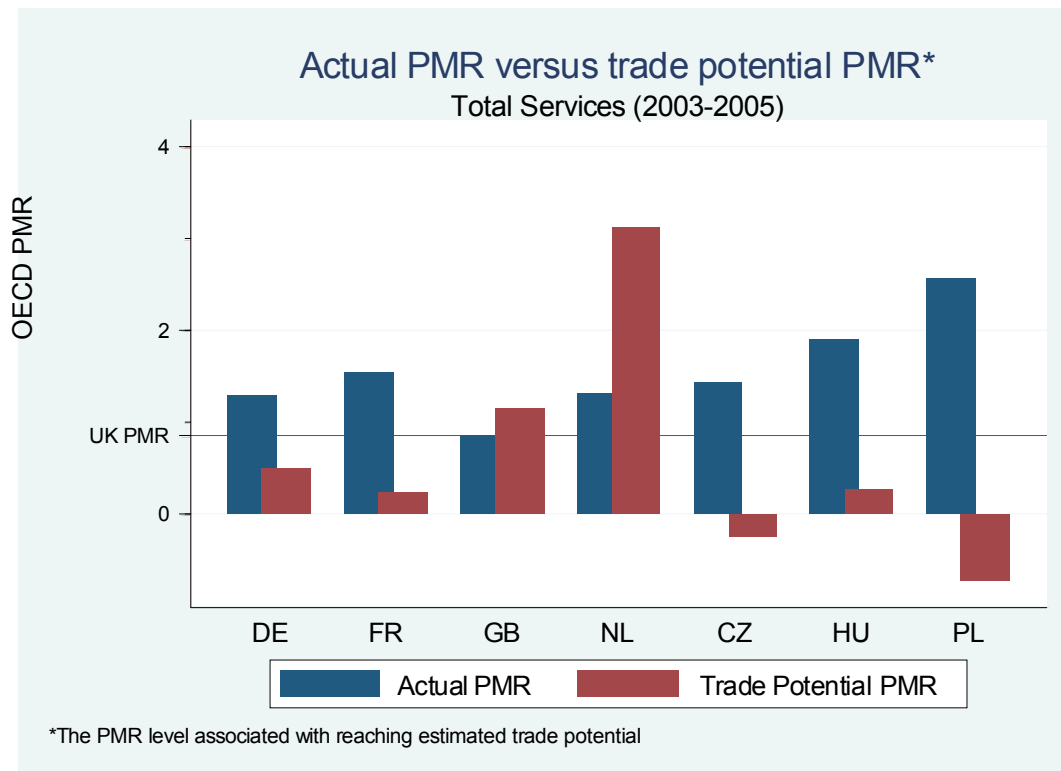
Our estimates suggest that Great Britain and the Netherlands are over-performing with respect to services export potential in most services categories, while Germany, France and the new member states are underperforming. However, we have little guidance as to the reasons behind over- underperformance with respect to potential. Do long-term structural features as details of the tax system, the availability of a skilled services workforce or the size distribution of firms provide a convincing explanation or do legal and institutional factors better account for over- and underperformance? These latter features may range from licensing requirements to complicated and burdensome registration procedures or other entry regulations. Detailed information on such direct and also implicit barriers to trade in services is difficult to obtain, especially for the large cross-sections of countries in our sample. As a first step towards tackling this very complex issue fraught with measurement problems, we simulated changes in the OECD PMR indicators. While these indicators are imperfect at best, they provide a comprehensive measure of domestic regulation across many nations. Thus, we have developed a framework which allows us to assess the direct and indirect effects of regulation at large on trade flows.

The idea behind these simulations is the following: seeing the restrictiveness of domestic regulation as our policy variable, by *how much* would it have to change in order for any given country to reach its export potential? This thought-experiment was only conducted for service sectors in which the OECD PMR variable turned out to exert a statistically

significant influence at the 10 percent level: Total Services (200) and Other Commercial Services (984a).¹⁶ The purpose was then to look at how countries fared within each sector: for those countries that have untapped export potential, which ones could feasibly reach their potential by reducing or loosening their domestic regulation? Conversely, it is averred that for some countries, reaching their estimated trade is unfeasible, either because (i) the required *change* in regulation is too drastic (even in the long run) and/or (ii) the required *level* of regulation is below a certain threshold. Specifically, as illustrated in the graphs below, Great Britain's level of domestic regulation is taken as a benchmark for the minimum, feasible level of regulation. Thus, countries whose 'trade-potential' PMR level falls beneath this benchmark cannot realistically reach their export potential through a loosening of domestic regulation alone.

