Macroeconomic Effects of the Services Directive

by

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I.   Introduction

Making the Single Market more dynamic has been identified as one of the top priorities to improve the EU's growth performance.[1] In contrast to manufacturing industries, where the Single Market appears to be working quite well[2], an assessment by the European Commission[3] on the state of the internal market for services has identified a large gap between the vision of an integrated European economy and reality in service industries. There are still many impediments to the free movement of services in the EU. Particularly for small and medium-sized enterprises, the bulk of service providers, entry barriers in new EU markets are often prohibitive. With the Directive on Services in the Internal Market (SD) the European Parliament and the Council aim at removing the remaining barriers in this area to enable firms to exploit the full potential of cross-border services. This would be an important step forward in bringing the EU closer to its Lisbon targets.

Previous studies suggest sizeable macro-economic effects of the services directive in its original version (henceforth Draft Services Directive, (DSD 2004). Kox et al.[4] econometrically estimate the implications of the SD for the cross-border provision of services; their results suggest that (in the service industries investigated) intra-EU trade would increase by some 44 percent and intra-EU FDI by some 26 percent. Copenhagen Economics[5] simulates the effects of the SD using a computable general equilibrium (CGE) model, assuming a reduction in tariff equivalents to the obstacles to cross-border provision of services (estimated in a first step). Their

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[1] *Sapir et al.* (2004).
[2] *Badinger* (2006).
[3] *European Commission* (2002).
[4] *Kox et al.* (2004/2005).
[5] *Copenhagen Economics* (2005a).

simulations suggest an increase in employment by around 600,000 persons and an increase in activity (value added) by some 1.1 percent.

This study supplements previous studies, using a simple econometric approach to estimate the economic effects of the SD through two channels: (i) the *trade channel* via the principle of "Free movement of services", and (ii) the *FDI channel* via the principle of "Freedom of Establishment for service providers". For both channels we deduce its implications for the macro-economic performance, i.e. for productivity, employment, value added, investment and GDP. According to our calculations the finally agreed upon version of the Services Directive (henceforth SD 2006) could raise employment by 400,000 in the EU-25 and increase real GDP by around one percent in the medium to long run.

The remainder of this paper is organised as follows: Section II outlines the main transmission channels via which the SD is supposed to contribute to the Lisbon goal of more jobs and growth. Section III reports on previous studies by four European research groups on this topic. Section IV presents the own econometric estimates of the trade channel of the SD. Section V does the same for the FDI channel. In Section VI we evaluate the implications of the changes from DSD 2004 to SD 2006. The final Section VII summarises the results and outlines some policy conclusions.

II.   The Services Directive and its Macro-economic Implications

Extending the (functioning of the) Single Market to service industries by implementing the four freedoms has no direct effects on growth and employment, but it is supposed to generate its effects mainly via an increase in trade, FDI and competition[6].

Figure 1 illustrates the main channels through which the Single Market may contribute indirectly to an improvement of macro-economic performance. The abolishment of non-tariff barriers (reduction of administrative hurdles via implementing the SD 2006)

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[6] For a more detailed discussion of the transmission channels of the Single Market and the effects on macro-economic performance, see *Griffith* and *Harrison* (2004), *Nicodème* and *Sauner-Leroy* (2004), and *OECD* (2003).

leads to an increase in *intra-EU trade* (a consequence of a better exploitation of the "Free movement of services" principle) and an easier market access for foreign (EU) firms and therefore more *FDI* (a consequence of the "Freedom of establishment for service providers").

Apart from increasing competition, more trade is supposed to raise productivity mainly through three channels: the exploitation of economies of scale as a result of larger markets, international specialisation according to comparative advantages, and its contribution to the international diffusion of technology and knowledge.[7] This is the first transmission channel we will investigate. A related channel involving similar mechanisms is foreign direct investment (FDI). The effects of FDI are investigated separately.

More trade also implies more competition via the famous "pro-competitive effect" of free trade proposed by Bhagwati.[8] Whether more FDI leads to more competition as well is an open question.
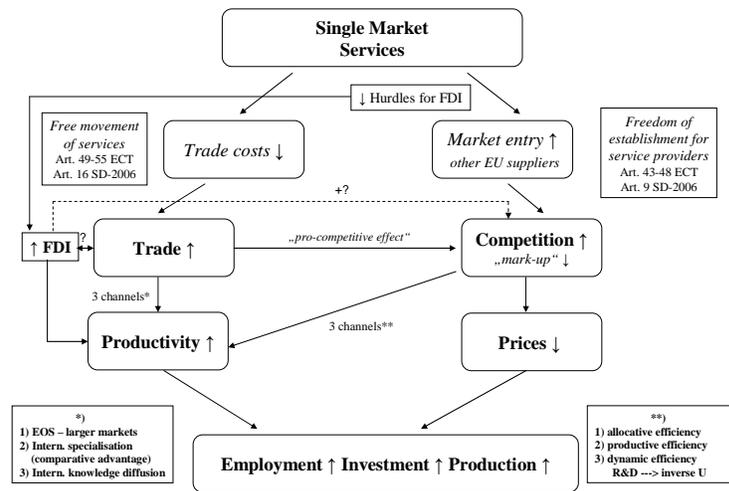

Figure 1: The Services Directive and its Macro-economic Implications

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[7] See *Frankel* and *Romer* (1999).

[8] *Bhagwati* (1965).

Competition, in turn, increases productivity by bringing prices more in line with marginal costs, which reduces distortions of the price mechanism and enables a more efficient allocation of resources and higher productivity of the factors capital and labour (allocative efficiency); higher competitive pressure also increases the incentives for the management to organise work more efficiently and to reduce slack, as well as potential gains from exploiting increasing returns to scale as market size increases (productive efficiency). Finally, competition might also raise dynamic efficiency by increasing incentives for R&D activities and innovations and thereby boosting technological progress and growth of total factor productivity.[9] FDI is also supposed to lead to more productivity as well. This can be documented in particular in the transformation countries of Eastern Europe before they entered the EU.

An increase in competition will also reduce prices for two reasons: first, marginal costs go down as a result of higher productivity. Second, as a consequence of diminished market power, firms' mark-ups over marginal costs decrease as well. This reduction in prices increases the demand for services and thus also output. Whether the demand for production factors (employment and investment) ultimately increases, too, is a question that has to be answered empirically; it is conceivable that the growing demand for services can be met with a given (or even with a smaller) input of production factors as a result of the original increase in productivity.[10]

III.   The Services Directive: Results of 4 Research Groups

Most studies on the effects of the Single Market focus on manufacturing, and here in turn often only on selected industries where strong effects of the Single Market were to be expected. To

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[9] Recently, it has been suggested that there might be an inverse U-shaped relationship between competition and innovation (*Aghion et al.*, 2005), i.e. there could be an optimal degree of competition between too little and too much competition.

[10] In a recent paper, *Nordhaus* (2005) shows that - in contrast to widely held views - the increase in productivity in US manufacturing has rather mitigated than caused the large reduction in employment in manufacturing, whose primary cause turns out to be the increase in productivity and decline in prices of international competitors.

date, there are results of four research groups in Europe on the economic impact of the SD (see table 1). One has to take into account, however, that the results of all these studies refer to the original proposal for a Services Directive by the European Commission in 2004[11] (DSD 2004) as compared to the final version of the directive (SD 2006).

(1) One of the first and most comprehensive studies – a first version already in 2004, the final version in 2005 - was that by Copenhagen Economics[12]. In a first step it made a survey on the administrative hurdles (regulatory barriers) hindering the full working of the single market for services along the lines of the documentation of administrative barriers carried out by the European Commission[13]. After translating these answers into an Internal Market Restrictiveness Index in Services (IMRIS) and aggregating it into seven sub indices (establishment, use of inputs, promotion, distribution, sales, after sales and non-legal) an econometric analysis studied two types of impact: rent creation and cost-creation. Both effects lead to higher prices, whereas the first results in higher profits and the latter in higher costs. Then these effects are converted into tariff equivalents and the consequences of the reduction of the IMRIS when implementing the DSD 2004 are simulated with a static computable general equilibrium (CGE) model (called GETEM) with imperfect competition covering all 25 EU Member States (EU-25). The most striking result that has received most attention is that the model predicts an economy-wide increase in employment by 0.3 percent that is 600,000 new jobs. Employment in services industries is predicted to go up by 0.5 percent and value added by 1.1 percent in the medium to the long run. Welfare (measured by private consumption) increases by € 37 billion or +0.6%. The elimination of the country of origin principle (CoOP) – estimated by Copenhagen Economics[14] in a special study for the UK government – would lower the effects by 10 percent.

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[11] *European Commission* (2004).
[12] *Copenhagen Economics* (2005a).
[13] *European Commission* (2002).
[14] *Copenhagen Economics* (2005b).

