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## Policy Barriers to International Trade in Services: Evidence from a New Database

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Surprisingly little is known about policies that affect international trade in services. Previous analyses have focused on policy commitments made by countries in international agreements, but in many cases, these commitments do not reflect actual policy. This paper describes a new initiative to collect comparable information on trade policies for services from 103 countries across a range of service sectors and relevant modes of service delivery. The resulting database reveals interesting policy patterns. Although public monopolies are now rare and few services markets are completely closed, we observe numerous “second-generation” restrictions on entry, ownership, and operations. Even in instances in which there is little explicit discrimination against foreign providers, market access is often unpredictable because the allocation of new licenses remains opaque and highly discretionary in many countries. Across regions, some of the fastest-growing countries in Asia and the oil-rich Gulf states have restrictive policies in services, whereas some of the poorest countries are remarkably open. Across sectors, professional and transportation services are among the most protected industries in both industrial and developing countries, whereas retail, telecommunications, and even finance tend to be more open. JEL codes: F13, F14, L80

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Compared to the vast empirical literature on policies affecting trade in goods, empirical analysis of trade policy for services remains in its infancy. A major constraint has been inadequate data on policies affecting services trade, particularly

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in developing countries. Previous research has tended to rely on secondary sources and policy commitments under international agreements (Hoekman 1995). However, it is widely recognized that these measures bear little resemblance to the reality of policy today, even if they approximate policy in the past. More recent work tends to be confined to specific countries and sectors (Findlay and Warren 2000; Centre for International Economics 2010; OECD 2011; Reisman and Vu 2012) or to restrictions on foreign direct investment alone (Golub and Koyama 2006; Golub 2009; World Bank 2010).

Our limited knowledge of the patterns of services policy contrasts with the growing awareness of the importance of services in economic activity. Today, some 80 percent of gross domestic product in the United States and the European Union (EU) originates in services, and the proportion is well over 50 percent in most industrial and developing countries. As countries confront the challenges of boosting productivity, services policy reform has been identified as a priority from Europe to Southeast Asia. However, there is surprisingly little empirical evidence on how to best design such reforms. The United States and EU account for over 60 percent of world services exports, and the service exports of India, China, and Brazil have grown by well over 15 percent every year for the last decade. As these countries seek to sustain export growth and other countries seek to replicate it, international negotiators have struggled to negotiate away policy barriers with only limited knowledge of what these barriers actually are.

This paper describes a new Services Trade Restrictions Database (STRD) that collects and makes publicly available information on services trade policy. This information is assembled in a comparable manner for 103 countries, 18 service sectors from five broad industries—financial services (banking and insurance), telecommunications, retail distribution, transportation, and professional services (accounting and legal)—and three modes of delivery (cross-border, commercial presence, presence of natural persons). We describe the variation in individual policy measures across sectors and countries. We also propose a relatively simple way of measuring the restrictiveness of services trade policy, and we use this measure to establish stylized facts about the distribution of policy barriers across regions and sectors.

## I. SERVICES POLICY DATA

The entire database, including all qualitative and quantitative information, annotated descriptions of policies, and detailed documentation is publicly available at <http://data.worldbank.org/data-catalog/services-trade-restrictions>.<sup>1</sup>

In this section, we describe the scope of the database and the relationship between this database and other databases covering services policies and procedures. A more detailed description of the database, including details on the data collection process, the full list of policy measures covered, a list of governments

1. Any inquiries or feedback regarding the database can be addressed to [servicestrade@worldbank.org](mailto:servicestrade@worldbank.org).

that confirmed policy information, detailed documentation of scoring rules, and the questionnaire used in the data collection, is provided in a companion paper, “Guide to the Services Trade Restrictions Database” (Borchert, Gootiiz, and Mattoo, 2012a, referred to hereafter as the “Database Guide”) and in supplementary material available at <http://data.worldbank.org/data-catalog/services-trade-restrictions>.

### *Data Description*

The STRD contains information on policies that affect international trade in services, which is defined, as is now customary, to include the supply of a service through cross-border delivery, by establishing a commercial presence or by the presence of a natural person.<sup>2</sup> The perspective is that of a foreign supplier who wishes to provide services to a particular country. We focus mainly on policy measures that discriminate against foreign services or foreign service providers.

The database includes information from a total of 103 countries, (79 developing countries and 24 Organisation for Economic Co-operation and Development (OECD) countries), which broadly represents all regions and income groups in the world.<sup>3</sup> First-hand information for developing countries was collected by administering a questionnaire in phases over the 2008–2010 period,<sup>4</sup> whereas information for OECD countries was obtained from publicly available sources.<sup>5</sup> To ensure data accuracy, the policy information was subjected to review by government officials, which led to confirmation or updates of the data for most OECD countries and a number of developing countries. To the best of our knowledge, no other data source provides similar information on barriers to services trade in a comparable manner for a global cross-section of countries.

2. We do not cover “consumption abroad,” a mode of delivery that is particularly important in services such as tourism, education, and healthcare. These sectors are not covered by the database.

3. The regional affiliation of countries in this paper (and the database) follows the official World Bank country classification, which groups all non-high-income countries into world regions. For ease of exposition, there are two exceptions to this rule. Trinidad and Tobago is presented as part of the Latin America and Caribbean region, and Bahrain, Kuwait, Oman, Qatar, and Saudi Arabia are referred to as Gulf Cooperation Council (GCC) countries. All six are high-income countries in official World Bank terms.

4. The questionnaires were completed by local law firms familiar with the policy regime in the respective countries and sectors. Although most of the surveys were conducted in phases over the 2008–2010 period, an effort was made to update the information for some of the countries that were surveyed at earlier stages. The information on policies was evaluated and its restrictiveness was assessed by a team of World Bank economists. The consistency of information was cross-checked in consultation with industry experts, private sector officials, and lawyers.

5. These sources include the World Trade Organization (WTO) Trade Policy Reviews, countries’ most recent offers submitted in the WTO’s Doha negotiations, the Axco insurance database, OECD reports on “Exceptions to National Treatment for Foreign-Controlled Enterprises,” and the International Monetary Fund’s annual reports on exchange arrangements and exchange restrictions.

TABLE 1. Coverage of Sectors and Modes of Supply

Sectors/Subsectors	Mode 1	Mode 3	Mode 4
Banking			
Bank lending	x	x	
Deposit acceptance	x	x	
Insurance			
Automobile insurance	x	x	
Life insurance	x	x	
Reinsurance	x	x	
Telecom			
Fixed line		x	
Mobile		x	
Retailing			
Retail distribution		x	
Transport			
Air passenger domestic		x	
Air passenger international	x	x	
Maritime shipping international	x	x	
Maritime auxiliary services		x	
Road trucking		x	
Railway freight		x	
Professional Services			
Accounting	x	x	x
Auditing	x	x	x
Legal advice foreign law	x	x	x
Legal advice domestic law		x	x
Court representation		x	x

*Source:* STRD, as discussed in the text.

The database covers five major services sectors that are further disaggregated into 19 subsectors (table 1).<sup>6</sup> The choice of sectors was based primarily on our assessment of their economic importance from a development perspective, on the existence of meaningful restrictions on services trade, and on the feasibility of collecting relevant policy data. Within each subsector, the database covers the following three most relevant modes of supplying the respective service: establishing a commercial presence or foreign direct investment (mode 3 in WTO parlance) in every subsector; cross-border trade in services (mode 1) in financial, transportation, and some professional services; and the presence of service-supplying individuals (mode 4) in professional services. The combinations of subsectors and modes for which information is available are summarized in table 1.