The graphs indicate that most of the countries we are focusing on would have to reduce their levels of domestic regulation below the UK benchmark in the 2003-2005 period in order to reach their services export potential. This indicates that domestic regulation, while shown to reduce trade in some services sectors, cannot be regarded as the main determinant of underperformance: even if the underperformers in our sample were to reduce their level of domestic regulation to match the UK's, they would still fall short of their potential. This suggests that other structural policies, perhaps linked to the tax system, human capital, or the size distribution of firms may play a more prominent role in unleashing services export potential. Industrial restructuring would presumably also add to a stronger performance of the service sector in trade for countries like Poland and the Czech Republic.

¹⁶ The picture is similar for Other Business Services (268), where the coefficient on the OECD regulation indicator is significant at the 11 percent level.



6. Conclusions

This paper estimates export potentials in services for several European economies. Since ultimately our interest is in European economies' competitiveness in services as a whole and in various disaggregated services subsectors, we focus on the export side.¹⁷ More specifically, we analyse to which extent individual European economies are exploiting their export potential, after taking into account geographic, economic and regulatory characteristics.

Our empirical analysis is based on the gravity model, which is widely used to analyse trade in goods, and has more recently been applied to services trade. According to this approach, the determinants of bilateral trade flows can be separated into origin-specific, destination-specific and bilateral-specific components. GDP per capita, country size, institutional factors and overall trade orientation are among the variables that capture origin- and destination-specific characteristics; distance, common language and adjacency capture the bilateral-specific components. We define a country's export potential as the value of exports predicted by these observable factors and describe a straightforward two-stage estimation procedure to obtain it. Upward or downward deviation from this export potential gauges the extent to which countries over- or underperform with respect to potential.

We apply our estimation procedure to a sample of European economies' services exports. In particular, we focus on the four largest European services exporters (UK, Germany, France and the Netherlands) and three new member states (Czech Republic, Hungary and Poland). Our analysis reveals the existence of substantial unexploited export potential for Germany, France, the Czech Republic and Poland. The UK and the Netherlands emerge as over-performers with respect to their potential. Among the new members, also Hungary performs well in commercial services. While most countries export more travel services than the model would predict, the untapped potential is often particularly large in commercial services. This is especially true for the new members (with some exceptions), which display a relatively weak performance in activities such as communication services, insurance services and other business services.

Having identified opportunities for improving Germany's, France's and the new members' trade performance in commercial services, we proceed to evaluate the influence of a given country's regulatory environment at large. According to our estimates, regulatory reform would indeed boost exports to a certain extent – notably in other commercial services – but such reforms must be accompanied by other measures if the underperforming countries were to fully exploit their export potential. In particular we suggest that details of the tax

¹⁷ Analysing the import side would be less compelling for our purposes here. However, future research may analyse the import side to obtain quantitative measures of unobserved barriers to services imports.

system, the non-availability of a skilled services workforce and small business size may act as impediments to export performance. The latter may be of particular relevance for the insurance sector, as well as other service activities such as consulting, where three global players more or less dominate. This issue may also apply to the transportation sector, while we expect deficits in price competitiveness to play a stronger role here. For certain sectors (such as computer and information services; communication services), the average skill level and other more qualitative attributes may play a fundamental role in shaping a country's services trade performance. In order to better understand the main obstacles preventing underperforming countries from reaching their full export potential in commercial services, additional research at a more detailed level of disaggregation is warranted.

Since commercial services represent the most dynamic category of global trade in services, it seems pressing to identify these factors in order to improve European economies' performance in this sector. In the medium run, some European (in particular Southern and Eastern European) economies may also benefit from bolstering traditional service activities such as travel and transportation. However, allocating resources to further the expansion of these traditional services must be done without compromising the growth of producer services. While legal and regulatory impediments seem to be limiting the trade performance in other commercial services to some extent, the crafting of effective policy prescriptions - conducive to sustaining strong growth in services trade - will require a deeper analysis.

