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## Modal Estimates of Services Barriers

Nora Dihel, Ben Shepherd

**Working Party of the Trade Committee**

**MODAL ESTIMATES OF SERVICES BARRIERS**

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**By Nora Dihel and Ben Shepherd**

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## ABSTRACT

This paper presents improved approaches to measurement of services barriers by using alternative weighting methods and improved econometric specifications; the data include barriers affecting each mode of services supply and additional sector-specific regulatory variables. We provide an illustration of these improvements for banking, insurance, telecom (fixed and mobile), professional (engineering) and distribution services in selected countries in Africa, Asia, Central and Eastern Europe, Latin America and the Middle East. We report sector-specific restrictiveness indices at aggregate and modal levels along with aggregate and modal tax equivalents. We also provide confidence intervals for each estimated tax equivalent to take into account the limitations in the estimation techniques. Indeed these limitations lead us to argue against a strict interpretation of the empirical results and in favor of a more flexible, qualitative interpretation, combined with rank ordering of countries for indicative purposes.

*Keywords:* services barriers/restrictions, trade restrictiveness index, tax equivalent, regulatory measures, banking, insurance, telecommunication, distribution, engineering.

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## EXECUTIVE SUMMARY

The Trade Directorate's quantitative work on services barriers has two main objectives. The first is to assess the restrictiveness of services barriers, and their direct impact on prices, costs or some other measures of performance in the affected sectors; and the second objective aims at estimating the economy-wide welfare effects from their removal in selected countries. While this work has suggested several general and sectoral policy priorities for services liberalisation, it also called for further methodological improvements related to both the assessment of services barriers and the modelling of the impact of their removal.

The objective of the current project is to further develop existing approaches that will allow a more realistic assessment of services barriers and liberalisation effects. This basically involves improving estimation techniques by using alternative weighting methods and improved econometric specifications that include barriers affecting each mode of services supply and additional sector-specific regulatory variables.

The current paper illustrates the proposed methodological improvements for banking, insurance, telecom (fixed and mobile), professional (engineering) and distribution services. The countries included in this project are: selected transition economies (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Moldova, Romania, Serbia and Montenegro and Russia), selected countries in Asia (China, India, Malaysia and Thailand), Latin America (Argentina, Brazil, Bolivia, Chile, Columbia, Ecuador, Peru and Venezuela), Africa (Egypt, Morocco, Tunisia and Zambia) and the Middle East (Jordan).

The results, which are based on improved methodologies, give a more complete picture with regard to modal coverage by calculating not only aggregate sectoral indices but also separate modal restrictiveness indices and subsequently modal tax equivalents.

Given the extensive use of such indicators in empirical exercises that assess welfare gains from services liberalisation, an additional objective of the paper is to clearly identify the potential and limitations of services barriers estimation techniques in order to enable a more rigorous and critical interpretation of results.

It is important to highlight the fact that tax equivalents are estimated by statistical means, and are therefore inherently uncertain. In an effort to make the scope of that uncertainty apparent, in addition to the core tax equivalent estimates that are usually presented, this paper provides confidence intervals for each estimated tax equivalent. It can be seen that our estimates – like those presented in previous studies – are subject to uncertainty. We experiment with different combinations of variables (sectoral regulatory variables, MFN exemptions and regional trade agreements (RTA) variables) to gauge the robustness of our results to small changes in model structure. The results suggest that at this stage it is rather difficult to make a clear differentiation concerning the exact nature of barriers (*i.e.* cost-increasing versus rent-creating impact). As a result, rather than drawing detailed policy conclusions based on point estimates, we would favour a more flexible, qualitative interpretation of the quantitative results, combined with rank ordering of countries for indicative purposes. A similar approach would be recommended for empirical exercises that employ these tax equivalents as inputs.

Finally, given the limitations of this estimation technique as well as the problems related to the treatment of services barriers as *ad valorem* trade costs, future empirical work could explore the impact of various regulatory measures on the fixed costs of entering a market or the variable costs of servicing that market using alternative methods.

## **MODAL ESTIMATES OF SERVICES BARRIERS**

### **I. Introduction**

1. The Trade Directorate's quantitative work on services barriers assessed their restrictiveness, their direct impact on prices, costs or some other measures of performance in the affected sectors as well as the economy-wide welfare effects from their removal in selected developing countries. While this work has suggested several general and sectoral policy priorities for services liberalisation, it also called for further methodological improvements related to both the assessment of services barriers and the modelling of the impact of their removal.
2. The objective of the current project is to improve existing methodologies to allow a more realistic assessment of services barriers and liberalisation effects. This basically involves the implementation of improvements concerning the construction of modal restrictiveness indices and tax equivalents using alternative weighting methods and improved econometric specifications that include additional sector-specific variables.
3. This paper illustrates the proposed methodological advances for banking, insurance, telecom (fixed and mobile), distribution and professional (engineering) services.
4. The countries included in this project are: selected transition economies (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Macedonia, Moldova, Romania, Serbia and Montenegro and Russia), selected countries in Asia (China, India, Malaysia and Thailand), Latin America (Argentina, Brazil, Bolivia, Chile, Columbia, Ecuador, Peru and Venezuela), Africa (Egypt, Morocco, Tunisia and Zambia) and the Middle East (Jordan).
5. The paper is structured as follows. Section II briefly reviews the restrictiveness indices and tax equivalents employed in quantitative analyses, highlighting the main methodological improvements that need to be considered to increase the reliability of estimates. Section III illustrates these improvements with application on the enumerated services sectors. Section IV concludes. In addition, the Annexes contain details on the methodological limitations and proposed improvements (Annex 1), the weights of restrictiveness indices components (Annex 2) and the regressions that have been employed to produce the tax equivalents (Annex 3).

### **II. Existing restrictiveness indices and tax equivalents - Strengths and limitations**

6. Given that restrictions to international services transactions typically take the form of non-tariff, non-price regulatory barriers, research on their measurement has focused on the application of general methods for quantifying the presence and size of non-tariff barriers affecting goods trade (such as frequency-type measures, price- and quantity-impact measures) to services barriers. There is now widespread acceptance that, in order to capture the special and diverse nature of services barriers, direct measure approaches are more appropriate than indirect measurement methods that attempt to infer the presence of a barrier based on divergence of some criterion from an established benchmark. The direct measure approaches involve two steps: during the first step, qualitative information about regulatory restrictions are converted into a quantitative index; and the second step involves developing an econometric model to estimate the effect of the services trade restrictiveness index on some measure of economic performance. Consequently, in the framework of its quantitative work on services barriers, the Trade Directorate has relied on the direct methodologies developed by the Australian Productivity Commission (APC). This methodology is briefly described below.

*Overview of the methodology developed by the Australian Productivity Commission*

7. The approach developed by APC consists of first determining the level of restrictions in services and then computing their economic impact. The necessary information on regulatory measures is first collected from extensive databases and then the barriers are classified following a sector-specific approach. Thus, for banking, distribution and professional services, restrictions are classified along the following lines:

- Restrictions affecting entry, including restrictions on licensing, direct investment, joint venture arrangements and the permanent movement of persons; and
- Restrictions affecting on-going operations, including restrictions on raising and lending of funds, restrictions on providing other business, expanding outlets and the temporary movement of persons.

8. For telecommunication services, restrictions affecting commercial presence are distinguished from restrictions on cross-border trade, while in the cases of maritime and air transport various sector-specific regulatory measures such as port efficiency or capacity and price regulations are explicitly considered.

9. The method differentiates between restrictions applied to all firms (domestic index) and restrictions relevant to foreign firms (foreign index). Finally, this qualitative information is converted into a quantitative index, using a priori judgements about the relative restrictiveness of different barriers. This gives the restrictiveness index of the services barriers.

10. Once barriers have been identified and classified, the effect of these restrictions on some measure of economic performance (typically price, cost, price-cost margin, quantity or productivity) is then computed using an econometric model while controlling for specific factors that might affect performance in that particular sector. This gives the tax equivalents of the services barriers.

11. The methodology developed by the Australian Productivity Commission on sectoral restrictiveness indices and tax equivalents for barriers in specific services sectors such as banking, distribution services, professional services (engineering, legal, architectural, etc.) and telecommunication services was applied by the Trade Directorate to a number of non-OECD economies<sup>1</sup>.

12. Notwithstanding the use of these sophisticated methods to quantify the magnitude of services barriers, some caveats need to be kept in mind when interpreting the results. Despite important improvements concerning the quantification of services barriers, a number of limitations still constrain the reliability of various estimates. Some of these limits are due to the availability of data on existing restrictions, and others reflect certain shortcomings in currently used methodologies such as the subjective allocation of weights to the various components that are included in the restrictiveness indices. Furthermore, it has been observed that the classification systems of barriers employed in the construction of the indices are not always compatible and useful from a GATS perspective as they do not systematically take into account the four modes of supply.

13. To address these limitations, researchers need to envisage methodological improvements concerning the construction of modal restrictiveness indices and tax equivalents using alternative weighting methods, combined with improved econometric specifications that include additional sector-specific variables. These limitations and proposals for improvement are discussed in detail in Annex 1. The implementation of the above proposals in the selected services sectors is outlined in the next section.

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<sup>1</sup> See OECD, 2005a, and OECD, 2004.

### III. Methodological improvements

14. Below we explain the methodological improvements that have been introduced in this paper that concern in the first stage the construction of aggregate and modal restrictiveness indices along with devising an appropriate weighting methodology, and, in a second stage calculating their tax equivalents.

Stage 1: Restrictiveness indices

- Aggregate and modal restrictiveness indices
- Weighting methodology

Stage 2: Tax equivalents

- Aggregate and modal tax equivalents and impact of regulatory measures and other sector-specific variables on sectoral performance.

#### **Stage 1: Restrictiveness indices**

##### ***Aggregate and modal restrictiveness indices***

15. In order to make the index more suitable for services negotiations, it would be useful to develop indices that cover all modes of services supply at the sectoral level. Therefore, in addition to aggregate restrictiveness indices (calculated in all previous studies), separate modal indices are proposed in this paper. The trade restrictiveness indices (TRIs) cover the following barriers:

Banking and Insurance:

- *Mode 1 and 2*: restrictions on subsidies, establishment or residency/recognition requirements to provide cross-border services, requirement to co-operate with local organisations, geographical limitations, authorisation requirements;
- *Mode 3*: foreign equity limits, limitations on the form of establishment, including joint venture requirements, screening and approval, limitations on business activities; and
- *Mode 4*: limits on the duration of stay, on number of work permits, issues related to licensing/recognition requirements, limitations on the board of directors.

Telecommunication:

- *Mode 1*: restrictions on leased line or network provision, connections of leased lines and private networks to the PSTN, international simple resale and IP telephony;
- *Mode 2*: call back services;
- *Mode 3*: foreign equity limits, level of competition, including joint venture requirements, screening and approval, limitations on business activities, licensing restrictions; and
- *Mode 4*: limits on the duration of stay, on number of work permits, issues related to licensing/recognition requirements, limitations on the board of directors.

Professional services (engineering):

- *Mode 1*: restrictions on servicing the market on a cross-border basis (*i.e.* establishment requirements);
- *Mode 2*: restrictions on consumers purchasing business services abroad;
- *Mode 3*: foreign equity limits, Foreign partnership/joint venture/association, Investment and ownership by foreign professionals, Multidisciplinary practices level of competition, including joint venture requirements, screening and approval, limitations on business activities, licensing restrictions; and
- *Mode 4*: limits on the duration of stay, on number of work permits, limitations on the board of directors, licensing and accreditation of foreign professionals BOD, residency and local presence.

Distribution:

- *Mode 1*: restrictions on servicing the market on a cross-border basis (*i.e.* establishment requirements);
- *Mode 2*: restrictions on consumers purchasing distribution services abroad;
- *Mode 3*: foreign equity limits, restrictions on commercial land, restrictions on large scale stores, wholesale importing licensing, promotion of retail products, state monopolies – product exclusions, protection of intellectual property rights; and
- *Mode 4*: limits on the duration of stay, on number of work permits, licensing requirements on management.

16. Tables 1 to 4 describe in more detail the modal components of the restrictiveness indices for banking, insurance, telecommunications (fixed and mobile), professional services (engineering) and distribution services. In each case, column 1 indicates the general components that are covered in all sectors, while column 2 lists the sector-specific questions<sup>2</sup>.

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<sup>2</sup> We have attempted to include a large number of measures that can impede trade in services via various modes of supply. However, additional components such as restrictions on long-time lease of land or exclusions for special territories in distribution, or specific quotas, existence of discriminatory/non-discriminatory ENTs or exclusive rights in engineering could be included depending on the availability of data. On the other hand, there remain a number of uncertainties related to the economic impact of regulatory measures (*i.e.* it is necessary to determine whether regulations actually constitute barriers, as one cannot simply equate regulations with barriers. Further, given that regulations on services are generally designed to serve a range of policy objectives, it might also be relevant to consider whether the regulation is more burdensome than necessary to achieve its policy objective and whether other, equally effective but less trade restrictive, measures might be available) In addition, it is important to note that, at this stage, the study considers a combination of formal and actual barriers. A country can have regulatory measures in place which restrict trade, but these may not be applied in practice. Moreover, even if restrictions are applied, their effect depends on how they are applied in practice. Given all these caveats, the proposed lists of restrictions and the results should be treated with caution.

17. As indicated in Annex 1, given the subjective selection of components that are relevant for the domestic and foreign indices, the paper proposes a single index that contains all identified modal barriers (rather than arbitrarily selecting which barriers are relevant for the domestic and foreign indices)<sup>3</sup>.

18. The qualitative information was collected on the basis of the questions presented in Tables 1 to 4. Qualitative information is coded by assigning a numerical value to each of the possible responses to a given question while quantitative information is subdivided into classes using a system of thresholds. The coded information is normalised over a zero to one scale, reflecting increasing restrictiveness of regulatory measures. Equal weights are assigned to each component at this stage of the analysis.

19. The qualitative data on regulatory measures in transition economies have been gathered within the framework of the projects on trade in services in these countries carried out by the Trade Directorate in 2002-2003. Therefore, the restrictiveness indices and the impact of the barriers reflect the situation before 2003 (in the Baltic States) and at the end of 2002 - beginning of 2003 in most of the South Eastern European (SEE) countries. However, given that Bulgaria and Romania have experienced significant regulatory changes since 2002, more recent information for 2004 was used for the analysis. Regulatory information on Russia is available from a World Bank study that employed the questionnaires used for the assessment of the SEE countries.

20. For Latin American countries, the information comes from the Organisation of American States (OAS), which employed similar questionnaires to those used for the assessment of the SEE countries. The answers to the questionnaires were collected by the OAS between 2002 and 2004. With respect to China, the information was collected jointly by Chinese experts and the OECD Secretariat. The collected information reflects the situation in 2004.

21. For all remaining non-OECD countries, the Secretariat employed the following sources: the World Bank Regulatory Database on Banking Services (2003 version), WTO Trade Policy Reviews, National Trade Estimate Reports on Foreign Trade Barriers from the Office of the US Trade Representative, GATS schedules of commitments, various reports and studies produced by national and international organisations, etc.

22. In addition, a number of OECD countries were included in the analysis for comparative purposes. The information for the OECD countries comes mainly from the OECD Product Market Regulations Database and GATS schedules of commitments.

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<sup>3</sup> We have constructed a domestic index that included the components proposed by the APC; however, as with the studies produced by the APC, the estimation using this domestic index did not generate meaningful results. In fact, APC uses the coefficient estimate for the foreign index as a proxy to calculate the domestic tax equivalent – see Kalirajan et al., 2000.

Table 1. Components of the banking and insurance restrictiveness indices

Modal allocation of components	Summary description and first level coding	
	Banking	Insurance
Mode 1: Cross-border trade	<p><b>Are the following allowed to borrow cross-border from foreign banks?</b></p> <p><i>Banks, Corporation and Households</i></p> <ul style="list-style-type: none"> <li>• 1.00 Banks, corporations and households (in the analysed country) are not permitted to borrow cross-border from a foreign bank situated abroad</li> <li>• 0.66 Banks, corporations and households (in the analysed country) are permitted to borrow cross-border from foreign banks situated abroad with a specific ceiling amount (specify the amount)</li> <li>• 0.33 Banks, corporations and households (in the analysed country) are permitted to borrow cross-border from foreign banks situated abroad without a specific ceiling amount but with licenses subject to specific qualifications</li> <li>• 0.00 Banks, corporations and households (in the analysed country) are permitted to borrow cross-border from a foreign bank situated abroad without restrictions</li> </ul> <p><b>Are the following allowed to make cross-border deposits with foreign banks?</b></p> <p><i>Banks</i></p> <ul style="list-style-type: none"> <li>• 1.00 Banks, corporations and households (in the analysed country) are not permitted to make cross-border deposits with a foreign bank situated abroad</li> <li>• 0.66 Banks, corporations and households (in the analysed country) are permitted to make cross-border deposits with foreign banks situated abroad with a specific ceiling amount (specify the amount)</li> <li>• 0.33 Banks, corporations and households (in the analysed country) are permitted to make cross-border deposits with foreign banks situated abroad without a specific ceiling amount but with licenses subject to specific qualifications</li> <li>• 0.00 Banks, corporations and households (in the analysed country) are permitted to make cross-border deposits with a foreign bank situated abroad without restrictions</li> </ul>	<p><i>Cross-border insurance supply by insurance companies</i></p> <ul style="list-style-type: none"> <li>• 1.00 Insurance companies are not permitted to provide residents with any type of cross-border insurance services</li> <li>• 0.66 Insurance companies are permitted to provide residents with certain types of cross-border insurance services</li> <li>• 0.33 Insurance companies are permitted to provide residents with any type of cross-border insurance services but with certain limitations (purchases are subject to limits, foreign insurance suppliers are not allowed to solicit business through advertising, etc.)</li> <li>• 0.00 Insurance companies are permitted to provide residents with any type of cross-border insurance services</li> </ul>
Mode 2: Consumption abroad:	<p><i>Consumption abroad</i></p> <ul style="list-style-type: none"> <li>• 1.00 Residents are not authorised to purchase financial services abroad</li> <li>• 0.66 Quotas related to the value of transaction, number of operations between banks in the country of destination and domestic consumers travelling abroad or number of nationals travelling abroad (visas)</li> <li>• 0.33 Taxes or registration/authorisation requirements on consumers travelling abroad</li> <li>• 0.00 No restrictions</li> </ul>	<p><i>Limitations on foreign suppliers (or consumers travelling abroad)</i></p> <ul style="list-style-type: none"> <li>• 1.00 Residents are not authorised to purchase insurance services abroad</li> <li>• 0.66 Quotas related to the value of transaction, type of insurance service to be provided by the insurance company in the country of destination to the domestic consumers travelling abroad or number of nationals travelling abroad (visas)</li> <li>• 0.33 Taxes or registration/authorisation requirements on consumers travelling abroad</li> <li>• 0.00 No restrictions</li> </ul>

Modal allocation of components	Summary description and first level coding	
	Banking	Insurance
<b>Mode 3: Commercial presence</b> <i>Foreign Equity Limits</i>	<ul style="list-style-type: none"> <li>• 1.00 Foreign ownership not permitted</li> <li>• 0.00 No restrictions on foreign ownership</li> </ul> <p>The score is inversely proportional with the maximum foreign equity participation permitted in a domestic bank, with or without approval.</p>	<ul style="list-style-type: none"> <li>• 1.00 Foreign ownership not permitted</li> <li>• 0.00 No restrictions on foreign ownership</li> </ul> <p>The score is inversely proportional with the maximum foreign equity participation permitted in a domestic Insurance company, with or without approval.</p>
<b>Forms of Commercial Presence</b>	<ul style="list-style-type: none"> <li>• 1.00 No commercial presence permitted (effectively a notional case)</li> <li>• 0.66 Only representative offices permitted</li> <li>• 0.33 Some legal forms of establishment (subsidiaries and/or branches) are allowed in addition to representative offices</li> <li>• 0.00 All legal forms of establishment (subsidiaries, branches, representative offices) for foreign banks are allowed</li> </ul>	<ul style="list-style-type: none"> <li>• 1.00 No commercial presence permitted (effectively a notional case)</li> <li>• 0.66 Only representative offices permitted</li> <li>• 0.33 Some legal forms of establishment (subsidiaries and/or branches) are allowed in addition to representative offices</li> <li>• 0.00 All legal forms of establishment (subsidiaries, branches, representative offices) for foreign Insurance companies' are allowed</li> </ul>
<b>Joint Venture arrangements</b>	<ul style="list-style-type: none"> <li>• 1.00 Foreign bank entry is allowed only through joint ventures with domestic subsidiary banks</li> <li>• 0.00 No requirement for a foreign bank to enter through a joint venture with a domestic subsidiary bank</li> </ul>	<ul style="list-style-type: none"> <li>• 1.00 Foreign insurance entry is allowed only through joint ventures with domestic insurance subsidiaries</li> <li>• 0.00 No requirement for a foreign insurance company to enter through a joint venture with a domestic insurance subsidiary</li> </ul>
<b>Licensing - separate for domestic and foreign bank subsidiaries to determine the NT restrictions</b>	<ul style="list-style-type: none"> <li>• 1.00 Issues no new banking licenses</li> <li>• 0.75 Issues up to 4 new banking licenses to banks with only prudential restrictions/ Licenses are issued through complicated and costly procedures</li> <li>• 0.5/0.20 Issues up to 8 new banking licenses to banks with only prudential restrictions/ Licenses are issued with application fee and several requirements</li> <li>• 0.25/0.10 Issues up to 12 new banking licenses to banks with only prudential restrictions/ Licenses are generally issued with application fees</li> <li>• 0.00 Issues new banking licenses to banks with only prudential restrictions and Licenses are automatically issued upon application without any cost</li> </ul>	<ul style="list-style-type: none"> <li>• 1.00 Issues no new insurance licenses</li> <li>• 0.75 Issues up to 4 new insurance licenses to insurance companies with only prudential restrictions / Licenses are issued through complicated and costly procedures</li> <li>• 0.5/0.20 Issues up to 8 new insurance licenses to insurance companies with only prudential restrictions / Licenses are issued with application fee and several requirements</li> <li>• 0.25/0.10 Issues up to 12 new insurance licenses to insurance companies with only prudential restrictions/ Licenses are generally issued with application fees</li> <li>• 0.00 Issues new insurance licenses to Insurance companies with only prudential restrictions and Licenses are automatically issued upon application without any cost</li> </ul>
<b>Business scope</b>	<p><i>Raising funds</i></p> <ul style="list-style-type: none"> <li>1.00 Banks are not permitted to raise funds from domestic sources</li> <li>• 0.75 Banks are restricted from raising funds from domestic capital markets</li> <li>• 0.50 Banks are restricted in accepting deposits from the public</li> <li>• 0.00 Banks can raise funds from any source with only prudential restrictions</li> </ul>	<p><i>General scope of domestic and foreign Insurance companies</i></p> <ul style="list-style-type: none"> <li>• 1.00 Insurance companies can only provide one or two Insurance services</li> <li>• 0.50 Insurance companies can provide more than 3 insurance services</li> <li>• 0.00 Insurances have no restrictions on conducting any type of insurance services</li> </ul>

Modal allocation of components	Summary description and first level coding	
	<p><i>Lending</i></p> <p>1.00 Banks are not permitted to lend to domestic clients</p> <ul style="list-style-type: none"> <li>• 0.75 Banks are restricted to a specified lending size and or lending to government projects</li> <li>• 0.50 Banks are restricted in providing certain lending services such as leasing, credit card services or consumer finance</li> <li>• 0.25 Banks are directed to lend to housing, small business, natural persons and or businesses in certain regions</li> <li>• 0.00 Banks can lend to any source with only prudential restrictions</li> </ul>	
	<p><i>Other business of domestic and foreign bank subsidiaries - insurance and securities services</i></p> <ul style="list-style-type: none"> <li>• 1.00 Banks can only provide banking services</li> <li>• 0.50 Banks can provide banking services plus one other line of business - insurance or securities services</li> <li>• 0.00 Banks have no restrictions on conducting other lines of business</li> </ul>	
	<p><i>Expanding the number of banking outlets</i></p> <ul style="list-style-type: none"> <li>• 1.00 One banking outlet with no new banking outlets is permitted</li> <li>• 0.75 Number of banking outlets is limited in number and location</li> <li>• 0.25 Expansion of banking outlets is subject to non-prudential regulatory approval</li> <li>• 0.00 No restrictions on banks expanding operations</li> </ul>	
	<p><i>Screening and approval</i></p> <ul style="list-style-type: none"> <li>• 1.00 Investors must show economic benefits</li> <li>• 0.66 Approval unless contrary to national interest</li> <li>• 0.33 Notification (pre -or post) requirements</li> <li>• 0.00 No screening or approval requirements</li> </ul>	
<p><b>Mode 4: Presence of natural persons</b></p> <p><i>Temporary Movement of people - Shorter stay (mainly business visitors and employees)</i></p>	<p>Banking service supplied by nationals of one country in the territory of another country</p> <ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.75 Temporary entry of executives, senior managers or specialists up to 30 days</li> <li>• 0.50 Temporary entry of executives, senior managers or specialists up to 60 days</li> <li>• 0.25 Temporary entry of executives, senior managers or specialists up to 90 days</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 120 days</li> </ul>	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.75 Temporary entry of executives, senior managers or specialists up to 30 days</li> <li>• 0.50 Temporary entry of executives, senior managers or specialists up to 60 days</li> <li>• 0.25 Temporary entry of executives, senior managers or specialists up to 90 days</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 120 days</li> </ul>

Modal allocation of components	Summary description and first level coding	
Temporary Movement of people - Board of Directors	<ul style="list-style-type: none"> <li>• 1.00 Board cannot comprise foreigners</li> <li>• 0.66 Majority must be nationals</li> <li>• 0.33 At least 1 must be national, or they must be residents or locally licensed</li> <li>• 0.00 No restrictions on the composition of the board of directors</li> </ul>	<ul style="list-style-type: none"> <li>• 1.00 Board cannot comprise foreigners</li> <li>• 0.66 Majority must be nationals</li> <li>• 0.33 At least 1 must be national, or they must be residents or locally licensed</li> <li>• 0.00 No restrictions on the composition of the board of directors</li> </ul>
Temporary Movement of people - Longer stay	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.80 Temporary entry of executives, senior managers or specialists up to 1 year</li> <li>• 0.60 Temporary entry of executives, senior managers or specialists between 1 and 2 years</li> <li>• 0.40 Temporary entry of executives, senior managers or specialists between 3 and 4 years</li> <li>• 0.20 Temporary entry of executives, senior managers or specialists between 4 and 5 years</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 5 years</li> </ul>	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.80 Temporary entry of executives, senior managers or specialists up to 1 year</li> <li>• 0.60 Temporary entry of executives, senior managers or specialists between 1 and 2 years</li> <li>• 0.40 Temporary entry of executives, senior managers or specialists between 3 and 4 years</li> <li>• 0.20 Temporary entry of executives, senior managers or specialists between 4 and 5 years</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 5 years</li> </ul>
Work permits - Issuing working permits or visas is subject to recognition or professional qualifications	<ul style="list-style-type: none"> <li>• 1.00 No work permits</li> <li>• 0.75 Numerical limits subject to Economic Needs Tests (ENT)</li> <li>• 0.50 Numerical limits subject to recognition or professional qualifications</li> <li>• 0.25 Approval and/or pre-employment criteria + Limits on the lengths of work permits</li> <li>• 0.00 No restrictions</li> </ul>	<ul style="list-style-type: none"> <li>• 1.00 No work permits</li> <li>• 0.75 Numerical limits subject to Economic Needs Tests (ENT)</li> <li>• 0.50 Numerical limits subject to recognition or professional qualifications</li> <li>• 0.25 Approval and/or pre-employment criteria + Limits on the lengths of work permits</li> <li>• 0.00 No restrictions</li> </ul>

Source: Adapted from McGuire and Schuele (2000)

Table 2. Components of the fixed and mobile telecom restrictiveness indices

Modal allocation of components	Summary description and first level coding	
	Fixed	Mobile
<b>Mode 1: Cross-border trade</b> <i>Lease line or provide network</i>	• 1.00 Not permitted • 0.00 Permitted	• 1.00 Not permitted • 0.00 Permitted
<i>Connections of leased lines and private networks to the PSN</i>	• 1.00 Not permitted • 0.00 Permitted	
<i>ISR (International Simple Resale) and IP (Internet Protocol) telephony</i>	• 1.00 Not permitted • 0.00 Permitted	
<b>Mode 2: Consumption abroad</b>	• 1.00 Not permitted • 0.00 Permitted	• 1.00 Not permitted • 0.00 Permitted
<i>Call back services</i>		
<b>Mode 3: Commercial Presence</b> <i>Foreign Equity Limits</i>	• 1.00 Foreign ownership not permitted • 0.00 No restrictions on foreign ownership The score is inversely proportional with the maximum foreign equity participation permitted in a domestic firm, with or without approval.	• 1.00 Foreign ownership not permitted • 0.00 No restrictions on foreign ownership The score is inversely proportional with the maximum foreign equity participation permitted in a domestic firm, with or without approval.
<i>Level of competition</i>	• 1.00 Monopoly • 0.50 Partial competition • 0.00 Full competition	• 1.00 Monopoly • 0.50 Partial competition • 0.00 Full competition
<i>Joint venture arrangements</i>	• 1.00 Foreign company entry is allowed only through joint ventures with domestic company • 0.00 No requirement for a foreign company to enter through a joint venture with a domestic company	• 1.00 Foreign company entry is allowed only through joint ventures with domestic company • 0.00 No requirement for a foreign company to enter through a joint venture with a domestic company
<i>Licensing - separate for domestic and foreign bank subsidiaries to determine the NT restrictions</i>	• 1.00 Issues no new licenses • 0.75 Licenses are issued through complicated and costly procedures • 0.5/0.20 Licenses are issued with application fee and several requirements • 0.25/0.10 Licenses are generally issued with application fees • 0.00 Licenses are automatically issued upon application without any cost	• 1.00 Issues no new licenses • 0.75 Licenses are issued through complicated and costly procedures • 0.5/0.20 Licenses are issued with application fee and several requirements • 0.25/0.10 Licenses are generally issued with application fees • 0.00 Licenses are automatically issued upon application without any cost
<i>Restrictions on some types of services</i>	• 1.00 Restrictions on providing some types of telephone services • 0.00 No restriction on providing any type of telephone services	
<i>Screening and approval - separate for domestic and foreign companies to determine the NT restrictions</i>	• 1.00 Investors must show economic benefits • 0.66 Approval unless contrary to national interest • 0.33 Notification (pre -or post) requirements • 0.00 No screening or approval requirements	• 1.00 Investors must show economic benefits • 0.66 Approval unless contrary to national interest • 0.33 Notification (pre -or post) requirements • 0.00 No screening or approval requirements