At this stage, we have not covered two important areas of export interest for developing countries. First, cross-border trade in business-processing services (associated with the “outsourcing” phenomenon) is not covered because it is

6. Regarding policies governing cross-border (mode 1) trade in international air passenger transportation services, we draw on the WTO’s Quantitative Air Services Agreements Review database (WTO 2006), which represents the most comprehensive source currently available on bilateral air services agreements, covering over 2,000 agreements.

largely free from explicit restrictions or the fragmentation of services—facilitated by advances in information technology—has made it possible to trade unregulated parts of such services.<sup>7</sup> Second, the database does not cover policies affecting the international movement of less skilled individuals to deliver, for example, construction services because (immigration) policies affecting such movement are notoriously opaque. We hope to address these gaps in future data collection exercises. We recognize that some of our conclusions, such as the overall restrictiveness of services policy at the country level and the relative restrictiveness of services sectors, are necessarily influenced by the choice of sectors. We also recognize that the growing scope for digital delivery, such as in certain intermediate professional services, allows services providers to circumvent traditional barriers to trade; therefore, trade in these areas may *de facto* be more liberal than our data suggest.

The primary focus of the questionnaire is to gather information on policies and regulations that restrict trade in services. Measures that explicitly discriminate against foreign services or service providers impede trade almost by definition. Thus, all of these measures belong in the database. However, these are not the only measures that obstruct trade. Certain measures that on the face of it do not discriminate against foreign services providers may nevertheless restrict trade. First, quantitative restrictions, such as those that limit the total number of providers, may harm trade by preventing foreign entry, although they also limit domestic entry. Second, regulations such as qualification and licensing requirements ostensibly address the asymmetric information problem in certain services sectors but may impose a disproportionate burden on foreign providers, such as professionals who have previously met these requirements in their home countries. Third, in some sectors, the *absence* of regulations, such as those that ensure that all (domestic and foreign) entrants have access to essential facilities such as ports and telecommunications networks, can be understood as a “sin of omission” because entry may not be feasible without such access. Addressing each possible sin of commission or omission in all sectors is virtually impossible, but we attempt to include at least those that are likely to have a significant trade impact.

Our judgment about what measures should be covered resulted in a core set of questions that were administered for each subsector-mode combination. This “harmonized” set of measures was supplemented with sector-specific variables, such as limits on the size of loans in retail banking. If restrictions arise from “horizontal” legislation covering all sectors, such as labor laws stipulating a minimum percentage of domestic employees (nationals), this information is included in every subsector. Measures that pertain to mode 3, for which information is available for every subsector, span the following broad categories:

7. As a result, the market for “intermediate” services is increasingly contestable although entry into the “final” stage, on which this database mainly focuses, remains affected by regulatory requirements. For instance, in legal services, research and documentation can be outsourced, whereas representation in courts must be performed by a local firm. In accounting, bookkeeping can be outsourced, whereas conformity with local requirements and ultimate responsibility rests with local professionals/firms.

- (i) Requirements on the legal form of entry and restrictions on foreign equity;
- (ii) Limits on licenses and discrimination in the allocation of licenses;
- (iii) Restrictions on ongoing operations; and
- (iv) Relevant aspects of the regulatory environment.

Measures governing mode 1 are slightly different because they typically stipulate conditions under which cross-border trade may occur rather than conditions imposed on the service provider. Mode 4 measures—covered only in professional services—focus on qualification, (re)certification requirements, and entry and immigration rules, all of which strongly affect the movement of service-supplying individuals. Predictably, the greatest challenge is posed by regulatory measures whose presence (or absence) affects foreign entry, even when they are not explicitly directed against foreign providers. Although we attempt to capture the most important of these regulations in professional services (where they have a significant impact on trade), future work might focus on efforts to improve the coverage of these measures in areas such as financial services.

One difficulty in collecting data is that some countries are part of regional or other preferential arrangements and have one set of policies for their preferred partners and another set for the rest of the world. For the most part, our database describes a country's most-favored nation policies, which, in trade parlance, indicates nonpreferential policies. However, in the case of some countries in which the preferential regime dominates trade (such as the countries of the EU), the database does include a description of the preferential policies. In general, any assessment of restrictiveness (cf. section II) is based upon a country's most-favored nation policies. However, such an approach does not adequately reflect the openness of EU member countries because they are distinctly more open toward one another and trade a significant amount of services among themselves. The issue has been resolved by creating an entity called "EU20" with policy descriptions and scores corresponding to EU member countries' average policies toward non-EU providers. In contrast, individual EU countries' measures of openness reflect a trade-weighted average of intra- and extra-EU policy regimes. The database does contain information about preferential trade policies in other cases as well, such as for GCC members, although at present "EU20" is the only aggregate entity that has been added to the database. In future work, we hope to extend this approach to other regional groupings.

Another challenge is to ensure that the database is up to date and covers other service sectors. In our experience, services policies are slow to change. However, we have recently reviewed policies in major countries that were surveyed in the first phase in 2008, and subsequent reforms are reflected in the database.<sup>8</sup> As

8. Policy changes were generally not significant, and the direction differs across countries. For instance, there was no major policy modification in Mexico. China enacted further liberalization and halved the limit on registered capital for foreign-invested basic telecommunications companies (from two to one billion Renminbi for national operation, effective September 2008), and it abolished the requirement that Chinese insurance companies prioritize the right of first bid to domestically admitted reinsurers based in China, effective October 2009. Brazil has tightened the conditions under which professional services can be supplied by foreign providers.

indicated above, we invite feedback on the accuracy of the data, and suggested changes will be incorporated into the database after verification. Ideally, these updates would be systematic and would eventually lead to a panel of policy data across more sectors and countries over time, which would also support rigorous policy analysis. To this end, we have proposed a collaborative arrangement with other international organizations that are either already collecting or proposing to collect services policy data.

### *Relationship to Other Databases*

It is useful to clarify how this database fits into the existing data landscape. Although no other database collects services trade policies for a similarly wide range of countries and sectors, there are related datasets, such as the World Bank's Investing Across Borders data, the World Bank's Doing Business data, and the OECD's Product Market Regulation database.<sup>9</sup> These databases are largely complementary to our database. Together, they provide an increasingly comprehensive perspective on regimes for trade in services.<sup>10</sup> Existing datasets differ in two important dimensions: whether the focus is on foreign providers only or on all firms and whether the focus is on policies and regulations or administrative/implementation requirements and, in some cases, outcomes. At the risk of oversimplification,<sup>11</sup> the STRD and other related data sources are compared along these two dimensions (table 2).

Notwithstanding differences across these datasets in terms of goals, units of measurement, and sampling period, we find our services trade policy information to be reasonably consistent with other databases. For instance, there is a tight and negative correlation between the country-level Services Trade Restrictions Index (STRI) score regarding the establishment of commercial presence and the Investing Across Border's "Ease of Establishment" index, which suggests that across countries a more liberal services trade policy stance is associated with a greater ease of establishment. Likewise, there is a high positive correlation between a country's overall STRI score and the OECD's Product Market Regulation index (both increasing in restrictiveness; see figs. S1.1 and S1.2 in the supplemental appendix, available at <http://wber.oxfordjournals.org>).

9. There are other sector-specific databases, such as the World Bank's FinStats, a worldwide financial database that covers 40 key financial indicators; the World Bank's Logistics Performance Index, an interactive benchmarking tool to help countries assess their performance on trade logistics; and the International Telecommunication Union's World Telecommunication/ICT Indicators Database. The primary focus of these databases is on outcomes in these respective sectors rather than on policies affecting foreign services or service providers. In combination with the STRD, these databases could, for instance, be used for sector impact analyses.

10. Francois, Pindyuk, and Wörz (2009) have compiled a unified dataset of services trade flows encompassing cross-border and foreign direct investment data from various sources (Trade in Services Database, version 4). Trade-flow data are highly complementary to trade policy information.

11. Table 2 cannot do justice to the richness of information contained in each database listed; it is merely intended to clarify the difference in focus.

TABLE 2. Relationship between Databases on Policies and Outcomes in Services Sectors

Subject:	Affecting foreign providers	Affecting all providers
Policy or Regulation	Services Trade Restrictions Database	OECD Product Market Regulation
Administrative or procedural requirements/outcomes	World Bank/IFC Investing Across Borders	World Bank Doing Business; OECD Product Market Regulation

*Source:* Authors' representation, as discussed in the text.