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Table A1: Services Trade Aggregates

ITS code	Description
Transportation (205)	Covers all transportation services that are performed by residents of one economy for those of another and that involve the carriage of passengers, the movement of goods (freight), rentals (charters) of carriers with crew, and related supporting and auxiliary services.
Travel (236)	Travel covers primarily the goods and services acquired from an economy by travellers during visits of less than one year to that economy. Travel is divided in two sub-components: <i>Business Travel (code 237)</i> and <i>Personal Travel (code 240)</i> .
Communication services (245)	They comprise <i>Postal and Courier Services (code 246)</i> and <i>Telecommunication Services (code 247)</i> .
Insurance Services (253)	Covers the provision of various types of insurance to non-residents by resident insurance enterprises, and vice versa. These services are estimated or valued by the service charges included in total premiums rather than by the total value of the premiums. It comprises <i>Life insurance and Pension Funding (code 254)</i> , <i>Freight Insurance (code 255)</i> , <i>Other Direct Insurance (code 256)</i> , <i>Reinsurance (code 257)</i> and <i>Auxiliary Services (code 258)</i> to insurance.
Financial Services (260)	Financial services covers financial intermediation and auxiliary services, except those of life insurance enterprises and pension funds (which are included in life insurance and pension funding) and other insurance services that are conducted between residents and non-residents.
Computer and information services (262)	<i>Comprises Computer Services (code 263)</i> (hardware and software-related services and data-processing services) and <i>Information Services (code 264)</i> (<i>News Agency Services, code 889</i> and <i>Other information Provision Services, code 890</i>).
Other business services (268)	<i>Comprises Merchanting and Other Trade-related Services (code 269)</i> , <i>Operational Leasing Services (code 272)</i> and <i>Miscellaneous Business, Professional, and Technical Services (code 273)</i> .
Government services, n.i.e. (291)	Residual category covering government transactions (including those of international organizations) not contained in the other components of EBOPS as defined above.
Other services (981)	All <i>Services (code 200)</i> not included in <i>Transportation (code 205)</i> or <i>Travel (code 236)</i> .
Other Commercial Services	All <i>Services (code 200)</i> except <i>Transportation (code 205)</i> , <i>Travel (code 236)</i> and <i>Government Services (code 291)</i>

