IMPACT OF SERVICES BARRIERS ON EFFECTIVE RATES OF PROTECTION IN AGRICULTURE AND MANUFACTURING*

Nora Dihel**

April 2005

Paper prepared for the
8th Conference on Global Economic Analysis,
Lübeck, 9-11 June 2005

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**) The author is economist in the Trade Directorate, Organisation for Economic Co-operation and Development, 2 rue André-Pascal, 75775 Paris Cedex 16, France. The views expressed in the paper are not necessary those of the OECD or its Member countries.

Abstract

The paper seeks to determine how protection of services affects the effective protection of agricultural and manufacturing sectors using a set of recent estimates of services barriers in telecommunication, banking, distribution, electricity, professional services, and air and maritime transport in selected developing and transition economies. Despite data limitations that translate into an underestimation of the taxing effect of services barriers on non-services sectors, this exercise could be important from a practical point of view, given that in a number of agricultural and manufacturing sectors the sign of protection is reversed (i.e. it goes from positive protection into effective taxation). In order to obtain more realistic insights into the potential costs of services barriers on downstream using industries, it is necessary to consider more accurate services tax equivalents as well as additional estimates for all services sectors as soon as they become available.

Keywords

Services barriers, effective rates of protection, GTAP general equilibrium model, trade negotiations

1. Introduction

This paper seeks to determine how protection of services affects the effective protection of agricultural and manufacturing sectors using a set of recent estimates of services barriers in telecommunication, banking services, distribution, electricity, professional services, and air and maritime transport in selected developing and transition economies. Such an approach provides an illustration of the potential economy-wide costs of services barriers to downstream using industries.

The paper is structured as follows. Section 2 briefly reviews the effective rates of protection (ERP) concept and its use in policy analysis. Section 3 discusses the use and applicability of the concept with respect to services trade. Section 4 presents the analytical framework employed for the calculation of the new ERPs that take into account services barriers in 30 sectors in selected developing countries and transition economies using tax equivalents of barriers in seven services sectors. The results of the analysis are discussed in section 5.

2. The ERP concept and its practical applicability

Effective rates of protection are measures of the protection provided to an industry by the entire structure of tariffs, taking into account the effects of tariffs on inputs as well as on outputs. The effective rate of protection gives the percentage increase in value added per unit in an economic activity that is made possible by the tariff structure relative to the situation in the absence of tariffs, giving insights into the supply side impact of the protection structure.

ERPs are a practical way of indicating the level of industry protection against import competition not only in the aggregate for a country but also between industries within a country. Also, resource pulls[1] can be

[1] For example, Corden (1966) explains how the ERP indicators could give information on the resource allocation effects of a protective structure. To determine the resource-allocation effects of a tariff structure, it is necessary to order the calculated rates as the scale summarises the total protective rate structure. Assuming normal non-zero substitution elasticities in production, it indicates the direction in which the protective structure causes resources to be pulled as between activities producing traded goods and services. Domestic production will shift from low to high effective-protective rate activities.

analysed using the ERP concept. More recently, issues such as the impact of transport costs (role of natural barriers in influencing relative incentives)[2] or the impact of regional and bilateral agreements have been also analysed with the help of the ERP concept.

A cursory review of the uses of ERPs in policy discussions and their role in policy reforms indicate that most ERP analyses focused on inter- and intra-sectoral comparisons (single country studies), cross-country comparisons or inter-temporal comparisons.[3] These exercises permitted assessments and comparisons of average rates of protection to manufacturing and agriculture and of the potential degree of distortion as indicated by the range of ERPs.[4]

In terms of interpreting the results, Greenaway and Milner (2003) stress that care should be taken of the danger of inferring precise sectoral resource allocation effects from a range of ERP inter-industry rates. Therefore, a careful interpretation will not automatically imply that the reduction of the spread of rates brings unequivocally the contraction of the highest and the expansion of the lowest rate sectors; rather, on average, resources would tend to be reallocated from more highly to less highly protected industries (within importable manufacturing) and incentives to produce importable manufacturing would be reduced trough liberalisation. In addition, ERPs can give information on whether the levels and variability of ERPs are planned or intended: potential inconsistencies or unintended effects (for example a mix of negative and positive ERPs in the same group of sectors/ same products could provide a framework or basis for policy reforms and guide to potential sources of resistance to policy reforms). Finally, ERPs are helpful in demonstrating linkage effects: raising inputs tariffs will lower ERP for importables. A tariff on importable output may simultaneously serve as an input tariff for exportables.

Several authors have addressed issues related to the theoretical foundation of the ERP concept and the robustness ERP empirical measures. The theoretical critique refers mainly to concerns about drawing general equilibrium inferences from a partial equilibrium measure, the substitution problem (the key assumption of the ERP model is fixed coefficients, *i.e.* separability in the production function, which does not allow for substitutability between primary factors and intermediates) and scale problems (it is not possible to draw systematic conclusions about resource pulls based on the scale of the ERP alone). Ethier (1977) synthesises the major strands of this literature.

Despite these theoretical pitfalls, the ERP concept has been widely applied to policy analysis enabling an improved understanding of the simultaneous role of trade barriers as implicit taxes and subsidies, their net impact that depend on both the structure of nominal input and output protection and the importance of inputs. Also, the ERP results help eliminate or reduce recurrent biases in trade regimes.

3. Extension and applicability of the ERP concept to services barriers

Given the important role of services as intermediate inputs in the production of most industries, an inefficient services sector can be costly for the economy as a whole. For example, even if a country were to engage in a reform program that would reduce goods tariffs to zero, distortions would continue to persist

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[2] For example, see Milner (2002) for an illustration of the relative importance of natural and policy sources and the measurement errors induced in the calculation of ERPs by omitting transaction costs.

[3] See for example Greenway and Milner (2003) and Anderson (2003)

[4] The potential for protection measures to distort decisions depend on the extent to which the protection structure provides disparate levels of protection/assistance between activities and commodities. Potential distortions in resource use and associated losses to resource efficiency will be greatest where wide disparities in levels of ERP exist between activities. For that purposes, it is useful to measure the standard deviation of ERPs as an indicator of the degree of dispersion in rates. The standard deviation measures how far from the average the individual activity rates are located, thereby measuring the extent of variation in the distribution.

and resource allocation would be affected should services barriers remain unchanged. As noted in Hoekman and Primo Braga (1997), as nations move to reduce tariffs and other barriers to trade substantially, effective rates of protection may become negative for manufacturing industries as they lose protection on their goods but continue to be confronted with input prices that are higher than they would be if services markets were contestable. Ignoring the services barriers in these calculations translates into distorted measures of the protection structure of a country. Thus, an ERP measures that takes into account services barriers could be employed to obtain a more accurate illustration of the total protective structure highlighting the potential costs imposed by inefficient services inputs to both services and non-services sectors.