Modal allocation of components	Summary description and first level coding	
	Fixed	Mobile
<b>Mode 4: Presence of natural persons</b> <i>Temporary Movement of people - Shorter stay (mainly business visitors and employees)</i>	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.75 Temporary entry of executives, senior managers or specialists up to 30 days</li> <li>• 0.50 Temporary entry of executives, senior managers or specialists up to 60 days</li> <li>• 0.25 Temporary entry of executives, senior managers or specialists up to 90 days</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 120 days</li> </ul>	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.75 Temporary entry of executives, senior managers or specialists up to 30 days</li> <li>• 0.50 Temporary entry of executives, senior managers or specialists up to 60 days</li> <li>• 0.25 Temporary entry of executives, senior managers or specialists up to 90 days</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 120 days</li> </ul>
<i>Temporary Movement of people - Board of Directors</i>	<ul style="list-style-type: none"> <li>• 1.00 Board cannot comprise of foreigners</li> <li>• 0.66 Majority must be nationals</li> <li>• 0.33 At least 1 must be national, or they must be residents or locally licensed</li> <li>• 0.00 No restrictions on the composition of the board of directors</li> </ul> <p>The score is inversely proportional with the percentage of the board that can comprise foreigners</p>	<ul style="list-style-type: none"> <li>• 1.00 Board cannot comprise of foreigners</li> <li>• 0.66 Majority must be nationals</li> <li>• 0.33 At least 1 must be national, or they must be residents or locally licensed</li> <li>• 0.00 No restrictions on the composition of the board of directors</li> </ul> <p>The score is inversely proportional with the percentage of the board that can comprise foreigners</p>
<i>Temporary Movement of people - Longer stay</i>	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.80 Temporary entry of executives, senior managers or specialists up to 1 year</li> <li>• 0.60 Temporary entry of executives, senior managers or specialists between 1 and 2 years</li> <li>• 0.40 Temporary entry of executives, senior managers or specialists between 3 and 4 years</li> <li>• 0.20 Temporary entry of executives, senior managers or specialists between 4 and 5 years</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 5 years</li> </ul>	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.80 Temporary entry of executives, senior managers or specialists up to 1 year</li> <li>• 0.60 Temporary entry of executives, senior managers or specialists between 1 and 2 years</li> <li>• 0.40 Temporary entry of executives, senior managers or specialists between 3 and 4 years</li> <li>• 0.20 Temporary entry of executives, senior managers or specialists between 4 and 5 years</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 5 years</li> </ul>
<i>Work permits - Issuing working permits or visas is subject to recognition or professional qualifications</i>	<ul style="list-style-type: none"> <li>• 1.00 No work permits</li> <li>• 0.75 Numerical limits subject to Economic Needs Tests (ENT)</li> <li>• 0.50 Numerical limits subject to recognition or professional qualifications</li> <li>• 0.25 Approval and/or pre-employment criteria + Limits on the lengths of work permits</li> <li>• 0.00 No restrictions</li> </ul>	<ul style="list-style-type: none"> <li>• 1.00 No work permits</li> <li>• 0.75 Numerical limits subject to Economic Needs Tests (ENT)</li> <li>• 0.50 Numerical limits subject to recognition or professional qualifications</li> <li>• 0.25 Approval and/or pre-employment criteria + Limits on the lengths of work permits</li> <li>• 0.00 No restrictions</li> </ul>

Source: Adapted from McGuire and Schuele (2000)

**Table 3. Components of the Engineering Restrictiveness Index**

Modal allocation of components	Summary description and first level coding
<b>Mode 1: Cross-border trade</b>	Are there restrictions on cross-border trade (i.e. establishment requirements) <ul style="list-style-type: none"> <li>• 1.00 Yes</li> <li>• 0.00 No</li> </ul>
<b>Mode 2: Consumption abroad</b>	Are there any restrictions on consumers purchasing distribution business services abroad? <ul style="list-style-type: none"> <li>• 1.00 Yes</li> <li>• 0.00 No</li> </ul>
<b>Mode 3: Commercial presence</b> Forms of establishment	Forms of establishment <ul style="list-style-type: none"> <li>• 1.00 Prohibition on incorporation</li> <li>• 0.50 Some forms of incorporation permitted</li> <li>• 0.00 No restrictions</li> </ul>
Foreign partnership or Joint Venture arrangements*	Foreign partnership or Joint Venture arrangements <ul style="list-style-type: none"> <li>• 1.00 Prohibition on partnership with foreign professionals</li> <li>• 0.50 Partnership or joint venture with local businesses required</li> <li>• 0.00 No restriction</li> </ul>
Investment and ownership by foreign professionals*	Firms must be owned or controlled by local professionals. The score is inversely proportional to the maximum foreign equity participation permitted in a professional form. For example, equity participation to a maximum of 75 per cent in an existing firm receives a score of 0.25
Investment and ownership by non-professional investors*	Investment and ownership by non-professional investors. Firms must be owned or controlled by professionals. The score is inversely proportional to the non-professional equity participation permitted in a professional firm. For example, equity participation to a maximum of 75 per cent in an existing firm receives a score of 0.25.
Screening and approval	<ul style="list-style-type: none"> <li>• 1.00 Investors must show economic benefits</li> <li>• 0.66 Approval unless contrary to national interest</li> <li>• 0.33 Notification (pre- or post) requirements</li> <li>• 0.00 No screening or approval requirements</li> </ul>
<b>Mode 4: Presence of natural persons</b> Licensing and accreditation of foreign professionals	<ul style="list-style-type: none"> <li>• 1.00 Local retraining required for full license</li> <li>• 0.75 Local examination required in all cases</li> <li>• 0.50 Case-by-case assessment of foreign licence and qualifications</li> <li>• 0.25 Aptitude test</li> <li>• 0.00 Foreign licence and qualifications sufficient to practice</li> </ul>
Temporary Movement of people - Shorter stay (mainly business visitors and employees)	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.75 Temporary entry of executives, senior managers or specialists up to 30 days</li> <li>• 0.50 Temporary entry of executives, senior managers or specialists up to 60 days</li> <li>• 0.25 Temporary entry of executives, senior managers or specialists up to 90 days</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 120 days</li> </ul>
Temporary Movement of people - Board of Directors	<ul style="list-style-type: none"> <li>• 1.00 Board cannot comprise of foreigners</li> <li>• 0.66 Majority must be nationals</li> <li>• 0.33 At least 1 must be national, or they must be residents or locally licensed</li> <li>• 0.00 No restrictions on the composition of the board of directors</li> </ul>
Temporary Movement of people - Longer stay	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.80 Temporary entry of executives, senior managers or specialists up to 1 year</li> <li>• 0.60 Temporary entry of executives, senior managers or specialists between 1 and 2 years</li> <li>• 0.40 Temporary entry of executives, senior managers or specialists between 3 and 4 years</li> <li>• 0.20 Temporary entry of executives, senior managers or specialists between 4 and 5 years</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 5 years</li> </ul>
Work permits - Issuing working permits or visas is subject to recognition or professional qualifications	<ul style="list-style-type: none"> <li>• 1.00 No work permits</li> <li>• 0.75 Numerical limits subject to Economic Needs Tests (ENT)</li> <li>• 0.50 Numerical limits subject to recognition or professional qualifications</li> <li>• 0.25 Approval and/or pre-employment criteria + Limits on the lengths of work permits</li> <li>• 0.00 No restrictions</li> </ul>

Modal allocation of components	Summary description and first level coding
<b>Regulatory issues affecting on-going operations</b>	
Multidisciplinary practices	<ul style="list-style-type: none"> <li>• 1.00 Prohibition on partnership or association with other professions</li> <li>• 0.50 Majority partnership required</li> <li>• 0.00 No restrictions</li> </ul>
Activities reserved by law to the profession	<ul style="list-style-type: none"> <li>• 1.00 4 core activities and over</li> <li>• 0.75 3 core activities</li> <li>• 0.50 2 core activities</li> <li>• 0.25 1 core activity</li> <li>• 0.00 None</li> </ul>
Fee setting	<ul style="list-style-type: none"> <li>• 1.00 Minimum and maximum fees for all groups in the profession</li> <li>• 0.50 Restrictions apply to some groups or activities</li> <li>• 0.00 Setting fee freely</li> </ul>
Advertising, marketing and solicitation	<ul style="list-style-type: none"> <li>• 1.00 Prohibition of advertising, marketing or solicitation</li> <li>• 0.50 Restrictions apply to some groups of activities</li> <li>• 0.00 General legal requirements</li> </ul>
Other restrictions (additive categories)	<ul style="list-style-type: none"> <li>• 0.33 Restrictions on hiring local professionals</li> <li>• 0.33 Restrictions on the use of firm's international names</li> <li>• 0.33 Government procurement - restrictions towards foreign suppliers</li> <li>• 0.00 No restrictions</li> </ul>

Source: Adapted from Nguyen Hong (2000) Note: \* An alternative scoring that combines the components 'Foreign Partnership or Joint Venture arrangements', 'Investment and ownership by foreign professionals' and 'Investment and ownership by non-professional investors' could be developed along the following lines: 1 if Joint Venture or partnership is required; 0.75 if incorporation is required (i.e. branches are not allowed); 0.5 if there is a Prohibition to enter into partnership with locals; 0.25 if non-discriminatory limits on multidisciplinary practices are in place; and 0 if there are No restrictions.

**Table 4. Components of the Distribution Restrictiveness Index**

<b>Mode 1: Cross-border trade</b>	Can non-resident suppliers of distribution services serve the market on a cross-border basis? <ul style="list-style-type: none"> <li>• 1.00 No</li> <li>• 0.00 Yes</li> </ul>
<b>Mode 2: Consumption Abroad</b>	Are there restrictions on consumers distribution business services abroad? <ul style="list-style-type: none"> <li>• 1.00 Yes</li> <li>• 0.00 No</li> </ul>
<b>Mode 3: Commercial presence</b> Restrictions on commercial land	<ul style="list-style-type: none"> <li>• 1.00 Acquisition of commercial land is not permitted</li> <li>• 0.50 Acquisition of commercial land is permitted, but is restricted to a certain size</li> <li>• 0.00 No restriction on the acquisition of land</li> </ul>
Direct investment	The score will be inversely proportional to maximum foreign equity participation permitted in a domestic distribution enterprise, with or without approval. For example, ownership to a maximum of 49% would receive a score of 0.51.
Restrictions on large-scale stores	<ul style="list-style-type: none"> <li>• 1.00 National legislation prohibits large-scale stores</li> <li>• 0.50 Regional and local authorities restrict large-scale stores</li> <li>• 0.00 No restrictions on large scale stores</li> </ul>
Factors affecting investment (ADDITION CATEGORY)	<ul style="list-style-type: none"> <li>• 0.30 Law to protect against takeovers by foreigners</li> <li>• 0.30 Performance requirements for foreign investors</li> <li>• 0.20 Screening of foreign investment *sub-category of economic needs test</li> <li>• 0.20 Foreign establishment subject to an economic needs test</li> </ul>
Factors affecting local establishment (ADDITION CATEGORY)	<ul style="list-style-type: none"> <li>• 0.40 Establishment subject to a local environmental impact assessment (zoning)</li> <li>• 0.40 Local employments requirements</li> <li>• 0.20 Restrictions on operating hours</li> </ul>
Wholesale import licensing	<ul style="list-style-type: none"> <li>• 1.00 No new import licences are available for wholesalers</li> <li>• 0.50 A limited number of new import licences are available for wholesalers</li> <li>• 0.00 There are no limits on the issuing import licences</li> </ul>
Promotion of retail products	<ul style="list-style-type: none"> <li>• 1.00 Foreigners are prohibited from using promotional tools to market retail products</li> <li>• 0.50 Foreigners are limited in their use of promotional tools to market retail products</li> <li>• 0.00 No restrictions on promotion of retail products</li> </ul>
State Monopolies - Product exclusions	The score for an economy is taken from the presence of statutory government monopolies in 16 product categories codes areas.
Protection of intellectual property rights	<ul style="list-style-type: none"> <li>• 1.00 Intellectual property rights - economy on priority 301 watch list</li> <li>• 0.50 Intellectual property rights - economy on general 301 watch list</li> <li>• 0.00 Intellectual property rights are not on watch lists</li> </ul>
<b>Mode 4: Presence of natural persons</b> Licensing requirements on management	<ul style="list-style-type: none"> <li>• 1.00 All directors/managers or at least a majority of them must be nationals or residents</li> <li>• 0.75 At least one director/managers must be nationals or residents</li> <li>• 0.50 Directors and managers must be locally licensed</li> <li>• 0.25 Directors and managers must be domiciled</li> <li>• 0.00 No restrictions</li> </ul>
Temporary Movement of people - Shorter stay (mainly business visitors and employees)	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.75 Temporary entry of executives, senior managers or specialists up to 30 days</li> <li>• 0.50 Temporary entry of executives, senior managers or specialists up to 60 days</li> <li>• 0.25 Temporary entry of executives, senior managers or specialists up to 90 day</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 120 days</li> </ul>
Temporary Movement of people - Longer stay	<ul style="list-style-type: none"> <li>• 1.00 No temporary entry of executives, senior managers or specialists</li> <li>• 0.80 Temporary entry of executives, senior managers or specialists up to 1 year</li> <li>• 0.60 Temporary entry of executives, senior managers or specialists between 1 and 2 years</li> <li>• 0.40 Temporary entry of executives, senior managers or specialists between 3 and 4 years</li> <li>• 0.20 Temporary entry of executives, senior managers or specialists between 4 and 5 years</li> <li>• 0.00 Temporary entry of executives, senior managers or specialists over 5 years</li> </ul>

Source: Adapted from Kalirajan (2000)

### **Weighting methodology**

23. A statistical approach based on factor analysis, in which each component of the regulatory framework is weighted according to its contribution to the overall variance in the data, was employed to calculate the weights used to construct the aggregate and modal indices.

24. In broad terms, factor analysis (FA)<sup>4</sup> refers to a family of statistical techniques in which a large number of variables are analysed in terms of a smaller number of underlying common elements, known as “factors”. Each factor is conceptualised as a linear combination of the observed variables. The aim of FA is often said to be twofold: data reduction (*i.e.* the “compression” of a set of many variables into a much smaller number of factors) and data synthesis (*i.e.* the identification and interpretation of a small number of common elements that effectively characterise a much larger set of observed variables).

25. The present study primarily makes use of the reductive aspect of FA. This is because FA effectively provides us with a weighting scheme for the trade policy indicators in which the weights are chosen so as to maximise the amount of the variance explained by the resulting aggregate TRI. As noted in other recent papers that have applied FA to questions very close to the present one (*e.g.* Boylaud & Nicoletti, 2000; Copenhagen Economics, 2005), the advantage of such an approach is that the weighting scheme is driven much more by the data than is the case with purely subjective weights. The tables in Annex 2 present the scores used to construct the restrictiveness indices.

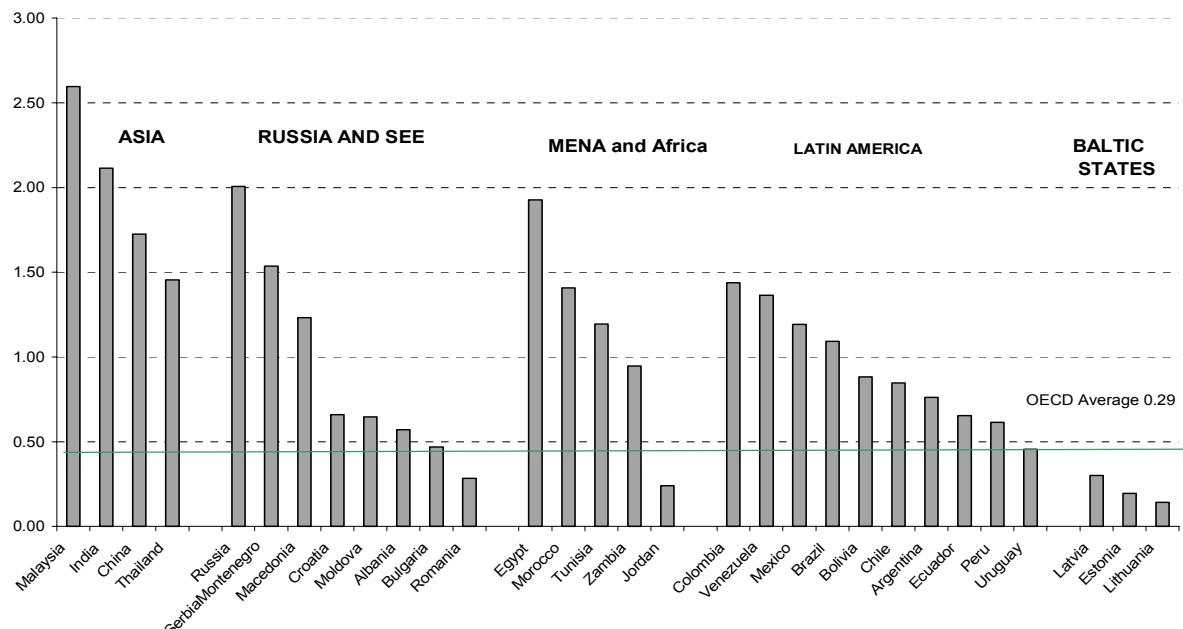
26. After being computed using the variant of FA known as principal components analysis, the aggregate and modal TRIs are then scaled so as to place a country—real or hypothetical—that is “liberal” (*i.e.* which receives 0.00 for each question in Tables 1 to 4) at the zero point of the scale. The sample of countries varies from sector to sector depending on the data availability on regulatory measures. The results on aggregate and modal indices are reported in Tables 5 to 10. In line with the applied methodology, the countries with the highest score on the restrictiveness index have the most restrictive trade regime. In addition, Figures 1 to 6 reproduce in graphical form the aggregate TRI results for selected countries; the horizontal line represents the OECD sample average (*i.e.* the selected OECD countries included in our sample).

27. It is worth noting that a high number of non-OECD countries record restrictiveness indices well above the OECD average. Asian non-OECD countries such as Malaysia, China, India and Thailand, are the most restrictive in banking, insurance, mobile telecom, engineering and distribution. The analysed countries in the Middle East represent the most restrictive group in fixed telecom services. The analysis confirms that among the selected non-OECD countries, transition economies are leading the process of liberalisation in almost all sectors. Russia, however, is in general the most restrictive of the analysed transition economies. In most analysed sectors, Latin American countries record rather moderate restrictiveness indices as compared to the analysed Asian countries or Russia.

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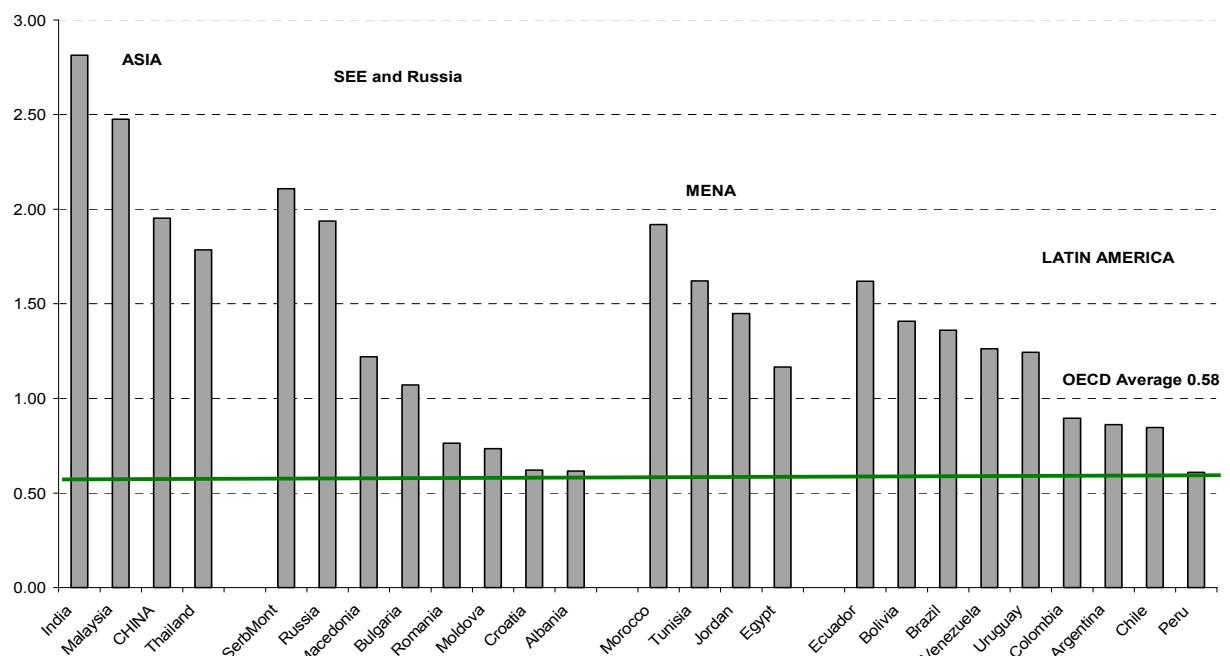
<sup>4</sup> FA is used as a general heading to include related methods, such as principal components analysis.

**Figure 1. Aggregate Trade Restrictiveness Index - Banking**

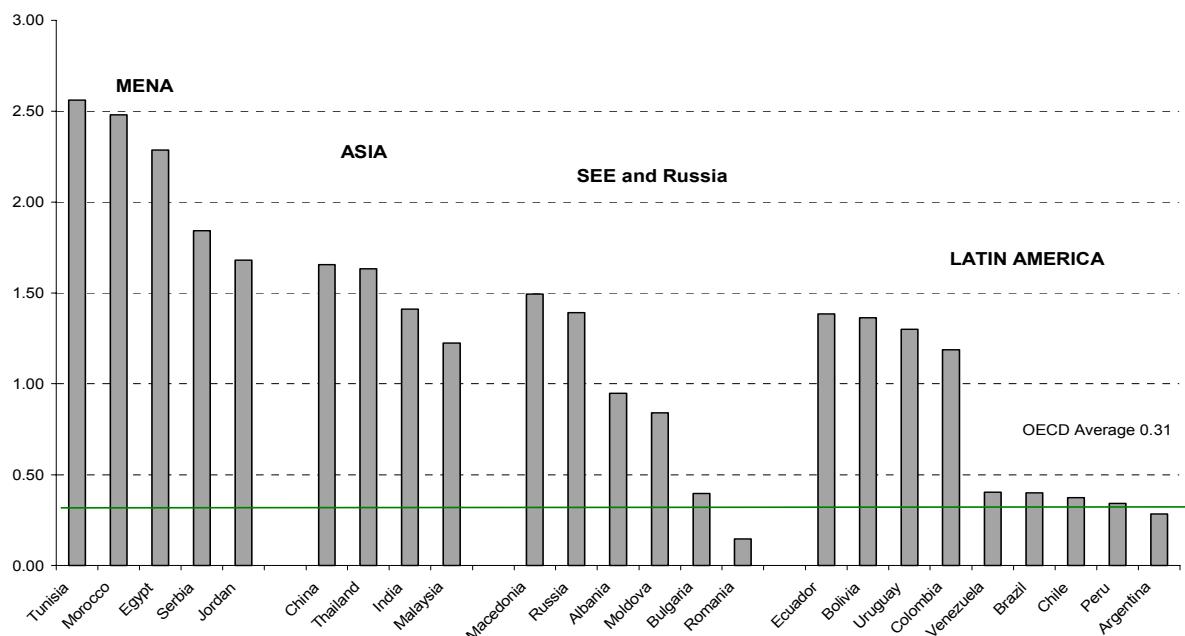


Source: Own calculations. Note: For comparative purposes, the average TRI across all available OECD countries is represented by a horizontal line

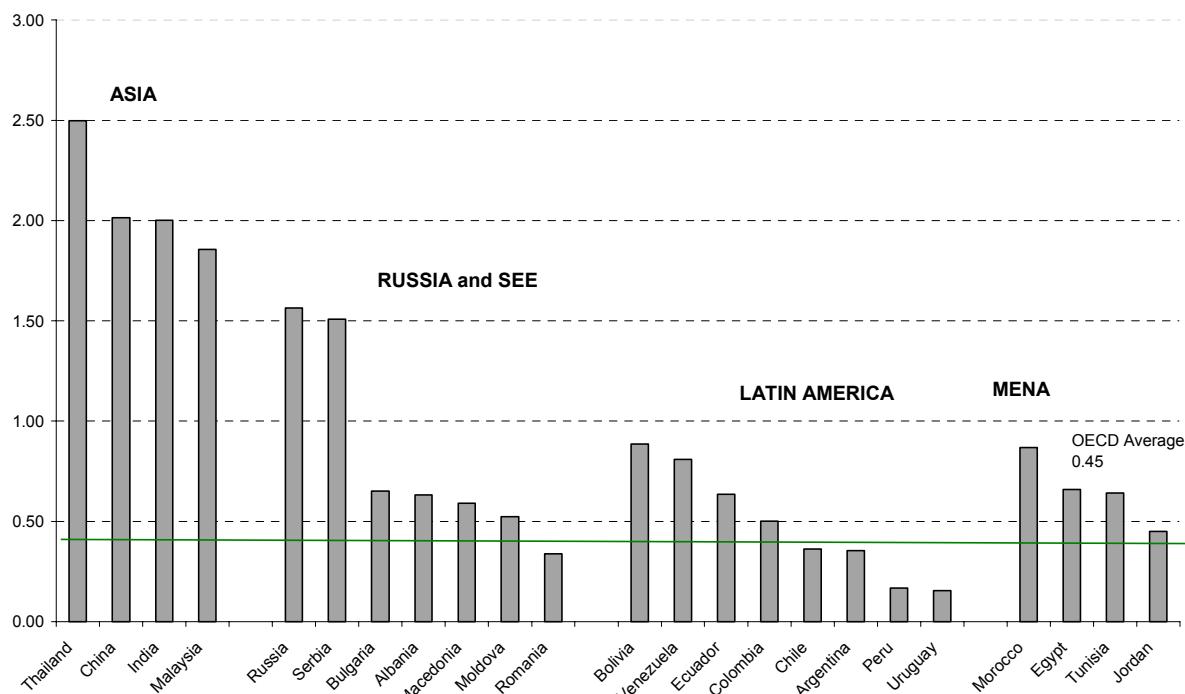
**Figure 2. Aggregate Trade Restrictiveness Index - Insurance**



Source: Own calculations. Note: For comparative purposes, the average TRI across all available OECD countries is represented by a horizontal line

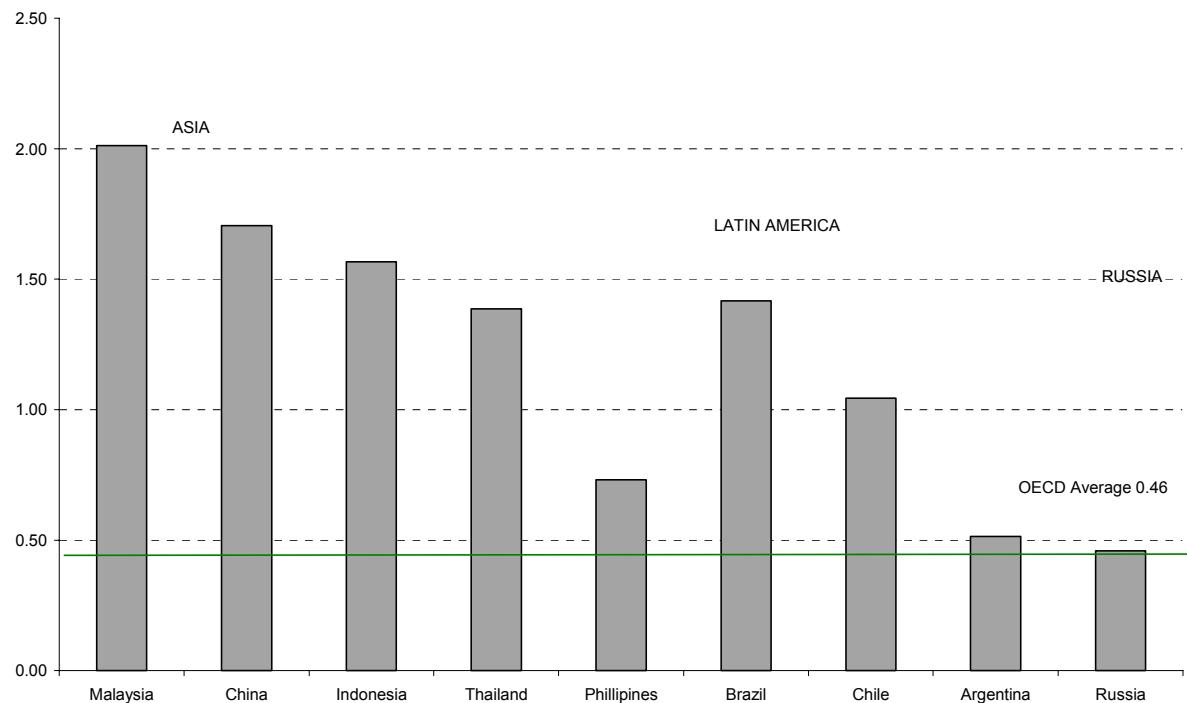
**Figure 3. Aggregate Trade Restrictiveness Index – Fixed Telecommunication**