Table 1: Macroeconomic Effects of the Liberalization of the Services Market according to the DSD 2004: Results of 4 Research Groups for EU-25

Research groups (Methods)	Real GDP % (welfare)	Employ-ment % (persons)	Intra-EU trade in services %	Intra-EU FDI %
(1) *Copenhagen Economics* (2005a; 2005b) (CGE model - GETM)	+0.6 *) (€37 billion) (without CoOP: -10%)	+0.3 (600,000) (without CoOP: -10%)	+5.0	-
(2) *O'Toole* (2005), Dublin (CGE model GTAP)	+0.5 (€44 billion)	-	-	-
(3) *CPB*, The Hague (3a) *Kox et al.* (2004/2005) (Gravity models: trade, FDI) (3b) *Gelauff* and *Lejour* (2006) (WorldScan model: "5 Lisbon highlights") (3c) *Bruijn et al.* (2006) (WorldScan model)	- +0.2 +0.3 - +0.7 (without CoOP: +0.2 - +0.4	- 0.0 0.0	+30 - +60 (∅+44) +30.0 (+1.7% total EU trade) 30-60 (without CoOP: +20 - +40)	+20 - +35 (∅+26) - - -
(4) *Breuss-Badinger*, EI, Vienna (2006) (Cross-section and panel econometrics)	+0.7 (€74 billion 2005 PPS)	+0.3 (408,000-816,000; ∅612.000)	Taken from CPB (2004/2005)	-

*) Refers to private consumption; CPB = Netherlands Bureau for Economic Policy Analysis; CoOP = country of origin principle; EI = Europainstitut at the Vienna University of Economics and Business Administration.

(2) Also by applying a CGE model (GTAP model) *O'Toole*[15] reaches nearly the same welfare effects of the implementation of the DSD 2004, namely € 44 billion or +0.5%. However, in this static CGE model with perfect competition and fixed labour supply there are no overall employment effects due to the implementation of the DSD 2004.

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[15] *O' Toole* (2005).

(3) In several studies in the years 2004 to 2006, the *CPB* (Centraal Planbureau - Netherlands Bureau for Economic Policy Analysis, The Hague) studied the impact of existing administrative hurdles in the EU Member States on the cross-border provision of services.

(3a) The core argument in the analysis of Kox et al.[16] is that it is not only the degree of regulation in service industries, but also the heterogeneity of regulations across EU countries that hampers the free movement of services within the EU. Building on previous work by the OECD[17], Kox et al. develop an index for the policy-heterogeneity of regulation in service industries (with sub-indices), based on a bilateral comparison of 183 aspects of market regulation; they calculate that implementing of the DSD 2004 would reduce total EU policy heterogeneity by approximately 1/3 (see *table 2*).

Table 2: Expected Impacts of Proposed EU Measures in the SD on Intra-EU Policy Heterogeneity

Sub-index	Reduction
Regulatory and administrative opacity	66-77%
Explicit barriers to trade and investment	73-78%
Administrative burdens on start-ups	34-46%
Barriers to competition	29-37%
State control	3-6%
Overall heterogeneity indicator	31-38%

Source: *Kox et al.* (2004/2005, p. 32)

Subsequently, Kox et al. estimate the effects of regulatory heterogeneity on bilateral intra-EU trade in services and intra-EU FDI in services. For trade, they use a gravity model, the standard approach to estimating trade potentials; for FDI, the gravity model is slightly modified in line with the knowledge-capital model[18]. The indices of regulatory heterogeneity are used as explanatory variables in both models; then the effects of the SD's implementation are simulated using the (significant) parameter

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[16] *Kox et al.* (2004/2005).
[17] Particularly, *Nicoletti et al. (*2000) and *Golub* (2003).
[18] *Markusen* (2002).

estimates and the expected reduction of the respective indices. The sample comprises bilateral trade flows of the 14 old EU countries (Belgium and Luxembourg are aggregated) for the years 1999-2001. In the investigation of bilateral FDI stocks, three new Member States are also contained in the sample (Czech Republic, Hungary, and Poland), but here only the years 1998 and 1999 are considered. Kox et al. take the commercial services sector as an aggregate, where only those sectors are covered that are affected by the SD ("transport" and "travel", which together make up some 50 percent of total trade in services are excluded).

According to the results of the latest version of the study, the implementation of the SD would have the following effects: (1) Intra-EU trade in services increases by 44 percent (range: 30-62 percent with an average of +44 percent),[19] and (2) Intra-EU FDI in services increase by 26 percent (range: 18-36 percent with an average of +26 percent). The trade results are of similar magnitude in later CPB studies by Gelauff and Lejour and by Bruijn et al.[20]

(3b) Gelauff and Lejour with the Worldscan model of CPB – a static general equilibrium world model covering 19 EU countries explicitly, the Rest EU, USA, Rest OECD, Non-OECD and 12 sectors four of which are service sectors (transport services, other commercial services, research and development and other services) - study "Five Lisbon highlights" (the internal market for services, the reduction of administrative burdens, goals on improving human capital, the 3% target on research and development expenditures, and 70% target on the employment rate). The implementation of the DSD 2004 leads to an increase in real GDP in 2025 of cumulative 0.2 percentage points for the EU (+0.4 percent for Austria). The overall employment effect is zero in this static CGE model. However, there are some reallocations between the 12 sectors used

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[19] Intra-EU trade covers approximately half of total trade in services. Consequently, the estimated effect on total trade in services is half of the effects given above. In terms of total intra-EU trade (including goods), the estimated effect corresponds to an increase by 2 to 5 percent. Out of total trade (goods and services) of the EU, only 20 percent consists of *trade in services*. The structure of trade in services (data as of 2003) is as follows: 33% is tourism/travel, 31% business services, 18% is transport, 10% financial services, 3% telecommunication, 2% each is construction and government services and 1% is private services.

[20] *Gelauff* and *Lejour* (2006), *Bruijn et al.* (2006).

in the model (with negative employment effects in the sector "other commercial services").

(3c) Bruijn et al.[21], also using the Worldscan model, study the implications of the DSD 2004 (inclusive CoOP) and the SD 2006 (excluding the CoOP). In the original version the SD would result in an increase of real GDP in 2025 of +0.3 to 0.7 percentage points (again with zero overall employment effects). Excluding the CoOP would reduce the effects by 1/3 to an increase of real GDP of +0.2 to 0.4 percentage points.

(4) In an econometric study by Breuss and Badinger[22] using a cross-section and panel approach, the implementation of the DSD 2004 is estimated to result in the creation of on average 612,000 new jobs and an increase in real GDP by 0.7 percent. These effects - as all those of the other studies - apply only in the medium to the long-run. The methodology and the results of this study are explained in the following sections.

IV.   Econometric Estimation of the Trade Channel Effects of the Services Directive

The following sections describe the empirical analysis, the data used, the econometric methodology applied and the simulations of the macro-economic impact of an implementation of the SD. The results are based on Breuss and Badinger (2006) and hence rely on the impact of the DSD 2004. Finally, we make an evaluation how much the change from the country of origin principle (CoOP) to the country of destination principle (CoDP) – as drafted in the SD 2006 - might influence the overall results.[23]

A.   The Implications for Competition and Productivity

1.   Data Sources and Country Coverage

Our data set draws on several sources. Data except those on trade were taken and derived from the *60-Industry Database* of the Groningen Growth and Development Centre (GGDC, 2005) as well as from the *Structural Analysis (STAN) Database* of the OECD. The latter source was particularly important for obtaining

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[21] *Bruijn et al.* (2006).
[22] *Breuss and Badinger* (2006).
[23] For a detailed discussion of the changes from a legal perspective the see contribution by Griller and Maydell to this volume (chapter XXX).

investment data needed to calculate investment ratios, capital stocks (and to derive estimates for mark-ups). Trade data were taken exclusively from the *Statistics on International Trade in Services* database of the OECD.

As far as country coverage is concerned, our initial approach was to use the EU-25, of course; it turned out, however, that even four of the EU-15 countries had to be excluded due to missing data (Denmark, Luxembourg, Ireland, and Portugal). For several specifications, particularly those requiring data on mark-ups, the cross-section dimension had to be further reduced since not all countries have data for real investment in all industries considered.[24] Nevertheless, the coverage is large enough to regard our results as representative, at least for the EU-15, and to a smaller extent for the EU-25 as well. As control countries and to add observations, we also included Norway and the USA, two further OECD countries for which sufficient data were available. We checked the sensitivity of the results, when these two non-EU countries were excluded or when country dummies for the USA and Norway were used, and found that their inclusion makes no important difference to the results.

