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Abstract

Since about a decade, we have seen a surge in interest as well as in the use of services preferentialism and unilateral services regulations. This paper provides an economic explanation of services regulation and services preferentialism, including their interaction. The paper derives hypotheses based on a numerical welfare analysis where tradable services are treated as a secondary (produced) input in the production of tradable goods. Apart from hypotheses on the emergence of services trade agreements (STAs), the paper derives ones on the stringency of unilateral services provision- a general services trade restrictiveness. For instance, one of the hypotheses is that services trade restrictiveness is endogenous, and it is aligned with economic fundamentals. Another hypothesis suggests that countries are more likely to participate in STAs if the partners' general, unilateral services trade restrictiveness is more similar to theirs. These and other hypotheses are supported by data.

Keywords

Services trade agreements; Services trade restrictiveness; Preferential trade liberalization; Services trade; Economic determinants of trade liberalization.

JEL Classification numbers: F10; F13; F15.

1 Introduction

More than three decades of research on trade costs and goods trade have unveiled fundamental insights into the determinants (Baier and Bergstrand, 2004), the relative magnitude and nature (Eaton and Kortum, 2002; Anderson and van Wincoop, 2003, 2004), and the consequences of barriers to cross-border transactions of goods (for policy barriers, see Baier and Bergstrand, 2001, 2007, 2009; Bergstrand, Egger, and Larch, 2013; Egger, Larch, Staub, and Winkelmann, 2011). Much less is known about the drivers and impediments of services trade. Credible data on cross-border transactions of services at the country-pair level became available only in the last decade, and data on service trade impediments have been made available only even more recently (for instance, see Miroudot, Sauvage, and Shepherd, 2012).

What makes services trade and its impediments particularly interesting relative to goods trade are three features: first, services contribute a larger share to GDP in most developed and developing countries, while services trade is smaller than goods trade, pointing to high services trade costs; second, both the production and trade of services grow faster than those of goods; and, third, that cross-border services transactions appear much more restricted by economic policy than goods transactions. Even though a cottage literature started evolving around the policy domain of services impediments (see Francois and Hoekman, 2010, for a survey), fundamental knowledge about whether countries adopt liberalization strategies in the same systematic way and in compliance with economic reasoning as they liberalize goods (see Frankel, Stein, and Wei, 1996; Baier and Bergstrand, 2004, 2007; Egger and Larch, 2008) is missing. This paper aims to bridge this gap by providing a systematic analysis of services trade agreement (STA) membership with a particular eye on the adoption and role of unilateral services provisions.

Earlier work on the economics and politics of trade preferentialism pointed to the rising pace of preferential goods trade liberalization and rule-making in the last decade of the previous millennium. At the beginning of this millennium, a similar trend has been observed regarding services trade liberalization. Of the 81 preferential trade agreements (PTAs) notified to the World Trade Organization (WTO) and in force prior to the year

2000, 73 (90%) featured provisions dealing exclusively with trade in goods. Since then and up until August 2014, another 182 PTAs have come into force of which 114 (63%) also include provisions on services trade. This development indicates the rising importance of services trade in general, the growing need felt by countries to place such trade on a firmer institutional and rule-making footing, and the attractiveness of doing so on an expedited basis via preferential negotiating platforms (see Sauvé and Shingal, 2011).

This paper focuses on an analysis of the economic determinants of STA membership. It derives hypotheses regarding the welfare effects of unilateral and bilateral (preferential) services provisions in a numerical model. The model considers services as an input in goods production to reflect the preponderance of producer services – i.e., services used as inputs in production – in both GDP and trade data of OECD and non-OECD economies.[1]

Impediments to services transactions in our model protect (reduce competition for) domestic services suppliers, but this distortion leads to a welfare loss for consumers, since they entail higher services input prices to (domestic as well as foreign) goods manufacturers, higher prices of final goods, and less consumption than would otherwise be possible. In contrast to a goods trade agreement (GTA) membership, an STA membership does not generate a loss in tariff revenues and, hence, appears even more desirable than the preferential liberalization of goods trade. The paper sheds light on the relative desirability of STAs for large versus small countries, geographically remote versus central economies, and ones with highly versus less highly regulated services markets.

The paper then takes the hypotheses to data on STA membership up until August 2014, employing (unilateral) services provisions as exogenous versus endogenous and other eco-

[1]Table 6 below reports the share of producer services in total services output and GDP for OECD and five developing economies using data from the OECD. In that, we use the definition of producer services of the OECD, and these services include: distribution; transport; information and communication; finance and insurance; real estate; and professional, scientific and technical services. The data reveal that producer services accounted for 64% of total services output and 44% of GDP on average for the OECD over the period 2010-2015; the comparable percentages for the five non-OECD economies included there were 61.5% and 37.4%, respectively. A similar picture emerges with respect to the importance of producer services in trade in Table 7, which shows the share of computer and communications; insurance and financial; and transport services in total imports and exports of commercial services for the world and groups of high (HIC), middle (MIC) and low income countries (LIC), using data from the World Bank's World Development Indicators. These data show that trade in these producer services accounted for nearly 75% of global commercial services trade over 2010-2015 and that this high share was independent of the World Bank's income classifications.

nomic determinants as exogenous determinants thereof. The paper finds support for many hypotheses emerging from the model. In particular, it finds that economies with more similar unilateral services provisions are also more likely to sign preferential STAs. Moreover, remoteness from other countries' goods trade deters STA membership while remoteness from other countries services trade does the opposite. Other economic determinants (such as country size or geography) induce a similar qualitative impact on STA membership as they do on GTA formation.