Source: Own calculations. Note: For comparative purposes, the average TRI across all available OECD countries is represented by a horizontal line

**Figure 4. Aggregate Trade Restrictiveness Index – Mobile Telecommunication**

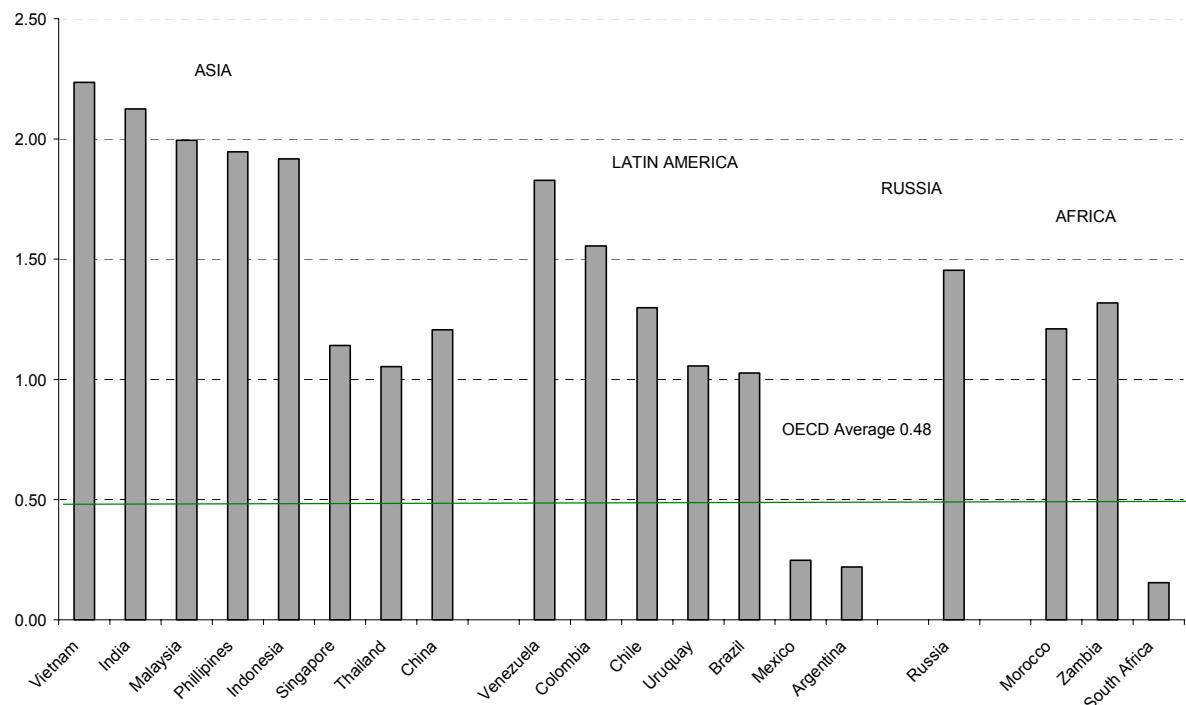
Source: Own calculations. Note: For comparative purposes, the average TRI across all available OECD countries is represented by a horizontal line

**Figure 5. Aggregate Trade Restrictiveness Index – Engineering**



Source: Own calculations. Note: For comparative purposes, the average TRI across all available OECD countries is represented by a horizontal line

**Figure 6. Aggregate Trade Restrictiveness Index – Distribution**



Source: Own calculations. Note: For comparative purposes, the average TRI across all available OECD countries is represented by a horizontal line

**Table 5. Aggregate and Modal Restrictiveness Indices - Banking**

	Aggregate Restrictiveness Index	Mode 1 Restrictiveness Index	Mode 2 Restrictiveness Index	Mode 3 Restrictiveness Index	Mode 4 Restrictiveness Index
Malaysia	2.60	2.18	2.29	1.64	0.99
India	2.11	2.18	2.29	1.34	0.83
Russia	2.01	2.18	2.29	1.27	2.54
Egypt	1.93	2.18	2.29	1.33	1.58
China	1.73	2.18	2.29	1.15	0.61
Serbia and Montenegro	1.54	3.27	3.47	0.85	0.40
Thailand	1.46	2.18	2.29	1.06	1.39
Colombia	1.44	1.13	2.29	1.06	1.97
Morocco	1.41	2.18	2.29	1.03	0.61
Venezuela	1.36	1.35	2.29	0.96	2.47
Macedonia	1.23	3.27	2.29	0.75	0.25
Tunisia	1.19	2.18	2.29	0.90	2.75
Brazil	1.09	0.07	0.00	1.26	1.38
Zambia	0.95	1.13	1.15	0.95	0.18
Bolivia	0.88	0.90	1.15	0.84	2.51
Chile	0.85	0.52	1.15	1.02	1.21
Argentina	0.76	2.41	0.00	0.80	0.59
Croatia	0.66	1.51	1.15	0.75	0.63
Ecuador	0.66	1.73	0.00	0.81	2.13
Moldova	0.65	1.13	1.15	0.80	0.25
Peru	0.61	0.90	1.15	0.80	1.16
Albania	0.57	1.23	1.15	0.70	0.59
Bulgaria	0.47	1.13	1.15	0.70	1.04
Uruguay	0.46	0.07	0.00	0.91	0.64
Latvia	0.30	0.07	0.00	0.85	0.25
Romania	0.28	0.22	1.15	0.70	0.18
Jordan	0.24	0.52	0.00	0.74	1.79
Estonia	0.19	0.29	0.00	0.75	0.43
Lithuania	0.14	0.07	0.00	0.75	1.41

Source: Own calculations

**Table 6. Aggregate and Modal Restrictiveness Indices - Insurance**

	Aggregate Restrictiveness Index	Mode 1 Restrictiveness Index	Mode 2 Restrictiveness Index	Mode 3 Restrictiveness Index	Mode 4 Restrictiveness Index
India	2.81	3.05	2.77	2.85	0.87
Malaysia	2.48	3.05	2.77	2.31	1.46
Serbia and Montenegro	2.11	3.16	2.87	1.48	0.51
China	1.95	2.94	0.42	2.03	1.56
Russia	1.94	2.69	2.44	1.79	2.19
Morocco	1.92	3.16	2.87	1.30	1.11
Thailand	1.78	1.18	0.33	2.27	1.68
Tunisia	1.62	3.16	1.63	1.11	2.97
Ecuador	1.62	3.16	2.87	1.06	2.04
Jordan	1.45	2.26	2.05	0.95	2.16
Bolivia	1.41	2.69	2.44	0.63	2.27
Brazil	1.36	1.36	1.24	1.42	1.28
Venezuela	1.26	0.90	0.81	1.22	2.74
Uruguay	1.24	2.69	2.44	0.70	0.60
Macedonia	1.22	1.43	1.30	1.08	0.32
Egypt	1.16	1.00	0.42	1.09	1.78
Bulgaria	1.07	2.51	2.28	0.40	0.88
Colombia	0.90	0.47	0.42	0.88	2.05
Argentina	0.86	2.33	2.12	0.26	0.68
Chile	0.85	1.00	0.91	0.57	1.25
Romania	0.76	0.47	0.42	0.83	0.30
Moldova	0.73	1.61	0.00	0.71	0.32
Croatia	0.62	1.61	1.47	0.17	0.64
Albania	0.62	1.61	0.00	0.53	0.69
Peru	0.61	0.54	0.42	0.61	1.86

Source: Own calculations

**Table 7. Aggregate and Modal Restrictiveness Indices – Fixed Telecommunication**

	Aggregate Restrictiveness Index	Mode 1 Restrictiveness Index	Mode 2 Restrictiveness Index	Mode 3 Restrictiveness Index	Mode 4 Restrictiveness Index
Tunisia	2.56	2.05	2.05	2.68	3.08
Morocco	2.48	2.05	2.05	2.68	0.67
Egypt	2.29	0.78	2.05	2.68	1.20
Serbia	1.84	0.78	2.05	1.92	0.35
Jordan	1.68	1.41	0.00	1.84	1.91
China	1.66	1.80	2.05	1.58	1.19
Thailand	1.63	2.04	2.05	1.74	1.49
Macedonia	1.49	1.17	2.05	1.53	0.26
India	1.41	0.78	2.05	1.41	0.85
Russia	1.39	0.78	1.02	1.46	1.87
Ecuador	1.38	0.63	2.05	1.41	2.11
Bolivia	1.36	1.56	0.00	1.20	2.43
Uruguay	1.30	0.00	0.00	1.82	0.67
Malaysia	1.22	0.00	2.05	1.51	0.99
Colombia	1.19	2.43	2.05	0.75	1.93
Albania	0.95	1.27	2.05	0.72	0.23
Moldova	0.84	0.00	2.05	0.86	0.26
Venezuela	0.40	0.78	2.05	0.18	2.50
Brazil	0.40	0.00	2.05	0.22	1.37
Bulgaria	0.40	0.78	0.00	0.09	1.08
Chile	0.37	0.00	0.00	0.45	1.29
Peru	0.34	0.78	2.05	0.09	1.49
Argentina	0.28	0.00	0.00	0.36	0.55
Romania	0.15	0.00	0.00	0.21	0.21

Source: Own calculations

**Table 8. Aggregate and Modal Restrictiveness Indices – Mobile Telecommunication**

	Aggregate Restrictiveness Index	Mode 1 Restrictiveness Index	Mode 2 Restrictiveness Index	Mode 3 Restrictiveness Index	Mode 4 Restrictiveness Index
Thailand	2.50	1.53	2.31	2.85	1.49
China	2.01	1.53	0.00	2.53	1.19
India	2.00	1.53	2.31	2.20	0.85
Malaysia	1.86	0.00	0.00	2.43	0.99
Russia	1.56	1.53	2.31	1.41	1.87
Serbia	1.51	3.06	4.62	0.38	0.35
Brazil	0.94	1.53	0.00	0.87	1.37
Bolivia	0.89	3.06	0.00	0.12	2.43
Morocco	0.87	3.06	0.00	0.32	0.67
Venezuela	0.81	3.06	2.31	0.07	2.50
Egypt	0.66	1.53	0.00	0.51	1.20
Bulgaria	0.65	1.53	2.31	0.09	1.08
Tunisia	0.64	1.53	0.00	0.26	3.08
Ecuador	0.64	1.53	0.00	0.41	2.11
Albania	0.63	0.00	0.00	0.95	0.23
Macedonia	0.59	0.00	0.00	0.88	0.26
Moldova	0.52	0.00	0.00	0.64	0.26
Colombia	0.50	0.00	0.00	0.57	1.93
Jordan	0.45	0.00	0.00	0.51	1.91
Chile	0.36	0.00	0.00	0.26	1.29
Argentina	0.35	0.00	0.00	0.32	0.55
Romania	0.34	0.00	2.31	0.13	0.21
Peru	0.17	0.00	0.00	0.17	1.49
Uruguay	0.15	0.00	0.00	0.06	0.67

Source: Own calculations

**Table 9. Aggregate and Modal Restrictiveness Indices – Engineering**

	Aggregate Restrictiveness Index	Mode 1 Restrictiveness Index	Mode 2 Restrictiveness Index	Mode 3 Restrictiveness Index	Mode 4 Restrictiveness Index
Malaysia	2.01	1.07	1.28	2.72	0.53
China	1.71	2.15	0.00	1.64	1.53
Indonesia	1.57	2.15	2.57	0.96	1.60
Brazil	1.42	2.15	2.57	1.01	1.21
Thailand	1.39	2.15	0.00	1.73	0.72
Chile	1.04	2.15	2.57	0.16	1.56
Philippines	0.73	2.15	2.57	0.10	1.59
Singapore	0.56	2.15	0.00	0.10	0.88
Argentina	0.51	0.00	0.00	0.10	0.65
Russia	0.46	1.07	0.00	0.10	0.82

Source: Own calculations

**Table 10. Aggregate and Modal Restrictiveness Indices – Distribution**

	Aggregate Restrictiveness Index	Mode 1 Restrictiveness Index	Mode 2 Restrictiveness Index	Mode 3 Restrictiveness Index	Mode 4 Restrictiveness Index
Vietnam	2.24	2.22	2.16	2.03	2.01
India	2.13	2.22	2.16	1.02	1.46
Malaysia	1.99	2.22	2.16	1.56	1.46
Philippines	1.95	2.22	2.16	1.40	2.21
Indonesia	1.92	2.22	2.16	1.25	2.68
Venezuela	1.83	2.22	2.16	0.93	2.21
Colombia	1.56	2.22	2.16	0.96	2.01
Russia	1.45	2.22	2.16	0.77	2.17
Zambia	1.32	2.22	2.16	0.80	0.79
Chile	1.30	2.22	2.16	0.48	2.38
Morocco	1.21	2.22	2.16	0.35	0.67
China	1.21	1.11	0.00	1.54	0.87
Singapore	1.14	2.22	2.16	0.01	1.26
Uruguay	1.06	2.22	2.16	0.27	1.61
Thailand	1.05	1.11	0.00	1.17	2.21
Brazil	1.03	1.11	1.08	0.91	3.51
Hong Kong	0.47	1.11	0.54	0.01	0.87
Argentina	0.22	0.00	0.00	0.01	1.61
South Africa	0.15	0.00	0.00	0.01	1.61

Source: Own calculations

## Stage 2 Tax Equivalents

### *Tax equivalents and impact of regulatory measures on sectoral performance*

#### Estimation strategy

28. To calculate the effects of existing barriers on the performance of the selected services sectors, as measured by price-cost margins (net interest margins for banks), a two-stage method<sup>5</sup> is applied:

- In the first stage, price-cost margins are “corrected” for the influence of key firm-level factors. In other words, we use a firm-level regression to “explain” price-cost margins using detailed data on the determinants of individual firm performance.
- In the second stage, we examine the influence on corrected price-cost margins of the relevant trade restrictions at the aggregate and modal levels, controlling for regulatory measures and other cross-country differences. In other words, we use a country-level regression to “explain” each country’s corrected price cost margin in terms of detailed data on the determinants of sectoral performance.

The method is described in detail in Annex 3, which also contains a full description of the firm- and country-level datasets used for each sector, and the significance and robustness of the results obtained.

29. There have been a number of previous applications of similar, or related, methodologies to directly estimate the impact of trade barriers on price-cost margins. Sectors covered include banking (Kalirajan et al., 2000), distribution (Kalirajan, 2000) and engineering (Nguyen-Hong, 2000). Dee (2004a, 2004b) covered all three sectors, while Copenhagen Economics (2005) analysed accountancy, retail and wholesale distribution, and information technology. As noted above, the present paper represents an extension of this previous work in the sense that it applies a different weighting scheme, uses newer data, and makes an explicit link to the modes of supplying services.

30. Our departure from previous work is sharper in relation to the other sectors considered, namely insurance and telecom. To our knowledge, there is no existing quantitative assessment of the impact of trade barriers on margins in the insurance sector, so our paper represents a first contribution in that area. On the other hand, trade barriers affecting telecom have been analysed by Warren, 2000; Trewin, 2000; Brown and Feinberg, 2004; and Dee, 2004a and 2004b, while Boylaud & Nicoletti, 2000 and Doove et al., 2001 investigated the price effects of sectoral regulations more broadly (i.e., not limited to trade policy). The difference between this paper and previous telecom papers is in the choice of performance variable. Previous work generally used quantity-based measures of performance, which then had to be converted into price-based tax equivalents (Warren, 2000; Trewin, 2000; Brown and Feinberg, 2004, Dee, 2004a and 2004b). When price measures were used (Boylaud & Nicoletti, 2000), they could only be regarded as indicative given the wide variety of services on offer in this sector; i.e., it is not really possible to speak of a single “market price” for telecom services. The present paper attempts to avoid such difficulties by using, as for other sectors, a more general measure of price-cost margins. At the same time, such an approach should facilitate cross-sectoral comparisons.

31. An additional innovation of this paper is the increased attention given to sector-level determinants of firm performance, be they in terms of the level of a sector’s development in a given

<sup>5</sup> Some previous studies (e.g., Kalirajan et al., 2000; Kalirajan, 2000; Dee, 2004a and 2004b) have adopted a two-stage econometric approach, while others (Nguyen Hong, 2000; Copenhagen Economics, 2005) have used a single-stage approach. There is no hard and fast rule as to which is better. The answer can vary from dataset to dataset and from sector to sector. In this paper, a two-stage approach is preferred simply because the dataset being used suggested that such an approach would be superior from a statistical point of view.

country, or in terms of the regulatory institutions that have grown up around it. For instance, we take explicit account of the impact of prudential regulations and financial sector development on firm profitability in the banking sector, while for engineering services we examine the impact of general sectoral regulations, along with some possible indicators of the level of development of the domestic engineering sector.

32. Using the results from this two-stage method across sectors, and incorporating both the aggregate and modal TRIs, it is possible to calculate “tax equivalents” of restrictions in the selected sectors in individual countries. Tax equivalents have been calculated by comparing the levels of price cost margins under current policy settings with the values that we would expect to observe if trade barriers were to be removed, but all other influential factors were to remain constant. The “core” tax equivalents are reported in Tables 11 to 16. The figures in the first column of each table indicate the percentage by which either prices or costs are inflated as a result of sectoral aggregate restrictions in the selected economies, while the figures in the next four columns report the sector-specific modal tax equivalents.

33. These exercises also produce confidence intervals<sup>6</sup> for each estimated tax equivalent. These are reported in Annex 3 (all tables in section 5 of Annex 3). While our intention in providing confidence intervals is to highlight the uncertainty that surrounds the estimation of tax equivalents using this methodology—in particular in light of the very small effective samples used for the second-stage regressions—it must be noted that the intervals we present should nonetheless be taken as being on the narrow side. This is because they are based exclusively on coefficient uncertainty and do not consider, for example, uncertainty surrounding the appropriate index weights or measurement error. With this caveat in mind, it can be seen that our estimates - like those presented in previous studies - are subject to a certain level of uncertainty. As a result, rather than drawing detailed policy conclusions based on point estimates, we would favour a more flexible, qualitative interpretation of the quantitative results, along with rank ordering of countries.

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<sup>6</sup> We use a simulation methodology based on a statistical technique known as “bootstrapping” to produce confidence intervals that can be expected to be more accurate than those based on large-sample theory (for reviews, see Horowitz, 2001; and Brownstone & Valletta, 2001).

**Table 11. Estimated Tax Equivalents, % Banking**

	Aggregate (% on price)	Mode 1 (% on cost)	Mode 2 (% on cost)	Mode 3 (% on price)	Mode 4 (% on price)
Malaysia	34.17	1.99	4.77	31.82	0.95
India	27.04	1.99	4.77	25.40	0.80
Russia	25.51	1.99	4.77	23.90	2.45
Egypt	24.38	1.99	4.77	25.20	1.52
China	21.58	1.99	4.77	21.46	0.59
Serbia and Montenegro	19.01	3.00	7.32	15.44	0.38
Thailand	17.92	1.99	4.77	19.61	1.34
Colombia	17.69	1.02	4.77	19.54	1.90
Morocco	17.28	1.99	4.77	18.91	0.59
Venezuela	16.69	1.23	4.77	17.64	2.38
Macedonia	14.97	3.00	4.77	13.50	0.24
Tunisia	14.47	1.99	4.77	16.31	2.66
Brazil	13.17	0.06	0.00	23.64	1.32
Zambia	11.32	1.02	2.36	17.34	0.17
Bolivia	10.51	0.82	2.36	15.22	2.42
Chile	10.08	0.47	2.36	18.80	1.16
Argentina	9.02	2.20	0.00	14.50	0.57
Croatia	7.75	1.37	2.36	13.42	0.60
Ecuador	7.70	1.58	0.00	14.61	2.05
Moldova	7.61	1.02	2.36	14.42	0.24
Peru	7.19	0.82	2.36	14.37	1.12
Albania	6.67	1.11	2.36	12.50	0.57
Bulgaria	5.46	1.02	2.36	12.50	0.99
Latvia	3.48	0.06	0.00	15.44	0.24
Jordan	2.76	0.47	0.00	13.33	1.72
Estonia	2.23	0.27	0.00	13.42	0.41
Lithuania	1.64	0.06	0.00	13.42	1.36

Source: Own calculations

**Table 12. Estimated Tax Equivalents, % Insurance**

	Aggregate (% on price)	Mode 1 (% on cost)	Mode 2 (% on cost)	Mode 3 (% on price)	Mode 4 (% on cost)
India	112.96	137.43	78.43	142.72	37.88
Malaysia	94.48	137.43	78.43	105.04	71.25
Serbia and Montenegro	76.18	144.79	82.11	58.40	20.74
China	68.98	130.29	9.26	88.19	77.94
Russia	68.29	114.46	66.68	74.67	124.56
Morocco	67.42	144.79	82.11	49.82	50.80
Thailand	61.53	39.89	7.05	102.43	85.95
Tunisia	54.56	144.79	40.58	41.47	199.40
Ecuador	54.51	144.79	82.11	39.21	112.34
Jordan	47.53	89.82	53.59	34.40	121.76
Bolivia	45.93	114.46	66.68	21.84	131.35
Brazil	44.14	47.19	29.54	55.42	60.36
Venezuela	40.35	28.96	18.57	46.31	174.59
Uruguay	39.69	114.46	66.68	24.35	24.74
Macedonia	38.81	50.22	31.32	40.00	12.33
Egypt	36.76	32.96	9.26	40.22	92.94
Bulgaria	33.30	103.83	61.09	13.14	38.52
Colombia	27.20	14.14	9.26	31.44	113.02
Argentina	26.01	93.72	55.70	8.43	28.26
Chile	25.51	32.96	21.01	19.55	58.66
Romania	22.73	14.14	9.26	29.63	11.52
Moldova	21.77	58.06	0.00	24.78	12.33
Croatia	18.17	58.06	35.87	5.58	26.84
Albania	18.00	58.06	0.00	17.99	29.00
Peru	17.74	16.49	9.26	20.99	98.17

Source: Own calculations

**Table 13. Estimated Aggregate Tax Equivalents, % Fixed Telecommunication**

Country	Aggregate (%)	Mode 1 (%)	Mode 2 (%)	Mode 3 (%)	Mode 4 (%)
Tunisia	10.54	20.71	36.11	132.24	110.07
Morocco	10.19	20.71	36.11	132.24	17.6
Egypt	9.36	7.43	36.11	132.24	33.4
Serbia	7.47	7.43	36.11	83.15	8.77
China	6.7	18.03	36.11	64.45	33.11
Thailand	6.6	20.7	36.11	72.72	43.38
Macedonia	6.02	11.34	36.11	61.87	6.35
India	5.68	7.43	36.11	55.89	22.87
Russia	5.59	7.43	16.67	58.12	57.16
Ecuador	5.56	6	36.11	55.95	66.23
Bolivia	5.48	15.41	0	45.87	79.7
Uruguay	5.22	0	0	77.18	17.43
Malaysia	4.9	0	36.11	60.96	27.04
Colombia	4.76	25.11	36.11	26.78	59.12
Albania	3.78	12.36	36.11	25.36	5.73
Moldova	3.35	0	36.11	31.05	6.35
Venezuela	1.59	7.42	36.11	5.71	82.69
Brazil	1.58	0	36.11	7.26	39.25
Bulgaria	1.56	7.43	0	3	29.66
Chile	1.48	0	0	15.38	36.35
Peru	1.35	7.42	36.11	3	43.27
Argentina	1.11	0	0	11.83	14.22
Romania	0.58	0	0	6.91	5.16

Source: Own calculations

**Table 14. Estimated Aggregate Tax Equivalents, % Mobile Telecommunication**

Country	Aggregate (%)	Mode 1 (%)	Mode 2 (%)	Mode 3 (%)	Mode 4 (%)
Thailand	23.5	13.43	42.41	13.75	42.13
China	18.56	13.43	0	12.12	32.19
India	18.44	13.43	42.41	10.45	22.25
Malaysia	16.98	0	0	11.58	26.31
Russia	14.13	13.43	42.41	6.59	55.44
Serbia	13.6	28.66	102.8	1.75	8.55
Brazil	8.3	13.43	0	4.03	38.14
Bolivia	7.77	28.66	0	0.56	77.16
Morocco	7.61	28.66	0	1.46	17.14
Venezuela	7.07	28.66	42.41	0.31	80.03
Egypt	5.73	13.43	0	2.34	32.47
Bulgaria	5.65	13.43	42.41	0.42	28.85
Tunisia	5.57	13.43	0	1.18	106.31
Ecuador	5.52	13.43	0	1.87	64.19
Albania	5.49	0	0	4.38	5.59
Macedonia	5.12	0	0	4.07	6.19
Moldova	4.52	0	0	2.92	6.19
Colombia	4.32	0	0	2.63	57.33
Jordan	3.88	0	0	2.34	56.56
Chile	3.11	0	0	1.18	35.33
Argentina	3.03	0	0	1.46	13.85
Romania	2.9	0	42.41	0.59	5.03
Peru	1.42	0	0	0.76	42.02
Uruguay	1.32	0	0	0.28	16.97

Source: Own calculations

**Table 15. Estimated Tax Equivalents, % Engineering**

	Aggregate (% on price)	Mode 1 (% on cost)	Mode 2 (% on price or cost)	Mode 3 (% on price or cost)	Mode 4 (% on cost)
Malaysia	3.72	38.52	8.07	8.41	2.04
China	3.14	91.88	0.00	4.99	5.96
Indonesia	2.88	91.88	16.78	2.89	6.24
Brazil	2.61	91.88	16.78	3.05	4.69
Thailand	2.55	91.88	0.00	5.28	2.78
Chile	1.91	91.88	16.78	0.47	6.07
Philippines	1.34	91.88	16.78	0.31	6.19
Singapore	1.02	91.88	0.00	0.31	3.37
Argentina	0.94	0.00	0.00	0.31	2.49
Russia	0.84	38.52	0.00	0.31	3.14

Source: Own calculations

**Table 16. Estimated Tax Equivalents, % Distribution**

	Aggregate (% on cost)	Mode 1 (% on cost)	Mode 2 (% on cost)	Mode 3 (% on cost)	Mode 4 (% on cost)
Vietnam	82.75	0.00	0.00	9.66	30.40
India	77.44	29.23	16.82	4.74	21.26
Malaysia	71.23	29.23	16.82	7.31	21.26
Philippines	69.05	29.23	16.82	6.56	33.84
Indonesia	67.70	29.23	16.82	5.83	42.47
Venezuela	63.74	0.00	0.00	4.30	33.84
Colombia	52.12	29.23	16.82	4.47	30.40
Russia	48.05	29.23	16.82	3.55	33.11
Zambia	42.69	0.00	0.00	3.69	10.98
Chile	41.94	29.23	16.82	2.18	36.99
Morocco	38.60	29.23	16.82	1.61	9.26
China	38.43	13.68	0.00	7.24	12.14
Singapore	36.04	29.23	16.82	0.03	18.14
Uruguay	32.96	21.21	12.37	1.22	23.78
Thailand	32.83	13.68	0.00	5.47	33.84
Brazil	31.92	13.68	8.08	4.19	58.90
Hong Kong	13.37	13.68	3.96	0.03	12.14
Argentina	6.10	0.00	0.00	0.05	23.78
South Africa	4.26	0.00	0.00	0.03	23.78

Source: Own calculations

34. Mirroring the ranking of trade restrictiveness indices, the tables show that, the highest tax equivalents are recorded by the analysed Asian countries; while in general, tax equivalents are the lowest for most transition economies.

35. As can be seen from Annex 3, we experiment with a considerable number of different model specifications—in all, around 200 regressions were run. The reason for this is to ensure that our results are robust to small changes in model structure. The main findings of this process are summarised below, in non-technical language.

## Banking

36. From a statistical point of view, the first- and second-stage banking regressions appear to be appropriately specified.<sup>7</sup> The interpretation of the Aggregate TRI coefficient is consistent across second-stage models: it suggests that the aggregate effect of trade restrictions in the banking sector is rent-creating, rather than cost-increasing. Although the estimated magnitudes are quite robust to alternative model specifications, the Aggregate TRI coefficients are generally not statistically significant, unless interacted with the dummy variable for MFN exemptions. We interpret this as indicating that trade barriers combined with MFN exemptions—*i.e.* discriminatory barriers—tend to have an economically and statistically significant impact on costs (pushing them upwards), which accords with basic theory. This latter point also applies to the second-stage regressions using modal indices,<sup>8</sup> which also display considerably more sensitivity to model specification than do the regressions using aggregate data. The modal TRI coefficients vary in sign according to the mode of supply: restrictions in modes 1 and 2 appear to be cost increasing, whereas those in modes 3 and 4 appear to be rent creating.