For example, Hoekman and Djankov (1997) calculated the ERP for Egypt. They found that the ERP for industries with high service intensity was significantly lower if adjustments for high protection to services sectors were also taken into account.[5] The magnitude of the ERP declined for most manufacturing industries from an average of 70 down to 51%. Analogues to tariffs on manufactured inputs, the higher tariff-equivalent of services policies, the lower the effective protection for industries that use the service inputs involved. In some cases (industries with a high service intensity), the adjusted ERP becomes negative, implying that the tariffs on intermediate goods combined with the tariff equivalent on service inputs outweigh the tariff protection to the final good.

Similar results were obtained by Chadha (2000) for India. He found that in 25 out of 30 sectors, the inefficient-services adjusted ERP[6] was less than the normal ERP with the difference becoming large in some sectors such as electrical machinery, coal tar products, steel and ferrous alloys, fertilisers and woollen textiles.

Furthermore, Hoekman and Messerlin (1999) discuss how to use a similar concept, the Effective Rate of Assistance (ERA)[7] to determine the need for, and the design of, policy reforms. They affirm that regulatory reforms require the identification of the "relevant markets that are affected", *i.e.* the cluster of related, interdependent activities. In terms of the ERA approach to be applied, they indicate that it is necessary to estimate ERA based on all taxes and subsidies that apply to a broadly defined service sector, its major inputs (goods and services) and production factors. In a second step, this "public-budget based" component

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[5] The protection level for services is given by estimates taken from a study by Konan and Maskus. The tariff equivalents for construction, communication, financial services, business and professional services distribution, transport and storage were assumed to be 15%.

[6] Services barriers estimates were taken from Hoekman (1995). For quantification purposes, values of 1 (most restrictive, no access), 0.5 (specific bound restrictions) and 0 (free access) were allocated to the market access restrictions listed under the General Agreement on trade in Services (GATS), and coverage ratios were estimated. The indexes were transformed into tariff equivalents, by using a set of benchmark tariff equivalents for individual sectors, which ranged from a value of 200 percent for sectors considered highly restricted (maritime cabotage, air transport, postal services, voice telecommunication, life insurance) to values between 20-50 percent for sectors in which market access was less constrained. By multiplying the coverage ratios with the benchmark set of tariffs, tariff equivalents by sector and country were calculated.

[7] The ERA is an extension of the ERP concept. The ERA uses the same theoretical framework as the ERP but extends it to allow the incorporation of border tariffs and taxes and additional non-border interventions such as production bounties, input taxes and subsidies, special credit facilities, special depreciation allowances, special tax arrangements and the provision of industry-specific infrastructure. It enables a more complete analysis concerning the pattern of incentives on resource use in industries as a result of the totality of government interventions [see The Australian Productivity Commission (1995)]. The Australian Productivity Commission reports annually estimates of ERAs to industries. The measurement of disparities in ERAs has proven to be a useful indicator of the government interventions on economic efficiency.

of ERA needs to be supplemented with a "private" sector component comprising the qualitative description and – if possible – the quantitative estimation of non-border policies that have been identified as impediments by businesses involved in the production of services. The goal of this exercise would not be to favour any particular activity, but rather to ensure that all services under examination are roughly treated the same way in terms of explicit support or taxation. They conclude that on the basis of the information on the ERA cluster, it is possible to identify simple rules of thumb for regulatory reforms: First, the highest ERAs should be reduced. In addition to directly targeting policies that give raise to high ERAs, efforts should be made to increase competition without making distinctions between domestic and foreign firms (non-discriminatory and discriminatory regulations).

On the other hand, some authors [Dee, Hanslow and Phamduc (2003)] argue that given the special nature of services barriers (regulatory measures that do not need to discriminate against foreign providers, often designed to protect incumbent firms from any other entry), their removal could induce an expansion of services sectors either by new domestic entry or new foreign entry, thus offsetting the traditional mechanisms by which a protected sector can be harmed by removal of protection. This could imply that ERP calculations are not useful in terms of indicating the direction of resource movements and the welfare gains because if a services barrier is non-discriminatory, its removal could induce an expansion of the service sector and rob resources from an industry that already features a low ERP that will continue to shrink (and this result can be welfare improving). It is worth noting, however, that ERP is not a measure of the cost of protection, since all it does is to provide information on differences in the level of protection across industries without evaluating the welfare costs of protection (which need to take into account the quantity of output that is protected as well as interaction effects). For example, in the case of a negative ERP (situation which occurs when imported inputs are subject to higher rates of duty than the final output), the returns to value adding factors in the final output sector are lower than the returns earned without policy interventions, leaving this particular activity worse off (relative to free trade) as a consequence of protection. The high levels of protection on inputs hamper the development of these industries. Thus, using the ERP concept it is possible to highlight how an activity might be worse off as a consequence of protection, even when taxes on its output are positive**.** Therefore, the ERP could remain useful in terms of determining the implicit tax imposed by an inefficient services sector.

4. Calculation of new ERPs for services

Notwithstanding the above-mentioned limitations concerning the usefulness of the ERP concept in indicating the direction of resource movements and welfare gains as a result of services liberalisation, this indicator could give some insights into the impact of inefficient services sectors on the value added in services and non-services sectors. The difference between the ERPs that are calculated without considering services barriers and the ERPs that consider services barriers could be interpreted as an indication of the additional cost imposed by inefficient domestic (both discriminatory and non-discriminatory) services regulations. The calculations would permit the identification of industries that are most affected by inefficient services.

4.1 Model specification and data

The data requirements for this quantitative exercise are: information on the service intensity of production (given by the share of services in the production of industries), and tariff rates on all outputs and inputs. Information on the services intensity of production as well as protection data for agriculture and manufacturing were obtained from the most recent version of the GTAP database.[8] This version 6 of the

[8] GTAP database version 6.5 pre-released in November 2004.

GTAP database contains data for the global economy in 2001, includes an improved treatment of bilateral services trade and features 78 regions/countries and 57 sectors.

With respect to services barriers, a set of recent tax equivalents for barriers in telecommunication, financial, distribution, electricity, professional services, and air and maritime transport for selected developing and transitions countries were employed. The methodologies employed to determine these tax equivalents seek to measure two main aspects, *i.e.* the level of restrictions in services and the effect of such restrictions. In quantifying the economic impact of services barriers alternative approaches involving price-impact (which examine the impact of non-tariff barriers on domestic prices by comparing them with world prices) and quantity-impact measures (which compare an estimate of trade volumes in the absence of non-tariff barriers with actual trade volumes) have been applied[9]. Barriers that primarily affect services delivered via commercial presence have been distinguished from those that affect other modes of delivery (on going operations which cover cross-border trade, consumption abroad and the movement of natural persons for services supply)[10]. Table 1 presents all services barriers estimates considered for this exercise.