The remainder of the paper is organized as follows. Section 2 relates this paper to earlier research on PTA membership. Section 3 outlines a parsimonious model of unilateral services trade provisions and bilateral STA membership. Section 4 summarizes main hypotheses based on comparative static analysis using that model. Section 5 rationalizes the use of specific methods for empirical analysis. Section 6 introduces measures of variables which are used to control for effects analyzed in Section 4. Section 7 summarizes the key estimation results, and the last section concludes with a short summary.

2 Related literature

An important insight from the literature on goods-trade preferentialism is that GTA membership does not happen at random, but countries found and join GTAs largely in accordance with economic reasoning (see Baier and Bergstrand, 2004, 2007; Egger, Egger, and Greenaway, 2008; Egger and Larch, 2008). More recently, Egger and Wamser (2013), Cole and Guillin (2015), and Sauvé and Shingal (2016) have built on this work on GTAs and explored determinants of STA membership.

With regard to research on the determinants of preferentialism at large, it stands out that the degree of prior protectionism – the level of tariffs and and non-tariff barriers with GTAs and the level of services regulation with STAs – are not considered either in the theoretical models motivating the empirical analysis or in the empirical work itself. This is surprising to the extent that the degree of prior protectionism is positively related to the size of the welfare gains from an abolishment of policy trade costs (see Baier and Bergstrand, 2004).

However, quite clearly, when considering PTA membership as endogenous, one would think of unilateral (most-favored nation) policy barriers to trade to be endogenous as well. The literature on equilibrium tariff as well as nontariff barriers to goods trade (see Caves, 1976; Ray, 1981; Mayer, 1984) suggests determinants thereof, and there is a similar literature on the determinants of services regulation (Francois et al. 2007; van der Marel, 2011; Miroudot, Sauvage, and Shepherd, 2012, 2013). The latter literature has also evolved to explain services commitments in the GATS (Egger and Lanz, 2008; Roy, 2011), those made reciprocally (Marchetti, Roy, and Zoratto, 2012) as well as GATS+ commitments in STAs (van der Marel and Miroudot, 2014; Roy, Sauvé and Shingal, 2016).

Relative to this earlier work, one main goal of the present paper is the joint treatment of unilateral services regulation and of STA membership as a feature of the theoretical model generating the hypotheses as well as the subsequent empirical analysis providing the evidence.

3 Theoretical framework

In this section, we outline a generic two-sector multi-country new trade framework which will be used for numerical analysis in the subsequent section. In this framework, any country $i \in \{1, ...J\}$ hosts goods as well as services producers. In what follows, we will use indices $\{i, j\} \in \{1, ...J\}$ to refer to (exporting and importing) countries. Let us denote the mass of specialized services and goods producers in i by n_{is} and n_{ig}, respectively. Each one of those producers is a monopolistic supplier of a specific variety of services and goods, respectively.

Consistent with the stylized facts provided and discussed in the introduction, services are generally treated as an intermediate input in goods production. They are purchased in bundles, and goods producers substitute services varieties at a constant elasticity of substitution, σ_s. Services producers compete under monopolistic competition and charge a constant markup over marginal costs to cover fixed market-entry costs. They employ capital (K) and labor (L) as primary production factors for both their output and for setting up business.

Goods are consumed in bundles by final consumers, who perceive individual firms' output as variants which they substitute at a constant elasticity of substitution, σ_g. Goods producers compete under monopolistic competition and charge a constant markup over marginal costs to cover fixed market-entry costs. They utilize physical capital (K) and labor (L) as two primary production factors and services (S) as a secondary production factor for both their output and for setting up business.

Let us generally use $\nu \in \{g, s\}$ to index variables or parameters pertaining to goods and services activity. Use d_{iv} to denote the generic demand for the bundle of services (by goods producers) or goods (by final consumers), we may define

$$d_{iv} = \left[\sum_{j=1}^{J} \int_{l \in D_{jv}} c_{iv}(l)^{\frac{\sigma_v - 1}{\sigma_v}} dl \right]^{\frac{\sigma_v}{\sigma_v - 1}}, \tag{1}$$

where d_{ig} is a measure of real consumption or household utility in a utilitarian framework and d_{is} is the bundle of services demanded as an input by goods producers in i.

The production of goods and services is determined as

$$y_{is} = \phi_{is} k_{is}^{\alpha} l_{is}^{1-\alpha}, \quad y_{ig} = \phi_{ig} k_{ig}^{\beta} l_{ig}^{\gamma} d_{is}^{1-\beta-\gamma}, \tag{2}$$

where ϕ_{iv} is a country-specific generic total factor productivity parameter.[2]

With homogeneous production technologies, the generic aggregate demand for an individual service or good originating from country i in country j is

$$c_{ijv} = \frac{p_{ijv}^{-\sigma_v} Y_{jv}}{P_{jv}^{1-\sigma_v}}, \tag{3}$$

where p_{ijv} is the de-facto price charged by producers of v in country i to j-borne buyers

[2]Trade economists now frequently employ models with heterogeneous firms in their theoretical or empirical work. For instance, in Eaton and Kortum (2002) or Melitz (2003), firms draw their total factor productivity from some distribution. We abstain from considering firm heterogeneity within countries, since its consideration would not change the qualitative insights which we will gain from the numerical analysis in the next section and our strategy helps keeping the model structure and outline simpler. Besides, the focus of the paper is entirely on the adoption of preferential policy at the level of country pairs and its aggregate determinants.

(of final goods or services) gross of trade costs, Y_{jv} are aggregate expenditures in country j on v-type demand and $P_{jv} = \left[\sum_{i=1}^{J} n_{iv} p_{ijv}^{1-\sigma_v}\right]^{\frac{1}{1-\sigma_v}}$ is the price index corresponding to d_{iv}. In fact, $Y_{js} = n_{jg} P_{js} d_{js}$ and $Y_{jg} = n_{jg} \sum_{i=1}^{J} p_{jis} c_{jis} = w_j L_j + r_j K_j$, where the latter is nothing else but GDP in j under the present assumptions.