37. Prudential and other regulations are found to have a very small (and statistically insignificant) upwards impact on costs. Both the magnitude and sign accord with theory, as although the objective of such regulations is not to increase firm costs but to safeguard financial system stability, we can reasonably expect that they will nonetheless affect firm cost structures.

38. The estimated coefficients on interest rate variance and concentration also carry the expected positive signs. Their magnitudes are quite consistent across different specifications, but only interest rate variation is statistically significant (at the 5% level).

## Insurance

39. Both the first- and second-stage models for the insurance sector appear acceptably well specified from a statistical point of view.<sup>9</sup> While the Aggregate TRI variable consistently has economically reasonable and significant magnitudes that remain reasonably stable across models, it is not statistically significant—even at the 20% level—in any of the five models reported. While this means that it would be dangerous to put too much emphasis on the numerical results we present, it is nonetheless reassuring that the qualitative interpretation of the Aggregate TRI coefficient is consistent across models: it suggests that

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<sup>7</sup> All three first-stage models display R2 around 0.8, meaning that they account for 80 percent or so of the movement in the dependent variable. While all three models suffer from residual heteroskedasticity and non-normality, there is no evidence to suggest that the estimates we are most interested in—the fixed effects, which will be used as the dependent variable in the second-stage regression—are seriously affected by these problems. By comparison with the first-stage regressions, we find that R2s for the second-stage regressions are much lower (just under 0.25) but that the regression specification tests are largely satisfied (*i.e.*, they fail to reject the null at the 10% level). Model F-tests reject the null at the 10% and 5% levels, and at least some of the estimated parameters are statistically significant at the 20% level.

<sup>8</sup> The R2s of the modal regressions are around 0.2, though the diagnostics are generally quite sound (*i.e.* the diagnostic tests usually do not reject the null).

<sup>9</sup> All first-stage models display R2 of at least 0.7, meaning that they account for 70% or so of the movement in the dependent variable. The models seem quite free of residual non-normality and heteroskedasticity. By comparison with the first-stage regressions, we find that the R2s for the second-stage regressions are somewhat lower (between 0.5 and 0.6) but that the regression specification tests are largely satisfied (*i.e.*, they fail to reject the null at the 10% level). Model F-tests reject the null at the 10% and sometimes 5% levels, and at least some of the estimated parameters are highly statistically significant—this is notably the case for prudential regulations and other sectoral regulations.

the effect of trade restrictions in the insurance sector is cost-increasing, rather than rent-creating, the opposite of what was found in the banking sector.

40. As was the case for the banking sector, we find that prudential and other regulations have a statistically significant upwards impact on costs. The estimated coefficient on insurance penetration carries the expected negative sign—i.e., greater penetration is associated with lower margins—but is statistically insignificant. The estimated density coefficient seems, on the other hand, to have no observable impact on margins. Finally, recent industry growth is weakly negatively associated with price-cost margins.

41. In terms of the signs and magnitudes of the estimated modal coefficients<sup>10</sup>, we find considerable variability. Penetration and density only have the expected negative sign for modes 1 and 2, while recent industry growth has the expected sign only in the mode 1 regression. The prudential and regulatory variables are found to be robustly cost-increasing, in all regressions. In all cases, the TRIs interacted with the MFN exemptions dummy carry a negative sign, suggesting that they tend to increase costs. On the other hand, the TRIs themselves vary in sign according to the mode of supply: restrictions in modes 1, 2 and 4 appear to be cost increasing—although this interpretation is less clear in the last case—whereas those in modes 3 appear to be rent creating.

### Fixed and mobile telecommunication

42. Both the first- and second-stage regressions in these sectors perform reasonably well in an aggregate sense. In particular, regulatory and environmental variables are quite stable in terms of magnitude and sign across the different specifications.<sup>11</sup> We find that both regulatory variables and sectoral development tend to be associated with lower price-cost margins, as expected. At the aggregate level in both sectors, we find evidence that trade barriers combined with RTAs tend to have rent-creating effects, while in combination with MFN exemptions, they tend to have cost-increasing effects.

43. Interpretation of our results concerning the aggregate TRI is rendered more difficult than for other sectors by the fact that the sign of the TRI coefficient is quite sensitive to model specification, meaning that it is difficult to draw any firm conclusions as to the rent-creating or cost-increasing effects of trade barriers in these sectors. Our conclusion to the effect that barriers appear in the aggregate to be cost-increasing must therefore be regarded as tentative, in particular in the light of evidence from other studies that goes in the opposite direction (Warren, 2000; Dee, 2004a and 2004b). Similar comments apply to the modal regressions, from which we again tentatively conclude as follows: barriers in mode 1 appear to be cost-increasing, while those in the other three modes appear to be rent-creating.

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<sup>10</sup> From a statistical point of view, the quality of the regressions is broadly comparable as between the aggregate and model cases. For the latter, R2s are around 0.5-0.6, the diagnostics are sound (with the possible exception of some heteroskedasticity in Modes 3 and 4) and most models soundly reject the F-test.

<sup>11</sup> Concerning first-stage estimates, although estimated parameters display some degree of sensitivity to model specification there is some evidence that the models are fairly well-specified. R2 in all cases is reasonably strong suggesting that between 60% and 70% of the price-cost margin variable is “explained” by the models. By comparison with the first-stage regressions, we find that the R2s for the second-stage are somewhat lower (around 0.4 or 0.5) but that the regression specification tests are satisfied in all cases. All model F-tests reject the null at the 20% level, but only one model rejects it at the 10% level. Some, but not all, of the estimated parameters are statistically significant, up to the 5% level.

## Professional services - Engineering

44. First- and second-stage regressions for the engineering sector again appear overall to be reasonably well specified<sup>12</sup>. The proxy variables designed to capture the level of sectoral development are in many cases statistically significant, while regulatory variables are again found to increase firm costs but to a statistically insignificant extent. The estimated signs and magnitudes of both regulatory variables and sectoral development indicators are quite robust to changes in model structure. Similar comments apply to the modal regressions.<sup>13</sup>

45. Again, the main difficulty of interpretation in respect of this sector relates to the aggregate TRI coefficient, which varies across models both in magnitude and sign. We tentatively conclude that if trade barriers in the engineering sector have, in the aggregate, cost-increasing effects. However, we again highlight the uncertainty surrounding this conclusion, in particular in light of the fact that previous work has disclosed both cost-increasing and rent-creating effects (Nguyen Hong, 2000).

46. Turning to each mode separately we can see that interpretation of the TRI coefficient and interaction terms is clearest for mode 1: the TRI's cost-increasing impact is statistically and economically significant, and quite robust to different specifications, while the interaction terms suggest that RTAs combined with protection can be rent-creating, while MFN exemptions tend to be cost-increasing. The mode 2 regressions are more difficult to interpret, as the estimated magnitudes and signs vary considerably. While there is reasonable evidence to support the same interpretation of RTAs and MFNs that flows from the mode 1 regressions, it is quite unclear as to whether the trade barriers themselves are cost-increasing or rent-creating. Mode 3 suffers from similar difficulties, although the results are again suggestive of a similar impact for RTAs. By contrast, the interaction term between mode 3 barriers and MFN exemptions suggests a rent-creating, rather than a cost-increasing effect. The same is true when we turn to the mode 4 regressions. Mode 4 barriers themselves (*i.e.* without interaction terms) are cost-increasing in all but one regression.

## Distribution services

47. Although the first-stage regressions for this sector appear well-specified, their second-stage counterparts are much less satisfactory from a statistical point of view.<sup>14</sup> Subject to that caveat, it is apparent that the estimated aggregate TRI coefficient is quite stable across different specifications, both in magnitude and sign, and it is highly statistically significant. We therefore tentatively conclude that, in the aggregate, trade barriers in this sector tend to have cost-increasing effects. Our conclusion is strengthened somewhat by previous work in this area, which has arrived at similar results (Kalirajan, 2000).

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<sup>12</sup> With respect to the first stage regressions, R2s are fairly low (around 20%) and there is strong evidence of residual non-normality, probably stemming from outlying observations. In all but Models 1 and 5, the country fixed effects are statistically significant at the 5% level. By comparison with the first-stage regressions, we find that the R2s are considerably better (between 0.5 and 0.6) in all but one case. Moreover, the regression specification tests are satisfied by all but two models that show some minor evidence of specification error, rejecting the RESET test at the 20% and 10% levels respectively. Model F-tests are significant at the 5% level for all but one model.

<sup>13</sup> Interestingly, the overall explanatory power of the modal regressions, as measured by their R2s, is generally higher than for the aggregate regressions. The modal models generally reject the F-test at the 5% level and contain a number of statistically significant coefficients amongst the control variables. Very few of the modal regressions present evidence of empirical misspecification or other statistical problems.

<sup>14</sup> R2s for the first-stage regressions are moderate to good, at around 50%. Although there is strong evidence of residual non-normality, this is linked to the presence of one or two outliers and should not pose any major problems for statistical inference. By contrast, R2s for the second-stage regressions are around 0.15, while most models do not reject the F-test null hypothesis, which suggests that they fit the data quite poorly.

48. Similar statistical difficulties are apparent in the modal TRI regressions.<sup>15</sup> But once again, the modal TRI coefficients tend to be quite stable in terms of sign and magnitude across the various model specifications tested. The TRIs for modes 1, 2 and 4 are found to be statistically significant, with restrictions in modes 1 and 2 having cost-increasing effects, while those in mode 4 tend to have rent-creating impacts. The mode 3 TRI coefficient is more difficult to interpret, since it is not statistically significant and is unstable across different model specifications. Given the weakness of the mode 3 results, we do not at this stage draw any firm conclusion as to whether such trade barriers have cost-increasing or rent-creating effects.

#### **IV. Conclusion**

49. The methodology applied in this paper constitutes a variation of the approach taken by the Australian Productivity Commission in a series of papers that attempt to quantify the impact of barriers to services trade. The proposed improvements give a more complete picture with regard to modal coverage by calculating not only aggregate sectoral indices but also separate modal restrictiveness indices and subsequently modal tax equivalents.

50. Given the extensive use of such indicators in empirical exercises that assess welfare gains from services liberalisation, an additional objective of the paper is to clearly identify the potential and limitations of services barriers estimation techniques in order to enable a more rigorous and critical interpretation of results.

51. It is important to highlight the fact that tax equivalents are estimated by statistical means, and are therefore inherently uncertain. In an effort to make the scope of that uncertainty apparent, in addition to the core tax equivalents estimates that are presented in general in such type of studies, this paper provides confidence intervals for each estimated tax equivalent. It can be seen that our estimates – like those presented in previous studies - are subject to uncertainty. We experiment with different combinations of variables (sectoral regulatory variables, MFN exemptions and RTA variables) to gauge the robustness of our results to small changes in the modal estimates. The results suggest that at this stage it is rather difficult in some sectors to make a clear differentiation concerning the exact nature of barriers (*i.e.* cost-increasing versus rent-creating). As a result, rather than drawing detailed policy conclusions based on point estimates, we would favour a more flexible, qualitative interpretation of the quantitative results and rank ordering of countries. A similar approach would be recommended for empirical exercises that employ these tax equivalents as inputs. Furthermore, our approach highlights the needs for such exercises to take explicit account of statistical uncertainty when performing their welfare calculations (Hertel *et al.* 2004). For example, while these indicators and the corresponding tax equivalents were employed in the OECD study on the impact of China's liberalisation on OECD countries and the Russian Federation (OECD, 2006), the conclusions conveyed systematically a sense of how results can vary depending on what goes into the model.

52. Finally, given the limitations of the tax equivalents estimation technique as well as the problems related to the treatment of services barriers as *ad valorem* trade costs, future empirical work could explore the impact of various regulatory measures on the fixed costs of entering a market or the variable costs of servicing that market using alternative methods.

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<sup>15</sup> R2s are again very low (0.1) and models do not reject the F-test. There is some evidence of residual non-normality, again due to one or two outliers that do not exert a particularly strong influence on final results.

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## **ANNEX 1: METHODOLOGICAL LIMITATIONS AND PROPOSED IMPROVEMENTS**

### **Stage 1: Restrictiveness indices**

1. Limitations concerning the classification systems of barriers employed in the construction of the indices
  - Modes of supply

In general, the indices consider separately restrictions on entry/establishment and on-going operations, or restrictions affecting commercial presence and cross-border trade. In terms of the modal classification adopted in GATS, this categorisation covers only a combination of restrictions affecting mode 3 and selected restrictions affecting mode 1 or mode 4<sup>16</sup>. Consequently, there is an absence of information on barriers according to the four modes of supply. This affects the estimation of the restrictiveness index and the subsequent computation of tariff equivalents that are calculated only on the basis of the total restrictiveness index without analysing the impact of the different modal components on economic performance. Thus, while these indices (and tax equivalents) represent an improvement in terms of gathering information and estimation techniques, they offer a less complete picture with regard to modal coverage.

In order to make the index more suitable for services negotiations, it would be useful to develop indices that cover all modes of services supply at the sectoral level.

- Foreign versus domestic index

The indicators developed by the APC distinguish between foreign and domestic restrictions in an attempt to include the main categories of restrictions that are considered in the context of scheduling commitments under the GATS. It is assumed that market access restrictions apply in a non-discriminatory way to incumbents in a particular market and to possible entrants (whether domestic or foreign). In principle, this categorisation facilitates the computation of trade barrier estimates in accordance with the market access and national treatment category impediments addressed by the agreement. However, some potential problems relate to the subjective selection of components that are relevant for the domestic and the foreign index. For example, restrictions on the movement of people are considered to affect only the on-going operations of foreign suppliers. While one could question the relative impact of mode 4 restrictions on the activity of foreign and domestic services firms, a total neglect of their effect on domestic firms seems less plausible. In fact, a recent paper on services barriers in the EU commissioned by the EC<sup>17</sup> assumes that restrictions on the temporary movement of people equally affect domestic and foreign services providers.

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<sup>16</sup> For example, mainly mode 3 and mode 4 limitations are considered in the construction of indices for banking, distribution and professional services, while mode 1 and mode 3 limitations are accounted for in the telecommunication index.

<sup>17</sup> See Copenhagen Economics, 2005.

Therefore, rather than arbitrarily selecting which barriers are relevant for the domestic and foreign indices, it is proposed to develop a single index (or set of modal indices) that contains all identified modal barriers. The distinct impact on foreign and domestic firms could be determined in the subsequent econometric exercise, by separately identifying those two groups of firms based on some pre-determined criterion of ownership or control.

## 2. Limitations concerning the weighting of different components of the restrictiveness indices.

The quantification approach developed by the Australian Productivity Commission employs sophisticated weighting methods to assess the restrictiveness of different measures<sup>18</sup>. The classification and assessment of weights take into account information on types of barrier and their likely relative economic impact, reflecting a judgement about the importance of each type of barriers. Despite sensitivity tests that were conducted to examine the extent of variation of the computed index in response to alternative weights<sup>19</sup>, this method is often criticised for the high degree of subjectivity in allocating the weights. While such an approach is simple and intuitively appealing, it contains a tautological element: the weights are generally set up to reflect analysts' judgements as to the likely economic impact of different measures, yet the weighted indices themselves are later employed in econometric exercises designed specifically to determine the economic incidence of different measures.

To overcome these problems, OECD pioneered the use of factor analysis in its work on product market indicators<sup>20</sup>. This statistical method groups index components into linear combinations that are similar to each other, but different from other groups, and examines the effects of these linear combinations on economic outcomes. Despite criticism<sup>21</sup>, this methodology is becoming increasingly popular in the applied literature, primarily because it is data-driven<sup>22</sup>.

Consequently, in order to address the subjectivity of allocating weights to the different restrictions, it is proposed to apply alternative techniques (such as factor analysis) to compute the weighting scores of the different components of the indices.

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<sup>18</sup> For more details, see McGuire and Schuele, 2000; McGuire *et al.*, 2000; Nguyen-Hong, 2000.

<sup>19</sup> See Hardin and Holmes, 1999.

<sup>20</sup> See for example Gonenc and Nicoletti, 2000; Boylaud and Nicoletti, 2000; and Steiner, 2000.

<sup>21</sup> Some authors (Doove *et al.*, 2001 and Deardorf and Stern, 2004) consider that this purely statistical technique does not represent a major improvement on the use of judgemental weights because this approach selects components that explain most of the variation in the original data on regulatory restrictions based on little or no relationship with true economic importance of those factors.

<sup>22</sup> For example, OECD employs this method in its current work that summarise the main features of the regulatory framework in the product market of each country (OECD, 2005b). A recent study on services barriers in the EU produced by the Copenhagen Economics Institute (Copenhagen Economics, 2005) uses the same method: while keeping subjective weighting scores for the various components of the restrictiveness index, factor analysis is employed to reduce the number of restrictiveness indicators and determine their impact on firms' performance. The initial categories of barriers on establishment, use of inputs, distribution, promotion, sales of services and non-legal barriers (for which both domestic and foreign restrictiveness indices are computed) are transformed into two main factors. Finally, instead of using predetermined weighting scheme in its analysis of financial services commitments, Valckx, 2004, employs factor analysis to determine the importance of modes of supply more objectively.

**ANNEX 2: RESTRICTIVENESS INDICES COMPONENTS - WEIGHTS****Table A2.1: Banking Restrictiveness Index Components - Weights**

Components		Aggregate TRI	Mode1_TRI	Mode3_TRI	Mode4_TRI
Borrowing	M1_BOR	0.14	0.50		
Deposits	M1_DEP	0.08	0.50		
Consumption abroad	M2	0.14			
Foreign equity limits	M3_FEL	0.08		0.12	
Form of commercial presence	M3_FC	0.08		0.09	
Joint venture	M3_JV	0.03		0.07	
Licensing	M3_LIC	0.09		0.19	
Raising funds	M3_RAISF	0.10		0.15	
Lending	M3_LENDF	0.07		0.13	
Other business	M3_OTHB	0.02		0.01	
Expanding number of outlets	M3_EXP	0.10		0.20	
Screening	M3_SCREE N	0.03		0.04	
Movement of people - short term stay	M4_SHORT	0.01			0.04
Board of directors	M4_BOD	0.02			0.32
Movement of people - long term stay	M4_LONG	0.00			0.47
Work permits	M4_WKP	0.00			0.17
		1.00	1.00	1.00	0.00

**Table A2.2: Insurance Restrictiveness Index Components - Weights**

Components		Aggregate TRI	Mode 3 TRI	Mode 4 TRI
Cross-border trade	M1	0.15		
Consumption abroad	M2	0.13		
Foreign equity limits	M3_FEL	0.09	0.16	
Form of commercial presence	M3_FC	0.12	0.13	
Joint venture	M3_JV	0.11	0.17	
Licensing	M3_LIC	0.08	0.15	
Business scope	M3_BSC	0.11	0.15	
Expanding number of outlets	M3_EXP	0.08	0.15	
Screening	M3_SCREEN	0.08	0.10	
Movement of people - short term stay	M4_SHOR	0.01		0.01
Board of directors	M4_BOD	0.01		0.30
Movement of people - long term stay	M4_LONG	0.00		0.35
Work permits	M4_WKP	0.03		0.34
		1.00	1.00	1.00

**Table A2.3: Fixed Telecom Restrictiveness Index Components - Weights**

Components		Aggregate TRI	Mode 1 TRI	Mode 3 TRI	Mode 4 TRI
Lease line	M1_LEASEL	0.11	0.32		
Connection to PSTN	M1_CONPSTN	0.01	0.27		
IP telephony	M1_IP	0.07	0.41		
Consumption abroad	M2_CB	0.09			
Foreign equity limits	M3_FEL	0.11		0.18	
Competition	M3_COMP	0.13		0.18	
Joint ventures	M3_JV	0.09		0.17	
Licensing and accreditation of foreign professionals	M3_LIC	0.12		0.18	
Screening	M3_TYPES	0.15		0.20	
Board of directors	M3_SCREEN	0.06		0.10	
Movement of people - short term stay	M4_BOD	0.01			0.28
Movement of people - long term stay	M4_SHORT	0.02			0.03
Work permits	M4_LONG	0.01			0.50
	M4_WKP	0.00			0.19
		1.00	1.00	1.00	1.00

**Table A2.4: Mobile Restrictiveness Index Components - Weights**

Components		Aggregate TRI	Mode 3 TRI	Mode 4 TRI
Cross border trade	M1	0.16		
Consumption abroad	M2	0.09		
Foreign equity limits	M3_FEL	0.23	0.35	
Competition	M3_COMP	0.07	0.16	
Joint ventures	M3_JV	0.25	0.35	
Licensing and accreditation of foreign professionals	M3_LIC	0.08	0.08	
Screening	M3_SCREEN	0.06	0.06	0.28
Board of directors	M4_BOD	0.00		0.03
Movement of people - short term stay	M4_SHORT	0.04		0.50
Movement of people - long term stay	M4_LONG	0.02		0.19
Work permits	M4_WKP	0.00		
		1.00	1.00	1.00

**Table A2.5: Engineering Restrictiveness Index Components - Weights**

Components		Aggregate TRI	Mode 3 TRI	Mode 4 TRI
Cross border trade	M_1	0.07		
Consumption abroad	M_2	0.06		
Form of establishment	M3_FEL	0.12	0.16	
Foreign partnership/joint venture/association	M3_FPJV	0.10	0.25	
Investment and ownership by foreign professionals	M3_INVPRF	0.06	0.30	
Investment and ownership by non-professional investors	M3_INVNPRF	0.10	0.23	
Screening	M3_SCRN	0.12	0.06	
BOD/ Licensing requirements on management	M4_BOD	0.00		0.12
Movement of people - Temporary	M4_SHRT	0.02		0.16
Movement of people - permanent	M4_LONG	0.00		0.17
Quotas/economic tests on the number of foreign professionals and firms	M4_WKPQ	0.11		0.08
Nationality/citizenship requirements	M4_NAT	0.01		0.19
Residency and local presence	M4_RES	0.00		0.15
Licensing and accreditation of foreign professionals	M4_LIC	0.05		0.12
Multidisciplinary practices	R_MULTPRCT	0.05		
Addition categories	R_ADDCATG	0.06		
Activities reserved by law to the profession	R_ACTRS	0.03		
Fee setting	R_FEE	0.01		
Advertising, marketing and solicitation	R_ADV	0.01		
		1.00	1.00	1.00

**Table A2.6: Distribution Restrictiveness Index Components - Weights**

Components		Aggregate TRI	Mode 3 TRI	Mode 4 TRI
Cross border trade	M1	0.21		
Consumption abroad	M2	0.20		
Restrictions on commercial land	M3_RCL	0.03	0.04	
Direct investment	M3_DI	0.11	0.09	
Restrictions on large-scale stores	M3_LSS	0.01	0.11	
Factors affecting investment ADDITION CATEGORY -	M3_FAI	0.04	0.17	
Factors affecting local establishment ADDITION				
CATEGORY -	M3_FALE	0.07	0.28	
Wholesale import licensing	M3_WIL	0.12	0.10	
Promotion of retail products	M3_PRP	0.01	0.10	
State Monopolies - Product exclusions	M3_SM	0.06	0.11	
Protection of intellectual property rights	M3_IPR	0.05	0.00	
Movement of people - Temporary	M4_SHRT	0.00		0.32
Licensing requirements on management	M4_LMGM	0.09		0.28
Movement of People - Permanent	M4_PRM	0.01		0.40
		1.00	1.00	1.00

Source: For all tables in Annex 2, own calculations.

### ANNEX 3: CALCULATING TAX EQUIVALENTS

The purpose of this Annex is to explain in greater detail the way in which regression analysis has been applied to produce estimated tax equivalents of barriers to trade in banking services. We highlight the fact that although our results are economically sensible and in line with others in the literature, they must nonetheless be interpreted with caution due to a number of technical problems encountered.

The Annex is structured as follows. Section 1 presents the general principles underlying the econometric techniques employed in this paper. Section 2 describes the two-stage approach that was used to determine the tax equivalents. Section 3 contains the detailed sectoral model specifications. Section 4 presents the detailed sectoral results and their robustness. Finally, section 5 presents the confidence intervals for each estimated sectoral aggregate and modal tax equivalents.

#### 1. General Principles

Following the general direction taken by the Australian Productivity Commission, one possible approach to measuring the economic impact of barriers to services trade is to use econometric techniques to estimate an equation of the following form:

$$(1) \quad PCM_{ij} = c + B[controls_{ij}] + X.TRI_j + \varepsilon_{ij}$$

The price-cost margin for firms (subscript i) in a given sector across countries (subscript j) is “explained” by a constant, a set of country and firm level control variables, the aggregate TRI calculated as set out in the text and a white noise error term. The particular implementation of this base specification depends primarily on two additional choices: the variables to be included in the control set, and the type of TRI to be used (aggregate or modal).

The substantive interest of this formulation comes from the interpretation that can be given to X, the coefficient on the TRI. The greater its magnitude, the greater the economic impact of the trade barriers captured by the TRI. By making appropriate conversions, it is possible to derive a tax equivalent directly from the estimate of X.

The sign of the X coefficient is also important. If it is positive—meaning that a higher TRI is associated with bigger margins—it is interpreted as indicating the presence of “rent-creating” barriers that tend to increase prices but do not affect costs. On the other hand, a negative X—meaning that a higher TRI is associated with smaller margins—is interpreted as indicating the presence of “cost-creating” barriers that tend to increase costs for firms, but do not affect prices. It is important to stress that both interpretations rely on a very strong assumption to the effect that trade barriers impact either on prices or on costs, but not on both simultaneously. This is a significant limitation to the methodology, but one that arises primarily from data restrictions: while information on firm-level margins is relatively freely available, data on prices and costs is not.

#### 2. Two-Stage Approach

One way of implementing the above approach would be to conduct a single-stage Ordinary Least Squares (OLS) regression in the above form. While examples of this can be found in the literature on

barriers to services trade (e.g., Copenhagen Economics, 2005; Nguyen-Hong, 2000), there are also examples of a different approach (Kalirajan et al., 2000; Dee 2004a & 2004b). Following Saunders & Schumacher (2000) for the banking sector, this second group of papers has conducted their regressions in two stages. The following equations illustrate the general specifications.

Firstly, “adjusted” price-cost margins are estimated as country-level fixed effects ( $c_j$ ), after controlling for firm level differences:

$$(2) \quad \log(PCM_{ij}) = \sum_{p=1}^N c_j + B[firm-controls_{ij}] + \varepsilon_{ij}$$

The second stage regression seeks to explain the adjusted margins from the first stage in terms of the TRI and a selection of country-level control variables.

$$(3) \quad \hat{c}_j = a + D[country-controls_j] + X.TRI_j + \varepsilon_{ij}$$

The motivation for the two-stage approach is that the combined presence of firm- and country-level variables can, in some cases, lead to incorrect statistical inferences being drawn on the basis of a one-stage model (see e.g., Moulton, 1990). But ultimately, choosing between the one- and two-stage approaches is an empirical question that relies both on the analyst’s judgment and on the characteristics of the particular dataset being used. In the present case, we found strong evidence in favour of the existence of the country-level fixed effects postulated by the two-stage model. We have therefore systematically preferred the two-stage approach.

The major disadvantage of the two-stage approach is that it tends to produce an extremely small effective sample for the second-stage regressions (i.e., one observation per country). As a result, our results need to be treated with caution, in particular before being generalised to other countries, sectors and/or time periods. It must be kept in mind that the inferences we draw regarding trade barriers are, in reality, based on a very small number of observations. Nonetheless, they represent our best attempt at drawing appropriate conclusions given the current state of the data.

### **Tax Equivalents and Confidence Intervals**

Tax equivalents can be calculated directly from equation (3). For the aggregate TRI, the formula is:

$$(4) \quad t \equiv 100 \left( \frac{PCM_{ij} - PCM_{0j}}{PCM_{0j}} \right) = 100 \left( e^{\hat{X}.TRI_j} - 1 \right), \text{ where } PCM_{0j} \text{ refers to the price-cost margin that}$$

would pertain in country  $j$  if it were to have a TRI of zero, but all other factors were to remain the same. To make the same calculation for the modal TRIs, all that is necessary is to substitute (one by one) the relevant modal coefficients for the estimated aggregate coefficient.<sup>23</sup>

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<sup>23</sup> In calculating tax equivalents, we focus exclusively on the impact of the trade barriers captured by the various TRIs. We abstract from any additional effects due to MFN exemptions or RTAs.

The APC has made extensive use of the above approach (see e.g., Warren, 2000). One of the novel elements of this paper by comparison with the APC's work is the inclusion of estimated 70% confidence intervals for the tax equivalents (cf. Copenhagen Economics, 2005). We build up an approximate distribution of the tax equivalent for each country and sector by repeatedly re-estimating the second-stage regressions after "shuffling" the residuals and adjusting them for OLS bias, then using them to create synthetic left-hand side values. The process is repeated 2000 times, with each set of results recorded and used to produce approximate quantiles. This technique is known as "bootstrapping" (for reviews, see Horowitz, 2001; and Brownstone & Valletta, 2001). We modify the standard bootstrap methodology by imposing a strong prior to the effect that TRI coefficient estimates from the synthetic regressions cannot have a different sign from that of the "real" regression. When this occurs, a zero is entered. This reflects the strong interpretation that we are required to put on the sign of the TRI coefficient due to the fact that we are using price-cost margin data.