## II. MEASURING SERVICES TRADE POLICY

It is notoriously difficult to measure policies that affect services trade because of their variety and complexity (see, for example, the overview by [Deardorff and Stern \[2008\]](#)). We develop a measure of the restrictiveness of a country's policy regime, the STRI, which has the weakness of being subjective but the virtue of being simple, transparent, and robust. This measure is most convenient to depict overall patterns in policy across countries and sectors. It builds on a relatively long tradition of restrictiveness indices that range from simple counts of policy barriers ([Hoekman 1996](#)) to more complex weighted averages, in which weights reflect prior (usually subjective) assessments of the relative restrictiveness of specific policy barriers. Work currently being undertaken at the OECD<sup>12</sup> uses an elaborate version of this method, which is described in [OECD \(2009a\)](#).

We construct a single measure of overall openness for any subsector-mode combination—for example, one for the cross-border supply of bank loans and another for accepting bank deposits by establishing commercial presence abroad. This measure avoids the pitfalls of approaches that assign fixed weights to all types of restrictions (entry, operational, regulatory) and that treat the restrictions as additive. For instance, if foreign suppliers are not allowed to enter in the first place, then that restriction is binding, and other restrictions on operations and regulatory environment simply do not matter. Similarly, a foreign equity limit of 49 percent typically precludes foreign corporate control; adding to this limit a further (frequently encountered) requirement that the majority of board of directors be nationals would amount to double counting.

We assess policy regimes in their entirety and assign them to one of the following five principal categories: completely open (that is, no restrictions at all); completely closed (that is, no entry allowed at all); virtually open but with minor restrictions; virtually closed but with limited opportunities to enter and operate; and a residual “intermediate” category of regimes that allow entry and

12. Further information about the OECD's work in this area, which focuses on Member economies, can be found at <http://www.oecd.org/trade/stri> and is described in [OECD \(2011\)](#). The ability of the OECD's index to capture trade costs in services is explored in [OECD \(2009b\)](#).

operations but impose restrictions that are neither trivial nor stringent. To further illustrate the portfolio of policies that might underpin these principal categories, we provide an example for each case taken from the “Key restrictions” section of the database (table 3).

Because the principal criterion for covering certain policy measures in the database is their potential to significantly affect services trade (as described in the data description section), most measures included in the database are taken into account in determining the STRI. However, there are some exceptions. First, there is a *de minimis* threshold in the sense that although some variables clearly add to the rich texture of the database, their restrictive impact is either not clear or small relative to the impact of other variables. For instance, we do not penalize the failure to give advance notice prior to introducing regulatory changes. Similarly, when there are previous restrictions on greenfield investment and acquisitions, we do not penalize additional restrictions on forming joint ventures. A variable may be more important in one sector, but its impact may fall below the *de minimis* threshold in others. For instance, restrictions on entry as a branch matter in financial services but do not matter to the same extent in other sectors in which local incorporation is the preferred mode of establishing commercial presence. Similarly, restrictions on acquiring state-owned firms matter in transportation and telecommunications sectors, in which there are likely to be state-owned incumbents, but not in professional and retail services. Finally, a few variables for which the response rate was low or inconsistent (for example, license length or license allocation mode) were not considered for scoring because cross-country differences would reflect response rates or interpretation differences rather than differences in restrictiveness.

It is convenient to assign a value to each of these five categories of regimes on an openness scale from zero to one with intervals of 0.25.<sup>13</sup> We call the resulting score the STRI. As the examples show (table 3), most policy regimes have more than one provision in place per subsector and mode of supply, in which case the assigned score (shown in the second column) reflects the overall restrictiveness of all measures evaluated simultaneously.<sup>14</sup> Because the STRI focuses mainly on the

13. At this level, basic STRI scores are no more than “labels” attached to the five ordered categories of restrictiveness. However, when these scores are further processed, either by aggregation or by use in a quantitative model, the specific values assume a cardinal meaning that implies the five categories are “equidistant” in terms of restrictiveness. The working paper version of this article (Borchert, Gootiiz, and Mattoo 2012b) discusses an alternative approach of ranking policy bundles purely ordinally.

14. Section 4 of The Database Guide (Borchert, Gootiiz, and Mattoo 2012a) offers three further examples from Burundi, Thailand, and India that illustrate how a portfolio of several measures is assigned to one of the five basic scores. In principle, policy measures can be divided into two tiers. The first-tier measures include those that affect market-entry decisions most significantly, such as limits on foreign ownership and the number of licenses. The second-tier measures are those that affect operations of service providers, such as restrictions on the repatriation of earnings. The second-tier measures do not contribute to overall restrictiveness when first-tier measures are prohibitive. By contrast, if the first-tier measures are not prohibitive, then second-tier measures are also considered in determining the overall restrictiveness score.

TABLE 3. STRI: Quantifying Trade Policy Measures

Overall policy description	Five-point scale	Policy example: Brazil (relevant <i>subsector-mode</i> indicated)
Open without restrictions	0	“Entry is allowed through a subsidiary and branches. Authorization is required.” ( <i>Automobile insurance – mode 3</i> )
Virtually open	0.25	“Cross-border deposit taking is allowed subject to approval and registration.” ( <i>Bank deposit acceptance – mode 1</i> )
Existence of major/nontrivial restrictions	0.50	“Residency is required. There is an education requirement; foreign degrees may be accepted. There is a quota for intra-corporate transferees and independent professionals: at least two thirds of employees of a firm must be Brazilians. The duration of stay initially allowed is 90 days to two years, depending on visa type. Extensions are possible, depending on the type of visa, but usually only once. Foreign-licensed professionals are subject to labor market test and economic needs test. There is a minimum wage/wage parity requirement.” ( <i>Auditing – mode 4</i> )
Virtually closed	0.75	“The limit on foreign ownership is 20 percent of voting capital, and there is no limit on foreign ownership of non-voting capital. Firms with 3 or more employees are required to employ Brazilian nationals to fill at least two-thirds of their positions.” ( <i>International air passenger transportation – mode 3</i> )
Completely closed	1	“Cross-border provision of services not allowed. Must be established as a local office and headquarter and must be properly registered with local professional association.” ( <i>Accounting – mode 1</i> )

*Notes:* For the purposes of consistent illustration, all policy examples are drawn from one country (Brazil). As is apparent from the examples shown, most subsector-mode combinations are characterized by multiple provisions, in which case the regime assignment reflects the overall restrictiveness of all applicable measures.

*Source:* STRD; categories and scores as discussed in the text.

set of measures that discriminate against foreign services and foreign providers, the greatest level of openness is associated with a value of zero. However, because the STRI does not adequately cover complementary areas of nondiscriminatory prudential and procompetitive regulation and because it is likely that the results of liberalization depend on the state of these types of complementary regulation, we cannot say that a zero level of STRI is necessarily immediately desirable from a broader welfare or development perspective.

Once a score has been attached to each regime, STRI values can be aggregated across sectors and modes of supply. Let  $s_{jmc}$  denote the basic scores on a five-point scale per subsector  $j$  and mode of supply  $m$ , as described in table 3. To arrive at an aggregate STRI of country  $c$ ,  $STRI_c$ , we begin by taking weighted averages across modes of supply  $m \in M$ , whereby the set of modal weights  $w_m^{(j)}$  is specific to sector  $j$ . The sectors differ in the relative importance of alternative modes for delivering a specific service. For instance, in a “consumer service” such as life insurance, a higher modal weight is attached to commercial presence than in the reinsurance sector, in which cross-border provision among firms is the dominant mode of supply. Formally, the sectoral scores are given by

$$STRI_{cj} = \sum_m w_m^{(j)} s_{jmc}.$$

Sectoral scores are then aggregated across all sectors  $j \in J$  using weights  $w_j$  that reflect the relative importance of constituent services sectors in domestic value added. Sector weights  $w_j$  are based on services sectors’ standardized share in total services output for an “average” industrialized country.<sup>15</sup> Overall country-level scores are obtained as follows:

$$STRI_c = \sum_j w_j STRI_{cj}.$$

Further details and the complete weighting schemes used to aggregate modes, subsectors, and sectors can be found in the appendix (table A.1). All scores at any level of aggregation are available from the “STRI” section of the database. In particular, the full set of baseline values  $s_{jmc}$  is accessible so that users are free to devise alternative aggregation schemes.