Denote the marginal production costs corresponding to the above technologies in country i and generic sector v by ω_{iv}. Moreover, assume sector-specific iceberg-type transaction costs $t_{ijv} \geq 1$ between countries i and j so that $p_{ijv} = p_{iv} t_{ijv}$, where $t_{ijv} = 1$ if $j = i$. Then, constant markup pricing in sector v entails

$$p_{iv} = \frac{\sigma_v}{\sigma_v - 1} \omega_{iv} \tag{4}$$

and

$$c_{ijv} = \frac{p_{iv}^{-\sigma_v} t_{ijv}^{-\sigma_v} Y_{jv}}{P_{jv}^{1-\sigma_v}} \propto \frac{\omega_{iv}^{-\sigma_v} t_{ijv}^{-\sigma_v} Y_{jv}}{\sum_{k=1}^{J} n_{kv} \omega_{kv}^{1-\sigma_v} t_{kjv}^{1-\sigma_v}}. \tag{5}$$

Aggregate bilateral sales from i to j in sector v amount to

$$X_{ijv} = \frac{n_{iv} p_{iv}^{1-\sigma_v} t_{ijv}^{1-\sigma_v} Y_{jv}}{P_{jv}^{1-\sigma_v}}. \tag{6}$$

With f_{iv} denoting the iv-specific unit-requirement of the factor bundle of capital and labor for firm set up and φ_{iv} denoting the corresponding price of the bundle of factors,[3] firm-level profits are

$$\pi_{iv} = \frac{p_{iv} x_{iv}}{\sigma_v} - \varphi_{iv} f_{iv}, \quad x_{iv} \equiv \sum_{j=1}^{J} x_{ijv}, \quad x_{ijv} \equiv c_{ijv} t_{ijv}, \tag{7}$$

where we may refer to x_{ijv} as the firm-level shipments of v-output by i-borne firms to j, which exceeds the corresponding consumption, c_{ijv}, whenever $t_{ijv} > 0$.

[3] We assume a Leontief technology for fixed firm set-up with input coefficients $\{\kappa_{Kv}, \kappa_{Lv}\}$ for capital and labor per unit of f_{iv}, respectively. Hence, $\varphi_{iv} = w_i \kappa_{Lv} + r_i \kappa_{Kv}$.

Primary factor market clearing requires

$$K_i = \sum_{v\in\{s,g\}} n_{iv}\left(\kappa_{Kv}f_{iv} + \alpha_{Kiv}\left(w_i, r_i\right)\sum_{j=1}^{J} x_{ijv}\right), \tag{8}$$

$$L_i = \sum_{v\in\{s,g\}} n_{iv}\left(\kappa_{Lv}f_{iv} + \alpha_{Liv}\left(w_i, r_i\right)\sum_{j=1}^{J} x_{ijv}\right), \tag{9}$$

where $\alpha_{Kiv}(w_i, r_i)$ and $\alpha_{Liv}(w_i, r_i)$ are the conditional demand parameters which correspond to the aforementioned technologies.

This model has well-known features regarding the direct effects of final-goods trade costs on the respective trade volume: a marginal reduction in trade costs on (final) goods, t_{ijg}, induces a direct positive effect on bilateral goods exports to the extent of $\sigma_g - 1 > 0$ which is mitigated partly by a positive impact on producer prices, p_{ig}, and on consumer prices P_{jg} (see Bergstrand, Egger, and Larch, 2013). The welfare effects of goods trade liberalization tend to be positive and are higher, the lower the cushioning effects on producer and consumer prices are, which is the case for smaller and less remote economies (see Baier and Bergstrand, 2004, and Egger and Larch, 2008).

The focus of this paper is to allude to the welfare effects of a symmetric, preferential liberalization of services trade at given (symmetric or asymmetric) levels of services regulation by way of reducing t_{ijs}. Due to the similar economic structure between the goods and services sectors, we would expect similar patterns for goods as for services trade and production regarding their direct determinants in the following sense: larger and more similar countries should produce and trade more in services as well as in goods; higher services trade costs from or to a country should reduce its services exports or imports, respectively; a marginal reduction in services trade costs, t_{ijs}, should directly increase bilateral services exports by $\sigma_s - 1 > 0$ units, but the total effect on such bilateral exports should be smaller due to mitigating effects on services producer prices p_{is} and customer prices P_{js}. Those features appear to be well in line with the stylized facts about services trade (see Egger, Larch, and Staub, 2012). However, the welfare effects of (intermediate) services trade liberalization in this model are somewhat less obvious, since a facilitation

of services trade to some importing country on the one hand reduces the marginal costs of goods production in that country – which should unambiguously raise demand and income there – but it induces unambiguously negative effects on labor and capital demand on the other hand, which reduces disposable income in the services-importing country.[4] Moreover, with asymmetric services regulation provisions at the outset, the gains from liberalization could be largely asymmetric and not even necessarily positive in all countries.

Hence, the total effects of a liberalization of (intermediate) services trade on welfare are less obvious than the ones of (final) goods trade. For that reason, a systematic numerical analysis of the welfare consequences of preferential services liberalization for gauging hypotheses for an empirical analysis seems desirable. The subsequent section is devoted to such an analysis.

4 Numerical analysis and hypotheses

4.1 Design of the comparative-static analysis

The empirical analysis which will be conducted below will include multiple countries. In a numerical model, qualitative insights into the welfare effects of bilateral, symmetric and reciprocal policy measures in a world of at least three but potentially arbitrarily many countries can be gained without loss of generality from a framework with three model economies. Hence, in what follows we will build on such a framework and calibrate the model in the previous section with the goal of generating generic hypotheses. We provide a graphical illustration of the fundamental features of the model in Figure 1.