Given that the GTAP database does not contain estimates of services barriers, they have to be incorporated into the database. As the barriers affect services delivered primarily via commercial presence, the estimates have been included as output tax equivalents in all sectors. However, for air passenger and maritime transport as well as professional services, it was judged that barriers affect both trade via commercial presence and cross-border trade. Therefore, in these sectors, the estimates of services barriers were introduced into the database as taxes on outputs and export taxes. The export tax is given by the tax equivalent of the non-discriminatory barriers. The only exception to this treatment was Zambia: given that the country does not have a national flag carrier, the taxes on outputs have been incorporated as taxes on import in the air transport sector. The way of incorporating barriers into the database follows the treatment described in OECD (2005). However, as opposed to the procedure described in this paper, no differentiation between rent-creating and cost-increasing barriers was considered in the incorporation of services barriers into the database given the difficulties related to the differentiation of the nature of services barrier[11].

Based on the data availability for services barriers, the GTAP database was utilised to specify 13 countries/ regions and 30 sectors. 11 of the 13 regions refer to developing/transition economies country groupings,

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[9] The methodology for estimating these tax equivalents as well as the tax equivalents for Brazil, Chile, Malaysia, Morocco, Russia, Thailand and Zambia are presented in detail in OECD (2005), while the tax equivalents for Albania, Bulgaria, Croatia and Romania are presented in OECD (2003).

[10] The following four-part *typology of international service transactions*, adopted in the General Agreement on trade in Services (GATS), constitutes the generally recognised framework for analysing trade in services: (1) *Cross border supply* of a service from one jurisdiction to another. This mode of delivery is analogous to international trade in goods, in that a product crosses a frontier. Neither the consumer is moving physically nor the supplier is establishing itself abroad, interacting instead through a postal or a telecommunication network; (2) *Consumption abroad* requires the movement of consumers to the supplier's country of residence. Tourism or students travelling abroad are good examples of this mode, involving the movement of (mobile) services consumers to (immobile) tourist or education facilities in another country; (3) *Commercial presence*, in which case a service supplier establishes a foreign based corporation, joint venture, partnership, or other establishment in the consumer's country of residence, to supply services to persons in the host country; and (4) *Movement of natural persons*, which involves an individual, functioning alone or in the employ of a service provider, temporarily travelling abroad to deliver a service in the consumer's country of residence

[11] The econometric work that estimates the impact of barriers on prices provides some tentative explorations of the cost-increasing or rent-creating effect of services barriers. In general, in a numerical modelling framework, cost-increasing barriers are modelled as productivity shocks, while rent-creating barriers are taxes on outputs and/or imports/exports.

one to an aggregate of OECD countries and one to an aggregate of non-OECD countries[12]. The results are reported for the 11 developing countries: Albania, Brazil, Bulgaria, Chile, Croatia Malaysia, Morocco, Romania, Russia, Thailand, and Zambia. Of the 30 sectors, nine represent agri-food product groups, 13 are manufacturing sectors and 8 are services. The correspondence of the sectors modelled and their GTAP-5 components is given in Table 2.

4.2 Simulation scenarios

The paper uses the ERP formula in the context of the I/O framework presented in Elbeheri and McDougal (1998), where ERP is defined as the ratio of the difference between the assisted and unassisted value added over the unassisted value added:

$$ERP = (AVA-UVA)/UVA$$

Where AVA=AVOUT-AVINP
AVOUT = assisted/protected value of outputs
AVINP = assisted/protected value of inputs.
UVA = UVOUT-UVINP
UVOUT = unassisted/unprotected value of outputs
UVINP = unassisted/unprotected value of inputs

To compute the ERPs, a simulation of the model to eliminate the wedge between world and domestic prices was undertaken. The assisted values are taken from the pre-simulation database, while the unassisted values from the post-simulation database. The results of this exercise are presented in Table 3 (the columns labelled ERP 1). The experiments concern exclusively import and export tariff eliminations, abstracting from particular features, like the existence of tariff rate quotas, or domestic support.

In a next step, several adjustments are carried out to analyse the differences in impacts of calculating the ERP without considering services compared to the services inefficiencies adjusted ERP. The services tax equivalents for the selected regions presented in Table 1 were introduced into the GTAP database as described above using the "Altertax" option, which makes it possible to change various tax rates in the model database. This procedure is designed to incorporate additional information on policy variables into existing GTAP data aggregations (Malcolm, 1998). Taxes were incorporated, while maintaining the internal consistency of the database and minimising the impact of the tariff change on the value of commodity and financial flows. The updated database containing the services tax estimates forms the basis for the subsequent experiment that eliminates the wedge between world and domestic prices. For the calculation of the services inefficiencies adjusted ERP, the new unassisted values are taken from this post-simulation database, while the assisted values from the initial pre-simulation database are kept unchanged. The results are presented in Table 3 (the columns labelled ERP 2).

5. Discussion of results

Table 3 reports the shares of the services inputs in total, the shares of the services sectors for which tax equivalents were available and the computed ERPs as a fraction of the unassisted value added for the selected sectors and countries. A positive value reflects a protected sector, while a negative value reflects a taxed industry.

[12] For these regions, aggregated tax equivalents as presented in OECD (2005) were used. However, an analysis of constituent countries at a disaggregated level was not undertaken in the context of this study, given that, as opposed to the above-mentioned countries, the tax equivalents are based on 1997 data, making cross country and sectoral comparisons irrelevant.

The results reveal moderate differences between the two ERPs for agriculture and manufacturing. However, if account is taken of services barriers (ERP 2), ERP falls in almost all sectors in all countries. For some agricultural sectors, such as

- Cereals in Russia;
- Vegetables, fruits and seeds in Croatia, Romania, Russia, Thailand and Zambia;
- Oils seeds, plants and straw in Bulgaria and Chile;
- Meat in Albania, Romania, Russia and Zambia;
- Vegetable oils and fats in Brazil;
- Sugar in Bulgaria, Croatia, Morocco and Romania;
- Beverages and tobacco and Food products in Romania and Zambia;
- Food products not elsewhere classified in Romania and Zambia;

and some manufacturing sectors such as

- Forestry and wood products in Brazil and Zambia;
- Paper products and publishing in Romania;
- Chemical, rubber, plastic products in Bulgaria and Romania;
- Mineral products not elsewhere classified in Brazil and Thailand;
- Base metals and metals in Zambia;
- Motor vehicles in Bulgaria and Brazil;
- Transport equipment in Croatia;
- Manufactures not elsewhere classified in Croatia, Morocco and Romania

the ERP becomes negative suggesting that the protection of both non-services and services inputs results in the effective taxation of these industries. Tables 1 and 2 summarise these results.

The magnitude of the taxing effect of services on non-services sectors is lower than expected. It depends on (1) the services intensity of each sector, as well as (2) the levels and ways of incorporating services barriers into the database.

It is worth noting that barriers related to a substantial part of services inputs (other services sectors that include construction, transport – other than air and maritime- , insurance, gas distribution, water, recreation and other services, dwellings) that account in some cases for over 15% of total inputs in agriculture and 20% of total inputs in manufacturing (see the difference between the first column “Share of services in total inputs” and the second column “Share of services sectors with available tax equivalents in total inputs”) have not been included in the analysis given lack of such estimates for these other services sectors.