### **3. Regression Specifications**

It now remains to specify the firm- and country-level control variables that will be included in the regression models. Tables A3.1 to A3.6 describe these variables in detail.

**Table A3.1 : Banking sector dataset**

Variable	Description	Year	Source
<b>C5</b>	Five-firm concentration ratio = Fraction of deposits held by the 5 largest banks	2001 (year-end)	World Bank, Bank Regulation & Supervision Database, 2003
<b>CAP</b>	Capital Ratio = Total share capital and reserves / Total assets	2002-2004 (average)	Datastream, Banker's Almanac and own calculations
<b>GNII</b>	Recent growth of net interest income = ((NII04-NII02)/NII02)*100	2002-2004	Datastream, Banker's Almanac and own calculations
<b>INTVAR</b>	Interest rate variation = Variance of annualised quarterly deposit rates	2002q1-2004q4	IMF, International Financial Statistics; Central Bank websites
<b>LIQ</b>	Liquidity Ratio = Total cash & equivalent / Total assets	2002-2004 (average)	Datastream, Banker's Almanac and own calculations
<b>MFE</b>	Dummy variable = 1 if a country has at least one MFN exemption for the banking sector, else 0	GATS schedules	GATS
<b>NIE</b>	Net non-interest expenses = NIM - Pre-tax profits/Total assets	2002-2004 (average)	Datastream, Banker's Almanac and own calculations
<b>NIM</b>	Net interest margin = Net interest income / Total assets	2002-2004 (average)	Datastream, Banker's Almanac and own calculations
<b>PRUDVARSPC1</b>	Proxy for prudential regulations, calculated as the first principal component of the following set of indicators: capital adequacy (3.1), existence of explicit diversification requirements (7.1), liquidity reserves (7.3.1), compulsory deposit insurance (8.10) and a formal definition of non-performing loan (9.1).	2001	World Bank survey (question numbers indicated in brackets) and own calculations
<b>REGVARSPC1</b>	Proxy for sectoral regulations, calculated as the first principal component of the following indicators: signature of the Understanding on Commitments in Financial Services, independence and single/multiple supervisors.	2003	GATS, Sectoral questionnaires, World Bank, Bank Regulation & Supervision Database, 2003 and Own calculations
<b>RTA</b>	Dummy variable = 1 if a country has signed at least one RTA covering the banking sector, else 0	2002-2004	GATS /RTAs
<b>SHARE</b>	Market Share = Total assets / Total sector assets	2002-2004 (average)	Datastream, Banker's Almanac and own calculations
<b>TRI_Agg, TRI_M1, TRI_M2, TRI_M3, TRI_M4</b>	Aggregate and modal trade restrictiveness indices	See Paras 19 - 22 main text	Own calculations

**Table A3.2: Insurance sector dataset**

Variable	Description	Year	Source
<b>CAPAVE0203</b>	Capital Ratio = Total capital / Total assets	2002-2003 (average)	Datastream and own calculations
<b>DENSITY</b>	Non-life premiums / Population	2003	International Insurance Factbook and own calculations
<b>EXPAVE0203</b>	Expenses ratio = General, selling & administrative expenses / Total assets	2002-2003 (average)	Datastream and own calculations
<b>GIND0203</b>	Recent growth in industry premiums earned = (Industry premiums 2003 – Industry premiums 2002) / Industry Premiums 2002	2002-2003	Datastream and own calculations
<b>GPREM0203</b>	Recent growth of premiums earned = (Prem03- Prem02)/Prem02	2002-2003	Datastream and own calculations
<b>LIQAVE0203</b>	Liquidity Ratio = Total cash / Total assets	2002-2003 (average)	Datastream and own calculations
<b>MFE</b>	Dummy variable = 1 if a country has at least one MFN exemption for the insurance sector, else 0	GATS schedules	GATS and own calculations
<b>PCMAVE0203</b>	Price-cost margin = EBIT / Net Sales	2002-2003 (average)	Datastream and own calculations
<b>PENETRATION</b>	Non-life premiums / GDP	2003	International Insurance Factbook and own calculations
<b>PRUDVARSPC1</b>	Proxy for prudential regulations, calculated as the first principal component of the following set of indicators: existence of an insolvency guarantee fund, liquidity reserve requirements and minimum capital requirements. (1 = does not exist, else 0.)	2002	OECD and own calculations.
<b>REGVARSPC1</b>	Proxy for sectoral regulations, calculated as the first principal component of the following indicators: signature of the Understanding on Commitments in Financial Services, and single/multiple supervisors. (1 = not signed / multiple supervisor, else 0.)	2001-2004	GATS, Sectoral questionnaires, OECD (2001) “Insurance Regulation and Supervision in Asia and Latin America”, and own calculations.
<b>RTA</b>	Dummy variable = 1 if a country has signed at least one RTA covering the insurance sector, else 0	2002-2004	GATS /RTAs
<b>SHAREAVE0203</b>	Market Share = Total assets / Total sector assets	2002-2003 (average)	Datastream and own calculations
<b>TRI_Agg, TRI_M1, TRI_M2, TRI_M3, TRI_M4</b>	Aggregate and modal trade restrictiveness indices	See Paras 19 – 22 main text	Own calculations

**Table A3.3: Fixed telecom sector dataset**

Variable	Description	Year	Source
<b>CAPINT0204</b>	Capital intensity of production = Total capital / Net Sales	2002-2004 (average)	Datastream and own calculations
<b>DSHARE0203</b>	Percentage of digital mainlines	2002-2003 (average)	ITU World Telecommunication Indicators and own calculations
<b>GREV0203</b>	Recent growth in industry revenue = (Industry revenue 2003 – Industry revenue 2002) / Industry revenue 2002	2002-2003	ITU World Telecommunication Indicators and own calculations
<b>GROWTH0204</b>	Recent growth of firm sales = (Net Sales04 – Net Sales02)/Net Sales02	2002-2004	Datastream and own calculations
<b>MFE</b>	Dummy variable = 1 if a country has at least one MFN exemption for the fixed-line telecommunications sector, else 0	GATS schedules	GATS and own calculations
<b>MLINES0203</b>	No. of mainlines	2002-2003 (average)	ITU World Telecommunication Indicators and own calculations
<b>MLINESPOP0203</b>	Teledensity = No. of mainlines / Population	2002-2003 average	ITU World Telecommunication Indicators and own calculations
<b>PCM0204</b>	Price-cost margin = (EBIT + Depreciation) / Net Sales	2002-2004 (average)	Datastream and own calculations
<b>REGVARSPC1</b>	Proxy for sectoral regulations, calculated as the first principal component of the following indicators: existence of a universal service obligation, independence of the regulator, interconnection agreements made public, interconnection prices made public, licensing agreements made public, regulation of network interconnection and end user tariff.	2002-2004	GATS, Sectoral questionnaires, ITU World Telecommunication Indicators and own calculations.
<b>RTA</b>	Dummy variable = 1 if a country has signed at least one RTA covering the fixed-line telecommunications sector, else 0	2002-2004	GATS /RTAs
<b>SALESUSD0204</b>	Net Sales	2002-2004 (average)	Datastream and own calculations
<b>SALESUSDEMP0204</b>	Labour productivity = Net sales / No. of employees	2002-2004 (average)	Datastream and own calculations
<b>SHARE0204</b>	Market Share = Net sales / Total sector net sales	2002-2004 (average)	Datastream and own calculations
<b>TRI_Agg, TRI_M1, TRI_M2, TRI_M3, TRI_M4</b>	Aggregate and modal trade restrictiveness indices	See Paras 19-22 main text	Own calculations

**Table A3.4: Mobile telecom sector dataset**

Variable	Description	Year	Source
<b>CAPINT0204</b>	Capital intensity of production = Total capital / Net Sales	2002-2004 (average)	Datastream and own calculations
<b>GREV0203</b>	Recent growth in industry revenue = (Industry revenue 2003 – Industry revenue 2002) / Industry revenue 2002	2002-2003	ITU World Telecommunication Indicators and own calculations
<b>GROWTH0204</b>	Recent growth of firm sales = (Net Sales04 – Net Sales02)/Net Sales02	2002-2004	Datastream and own calculations
<b>MFE</b>	Dummy variable = 1 if a country has at least one MFN exemption for the mobile telecommunications sector, else 0	GATS schedules	GATS and own calculations
<b>SUBS0203</b>	No. of cellular phone subscribers	2002-2003 (average)	ITU World Telecommunication Indicators and own calculations
<b>SUBSPOP0203</b>	Teledensity = No. of cellular phone subscribers / Population	2002-2003 average	ITU World Telecommunication Indicators and own calculations
<b>PCM0204</b>	Price-cost margin = (EBIT + Depreciation) / Net Sales	2002-2004 (average)	Datastream and own calculations
<b>REGVARSPC1</b>	Proxy for sectoral regulations, calculated as the first principal component of the following indicators: existence of a universal service obligation, independence of the regulator, interconnection agreements made public, interconnection prices made public, licensing agreements made public, regulation of network interconnection and end user tariff.	2002-2004	GATS, Sectoral questionnaires, ITU World Telecommunication Indicators and own calculations.
<b>RTA</b>	Dummy variable = 1 if a country has signed at least one RTA covering the mobile telecommunications sector, else 0	2002-2004	GATS and RTAs
<b>SALESUSD0204</b>	Net Sales	2002-2004 (average)	Datastream and own calculations
<b>SALESUSDEMP0204</b>	Labour productivity = Net sales / No. of employees	2002-2004 (average)	Datastream and own calculations
<b>SHARE0204</b>	Market Share = Net sales / Total sector net sales	2002-2004 (average)	Datastream and own calculations
<b>TRI_Agg, TRI_M1, TRI_M2, TRI_M3, TRI_M4</b>	Aggregate and modal trade restrictiveness indices	See Paras 19-22 main text	Own calculations

**Table A3.5: Engineering sector dataset**

Variable	Description	Year	Source
<b>CAPINT0203</b>	Capital intensity of production = Total capital / Net sales	2002-2003 (average)	Datastream and own calculations
<b>SOLV0203</b>	Solvency ratio = (Total debt / (Total capital + short-term debt))*100	2002-2003 (average)	Datastream and own calculations
<b>INVSALES0203</b>	Efficiency of supply = Total inventories / Net sales	2002-2003 (average)	Datastream and own calculations
<b>GINDSALES0203</b>	Recent growth in industry sales = (Industry net sales03 – Industry net sales02) / Industry net sales02	2002-2003	Datastream and own calculations
<b>GROWTH0203</b>	Recent growth of firm sales = (Net Sales03 – Net Sales02)/Net Sales02	2002-2003 (average)	Datastream and own calculations
<b>SALESUSDEMP0203</b>	Labour productivity = Net sales / No. of employees	2002-2003 (average)	Datastream and own calculations
<b>MFE</b>	Dummy variable = 1 if a country has at least one MFN exemption for the engineering sector, else 0	GATS schedules	GATS and own calculations
<b>PCMAVE0203</b>	Price-cost margin = (EBIT + Depreciation) / Net Sales	2002-2003 (average)	Datastream and own calculations
<b>RD0203</b>	Research & development / Net sales	2002-2003 (average)	Datastream and own calculations
<b>INDGDP0203</b>	(Industry value-added / GDP)*100	2002-2003 (average)	World Development Indicators and own calculations
<b>HITECH0203</b>	(High technology exports / Total merchandise exports)*100	2002-2003 (average)	World Development Indicators and own calculations
<b>SALESUSD0203</b>	Net sales	2002-2003 (average)	Datastream and own calculations
<b>REGVARSPC1</b>	Proxy for sectoral regulations, calculated as the first principal component of the following indicators: multidisciplinary practices, additional categories, activities reserved by law, fee setting and advertising/marketing.	2000-2004	ECO Product Market Regulations Database, database employed in TD/TC/WP(2005)7
<b>RTA</b>	Dummy variable = 1 if a country has signed at least one RTA covering the engineering sector, else 0	2002-2004	GATS and RTAs
<b>SHARE0203</b>	Market Share = Net Sales / Total sector net sales	2002-2003 (average)	Datastream and own calculations
<b>TRI_Agg, TRI_M1, TRI_M2, TRI_M3, TRI_M4</b>	Aggregate and modal trade restrictiveness indices (aggregate index includes multidisciplinary practices, additional categories, activities reserved by law, fee setting and advertising/marketing.)	See Paras 19-22 main text	Own calculations

**Table A3.6: Distribution sector dataset**

Variable	Description	Year	Source
<b>CAPINT0204</b>	Capital intensity of production = Total capital / Net sales	2002-2004 (average)	Datastream and own calculations
<b>GINDSALES0204</b>	Recent growth in industry sales = (Industry net sales03 – Industry net sales02) / Industry net sales02	2002-2003	Datastream and own calculations
<b>GROWTH0204</b>	Recent growth of firm sales = (Net Sales03 – Net Sales02)/Net Sales02	2002-2004 (average)	Datastream and own calculations
<b>INVSALES0204</b>	Efficiency of supply = Total inventories / Net sales	2002-2004 (average)	Datastream and own calculations
<b>MFE</b>	Dummy variable = 1 if a country has at least one MFN exemption for the distribution sector, else 0	GATS schedules	GATS and own calculations
<b>PCMAVE0204</b>	Price-cost margin = (EBIT + Depreciation) / Net Sales	2002-2004 (average)	Datastream and own calculations
<b>RTA</b>	Dummy variable = 1 if a country has signed at least one RTA covering the distribution sector, else 0	2002-2004	GATS/RTAs and own calculations
<b>SALES0204</b>	Net sales	2002-2004 (average)	Datastream and own calculations
<b>SALESEMP0204</b>	Labour productivity = Net sales / No. of employees	2002-2004 (average)	Datastream and own calculations
<b>SHARE0204</b>	Market Share = Net Sales / Total sector net sales	2002-2004 (average)	Datastream and own calculations
<b>SOLV0204</b>	Solvency ratio = (Total debt / (Total capital + short-term debt))*100	2002-2004 (average)	Datastream and own calculations
<b>TRI_Agg, TRI_M1, TRI_M2, TRI_M3, TRI_M4</b>	Aggregate and modal trade restrictiveness indices	See Paras 19-22 main text	Own calculations

#### 4. Results, Interpretation and Robustness

The robustness of results is discussed in the main text. Detailed sectoral regression results are reported below.

##### Banking

**Table A3.7: First-stage regression results for the banking sector**

	<b>Dependent Variable: Log(NIM)</b>		
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>LOG(CAP0204)</b>	0.229 (0.034)***	0.193 (0.037)***	0.235 (0.034)***
<b>LOG(LIQ0204)</b>	0.078 (0.016)***	0.059 (0.016)***	0.076 (0.017)***
<b>LOG(NIE0204)</b>	0.247 (0.029)***	0.261 (0.035)***	0.255 (0.033)***
<b>LOG(GNII0204)</b>		-0.002 (0.006)	
<b>LOG(SHARE)</b>		0.008 (0.007)	0.005 (0.006)
<b>Observations</b>	817	580	817
<b>R-squared</b>	0.800	0.796	0.801
<b>Adjusted R-squared</b>	0.787	0.778	0.787
<b>S.E. of regression</b>	0.194	0.178	0.194
<b>Jarque-Bera</b>	463.963***	96.207***	470.492***
<b>White</b>	6.516***	6.759***	6.318***
<b>RESET(2)</b>	19.743***	8.163***	20.101***

**Table A3.8: Second-stage regression results for the banking sector, using the Aggregate TRI**

<b>Dependent Variable: Adjusted Log(NIM)</b>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>TRI<sub>AGG</sub></b>	0.115 (0.114)	0.119 (0.083)*	0.113 (0.082)*
<b>TRI<sub>AGG</sub>*RTA</b>	0.007 (0.132)		
<b>TRI<sub>AGG</sub>*MFE</b>	-0.279 (0.166)*	-0.276 (0.163)**	-0.274 (0.163)*
<b>PRUDVARSPC1</b>	-0.028 (0.040)	-0.028 (0.039)	-0.028 (0.039)
<b>REGVARSPC1</b>	-0.013 (0.044)	-0.013 (0.046)	-0.010 (0.047)
<b>INTVAR</b>	0.006 (0.002)***	0.006 (0.002)***	0.006 (0.002)***
<b>C5</b>	0.039 (0.257)	0.038 (0.254)	
<b>C</b>	-1.840 (0.200)***	-1.839 (0.197)***	-1.809 (0.078)***
<b>Observations</b>	46	46	46
<b>R-squared</b>	0.243	0.243	0.242
<b>Adjusted R-squared</b>	0.103	0.126	0.148
<b>S.E. of regression</b>	0.334	0.329	0.325
<b>F-statistic</b>	1.740	2.083	2.559
<b>Prob(F-statistic)</b>	0.129	0.077	0.042
<b>Jarque-Bera</b>	3.48*	3.283*	3.476*
<b>White</b>	2.729***	1.257	1.228
<b>RESET(2)</b>	1.934*	2.069*	1.837*

**Table A3.9: Second-stage regression results for the banking sector, using the Mode 1 TRI**

<b>Dependent Variable: Adjusted Log(NIM)</b>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>TRI_M1</b>	-0.028 (0.067)	-0.015 (0.055)	-0.009 (0.057)
<b>TRI_M1*RTA</b>	0.027 (0.076)		
<b>TRI_M1*MFE</b>	-0.219 (0.139)*	-0.208 (0.140)*	-0.209 (0.140)*
<b>PRUDVARSPC1</b>	-0.028 (0.038)	-0.029 (0.037)	-0.029 (0.037)
<b>REGVARSPC1</b>	0.030 (0.045)	0.028 (0.046)	0.021 (0.047)
<b>INTVAR</b>	0.006 (0.002)***	0.006 (0.002)***	0.006 (0.002)***
<b>C5</b>	-0.089 (0.247)	-0.088 (0.247)	
<b>C</b>	-1.661 (0.183)***	-1.658 (0.182)***	-1.724 (0.080)***
<b>Observations</b>	46	46	46
<b>R-squared</b>	0.241	0.239	0.237
<b>Adjusted R-squared</b>	0.101	0.122	0.142
<b>S.E. of regression</b>	0.334	0.330	0.326
<b>F-statistic</b>	1.725	2.040	2.484
<b>Prob(F-statistic)</b>	0.132	0.083	0.047
<b>Jarque-Bera</b>	2.918	2.129	1.811
<b>White</b>	2.528***	1.337	1.209
<b>RESET(2)</b>	0.000	0.023	0.144

**Table A3.10: Second-stage regression results for the banking sector, using the Mode 2 TRI**

<b>Dependent Variable: Adjusted Log(NIM)</b>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>TRI_M2</b>	-0.148 (0.305)	-0.130 (0.230)	-0.071 (0.218)
<b>TRI_M2*RTA</b>	0.029 (0.283)		
<b>TRI_M2*MFE</b>	-0.485 (0.443)	-0.474 (0.442)	-0.470 (0.446)
<b>PRUDVARSPC1</b>	-0.013 (0.043)	-0.013 (0.043)	-0.016 (0.042)
<b>REGVARSPC1</b>	0.051 (0.056)	0.050 (0.057)	0.034 (0.055)
<b>INTVAR</b>	0.005 (0.002)***	0.005 (0.002)***	0.006 (0.002)***
<b>C5</b>	-0.183 (0.286)	-0.182 (0.282)	
<b>C</b>	-1.583 (0.229)***	-1.584 (0.226)***	-1.724 (0.082)***
<b>Observations</b>	46	46	46
<b>R-squared</b>	0.209	0.209	0.202
<b>Adjusted R-squared</b>	0.064	0.087	0.102
<b>S.E. of regression</b>	0.341	0.337	0.334
<b>F-statistic</b>	1.437	1.718	2.021
<b>Prob(F-statistic)</b>	0.220	0.143	0.096
<b>Jarque-Bera</b>	2.661	2.383	1.913
<b>White</b>	2.178***	1.231	1.336
<b>RESET(2)</b>	11.328***	11.028***	3.443**

**Table A3.11: Second-stage regression results for the banking sector, using the Mode 3 TRI**

	<b>Dependent Variable: Adjusted Log(NIM)</b>		
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>TRI_M3</b>	0.288 (0.322)	0.167 (0.277)	0.169 (0.259)
<b>TRI_M3*RTA</b>	-0.149 (0.216)		
<b>TRI_M3*MFE</b>	-0.180 (0.145)	-0.201 (0.142)*	-0.201 (0.141)*
<b>PRUDVARSPC1</b>	-0.020 (0.045)	-0.019 (0.042)	-0.019 (0.041)
<b>REGVARSPC1</b>	-0.015 (0.049)	0.001 (0.050)	0.001 (0.050)
<b>INTVAR</b>	0.005 (0.002)***	0.005 (0.002)***	0.005 (0.002)***
<b>C5</b>	0.007 (0.279)	-0.005 (0.268)	
<b>C</b>	-1.873 (0.353)***	-1.862 (0.339)***	-1.866 (0.226)***
<b>Observations</b>	46	46	46
<b>R-squared</b>	0.205	0.189	0.189
<b>Adjusted R-squared</b>	0.059	0.064	0.088
<b>S.E. of regression</b>	0.342	0.341	0.337
<b>F-statistic</b>	1.404	1.514	1.864
<b>Prob(F-statistic)</b>	0.232	0.199	0.122
<b>Jarque-Bera</b>	1.280	3.325*	3.306*
<b>White</b>	2.155***	1.150	1.006
<b>RESET(2)</b>	2.603*	0.574	0.606

**Table A3.12: Second-stage regression results for the banking sector, using the Mode 4 TRI**

<b>Dependent Variable: Adjusted Log(NIM)</b>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>TRI_M4</b>	0.055 (0.084)	0.010 (0.071)	0.010 (0.069)
<b>TRI_M4*RTA</b>	-0.049 (0.087)		
<b>TRI_M4*MFE</b>	-0.124 (0.087)*	-0.128 (0.087)*	-0.127 (0.085)*
<b>PRUDVARSPC1</b>	-0.028 (0.044)	-0.030 (0.042)	-0.030 (0.042)
<b>REGVARSPC1</b>	0.009 (0.037)	0.012 (0.037)	0.011 (0.038)
<b>INTVAR</b>	0.005 (0.002)***	0.005 (0.002)***	0.005 (0.002)***
<b>C5</b>	-0.022 (0.272)	-0.035 (0.263)	
<b>C</b>	-1.730 (0.183)***	-1.719 (0.179)***	-1.742 (0.111)***
<b>Observations</b>	46	46	46
<b>R-squared</b>	0.190	0.188	0.187
<b>Adjusted R-squared</b>	0.041	0.063	0.086
<b>S.E. of regression</b>	0.345	0.341	0.337
<b>F-statistic</b>	1.274	1.501	1.843
<b>Prob(F-statistic)</b>	0.289	0.204	0.126
<b>Jarque-Bera</b>	3.962*	4.040*	3.761*
<b>White</b>	0.846	0.755	0.784
<b>RESET(2)</b>	0.071	0.000	0.000

**Table A3.13: Second-stage regression results for the banking sector, using all Modal TRIs**

<b>Dependent Variable: Adjusted Log(NIM)</b>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>TRI_M1</b>	-0.017 (0.072)	-0.057 (0.086)	-0.021 (0.073)
<b>TRI_M2</b>	-0.259 (0.345)	-0.327 (0.360)	-0.201 (0.316)
<b>TRI_M3</b>	0.136 (0.284)	0.267 (0.286)	0.154 (0.276)
<b>TRI_M4</b>	0.005 (0.079)	0.039 (0.056)	-0.001 (0.075)
<b>RTA</b>		-0.266 (0.240)	
<b>MFE</b>		-0.071 (0.117)	
<b>PRUDVARSPC1</b>	0.004 (0.052)	0.013 (0.053)	0.002 (0.051)
<b>REGVARSPC1</b>	0.079 (0.081)	0.051 (0.072)	0.064 (0.073)
<b>INTVAR</b>	0.005 (0.002)**	0.005 (0.002)***	0.005 (0.002)**
<b>C5</b>	-0.160 (0.304)	-0.206 (0.305)	
<b>C</b>	-1.687 (0.382)***	-1.507 (0.439)***	-1.817 (0.266)***
<b>Observations</b>	46	46	46
<b>R-squared</b>	0.178	0.231	0.172
<b>Adjusted R-squared</b>	-0.000	0.011	0.020
<b>S.E. of regression</b>	0.352	0.350	0.349
<b>F-statistic</b>	0.999	1.049	1.128
<b>Prob(F-statistic)</b>	0.453	0.425	0.366
<b>Jarque-Bera</b>	4.346*	0.691	3.973*
<b>White</b>	0.894	0.964	0.730
<b>RESET(2)</b>	4.842***	0.057	3.629**

**Insurance****Table A3.14: First-stage regression results for the insurance sector**

<b>Dependent Variable: LOG(PCMAVE0203)</b>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>LOG(CAPAVE0203)</b>	0.922 (0.185)***	1.297 (0.210)***	0.842 (0.207)***
<b>LOG(LIQAVE0203)</b>	-0.042 (0.044)	-0.085 (0.043)**	-0.055 (0.042)*
<b>LOG(EXPAVE0203)</b>	-0.441 (0.098)***	-0.514 (0.139)***	-0.461 (0.114)***
<b>LOG(GPREM0203)</b>		-0.033 (0.076)	
<b>LOG(SHAREAVE0203)</b>		-0.03 (0.052)	-0.069 (0.053)*
<b>Observations</b>	108	75	108
<b>R-squared</b>	0.709	0.81	0.718
<b>Adjusted R-squared</b>	0.61	0.719	0.618
<b>S.E. of regression</b>	0.648	0.502	0.641
<b>F-statistic</b>	NA	NA	NA
<b>Prob(F-statistic)</b>	NA	NA	NA
<b>Jarque-Bera</b>	3.033	0.365	1.883
<b>White</b>	1.025	0.756	0.881
<b>RESET(2)</b>	0.101	1.347	2.058*

**Table A3.15: Second-stage regression results for the insurance sector, using the Aggregate TRI**

	<b>Dependent Variable: ADPCM0203</b>				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
<b>TRI_AGG</b>	-0.301 (0.39)	-0.275 (0.34)	-0.269 (0.304)	-0.411 (0.428)	-0.376 (0.329)
<b>TRI_AGG*MFE</b>	-0.37 (0.367)	-0.377 (0.356)	-0.358 (0.351)	-0.372 (0.346)	-0.355 (0.342)
<b>PRUDVARSPC1</b>	0.311 (0.085)***	0.311 (0.083)***	0.311 (0.083)***	0.319 (0.084)***	0.321 (0.084)***
<b>REGVARSPC1</b>	0.317 (0.172)**	0.311 (0.162)**	0.328 (0.157)**	0.349 (0.152)***	0.368 (0.139)***
<b>DENSITY</b>	0 0	0	0	0	0
<b>PENETRATION</b>	-0.389 (0.887)		-0.438 (1.039)	-0.679 (0.958)	-0.781 (1.218)
<b>GIND0203</b>	-0.556 (1.413)	-0.623 (1.341)	-0.597 (1.432)		
<b>C</b>	-1.825 (0.615)***	-1.856 (0.546)***	-1.882 (0.368)***	-1.723 (0.632)***	-1.795 (0.384)***
<b>Observations</b>	20	20	20	20	20
<b>R-squared</b>	0.574	0.574	0.573	0.569	0.567
<b>Adjusted R-squared</b>	0.326	0.377	0.377	0.37	0.412
<b>S.E. of regression</b>	0.607	0.584	0.584	0.587	0.567
<b>F-statistic</b>	2.313	2.914	2.912	2.86	3.667
<b>Prob(F-statistic)</b>	0.097	0.05	0.05	0.053	0.025
<b>Jarque-Bera</b>	0.49	0.544	0.619	0.522	0.672
<b>White</b>	1.324	2.220*	1.494	1.584	0.623
<b>RESET(2)</b>	1.513	1.741	2.030*	1.257	1.935*

**Table A3.16: Second-stage regression results for the insurance sector, using the Mode 1 TRI**

	<b>Dependent Variable: ADPCM0203</b>				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
<b>TRI_M1</b>	-1.193 (0.582)**	-1.142 (0.538)**	-1.017 (0.501)**	-1.128 (0.630)**	-0.996 (0.510)**
<b>TRI_M1*MFE</b>	-0.496 (0.551)	-0.529 (0.518)	-0.474 (0.519)	-0.499 (0.527)	-0.476 (0.502)
<b>PRUDVARSPC1</b>	0.343 (0.079)***	0.343 (0.077)***	0.344 (0.078)***	0.339 (0.070)***	0.342 (0.074)***
<b>REGVARSPC1</b>	0.272 (0.157)*	0.267 (0.151)**	0.322 (0.116)***	0.266 (0.138)**	0.319 (0.103)***
<b>DENSITY</b>	-0.000 (0.000)	-0.000 (0.000)		-0.000 (0.000)	
<b>PENETRATION</b>	-0.660 (0.580)		-0.873 (0.779)	-0.578 (0.692)	-0.838 (0.988)
<b>GIND0203</b>	0.209 (1.158)	0.122 (1.118)	0.077 (1.174)		
<b>C</b>	-1.587 (0.397)***	-1.619 (0.374)***	-1.746 (0.260)***	-1.614 (0.461)***	-1.754 (0.286)***
<b>Observations</b>	20	20	20	20	20
<b>R-squared</b>	0.654	0.652	0.644	0.653	0.644
<b>Adjusted R-squared</b>	0.452	0.491	0.480	0.493	0.517
<b>S.E. of regression</b>	0.547	0.528	0.533	0.526	0.514
<b>F-statistic</b>	3.243	4.051	3.918	4.084	5.060
<b>Prob(F-statistic)</b>	0.036	0.016	0.019	0.016	0.007
<b>Jarque-Bera</b>	0.416	0.432	0.729	0.475	0.747
<b>White</b>	1.044	1.745	1.466	1.192	1.258
<b>RESET(2)</b>	0.010	0.006	0.175	0.027	0.199