– Insert Figure 1 here –

The specific calibration of the model involves countries $\{i, j\} \in \{1, ..., 6\}$, all of which trade both goods and services with each other at some positive iceberg costs which are specific to each type of trade flow. In line with the jargon in the literature, we will refer to

[4] In general, the (output and factor) prices as well as the demands of the primary production factors in the two sectors are jointly determined by the model parameters (including trade costs and factor endowments).

Countries 3-6 as the Rest of the World from the perspective of Countries 1 and 2. In the numerical analysis, we will focus on the consequences of a symmetric, reciprocal increase in bilateral services trade costs between Countries 1 and 2 on Country 1's welfare (i.e., real final goods consumption) under various scenarios of the model parametrization: the size of Countries 1 and 2; the size of Country 1 relative to Country 2; the size of Countries 3-6; the goods versus services remoteness of Countries 1 and 2 from the Rest of the World; etc. In the figure, we chose to draw countries symmetrically for illustrative purposes but we will abandon this assumption in some of the model parameterizations and comparative static analyses.

Rather than focusing on a liberalization (or its counterpart) of bilateral services transaction costs, t_{ijs}, as such, we will assume and focus on two components thereof, namely a bilateral transaction-cost component, b_{ijs}, and a unilateral, regulatory component which is specific to the importing country, m_{js} (capturing standards, accreditation rules, etc.). Assuming a general multiplicative structure of services trade costs, this leaves us with t_{ijs}=$b_{ijs}m_{js}$. Unilateral market-access provisions through the imposition of specific regulatory standards in a country do not only affect services imports but also the production and domestic sales thereof. Higher regulatory services standards in a market affect all sellers to that market in a way that is akin to a lower services productivity, but only for delivery to that market. In what follows, we are particularly interested in the effects of b_{ijs} and its interaction with m_{js} on welfare.

4.2 Summary of numerical results and formulation of hypotheses

In what follows, we formulate hypotheses with regard to welfare effects of preferential, bilateral services-cost reductions and their interaction with other country and country-pair characteristics (including unilateral services trade restrictiveness).

Services liberalization in symmetric economies: In Figure 2, we illustrate how a reduction of the unilateral services regulatory costs in Country 1 and a reduction in symmetric bilateral (iceberg) services trade costs between Countries 1 and 2, given positive

levels of symmetric bilateral (iceberg) services trade costs of Countries 1 and 2 with the Rest of the World, affect welfare in Country 1. Since we consider a shift in regulatory services costs at various levels of symmetric bilateral iceberg services costs, there are two insights to be gained from Figure 2: one regarding regulatory cost reductions and one regarding preferential bilateral services cost reductions.

– Insert Figure 2 here –

Hypothesis H^U 1: Reducing regulatory services impediments unilaterally in an economy induces welfare gains which are maximized at intermediate, non-zero bilateral (iceberg) services trade costs.

Figure 2 suggests that there is a hump-shaped relationship between services iceberg (bilateral) trade costs and the welfare gains from abolishing regulatory (unilateral) services costs. Clearly, this pattern is related to the fact that regulatory costs work as amplifiers of iceberg trade costs. In the complete absence of iceberg services trade costs, unilateral regulations would be irrelevant in CES economies (since they would not distort the regional consumption pattern). There is a second insight from Figure 2 with respect to the effects of preferential, bilateral iceberg trade cost reductions.

Hypothesis H^P 1: Granting another economy reciprocally preferential market access unambiguously raises welfare. The welfare gains are larger the smaller the bilateral services trade costs will be after the liberalization and the bigger they were beforehand. Countries with the biggest willingness to reduce regulatory services costs unilaterally would also benefit the most from abolishing services trade costs bilaterally.

The first part of Hypothesis H^P 1 is not surprising, and it reflects the same effects as iceberg trade cost reductions would, e.g., in single-sector economies. However, the second part is interesting, and it flows from the non-linear (convex) relationship between iceberg trade costs and welfare gains and the trade-cost-amplification nature of regulatory costs. In the figure, the ascent of the welfare-gains function with regard to b_{12} starts becoming steeper (to the left of) where the welfare gains from regulatory cost reductions are highest.

Services liberalization in two large economies: Figure 3 illustrates the welfare effects for two large Countries 1 and 2 relative to the Rest of the World (Countries 3-6). As at the outset, Countries 1 and 2 are symmetric in size to each other. For the derivation of hypotheses on the joint size of two economies with regard to the welfare effects of services trade and regulatory liberalization, it is useful to compare Figure 3 with Figure 2.

– Insert Figure 3 here –

As before, the welfare effects of unilateral, regulatory liberalization are hump-shaped in bilateral iceberg services trade cost in b_{12}-space. Two larger countries gain more *absolutely* (the amount of real GDP generated is bigger; not visible in Figure 3), but gain less *relatively* compared to a situation with full liberalization. The reason for this is clear and not different from goods trade liberalization: at some positive trade costs large countries consume relatively more domestically than from abroad so that their relative dependence on foreign countries is weaker. Moreover, the absolute welfare gains from unilateral liberalization are larger but the relative ones (illustrated in the figure for better comparison) are smaller than for two smaller economies.

Hypothesis H^U 2: Reducing regulatory services impediments unilaterally in larger economies induces absolute welfare gains that are larger and relative welfare gains that are smaller than reducing them in smaller economies.

We may form a similar hypothesis regarding the role of absolute bilateral country size (given symmetry) for the impact of bilateral services-cost liberalization on welfare. The corresponding results are summarized in Figure 4.

– Insert Figure 4 here –

Hypothesis H^P 2: Preferential services trade liberalization among larger economies generates bigger absolute and smaller relative welfare gains than doing so among smaller economies.