With respect to the magnitude of services barriers, it is interesting to observe that tax equivalent of services barriers do not considerable exceed the level of the import tariffs listed in Table 1. In some cases, given mainly incomplete information when scoring the initial trade restrictiveness index, the tax equivalents are probably underestimated (for example, the tax equivalents for Morocco, Zambia, Russia in distribution services are zero or approaching zero; the tax equivalents of barriers in electricity in Chile is zero; the tax equivalents of services barriers in professional services in Zambia and Morocco are 1 and 2%, respectively), leading to an underestimation of the taxing effect of services barriers to other sectors. This

highlights once again the need to invest in collecting adequate and correct information on services barriers and develop and improve exiting methodologies for assessing their restrictiveness in order to obtain realistic estimates of services barriers. Estimates of ERPs also vary depending on whether services tax equivalents are included as rent-creating or cost-increasing barriers.

Concluding, notwithstanding these caveats that translate into an underestimation of the taxing effect of services barriers on non-services sectors, this exercise could be important from a practical view, given that in a number of agricultural and manufacturing sectors the sign of protection is reversed (*i.e.* it goes from positive protection into effective taxation). However, in order to obtain more realistic insights into the potential costs of services barriers on downstream using industries, it is necessary to consider correct services trade equivalents and include the estimates for the other services sectors as soon as they become available. In addition, input-output linkages and forecasting models could supplement the ERP computations and general equilibrium analyses to determine how liberalisation will affect the output of the non-services sectors and the resource allocation across industries.

Table 1: Trade-weighted import and export taxes/subsidies for agricultural and manufacturing and tax equivalents for barriers in selected services sectors

		Malaysia	Thailand	Brazil	Chile	Russia	Morocco	Zambia	Albania	Bulgaria	Croatia	Romania
1 cereals	Import tax	0.00	20.09	0.15	6.97	4.11	27.57	3.23	4.95	10.21	10.52	11.78
1 cereals	*Export tax/subsidy*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
2 vegetables & fruit	Import tax	52.17	32.69	6.19	6.88	6.43	29.79	8.06	10.05	16.32	9.38	18.70
2 vegetables & fruit	*Export tax/subsidy*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
3 oil seeds & plants	Import tax	0.84	22.12	0.11	6.95	3.90	13.99	3.04	7.22	13.36	0.00	3.84
3 oil seeds & plants	*Export tax/subsidy*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
4 meat & fish	Import tax	0.69	13.95	4.92	6.86	15.81	93.15	8.34	10.34	28.88	34.67	29.65
4 meat & fish	*Export tax/subsidy*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
5 milk & dairy	Import tax	1.70	10.35	5.67	6.80	7.62	56.84	12.27	13.04	38.62	34.64	24.39
5 milk & dairy	*Export tax/subsidy*	*0.00*	*0.00*	*0.00*	*0.00*	*-0.13*	*-0.43*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
6 vegetable oils & fat	Import tax	0.91	16.15	6.48	6.88	10.18	7.38	10.43	7.67	7.96	28.33	12.30
6 vegetable oils & fat	*Export tax/subsidy*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
7 sugar	Import tax	0.00	31.06	14.40	6.56	36.22	32.88	3.48	6.46	48.35	9.50	2.21
7 sugar	*Export tax/subsidy*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
8 beverages & tobacco products	Import tax	113.52	56.16	19.47	6.41	13.64	25.29	23.88	19.51	35.96	23.12	83.33
8 beverages & tobacco products	*Export tax/subsidy*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
9 food products nec	Import tax	3.51	43.00	8.53	6.81	10.33	31.19	9.56	11.80	20.55	15.64	14.15
9 food products nec	*Export tax/subsidy*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*	*0.00*
10 forestry & wood products	Import tax	7.31	8.14	13.28	6.85	15.30	31.43	19.07	14.37	9.07	1.94	4.94
10 forestry & wood products	*Export tax/subsidy*	*0.00*	*0.00*	*-0.08*	*0.00*	*-0.95*	*-7.67*	*0.00*	*-0.03*	*0.00*	*0.00*	*0.00*
11 paper products, publishing	Import tax	6.02	11.24	9.05	6.63	7.74	33.66	10.42	11.76	4.85	0.48	3.53
11 paper products, publishing	*Export tax/subsidy*	*0.00*	*0.00*	*-0.17*	*0.00*	*-2.04*	*-4.83*	*0.00*	*-0.15*	*0.00*	*0.00*	*0.00*
12 mineral products	Import tax	0.59	0.35	0.33	6.95	1.28	8.64	1.90	7.63	0.38	2.78	1.06
12 mineral products	*Export tax/subsidy*	*0.03*	*0.05*	*-0.25*	*0.00*	*-9.52*	*-3.76*	*0.00*	*-1.08*	*0.00*	*0.00*	*0.00*
13 textiles	Import tax	11.56	15.14	14.89	6.72	13.48	37.29	16.46	15.86	15.02	3.97	9.37
13 textiles	*Export tax/subsidy*	*-3.06*	*-3.95*	*-1.90*	*0.00*	*-4.20*	*-2.14*	*0.00*	*-0.12*	*-0.17*	*0.00*	*-0.41*
14 leather products	Import tax	4.93	11.34	10.79	6.91	19.99	44.42	22.14	10.80	10.72	3.40	4.39
14 leather products	*Export tax/subsidy*	*0.00*	*0.00*	*-0.15*	*0.00*	*-4.58*	*-9.35*	*0.00*	*-0.13*	*0.00*	*0.00*	*0.00*
15 chemical, rubber, plastic prods	Import tax	5.65	11.38	8.47	6.46	8.33	21.58	6.46	10.52	5.79	0.62	3.84
15 chemical, rubber, plastic prods	*Export tax/subsidy*	*0.00*	*0.00*	*-0.62*	*0.00*	*-3.34*	*-2.50*	*0.00*	*-0.06*	*0.00*	*0.00*	*0.00*
16 mineral products nec	Import tax	11.22	14.84	10.81	6.79	11.76	31.28	12.03	14.05	9.00	1.73	3.58
16 mineral products nec	*Export tax/subsidy*	*0.00*	*0.00*	*-0.24*	*0.00*	*-7.26*	*-4.67*	*0.00*	*-0.03*	*0.00*	*0.00*	*0.00*
17 base metals & metals nec	Import tax	8.54	9.25	11.47	6.72	5.80	17.87	7.35	15.15	6.01	1.22	5.98
17 base metals & metals nec	*Export tax/subsidy*	*0.00*	*0.00*	*-0.29*	*0.00*	*-1.80*	*-1.88*	*0.00*	*-0.03*	*0.00*	*0.00*	*0.00*
18 motor vehicles & parts	Import tax	47.39	36.44	20.13	6.75	13.73	26.83	13.12	12.50	8.55	1.77	11.71
18 motor vehicles & parts	*Export tax/subsidy*	*0.00*	*0.00*	*-0.01*	*1.19*	*-5.05*	*-4.54*	*0.00*	*-0.05*	*0.00*	*0.00*	*0.00*
19 transport equipment nec	Import tax	3.00	5.15	1.88	2.09	8.09	12.20	3.47	7.84	1.66	0.91	5.59
19 transport equipment nec	*Export tax/subsidy*	*0.00*	*0.00*	*-0.63*	*-1.07*	*-5.04*	*-0.79*	*0.00*	*-0.11*	*0.00*	*0.00*	*0.00*
20 electronic equipment	Import tax	0.37	4.65	12.09	6.44	6.76	1.21	11.63	5.48	1.44	0.05	1.18
20 electronic equipment	*Export tax/subsidy*	*0.00*	*0.00*	*-0.39*	*0.31*	*-5.04*	*-1.58*	*0.00*	*-0.07*	*0.00*	*0.00*	*0.00*