2. Industry Classification and Coverage of the Services Directive

We use the most detailed classification of service industries which our data sources permit. Restrictions are placed by all sources, also since the industry classifications used by the STAN and the GGDC data (International Standard of Industrial Classification) are not exactly the same as the one used in the OECD Statistics on International Trade in Services (Extended Balance of Payments Services Classification). Fortunately, the correspondences[25] turned out to be close enough to obtain a reasonable sub-classification of the service sector into 13 detailed service industries.

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[24] This is particularly true for Belgium, Spain, Italy, Sweden and the United Kingdom.

[25] See *UN* (2002).

Table 3: Composition of EU-15's Total Value Added (VA) and Employment (EMP) in 2002

	ISIC Rev3	VA (million euro)	EMP (1000)	VA (percent of total)	EMP (percent of total)
TOTAL (ALL INDUSTRIES)	**01-99**	**9,233,547**	**170,059**	**100**	**100**
Agriculture, forestry, fishing	01,02,05	146,731	6,993	1.59	4.11
Mining and quarrying	10-14	76,925	368	0.83	0.22
Manufacturing	15-37	1,707,667	29,409	18.49	17.29
Electricity, gas and water supply	40-41	191,940	1,017	2.08	0.60
Total services	45-99	7,110,284	132,272	77.00	77.78
Total services	**45-99**	**7,110,284**	**132,272**	**77.00**	**77.78**
Service industries included in estimation	**45-749**	**5,006,293**	**81,730**	**54.22**	**48.06**
Construction	SI01 45	561,000	11,803	6.08	6.94
Sale, maintenance and repair of motor vehicles and motorcycles; retail sale of automotive fuel	SI02 50	166,110	3,786	1.80	2.23
Wholesale trade and commission trade, except motor vehicles and motorcycles	SI02 51	424,100	7,430	4.59	4.37
Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	SI02 52	425,910	14,920	4.61	8.77
Hotels & restaurants	SI03 55	256,440	8,275	2.78	4.87
Inland transport	SI04 60	202,410	4,460	2.19	2.62
Water transport	SI04 61	21,465	182	0.23	0.11
Air transport	SI05 62	39,098	388	0.42	0.23

Table 3 (continued): Composition of EU-15's Total Value Added (VA) and Employment (EMP) in 2002

(Supporting and auxiliary transport activities; activities of travel agencies)		63	135,580	2,094	1.47	1.23
Communications	SI06	64	259,080	2,645	2.81	1.56
Financial intermediation, except insurance and pension funding	SI07	65	333,090	3,284	3.61	1.93
Insurance and pension funding, except, compulsory social security	SI08	66	77,841	983	0.84	0.58
(Activities auxiliary to financial intermediation)		67	65,285	1,157	0.71	0.68
Real estate activities	SI13	70	928,360	1,713	10.05	1.01
Renting of machinery and equipment	SI09	71	110,360	531	1.20	0.31
Computer and related activities	SI10	72	185,330	2,299	2.01	1.35
Research and development	SI11	73	39,814	690	0.43	0.41
Legal, technical and advertising	SI12	741-3	469,550	6,628	5.09	3.90
Other business activities, nec	SI12	749	305,470	8,462	3.31	4.98
Service industries excl. from estimation		**75-99**	**2,103,991**	**50,542**	**22.79**	**29.72**
Public administration and defence; compulsory social security		75	601,680	11,915	6.52	7.01
Education		80	472,420	11,051	5.12	6.50
Health and social work		85	613,320	15,509	6.64	9.12
Other community, social and personal services		90-93	359,200	8,440	3.89	4.96
Private households with employed persons		95	57,371	3,627	0.62	2.13
Extra-territorial organisations and bodies		99	0	0	0.00	0.00

VA … value added at current prices, EMP … total persons engaged. Source: Groningen Growth and Development Centre, 60-Industry Database, February 2005. Industries in parentheses are not included in our samples due to lack of data and correspondence with other data sources.

Table 3 gives a detailed overview of the composition of the EU-15's value added and employment by industry. Total services constitute 77 percent of value added or 78 percent of total employment. It should be added, however, that several service industries are not considered to be covered by the SD: these are typical non-market or government provided services (such as public administration, public defence, health and social work, etc.). Together these industries make up 23 percent of total value added (or 30 percent of total employment), leaving service industries totalling 54 percent of total value added (or 48 percent in terms of total employment) to be potentially covered by the SD. These industries, referred to as SI01 to SI13, constitute our most comprehensive sample.[26]

From this sample, however, not all industries will be covered. First, transport (SI04, SI05) is excluded from the SD; the same is true for financial services (SI07, SI08). We also exclude travel (SI03) (though it is largely covered by the SD) for two reasons: first, to make our sample as consistent as possible with the Kox et al.[27] study that excludes travel from the estimates (which we will use in the simulation); second, travel turns out to be an outlier in the sense that results change significantly when it is added to the sample. (The relevance of the sample choice will be discussed in greater detail below). Communication (SI06), which includes telecommunication and construction (SI01) are partly excluded from the SD.

When the study by Breuss and Badinger (2006) was carried out it was uncertain how the revision of the DSD 2004 would result in a narrowing of the coverage of sectors.[28] This uncertainty was handled by applying the "LEGO approach", that means starting from the most comprehensive sample including all industries, and then excluding, step by step, industries which are not covered (or not fully covered) by the SD until a sample remains which closely

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[26] For reasons of data availability two industries are not contained in our samples (supporting and auxiliary transport activities; activities of travel agencies as well as activities auxiliary to financial intermediation); together, they account for 2.18 percent of total value added.

[27] *Kox et al.* (2004/2005).

[28] See *Vogt* (2005) for an early discussion.

coincides with the SD 2006. The final industry classification and the samples used are given in *table 4*.

To give some impression of the relevance of the respective samples, *table 2* shows the corresponding shares of the services industries contained in the samples in total value added and total employment. While we will use the "LEGO approach" and carry out the estimation for all samples, sample D, which is closest to both the study by Kox et al. and the coverage of the SD, is our preferred sample.

Table 4: Overview of Final Industry Classification and Samples Used in Estimation

(a) Detailed industries contained in full sample		Value added	Employment
		Percent of total	
SI01	Construction	6.08	6.94
SI02	Trade and repair	11.00	15.37
SI03	Travel (hotels and restaurants)[1]	2.78	4.87
SI04	Water, land transport, etc.	2.42	2.73
SI05	Air transport	0.42	0.23
SI06	Post and telecommunications	2.81	1.56
SI07	Financial intermediation	3.61	1.93
SI08	Insurance and pension funding	0.84	0.58
SI09	Renting of mach. and equipment	1.20	0.31
SI10	Computer and related activities	2.01	1.35
SI11	Research and development	0.43	0.41
SI12	Other business activities	8.39	8.87
SI13	Real estate activities	10.05	1.01
(b) Samples used in estimation			
Sample A	All (SI01-SI13)	52.04	46.15
Sample B	A, excl. transport (SI04,SI05)	49.20	43.19
Sample C	B, excl. financial services (SI07,08)	44.74	40.68
Sample D	C, excl. travel (SI03)	41.97	35.82
Sample Da	D, excl. construction (SI01)	35.89	28.87
Sample Db	D, excl. communication (SI06)	39.16	34.26

Data refer to EU-15 and the year 2002. Sources: GGDC-60 industry database (see table 2). Sample A does not include the industries in parentheses from table 2. [1] For SI03 ("Travel") no perfect correspondence could be achieved: trade data for SI03 include both hotels and restaurants as well as travel agencies, whereas SI03 for the other variables covers only hotels and restaurants (since activities of travel agencies and tour operators are only available aggregated with transport activities, and cannot be allocated accordingly).

3. Methodological Issues

Our empirical analysis can be divided into three classes of empirical models which are all similar in their structure and motivated by the transmission channels of the SD illustrated in *figure 1*:

First, we explain *competition* (measured as mark-up ratio, i.e. the ratio of prices over marginal costs[29]) by domestic market size (in terms of population) and trade (more precisely, the ratio of imports to production) to figure out the likely "pro-competitive effect" of the increase in trade triggered by the SD:

$$Markup_{ik} = \mu_k + \varphi \ln m_{ik} + \tau \ln Pop_i + u_{ik}. \qquad (1)$$

Markup$_{ik}$ is related to trade, measured as ratio of imports to production (*m*) and country size, measured by population (*Pop*); *i* (*k*) refers to country (service industry). Obviously, imports are endogenous in (1), e.g. as a results of reverse causality. High mark-ups may act as signals for profit opportunities and thus attract foreign competitors. We use the geographical share of the import ratio to instrument for imports in (1) as constructed in Badinger and Breuss (2005) – using a gravity model approach - to get a robustness check and to ensure that our least squares results are not driven by endogeneity (see below for a more detailed discussion).