**A3.17: Second-stage regression results for the insurance sector, using the Mode 2 TRI**

	<b>Dependent Variable: ADPCM0203</b>				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
<b>TRI_M2</b>	-0.740 (0.465)*	-0.735 (0.438)*	-0.681 (0.394)*	-0.818 (0.516)*	-0.765 (0.435)*
<b>TRI_M2*MFE</b>	-0.688 (0.709)	-0.695 (0.661)	-0.661 (0.666)	-0.682 (0.696)	-0.652 (0.660)
<b>PRUDVARSPC1</b>	0.322 (0.076)***	0.322 (0.073)***	0.324 (0.074)***	0.327 (0.074)***	0.329 (0.075)***
<b>REGVARSPC1</b>	0.263 (0.169)*	0.262 (0.163)*	0.289 (0.123)***	0.273 (0.160)*	0.302 (0.114)***
<b>DENSITY</b>	-0.000 (0.000)	-0.000 (0.000)		-0.000 (0.000)	
<b>PENETRATION</b>	-0.094 (0.690)		-0.243 (0.913)	-0.191 (0.690)	-0.365 (0.972)
<b>GIND0203</b>	-0.288 (1.383)	-0.298 (1.313)	-0.323 (1.336)		
<b>C</b>	-1.849 (0.388)***	-1.852 (0.367)***	-1.913 (0.231)***	-1.822 (0.398)***	-1.889 (0.242)***
<b>Observations</b>	20	20	20	20	20
<b>R-squared</b>	0.611	0.611	0.609	0.609	0.607
<b>Adjusted R-squared</b>	0.384	0.432	0.428	0.429	0.466
<b>S.E. of regression</b>	0.580	0.557	0.559	0.558	0.540
<b>F-statistic</b>	2.694	3.404	3.369	3.382	4.316
<b>Prob(F-statistic)</b>	0.063	0.030	0.031	0.031	0.014
<b>Jarque-Bera</b>	0.611	0.614	0.820	0.554	0.755
<b>White</b>	1.705	1.908*	2.030*	1.592	1.008
<b>RESET(2)</b>	0.026	0.027	0.008	0.076	0.000

**A3.18: Second-stage regression results for the insurance sector, using the Mode 3 TRI**

	<b>Dependent Variable: ADPCM0203</b>				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
<b>TRI_M3</b>	0.381 (0.654)	0.337 (0.538)	0.311 (0.538)	0.108 (0.491)	0.048 (0.425)
<b>TRI_M3*MFE</b>	-0.258 (1.052)	-0.267 (0.997)	-0.322 (0.964)	-0.218 (1.118)	-0.275 (1.054)
<b>PRUDVARSPC1</b>	0.282 (0.103)***	0.281 (0.097)***	0.278 (0.100)***	0.293 (0.104)***	0.290 (0.103)***
<b>REGVARSPC1</b>	0.208 (0.249)	0.220 (0.220)	0.184 (0.247)	0.314 (0.208)*	0.291 (0.203)*
<b>DENSITY</b>	0.000 (0.000)	0.000 (0.000)		0.000 (0.000)	
<b>PENETRATION</b>	0.518 (1.323)		0.634 (1.471)	-0.295 (0.843)	-0.183 (1.079)
<b>GIND0203</b>	-1.511 (1.565)	-1.439 (1.394)	-1.492 (1.481)		
<b>C</b>	-2.435 (0.611)***	-2.395 (0.504)***	-2.321 (0.396)***	-2.284 (0.462)***	-2.184 (0.314)***
<b>Observations</b>	20	20	20	20	20
<b>R-squared</b>	0.553	0.552	0.548	0.504	0.499
<b>Adjusted R-squared</b>	0.293	0.345	0.339	0.275	0.320
<b>S.E. of regression</b>	0.622	0.598	0.601	0.630	0.609
<b>F-statistic</b>	2.122	2.666	2.622	2.200	2.792
<b>Prob(F-statistic)</b>	0.120	0.065	0.069	0.110	0.059
<b>Jarque-Bera</b>	0.187	0.226	0.182	0.508	0.565
<b>White</b>	5.091***	7.891***	3.340**	2.203*	1.559
<b>RESET(2)</b>	2.973*	3.691**	2.930*	8.437***	7.270***

**A3.19: Second-stage regression results for the insurance sector, using the Mode 4 TRI**

	<b>Dependent Variable: ADPCM0203</b>				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
<b>TRI_M4</b>	-0.378 (0.338)	-0.350 (0.317)	-0.369 (0.338)	-0.184 (0.283)	-0.169 (0.273)
<b>TRI_M4*MFE</b>	-0.061 (0.169)	-0.030 (0.150)	-0.073 (0.166)	-0.049 (0.208)	-0.065 (0.202)
<b>PRUDVARSPC1</b>	0.258 (0.088)***	0.255 (0.080)***	0.254 (0.085)***	0.279 (0.100)***	0.274 (0.101)***
<b>REGVARSPC1</b>	0.309 (0.171)**	0.317 (0.171)**	0.281 (0.123)***	0.356 (0.179)**	0.319 (0.130)***
<b>DENSITY</b>	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)		
<b>PENETRATION</b>	1.186 (1.379)		1.414 (1.493)	0.228 (1.757)	0.520 (1.879)
<b>GIND0203</b>	-1.876 (1.523)	-1.732 (1.409)	-1.898 (1.465)		
<b>C</b>	-1.544 (0.635)***	-1.591 (0.593)***	-1.513 (0.593)***	-1.911 (0.477)***	-1.875 (0.477)***
<b>Observations</b>	20	20	20	20	20
<b>R-squared</b>	0.594	0.587	0.592	0.520	0.516
<b>Adjusted R-squared</b>	0.358	0.397	0.403	0.299	0.343
<b>S.E. of regression</b>	0.593	0.574	0.571	0.619	0.599
<b>F-statistic</b>	2.510	3.081	3.140	2.349	2.981
<b>Prob(F-statistic)</b>	0.077	0.042	0.040	0.093	0.049
<b>Jarque-Bera</b>	1.117	1.045	0.959	0.820	0.811
<b>White</b>	2.663*	4.857***	0.966	1.364	0.822
<b>RESET(2)</b>	0.178	0.114	0.086	3.194**	2.559*

**Table A3.20: Second-stage regression results for the insurance sector, using all Modal TRIs**

	<b>Dependent Variable: ADPCM0203</b>				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
<b>TRI_M1</b>	-2.072 (1.399)*	-2.208 (1.227)*	-1.895 (1.290)*	-2.266 (1.294)*	-2.071 (1.157)*
<b>TRI_M2</b>	0.084 (1.437)	0.223 (1.262)	-0.032 (1.293)	0.140 (1.348)	0.002 (1.217)
<b>TRI_M3</b>	0.919 (0.700)	0.850 (0.685)	0.961 (0.633)*	0.892 (0.674)	0.941 (0.615)*
<b>TRI_M4</b>	-0.386 (0.369)	-0.363 (0.338)	-0.383 (0.349)	-0.343 (0.338)	-0.333 (0.326)
<b>MFE</b>	0.069 (0.292)	0.099 (0.263)	0.087 (0.273)	0.096 (0.269)	0.122 (0.259)
<b>PRUDVARSPC1</b>	0.325 (0.062)***	0.325 (0.059)***	0.327 (0.057)***	0.337 (0.057)***	0.340 (0.057)***
<b>REGVARSPC1</b>	0.143 (0.223)	0.162 (0.225)	0.163 (0.212)	0.163 (0.224)	0.189 (0.215)
<b>DENSITY</b>	-0.000 (0.000)	-0.000 (0.000)		-0.000 (0.000)	
<b>PENETRATION</b>	0.918 (1.238)		0.836 (1.172)	0.494 (1.047)	0.340 (0.998)
<b>GIND0203</b>	-0.638 (1.003)	-0.457 (0.896)	-0.702 (0.990)		
<b>C</b>	-1.251 (0.971)	-1.234 (0.958)	-1.365 (0.879)*	-1.254 (0.935)	-1.396 (0.859)*
<b>Observations</b>	20	20	20	20	20
<b>R-squared</b>	0.791	0.787	0.788	0.785	0.780
<b>Adjusted R-squared</b>	0.558	0.595	0.597	0.591	0.620
<b>S.E. of regression</b>	0.491	0.470	0.469	0.473	0.456
<b>F-statistic</b>	3.399	4.102	4.125	4.045	4.881
<b>Prob(F-statistic)</b>	0.040	0.019	0.019	0.020	0.009
<b>Jarque-Bera</b>	0.661	0.770	0.871	0.588	0.835
<b>White</b>	NA	1.009	0.626	1.403	1.004
<b>RESET(2)</b>	0.793	0.743	0.698	1.068	0.810

## Telecom

**Table A3.21: First-stage regression results for the fixed-line telecommunications sector**

<b>Dependent Variable: LOG(PCM0204)</b>				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
<b>LOG(SALESUSD0204)</b>	0.086 (0.472)	0.167 (0.416)	0.069 (0.035)**	0.043 (0.035)
<b>LOG(GROWTH0204)</b>	0.441 (0.295)*	0.212 (0.342)	0.145 (0.255)	0.416 (0.249)*
<b>LOG(SHARE0204)</b>	-0.044 (0.480)	-0.100 (0.424)		
<b>LOG(CAPINT0204)</b>	0.618 (0.158)***	0.560 (0.155)***	0.557 (0.145)***	0.618 (0.155)***
<b>LOG(SALESUSDEMP0204)</b>	0.077 (0.125)			0.082 (0.120)
<b>Observations</b>	73	80	80	73
<b>R-squared</b>	0.689	0.639	0.639	0.689
<b>Adjusted R-squared</b>	0.502	0.463	0.472	0.513
<b>S.E. of regression</b>	0.596	0.613	0.608	0.590
<b>F-statistic</b>	NA	NA	NA	NA
<b>Prob(F-statistic)</b>	NA	NA	NA	NA
<b>Jarque-Bera</b>	19.842***	14.957***	14.156***	19.555***
<b>White</b>	0.597	0.830	0.902	0.653
<b>RESET(2)</b>	2.235*	1.476	1.292	2.136*

**Table A3.22: Second-stage regression results for the fixed-line telecommunications sector, using the Aggregate TRI**

	Dependent Variable: ADPCM0204						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
<b>TRI_AGG</b>	0.076 (0.468)	0.195 (0.456)	-0.267 (0.233)	0.086 (0.289)	0.408 (0.242)*	-0.313 (0.249)	-0.039 (0.281)
<b>TRI_AGG*RTA</b>	0.522 (0.271)**	0.447 (0.281)*	0.882 (0.143)***	0.478 (0.281)*		0.884 (0.136)***	0.555 (0.258)***
<b>TRI_AGG*MFE</b>	0.089 (0.233)	-0.037 (0.217)	-0.046 (0.222)	-0.047 (0.215)	0.027 (0.225)	0.100 (0.227)	0.078 (0.231)
<b>REGVARSPC1</b>	0.078 (0.096)	0.125 (0.077)*	0.137 (0.079)*	0.129 (0.076)*	0.102 (0.077)	0.081 (0.097)	0.083 (0.097)
<b>MLINESPOP0203</b>	0.003 (0.008)	0.003 (0.008)	-0.000 (0.007)			0.001 (0.007)	
<b>MLINES0203</b>	-0.000 (0.000)	-0.000 (0.000)*		-0.000 (0.000)*	-0.000 (0.000)***		-0.000 (0.000)
<b>DSHARE0203</b>	-0.217 (0.102)**	-0.173 (0.110)*	-0.114 (0.082)*	-0.148 (0.053)***	-0.172 (0.074)***	-0.175 (0.082)**	-0.189 (0.060)***
<b>GREV0203</b>	0.827 (0.519)*					0.945 (0.503)**	0.821 (0.508)*
<b>C</b>	18.581 (9.672)**	14.319 (10.518)*	8.445 (7.813)	11.907 (5.244)***	14.453 (7.328)**	14.457 (7.786)**	15.986 (5.885)***
<b>Observations</b>	22	22	22	22	22	22	22
<b>R-squared</b>	0.520	0.466	0.410	0.461	0.423	0.482	0.514
<b>Adjusted R-squared</b>	0.224	0.199	0.175	0.246	0.242	0.224	0.271
<b>S.E. of regression</b>	0.406	0.412	0.419	0.400	0.401	0.406	0.393
<b>F-statistic</b>	1.759	1.747	1.740	2.140	2.343	1.864	2.116
<b>Prob(F-statistic)</b>	0.176	0.177	0.180	0.109	0.089	0.152	0.110
<b>Jarque-Bera</b>	0.990	1.471	0.984	1.342	1.328	0.495	0.809
<b>White</b>	0.617	0.588	0.852	0.520	0.490	0.816	0.679
<b>RESET(2)</b>	0.040	0.183	0.058	0.076	0.645	0.029	0.037

**Table A3.23: First-stage regression results for the mobile telecommunications sector**

	<b>Dependent Variable: LOG(PCM0204)</b>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
<b>LOG(SALESUSD0204)</b>	0.900 (0.388)***	0.917 (0.342)***	0.052 (0.034)*	0.049 (0.037)*
<b>LOG(GROWTH0204)</b>	0.758 (0.231)***	0.697 (0.219)***	0.231 (0.273)	0.312 (0.274)
<b>LOG(SHARE0204)</b>	-0.890 (0.397)***	-0.907 (0.351)***		
<b>LOG(CAPINT0204)</b>	0.720 (0.203)***	0.682 (0.150)***	0.558 (0.145)***	0.593 (0.208)***
<b>LOG(SALESUSDEMP0204)</b>	0.075 (0.172)			0.096 (0.162)
<b>Observations</b>	63	69	69	63
<b>R-squared</b>	0.663	0.660	0.614	0.619
<b>Adjusted R-squared</b>	0.403	0.450	0.390	0.343
<b>S.E. of regression</b>	0.486	0.463	0.488	0.509
<b>F-statistic</b>	NA	NA	NA	NA
<b>Prob(F-statistic)</b>	NA	NA	NA	NA
<b>Jarque-Bera</b>	20.396***	19.323***	19.894***	21.721***
<b>White</b>	0.404	0.519	0.395	0.318
<b>RESET(2)</b>	4.126**	5.398***	5.980***	6.464***

**Table A3.24: Second-stage regression results for the mobile telecommunications sector, using the Aggregate TRI**

	Dependent Variable: ADPCM0204						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
<b>TRI<sub>AGG</sub></b>	-0.186 (0.245)	-0.071 (0.219)	-0.425 (0.120)***	-0.005 (0.226)	0.088 (0.139)	-0.505 (0.125)***	-0.085 (0.251)
<b>TRI<sub>AGG</sub>*RTA</b>	0.236 (0.297)	0.130 (0.273)	0.594 (0.073)***	0.125 (0.291)		0.635 (0.058)***	0.210 (0.312)
<b>TRI<sub>AGG</sub>*MFE</b>	-0.022 (0.151)	-0.049 (0.162)	-0.081 (0.198)	-0.046 (0.161)	-0.028 (0.153)	-0.036 (0.170)	-0.023 (0.151)
<b>REGVARSPC1</b>	-0.048 (0.097)	-0.029 (0.091)	0.018 (0.084)	-0.022 (0.092)	-0.033 (0.080)	-0.019 (0.091)	-0.036 (0.098)
<b>SUBSPOP0203</b>	-0.003 (0.003)	-0.003 (0.004)	-0.002 (0.003)			-0.003 (0.003)	
<b>SUBS0203</b>	-0.000 (0.000)*	-0.000 (0.000)*		-0.000 (0.000)*	-0.000 (0.000)***		-0.000 (0.000)
<b>GREV0203</b>	0.546 (0.516)					0.766 (0.451)*	0.443 (0.520)
<b>C</b>	-2.426 *(0.304)**	-2.415 (0.335)***	-2.649 (0.241)***	-2.621 (0.200)***	-2.581 (0.146)***	-2.611 (0.216)***	-2.672 *(0.215)**
<b>Observations</b>	22	22	22	22	22	22	22
<b>R-squared</b>	0.410	0.381	0.289	0.363	0.359	0.351	0.383
<b>Adjusted R-squared</b>	0.115	0.134	0.067	0.164	0.208	0.091	0.136
<b>S.E. of regression</b>	0.405	0.401	0.416	0.394	0.384	0.411	0.401
<b>F-statistic</b>	1.391	1.540	1.302	1.824	2.378	1.352	1.551
<b>Prob(F-statistic)</b>	0.283	0.232	0.312	0.165	0.093	0.295	0.229
<b>Jarque-Bera</b>	1.180	1.371	0.788	1.753	1.759	0.669	1.927
<b>White</b>	0.528	0.455	0.953	0.511	0.538	0.835	0.664
<b>RESET(2)</b>	2.942*	0.948	0.097	1.909*	0.847	0.972	4.587**

**Engineering****Table A3.25: First-stage regression results for the engineering sector**

	Dependent Variable: LOG(PCM0203)					
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>LOG(SALESUSD0203)</b>	1.389 (4.147)	0.113 (0.052)***	0.119 (0.050)***	0.082 (0.034)***	0.117 (0.067)**	0.077 (0.054)*
<b>LOG(GROWTH0203)</b>		0.008 (0.042)	0.014 (0.036)	0.007 (0.035)	0.071 (0.056)	0.003 (0.035)
<b>LOG(SHARE0203)</b>		-1.278 (4.154)				
<b>LOG(CAPINT0203)</b>		0.523 (0.117) ***	0.521 (0.116)***	0.559 (0.096)***	0.453 (0.095)***	0.612 (0.275)***
<b>LOG(SALESUSDEMP0203)</b>		-0.083 (0.097)	-0.082 (0.097)		-0.062 (0.090)	-0.300 (0.268)
<b>LOG(SOLV0203)</b>		-0.049 (0.040)	-0.049 (0.040)	-0.038 (0.035)	-0.060 (0.034)**	-0.082 (0.071)
<b>LOG(INVSALES0203)</b>		-0.052 *(0.040)	-0.053 (0.040)*	-0.071 (0.036)***	-0.033 (0.029)	-0.092 (0.058)*
<b>LOG(RD0203)</b>					-0.089 (0.084)	
<b>Observations</b>	342	342	366	516	159	355
<b>R-squared</b>	0.211	0.211	0.233	0.157	0.187	0.174
<b>Adjusted R-squared</b>	0.129	0.132	0.162	0.101	0.062	0.098
<b>S.E. of regression</b>	0.778	0.777	0.763	0.882	0.932	0.842
<b>F-statistic</b>	NA	NA	NA	NA	NA	NA
<b>Prob(F-statistic)</b>	NA	NA	NA	NA	NA	NA
<b>Jarque-Bera</b>	5249.94 9***	5243.345** *	6284.411** *	4795.608** *	1880.260** *	6530.245** *
<b>White</b>	0.609	0.627	0.448	0.726	0.802	0.751
<b>RESET(2)</b>	2.468*	2.290*	0.688	4.561***	0.067	3.073**

**Table A3.26: Second-stage regression results for the engineering sector, using the Aggregate TRI**

	Dependent Variable: ADPCM0203						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
<b>TRI<sub>AGG</sub></b>	0.012 (0.238)	-0.018 (0.244)	-0.213 (0.216)	0.247 (0.174)*	0.194 (0.125)*	-0.306 (0.190)*	-0.046 (0.374)
<b>TRI<sub>AGG</sub>*RTA</b>	0.158 (0.151)	0.191 (0.163)	0.262 (0.170)*	0.034 (0.119)		0.334 (0.176)**	0.040 (0.242)
<b>TRI<sub>AGG</sub>*MFE</b>	0.143 (0.152)	0.100 (0.137)	0.205 (0.172)	0.005 (0.111)		0.153 (0.164)	0.097 (0.242)
<b>REGVARSPC1</b>	0.001 (0.026)	-0.014 (0.021)	0.002 (0.028)	-0.018 (0.026)	-0.018 (0.022)	-0.020 (0.026)	-0.038 (0.053)
<b>INDGDP0203</b>		-0.021 (0.012)*	-0.024 (0.012)**		-0.019 (0.012)*	-0.026 (0.009)** *	-0.023 (0.022)
<b>HITECH0203</b>		-0.006 (0.006)		-0.009 (0.007)	-0.007 (0.007)	-0.006 (0.005)	-0.003 (0.011)
<b>INDSALES0203</b>		-0.000 (0.000)**	-0.000 (0.000)**	-0.000 (0.000)**	-0.000 (0.000)**	-0.000 (0.000)**	-0.000 (0.000)**
<b>GINDSALES0203</b>	1.378 (0.830)*	1.444 (0.875)*	1.301 (0.731)**		1.068 (0.630)*	1.384 (0.768)**	1.526 (1.033)*
<b>C</b>	-1.819 (0.315)**	-1.831 *	-2.322 (0.335)**	-1.814 *	-1.669 (0.145)**	-2.448 (0.273)**	-1.859 (0.211)**
<b>Observations</b>	24	24	24	24	24	24	24
<b>R-squared</b>	0.639	0.623	0.590	0.565	0.620	0.555	0.257
<b>Adjusted R-squared</b>	0.447	0.458	0.411	0.374	0.486	0.398	-0.068
<b>S.E. of regression</b>	0.327	0.324	0.338	0.348	0.315	0.341	0.455
<b>F-statistic</b>	3.321	3.773	3.294	2.967	4.622	3.536	0.792
<b>Prob(F-statistic)</b>	0.022	0.013	0.023	0.034	0.006	0.019	0.605
<b>Jarque-Bera</b>	1.616	1.254	1.042	0.565	1.118	0.555	1.601
<b>White</b>	0.662	0.509	0.593	0.485	0.884	0.513	1.193
<b>RESET(2)</b>	0.827	0.705	2.041*	5.271**	1.786	1.185	0.143

**Table A3.27: Second-stage regression results for the engineering sector, using the Mode 1 TRI**

	Dependent Variable: ADPCM0203						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
<b>TRI_M1</b>	-0.287 (0.208)*	-0.303 (0.213)*	-0.339 (0.128)** *	-0.041 (0.223)	-0.057 (0.091)	-0.378 (0.123)** *	-0.385 (0.274)*
<b>TRI_M1*RTA</b>	0.244 (0.152)*	0.265 (0.163)*	0.289 (0.122)** *	0.033 (0.164)		0.331 (0.125)** *	0.302 (0.233)
<b>TRI_M1*MFE</b>	-0.126 (0.055)** *	-0.137 (0.056)** *	-0.135 (0.073)**	-0.125 (0.070)**		-0.153 (0.076)**	-0.064 (0.111)
<b>REGVARSPC1</b>	-0.034 (0.021)*	-0.038 (0.020)**	-0.032 (0.019)*	-0.050 (0.040)	-0.034 (0.021)*	-0.036 (0.019)**	-0.044 (0.037)
<b>INDGDP0203</b>	-0.005 (0.018)	-0.006 (0.016)		-0.004 (0.020)	-0.015 (0.014)		-0.007 (0.026)
<b>HITECH0203</b>	-0.003 (0.004)		-0.003 (0.004)	-0.005 (0.006)	-0.005 (0.004)		-0.001 (0.009)
<b>INDSALES0203</b>	-0.000 (0.000)**	-0.000 (0.000)**	-0.000 (0.000)**	-0.000 (0.000)**	-0.000 (0.000)**	-0.000 (0.000)**	
<b>GINDSALES0203</b>	1.610 (0.836)**	1.660 (0.831)**	1.601 (0.773)**		1.353 (0.721)**	1.661 (0.776)** *	1.868 (0.979)**
<b>C</b>	-2.193 (0.487)**	-2.203 (0.472)**	-2.321 (0.116)**	-2.135 (0.520)**	-1.872 (0.361)**	-2.376 (0.091)**	-2.302 (0.644)**
<b>Observations</b>	24	24	24	24	24	24	24
<b>R-squared</b>	0.636	0.633	0.634	0.525	0.604	0.629	0.313
<b>Adjusted R-squared</b>	0.442	0.472	0.474	0.317	0.465	0.498	0.012
<b>S.E. of regression</b>	0.328	0.319	0.319	0.364	0.322	0.312	0.437
<b>F-statistic</b>	3.281	3.943	3.961	2.524	4.329	4.807	1.040
<b>Prob(F-statistic)</b>	0.023	0.011	0.011	0.059	0.008	0.005	0.443
<b>Jarque-Bera</b>	1.828	1.668	1.261	1.132	1.538	0.952	1.485
<b>White</b>	1.317	0.481	0.855	0.689	0.747	0.335	1.444
<b>RESET(2)</b>	0.456	0.418	0.632	3.598**	0.316	0.595	0.001

**Table A3.28: Second-stage regression results for the engineering sector, using the Mode 2 TRI**

Dependent Variable: ADPCM0203							
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
<b>TRI_M2</b>	0.078 (0.264)	-0.060 (0.166)	-0.031 (0.297)	0.027 (0.269)	-0.047 (0.089)	-0.245 (0.166)*	0.230 (0.398)
<b>TRI_M2*RTA</b>	-0.098 (0.267)	0.059 (0.131)	0.027 (0.279)	-0.019 (0.258)		0.269 (0.051)**	-0.351 *
<b>TRI_M2*MFE</b>	-0.088 (0.138)	-0.099 (0.119)	-0.128 (0.172)	-0.114 (0.163)		-0.148 (0.149)	0.027 (0.222)
<b>REGVARSPC1</b>	-0.037 (0.022)*	-0.044 (0.023)**	-0.035 (0.021)*	-0.050 (0.039)	-0.036 (0.021)**	-0.045 (0.025)**	-0.042 (0.034)
<b>INDGDP0203</b>	-0.017 (0.013)	-0.018 (0.012)*		-0.006 (0.009)	-0.018 (0.012)*		-0.025 (0.020)
<b>HITECH0203</b>	-0.005 (0.007)		-0.007 (0.008)	-0.005 (0.009)	-0.005 (0.004)		-0.008 (0.012)
<b>INDSALES0203</b>	-0.000 (0.000)**	-0.000 (0.000)**	-0.000 *	-0.000 *	-0.000 *	-0.000 *	-0.000 *
<b>GINDSALES0203</b>	1.286 (0.778)*	1.290 (0.771)*	0.843 (0.699)		1.303 (0.721)**	0.800 (0.728)	1.520 (0.884)*
<b>C</b>	-1.816 (0.388)**	-1.870 *	-2.250 *	-2.077 *	-1.808 *	-2.377 *	-1.668 *
<b>Observations</b>	24	24	24	24	24	24	24
<b>R-squared</b>	0.610	0.601	0.565	0.524	0.602	0.548	0.300
<b>Adjusted R-squared</b>	0.401	0.427	0.375	0.316	0.461	0.388	-0.006
<b>S.E. of regression</b>	0.340	0.333	0.348	0.364	0.323	0.344	0.441
<b>F-statistic</b>	2.928	3.446	2.971	2.519	4.282	3.434	0.982
<b>Prob(F-statistic)</b>	0.035	0.019	0.034	0.060	0.008	0.021	0.478
<b>Jarque-Bera</b>	1.969	1.677	1.079	1.249	1.465	0.866	1.269
<b>White</b>	0.697	0.400	1.194	0.627	0.933	0.657	3.158***
<b>RESET(2)</b>	1.183	1.233	8.927***	6.188***	0.372	6.648***	0.456

**Table A3.29: Second-stage regression results for the engineering sector, using the Mode 3 TRI**

Dependent Variable: ADPCM0203						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<b>TRI_M3</b>	0.068 (0.252)	-0.030 (0.250)	-0.213 (0.186)	0.320 (0.197)*	0.201 *(0.078)**	-0.316 (0.158)**
<b>TRI_M3*RTA</b>	0.148 (0.143)	0.218 (0.139)*	0.298 * (0.136)**	0.018 (0.113)	0.371 *(0.111)**	-0.055 (0.230)
<b>TRI_M3*MFE</b>	0.009 (0.143)	0.016 (0.146)	0.130 (0.140)	-0.143 (0.096)*	0.139 (0.145)	-0.157 (0.237)
<b>REGVARSPC1</b>	-0.023 (0.024)	-0.033 (0.021)*	-0.017 (0.021)	-0.038 (0.027)*	-0.023 (0.023)	-0.059 (0.019)*
<b>INDGDP0203</b>	-0.022 (0.013)*	-0.022 (0.013)*		-0.021 (0.013)*	-0.027 *(0.009)**	-0.029 (0.023)
<b>HITECH0203</b>	-0.007 (0.006)		-0.007 (0.007)	-0.010 (0.007)*	-0.009 (0.005)**	-0.002 (0.012)
<b>INDSALES0203</b>	-0.000 *(0.000)**	-0.000 *(0.000)**	-0.000 *(0.000)**	-0.000 *(0.000)**	-0.000 *(0.000)**	-0.000 *(0.000)**
<b>GINDSALES0203</b>	1.330 (0.820)*	1.467 (0.869)*	1.313 (0.694)**		1.198 (0.616)**	1.454 (0.744)**
<b>C</b>	-1.736 *(0.353)**	-1.835 *(0.379)**	-2.325 *(0.143)**	-1.661 *(0.314)**	-1.555 *(0.238)**	-2.433 *(0.093)**
<b>Observations</b>	24	24	24	24	24	24
<b>R-squared</b>	0.679	0.663	0.633	0.608	0.665	0.617
<b>Adjusted R-squared</b>	0.508	0.516	0.473	0.437	0.547	0.482
<b>S.E. of regression</b>	0.309	0.306	0.319	0.330	0.296	0.317
<b>F-statistic</b>	3.966	4.505	3.949	3.548	5.620	4.564
<b>Prob(F-statistic)</b>	0.010	0.006	0.011	0.017	0.002	0.006
<b>Jarque-Bera</b>	0.868	0.736	1.127	0.249	0.744	0.764
<b>White</b>	0.902	0.528	0.468	0.318	1.029	0.626
<b>RESET(2)</b>	0.616	0.066	0.451	0.355	0.408	0.175
						0.213