Table 1: Trade-weighted import and export taxes/subsidies for agricultural and manufacturing and tax equivalents for barriers in selected services sectors (continued)

		Malaysia	Thailand	Brazil	Chile	Russia	Morocco	Zambia	Albania	Bulgaria	Croatia	Romania
21 machinery & equipment	Import tax	3.91	8.18	12.17	6.83	6.25	11.90	5.57	5.88	4.77	1.39	3.57
21 machinery & equipment	*Export tax/subsidy*	*0.00*	*0.00*	*-0.52*	*-0.17*	*-5.05*	*-2.06*	*0.00*	*-0.10*	*0.00*	*0.00*	*0.00*
22 manufacturers nec	Import tax	7.58	6.24	18.10	6.74	14.31	19.91	20.41	17.72	7.94	2.19	7.17
22 manufacturers nec	*Export tax/subsidy*	*0.00*	*0.00*	*-0.29*	*0.00*	*-3.48*	*-3.40*	*0.00*	*-0.26*	*0.00*	*0.00*	*0.00*
23 electricity	**total tax equivalent**	**17.00**	**11.00**	**16.00**	**0.00**	**17.00**	**11.00**	**38.00**	**13.60**	**13.60**	**13.60**	**13.60**
24 trade	**total tax equivalent**	**12.20**	**7.60**	**3.80**	**3.20**	**4.00**	**0.00**	**1.20**	**7.40***	**18.60**	**3.50**	**17.00**
	non-discriminatory barriers	4.00	1.60	2.00	1.90	0.00	0.00	0.00	5.10	13.80	2.60	12.20
	discriminatory barriers	8.20	6.00	1.80	1.30	4.00	0.00	1.20	2.30	4.80	0.90	4.80
25 sea transport	**total tax equivalent**	**1.00**	**5.00**	**9.00**	**0.30**	**11.00**	**na**	**na**	**5.80**	**5.80**	**5.80**	**5.80**
26 air transport	**total tax equivalent**	**18.00**	**16.00**	**16.00**	**13.00**	**16.00**	**12.00**	**14.00**	**19.00**	**19.00**	**19.00**	**19.00**
27 communication	**total tax equivalent**	**4.50**	**16.70**	**3.68**	**0.15**	**6.03**	**18.95**	**6.80**	**16.10**	**8.33**	**30.55***	**10.48**
	fixed lines	*6.90*	*28.50*	*6.60*	*0.30*	*9.90*	*33.30*	*13.10*	*27.40*	*14.70*	*28.60*	*17.60*
	non-discriminatory barriers	1.00	11.10	3.30	0.30	3.60	13.50	13.10	11.60	7.60	12.50	8.60
	discriminatory barriers	5.90	17.40	3.30	0.00	6.30	19.80	0.00	16.80	7.10	16.10	9.00
	mobiles	*4.20*	*9.80*	*1.50*	*0.00*	*4.30*	*9.20*	*1.00*	*8.60*	*3.90*	*32.50*	*6.70*
	non-discriminatory barriers	1.10	4.10	0.00	0.00	0.90	4.00	1.00	4.60	0.50	12.90	3.00
	discriminatory barriers	3.10	5.70	1.50	0.00	3.40	5.20	0.00	4.00	3.40	19.60	3.70
28 financial services nec	**total tax equivalent**	**36.02**	**11.27**	**17.76**	**18.61**	**7.11**	**22.13**	**4.28**	**8.12**	**2.94**	**10.89**	**8.63***
	non-discriminatory barriers	14.76	0.00	0.60	15.45	6.17	8.74	4.28	2.42	2.42	2.42	2.94
	discriminatory barriers	21.26	11.27	17.76	3.16	0.94	13.39	0.00	0.00	0.52	0.02	5.69
	excess capital and excess liquidity ratios								5.69		8.35	
29 business services	**total tax equivalent**	**17.30**	**6.40**	**11.20**	**9.20**	**2.60**	**1.60**	**0.70**	**4.00**	**2.00**	***7.80****	***7.80****
	non-discriminatory barriers	5.30	2.40	2.40	0.00	0.00	0.00	0.00	1.80	0.00	*1.80*	*1.80*
	discriminatory barriers	12.00	4.00	8.80	9.20	2.60	1.60	0.70	2.20	2.00	*6.00*	*6.00*
30 other services		**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Notes: Trade weighted import taxes and export taxes/subsidies are from the GTAP database version 6 pre-release 5.
All tax equivalents for services barriers in Malaysia, Thailand, Brazil, Chile, Russia, Morocco and Zambia are from OECD (2005). For Albania, Bulgaria, Croatia and Romania most tax equivalents for services barriers in telecommunication, banking, distribution and professional services are from OECD (2003). Where these sectoral estimates were unavailable (*), they were taken from OECD (2005) (the estimates for the rest of the world in these sectors). Similarly, tax equivalents for electricity and transport in these countries are from OECD (2005) (the estimates for the rest of the world in these sectors). The tax equivalents for telecommunication are calculated as simple averages of tax equivalents for fixed and cellular services.
Sources: GTAP database version 6 pre-release 5, November 2004, OECD (2005) and OECD (2003).

Table 2: Sectoral aggregation defined by reference to the GTAP Sectoral Classification

Product group	GTAP code	GTAP description
Cereals	pdr	*Paddy rice*
	wht	*Wheat*
	gro	*Cereal grains nec*
	pcr	*Processed rice*
Vegetables, fruits, nuts, coffee, seeds	v_f	*Vegetables, fruit, nuts*
	ocr	*Crops nec*
Oil seeds, plants, straw	osd	*Oil seeds*
	c_b	*Sugar cane, sugar beet*
Meat and fish	ctl	*Cattle, sheep, goats, horses*
	oap	*Animal products nec*
	fsh	*Fishing*
	cmt	*Meat: cattle ,sheep ,goats, horse*
	omt	*Meat products nec*
Milk and dairy	rmk	*Raw milk*
	mil	*Dairy products*
Vegetable oils and fats	vol	*Vegetable oils and fats*
Sugar	sgr	*Sugar*
Beverages and tobacco products	b_t	*Beverages and tobacco products*
Food products nec	ofd	*Food products nec*
Forestry and wood products	frs	*Forestry*
	lum	*Wood products*
Paper products, publishing	ppp	*Paper products, publishing*
Mineral products	coa	*Coal*
	oil	*Oil*
	gas	*Gas*
	omn	*Minerals nec*
	p_c	*Petroleum, coal products*
Textiles and fibres	pfb	*Plant-based fibers*
	wol	*Wool, silk-worm cocoons*
	tex	*Textiles*
	wap	*Wearing apparel*
Leather products	lea	*Leather products*
Chemical, rubber, plastic prods	crp	*Chemical, rubber, plastic prods*
Mineral products nec	nmm	*Mineral products nec*
Base metals and metals nec	i_s	*Ferrous metals*
	nfm	*Metals nec*
	fmp	*Metal products*
Motor vehicles and parts	mvh	*Motor vehicles and parts*
Transport equipment nec	otn	*Transport equipment nec*
Electronic equipment	ele	*Electronic equipment*
Machinery and equipment nec	ome	*Machinery and equipment nec*
Manufactures nec	omf	*Manufactures nec*