Our second group of models investigates the link between *productivity* (measured in terms of value added per hour worked) and domestic market size and trade. This should help us to assess the first important channel of the SD, the direct effects of trade on productivity. The basic specification used is similar to the study by Frankel and Romer[30] who, however, use aggregate data and a large sample of countries. As far as the direct effects of *trade on productivity* are concerned, the results are disappointing. In contrast to aggregate estimates as in Frankel and Romer and industry

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[29] We calculate the country- and industry specific mark-up (*Markup$_{ik}$)* as the ratio of value added to the sum of capital costs and labour compensation according to: $Markup_{ik} = VA_{ik}^{nom} / (W_{ik} + K_{ik}R_{ik})$; where VA_{ik}^{nom} is nominal value added, W_{ik} is labour compensation (both taken from OECD STAN Database), and $K_{ik}R_{ik}$ is the capital stock times the user costs of capital.

[30] *Frankel* and *Romer* (1999).

estimates for manufacturing in Badinger and Breuss[31], we do not obtain a direct effect of trade on productivity for any of the samples of service industries considered[32]. Therefore this (direct) channel is omitted from our analysis. Instead we consider the indirect channel from competition to productivity, using:

$$\ln Prod_{ik} = \mu_k + \delta Markup_{ik} + \tau \ln Pop_i + u_{ik} . \qquad (2)$$

Productivity (*Prod*) measured by output per hour worked is related to competition (*Markup*) and market size (*Pop*).

The third group of models tries to examine the relation between *economic performance* (productivity, employment, investment) and market size and competition. These models are similar in spirit to the approach taken by Griffith and Harrison (2004) and follow the equation:

$$Perform_{ik} = \mu_k + \delta Markup_{ik} + \tau \ln Pop_i + u_{ik} . \qquad (3)$$

Perform (macro-economic performance) is identified by three macro-economic variables: (i) Productivity (Prod), (ii) Employment (L), and (iii) Investment (sk = investment ratio).

Endogeneity is likely to be a problem in all models: trade is endogenous with respect to productivity and competition, and competition is likely to be endogenous with respect to performance (particularly productivity). Previous studies with similar specifications suggest that least squares estimates are not far off (or often tend to underestimate the effects). Nevertheless, we check the robustness of the results using instrumental variable (IV) techniques, thereby exploiting the exogeneity of geography.[33] The

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[31] *Badinger* and *Breuss* (2005).

[32] In a more recent attempt, *Badinger* and *Breuss* (2006) found a relationship between aggregate trade in services and productivity at the country level.

[33] In particular, we use the fact that aggregate "proximity" of a country and industry is an important determinant of both trade and competition (through trade and threat of entry). Ideally, these proximity measures would be constructed from (industry-specific) geographical trade shares calculated from the estimates of bilateral gravity models including geographical variables only (as suggested by *Frankel* and *Romer*, 1999). Such an approach was chosen in a similar setting for manufacturing industries by *Badinger* and *Breuss* (2005). For service industries at the level of disaggregation used here, however, bilateral trade data are not available; hence, we use an auxiliary approach and construct the instruments for trade and competition for a sample of

basic message of this exercise is that the least squares estimates are not misleading.

We use *two approaches*: a *cross-section approach* referring to averages of the period 1995-2000, and a *panel approach* covering the period 1978-2002. The advantage of the cross-section approach is that it refers to more actual data and that geography-based (i.e. time-invariant) instruments can be used to address endogeneity concerns. Here, the advantage of the panel estimates lies in the use of much more observations; a disadvantage is that we are forced to rely on the least squares estimates; this is not too much of a problem, however, in light of the small differences between the least squares and the IV results in the cross-section analysis.

4. Estimation Results

As to the industry dimension, we always start from the most comprehensive sample A, including all industries, and then, step by step, exclude industries not covered by the SD until we arrive at sample D. The results in *table A1* in the appendix report only the results for the preferred sample D.

As we did not find a significant direct relationship between trade and productivity for service sectors we endorse the indirect channel according to equation (1), namely between *competition* and *productivity*. The results are documented for Sample D in *table A1* in the appendix (the last three columns).

Regarding the relationship between *competition* and *economic performance*, results correspond more closely to the theoretical presumptions. *Table A1* in the appendix illustrates some key regression results, referring to sample D. The main results can be summarised as follows:

For our preferred sample D (see *table 4*) we can identify indirect effects of the SD on the economic performance via an increase in competition. We find both economically and statistically significant effects of trade on competition (mark-ups), and of competition on productivity, employment and investment. More trade leads to more competition (lower mark-ups) which is associated with higher productivity as well as higher employment, investment and output.

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services industries from industry-specific proximity measures for manufacturing industries from *Breuss* and *Badinger* (2005).

The IV results of our cross-section estimates tend to be higher than the least squares estimates. While the IV results should be treated with caution since only an auxiliary approach can be used for the construction of instruments, they nevertheless suggest that the least squares estimates are not fundamentally misleading.

The results of the least squares panel estimates are in line with the results from the cross-section models, though the panel results suggest a somewhat smaller magnitude of the effects.

As far as the relevance of the sample choice is concerned, it should be noted that the results are not completely robust for all samples given in *table 3*. As far as transport services are concerned, adding them to sample D hardly affects the results. This is not true for financial services; results are sensitive to adding this industry so that the results for sample D cannot be extended to financial services without qualification.

A further point that deserves some discussion is the exclusion of "travel" from our preferred sample. On principle, travel (including hotels and restaurants, catering, as well as activities of travel agencies and tour operators, tourist assistance activities) is covered by the SD, but we nevertheless excluded it from the estimation for two reasons: first, to make our industry coverage as consistent as possible with the study by Kox et al. who excluded travel as well; second, "travel" (SI03) turned out to be an outlier in the estimation in so far as the results changed significantly when travel was added to the estimation. There is no fully convincing explanation for this phenomenon: particularly pronounced measurement problems in this industry may be one explanation; another issue is that competition in travel industries exhibits several idiosyncratic characteristics (as the role of local, region-specific amenities); a further point (at least for the regressions including trade) is that for this particular industry there is only a rough correspondence between our trade and production data.

B.   Simulation of the Macro-economic Implications of the Services Directive via the Trade Channel

Figure 2 illustrates our finding that the main channel through which the SD will contribute to macro-economic performance is an increase in competition. To obtain an assessment on the likely magnitude of these effects we need to quantify: (1) the likely

increase in competition as a result of the SD, and (2) the magnitude of the effects of competition on performance.
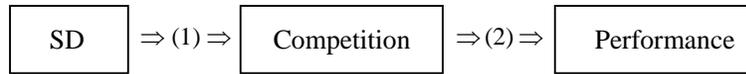
| SD | $\Rightarrow (1) \Rightarrow$ | Competition | $\Rightarrow (2) \Rightarrow$ | Performance |

Figure 2: Simulation of the Effects of the Services Directive – via the Trade Channel

1. Effects of the Services Directive on Competition

As a benchmark estimate of the likely effects of the SD on competition, we use our estimation results for the link between imports and competition, together with the trade effects of the SD according to Kox et al.[34] As already mentioned above, they estimate that due to the implementation of the DSD 2004 the overall heterogeneity indicator will decline by 1/3 (see *table 2*) and this will increase intra-EU trade (in the industries covered by the SD) by 30 to 62 percent; in our simulation we focus on their central estimate of 44 percent. Note that our estimates refer to total rather than intra-EU trade. Since intra-EU trade in services accounts for around half of total trade in services, we assume that the SD will increase total trade in services by some 22 percent.[35] The average of our estimates for our preferred sample D (see *table A1* in the appendix) suggests that an increase in imports by one percent reduces mark-ups by 0.127 percentage points.

This implies that an increase in trade (imports) by 22 percent will translate into an increase in competition, i.e. a reduction in mark-ups by some 2.5 percentage points. It should be borne in mind, however, that the SD will enhance competition not only through an increase in trade but also by making market entry easier and increasing the threat of entry. Against this background we interpret the mark-up reduction of 2.5 percentage points as a lower bound; as an upper bound we will use a mark-up reduction of 5 percentage points (which also corresponds to the effects obtained

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[34] *Kox et al.* ((2004/2005).

[35] Hence, we assume that the effects estimated by *Kox et al.* (2004/2005) are fully realised in terms of additional trade; it is conceivable that part of this additional intra-EU trade is simply substituted for extra-EU trade, yielding a smaller increase in total trade.

using the coefficient from the cross-section IV estimates).[36] As a central estimate for the simulation, we use a mark-up reduction by 3.75 percentage points.