We recognize the subjectivity of this approach, but there is no obviously superior method of quantification given the data constraints and the wide range of sectors covered. A demonstration that the STRI assessments are broadly corroborated by alternative methods of quantification can be found in the working paper version of this paper (Borchert, Gootiiz, and Mattoo 2012b). The subjectivity of

15. A sense of how sectors are over-/underweighted in low-income countries can be gleaned from the fact that the share of financial and business/professional services tends to rise with income whereas the share of retail distribution and, to some extent, telecommunications services tends to decline with income. However, for the STRI to be comparable across countries, we need to use one uniform set of weights for all countries (see annex 1 for further details).

the STRI is somewhat mitigated by the extensive consultations that we have conducted with the private sector and regulators in assigning weights to specific categories. We also checked the robustness of the assignments by moving borderline policy regimes across categories. We believe that the adopted approach is more suitable at this stage than any fixed algorithm to turn the rich aspects of policy information, which are difficult to quantify, into a broadly plausible (if somewhat imprecise) restrictiveness score. In Paul Krugman's words, this approach has the virtue of being "roughly right rather than precisely wrong."

### III. PATTERNS OF SERVICES TRADE POLICY

The pattern of services trade policies may be examined from different perspectives and at different levels of aggregation. Which countries are open to foreign services provision, and which restrict the services supply from foreign suppliers? In which sectors are there more stringent limits on foreign participation? What types of instruments are used to limit the entry and operations of foreign suppliers? What does the pattern of openness look like across the different modes of supply? This section illustrates the variation of applied trade policy regimes across countries and sectors, but it is by no means exhaustive; the database contains much more detailed information than can be presented here. We begin by describing basic patterns of openness across services sectors. We then describe how individual policy measures combine to shape access for foreign providers across countries and sectors, drawing upon the numerical STRI scores.

The following stylized facts about the global incidence of policy barriers are notable:

- (i) Although public monopolies are now rare and few services markets are completely closed, we observe numerous "second-generation" restrictions on entry, ownership, and operations.
- (ii) Even in instances in which there is little explicit discrimination against foreign providers, market access is often not predictable. From retail to banking and insurance, the allocation of new licenses remains opaque and highly discretionary in many countries. Hence, a high degree of de jure openness may not always imply de facto openness.
- (iii) Regulatory discretion is accentuated by a lack of accountability in a number of countries in which regulators are not required to provide reasons for rejecting a license application or foreign providers do not have the right to appeal regulatory decisions.
- (iv) The movement of natural persons in professional services sectors (mode 4) appears to be heavily restricted in both developed and developing countries. There typically exist multiple layers of policy measures, ranging from explicit quotas and economic needs tests to domestic qualification, residency, and immigration-related requirements.

- (v) The restrictiveness of applied policies varies among rich and poor countries, but much more so within the latter. While most OECD countries are quite open, some of the most restrictive policies today are visible in the rapidly growing economies of Asia and in the oil-rich countries of the Middle East.
- (vi) Although certain world regions are, on average, more restrictive than others, the relative openness across sectors tends to be similar across regions. In particular, professional services and (to a certain extent) transportation remain bastions of protectionism in high-income countries and developing countries alike, whereas retail, telecommunications, and even finance tend to be relatively open.

### *Patterns of Openness and Market Entry*

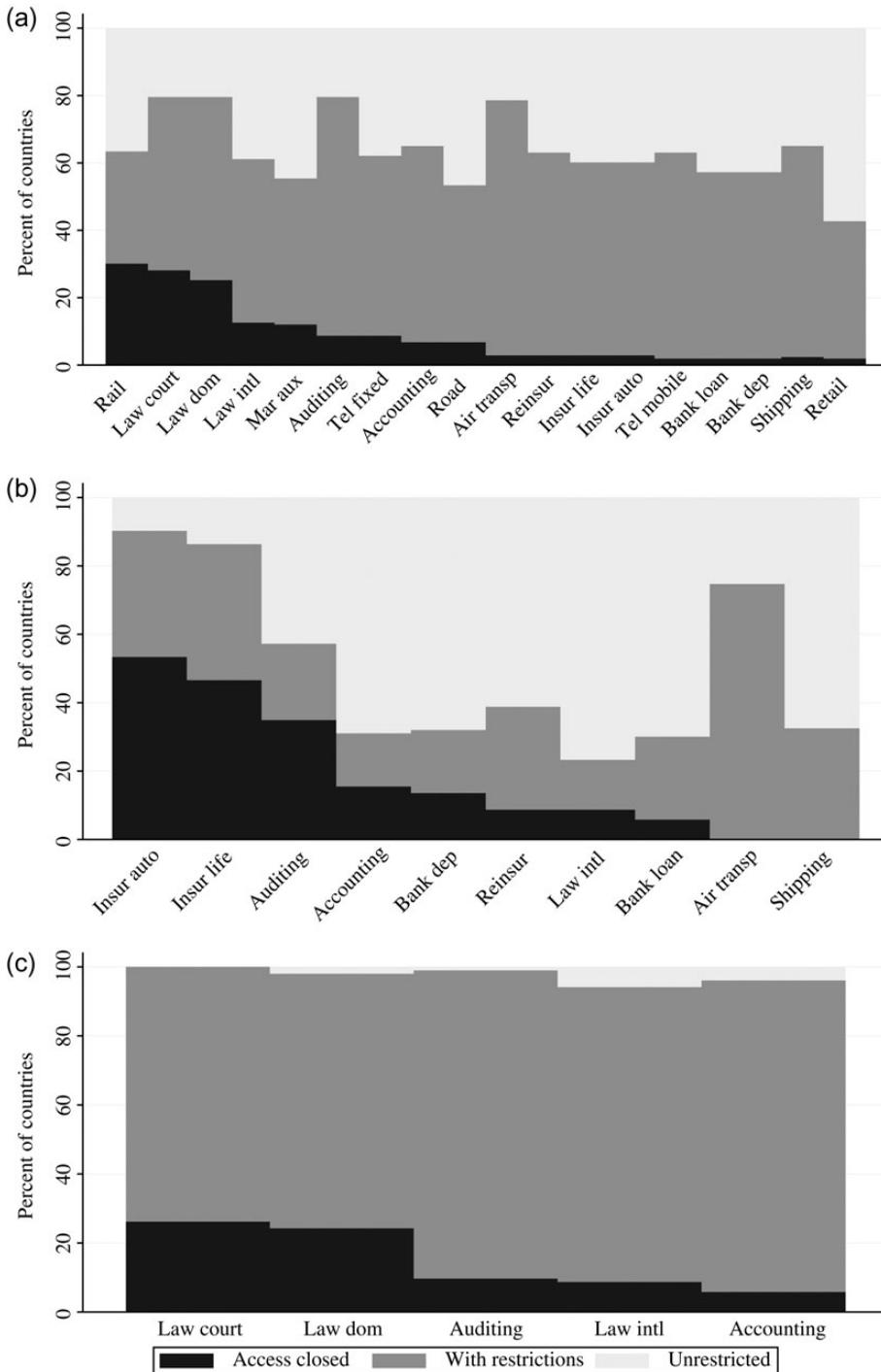
All sectors in all countries fall into one of the following three categories: (i) completely closed to foreign service providers, (ii) open with restrictions, or (iii) unconditionally open. The distribution of sector openness thus defined is shown in figure 1, separately for each mode of supply covered by the database. Foreign providers are most likely to be excluded from establishing a commercial presence abroad (mode 3) in railways and in professional services sectors (fig. 1a). It is also apparent that restrictions on investment are pervasive because only about 40 percent of countries can be considered “open” in any of the sectors.