**Table A3.30: Second-stage regression results for the engineering sector, using the Mode 4 TRI**

	Dependent Variable: ADPCM0203						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
<b>TRI_M4</b>	-0.136 (0.305)	-0.038 (0.255)	-0.268 (0.266)	0.185 (0.286)	-0.100 (0.269)	-0.150 (0.317)	-0.343 (0.392)
<b>TRI_M4*RTA</b>	0.007 (0.207)	0.010 (0.212)	0.095 (0.234)	-0.100 (0.167)		0.165 (0.275)	-0.025 (0.259)
<b>TRI_M4*MFE</b>	0.115 (0.214)	0.103 (0.204)	0.168 (0.204)	0.078 (0.197)		0.181 (0.204)	0.161 (0.264)
<b>REGVARSPC1</b>	-0.030 (0.022)*	-0.040 * (0.019)**	-0.023 (0.021)	-0.044 (0.029)*	-0.036 (0.023)*	-0.039 * (0.018)**	-0.038 (0.037)
<b>INDGDP0203</b>	-0.015 (0.014)	-0.021 (0.011)**		-0.011 (0.015)	-0.017 (0.012)*		-0.018 (0.021)
<b>HITECH0203</b>	-0.006 (0.007)		-0.011 * (0.005)**	-0.004 (0.008)	-0.006 (0.006)		-0.008 (0.009)
<b>INDSALES0203</b>	-0.000 * (0.000)**	-0.000 * (0.000)**	-0.000 * (0.000)**	-0.000 * (0.000)**	-0.000 * (0.000)**	-0.000 * (0.000)**	
<b>GINDSALES0203</b>	1.479 (0.825)**	1.388 (0.887)*	1.318 (0.699)**		1.427 (0.678)**	1.000 (0.786)	1.928 (1.006)**
<b>C</b>	-1.832 * (0.428)**	-1.857 * (0.409)**	-2.186 * (0.289)**	-2.060 * (0.435)**	-1.743 * (0.327)**	-2.504 * (0.215)**	-1.725 * (0.554)**
<b>Observations</b>	24	24	24	24	24	24	24
<b>R-squared</b>	0.607	0.591	0.574	0.528	0.597	0.514	0.313
<b>Adjusted R-squared</b>	0.397	0.412	0.388	0.321	0.455	0.343	0.012
<b>S.E. of regression</b>	0.342	0.337	0.344	0.363	0.325	0.357	0.437
<b>F-statistic</b>	2.895	3.301	3.079	2.552	4.197	2.998	1.041
<b>Prob(F-statistic)</b>	0.036	0.023	0.030	0.057	0.009	0.035	0.442
<b>Jarque-Bera</b>	1.367	1.154	0.191	0.194	1.866	0.569	1.375
<b>White</b>	0.571	0.552	1.026	0.619	0.424	0.438	1.572
<b>RESET(2)</b>	0.064	0.097	0.563	2.547*	1.029	0.542	0.004

## Distribution

**Table A3.31: First-stage regression results for the distribution sector**

Dependent Variable: LOG(PCM0204)					
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>	<i>Model 5</i>
LOG(SALES0204)	3.393	0.066	0.050	0.044	0.068
	(5.564)	(0.020)***	(0.019)***	(0.022)***	(0.020)***
LOG(GROWTH0204)	0.180	0.203	0.192		0.197
	(0.061)***	(0.039)***	(0.036)***		(0.036)***
LOG(SHARE0204)	-3.327				
	(5.559)				
LOG(CAPINT0204)	0.647	0.655	0.690	0.668	0.661
	(0.055)***	(0.052)***	(0.046)***	(0.061)***	(0.050)***
LOG(SALESEMP0204)	-0.170	-0.162		-0.094	-0.154
	(0.052)***	(0.050)***		(0.048)***	(0.046)***
LOG(SOLV0204)	-0.038	-0.036	-0.035	-0.048	
	(0.023)**	(0.023)*	(0.022)*	(0.024)***	
LOG(INVSALES0204)	-0.026	-0.020	-0.030	-0.038	-0.008
	(0.036)	(0.035)	(0.031)	(0.042)	(0.035)
Observations	436	436	471	521	472
R-squared	0.536	0.536	0.520	0.412	0.515
Adjusted R-squared	0.496	0.496	0.480	0.371	0.479
S.E. of regression	0.609	0.609	0.613	0.728	0.611
F-statistic	NA	NA	NA	NA	NA
Prob(F-statistic)	NA	NA	NA	NA	NA
Jarque-Bera	1181.746***	1188.051***	1305.507***	1763.844***	1116.601***
White	1.264*	1.220*	1.212*	0.675	1.332**
RESET(2)	0.110	0.381	0.146	8.859***	0.177

**Table A3.32: Second-stage regression results for the distribution sector, using the Aggregate TRI**

<b>Dependent Variable: ADPCM0204</b>				
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
<b>TRI<sub>AGG</sub></b>	-0.270 (0.097)***	-0.276 (0.091)***	-0.273 (0.090)***	-0.161 (0.095)*
<b>TRI<sub>AGG</sub>*RTA</b>	0.359 (0.127)***	0.386 (0.114)***	0.358 (0.122)***	
<b>TRI<sub>AGG</sub>*MFE</b>	-0.164 (0.140)	-0.171 (0.134)	-0.162 (0.133)	
<b>INDSALES0204</b>	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	
<b>GINDSALES0204</b>	-0.099 (0.134)		-0.104 (0.134)	-0.224 (0.126)**
<b>C</b>	-1.594 (0.096)***	-1.629 (0.111)***	-1.587 (0.085)***	-1.504 (0.084)***
<b>Observations</b>	23	23	23	26
<b>R-squared</b>	0.161	0.151	0.159	0.117
<b>Adjusted R-squared</b>	-0.085	-0.037	-0.027	-0.003
<b>S.E. of regression</b>	0.255	0.249	0.248	0.255
<b>F-statistic</b>	0.655	0.802	0.854	0.976
<b>Prob(F-statistic)</b>	0.662	0.540	0.510	0.422
<b>Jarque-Bera</b>	13.727***	15.646***	14.401***	5.753**
<b>White</b>	0.232	0.249	0.300	0.257
<b>RESET(2)</b>	0.725	0.044	0.416	0.055

**Table A3.33: Second-stage regression results for the distribution sector, using the Mode 1 TRI**

<b>Dependent Variable: ADPCM0204</b>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>TRI<sub>M1</sub></b>	-0.115 (0.051)***	-0.111 (0.052)***	-0.115 (0.048)***
<b>INDSALES0204</b>	-0.000 (0.000)	0.000 (0.000)	
<b>GINDSALES0204</b>	-0.169 (0.131)		-0.169 (0.132)
<b>C</b>	-1.555 (0.054)***	-1.601 (0.070)***	-1.555 (0.045)***
<b>Observations</b>	26	26	26
<b>R-squared</b>	0.167	0.138	0.167
<b>Adjusted R-squared</b>	0.054	0.063	0.095
<b>S.E. of regression</b>	0.248	0.247	0.242
<b>F-statistic</b>	1.474	1.841	2.311
<b>Prob(F-statistic)</b>	0.249	0.181	0.122
<b>Jarque-Bera</b>	11.107***	14.072***	11.036
<b>White</b>	0.230	0.225	0.251
<b>RESET(2)</b>	0.006	0.008	0.007

**Table A3.34: Second-stage regression results for the distribution sector, using the Mode 2 TRI**

<b>Dependent Variable: ADPCM0204</b>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>TRI_M2</b>	-0.072 (0.054)*	-0.067 (0.053)	-0.075 (0.051)*
<b>INDSALES0204</b>	0.000 (0.000)	0.000 (0.000)	
<b>GINDSALES0204</b>	-0.162 (0.131)		-0.167 (0.132)
<b>C</b>	-1.603 (0.054)***	-1.647 (0.065)***	-1.597 (0.047)***
<b>Observations</b>	26	26	26
<b>R-squared</b>	0.081	0.054	0.079
<b>Adjusted R-squared</b>	-0.044	-0.028	-0.001
<b>S.E. of regression</b>	0.260	0.258	0.255
<b>F-statistic</b>	0.647	0.658	0.987
<b>Prob(F-statistic)</b>	0.593	0.527	0.388
<b>Jarque-Bera</b>	3.810	5.065**	4.108*
<b>White</b>	0.453	0.468	0.503
<b>RESET(2)</b>	0.053	1.190	0.068

**Table A3.35: Second-stage regression results for the distribution sector, using the Mode 3 TRI**

<b>Dependent Variable: ADPCM0204</b>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>
<b>TRI_M3</b>	-0.045 (0.089)	0.008 (0.078)	-0.054 (0.082)
<b>INDSALES0204</b>	0.000 (0.000)	0.000 (0.000)	
<b>GINDSALES0204</b>	-0.210 (0.149)*		-0.228 (0.144)*
<b>C</b>	-1.591 (0.113)***	-1.686 (0.095)***	-1.575 (0.096)***
<b>Observations</b>	26	26	26
<b>R-squared</b>	0.039	0.011	0.035
<b>Adjusted R-squared</b>	-0.092	-0.075	-0.049
<b>S.E. of regression</b>	0.266	0.264	0.261
<b>F-statistic</b>	0.295	0.124	0.414
<b>Prob(F-statistic)</b>	0.828	0.884	0.666
<b>Jarque-Bera</b>	2.237	2.222	2.607
<b>White</b>	0.392	0.408	0.267
<b>RESET(2)</b>	0.001	0.027	0.010

**Table A3.36: Second-stage regression results for the distribution sector, using the Mode 4 TRI**

Dependent Variable: ADPCM0204			
	Model 1	Model 2	Model 3
<b>TRI_M4</b>	0.132 (0.095)*	0.133 (0.096)*	0.122 (0.093)
<b>INDSALES0204</b>	0.000 (0.000)***	0.000 (0.000)***	
<b>GINDSALES0204</b>	-0.139 (0.152)		-0.151 (0.148)
<b>C</b>	-1.886 (0.161)***	-1.923 (0.171)***	-1.853 (0.153)***
<b>Observations</b>	26	26	26
<b>R-squared</b>	0.128	0.108	0.109
<b>Adjusted R-squared</b>	0.010	0.031	0.031
<b>S.E. of regression</b>	0.254	0.251	0.251
<b>F-statistic</b>	1.080	1.399	1.405
<b>Prob(F-statistic)</b>	0.378	0.267	0.266
<b>Jarque-Bera</b>	4.441*	4.975**	4.861**
<b>White</b>	0.354	0.35	0.363
<b>RESET(2)</b>	0.492	0.705	0.600

**Table A3.37: Second-stage regression results for the distribution sector, using all Modal TRIs**

Dependent Variable: ADPCM0204			
	Model 1	Model 2	Model 3
<b>TRI_M1</b>	-0.200 (0.112)**	-0.222 (0.095)***	-0.203 (0.108)**
<b>TRI_M2</b>	0.068 (0.126)	0.091 (0.108)	0.068 (0.123)
<b>TRI_M3</b>	0.029 (0.075)	0.065 (0.068)	0.024 (0.065)
<b>TRI_M4</b>	0.160 (0.075)***	0.158 (0.072)***	0.157 (0.072)***
<b>INDSALES0204</b>	0.000 (0.000)		
<b>GINDSALES0204</b>	-0.123 (0.135)	0.000 (0.000)	-0.135 (0.139)
<b>C</b>	-1.855 (0.180)***	-1.906 (0.179)***	-1.838 (0.153)***
<b>Observations</b>	26	26	26
<b>R-squared</b>	0.334	0.326	0.332
<b>Adjusted R-squared</b>	0.124	0.157	0.165
<b>S.E. of regression</b>	0.239	0.234	0.233
<b>F-statistic</b>	1.588	1.930	1.988
<b>Prob(F-statistic)</b>	0.205	0.134	0.124
<b>Jarque-Bera</b>	25.880***	26.431***	27.526***
<b>White</b>	0.067	0.088	0.067
<b>RESET(2)</b>	1.059	0.879	0.982

## 5. Confidence intervals

This section contains the confidence intervals for each estimated sectoral aggregate and modal tax equivalents.

**Table A3.38: Estimated aggregate tax equivalents (percent on price) and 70% confidence interval for the banking sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	6.671	0.031	13.299
<b>Argentina</b>	9.019	0.041	18.171
<b>Bolivia</b>	10.509	0.047	21.315
<b>Brazil</b>	13.174	0.059	27.035
<b>Bulgaria</b>	5.461	0.025	10.828
<b>Chile</b>	10.076	0.046	20.398
<b>China</b>	21.577	0.093	45.904
<b>Colombia</b>	17.686	0.077	37.010
<b>Croatia</b>	7.751	0.035	15.528
<b>Ecuador</b>	7.698	0.035	15.419
<b>Estonia</b>	2.230	0.010	4.357
<b>India</b>	27.045	0.114	58.858
<b>Latvia</b>	3.479	0.016	6.837
<b>Lithuania</b>	1.640	0.008	3.195
<b>Macedonia</b>	14.967	0.066	30.956
<b>Malaysia</b>	34.170	0.140	76.536
<b>Moldova</b>	7.609	0.035	15.235
<b>Morocco</b>	17.281	0.076	36.100
<b>Peru</b>	7.195	0.033	14.378
<b>Romania</b>	3.264	0.015	6.407
<b>Russia</b>	25.513	0.108	55.177
<b>Thailand</b>	17.917	0.078	37.532
<b>Venezuela</b>	16.691	0.073	34.779
<b>Egypt</b>	24.381	0.104	52.481
<b>Jordan</b>	2.764	0.013	5.413
<b>Serbia and Montenegro</b>	19.009	0.083	40.005
<b>Tunisia</b>	14.470	0.064	29.863
<b>Zambia</b>	11.321	0.051	23.045

**Table A3.39: Estimated Mode 1 tax equivalents (percent on cost) and 70% confidence interval for the banking sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	1.115	0.000	9.694
<b>Argentina</b>	2.203	0.000	19.943
<b>Bolivia</b>	0.817	0.000	7.029
<b>Brazil</b>	0.063	0.000	0.531
<b>Bulgaria</b>	1.022	0.000	8.856
<b>Chile</b>	0.470	0.000	3.992
<b>China</b>	1.990	0.000	17.870
<b>Colombia</b>	1.022	0.000	8.856
<b>Croatia</b>	1.370	0.000	12.027
<b>Ecuador</b>	1.577	0.000	13.947
<b>Estonia</b>	0.267	0.000	2.247
<b>India</b>	1.990	0.000	17.870
<b>Latvia</b>	0.063	0.000	0.531
<b>Lithuania</b>	0.063	0.000	0.531
<b>Macedonia</b>	2.996	0.000	27.939
<b>Malaysia</b>	1.990	0.000	17.870
<b>Moldova</b>	1.022	0.000	8.856
<b>Morocco</b>	1.990	0.000	17.870
<b>Peru</b>	0.817	0.000	7.029
<b>Romania</b>	0.199	0.000	1.672
<b>Russia</b>	1.990	0.000	17.870
<b>Thailand</b>	1.990	0.000	17.870
<b>Venezuela</b>	1.227	0.000	10.714
<b>Egypt</b>	1.990	0.000	17.870
<b>Jordan</b>	0.470	0.000	3.992
<b>Serbia and Montenegro</b>	2.996	0.000	27.939
<b>Tunisia</b>	1.990	0.000	17.870
<b>Zambia</b>	1.022	0.000	8.856

**Table A3.40: Estimated Mode 2 tax equivalents (percent on cost) and 70% confidence interval for the banking sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	2.357	0.000	10.012
<b>Argentina</b>	0.000	0.000	0.000
<b>Bolivia</b>	2.357	0.000	10.012
<b>Brazil</b>	0.000	0.000	0.000
<b>Bulgaria</b>	2.357	0.000	10.012
<b>Chile</b>	2.357	0.000	10.012
<b>China</b>	4.770	0.000	21.027
<b>Colombia</b>	4.770	0.000	21.027
<b>Croatia</b>	2.357	0.000	10.012
<b>Ecuador</b>	0.000	0.000	0.000
<b>Estonia</b>	0.000	0.000	0.000
<b>India</b>	4.770	0.000	21.027
<b>Latvia</b>	0.000	0.000	0.000
<b>Lithuania</b>	0.000	0.000	0.000
<b>Macedonia</b>	4.770	0.000	21.027
<b>Malaysia</b>	4.770	0.000	21.027
<b>Moldova</b>	2.357	0.000	10.012
<b>Morocco</b>	4.770	0.000	21.027
<b>Peru</b>	2.357	0.000	10.012
<b>Romania</b>	2.357	0.000	10.012
<b>Russia</b>	4.770	0.000	21.027
<b>Thailand</b>	4.770	0.000	21.027
<b>Venezuela</b>	4.770	0.000	21.027
<b>Egypt</b>	4.770	0.000	21.027
<b>Jordan</b>	0.000	0.000	0.000
<b>Serbia and Montenegro</b>	7.316	0.000	33.530
<b>Tunisia</b>	4.770	0.000	21.027
<b>Zambia</b>	2.357	0.000	10.012

**Table A3.41: Estimated Mode 3 tax equivalents (percent on price) and 70% confidence interval for the banking sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	12.505	0.000	37.142
<b>Argentina</b>	14.500	0.000	43.758
<b>Bolivia</b>	15.220	0.000	46.195
<b>Brazil</b>	23.639	0.000	76.617
<b>Bulgaria</b>	12.505	0.000	37.142
<b>Chile</b>	18.798	0.000	58.684
<b>China</b>	21.461	0.000	68.401
<b>Colombia</b>	19.539	0.000	61.352
<b>Croatia</b>	13.421	0.000	40.156
<b>Ecuador</b>	14.612	0.000	44.137
<b>Estonia</b>	13.421	0.000	40.156
<b>India</b>	25.398	0.000	83.432
<b>Latvia</b>	15.439	0.000	46.942
<b>Lithuania</b>	13.421	0.000	40.156
<b>Macedonia</b>	13.495	0.000	40.402
<b>Malaysia</b>	31.818	0.000	109.702
<b>Moldova</b>	14.420	0.000	43.488
<b>Morocco</b>	18.907	0.000	59.076
<b>Peru</b>	14.371	0.000	43.324
<b>Romania</b>	12.505	0.000	37.142
<b>Russia</b>	23.900	0.000	77.618
<b>Thailand</b>	19.608	0.000	61.600
<b>Venezuela</b>	17.637	0.000	54.562
<b>Egypt</b>	25.204	0.000	82.675
<b>Jordan</b>	13.326	0.000	39.842
<b>Serbia and Montenegro</b>	15.442	0.000	46.951
<b>Tunisia</b>	16.309	0.000	49.927
<b>Zambia</b>	17.341	0.000	53.520

**Table A3.42: Estimated Mode 4 tax equivalents (percent on price) and 70% confidence interval for the banking sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	0.568	0.000	4.999
<b>Argentina</b>	0.568	0.000	4.999
<b>Bolivia</b>	2.423	0.000	22.894
<b>Brazil</b>	1.320	0.000	11.953
<b>Bulgaria</b>	0.992	0.000	8.869
<b>Chile</b>	1.165	0.000	10.488
<b>China</b>	0.587	0.000	5.167
<b>Colombia</b>	1.898	0.000	17.578
<b>Croatia</b>	0.605	0.000	5.331
<b>Ecuador</b>	2.051	0.000	19.101
<b>Estonia</b>	0.414	0.000	3.625
<b>India</b>	0.796	0.000	7.065
<b>Latvia</b>	0.242	0.000	2.106
<b>Lithuania</b>	1.357	0.000	12.307
<b>Macedonia</b>	0.242	0.000	2.106
<b>Malaysia</b>	0.951	0.000	8.488
<b>Moldova</b>	0.242	0.000	2.106
<b>Morocco</b>	0.587	0.000	5.167
<b>Peru</b>	1.116	0.000	10.033
<b>Romania</b>	0.172	0.000	1.488
<b>Russia</b>	2.446	0.000	23.138
<b>Thailand</b>	1.339	0.000	12.132
<b>Turkey</b>	1.316	0.000	11.915
<b>Venezuela</b>	2.382	0.000	22.468
<b>Egypt</b>	1.520	0.000	13.868
<b>Jordan</b>	1.717	0.000	15.785
<b>Serbia and Montenegro</b>	0.384	0.000	3.355
<b>Tunisia</b>	2.660	0.000	25.365
<b>Zambia</b>	0.172	0.000	1.488

**Table A3.43: Estimated aggregate tax equivalents (percent on cost) and 70% confidence interval for the insurance sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	18.00	0.00	54.67
<b>Argentina</b>	26.01	0.00	83.87
<b>Bolivia</b>	45.93	0.00	170.67
<b>Brazil</b>	44.14	0.00	161.99
<b>Bulgaria</b>	33.30	0.00	113.24
<b>Chile</b>	25.51	0.00	81.94
<b>China</b>	68.98	0.00	298.31
<b>Colombia</b>	27.20	0.00	88.47
<b>Croatia</b>	18.17	0.00	55.23
<b>Ecuador</b>	54.51	0.00	214.64
<b>Egypt</b>	36.76	0.00	128.11
<b>India</b>	112.96	0.00	632.63
<b>Jordan</b>	47.53	0.00	178.53
<b>Macedonia</b>	38.81	0.00	137.26
<b>Malaysia</b>	94.48	0.00	476.77
<b>Moldova</b>	21.77	0.00	68.03
<b>Morocco</b>	67.42	0.00	288.71
<b>Peru</b>	17.74	0.00	53.77
<b>Romania</b>	22.73	0.00	71.51
<b>Russia</b>	68.29	0.00	294.01
<b>Serbia and Montenegro</b>	76.18	0.00	344.58
<b>Thailand</b>	61.53	0.00	253.67
<b>Tunisia</b>	54.56	0.00	214.89
<b>Uruguay</b>	39.69	0.00	141.24
<b>Venezuela</b>	40.35	0.00	144.23

**Table A3.44: Estimated Mode 1 tax equivalents (percent on cost) and 70% confidence interval for the insurance sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	58.06	19.45	114.94
<b>Argentina</b>	93.72	29.27	202.00
<b>Bolivia</b>	114.46	34.47	257.98
<b>Brazil</b>	47.19	16.19	90.82
<b>Bulgaria</b>	103.83	31.84	228.80
<b>Chile</b>	32.96	11.69	60.98
<b>China</b>	130.29	38.24	303.23
<b>Colombia</b>	14.14	5.27	24.74
<b>Croatia</b>	58.06	19.45	114.94
<b>Ecuador</b>	144.79	41.56	346.54
<b>Egypt</b>	32.96	11.69	60.98
<b>India</b>	137.43	39.89	324.33
<b>Jordan</b>	89.82	28.25	191.91
<b>Macedonia</b>	50.22	17.11	97.42
<b>Malaysia</b>	137.43	39.89	324.33
<b>Moldova</b>	58.06	19.45	114.94
<b>Morocco</b>	144.79	41.56	346.54
<b>Peru</b>	16.49	6.10	29.05
<b>Romania</b>	14.14	5.27	24.74
<b>Russia</b>	114.46	34.47	257.98
<b>Serbia and Montenegro</b>	144.79	41.56	346.54
<b>Thailand</b>	39.89	13.92	75.27
<b>Tunisia</b>	144.79	41.56	346.54
<b>Uruguay</b>	114.46	34.47	257.98
<b>Venezuela</b>	28.96	10.38	52.97

**Table A3.45: Estimated Mode 2 tax equivalents (percent on cost) and 70% confidence interval for the insurance sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Albania</b>	0.00	0.00	0.00
<b>Argentina</b>	55.70	3.76	142.01
<b>Bolivia</b>	66.68	4.35	177.25
<b>Brazil</b>	29.54	2.18	67.65
<b>Bulgaria</b>	61.09	4.05	159.03
<b>Chile</b>	21.01	1.60	46.33
<b>China</b>	9.26	0.74	19.33
<b>Colombia</b>	9.26	0.74	19.33
<b>Croatia</b>	35.87	2.59	84.39
<b>Ecuador</b>	82.11	5.12	230.86
<b>Egypt</b>	9.26	0.74	19.33
<b>India</b>	78.43	4.94	217.63
<b>Jordan</b>	53.59	3.64	135.51
<b>Macedonia</b>	31.32	2.30	72.27
<b>Malaysia</b>	78.43	4.94	217.63
<b>Moldova</b>	0.00	0.00	0.00
<b>Morocco</b>	82.11	5.12	230.86
<b>Peru</b>	9.26	0.74	19.33
<b>Romania</b>	9.26	0.74	19.33
<b>Russia</b>	66.68	4.35	177.25
<b>Serbia and Montenegro</b>	82.11	5.12	230.86
<b>Thailand</b>	7.05	0.57	14.56
<b>Tunisia</b>	40.58	2.88	97.36
<b>Uruguay</b>	66.68	4.35	177.25
<b>Venezuela</b>	18.57	1.43	40.48

**Table A3.46: Estimated Mode 3 tax equivalents (percent on price) and 70% confidence interval for the insurance sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Albania</b>	17.99	0.00	56.74
<b>Argentina</b>	8.43	0.00	24.58
<b>Bolivia</b>	21.84	0.00	71.00
<b>Brazil</b>	55.42	0.00	231.26
<b>Bulgaria</b>	13.14	0.00	39.83
<b>Chile</b>	19.55	0.00	62.41
<b>China</b>	88.19	0.00	456.98
<b>Colombia</b>	31.44	0.00	110.11
<b>Croatia</b>	5.58	0.00	15.89
<b>Ecuador</b>	39.21	0.00	145.60
<b>Egypt</b>	40.22	0.00	150.48
<b>India</b>	142.72	0.00	1011.74
<b>Jordan</b>	34.40	0.00	123.24
<b>Macedonia</b>	40.00	0.00	149.38
<b>Malaysia</b>	105.04	0.00	603.07
<b>Moldova</b>	24.78	0.00	82.44
<b>Morocco</b>	49.82	0.00	199.84
<b>Peru</b>	20.99	0.00	67.80
<b>Romania</b>	29.63	0.00	102.34
<b>Russia</b>	74.67	0.00	354.87
<b>Serbia and Montenegro</b>	58.40	0.00	248.78
<b>Thailand</b>	102.43	0.00	579.00
<b>Tunisia</b>	41.47	0.00	156.61
<b>Uruguay</b>	24.35	0.00	80.76
<b>Venezuela</b>	46.31	0.00	181.14

**Table A3.47: Estimated Mode 4 tax equivalents (percent on cost) and 70% confidence interval for the insurance sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	29.00	5.53	58.53
<b>Argentina</b>	28.26	5.40	56.89
<b>Bolivia</b>	131.35	19.40	356.18
<b>Brazil</b>	60.36	10.50	135.03
<b>Bulgaria</b>	38.52	7.13	80.33
<b>Chile</b>	58.66	10.25	130.54
<b>China</b>	77.94	12.96	183.70
<b>Colombia</b>	113.02	17.34	292.89
<b>Croatia</b>	26.84	5.15	53.75
<b>Ecuador</b>	112.34	17.26	290.62
<b>Egypt</b>	92.94	14.90	228.44
<b>India</b>	37.88	7.03	78.84
<b>Jordan</b>	121.76	18.34	322.54
<b>Macedonia</b>	12.33	2.49	23.43
<b>Malaysia</b>	71.25	12.04	164.70
<b>Moldova</b>	12.33	2.49	23.43
<b>Morocco</b>	50.80	9.07	110.29
<b>Peru</b>	98.17	15.56	244.75
<b>Romania</b>	11.52	2.33	21.81
<b>Russia</b>	124.56	18.65	332.25
<b>Serbia and Montenegro</b>	20.74	4.06	40.64
<b>Thailand</b>	85.95	14.01	207.25
<b>Tunisia</b>	199.40	26.09	627.40
<b>Uruguay</b>	24.74	4.78	49.19
<b>Venezuela</b>	174.59	23.81	522.03