2. Effects of Competition on Productivity, Employment, and Investment

Our estimates provide us with a range of coefficients for the effects of competition on productivity, employment and investment. Again, we focus on our preferred sample (D), but still we have three estimates: least squares and IV from the cross-section, and least squares from the panel. As a benchmark, we decided to use the average of the three estimates; as a consequence, the following coefficients are used in the simulation:

- ▪ semi-elasticity between productivity and mark-ups: -0.214,
- ▪ semi-elasticity between employment and mark-ups: -0.225,
- ▪ semi-elasticity between investment and mark-ups: -0.145.

Together with the assumed increase in competition (reduction in mark-ups) by 2.5 to 5 percentage points this will provide us with a range of estimates regarding the effects of the SD on productivity, employment, investment and value added.

3. Simulation Results of the Economic Impact of DSD 2004

Table 5 summarises the results of the simulation for the EU as a whole. Note that our estimation is carried out only for eleven EU countries due to limited data availability, but throughout we calculate the results for the EU-15 and EU-25 countries, too.

The simulation suggests that in the service industries considered (sample D, see table 4), productivity in terms of value added per hour worked will go up by 0.53 to 1.07 percent (central estimate: 0.80 percent), employment by 0.56 to 1.13 percent (central estimate: 0.85 percent). Taken together, this implies an increase in value added by 1.10 to 2.20 percent (central estimate: 1.65 percent). The investment ratio is predicted to rise by 0.36 to 0.73 percentage points (central estimate: 0.55 percentage points).

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[36] This upper bound implies a relative reduction in mark-ups by 10 percent; this is still clearly below the mark-up reduction in manufacturing as a result of the Single Market according to the estimates by *Badinger* (2006).

Table 5: Economic Effects of the Services Directive – Estimates for the EU

	Min.	Central	Max.
Increase in competition (red. in mark-ups in percent)	-2.5	-3.75	-5
Increase in productivity (percent)	0.53	0.80	1.07
Increase in employment (percent)	0.56	0.85	1.13
Increase in value added (percent)	1.10	1.65	2.20
Increase in investment ratio (percentage points)	0.36	0.55	0.73
Absolute increase in employment (in 1000)			
EU-11	323.6	485.3	647.1
EU-15	343.1	514.7	686.2
EU-25	408.0	612.0	816.0

Bearing in mind that the share in total value added of the industries considered makes up some 42 percent (EU-15, 2002 see *table A1* in the appendix), the central estimates imply an aggregate GDP effect of 0.69 percent. Combining the relative effects on employment with the employment figures for the EU-11 and the EU-15 (sample D, values for 2002, see *table 2*), employment in service industries of the EU-11 is predicted to increase by some 485,000 persons, or by 515,000 persons in the EU-15: extrapolating the results to the EU-25 using the ratio of aggregate employment in the EU-25 to aggregate employment in the EU-15 (1.19), the predicted increase in employment for the EU-25 amounts to 612,000 persons. *Table 6* shows the absolute changes in employment by country based on the central estimates.

Comparing our aggregate estimates with the CGE simulations by Copenhagen Economics[37], we find surprisingly similar results. The estimated increase in employment by Copenhagen Economics amounts to around 600,000 persons, which is very close to our central estimates for the EU-25; the increase in value added in

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[37] *Copenhagen Economics* (2005a).

service industries according to Copenhagen Economics amounts to 1.1 percent, which is also in the range of our estimates.

Table 6: Absolute Employment Effects of the Services Directive – Estimates by Country

		Minimum	Central	Maximum
AUT	Austria	7.0	10.6	14.1
BEL	Belgium	8.4	12.5	16.7
DEU	Germany	76.6	114.9	153.2
ESP	Spain	32.2	48.3	64.4
FIN	Finland	4.1	6.2	8.2
FRA	France	49.2	73.7	98.3
GBR	United Kingdom	66.8	100.2	133.6
GRC	Greece	6.7	10.0	13.3
ITA	Italy	46.0	69.0	92.0
NLD	Netherlands	18.8	28.2	37.6
SWE	Sweden	7.8	11.8	15.7
DNK	Denmark	5.3	7.9	10.6
LUX	Luxembourg	0.7	1.0	1.4
IRL	Ireland	3.7	5.5	7.3
PRT	Portugal	9.9	14.9	19.9
EU-15	European Union (15)	343.1	514.7	686.2

The same pro-competitive effect is assumed for each country here, i.e. the variation is only due to the different levels of employment in sample D across countries.

There is no reason to assume that changes in competition have fundamentally different effects across countries. This was also confirmed when trying to estimate country-specific coefficients for competition in the models for productivity, employment and investment, which yielded implausible results. However, the SD is likely to have different effects on the degree of competition in the EU countries, depending on the current level of regulation and regulation heterogeneity in the respective country. Kox et al. (2004/2005) calculate country-specific changes of their regulation heterogeneity indices and use them to simulate country-specific effects of the SD on trade in services. Countries with a higher level

of regulation (or more heterogeneity with respect to the other EU countries) will experience a larger opening up of markets and hence larger trade effects.

It is plausible to assume that the increase in imports relative to the EU average (implied by the country-specific estimates in Kox et al.[38] is a good indicator for the increase in market access due to the SD relative to the EU average and thus for the increase in competition relative to the EU average. *Table 7* shows the implied country-specific effects of the SD on productivity, employment, value added, investment and absolute employment, each of them based on the central estimate. Above average winners are Portugal, Denmark, Greece, Austria, and Italy; the effects in Germany, Spain, Finland, and France correspond roughly to the average EU effects, while Belgium, the Netherlands, Luxembourg, Ireland, Sweden and the United Kingdom gain less than the EU average. This is not a new result, of course, but an implication shared with the Kox et al. study.

It should be added that these figures are "bottom-line" results; potential reallocations between industries and countries are not investigated here. In particular, the fear of trade unions that the SD could lead to "social dumping" is not addressed in our study. On the one hand, the huge disparities in wage costs (roughly 1:10) could lead to an unbeatable comparative advantage of service providers from the new EU Member States of Eastern Europe. On the other hand, the old EU countries have a much stronger competitive edge in providing services when it comes to quality competition.[39]

From the productivity and employment performance one can deduce the effects of the implementation of the DSD 2004 on real GDP. Measured at 2005 PPS GDP in EU-25 would be higher by € 75 billion or by 0.7 percent.

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[38] See *Kox et al.* (2004/2005, p. 43)

[39] For a related discussion, see *Vogt* (2005, p. 19).

Table 7: Economic Effects of the Services Directive – Country-Specific Results

	Pro-comp. effect rel. to EU av.[1]	Competition percent	Productivity percent	Employment percent	Value added percent	Inv.ratio Perc. points	Employment 1000s
AUT	1.27	-4.77	1.02	1.08	2.10	0.69	13.4
BEL	0.84	-3.15	0.67	0.71	1.38	0.46	10.5
DEU	1.07	-4.01	0.86	0.90	1.76	0.58	122.8
ESP	1.02	-3.84	0.82	0.86	1.68	0.56	49.4
FIN	1.00	-3.75	0.80	0.85	1.65	0.55	6.2
FRA	1.02	-3.84	0.82	0.86	1.68	0.56	75.4
GBR	0.93	-3.49	0.75	0.79	1.53	0.51	93.4
GRC	1.55	-5.80	1.24	1.31	2.54	0.84	15.5
ITA	1.20	-4.52	0.97	1.02	1.98	0.66	83.1
NLD	0.84	-3.15	0.67	0.71	1.38	0.46	23.7
SWE	0.93	-3.49	0.75	0.79	1.53	0.51	11.0
DNK	1.32	-4.94	1.06	1.11	2.17	0.72	10.4
LUX	0.84	-3.15	0.67	0.71	1.38	0.46	0.9
IRL	0.84	-3.15	0.67	0.71	1.38	0.46	4.6
PRT	1.52	-5.71	1.22	1.29	2.51	0.83	22.7
EU-15	1.00	-3.75	0.80	0.85	1.65	0.55	514.7

[1] Relative pro-competitive effect of the SD in the respective country corresponding to the relative trade effects estimated by *Kox* et *al.* (2005, p. 43). Since Belgium and Luxembourg are treated as aggregate in the study *by Kox et al.* (2004/2005), we assume the same value for both countries. The aggregate value for the EU does not correspond to the sum of country values due to mechanics of aggregation and averaging.

V.   Econometric Estimation of the FDI Channel of the Services Directive

As figure 1 illustrates there are two channels via which the reduction of regulation might relieve the cross-border provision of services: (i) via the principle of "Free movement of services" (SD 2006) implying more Intra-EU trade, more competition and hence a better macro-economic performance (see section IV) and (ii) via the principle of "Freedom of establishment for services providers" leading to more Intra-EU FDI flows.