Openness to cross-border trade (mode 1) varies substantially across sectors (fig. 1b). Even within financial services, cross-border supply is much more restricted in insurance sectors than in banking sectors. Overall, it appears that there is less “middle ground” in cross-border supply compared to investment because sectors are either closed or fully open, and there are fewer instances of conditional openness.

Lastly, trade in the five professional services subsectors relies heavily on openness to the movement of natural persons as service suppliers (fig. 1c). Engaging in representation before a domestic court or in advising on domestic law carries a nationality requirement in approximately a quarter of all countries, which renders these two sectors the most restricted. There are virtually no instances of unconditional openness in professional services. In almost every case, foreign professionals must fulfill educational or local work experience requirements, and the actual award of a license is, in some instances, conditional on passing economic needs tests.<sup>16</sup>

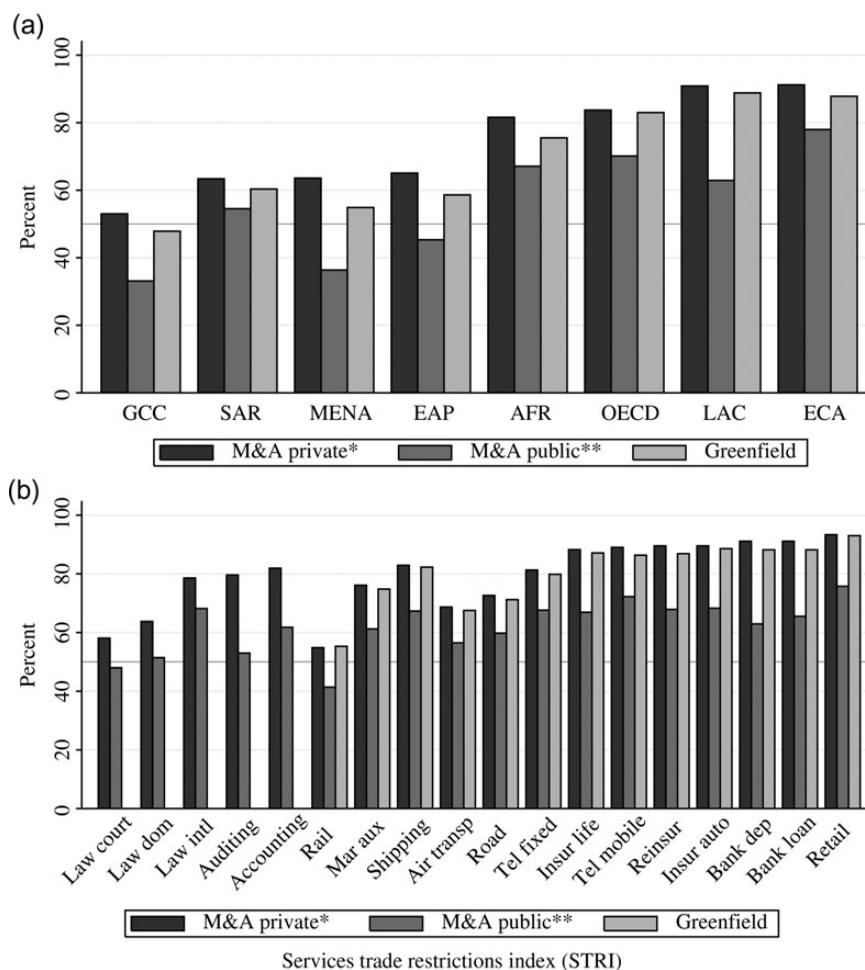
16. For example, foreign-licensed professionals are eligible to advise on domestic law in Australia subject to having a practice certificate (full license), which entails fulfilling (i) an education requirement, and a foreign degree may be accepted subject to evaluation by the Law Admissions Consultative Committee of Australia); (ii) a training requirement in which applicants must complete a practical training course (foreign work experience may be taken into account by the Law Admissions Consultative Committee of Australia); (iii) passing a mandatory local examination; (iv) a labor market test; and (v) a minimum wage/wage parity requirement.

FIGURE 1. Sector Openness across Modes of Supply



Source: Authors' analysis is based on information from the STRD.

FIGURE 2. Limits on Foreign Equity Participation, by Region and Sector



*Notes:* Landlocked countries excluded in the maritime shipping sector. Countries without rail tracks excluded in the railway sector. For five professional services sectors, dark bars (\*) denote ownership limits applying to foreign nationals, whereas grey bars (\*\*) denote ownership limits applying to nonlocally licensed professionals.

*Source:* Authors' analysis is based on information from the STRD.

A key market entry restriction for foreign investors is a limit on their ownership share in domestic firms. When broken down by world region, the ownership data show that countries from the Gulf, the Middle East, and some dynamic economies from East and South Asia assume the toughest stance on permitting foreign ownership (fig. 2a). Foreign ownership is far less restricted in most countries across Europe, Central Asia, and Latin America. In most regions, the public sector is shielded to a greater extent from foreign acquisitions than the private sector. In terms of sectors, ownership limits tend to be more stringent in

TABLE 4. Incidence of Specific Policy Measures: Licensing and Regulatory Regimes (Absolute Count Measures)

Sectors	(1) License limit	(2) License criteria discrim.	(3) License criteria not public	(4) License award discret.	(5) No reasons rejection	(6) No indep. regulator	(7) No prior notice	(8) No appeal
Bank deposits	9	13	0	41	23	4	35	13
Bank lending	9	13	0	41	23	4	35	11
Insurance nonlife	9	18	4	29	22	29	42	11
Insurance life	7	17	4	29	22	29	42	11
Reinsurance	6	18	3	29	20	23	42	11
Telecom fixed line	12	3	5	35	19	24	33	5
Telecom mobile	15	5	6	43	21	28	40	6
Retail	6	17	2	13	17	35	48	16
Air transportation	1	10	4	22	19	45	51	12
Maritime shipping	2	5	3	12	17	40	40	15
Maritime auxil. Serv.	3	4	3	7	10	18	21	9
Railway	3	3	7	14	8	32	27	9
Road trucking	1	6	6	17	18	52	52	12

*Notes:* Table entries represent a count measure of countries (out of 103 in total) that apply a given policy measure. The number of nonmissing observations varies across sectors and policy measures. The precise survey questions corresponding to each column are as follows: column (1): “Is the number of licenses limited?”; column (2): “Do the licensing criteria differ between foreign and domestic firms?”; column (3): “Are the criteria that a firm must fulfill to obtain a license publicly available?”; column (4): “Does the fulfillment of publicly available criteria ensure that a license is granted?”; column (5): “Is the issuing authority obliged by law to inform applicants of the reasons for rejection of a license?”; column (6): “Is the regulatory authority established by statute as a body independent from the sector ministry?”; column (7): “Are there procedures that give foreign investors prior notice of, and allow them to comment on, proposed regulatory changes?”; column (8): “Are there procedures in place that allow foreign investors to appeal regulatory decisions?”

*Source:* Authors’ analysis based on information from the STRD.

professional and transportation services and more liberal in financial and distribution services (fig. 2b).<sup>17</sup>

### *Patterns of Individual Policy Measures*

Conditional on a sector being open to foreign entry, we now discuss patterns of individual policy measures in the remaining areas covered by the database: licensing procedures, restrictions on ongoing operations, and relevant aspects of the regulatory environment (table 4).<sup>18</sup> In telecommunications, license limits are

17. The sectors are grouped into professional services sectors (left) and nonprofessional service sectors. Within each group, they are sorted by equity limits. The reason for this separation lies in the fact that equity participation is defined slightly differently in professional services, as explained in the legend to figure 2. Information on maximum ownership permitted for Greenfield entities is not available in professional services. Sectors that are closed to foreign investment (see fig. 1) are factored in with a maximum ownership limit of zero.