Table 2: Sectoral aggregation defined by reference to the GTAP Sectoral Classification

Electricity	ely	Electricity
Trade	trd	Trade
Sea transport	wtp	Sea transport
Air transport	atp	Air transport
Communication	cmn	Communication
Financial services nec	ofi	*Financial services nec*
Business services nec	obs	*Business services nec*
Other services	gdt	*Gas manufacture, distribution*
	wtr	*Water*
	cns	*Construction*
	otp	*Transport nec*
	isr	*Insurance*
	ros	*Recreation and other services*
	osg	*Public Administration, Defence, Health, Education*
	dwe	*Dwellings*

Table 3: ERP Results

	Malasyia				Thailand				Brazil			
Sectors	***Share of services in total inputs***	***Share of services sectors with available tax equivalents in total inputs***	***ERP 1***	***ERP 2***	***Share of services in total inputs***	***Share of services sectors with available tax equivalents in total inputs***	***ERP 1***	***ERP 2***	***Share of services in total inputs***	***Share of services sectors with available tax equivalents in total inputs***	***ERP 1***	***ERP 2***
Agriculture and Manufacturing												
1 cereals	0.19	0.15	-0.20	-0.22	0.17	0.15	-0.29	-0.31	0.32	0.28	-0.64	-0.65
2 vegetables & fruit	0.45	0.31	0.17	0.15	0.44	0.38	0.02	-0.01	0.35	0.31	-0.08	-0.11
3 oil seeds & plants	0.44	0.29	0.01	0.00	0.46	0.38	-0.80	-0.80	0.26	0.23	-0.15	-0.17
4 meat & fish	0.16	0.11	-0.21	-0.22	0.18	0.16	-0.07	-0.10	0.19	0.16	-0.38	-0.40
5 milk & dairy	0.01	0.00	-0.48	-0.49	0.12	0.11	-0.17	-0.19	0.19	0.16	-0.08	-0.11
6 vegetable oils & fat	0.19	0.13	-0.50	-0.52	0.22	0.17	-0.05	-0.07	0.20	0.17	0.00	-0.03
7 sugar	0.08	0.07	-0.24	-0.25	0.20	0.16	-0.72	-0.73	0.20	0.16	-0.06	-0.08
8 beverages & tobacco products	0.20	0.16	-0.08	-0.11	0.27	0.22	-0.05	-0.08	0.29	0.26	-0.05	-0.07
9 food products nec	0.13	0.11	-0.24	-0.26	0.22	0.19	-0.02	-0.04	0.34	0.31	-0.08	-0.11
10 forestry & wood products	0.22	0.16	-0.04	-0.06	0.41	0.33	0.22	0.20	0.40	0.36	0.02	-0.01
11 paper products, publishing	0.26	0.21	0.01	0.05	0.30	0.24	-0.01	0.00	0.34	0.31	0.03	0.03
12 mineral products	0.14	0.08	0.02	0.06	0.12	0.11	-0.02	0.00	0.29	0.25	0.07	0.05
13 textiles	0.20	0.18	-0.48	-0.50	0.20	0.17	-0.18	-0.20	0.19	0.17	0.06	0.02
14 leather products	0.07	0.06	-0.34	-0.36	0.22	0.18	-0.09	-0.11	0.19	0.16	0.19	0.14
15 chemical, rubber, plastic prods	0.18	0.14	-0.06	-0.07	0.25	0.22	-0.01	-0.03	0.24	0.20	0.06	0.04
16 mineral products nec	0.30	0.24	0.03	0.02	0.37	0.30	0.01	-0.01	0.30	0.23	0.02	-0.01
17 base metals & metals nec	0.17	0.14	-0.03	-0.04	0.22	0.19	-0.01	-0.03	0.30	0.26	0.12	0.09
18 motor vehicles & parts	0.10	0.09	-0.08	-0.10	0.17	0.14	-0.08	-0.10	0.21	0.18	0.00	-0.04
19 transport equipment nec	0.18	0.15	-0.03	-0.05	0.08	0.07	-0.56	-0.57	0.18	0.16	0.10	0.07
20 electronic equipment	0.22	0.19	0.05	0.03	0.16	0.14	-0.04	-0.06	0.24	0.22	0.05	0.02
21 machinery & equipment	0.17	0.14	-0.05	-0.07	0.20	0.17	-0.12	-0.14	0.25	0.22	0.19	0.17
22 manufacturers nec	0.21	0.18	-0.06	-0.07	0.23	0.20	0.11	0.08	0.43	0.39	0.04	0.02
Average			*-0.13*	*-0.14*			*-0.13*	*-0.15*			*-0.03*	*-0.05*
Services												
23 electricity	0.47	0.20	-0.11	-0.34	0.41	0.28	-0.08	-0.20	0.71	0.60	0.00	-0.12
24 trade	0.70	0.31	0.00	-0.08	0.84	0.67	-0.08	-0.13	0.64	0.56	-0.05	-0.10
25 sea transport	0.52	0.34	-0.13	-0.18	0.60	0.43	-0.09	-0.17	0.62	0.41	-0.01	-0.13
26 air transport	0.44	0.24	-0.03	-0.18	0.43	0.25	0.03	-0.14	0.62	0.42	-0.02	-0.19
27 communication	0.68	0.50	-0.01	0.07	0.92	0.77	-0.05	-0.07	0.74	0.65	-0.04	-0.06
28 financial services nec	0.85	0.64	-0.09	-0.30	0.85	0.75	-0.08	-0.10	0.95	0.77	-0.01	-0.10
29 business services	0.83	0.76	0.00	-0.14	0.52	0.45	-0.02	-0.06	0.54	0.46	-0.04	-0.09
30 other services	0.38	0.18	-0.08	-0.07	0.42	0.29	-0.11	-0.14	0.59	0.45	-0.07	-0.10
Average			-0.06	-0.15			-0.06	-0.12			-0.03	-0.11

Table 3: ERP results (continued)