In this chapter we deal with the second channel, the impact of the SD on foreign direct investment (FDI). This channel is not dealt with explicitly in the previous studies (see *table 1*), neither in the CGE model of Copenhagen Economics nor in the Worldscan model of the CPB. However, Kox et al.[40] estimate econometrically that the reduction of policy-heterogeneity by 1/3 would lead to an increase in Intra-EU-FDI stocks by 18-36 % (with an average of +26%). The aim of this chapter is to quantify directly the effects of regulations for FDI on FDI activity in services industries and furthermore to estimate the resulting impact on productivity.

We assume that FDI regulations affect all foreign investors in the same way, irrespective of their residences. Thus we do not include an index for heterogeneity as suggested by Kox et al. in our estimations but the FDI regulation index constructed by Golub[41]. As bilateral data on FDI flows or stocks are not (or at least not sufficiently) available at the industry level, we use an aggregate approach rather than a traditional bilateral gravity-type model. We follow a two step procedure: First, we estimate the impact of regulation on FDI stocks. Second, we relate productivity on FDI stocks to derive the macro-economic impact of SD's "Freedom of establishment for services providers". Using our estimates we simulate the change in productivity resulting from a reduction in FDI regulations by 1/3.

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[40] *Kox et al.* (2004/2005).

[41] *Golub* (2003).

Harald Badinger, Fritz Breuss, Philip Schuster, Richard Sellner

A. The Implications on FDI and Productivity

1. Data Sources and Country Coverage

The data sources used to estimate the effects of the SD on foreign direct investment and the impact of the change in foreign direct investment on productivity include the *60-Industry Database* of the Groningen Growth and Development Centre (GGDC) as well as the *International Direct Investment Statistics Database* of the OECD. The latter was mainly used to obtain data on FDI inward stocks for the individual service sectors, while the GGDC database provided us with data on average labour productivity and value added. Due to poor data on FDI stocks only four service sectors and eleven countries could be included in our analysis. As can bee seen from *table 8*, the four sectors included cover 28.25 percent of the value added and 36.05 percent of employment of all industries of the EU-15 in the year 2002. The sample comprises 11 EU countries: Austria, Czech Republic, Denmark, France, Germany, Greece, Hungary, Netherlands, Poland, Portugal and United Kingdom (three of which are new EU member states and transformation economies – Czech Republic, Hungary and Poland).

Table 8: Shares of Total Value Added (VA) and Employment (EMP) in 2002 of the Service Industries Included in the Estimation

			VA	EMP
		ISIC Rev3	(percent of total)	
Total		**1-99**	**100.00**	**100.00**
Total services		**45-99**	**77.00**	**77.78**
Service industries incl. in estimation			**28.25**	**36.05**
Construction	SI01	45	6.08	6.94
Distribution	SI02	50, 51, 52	11.00	15.37
Hotels & restaurants	SI03	55	2.78	4.87
Business services	SI04	741-3, 749	8.39	8.87
Service industries excl. from estimation			**48.75**	**41.73**

Data refer to EU-15. VA … value added at current prices, EMP … total persons engaged. Source: Groningen Growth and Development Centre, 60-Industry Database, February 2005.

In order to maximize sample size, averages over the years 2000 to 2002 were taken for every variable except the FDI regulation

index. FDI barriers within the EU were measured by the "FDI restriction indices" by Golub, based on the years 1998 and 2000. The index incorporates regulations on how much foreign equity is allowed in a specific sector, screening and approval and other restrictions. As can be seen from *figure 3*, within the covered sample of the four sectors (1 = construction, 2 = distribution, 3 = hotels & restaurants, 4 = business services), Austria seems to have the most rigorous restrictions on FDI while the Netherlands have the most liberal regime in this respect.
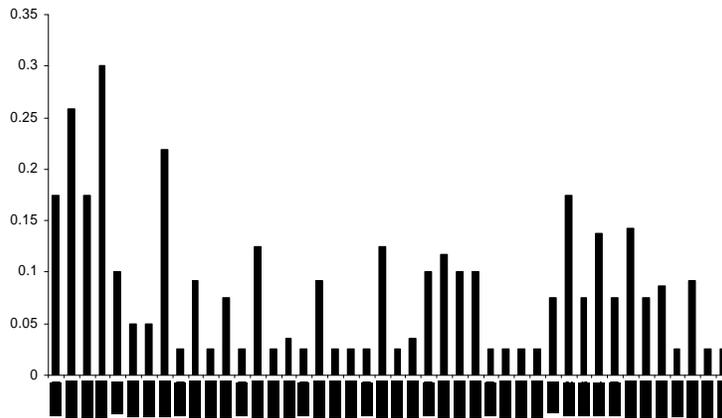

Figure 3: Foreign Direct Investment Regulation Indices by Country and Industry, Source: *Golub* (2003).

2. Methodological Issues

The main problem arising in the estimation is the possible endogeneity of FDI stocks. It seems likely that productivity itself is an explaining factor for FDI stocks. Unfortunately, due to absence of bilateral FDI data we were not able to construct instruments as suggested by Gao[42]. However, Gao and Frankel and Romer[43] found evidence that an ordinary least square estimation tends to underestimate the effects of FDI and trade on productivity. Therefore, we may assume that our OLS estimates are not misleading and may be interpreted with due care as a lower bound of the possible effect.

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[42] *Gao* (2004).

[43] *Frankel and Romer* (1999).

Our empirical analysis can be divided into two classes of empirical models which are similar in their structure (and also comparable to the approach for the analysis of the trade channel; see section IV). They are motivated by the transmission channels of the SD illustrated in *figure 1*:

First, we relate *foreign direct investment (FDI)* to domestic market size (in terms of population) and *regulation intensity for FDI*::

$$\ln FDI_{ik} = \mu_k^T + \mu_k^{NT} + \delta \ln Reg_{ik} + \tau \ln Pop_i + \varepsilon_{ik} ,\qquad (4)$$

where FDI_{ik} is measured in terms of the inward FDI stock relative to value added (i denotes country and k industry); Reg_{ik} are the indices for FDI restriction for industry k in country i, and Pop_i is population of country i. The industry specific constants are allowed to differ between the transition (T) and non-transition economies (NT), to account for the fact that the transformation economies in Eastern Europe experienced a huge inflow of FDI in the 1990s (well above the "normal" FDI flows between industrial countries).

The second group of models tries to identify the impact of *FDI on productivity* using a specification similar to the one suggested by Gao[44]. He finds a significant positive effect of FDI-stock-to-GDP-ratio on real GDP per worker for a sample of non-oil producing developing countries. We depart from this specification in three respects. As in equation (2), productivity is defined as value added per hour worked; population is used as only control variable; and industry-specific constants are included, which are again allowed to differ between transition and non-transition economies.

$$\ln Prod_{ik} = \mu_k^T + \mu_k^{NT} + \delta \ln FDI_{ik} + \tau \ln Pop_i + \varepsilon_{ik} .\qquad (5)$$

3. Estimation Results

After removing one outlier (the Greek business services industry) from our sample, results for equation (4) are quite satisfactory and robust to changes in the specification. The second column in *table A2* in the appendix shows the summary of the cross-section estimation results. Our preferred specification includes only *Reg* and *Pop* as explanatory variables, consistent with the analysis of the trade channel. Aggregate measures of area, distance and language did not enter the empirical models at conventional significance levels.

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[44] *Gao* (2004).

On average, countries of the EU-15 have higher FDI inward stocks than transition countries, although only one constant term is significant at a 10 percent level (the interaction between the transition and the construction industry dummy, not displayed in *table A2*). Population, which serves as a control variable for size effects, has a negative effect on FDI inward stocks ratio, significant at a 5 percent level. On average, smaller countries are not only more open in terms of trade but attract also greater FDI stocks relative to value added than larger ones.

Turning to row 4 in *table A2*, we find an negative relation between the FDI inward stock ratio and the indices for FDI regulation. Since the Golub regulation index is inversely defined, reducing barriers to FDI by one percentage point in the service market leads to an increase in the ratio of FDI inward stocks to value added by 0.45 percent. This coefficient is statistically significant at the 5 percent level.

The third column in *table A2* reports the estimation results of equation (5), relating *average labour productivity (Prod)* to *FDI* and *market size*. In contrast to equation (4), results are not that robust to changes in the specification. Different factors explaining productivity (R&D ratio, capital labour ratio and labour compensation) have been included and tested along with FDI inward stocks, the central factor of our study. When estimating with UNCTAD FDI flow data, no significant effects of FDI on productivity can be found. The same is true when R&D ratios are included along with OECD FDI inward stocks. However, leaving aside R&D ratios, a marginally significant (10 percent level) positive impact of the FDI ratio on average labour productivity can be found. A 1 percent increase in the ratio of FDI inward stock relative to value added improves productivity by 0.15 percent. In the equation for the estimation of average labour productivity, population has a significant and positive impact. Finally, average productivity levels are significantly smaller in the three transition countries of our sample.