18. The numbers shown represent simple frequency measures across the sample of 103 countries. The incidence patterns are qualitatively unchanged when expressing the count measure as percentages of nonmissing values. Rank correlations of both representations are high and are available upon request.

more important than in other sectors (column 1), and licensing criteria for domestic and foreign firms rarely differ (column 2). In contrast, in sectors such as financial services, retail, and transportation, different licensing criteria often apply to foreign applicants, but hard license limits are less of an issue.<sup>19</sup> An example of differing licensing criteria may be found in China, which requires a foreign bank to have had a representative office within its territory for at least two years and to have total assets of no less than USD 10 billion to be eligible for a banking license. Although licensing criteria are publicly available in most cases, in many countries, their fulfillment does not ensure that a license will be automatically granted. The fact that authorities retain significant discretion is also evident from the fact that in many countries, they are frequently not obligated to give applicants any reasons for the denial of licenses.

Certain aspects of the regulatory environment are highlighted in columns 5–8. The near-universal existence of an independent regulatory authority in the banking sector (column 6) reflects the fact that Central Banks, rather than the Ministry of Finance, typically exercise regulatory oversight over the banking sector.<sup>20</sup> However, the insurance sector and, more surprisingly, the telecommunications sector have an independent regulator in far fewer countries. It seems that countries are more willing to grant foreign investors the opportunity to appeal regulatory decisions (column 8) than to give them prior notice and opportunity to comment on regulatory changes (column 7).

In addition to the measures discussed so far, the database also covers restrictions on ongoing operations. Relatively few countries (approximately ten) seem to impose restrictions on the repatriation of capital, and nationality requirements on employees tend to be primarily a Latin American phenomenon. Other operational restrictions are sector specific and range from cession requirements in insurance (maintained by more than 20 countries) to voice-over-Internet Protocol routing restrictions in telecommunications (maintained by 19 countries). More and better information is needed on operational restrictions, particularly in sectors such as retail, because the quality of responses on measures such as zoning laws tend to be uneven.

Beyond the detailed cross-sectoral patterns, it may be of interest to assess how much of the observed variation in policy measures may be attributed to country effects, region effects, and sectoral effects. To this end, we conduct an analysis of variance decomposition for key variables, pooled across countries and sectors (table 5). The results demonstrate that variation across countries explains a sizable share of the variation in discriminatory licensing criteria, in

19. The database does not count as “different licensing criteria” relatively light additional documentation requirements for foreign firms, such as ownership and vessel registration certificates for foreign maritime shipping companies.

20. The World Bank’s “Bank Regulation and Supervision Database” shows that the Central Bank is the supervisory authority for banks in 51 out of 80 countries that can be matched (as of 2008). The regulator’s widespread independence in the financial sector is in contrast to transportation services, in which regulatory powers are typically assumed by the relevant sector ministry.

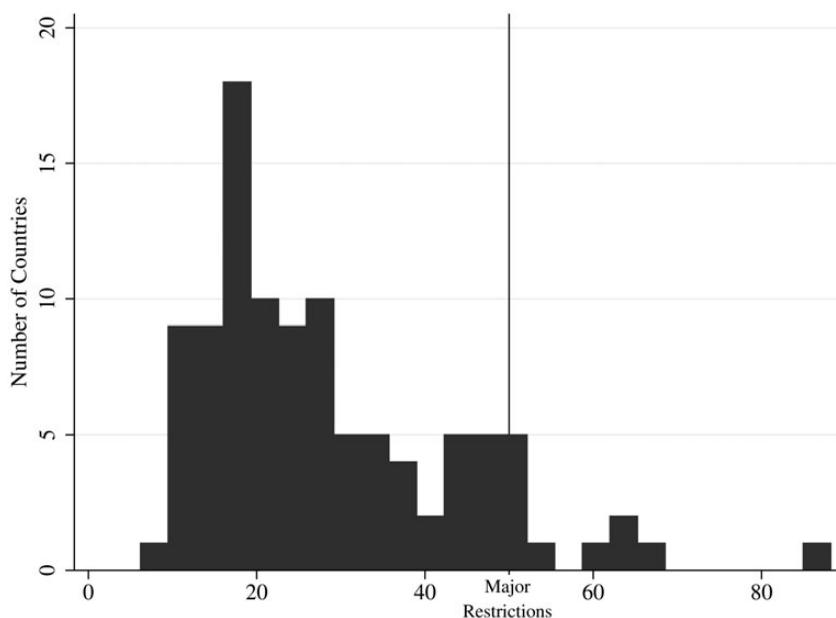
TABLE 5. Analysis of Variance Decomposition at Country and Sector Level (Percent)

	Foreign equity limit	License limit	License criteria discrim.	License criteria not public	No reasons rejection	No appeal	Restr. nation'ty. employ	Restr. repatr. earnings	No indep. regulator
Country	25.0	27.9	43.7	39.7	63.3	52.2	86.7	90.1	26.1
Sector	15.3	1.8	2.5	2.0	0.2	1.3	0.3	0.0	18.5
Residuals	59.0	70.4	53.6	57.7	36.4	46.1	12.6	9.7	50.3
Region	8.9	3.1	10.6	13.8	28.1	14.1	18.2	22.2	3.8
Sector	15.9	1.6	2.4	3.4	0.1	1.7	0.5	0.1	19.8
Residuals	75.1	95.1	86.7	83.5	71.6	84.1	81.1	77.6	72.6
Income	4.8	2.3	5.6	4.7	13.5	9.7	5.8	5.3	2.4
Sector	15.9	1.6	2.3	2.8	0.2	1.8	0.7	0.1	20.0
Residuals	79.2	95.9	91.8	92.7	86.2	88.6	93.5	94.5	73.9
Obs.	1,290	1,033	972	1,077	1,068	1,124	847	1,170	996

*Notes:* Figures shown are in percentages because an analysis of variance decomposes the observed variance of the variables aligned in columns into components attributable to different sources of variation—in this instance, countries, regions, and income groups, respectively, along with sector-fixed effects in each case. The “Residual” rows contain the share of unexplained variation. All variables except foreign equity restrictions are binary, so the underlying regression is a linear-probability model. Results cover the 13 nonprofessional services sectors and are conditional on sectors being open (cf. section III).

*Source:* Authors’ analysis based on information from the STRD.

FIGURE 3. Distribution of Country-level Restrictiveness Scores (STRI)



Note: Median STRI = 23.7, based on 103 countries.

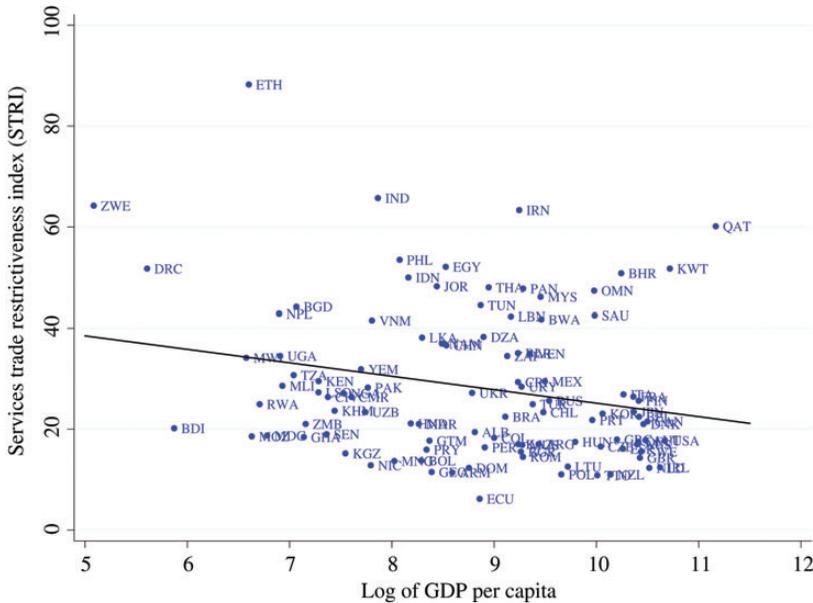
Source: Authors' analysis is based on information from the STRD.

accountability (reflected in being obliged to give reasons for license rejection), and in operational restrictions regarding the nationality of employees and repatriation of earnings. The explanatory power of country effects is driven partly by policy regimes that differ along the income-per-capita dimension (see fig. 4 below). Differences in foreign equity limits and in independent regulatory bodies may to some extent be traced back to variations across sectors. The latter reflects the fact that the rationale for independent oversight is much more widely recognized in sectors such as finance and telecommunications than in transportation. Although variation across regions seemingly does not explain much of the variation in equity restrictions and license limits (columns 1–2), it is reasonable to think of entry barriers as systematically higher in certain regions than in others, particularly in the Gulf and in South Asia. However, each group is relatively small (five members) compared to other regions.