Table A2: Deviations from Export Potentials

Country	Period	Total (200)	Other (981)	Transp. (205)	Travel (236)	Comm. (245)	Ins. (253)	Fin. (260)	Comp & Info. (262)	Other Bus. (268)	Other Comm. (984)
Australia	2000-2002	-2,304,745	66,60017	-15,52976	55,09772	-17,42639	-28,21829	12,20453	-51,71515	67,9735	-5,444181
Australia	2003-2005	-27,26988	22,41983	-17,0105	-25,99824	39,39915	-72,73405	-49,28976	-13,28306	17,15741	-9,06778
Austria	2000-2002	4,123747	-77,64687	-66,23883	-11,95975	-84,45464	-56,68466	32,15377	-95,64267	-73,63479	-83,24311
Austria	2003-2005	-25,6184	-81,47339	-66,01766	10,38706	-71,26343	-69,9416	-25,42842	-87,78426	-71,04146	-77,85596
Belgium	2000-2002	48,35835	-16,14591	-29,8113	-	-	-	-	-	-	-
Belgium	2003-2005	48,51877	-19,11851	-13,42357	-	-	-	-	-	-	-
Canada	2000-2002	-16,94929	-32,48705	6,51778	80,18786	-57,73497	-58,4315	-53,76809	-57,72683	-36,87074	-48,34347
Canada	2003-2005	-36,91612	-35,72832	2,051842	14,78662	-37,15472	-72,5789	-58,6179	3,679323	-39,69049	-37,89774
Czech Republic	2000-2002	41,89237	-82,18407	-67,20949	97,39352	-94,65588	-	15,06952	-71,35707	-73,91436	-79,64056
Czech Republic	2003-2005	-56,00587	-84,7741	-69,56159	47,37751	-84,92567	-	-69,15997	-77,44041	-80,18684	-84,36746
Denmark	2000-2002	42,21133	-58,66094	140,599	-51,49375	-	-	-	-	-71,41074	-
Denmark	2003-2005	25,3068	-47,39212	119,8278	-46,17822	-	-	-	-	-64,46069	-
Finland	2000-2002	-78,83539	-71,21834	-79,65916	-51,04801	-85,49213	-	-	-79,40701	-52,41579	-51,11279
Finland	2003-2005	-79,57746	-69,68417	-78,62731	-64,52763	-58,66309	-	-	-13,28812	-3,090268	-24,3785
France	2000-2002	-35,80606	-67,51511	-46,49495	68,47861	-82,65842	-67,15421	-3,65777	-86,44876	-47,73417	-64,73201
France	2003-2005	44,77158	-64,35522	-42,99408	30,60312	-58,62954	-77,81567	-65,92128	-74,42232	-30,84377	-46,50119
Germany	2000-2002	-35,18496	-69,35633	-29,03408	31,61705	-89,43921	-14,78553	59,95422	-39,59501	-64,91306	-70,12469
Germany	2003-2005	-34,96959	-65,08873	-15,12013	33,7099	-73,67741	-45,18508	-22,19076	63,56483	-53,64088	-51,88196
Grand Britain	2000-2002	28,22908	-26,82511	-21,66642	78,31873	-	438,2629	-	-	-	-8,198601
Grand Britain	2003-2005	25,72751	-21,06717	-7,398587	116,8586	-	485,7163	-	-	-	57,66716
Greece	2000-2002	4,258328	-74,09725	-74,53574	63,92654	-84,84755	-76,33005	-	-80,67027	-90,45322	-
Greece	2003-2005	7,828176	-79,63335	-56,70852	126,7257	-77,91071	-80,56264	-	-82,20479	-89,37167	-
Hungary	2000-2002	-67,02859	-70,97456	-69,65608	25,98014	-86,87633	-	148,6819	-53,38034	-80,83579	-75,11622
Hungary	2003-2005	44,78632	-59,73147	-64,92236	-6,652534	-76,90334	-	48,87057	-45,85646	-49,26756	5,937934
Iceland	2000-2002	57,56003	-74,49609	26,57355	81,22919	-58,53847	-	-	-	-32,96233	-70,37862
Iceland	2003-2005	22,11379	-40,21391	26,52274	87,82629	-8,590585	-	-	-	-38,01772	-37,96359
Ireland	2000-2002	-37,15658	0,1328468	-51,57073	5,058098	-83,53766	277,6966	603,5201	-	-56,85104	-
Ireland	2003-2005	-22,79029	58,87901	-62,85474	5,5547	-58,73848	95,87608	547,7128	-	32,66446	-
Italy	2000-2002	-58,05829	-89,01919	-74,98944	85,60066	-81,37555	-73,77952	-71,65588	-95,35217	-85,63712	-90,9276
Italy	2003-2005	-64,01072	-89,94865	-71,13343	32,63762	-61,94118	-87,40878	-67,02995	-91,38996	-80,04191	-87,06935