Preferential services trade liberalization between a large and a small economy: As indicated before, for the consequences of a unilateral liberalization in regulatory costs

in large Country 1, it is qualitatively irrelevant whether all other countries were equally small relative to it or whether Country 2 was smaller than the countries in the Rest of the World or not. However, country asymmetry between two reciprocally preferentially liberalizing economies is important for the welfare effects as is indicated by Figure 4 (see Baier and Bergstrand, 2004, for insights with regard to goods trade and its preferential liberalization). However, a comparison of Figures 4 and 2 suggests that the benefits of a unilateral liberalization of regulatory services costs are relatively larger over a wider range of medium to high trade costs with a small natural trading partner than with a larger one. The reason is that the trade effects of such a regulatory change are relatively (but not absolutely) bigger in case of liberalization with a smaller than with a larger country.

Hypothesis H^U 3 : *Reducing regulatory services impediments unilaterally in an asymmetrically larger economy induces absolute welfare gains that are larger and relative welfare gains that are smaller than reducing them in an asymmetrically smaller economy.*

The welfare gains from liberalizing services trade costs preferentially for a larger relative to its smaller trading partner are relatively (but not absolutely) higher at high regulatory standards in the large country than with two similarly-sized economies. On the contrary, those relative welfare gains are relatively (but not absolutely) smaller at low regulatory standards in the large country than with two similarly-sized economies. To see this, compare the difference in welfare for bilateral services trade costs of $b_{12} = 2$ with those at $b_{12} = 0$ with the blue versus red schedules of Figures 4 and 2.

Hypothesis H^P 3 : *Preferential services trade liberalization among a larger and a smaller economy generates bigger absolute and smaller relative welfare gains than doing so among smaller economies with high regulatory costs in the large country. The opposite is true with low regulatory costs in the large country.*

Services liberalization in economies which are remote in goods versus services trade:

Figures 5 and 6 illustrate the consequences of high bilateral trade costs in goods versus services of Countries 1 and 2 with the Rest of the World (Countries 3-6).

– Insert Figures 5 and 6 here –

Hypothesis H^U 4 : *Reducing regulatory services impediments unilaterally in more goods-trade-remote economies induces absolute welfare gains that are smaller and relative welfare gains that are larger from a reduction in regulatory services standards. Reducing regulatory services impediments unilaterally in more services-trade-remote economies induces absolute welfare gains that are smaller and relative welfare gains that are smaller from a reduction in regulatory services standards.*

The insight summarized in *Hypothesis* H^U 4 is consistent with the consequences of unilateral services liberalization in a large country and bilaterally between a large and a small country with the rest of the world consisting of medium-sized countries as illustrated in Figure 4 above.

Hypothesis H^P 4 : *In more goods-trade-remote economies the absolute welfare gains are smaller and the relative ones are larger for highly services regulated countries. In more goods-trade-remote economies the absolute welfare gains are larger and the relative ones are smaller for services unregulated countries. In more services-trade-remote economies the absolute welfare gains are smaller and the relative ones are larger for highly services regulated countries. This is even more pronounced than with goods-trade-remote economies. In more services-trade-remote economies the absolute welfare gains are smaller and the relative ones are larger for services unregulated countries.*

The insights summarized in *Hypothesis* H^P 4 regarding the relative welfare gains are gained from comparisons of the average slopes of the blue and red loci in Figures 5 and 6 relative to each other and relative to the ones in Figure 2.

Services liberalization in economies with high services cost shares: If goods production depends strongly on services inputs, the expenditure share on services is relatively high. The welfare effects from regulatory services change and a liberalization of bilateral services trade costs for such a situation are displayed in Figure 7, which are compared with Figure 2 in order to formulate *Hypothesis* H^U 5 and *Hypothesis* H^P 5.

– Insert Figure 7 here –

Hypothesis H^U 5 : At a high services cost share in goods production the welfare gains from a unilateral regulatory services-cost reduction rise more monotonically than in a situation with a low cost share of services in goods production. Reducing regulatory services impediments unilaterally then raises welfare more strongly at high bilateral services trade costs than otherwise.

Hypothesis H^P 5 : In economies with a high cost share of services in goods production the absolute and relative welfare gains from preferential services trade liberalization are higher than otherwise, relatively independently of the regulatory standards applied.

5 Empirical methodology

Our empirical framework draws on the random-utility approach of McFadden (1975, 1976) (see Train (1986, 2003)), applied to to revealed preferences of governments as in McFadden (1975). Following this notion akin to Baier and Bergstrand (2004) and Bergstrand and Egger (2013) for preferential international policy liberalization towards goods trade and investment, respectively, we capture the minimum net gains ("utility") among two countries in pair ij from participating in an STA as a latent (unobservable) variable, Π_{ij}^*. We specify the latter as a function of observable determinants contained in the vector x_{ij} and of unobservable variables captured by the scalar ξ_{ij}. While Π_{ij}^* cannot be observed, what is observed is the indicator variable STA_{ij}, reflecting whether two countries do actually entertain an STA or not. Following McFadden (1975), we then postulate that STAs are concluded only if they are profitable even for the worse-off country in pair ij (assuming that the better-off country cannot credibly commit to compensate the other one), so that

$$STA_{ij} = \begin{cases} 1 & \text{if} \quad \Pi_{ij}^* \geq 0 \\ 0 & \text{if} \quad \Pi_{ij}^* < 0 \end{cases} . \tag{10}$$

While Π_{ij}^* is unobserved, we may learn its relationship to the binary, observable STA_{ij}, once postulating a functional form of this relationship, $f(\cdot)$, and we may learn about the

role of the determinants in x_{ij} for the choice of STA_{ij}, once postulating some relationship between x_{ij} and Π^*_{ij}. We adopt the customary approach of a linear relationship between x_{ij} and Π^*_{ij}. Combining these elements, we specify the nonlinear probability model

$$P(STA_{ij} = 1) = f(\Pi^*_{ij} \geq 0 | x_{ij}), \tag{11}$$

where $f(\text{cot})$ is a response probability for pair ij which depends nonlinearly on x_{ij} and lies in the unit interval (see Manski, 1988; Cameron and Trivedi, 2005; Wooldridge, 2010). A particular focus of this paper's analysis constitutes the qualitative impact of some of the elements in x_{ij} as motivated in Section 4 on $f(\cdot)$ and, hence, on Π^*_{ij}.