**Table A3.48: Estimated aggregate tax equivalents (percent on cost) and 70% confidence interval for the fixed-line telecommunications sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Albania</b>	3.78	0.00	53.41
<b>Argentina</b>	1.11	0.00	13.64
<b>Bolivia</b>	5.48	0.00	85.18
<b>Brazil</b>	1.58	0.00	19.84
<b>Bulgaria</b>	1.56	0.00	19.55
<b>Chile</b>	1.48	0.00	18.42
<b>China</b>	6.70	0.00	111.34
<b>Colombia</b>	4.76	0.00	71.02
<b>Ecuador</b>	5.56	0.00	86.85
<b>Egypt</b>	9.36	0.00	180.85
<b>India</b>	5.68	0.00	89.16
<b>Jordan</b>	6.80	0.00	113.69
<b>Macedonia</b>	6.02	0.00	96.37
<b>Malaysia</b>	4.90	0.00	73.80
<b>Moldova</b>	3.35	0.00	46.21
<b>Morocco</b>	10.19	0.00	206.65
<b>Peru</b>	1.35	0.00	16.73
<b>Romania</b>	0.58	0.00	6.86
<b>Russia</b>	5.59	0.00	87.43
<b>Serbia &amp; Montenegro</b>	7.47	0.00	129.80
<b>Spain</b>	1.82	0.00	23.15
<b>Thailand</b>	6.60	0.00	109.12
<b>Tunisia</b>	10.54	0.00	217.97
<b>Uruguay</b>	5.22	0.00	79.92
<b>Venezuela</b>	1.59	0.00	20.01

**Table A3.49: Estimated Mode 1 tax equivalents (percent on price) and 70% confidence interval for the fixed-line telecommunications sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	12.36	0.00	48.03
<b>Argentina</b>	0.00	0.00	0.00
<b>Bolivia</b>	15.41	0.00	61.98
<b>Brazil</b>	0.00	0.00	0.00
<b>Bulgaria</b>	7.43	0.00	27.29
<b>Chile</b>	0.00	0.00	0.00
<b>China</b>	18.03	0.00	74.70
<b>Colombia</b>	25.11	0.00	112.52
<b>Ecuador</b>	6.00	0.00	21.67
<b>Egypt</b>	7.43	0.00	27.29
<b>India</b>	7.43	0.00	27.29
<b>Jordan</b>	13.88	0.00	54.87
<b>Macedonia</b>	11.34	0.00	43.57
<b>Malaysia</b>	0.00	0.00	0.00
<b>Moldova</b>	0.00	0.00	0.00
<b>Morocco</b>	20.71	0.00	88.42
<b>Peru</b>	7.42	0.00	27.25
<b>Romania</b>	0.00	0.00	0.00
<b>Russia</b>	7.43	0.00	27.29
<b>Serbia and Montenegro</b>	7.43	0.00	27.29
<b>Thailand</b>	20.70	0.00	88.36
<b>Tunisia</b>	20.71	0.00	88.42
<b>Uruguay</b>	0.00	0.00	0.00
<b>Venezuela</b>	7.42	0.00	27.25

**Table A3.50: Estimated Mode 2 tax equivalents (percent on price) and 70% confidence interval for the fixed-line telecommunications sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Albania</b>	36.11	7.77	71.69
<b>Argentina</b>	0.00	0.00	0.00
<b>Bolivia</b>	0.00	0.00	0.00
<b>Brazil</b>	36.11	7.77	71.69
<b>Bulgaria</b>	0.00	0.00	0.00
<b>Chile</b>	0.00	0.00	0.00
<b>China</b>	36.11	7.77	71.69
<b>Colombia</b>	36.11	7.77	71.69
<b>Ecuador</b>	36.11	7.77	71.69
<b>Egypt</b>	36.11	7.77	71.69
<b>India</b>	36.11	7.77	71.69
<b>Jordan</b>	0.00	0.00	0.00
<b>Macedonia</b>	36.11	7.77	71.69
<b>Malaysia</b>	36.11	7.77	71.69
<b>Moldova</b>	36.11	7.77	71.69
<b>Morocco</b>	36.11	7.77	71.69
<b>Peru</b>	36.11	7.77	71.69
<b>Romania</b>	0.00	0.00	0.00
<b>Russia</b>	16.67	3.81	31.03
<b>Serbia and Montenegro</b>	36.11	7.77	71.69
<b>Thailand</b>	36.11	7.77	71.69
<b>Tunisia</b>	36.11	7.77	71.69
<b>Uruguay</b>	0.00	0.00	0.00
<b>Venezuela</b>	36.11	7.77	71.69

**Table A3.51: Estimated Mode 3 tax equivalents (percent on price) and 70% confidence interval for the fixed-line telecommunications sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	25.36	8.47	46.16
<b>Argentina</b>	11.83	4.11	20.66
<b>Bolivia</b>	45.87	14.55	88.48
<b>Brazil</b>	7.26	2.55	12.49
<b>Bulgaria</b>	3.00	1.07	5.09
<b>Chile</b>	15.38	5.28	27.15
<b>China</b>	64.45	19.60	130.51
<b>Colombia</b>	26.78	8.91	48.94
<b>Ecuador</b>	55.95	17.34	110.87
<b>Egypt</b>	132.24	35.42	311.53
<b>India</b>	55.89	17.32	110.73
<b>Jordan</b>	78.32	23.14	164.10
<b>Macedonia</b>	61.87	18.92	124.49
<b>Malaysia</b>	60.96	18.68	122.36
<b>Moldova</b>	31.05	10.22	57.46
<b>Morocco</b>	132.24	35.42	311.53
<b>Peru</b>	3.00	1.07	5.09
<b>Romania</b>	6.91	2.43	11.88
<b>Russia</b>	58.12	17.92	115.82
<b>Serbia and Montenegro</b>	83.15	24.32	176.20
<b>Thailand</b>	72.72	21.73	150.32
<b>Tunisia</b>	132.24	35.42	311.53
<b>Uruguay</b>	77.18	22.85	161.27
<b>Venezuela</b>	5.71	2.02	9.76

**Table A3.52: Estimated Mode 4 tax equivalents (percent on price) and 70% confidence interval for the fixed-line telecommunications sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	5.73	1.40	10.40
<b>Argentina</b>	14.22	3.37	26.62
<b>Bolivia</b>	79.70	15.72	183.10
<b>Brazil</b>	39.25	8.60	80.02
<b>Bulgaria</b>	29.66	6.68	58.60
<b>Chile</b>	36.35	8.03	73.41
<b>China</b>	33.11	7.38	66.17
<b>Colombia</b>	59.12	12.26	128.11
<b>Ecuador</b>	66.23	13.49	146.51
<b>Egypt</b>	33.40	7.44	66.80
<b>India</b>	22.87	5.26	44.14
<b>Jordan</b>	58.32	12.12	126.08
<b>Macedonia</b>	6.35	1.55	11.55
<b>Malaysia</b>	27.04	6.14	52.96
<b>Moldova</b>	6.35	1.55	11.55
<b>Morocco</b>	17.60	4.12	33.36
<b>Peru</b>	43.27	9.37	89.33
<b>Romania</b>	5.16	1.26	9.34
<b>Russia</b>	57.16	11.92	123.15
<b>Serbia and Montenegro</b>	8.77	2.12	16.11
<b>Thailand</b>	43.38	9.39	89.61
<b>Tunisia</b>	110.07	20.30	273.53
<b>Uruguay</b>	17.43	4.08	33.01
<b>Venezuela</b>	82.69	16.19	191.51

**Table A3.53: Estimated aggregate tax equivalents (percent on cost) and 70% confidence interval for the mobile telecommunications sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	5.49	0.00	30.66
<b>Argentina</b>	3.03	0.00	16.13
<b>Bolivia</b>	7.77	0.00	45.45
<b>Brazil</b>	8.30	0.00	49.03
<b>Bulgaria</b>	5.65	0.00	31.68
<b>Chile</b>	3.11	0.00	16.58
<b>China</b>	18.56	0.00	134.48
<b>Colombia</b>	4.32	0.00	23.59
<b>Ecuador</b>	5.52	0.00	30.88
<b>Egypt</b>	5.73	0.00	32.16
<b>India</b>	18.44	0.00	133.31
<b>Jordan</b>	3.88	0.00	20.99
<b>Macedonia</b>	5.12	0.00	28.39
<b>Malaysia</b>	16.98	0.00	119.31
<b>Moldova</b>	4.52	0.00	24.79
<b>Morocco</b>	7.61	0.00	44.37
<b>Peru</b>	1.42	0.00	7.31
<b>Romania</b>	2.90	0.00	15.40
<b>Russia</b>	14.13	0.00	93.78
<b>Serbia and Montenegro</b>	13.60	0.00	89.31
<b>Thailand</b>	23.50	0.00	187.70
<b>Tunisia</b>	5.57	0.00	31.20
<b>Uruguay</b>	1.32	0.00	6.76
<b>Venezuela</b>	7.07	0.00	40.80

**Table A3.54: Estimated Mode 1 tax equivalents (percent on price) and 70% confidence interval for the mobile telecommunications sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Albania</b>	0.00	0.00	0.00
<b>Argentina</b>	0.00	0.00	0.00
<b>Bolivia</b>	28.66	0.00	93.61
<b>Brazil</b>	13.43	0.00	39.14
<b>Bulgaria</b>	13.43	0.00	39.14
<b>Chile</b>	0.00	0.00	0.00
<b>China</b>	13.43	0.00	39.14
<b>Colombia</b>	0.00	0.00	0.00
<b>Ecuador</b>	13.43	0.00	39.14
<b>Egypt</b>	13.43	0.00	39.14
<b>India</b>	13.43	0.00	39.14
<b>Jordan</b>	0.00	0.00	0.00
<b>Macedonia</b>	0.00	0.00	0.00
<b>Malaysia</b>	0.00	0.00	0.00
<b>Moldova</b>	0.00	0.00	0.00
<b>Morocco</b>	28.66	0.00	93.61
<b>Peru</b>	0.00	0.00	0.00
<b>Romania</b>	0.00	0.00	0.00
<b>Russia</b>	13.43	0.00	39.14
<b>Serbia and Montenegro</b>	28.66	0.00	93.61
<b>Thailand</b>	13.43	0.00	39.14
<b>Tunisia</b>	13.43	0.00	39.14
<b>Uruguay</b>	0.00	0.00	0.00
<b>Venezuela</b>	28.66	0.00	93.61

**Table A3.55: Estimated Mode 2 tax equivalents (percent on price) and 70% confidence interval for the mobile telecommunications sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
Albania	0.00	0.00	0.00
Argentina	0.00	0.00	0.00
Bolivia	0.00	0.00	0.00
Brazil	0.00	0.00	0.00
Bulgaria	42.41	0.00	118.49
Chile	0.00	0.00	0.00
China	0.00	0.00	0.00
Colombia	0.00	0.00	0.00
Ecuador	0.00	0.00	0.00
Egypt	0.00	0.00	0.00
India	42.41	0.00	118.49
Jordan	0.00	0.00	0.00
Macedonia	0.00	0.00	0.00
Malaysia	0.00	0.00	0.00
Moldova	0.00	0.00	0.00
Morocco	0.00	0.00	0.00
Peru	0.00	0.00	0.00
Romania	42.41	0.00	118.49
Russia	42.41	0.00	118.49
Serbia and Montenegro	102.80	0.00	377.37
Thailand	42.41	0.00	118.49
Tunisia	0.00	0.00	0.00
Uruguay	0.00	0.00	0.00
Venezuela	42.41	0.00	118.49

**Table A3.56: Estimated Mode 3 tax equivalents (percent on price) and 70% confidence interval for the mobile telecommunications sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Albania</b>	4.38	0.00	15.26
<b>Argentina</b>	1.46	0.00	4.93
<b>Bolivia</b>	0.56	0.00	1.87
<b>Brazil</b>	4.03	0.00	13.98
<b>Bulgaria</b>	0.42	0.00	1.39
<b>Chile</b>	1.18	0.00	3.96
<b>China</b>	12.12	0.00	46.08
<b>Colombia</b>	2.63	0.00	8.98
<b>Ecuador</b>	1.87	0.00	6.35
<b>Egypt</b>	2.34	0.00	7.97
<b>India</b>	10.45	0.00	39.00
<b>Jordan</b>	2.34	0.00	7.97
<b>Macedonia</b>	4.07	0.00	14.14
<b>Malaysia</b>	11.58	0.00	43.78
<b>Moldova</b>	2.92	0.00	9.99
<b>Morocco</b>	1.46	0.00	4.93
<b>Peru</b>	0.76	0.00	2.55
<b>Romania</b>	0.59	0.00	1.96
<b>Russia</b>	6.59	0.00	23.56
<b>Serbia and Montenegro</b>	1.75	0.00	5.90
<b>Thailand</b>	13.75	0.00	53.24
<b>Tunisia</b>	1.18	0.00	3.96
<b>Uruguay</b>	0.28	0.00	0.93
<b>Venezuela</b>	0.31	0.00	1.02

**Table A3.57: Estimated Mode 4 tax equivalents (percent on price) and 70% confidence interval for the mobile telecommunications sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Albania</b>	5.59	1.74	9.33
<b>Argentina</b>	13.85	4.20	23.71
<b>Bolivia</b>	77.16	19.91	155.58
<b>Brazil</b>	38.14	10.80	69.91
<b>Bulgaria</b>	28.85	8.38	51.57
<b>Chile</b>	35.33	10.08	64.28
<b>China</b>	32.19	9.27	58.08
<b>Colombia</b>	57.33	15.48	110.36
<b>Ecuador</b>	64.19	17.05	125.60
<b>Egypt</b>	32.47	9.34	58.62
<b>India</b>	22.25	6.59	39.06
<b>Jordan</b>	56.56	15.30	108.67
<b>Macedonia</b>	6.19	1.93	10.36
<b>Malaysia</b>	26.31	7.70	46.70
<b>Moldova</b>	6.19	1.93	10.36
<b>Morocco</b>	17.14	5.15	29.64
<b>Peru</b>	42.02	11.78	77.82
<b>Romania</b>	5.03	1.57	8.38
<b>Russia</b>	55.44	15.03	106.23
<b>Serbia and Montenegro</b>	8.55	2.64	14.41
<b>Thailand</b>	42.13	11.81	78.05
<b>Tunisia</b>	106.31	25.85	228.16
<b>Uruguay</b>	16.97	5.10	29.33
<b>Venezuela</b>	80.03	20.52	162.42

**Table A3.58: Estimated aggregate tax equivalents (percent on cost) and 70% confidence interval for the engineering sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Argentina</b>	0.94	0.00	16.64
<b>Brazil</b>	2.61	0.00	52.95
<b>Chile</b>	1.91	0.00	36.74
<b>China</b>	3.14	0.00	66.74
<b>Indonesia</b>	2.88	0.00	59.97
<b>Malaysia</b>	3.72	0.00	82.79
<b>Philippines</b>	1.34	0.00	24.51
<b>Portugal</b>	0.90	0.00	15.89
<b>Russia</b>	0.84	0.00	14.76
<b>Singapore</b>	1.02	0.00	18.26
<b>Thailand</b>	2.55	0.00	51.57

**Table A3.59: Estimated Mode 1 tax equivalents (percent on cost) and 70% confidence interval for the engineering sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Argentina</b>	0.00	0.00	0.00
<b>Brazil</b>	91.88	11.67	231.21
<b>Chile</b>	91.88	11.67	231.21
<b>China</b>	91.88	11.67	231.21
<b>Indonesia</b>	91.88	11.67	231.21
<b>Malaysia</b>	38.52	5.68	81.99
<b>Philippines</b>	91.88	11.67	231.21
<b>Russia</b>	38.52	5.68	81.99
<b>Singapore</b>	91.88	11.67	231.21
<b>Thailand</b>	91.88	11.67	231.21

**Table A3.60: Estimated Mode 2 tax equivalents (percent on cost) and 70% confidence interval for the engineering sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Argentina</b>	0.00	0.00	0.00
<b>Brazil</b>	16.78	0.00	190.65
<b>Chile</b>	16.78	0.00	190.65
<b>China</b>	0.00	0.00	0.00
<b>Indonesia</b>	16.78	0.00	190.65
<b>Malaysia</b>	8.07	0.00	70.49
<b>Philippines</b>	16.78	0.00	190.65
<b>Russia</b>	0.00	0.00	0.00
<b>Singapore</b>	0.00	0.00	0.00
<b>Thailand</b>	0.00	0.00	0.00

**Table A3.61: Estimated Mode 3 tax equivalents (percent on cost) and 70% confidence interval for the engineering sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Argentina</b>	0.31	0.00	3.25
<b>Brazil</b>	3.05	0.00	36.39
<b>Chile</b>	0.47	0.00	4.97
<b>China</b>	4.99	0.00	65.45
<b>Indonesia</b>	2.89	0.00	34.16
<b>Malaysia</b>	8.41	0.00	130.39
<b>Mexico</b>	2.00	0.00	22.74
<b>Philippines</b>	0.31	0.00	3.25
<b>Portugal</b>	1.18	0.00	12.92
<b>Russia</b>	0.31	0.00	3.25
<b>Singapore</b>	0.31	0.00	3.25
<b>Thailand</b>	5.28	0.00	70.14

**Table A3.62: Estimated Mode 4 tax equivalents (percent on cost) and 70% confidence interval for the engineering sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Argentina</b>	2.49	0.00	25.61
<b>Brazil</b>	4.69	0.00	53.09
<b>Chile</b>	6.07	0.00	72.87
<b>China</b>	5.96	0.00	71.21
<b>Indonesia</b>	6.24	0.00	75.42
<b>Malaysia</b>	2.04	0.00	20.62
<b>Philippines</b>	6.19	0.00	74.74
<b>Russia</b>	3.14	0.00	33.31
<b>Singapore</b>	3.37	0.00	36.08
<b>Thailand</b>	2.78	0.00	28.95

**Table A3.63: Estimated aggregate tax equivalents (percent on cost) and 70% confidence interval for the distribution sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Argentina</b>	6.10	1.44	10.06
<b>Brazil</b>	31.92	6.93	56.61
<b>Chile</b>	41.94	8.84	76.31
<b>China</b>	38.43	8.18	69.31
<b>Colombia</b>	52.12	10.68	97.25
<b>Hong Kong</b>	13.37	3.08	22.53
<b>India</b>	77.44	14.87	153.08
<b>Indonesia</b>	67.70	13.32	130.97
<b>Malaysia</b>	71.23	13.89	138.90
<b>Morocco</b>	38.60	8.21	69.64
<b>Philippines</b>	69.05	13.54	134.01
<b>Russia</b>	48.05	9.95	88.78
<b>Singapore</b>	36.04	7.73	64.60
<b>South Africa</b>	4.26	1.01	6.99
<b>Thailand</b>	32.83	7.11	58.36
<b>Uruguay</b>	32.96	7.13	58.62
<b>Venezuela</b>	63.74	12.66	122.21
<b>Vietnam</b>	82.75	15.70	165.47
<b>Zambia</b>	42.69	8.98	77.83

**Table A3.64: Estimated Mode 1 tax equivalents (percent on cost) and 70% confidence interval for the distribution sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Argentina</b>	0.00	0.00	0.00
<b>Brazil</b>	13.68	5.61	22.81
<b>Chile</b>	29.23	11.53	50.82
<b>China</b>	13.68	5.61	22.81
<b>Colombia</b>	29.23	11.53	50.82
<b>Hong Kong</b>	13.68	5.61	22.81
<b>India</b>	29.23	11.53	50.82
<b>Indonesia</b>	29.23	11.53	50.82
<b>Malaysia</b>	29.23	11.53	50.82
<b>Morocco</b>	29.23	11.53	50.82
<b>Philippines</b>	29.23	11.53	50.82
<b>Russia</b>	29.23	11.53	50.82
<b>Singapore</b>	29.23	11.53	50.82
<b>South Africa</b>	0.00	0.00	0.00
<b>Thailand</b>	13.68	5.61	22.81
<b>Uruguay</b>	21.21	8.53	36.09
<b>Venezuela</b>	0.00	0.00	0.00
<b>Vietnam</b>	0.00	0.00	0.00
<b>Zambia</b>	0.00	0.00	0.00

**Table A3.65: Estimated Mode 2 tax equivalents (percent on cost) and 70% confidence interval for the distribution sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Argentina</b>	0.00	0.00	0.00
<b>Brazil</b>	8.08	0.00	17.02
<b>Chile</b>	16.82	0.00	36.94
<b>China</b>	0.00	0.00	0.00
<b>Colombia</b>	16.82	0.00	36.94
<b>Hong Kong</b>	3.96	0.00	8.18
<b>India</b>	16.82	0.00	36.94
<b>Indonesia</b>	16.82	0.00	36.94
<b>Malaysia</b>	16.82	0.00	36.94
<b>Morocco</b>	16.82	0.00	36.94
<b>Philippines</b>	16.82	0.00	36.94
<b>Russia</b>	16.82	0.00	36.94
<b>Singapore</b>	16.82	0.00	36.94
<b>South Africa</b>	0.00	0.00	0.00
<b>Spain</b>	0.00	0.00	0.00
<b>Thailand</b>	0.00	0.00	0.00
<b>Uruguay</b>	12.37	0.00	26.59
<b>Venezuela</b>	0.00	0.00	0.00
<b>Vietnam</b>	0.00	0.00	0.00
<b>Zambia</b>	0.00	0.00	0.00

**Table A3.66: Estimated Mode 3 tax equivalents (% on cost) and 70% confidence interval for the distribution sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Argentina</b>	0.05	0.00	0.17
<b>Brazil</b>	4.19	0.00	14.26
<b>Chile</b>	2.18	0.00	7.25
<b>China</b>	7.24	0.00	25.47
<b>Colombia</b>	4.47	0.00	15.26
<b>Hong Kong</b>	0.03	0.00	0.08
<b>India</b>	4.74	0.00	16.22
<b>Indonesia</b>	5.83	0.00	20.19
<b>Malaysia</b>	7.31	0.00	25.75
<b>Morocco</b>	1.61	0.00	5.31
<b>Philippines</b>	6.56	0.00	22.92
<b>Russia</b>	3.55	0.00	11.97
<b>Singapore</b>	0.03	0.00	0.08
<b>South Africa</b>	0.03	0.00	0.08
<b>Thailand</b>	5.47	0.00	18.88
<b>Uruguay</b>	1.22	0.00	4.03
<b>Venezuela</b>	4.30	0.00	14.66
<b>Vietnam</b>	9.66	0.00	34.90
<b>Zambia</b>	3.69	0.00	12.48

**Table A3.67: Estimated Mode 4 tax equivalents (percent on price) and 70% confidence interval for the distribution sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Argentina</b>	23.78	6.54	42.38
<b>Brazil</b>	58.90	14.75	115.34
<b>Chile</b>	36.99	9.80	68.43
<b>China</b>	12.14	3.46	20.90
<b>Colombia</b>	30.40	8.20	55.21
<b>Hong Kong</b>	12.14	3.46	20.90
<b>India</b>	21.26	5.89	37.61
<b>Indonesia</b>	42.47	11.09	79.73
<b>Malaysia</b>	21.26	5.89	37.61
<b>Morocco</b>	9.26	2.67	15.80
<b>Philippines</b>	33.84	9.04	62.05
<b>Russia</b>	33.11	8.87	60.59
<b>Singapore</b>	18.14	5.08	31.80
<b>South Africa</b>	23.78	6.54	42.38
<b>Thailand</b>	33.84	9.04	62.05
<b>Uruguay</b>	23.78	6.54	42.38
<b>Venezuela</b>	33.84	9.04	62.05
<b>Vietnam</b>	30.40	8.20	55.21

**Table A3.68: Estimated aggregate tax equivalents (percent on cost) and 70% confidence interval for the distribution sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Argentina</b>	6.10	1.44	10.06
<b>Brazil</b>	31.92	6.93	56.61
<b>Chile</b>	41.94	8.84	76.31
<b>China</b>	38.43	8.18	69.31
<b>Colombia</b>	52.12	10.68	97.25
<b>Hong Kong</b>	13.37	3.08	22.53
<b>India</b>	77.44	14.87	153.08
<b>Indonesia</b>	67.70	13.32	130.97
<b>Malaysia</b>	71.23	13.89	138.90
<b>Morocco</b>	38.60	8.21	69.64
<b>Philippines</b>	69.05	13.54	134.01
<b>Russia</b>	48.05	9.95	88.78
<b>Singapore</b>	36.04	7.73	64.60
<b>South Africa</b>	4.26	1.01	6.99
<b>Thailand</b>	32.83	7.11	58.36
<b>Uruguay</b>	32.96	7.13	58.62
<b>Venezuela</b>	63.74	12.66	122.21
<b>Vietnam</b>	82.75	15.70	165.47
<b>Zambia</b>	42.69	8.98	77.83

**Table A3.69: Estimated Mode 1 tax equivalents (percent on cost) and 70% confidence interval for the distribution sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		Lower Bound	Upper Bound
<b>Argentina</b>	0.00	0.00	0.00
<b>Brazil</b>	13.68	5.61	22.81
<b>Chile</b>	29.23	11.53	50.82
<b>China</b>	13.68	5.61	22.81
<b>Colombia</b>	29.23	11.53	50.82
<b>Hong Kong</b>	13.68	5.61	22.81
<b>India</b>	29.23	11.53	50.82
<b>Indonesia</b>	29.23	11.53	50.82
<b>Malaysia</b>	29.23	11.53	50.82
<b>Morocco</b>	29.23	11.53	50.82
<b>Philippines</b>	29.23	11.53	50.82
<b>Russia</b>	29.23	11.53	50.82
<b>Singapore</b>	29.23	11.53	50.82
<b>South Africa</b>	0.00	0.00	0.00
<b>Thailand</b>	13.68	5.61	22.81
<b>Uruguay</b>	21.21	8.53	36.09
<b>Venezuela</b>	0.00	0.00	0.00
<b>Vietnam</b>	0.00	0.00	0.00
<b>Zambia</b>	0.00	0.00	0.00

**Table A3.70: Estimated Mode 2 tax equivalents (percent on cost) and 70% confidence interval for the distribution sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Argentina</b>	0.00	0.00	0.00
<b>Brazil</b>	8.08	0.00	17.02
<b>Chile</b>	16.82	0.00	36.94
<b>China</b>	0.00	0.00	0.00
<b>Colombia</b>	16.82	0.00	36.94
<b>Hong Kong</b>	3.96	0.00	8.18
<b>India</b>	16.82	0.00	36.94
<b>Indonesia</b>	16.82	0.00	36.94
<b>Luxembourg</b>	0.00	0.00	0.00
<b>Malaysia</b>	16.82	0.00	36.94
<b>Morocco</b>	16.82	0.00	36.94
<b>Philippines</b>	16.82	0.00	36.94
<b>Russia</b>	16.82	0.00	36.94
<b>Singapore</b>	16.82	0.00	36.94
<b>South Africa</b>	0.00	0.00	0.00
<b>Thailand</b>	0.00	0.00	0.00
<b>Uruguay</b>	12.37	0.00	26.59
<b>Venezuela</b>	0.00	0.00	0.00
<b>Vietnam</b>	0.00	0.00	0.00
<b>Zambia</b>	0.00	0.00	0.00

**Table A3.71: Estimated Mode 3 tax equivalents (percent on cost) and 70% confidence interval for the distribution sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Argentina</b>	0.05	0.00	0.17
<b>Brazil</b>	4.19	0.00	14.26
<b>Chile</b>	2.18	0.00	7.25
<b>China</b>	7.24	0.00	25.47
<b>Colombia</b>	4.47	0.00	15.26
<b>Hong Kong</b>	0.03	0.00	0.08
<b>India</b>	4.74	0.00	16.22
<b>Indonesia</b>	5.83	0.00	20.19
<b>Malaysia</b>	7.31	0.00	25.75
<b>Morocco</b>	1.61	0.00	5.31
<b>Philippines</b>	6.56	0.00	22.92
<b>Russia</b>	3.55	0.00	11.97
<b>Singapore</b>	0.03	0.00	0.08
<b>South Africa</b>	0.03	0.00	0.08
<b>Thailand</b>	5.47	0.00	18.88
<b>Uruguay</b>	1.22	0.00	4.03
<b>Venezuela</b>	4.30	0.00	14.66

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Vietnam</b>	9.66	0.00	34.90
<b>Zambia</b>	3.69	0.00	12.48

**Table A3.72: Estimated Mode 4 tax equivalents (percent on price) and 70% confidence interval for the distribution sector**

Country	Estd. Tax Equivalent	Bootstrap 70% Confidence Interval	
		<i>Lower Bound</i>	<i>Upper Bound</i>
<b>Argentina</b>	23.78	6.54	42.38
<b>Brazil</b>	58.90	14.75	115.34
<b>Chile</b>	36.99	9.80	68.43
<b>China</b>	12.14	3.46	20.90
<b>Colombia</b>	30.40	8.20	55.21
<b>Hong Kong</b>	12.14	3.46	20.90
<b>India</b>	21.26	5.89	37.61
<b>Indonesia</b>	42.47	11.09	79.73
<b>Malaysia</b>	21.26	5.89	37.61
<b>Morocco</b>	9.26	2.67	15.80
<b>Philippines</b>	33.84	9.04	62.05
<b>Russia</b>	33.11	8.87	60.59
<b>Singapore</b>	18.14	5.08	31.80
<b>South Africa</b>	23.78	6.54	42.38
<b>Thailand</b>	33.84	9.04	62.05
<b>Uruguay</b>	23.78	6.54	42.38
<b>Venezuela</b>	33.84	9.04	62.05
<b>Vietnam</b>	30.40	8.20	55.21
<b>Zambia</b>	10.98	3.14	18.84

Source: For all tables in Annex 3, own calculations.