#### *Country-level Indicators of Services Openness*

Across the entire sample of 103 countries, most countries exhibit a fairly open profile of services policies, resulting in a distribution of country-level indices that is skewed toward lower STRI values, which can range from 0 to 100 (fig. 3). The median STRI value is approximately 24; more than half of all countries would, on average, be classified as “virtually open.” Furthermore, the STRI score of

FIGURE 4. Country-level Restrictiveness Scores (STRI) and Per Capita Income



*Notes:* Gross domestic product per capita 2007 is in purchasing power parity terms and constant 2005 international U.S. dollars. Banking (two subsectors; modes 1 and 3), insurance (three subsectors; modes 1 and 3), telecommunications (two subsectors; mode 3), retailing (mode 3), transportation (maritime and air: modes 1 and 3; maritime auxiliary services, rail, and road: mode 3), and professional services (four subsectors; modes 1, 3, and 4).

*Source:* Authors' analysis is based on information from the STRD.

90 percent of all countries lies strictly below 50—on average, this is below the score signifying the presence of “major restrictions.”

Plotting each country's overall index of services trade restrictions aggregated across all sectors and modes against its per capita income confirms the earlier finding that most countries are fairly open (fig. 4). The linear fit of the relationship between the country STRI and per capita income is downward sloping, reflecting the fact that only a limited number of countries have adopted an across-the-board restrictive stance on services by either closing sectors altogether or by imposing other stringent measures on foreign entry.

However, the data also reveal a great deal of variation across world regions in the overall restrictiveness of services trade policies. On the one hand, most OECD countries are clustered together at the bottom-right corner, which is a testimony to their general overall openness (notwithstanding some rather restricted subsectors). On the other hand, the GCC countries, although equally rich, exhibit some of the most restrictive policies observed in the sample, placing Qatar, Kuwait, Bahrain, Oman, and Saudi Arabia in the top-right corner of figure 4.

Among developing countries, the restrictiveness of applied policies varies widely. Notably, some of the most restrictive policies are visible in the rapidly growing economies of Asia, including China, India, Indonesia, Malaysia, Philippines, and Thailand, and in the Middle East, including Egypt, Iran, Saudi Arabia, and Tunisia. Some of Africa's poorest nations also have rather restrictive services policies. In particular, Ethiopia, Zimbabwe, and the Democratic Republic of Congo are among the most restrictive countries in the sample (top-left corner). Another group of developing countries, including Rwanda, Madagascar, Senegal, and Mongolia, is remarkably open (bottom-left corner). It is also true, however, that for some of these developing countries, the absence of any sectoral regulation leads to a low STRI score, in which case the resulting openness is qualitatively different from the predictable market access in countries that formally institute open policies.

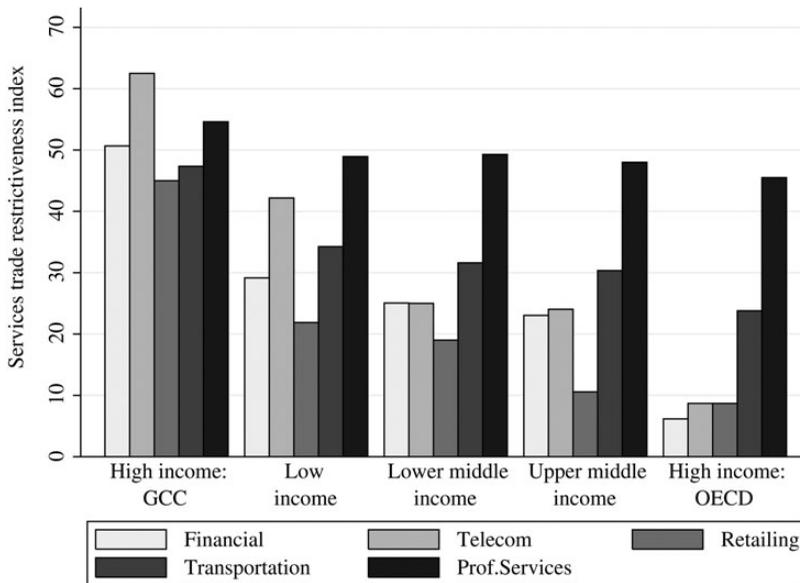
### *Sectoral Policy Patterns across Country Groups*

We can further decompose the average level of restrictiveness by major service sector and by per capita income group (fig. 5). On average, the most restrictive policies are applied by members of the high-income GCC. This group features a regional average STRI score of 50. With the exception of GCC countries, average restrictiveness falls monotonically with increasing per capita income. Disaggregating restrictiveness levels by sector and region shows that the countries in South and East Asia, not all of which are low income, also tend to apply restrictive policy regimes (fig. S2.1 in the supplemental appendix, available at <http://wber.oxfordjournals.org>).

The data also demonstrate that not all sectors obey the monotone relationship between openness and income (fig. 5). In particular, the level of restrictiveness in professional services is nearly identical across all income groups and is by far the most restricted sector in OECD economies. One reason is that the international movement of professionals (mode 4) is critical for these services sectors. This movement faces two daunting barriers, immigration-related restrictions (which make even entry difficult for foreigners intending to sell services) and licensing and qualification-related restrictions (which make it difficult for foreign-trained professionals to practice their professions). However, the problem is not mode 4 alone; in legal and accounting services, cross-border delivery and commercial presence also tend to be restricted. Even those OECD countries (and Europe and Central Asia; see fig. S2.1) that are widely known for their open policies regarding the establishment of commercial presence continue to maintain substantial barriers over a range of professional services subsectors.

In addition to professional services, transportation services remain one of the few bastions of protectionism in high-income countries and are subject to relatively high barriers in developing countries. In maritime transport, entry into cabotage and auxiliary services such as cargo handling is restricted in many countries, although international shipping is currently considered to be open. In air transportation, most countries across all income groups require international

FIGURE 5. STRI, by Sector and Income Group



*Notes:* The STRI at the income-group level is calculated as a simple average of individual countries' STRIs. The STRI in the cross-border air passenger transport subsector comes from the Quantitative Air Services Agreements Review database (see [WTO 2006](#)). The "High income: OECD" group includes Trinidad and Tobago, which is a high-income country but not a member of the OECD in order to avoid creating a group composed of only one member.

*Source:* Authors' analysis is based on information from the STRD. In all, 103 countries are included.

services to be provided within the highly confining framework of bilateral air services agreements and restrict investment in the supply of international and domestic air passenger services. Trade in financial, telecommunications, and retail services appears to be relatively free of discriminatory restrictions in OECD countries. In general, the average restrictiveness in these sectors falls markedly as per capita income rises.