Towards a specification of the response probability, $f(\cdot)$, we present results based on a linear probability model,[5] and nonlinear probability models such as the probit,[6] heteroskedastic probit,[7] and a semi-nonparametric probability model.[8]

We will present each of those models in a way which permits gauging the qualitative effects of the determinants of interest in x_{ij} on the probability of concluding an STA from the presented parameters. Since unilateral services sales regulations and provisions will feature among the determinants of STA membership (these are often referred to as indices of the sericves trade restrictiveness, STRI; see Borchert, Gootiiz, and Mattoo, 2014), and, like STA_{ij}, these should be treated as choice variables, some of the models presented below will be based on choice models with endogenous regressors.[9]

[5]The advantage of assuming that $f(\cdot)$ is linear about its arguments is convenient, since the parameters on x_{ij} may then be interpreted as marginal effects on the response probability. However, while such models are advertised by some (see Angrist and Pischke, 2009), their fundamental drawbacks (of not guaranteeing predicted probabilities in the unit interval, of not generating unbiased standard errors and test statistics, etc.) are well known (see Lewbel and Yang, 2012).

[6]Assuming normality of $f(\cdot)$ and, hence, a symmetric density function about Π^*_{ij} as well as homoskedasticity about the unobservable determinants of Π^*_{ij}. Probit models have been used for modelling the choices of preferential policy agreements in Baier and Bergstrand (2004), Egger, Egger, and Greenaway (2008), Baier and Bergstrand (2009), and Bergstrand and Egger (2013).

[7]Flexible nonlinear choice models which permit for some form of heteroskedasticity and for endogenous regressors had been introduced by Lewbel (2000).

[8]Such flexible, semi-nonparametric models have been introduced and employed in Gallant and Nychka (1987) and Gabler, Laisney, and Lechner (1993).

[9]A convenient way of dealing with endogenous regressors in nonlinear models is the control-function approach (see Terza, Basu, and Rathouz, 2008; Wooldridge, 2010). See Newey (1987) and Lewbel, Dong, and Yang (2012) for alternatives. In general, our instrumental-variable procedures – based on control functions or not – will involve first-stage regressions which model the minimum and the maximum services-

6 Dependent and explanatory variables

In this section, we introduce the dependent and independent variables which will be used to assess the insights gained from Section 4 using data.

6.1 Services-trade-agreement membership

Data on trade agreements are taken from the World Trade Organization's (WTO's) Regional Trade Agreements Information System database, where $STA_{ij} = 1$ for agreements notified under Article V of the GATS during 1958 up until August 2014, and $STA_{ij} = 0$ otherwise.

The earliest STA was the EC Treaty that entered into effect (eif) in 1958 (but was notified to the WTO only in 1995). After that, there was one STA in the 1980s (between Australia and New Zealand, eif 1989), there were six new STAs during the 1990s (including both the NAFTA and the EC or EU enlargement) and 114 STAs since the year 2000 and up until August 2014. Since trade agreements are typically phased in over a multi-year transition period, to control for potential endogeneity in estimation, our data on the time-varying independent variables are measured in an initial period (if available in 1980, and, due to non-availability, for one variable in 1995, as will become clear below).

6.2 Services share in GDP

We use the average share of services value added in GDP in a dyad ($AVGSRATIO_ij$) as a measure of the services-intensiveness of two economies. Data on these shares are taken from the World Bank's World Development Indicators for the year 1980.

6.3 Services-trade restrictiveness and instruments

As two measures which are at the heart of our analysis, we employ services-trade restrictiveness indices of each one in a country pair ($STRI_i$, $STRI_j$). These indices have been published recently by the World Bank (see Borchert, Gootiiz, and Mattoo, 2014) and they

trade-restrictiveness index (STRI) each in a pair of countries as two separate endogenous variables in a linear regression model.

measure the overall restrictiveness of a country's economic policy in a range of so-called modes: cross-border supply or Mode 1, commercial presence or Mode 3 and movement of natural persons or Mode 4. Compiled from responses to questionnaires sent out by the World Bank to 79 developing countries on *impediments to international integration* and from publicly available information for OECD countries, the STRI is a quantitative index of restrictions on services trade encompassing 103 countries, 5 major service sectors, and 19 sub-sectors. The value of the STRI ranges from 0 (fully liberal) to 100 (fully closed).

Since the theoretical model suggests an impact of the absolute size and the difference of the two indices, we employ the minimum and the maximum STRI levels in a pair as two separate (potentially endogenous) regressors. Given a minimum STRI level in a pair, raising the maximum means raising the difference in STRI indices, and, given a maximum STRI level in a pair, raising the miniimum means reducing the difference in STRI index levels. Raising both the minimum and the maximum level proportionately means keeping the proportional difference in STRI levels constant while raising the average STRI level in a pair.