Table A2 (continued): Deviations from Export Potentials

Country	Period	Total (200)	Other (981)	Transp. (205)	Travel (236)	Comm. (245)	Ins. (253)	Fin. (260)	Comp & Info. (262)	Other Bus. (268)	Other Comm. (984)
Japan	2000-2002	-51.81062	-77.15905	-33.01851	-52.9085	-90.05495	-88.8264	15.74527	-92.80085	-84.46038	-84.10918
Japan	2003-2005	-47.9324	-67.91126	-29.3949	-47.99477	-80.90784	-80.82532	30.57473	-76.73755	-72.15398	-68.54287
Korea	2000-2002	-28.81603	-65.76923	109.8916	-62.65023	-92.01254	-88.2562	-65.39584	-89.88685	-49.34283	-64.68739
Korea	2003-2005	-19.6629	-58.95126	113.6819	-63.54919	-86.77418	-91.17708	-58.96153	-87.3827	-46.01144	-42.81973
Luxembourg	2000-2002	-41.70449	113.2977	-15.0225	-	-	-	-	-	-	-
Luxembourg	2003-2005	-28.12085	194.2835	-1.447755	-	-	-	-	-	-	-
Mexico	2000-2002	-57.08702	-61.86161	-58.19453	-26.25644	-92.21697	-71.91145	-	-73.7325	-71.36517	-80.24475
Mexico	2003-2005	-52.74365	-65.56564	-64.77979	-19.62881	-75.82166	-86.3079	-	-22.16948	-73.12841	-83.35564
Netherlands	2000-2002	74.3047	-33.98298	48.88489	39.12293	-57.72282	-90.29187	20.63413	-79.58228	-4.69722	-35.86829
Netherlands	2003-2005	161.7468	33.90156	75.73483	72.04392	90.68398	-77.95654	34.02851	32.72513	110.6617	124.1725
New Zealand	2000-2002	32.24823	44.61673	40.61135	18.77613	-17.84865	-	-	-	27.64608	-19.8409
New Zealand	2003-2005	2.511609	10.02841	10.4708	0.7094741	35.56625	-	-	-	-1.228708	-25.76539
Norway	2000-2002	-50.5277	-82.18409	-8.990664	-47.83642	-75.34951	-79.27676	-66.07739	-27.61225	-59.16002	-74.53019
Norway	2003-2005	-55.75729	-77.90833	-18.07461	-50.5098	-49.07573	-88.25076	-34.11099	21.15809	-49.02831	-57.94903
Poland	2000-2002	-67.28292	-89.30103	-54.45785	-58.88482	-	-	-	-	-	-
Poland	2003-2005	-59.13577	-85.37584	-48.36228	-49.00492	-	-	-	-	-	-
Portugal	2000-2002	-66.37611	-87.82025	-26.37758	-6.41405	-61.40416	-86.1543	61.6559	-92.08334	-72.8332	-73.12677
Portugal	2003-2005	-70.15451	-85.66634	-28.00351	-44.50557	-5.750113	-85.47873	-61.16417	-87.62225	-52.40454	-48.67588
Slovakia	2000-2002	-59.76743	-79.92546	-49.83078	-17.34076	-	-	-	-	-	-
Slovakia	2003-2005	-51.21762	-75.58526	-33.1687	-5.519438	-	-	-	-	-	-
Spain	2000-2002	-31.68052	-80.20965	-48.92098	93.9804	-	-	-	-	-	-
Spain	2003-2005	-45.24512	-81.35777	-52.69929	59.02038	-	-	-	-	-84.38802	-
Sweden	2000-2002	-44.40114	-45.50226	-69.37051	-13.76686	-73.18742	-61.69444	-	-	-86.02278	-
Sweden	2003-2005	-47.97718	-43.64322	-73.33631	-31.38111	12.75543	-71.28985	30.12807	-13.1446	-49.80354	-46.51882
Switzerland	2000-2002	17.47497	-46.51604	5.070674	23.12907	-70.2002	-16.29254	-3.740501	83.29553	-49.72424	-0.3082633
Switzerland	2003-2005	14.54736	-34.46283	-10.68066	-6.77737	-0.4536808	-6.827325	12.43293	18.16129	8.634985	3.909147
Turkey	2000-2002	-16.95714	-73.72353	-41.29658	45.06006	-79.01012	-80.18044	85.52723	-68.35162	21.95757	48.66383
Turkey	2003-2005	-26.35356	-78.40022	-34.36147	11.27733	-46.18186	-82.94255	37.32804	8.702183	-59.17076	-68.85313
United States	2000-2002	49.24701	45.85688	-4.192686	39.89997	-8.982695	26.82691	366.4107	64.35399	27.99102	-3.423601
United States	2003-2005	19.59487	54.11626	-15.17164	-8.053308	83.99955	4.977179	372.3573	239.3123	34.76865	14.16024

Note: Deviations do not sum to 0 because export potential calculated at value of OECD regulation indicator for Great Britain.