	Chile				Morocco				Zambia			
Sectors	***Share of services in total inputs***	***Share of services sectors with available tax equivalents in total inputs***	***ERP 1***	***ERP 2***	***Share of services in total inputs***	***Share of services sectors with available tax equivalents in total inputs***	***ERP 1***	***ERP 2***	***Share of services in total inputs***	***Share of services sectors with available tax equivalents in total inputs***	***ERP 1***	***ERP 2***
Agriculture												
1 cereals	0.30	0.20	0.12	0.08	0.56	0.26	0.29	0.25	0.28	0.20	-0.01	-0.06
2 vegetables & fruit	0.33	0.23	-0.06	-0.09	0.53	0.22	-0.05	-0.08	0.25	0.19	0.02	-0.03
3 oil seeds & plants	0.20	0.14	0.00	-0.02	0.60	0.21	0.08	0.05	0.29	0.15	-0.29	-0.31
4 meat & fish	0.16	0.12	-0.08	-0.11	0.27	0.15	0.10	0.07	0.41	0.20	0.00	-0.05
5 milk & dairy	0.18	0.14	-0.14	-0.16	0.25	0.15	0.17	0.13	0.48	0.35	0.06	0.05
6 vegetable oils & fat	0.09	0.07	0.03	0.00	0.25	0.15	-0.01	-0.05	0.21	0.15	0.13	0.08
7 sugar	0.04	0.03	-0.02	-0.04	0.24	0.15	0.02	-0.01	0.09	0.06	-0.42	-0.44
8 beverages & tobacco products	0.26	0.21	-0.04	-0.07	0.22	0.12	-0.12	-0.15	0.31	0.22	0.02	-0.03
9 food products nec	0.23	0.20	-0.01	-0.04	0.25	0.16	-0.04	-0.07	0.28	0.21	0.01	-0.04
10 forestry & wood products	0.50	0.40	-0.01	-0.03	0.20	0.11	0.06	0.03	0.28	0.20	0.01	-0.03
11 paper products, publishing	0.46	0.35	0.01	0.00	0.36	0.23	0.16	0.15	0.35	0.25	0.08	0.05
12 mineral products	0.25	0.18	0.03	0.03	0.28	0.16	-0.12	-0.12	0.29	0.20	0.02	0.00
13 textiles	0.39	0.32	0.04	0.01	0.12	0.08	-0.25	-0.27	0.37	0.25	0.14	0.10
14 leather products	0.12	0.10	0.04	0.01	0.01	0.01	0.09	0.06	0.44	0.31	0.33	0.29
15 chemical, rubber, plastic prods	0.27	0.21	-0.03	-0.05	0.26	0.14	-0.23	-0.25	0.13	0.09	0.11	0.09
16 mineral products nec	0.34	0.24	-0.01	-0.03	0.42	0.22	0.09	0.06	0.44	0.30	-0.01	0.01
17 base metals & metals nec	0.33	0.27	0.02	0.00	0.33	0.23	0.09	0.07	0.65	0.55	0.01	-0.01
18 motor vehicles & parts	0.25	0.22	0.04	0.02	0.22	0.16	0.14	0.11	0.35	0.25	0.18	0.17
19 transport equipment nec	0.15	0.13	-0.03	-0.05	0.22	0.16	-0.01	-0.03	0.35	0.26	0.03	0.00
20 electronic equipment	0.35	0.28	0.15	0.13	0.43	0.26	-0.15	-0.17	0.50	0.35	0.29	0.30
21 machinery & equipment	0.28	0.23	-0.11	-0.13	0.30	0.21	-0.07	-0.09	0.43	0.31	0.17	0.21
22 manufacturers nec	0.28	0.22	0.04	0.01	0.33	0.23	0.01	-0.02	0.38	0.26	-0.42	-0.42
Average			*0.00*	*-0.02*			*0.01*	*-0.02*			*0.02*	*0.00*
Services												
23 electricity	0.61	0.46	0.00	-0.02	0.36	0.35	-0.04	-0.12	0.66	0.55	0.00	-0.17
24 trade	0.72	0.48	-0.01	-0.06	0.78	0.21	-0.07	-0.09	0.68	0.44	-0.02	-0.04
25 sea transport	0.83	0.54	-0.08	-0.12	0.68	0.29	-0.10	-0.14	0.77	0.31	-0.02	-0.03
26 air transport	0.73	0.48	-0.02	-0.18	0.64	0.29	-0.01	-0.08	0.74	0.37	-0.01	-0.16
27 communication	0.85	0.71	0.00	-0.01	0.87	0.29	0.00	-0.14	0.64	0.42	-0.01	-0.09
28 financial services nec	0.90	0.76	-0.01	-0.08	0.84	0.33	-0.03	-0.23	0.86	0.64	-0.01	-0.05
29 business services	0.73	0.62	-0.01	-0.03	0.71	0.27	-0.03	-0.05	0.86	0.65	-0.01	-0.02
30 other services	0.52	0.29	-0.01	-0.04	0.53	0.13	-0.06	-0.09	0.63	0.31	-0.03	-0.05
Average			-0.02	-0.07			-0.04	-0.12			-0.01	-0.08

Table 3: ERP results (continued)