In some of the nonlinear probability models determining STA membership, we consider the minimum and maximum STRIs in a country pair to be endogenous, since economies may choose their level of services trade restrictiveness as they choose STA membership.[10] Apart from exogenous regressors which will be introduced below and presumably induce a direct effect on the probability of STA membership, we include a set of political variables measured as both the maximum and the minimum in a pair in 1980 as determinants of maximum and minimum STRIs. These identifying instruments are all taken from the Polity IV database and belong in two groups: one which relates to structural characteristics by which chief executives are recruited – including the extent of institutionalization of executive transfers, $XRREG$; the competitiveness of executive selection, $XRCOMP$; and the openness of executive recruitment, $XROPEN$ – and one which relates to the extent to which a political system enables non-elites to influence political elites in reg-

[10]However, admittedly, since STRIs are unilateral measures which affect all trade partners symmetrically, it seems likely that the level of services trade restrictiveness may not be changed as easily as STA membership may be.

ular ways – including the degree of institutionalization or regulation of political participation, $PARREG$; and the extent of government restriction on political competition, $PARCOMP$.[11]

6.4 Baier and Bergstrand-type determinants

The numerical analysis in Section 4 supports a set of determinants of STA membership which may be captured by the same types of regressors as used for an analysis of GTA membership. Accordingly, we use a number of regressors as motivated by the seminal approach of Baier and Bergstrand (2004) rationalizing GTA membership from an economic viewpoint. These determinants relate to country size, relative factor endowments, and

[11] $XRREG$ captures the extent to which a political system institutionalizes procedures for transferring executive power. The country-time-specific variable may take on three values, $XRREG \in \{1, 2, 3\}$ which refer to unregulated (coded 1), designational/transitional (coded 2), and regulated (coded 3) systems. $XRCOMP$ captures the extent that prevailing modes of advancement give subordinates equal opportunities to become superordinates (see Gurr 1974). For instance, the selection of chief executives through popular elections matching two or more viable parties or candidates is regarded as competitive. If power transfers are dubbed unregulated (coded 1) in XRREG or involve a transition to or from and unregulated system, $XRCOMP$ is coded 0. Otherwise, $XRCOMP$ may take on three integer values, depending on whether superordinates in a political system are chosen by selection (coded 1), election (coded 3), or a dual/transitional system (coded 2). $XROPEN$ captures whether the recruitment of the chief executive is open to the extent that all politically active population principally has an opportunity to attain the position through a regularized process. If power transfers are dubbed unregulated (coded 1) in $XRREG$ or involve a transition to or from an unregulated system, $XROPEN$ is coded 0. Otherwise, $XROPEN$ may take on four integer values, to measure whether the recruitment of the chief executive is closed (coded 1), done through dual-executive designation (coded 2), through dual-executive election (coded 3), or it is open (coded 4).
$PARREG$ measures the extent to which political participation is regulated through binding rules on when, whether, and how political preferences are expressed. One-party states and Western democracies both regulate participation but they do so differently, the former by channelling participation through a single party structure, with sharp limits on diversity of opinion; the latter by allowing relatively stable and enduring groups to compete non-violently for political influence. The polar opposite is unregulated participation, in which there are no enduring national political organizations and no effective regime controls on political activity. In such situations political competition is fluid and often characterized by recurring coercion among shifting coalitions of partisan groups. A five-category scale is used to code $PARREG$ as: unregulated (coded 1); multiple identity (coded 2); sectarian (coded 3); restricted (coded 4); or regulated (coded 5). $PARCOMP$ measures the extent to which alternative preferences for policy and leadership can be pursued in a country's political arena. Political competition implies a significant degree of civil interaction, so polities which are dubbed unregulated (coded 1) in $PARREG$ are not coded in $PARCOMP$. Polities in transition between unregulated and any of the regulated forms of $PARREG$ are also not coded in $PARCOMP$. Otherwise, $PARCOMP$ is coded on a five-category scale as: repressed (coded 1); suppressed (coded 2); factional (coded 3); transitional (coded 4); and competitive (coded 5).
In general, as with STRIs, raising the minimum and maximum levels of one of the political identifying instruments in a pair proportionately changes the average level without changing the difference. In contrast, changing the minimum or maximum level of such a variable only changes the between-countries difference of political characteristics.

distance and remoteness. Following Baier and Bergstrand (2004) to a large extent in the definition of variables, we employ

$$SUMGDP_{ij} = \ln(GDP_i + GDP_j), \quad DGDP_{ij} = |\ln(GDP_i) - \ln(GDP_j)| \tag{12}$$

for log total economic size of two countries in terms of real GDP ($SUMGDP_{ij}$) and the discrepancy in country size ($DGDP_{ij}$),

$$DGDPPC_{ij} = |\ln\frac{GDP_i}{POP_i} - \ln\frac{GDP_j}{POP_j}|, \quad SQDGDPPC_{ij} = DGDPPC_{ij}^2, \tag{13}$$

$$DRDGDPPC_{ij} = 0.5\sum_{h\in\{i,j\}} |\ln\frac{\sum_{k\neq\{h\}} GDP_k}{\sum_{k\neq\{h\}} POP_k} - \ln\frac{GDP_h}{POP_h}|, \tag{14}$$

for absolute differences in log real per-capita income (proxying log capital-labor ratios, $DGDPPC_{ij}$),[12] the squared value thereof ($SQDGDPPC_{ij}$), and average absolute differences in log real per-capita income between the Rest of the World for countries i and j, respectively ($DRGDPPC_{ij}$), and

$$DIST_{ij} = \ln(\text{distance}_{ij}) \tag{15}$$

for log distance from each other and from the Rest of the World for two countries i and j.[13]

The variables $SUMGDP_{ij}$, $DGDP_{ij}$, $DGDPPC_{ij}$, $SQDGDPPC_{ij}$, and $DRGDPPC_{ij}$ are all based on source data on real GDP and population for the year 1980 from the Penn World Tables (Heston and Summers, 2011). The variable DIST_{ij} is taken from the grav-

[12]Baier and Bergstrand (2004) computed countries' capital stocks by using the perpetual inventory method to compute capital-per-capita or capital-labor ratios directly. However, a problem with this procedure is that it requires sufficiently long time series on investments and investment deflators. For the country sample at hand, this would have led to an unjustifiable loss of observations. Moreover, real per-capita income ratios are highly correlated with capital-labor ratios (see Egger and Larch, 2008; Bergstrand, Egger, and Larch, 2016). The correlation coefficient between real real per-capita incomes and capital-labor ratios in the subsample of our data for which both variables exist is close to 0.9.