Although markets for most services are now competitive and allow foreign participation, it is evident that in most countries, they remain some distance from being completely open. In telecommunications, public monopolies are a relic of history in most countries, and some measure of competition has been introduced in both mobile and fixed-line services. At the same time, new entry by foreign providers is not permitted in a number of countries. Even where it is, governments continue to limit the number of providers or (particularly in Asia) the extent of foreign ownership. Likewise, in banking and insurance, domination by state-owned entities has given way to increased openness to the presence of foreign and private financial institutions. In both banking and insurance, however, the allocation of new licenses often remains opaque and highly

discretionary. Retail distribution consistently ranks among the most open services sectors in any region, but even in this case, a range of domestic regulations, such as zoning laws, can occasionally impede entry in both developing and industrial countries.<sup>21</sup>

#### *Actual Policy and WTO Commitments and Offers*

The information about actual applied policies in the database also generates a fresh perspective on ongoing services negotiations at the WTO. These multilateral negotiations began in the Uruguay Round, which concluded in 1995 and were meant to reduce policy uncertainty by inducing countries to begin to lock in unilateral liberalization. The more recent services negotiations, as part of the Doha Agenda that has been underway since 2001, were intended to push for greater liberalization, and WTO members have submitted offers to open markets. [Borchert, Gootiiz, and Mattoo \(2011\)](#) compare the Uruguay Round commitments (which are legally binding) and the Doha offers (which have no legal status as yet) with actual policy.<sup>22</sup>

A central finding from this exercise is that in all regions of the world, actual policy is substantially more liberal than the Uruguay Round commitments. Doha offers improve somewhat upon Uruguay Round commitments but the distance from actual policy remains large—the STRI measure of Doha offers is, on average, still twice as restrictive as the actual policies. As a result, the Doha process does not appear to offer much liberalization; instead, it offers some reassurance that access will not worsen. The substantial gap between actual and bound policies, analogous to the “binding overhang” for tariffs, suggests that using General Agreement on Trade in Services commitments as a proxy for openness in services may be misleading.

#### IV. CONCLUSION

Our primary contribution is collecting and making available information on key dimensions of services trade policy for a wide range of countries, sectors, and modes of supply. We discuss sectoral patterns of openness and the incidence of specific policy measures governing market entry, operational restrictions, and aspects of the regulatory environment. We then construct a STRI that simply and transparently captures the restrictive effect of the entire set of policies applied by a country in a given service sector and mode of supply. This measure helps us to depict the broad policy patterns across countries and sectors.

What have we learned? Although few services markets are completely closed, we observe numerous “second-generation” restrictions on entry, ownership, and

21. Interested readers can find a more extensive description of policy patterns by sector in the working paper version of this article.

22. Of the 103 countries surveyed in the database, 10 countries were excluded from this analysis because they were not yet WTO members. Of the remaining 93 countries, 62 submitted offers during the Doha negotiations.

operations. Even in instances in which there is little explicit discrimination against foreign providers, market access is often not predictable because of regulatory discretion and a lack of accountability. From retail to banking and insurance, the allocation of new licenses remains opaque and highly discretionary in many countries, suggesting that a high degree of *de jure* openness may not always imply *de facto* openness.

Across regions, some of the fastest-growing countries in Asia and the oil-rich Gulf states have some of the most restrictive policies in services, whereas some of the poorest countries, such as Cambodia, Ghana, Senegal, and Mongolia, are remarkably open. Although most OECD countries are generally open overall, they tend to exhibit greater restrictiveness in transportation services and toward the movement of natural persons as services suppliers. In fact, across sectors, professional and transportation services are among the most protected in both industrial and developing countries, whereas retail, telecommunications, and even finance tend to be more open. Of course, these conclusions are based on the specific sectors that are included in our study.

Four gaps in the data limit the scope of this analysis and should be the focus of future data collection and research. First, we do not have adequate data on the existing market structure (for example, the number of firms and their market share and ownership) across sectors and countries. Thus, our policy measures capture restrictions on entry into markets but do not capture the prevailing extent of competition between domestic and foreign firms. Second, the paucity of internationally comparable data on outcome variables, such as prices, quality, or diversity of services, makes it difficult to infer the restrictiveness of policies by econometrically analyzing their impact on outcome variables of interest. Third, we are able to capture only limited information on the state of prudential and procompetitive regulation, which makes it difficult to assess the extent to which these ostensibly nondiscriminatory measures offer *de facto* protection to domestic service providers. More important, this gap makes it difficult to assess the extent to which the gains from market opening depend on the state of complementary regulation. We emphasize that a mechanical elimination of trade barriers without reform of complementary regulation is not necessarily desirable in all sectors. Finally, we capture only limited information on the implementation of policies. For instance, we make an effort to identify certain aspects of the processes involved in licensing services providers, such as transparency and accountability, but the process remains opaque, and it is difficult to determine whether the processes themselves offer protection to domestic providers.

The difficulty of the task that we have set for ourselves is well known and has inhibited efforts of a similar scope in the past despite the strong demand for better information from policy makers, negotiators, businesses, and researchers. Our main reason for presenting a product that is inevitably imperfect is to begin to enhance policy transparency and to encourage further research in this important area. Even in its present form, we believe that the database will play an important role in advancing policy reform by facilitating the analysis of services

policies, informing international negotiations by providing data on actual policies, and provoking dialogue and refinements by making information on policies publicly available. Thus, we believe that this database provides not a definitive picture of trade policy but a first approximation that will evolve, through feedback from various interested parties, into a collectively created public good.

## APPENDIX

*Weighting Schemes for the STRI.* The complete set of weights used to derive aggregate, country-level STRI scores,  $STRI_c$ , from basic scores per subsector and mode,  $s_{jmc}$ , is documented in table A.1. Modal weights sum to unity within any given subsector (for example, entries (22), (25), and (30) for “Accounting”). The relative importance of alternative modes of delivery for trading a specific service internationally was assessed by a team of World Bank economists in consultation with industry experts and private sector officials. Subsectors are aggregated to the sectoral level, such as “Telecommunications,” using simple averages. Sector scores are aggregated to the country level using standardized weights based on the constituent services sectors’ share in total services output for an “average” industrialized country. The service sector output shares are taken from [Hoekman](#)

TABLE A 1. Sector and Modal Weights in STRI Construction

Aggregate sectors	Subsectors, by mode of supply	Modal weights $w_m^{(j)}$	Sector weights $w_j$
Banking	Mode 1:		0.149
	(1) Deposit acceptance	0.15	
	(2) Bank lending	0.15	
	Mode 3:		
Insurance	(3) Deposit acceptance	0.85	0.095
	(4) Bank lending	0.85	
	Mode 1:		
	(5) Life	0.10	
	(6) Automobile	0.10	
	(7) Reinsurance	0.80	
Telecommunications	Mode 3:		0.095
	(11) Fixed line	1.00	
	(12) Mobile	1.00	
	Mode 3:		
Retail Distribution	(8) Life	0.90	0.239
	(9) Automobile	0.90	
	(10) Reinsurance	0.20	
	(13) Retail distribution	1.00	

Transportation	Mode 1:		0.223
	(14) Air passenger internat.	0.70	(0.037)
	(15) International shipping	0.70	(0.037)
	Mode 3:		
	(16) Air passenger internat.	0.30	
	(17) Air passenger domestic	0.30	
	(18) International shipping	0.30	
	(19) Maritime auxiliary	1.00	(0.050)
	(20) Road freight	1.00	(0.062)
	(21) Rail freight	1.00	(0.037)
Professional Services	Mode 1:		0.199
	(22) Accounting	0.20	
	(23) Auditing	0.20	
	(24) International law	0.20	
	Mode 3:		
	(25) Accounting	0.40	
	(26) Auditing	0.40	
	(27) Domestic law	0.50	
	(28) International law	0.40	
	(29) Court representation	0.50	
	Mode 4:		
	(30) Accounting	0.40	
	(31) Auditing	0.40	
	(32) Domestic law	0.50	
(33) International law	0.40		
(34) Court representation	0.50		

*Note:* As an exception to the modal aggregation rule outlined in the text, air passenger transportation subsectors are first aggregated within mode 3 (that is, air passenger domestic and air passenger international), and then the resulting modal score is aggregated with mode 1 using the modal weights, as shown.

*Source:* Authors' analysis as discussed in the text; in part based on Hoekman (1995, p. 37/appendix 1).

(1995, p.37/ appendix 1) and scaled to make the weights of all sectors covered in the STRI database add up to unity. Although output shares of services sectors vary across countries, particularly across per capita income levels, we find that for most sectors, the deviations between the set of weights used and the weights representative of low-income countries are not large. Further details can be found in the supplemental appendix S3, available at <http://wber.oxfordjournals.org>.

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