B. Simulation of the Macro-economic Implications of the Services Directive via the FDI Channel

We used the coefficient for FDI regulation of equation (4) and FDI inward stocks of equation (5) to simulate effects of the SD on FDI inward stocks and productivity, based on the assumption that its implementation leads to a reduction in barriers to FDI by 1/3 (the reduction in policy heterogeneity as a result of the SD according to Kox et al.[45]). *Figure 4* illustrates the channel through which the services directive may influence performance in terms of productivity.

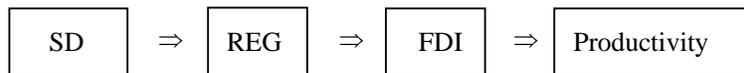| SD | ⇒ | REG | ⇒ | FDI | ⇒ | Productivity |

Figure 4: Simulation of the Effects of the Services Directive – via the FDI Channel

According to our estimates, the reduction of the barriers to FDI in service industries (*Reg)* by one third implies an increase in FDI inward stocks in the four observed services industries by 18.9 percent. These results are comparable to the lower bound estimates of Kox et al. (2004/2005), but as argued above the OLS estimates are likely to underestimate the effects.

This 18.9 percent increase in FDI inward stocks translates into an increase in average labour productivity by 2.8 percent. Assuming that the Services Directive does not affect the industries excluded from the sample (some 72 percent of value added), aggregate total productivity gains amount to 0.80 percent. Note, however, that these effects rely on calculations of Kox et al. assuming the implementation of the DSD 2004.

Economic theory on employment effects of FDI is ambiguous. Several trial regression, relating employment to FDI and including standard controls, did not yield robust results. We do not pursue this issue further here and assume that the stimulation of FDI via die implementation of the SD only leads to productivity and hence production effects. From the increase of productivity and zero employment growth one can deduce that the implementation of the DSD 2004 would lead to an increase in real GDP by 0.80 percent.

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[45] *Kox et al.* (2004/2005).

VI. Which Change in the Macro-economic Effects without the CoOP?

Two significant changes have occurred in the transition from the DSD 2004 to the SD 2006:

(i) The *country of origin principle* (CoOP) has been replaced by the *country of destination principle (CoDP)*. According to Copenhagen Economics[46], in a special evaluation for the UK government, this could reduce the economic effects by 10 percent. The CPB[47] estimates that the liberalisation effect could even be reduced by 1/3.

(ii) The SD 2006 has also diminished the sectoral coverage compared to the original proposal in the DSD 2004. More services sectors have been exempted.

Table 9: Macro-economic Effects of the SD 2006 as Compared to those of DSD 2004: EU-25

	DSD 2004	**SD 2006**
(I) Trade channel		
Employment	612.000	408.000
GDP, real	+0.7%	+0.5%
(II) FDI channel		
Employment	-	-
GDP, real	+0.8%	+0.5%
(III) Total: (I) + (II)		
Employment	612.000	408.000
GDP, real	+1.5%	+1.0%

Note: The figures are to be interpreted as medium to long-run effects.

An evaluation of how much the change from the CoOP to the CoDP affects the "Policy heterogeneity indices" or the "Indices of FDI restrictions" is very difficult. The SD 2006 involves a lot of exception clauses, allowing EU Member States to make restrictions only for reasons of public policy, public security, public health or the protection of the environment. How much EU Member States

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[46] *Copenhagen Economics* (2005b).

[47] *Bruijn et al.* (2006).

will make use of such restrictions and how much of them will pass the newly introduced "screening process" (Art. 41(5)) by the European Commission is an open question.

We therefore rely on the assumption that the watering down of the DSD 2004 by the SD 2006 will reduce liberalization effects by 1/3. This translates into a proportionate reduction of the macro-economic effects, because it reduces both the old an new EU Member States potential to exploit their respective comparative advantages. The corresponding results are given in *table 9*.

VII. Policy Implications and Conclusions

Making the EU's Single Market more dynamic has been identified as one of the top priorities to improve the EU's growth performance. While the Single Market in manufacturing appears to be working quite well, there are still many impediments to the free movement of services in the Internal Market. Particularly for small and medium-sized enterprises, the bulk of service providers, entry barriers in new EU markets are often prohibitive. The Internal Market for Services should have been working since its inception in 1993. However, already seven years later in March 2000 on the summit of the European Council in Lisbon the heads of state or government had to conclude that in reality it did not. In the context of the "Lisbon strategy" it therefore asked the European Commission to design a global "Single Market Strategy" to make the Single Market working properly. A comprehensive report on the existing administrative and regulatory hurdles in the EU Member States[48] was the starting point for launching a Directive of the European Parliament and of the Council on Services in the Internal Market in February 2004 (DSD 2004). After an intensive public discussion in many EU Member States – mainly between the social partners – the European Parliament (EP) in February 2006 agreed upon a revised proposal which the European Commission in April 2006 followed closely. With some minor revisions and additions the directive passed the Council; after an implementation period of three years the SD 2006 will fully come into force in 2010.

This study builds on previous work on the economic impact of the SD (Copenhagen Economics, Kox et al.[49]) and investigates its

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[48] See *European Commission* (2002).

[49] *Copenhagen Economics* (2005a), *Kox et al.* (2004/2005).

economic implications using an alternative approach. In particular, we use a simple partial econometric framework to estimate the effects of the reduction in regulation due to the implementation of the SD via two channels: (i) via the trade channel and (ii) via the FDI channel.

Ad (i): *Trade channel:* More trade leads to more competition which is associated with higher productivity, higher employment, investment and output. Based on previous estimates of the trade effects of the SD by Kox et al., and recognising that the SD increases competition also via easier market entry by reducing the start-up costs of firms, we assume that the SD leads to a reduction in mark-ups (in terms of value added) by 2.5 to 5 percentage points; this is smaller than the mark-up reductions in manufacturing due to the Single Market according to the estimates of Badinger[50]. Using this range of effects of the DSD 2004 on competition, we estimate its effects on productivity, employment, investment and value added. Results suggest that productivity in the service industries covered by the SD increases by 0.80 percent, employment by 0.85 percent (or by 612,000 persons in terms of the EU-25), and the investment ratio by 0.55 percentage points. Value added of the services covered will go up by 1.65 percent, which corresponds to an aggregate GDP effect of 0.7 percent. The elimination of the CoOP will reduce these effects by 1/3. All these effects, however, have to be understood as potentials, realised in the medium and long term.

Ad (ii): *FDI channel:* In contrast to other studies, we also explicitly analyse the impact of a reduction of regulations on FDI and the relationship from FDI to productivity. Regarding the productivity effects, we reach similar results in magnitude as for the trade channel.

Taking (i) and (ii) together we reach the following overall macro-economic effects of the SD 2006 for the EU-25: Employment will increase by around 400.000 persons and GDP increases by around 1 percent.

Some words of caution are advisable here: First, it should be noted that the results are not completely robust across all specifications, when additional service industries are included. Particularly sensitive industries turn out to be travel (covered by the SD) and financial services (not covered by the SD). There is no

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[50] *Badinger* (2006).

straightforward explanation for this discrepancy. While the choice of the preferred sample is well motivated and corresponds most closely to that used in previous studies and the coverage of the SD, this remains a qualification to our results which has to be borne in mind.

Second, there is considerable uncertainty with respect to the magnitude of the effects; this is not only true for the trade effects estimated by Kox et al. with a range from 30 to 62 percent, whose central estimate of 44 percent we use to get a benchmark estimate of the magnitude of the SD's pro-competitive effect. It should also be emphasised that our estimated coefficients regarding the effects of competition on productivity, employment and investment used in the simulation are point estimates with sizeable confidence intervals.

It is, however, reassuring that the evaluation of the SD with completely different methods (ours rely on a simple partial econometric approach; Copenhagen Economics and CPB apply comprehensive world CGE models) leads to quite similar conclusions concerning the magnitude of the effects on major macro-economic variables.

References

Aghion, P., Bloom, N., Blundell, R., Griffith, R. and *Howitt, P.* (2005). Competition and Innovation: An Inverted U-relationship. Quarterly Journal of Economics, 120(2), 701-728.

Badinger, H. (2006). Has the EU's Single Market Programme Fostered Competition? Testing for a Decrease in Markup Ratios in EU Industries, Oxford Bulletin of Economics and Statistics (forthcoming).

Badinger, H. and *Breuss, F.* (2005). Trade and Productivity: An Industry Perspective, EI Working Paper 66, Europainstitut, Wirtschaftsuniversität Wien.