	Russia				Albania				Bulgaria			
Sectors	***Share of services in total inputs***	***Share of services sectors with available tax equivalents in total inputs***	***ERP 1***	***ERP 2***	***Share of services in total inputs***	***Share of services sectors with available tax equivalents in total inputs***	***ERP 1***	***ERP 2***	***Share of services in total inputs***	***Share of services sectors with available tax equivalents in total inputs***	***ERP 1***	***ERP 2***
Agriculture												
1 cereals	0.33	0.27	0.01	-0.01	0.19	0.16	0.08	0.03	0.16	0.07	-0.04	-0.09
2 vegetables & fruit	0.30	0.25	0.01	-0.01	0.23	0.20	0.05	0.00	0.16	0.07	-0.04	-0.09
3 oil seeds & plants	0.33	0.27	0.15	0.13	0.07	0.06	-0.09	-0.13	0.22	0.10	0.00	-0.03
4 meat & fish	0.27	0.23	0.00	-0.02	0.25	0.24	0.04	-0.02	0.09	0.04	-0.02	-0.09
5 milk & dairy	0.29	0.24	-0.04	-0.06	0.19	0.17	0.02	-0.03	0.12	0.05	-0.07	-0.12
6 vegetable oils & fat	0.24	0.20	0.31	0.28	0.28	0.25	0.20	0.06	0.29	0.13	-0.08	-0.11
7 sugar	0.16	0.14	0.03	0.02	0.48	0.45	-1.00	-1.00	0.11	0.06	0.01	-0.01
8 beverages & tobacco products	0.37	0.31	0.01	0.00	0.27	0.25	0.12	0.09	0.07	0.03	-0.04	-0.03
9 food products nec	0.25	0.22	0.02	0.00	0.27	0.25	-0.05	-0.09	0.07	0.03	-0.02	-0.07
10 forestry & wood products	0.43	0.32	0.14	0.13	0.42	0.32	0.10	0.06	0.21	0.09	-0.03	-0.06
11 paper products, publishing	0.46	0.39	0.04	0.04	0.62	0.51	0.07	0.05	0.15	0.08	-0.02	-0.05
12 mineral products	0.42	0.35	-0.13	-0.07	0.42	0.32	-0.02	-0.01	0.18	0.12	-0.04	-0.06
13 textiles	0.28	0.23	-0.02	-0.03	0.53	0.48	0.29	0.24	0.10	0.06	0.17	0.13
14 leather products	0.27	0.22	0.36	0.34	0.38	0.32	0.28	0.23	0.15	0.10	0.12	0.07
15 chemical, rubber, plastic prods	0.41	0.33	0.05	0.04	0.56	0.56	0.16	0.10	0.24	0.11	0.00	-0.04
16 mineral products nec	0.37	0.20	-0.01	-0.02	0.70	0.64	0.18	0.15	0.23	0.11	-0.04	-0.08
17 base metals & metals nec	0.60	0.53	0.08	0.05	0.63	0.58	0.08	0.05	0.13	0.09	-0.07	-0.10
18 motor vehicles & parts	0.26	0.21	0.04	0.02	0.90	0.90	0.20	0.13	0.12	0.05	0.00	-0.06
19 transport equipment nec	0.21	0.16	-0.13	-0.14	0.85	0.85	0.20	0.07	0.18	0.11	-0.04	-0.07
20 electronic equipment	0.38	0.35	-0.17	-0.18	0.34	0.30	-0.29	-0.28	0.21	0.11	-0.02	-0.03
21 machinery & equipment	0.45	0.41	-0.02	-0.03	0.44	0.38	-0.22	-0.24	0.16	0.09	-0.03	-0.07
22 manufacturers nec	0.19	0.14	0.07	0.06	0.84	0.83	0.05	0.04	0.16	0.09	-0.01	-0.04
Avergae			*0.04*	*0.02*			*0.02*	*-0.02*			*-0.02*	*-0.05*
Services												
23 electricity	0.39	0.31	-0.01	-0.39	0.73	0.50	0.06	-0.03	0.40	0.35	-0.04	-0.65
24 trade	0.62	0.41	-0.02	-0.05	0.58	0.40	0.01	-0.07	0.24	0.14	-0.03	-0.65
25 sea transport	0.55	0.44	-0.03	-0.13	0.58	0.34	-0.04	-0.13	0.66	0.59	-0.07	-0.61
26 air transport	0.59	0.49	0.00	-0.16	0.66	0.23	-0.02	-0.18	0.61	0.51	-0.05	-0.55
27 communication	0.85	0.70	-0.01	-0.03	0.73	0.36	-0.01	-0.09	0.37	0.27	-0.03	-0.37
28 financial services nec	0.91	0.56	-0.01	-0.06	0.92	0.25	0.02	-0.01	0.56	0.48	-0.03	-0.39
29 business services	0.79	0.70	-0.01	-0.01	0.43	0.33	0.01	-0.05	0.59	0.50	-0.03	-0.16
30 other services	0.53	0.32	-0.02	-0.04	0.42	0.28	-0.02	-0.05	0.42	0.17	-0.04	-0.10
Average			-0.01	-0.11			0.00	-0.08			-0.04	-0.44

Table 3: ERP Results (continued)

	Croatia				Romania			
Sectors	*Serv total*	*Share of services sectors with available tax equivalents in total inputs*	*ERP 1*	*ERP 2*	*Share of services in total inputs*	*Share of services sectors with available tax equivalents in total inputs*	*ERP 1*	*ERP 2*
Agriculture								
1 cereals	0.15	0.07	-0.07	-0.10	0.22	0.12	-0.01	-0.07
2 vegetables & fruit	0.15	0.07	0.01	-0.03	0.21	0.12	0.04	-0.03
3 oil seeds & plants	0.12	0.05	0.06	0.02	0.28	0.16	0.17	0.15
4 meat & fish	0.31	0.26	0.11	0.06	0.14	0.08	0.02	-0.05
5 milk & dairy	0.28	0.21	0.01	-0.02	0.15	0.09	-0.01	-0.08
6 vegetable oils & fat	0.20	0.11	0.39	0.33	0.31	0.17	-0.10	-0.16
7 sugar	0.17	0.09	0.03	-0.02	0.17	0.09	0.00	-0.06
8 beverages & tobacco products	0.20	0.08	-0.02	-0.05	0.10	0.05	0.04	-0.01
9 food products nec	0.13	0.08	-0.02	-0.03	0.10	0.05	0.03	-0.04
10 forestry & wood products	0.30	0.15	-0.01	-0.04	0.24	0.12	-0.08	-0.11
11 paper products, publishing	0.47	0.34	-0.01	-0.01	0.24	0.16	0.01	-0.02
12 mineral products	0.06	0.04	0.03	0.09	0.15	0.07	-0.01	0.01
13 textiles	0.26	0.16	0.37	0.33	0.13	0.08	0.31	0.26
14 leather products	0.00	0.00	0.25	0.20	0.16	0.11	0.28	0.23
15 chemical, rubber, plastic prods	0.17	0.12	-0.04	-0.06	0.38	0.20	0.01	-0.03
16 mineral products nec	0.42	0.26	-0.02	-0.05	0.30	0.17	-0.05	-0.09
17 base metals & metals nec	0.24	0.16	-0.03	-0.05	0.38	0.31	-0.14	-0.17
18 motor vehicles & parts	0.00	0.00	0.04	0.01	0.15	0.07	-0.08	-0.12
19 transport equipment nec	0.41	0.30	0.00	-0.01	0.19	0.12	-0.01	-0.04
20 electronic equipment	0.08	0.05	-0.08	-0.10	0.24	0.14	-0.03	-0.06
21 machinery & equipment	0.13	0.09	-0.05	-0.07	0.20	0.13	-0.04	-0.08
22 manufacturers nec	0.27	0.18	0.01	-0.02	0.16	0.09	0.02	-0.03
Average			*0.04*	*0.02*			*0.02*	*-0.03*
Services								
23 electricity	0.17	0.16	0.01	-0.54	0.54	0.40	-0.04	-0.49
24 trade	0.67	0.38	-0.01	-0.04	0.27	0.16	0.01	-0.14
25 sea transport	0.85	0.71	-0.04	-0.40	0.56	0.48	-0.05	-0.17
26 air transport	0.74	0.48	-0.02	-0.41	0.48	0.36	-0.03	-0.29
27 communication	0.78	0.53	0.00	-0.11	0.38	0.28	0.00	-0.08
28 financial services nec	0.00	0.00	0.00	-0.02	0.63	0.56	0.00	-0.16
29 business services	0.81	0.51	0.00	-0.08	0.55	0.46	0.01	-0.09
30 other services	0.82	0.30	0.00	-0.02	0.40	0.19	-0.01	-0.06
Average			-0.01	-0.20			-0.01	-0.18

Source: GTAP database pre-release 6.5 and own calculations

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