Badinger, H. and *Breuss, F.* (2006). Trade and Productivity: An Industry and Aggregate Perspective. Europainstitut, Wirtschaftsuniversität Wien, unpublished manuscript, February 2006.

Bhagwati, J.N. (1965). On the equivalence of tariffs and quotas", in R.E. Baldwin et al., (Eds.), Trade, Growth and the Balance of Payments: Essays in Honor of Gottfied Haberler, Amsterdam: North-Holland, 53-67.

Breuss, F. and *Badinger, H.* (2006). The European Single Market for Services in the Context of the Lisbon Agenda: Macroeconomic Effects of the Services Directive, in: Deepening the Lisbon Agenda: Studies on Productivity, Services and Technologies (Lissabon vertiefen: Studien zu Produktivität, Dienstleistungen und Technologien), Federal Ministry of Economics and Labour of the Republic of Austria (BMWA), Vienna, January 2006, 79-108.

Bruijn de, R., Kox, H., and *Lejour, A.* (2006). The trade-induced effects of the Services Directive and the country of origin principle. CPB (Centraal Planbureau - Netherlands Bureau for Economic Policy Analysis), The Hague, Document No 108, February 2006.

Copenhagen Economics (2005a). Economic Assessment of the Barriers to the Internal Market for Services. Final Report, 1 January 2005.

Copenhagen Economics (2005b). The Economic Importance of the Country of Origin Principle in the Proposed Services Directive. Final Report, 17 November 2005.

DSD (2004). Proposal for a Directive of the European Parliament and of the Council on Services in the Internal Market. COM(2004) 2final/3 of 5 March 2004.

Frankel, J.A. and *Romer, D.* (1999). Does Trade Cause Growth? American Economic Review, 89(3), 279-399.

Gao, T. (2004). FDI, openness and income, The Journal of International Trade & Economic Development, 13(3), 305-323.

GGDC (2005). Groningen Growth and Development Centre, 60-Industry Database, February 2005, http://www.ggdc.net.

Gelauff, G.M.M. and *Lejour, A.M.* (2006), The new Lisbon Strategy: An estimation of the economic impact of reaching five Lisbon Targets. Report prepared for the Enterprise and Industry Directorate-General of the European Commission (Industrial Policy and Economic Reforms Papers No. 1), CPB (Centraal Planbureau - Netherlands Bureau for Economic Policy Analysis), The Hague, January 2006.

Golub, S. (2003). Measures of Restrictions on Inward Foreign Direct Investment for OECD Countries, OECD Economic Department Working Paper, No. 357. Paris

Griffith, R. and *Harrison, R.* (2004). The Link between Product Market Reform and Macro-Economic Performance. European Economy, No. 209, August 2004.

Kox, H., Lejour, A., and *Montizaan, R.* (2004/2005). The Free Movement of Services within the EU. CPB (Centraal Planbureau - Netherlands Bureau for Economic Policy Analysis), The Hague, Document No 69, October 2004 (revised September 2005).

Markusen, J.R. (2002). Multinational Firms and the Theory of International Trade. MIT Press: Cambridge, MA.

Martins, J.O., Scarpetta, S., and *Pilat, D.* (1996). Mark-up Ratios in Manufacturing Industries. Estimates for OECD Countries, OECD Economics Department Working Paper, No. 162.

Nicodème, G. and *Sauner-Leroy, J.B.* (2004). Product Market Reforms and Productivity: A Review of the Theoretical and Empirical Literature on the Transmission Channels. European Economy, European Commission Directorate-General for Economic and Financial Affairs, Economic Papers, No 218.

Nicoletti, G., Scarpetta, S. and *Boylaud, O.* (2000). Summary Indicators of Product Market Regulation with an Extension to

Employment Protection Legislation. OECD Economic Department Working Paper, No. 226. Paris.

Nordhaus, W. (2005). The Sources of the Productivity Rebound and the Manufacturing Employment Puzzle. NBER Working Paper, No. 11354.

OECD (2003). Product Market Competition and Economic Performance. OECD Economic Outlook, No. 72, chapter 6.

OECD (2005). Economic Surveys: Euro Area. Vol. 11, September 2005.

O'Toole, R. (2005). The Services Directive: An Initial Estimate of the Economic Impact on Ireland, unpublished manuscript, Dublin, 28 February 2005.

Sapir, A., Aghion, P., Bertola, G., Hellwig, M., Pisani-Ferry, J., Rosati, D., Vinals, D. and *Wallace, H.* (2004). An Agenda for a Growing Europe: The Sapir Report. Oxford: Oxford University Press.

SD (2006). Directive 2006/123/EC of the European Parliament and of the Council 12 December 2006 on services in the internal market, Official Journal No L 376/36 of 27 December 2006.

UN (2002). Manual on Statistics of International Trade in Services, United Nations.

Vogt, L. (2005). The EU's Single Market: At Your Service? OECD Economics Department Working Paper, No. 449, October, 2005.

Appendix

Table A1: Competition and Performance in Service Industries: Least Squares and IV Results for Sample D

Dependent variable	Productivity			Employment		
	Cross-section[1]		Panel[2]	Cross-section[1]		Panel[2]
	LS	IV	LS	LS	IV	LS
Constant[3]	2.689	2.836	3.124	-4.934	-4.768	-2.799
Mark-up	-0.221**	-0.345**	-0.075***	-0.214**	-0.352***	-0.110***
	(-2.20)	(-1.77)	(-3.973)	(-2.20)	(-3.83)	(-3.813)
Pop	0.160***	0.163***	0.128***	1.011***	1.015***	1.005***
	(2.89)	(2.95)	(14.360)	(29.00)	(28.75)	(320.48)
M						
SE	0.464	0.469	0.438	0.368	0.375	0.395
R^2	0.805	0.802	0.791	0.974	0.973	0.966
Obs.	62	62	1271	61	61	1217

Table A1(continued): Competition and Performance in Service Industries: Least Squares and IV Results for Sample D

Dependent variable	Investment			Mark-ups		
	Cross-section[1]		Panel[2]	Cross-section[1]		Panel[2]
	LS	IV	LS	LS	IV	LS
Constant[3]	0.460	0.488	0.523	0.973	0.875	0.543
Mark-up	-0.147***	-0.171***	-0.124***			
	(-2.79)	(-2.88)	(-4.972)			
Pop	0.009	0.010	0.013***	0.011	-0.020	0.054***
	(0.84)	(0.86)	(4.685)	(0.22)	(-0.43)	(7.86)
M				-0.099	-0.234*	-0.044**
				(-1.51)	(-1.82)	(-2.64)
SE	0.156	0.156	0.191	0.395	0.415	0.480
R^2	0.723	0.722	0.653	0.309	0.239	0.218
Obs.	62	62	1221	57	57	700

Notes to Table A1: LS … least squares estimates; IV … instrumental variable estimates. [1] Cross-section estimates refer to the average of the period 1995-2000; the cross-section dimension comprises 13 countries (see section V) and 7 industries (sample D, see table 3). [2] Panel estimates are pooled estimates with industry dummies and time-specific fixed effects included and refer to period 1978-2002 (for longest time series). [3] Average of industry-specific constants. [***] Significant at 1 percent; [**] 5 percent, [*] 10 percent. T-values in parentheses are based on robust standard errors. *Pop* denotes population; *m* is the ratio of imports to production. Productivity is measured in value added per hour worked. *L* denotes total employment in persons. Investment is measured as the ratio of gross fixed capital formation over value added. Mark-ups is the ratio of prices over marginal costs. All variables except the investment ratio and the mark-up ratio are in natural logs. For more details on the estimation, see *Breuss* and *Badinger* (2005).

Table A2: Regulation, Productivity and FDI Inward Stocks per value added in Service Industries: Cross-section[1] Least Squares

Dependent variable	FDI	Productivity
$Const.^{NT}$ [2]	0.591	1.796
$Const^{T}$ [2]	-0.151	0.561
Pop	-0.326[**]	0.149[**]
	(-2.628)	(2.444)
Reg	-0.454[**]	-
	(-2.333)	-
FDI	-	0.150[*]
	-	(1.771)
SE	0.733	0.382
R^2	0.825	0.751
Observations	43	44

Notes: [1] Cross-section estimates refer to the average of the period 2000-2002; the cross-section dimension comprises 11 EU Member States and 4 industries (see table 8). The cross-section estimations include interacting industry and transition country dummies. [2] Average of industry-specific constants for non-transition (*NT*) and transition (*T*) countries. [***] Significant at 1 percent; [**] 5 percent, [*] 10 percent. t-values in parentheses are based on robust standard errors. *Pop* denotes population; *Reg* are the *Golub* (2003) indices for FDI restriction for 1998/2003 and *FDI* is the total FDI inward stock per value added. Productivity is measured in value added per hour worked. All variables are in natural logs.