[13]Baier and Bergstrand (2004) also motivate the inclusion of distance of every pair of countries i and j from the Rest of the World, a variable they call remoteness. It turns out that, with STA_{ij} as the dependent variable – which is unity only for a small subset of preferential trade agreements – remotenes is highly collinear with the other regressors included in the model and does not add explanatory power. Therefore, we chose against including it in the specification.

ity data-set of the Centre d'Études Prospectives et d'Informations Internationales (CEPII; see Head, Mayer, and Ries, 2010).

6.5 Other determinants

6.5.1 Geography and culture

We include six determinants which belong in the group of geo-institutional or geo-cultural determinants of preferentialism, all of which are binary measures. They include a measure for a common legal system ($COMLAW_{ij}$), a common official language ($COMLANG_{ij}$), a colonial relationship in history ($COLONY_{ij}$), a recent colonial relationship after 1945 ($COLONY45_{ij}$), a common colonizer of both countries ($COMCOL_{ij}$), and a variable which captures whether two countries were once one unit ($SAMECTRY_{ij}$). The variable on legal origins is based on the data provided by La Porta, Silanes, Shleifer, and Vishny (1999). [14] All other mentioned variables come from CEPII's gravity data-set.

6.5.2 Politics

To incorporate some notion of direct political costs or incentives to enter into an agreement for two countries, we include measures of each country's overall political freedom ($POLITY_i$, $POLITY_j$), of each country's regime durability ($REGDUR_i$, $REGDUR_j$), and of the fragility of the state (SFI_i, SFI_j).[15] As with STRI and the identifying instru-

[14] http://www.economics.harvard.edu/faculty/shleifer/files/qgov_web.xls

[15] $POLITY$ reflects a combined polity score, where the autocracy ($AUTOC$) score for a country is subtracted from the democracy ($DEMOC$) score such that the resulting unified polity scale ranges from +10 (strongly democratic) to −10 (strongly autocratic). Instances of standardized authority scores taking on values of −66, −77, and −88 in the coding are converted to scores within the range of −10 to +10. $REGDUR$ measures the number of years since the most recent regime change (defined by a three-point change in the POLITY score over a period of three years or less) or the end of a transition period defined by the lack of stable political institutions (denoted by a standardized authority score). In calculating $REGDUR$, the first year during which a new (post-change) polity is established is coded as the baseline year zero, and each subsequent year adds one to the value of the $REGDUR$ variable consecutively until a new regime change or transition period occurs. Values are entered for all years beginning with the first regime change since 1800 or the date of independence if that event occurred after 1800. The range for the variable in 1980 is between 0 and 171. The state fragility index underlying SFI ranges from no state fragility (coded 0) extreme state fragility (coded 25). The data cover all independent countries in the world in which the total country population is greater than 500,000 in 2013 (167 countries). The fragility matrix scores each country on effectiveness and legitimacy along four performance dimensions: security; politics; economics; and social matters. Each of the indicators is rated on a four-point fragility scale:

ments for STRI, we generally use the minimum and the maximum level of these indices in a pair as two different regressors. Akin to the identifying instruments, we measure these variables in an initial period, 1980 for $POLITY$ and $REGDUR$ and 1995 for SFI.

6.5.3 Contagion

In order to capture the influence of countries and country pairs on each other in participating in STAs, we run a separate set of empirical models which focuses on STA membership since the year 2007 – wherefrom STA memberships started becoming particularly popular, according to the data – and consider the impact of the average STA membership of country pairs other than ij in participating in STAs or GTAs prior to 2007 on ij's propensity to be a member of the same STA in 2007 or thereafter.[16] Moreover, we control for other country pairs' maximum and minimum STRI index levels in this set of empirical models to consider spillovers from unilateral services trade liberalization. To do so, we use weighted averages of pre-2007 STA and GTA membership, and of the minimum and maximum unilateral services trade restrictiveness (MINSTRI, MAXSTRI), respectively, for all country pairs except ij to construct contagion variables (WSTA, WGTA, WMINSTRI, WMAXSTRI) for pair ij. The weights are calculated as follows: for pair ij, each of the four original policy variables (PRE2007STA, PRE2007GTA, MINSTRI, MAXSTRI) are multiplied by the binary contiguity with i or j, summed up for ij and divided by the average contiguity of i or j with all countries. This yields the (neighbourliness-)weighted average policy variables $WSTA_{ij}$, $WGTA_{ij}$, $WMINSTRI_{ij}$, $WMAXSTRI_{ij}$ for pair ij. The sources of these simply averaged variables are the same ones as for STA (namely the WTO) and for the STRIs (namely the World Bank).

no fragility (coded 0); low fragility (coded 1); medium fragility (coded 2); and high fragility (coded 3) with the exception of the economic effectiveness indicator, which is rated on a five-point fragility scale (where extreme fragility is coded 4). The state fragility index combines scores on these eight indicators and ranges from 0 (no fragility) to 25 (extreme fragility). A country's fragility is closely associated with its state capacity to manage conflict; make and implement public policy; and deliver essential services and its systemic resilience in maintaining system coherence, cohesion, and quality of life; responding effectively to challenges and crises, and sustaining progressive development.

[16] GTAs are agreements that are notified under Article XXIV of the GATT prior to 2007. We construct an agreement indicator for this akin to STA_{ij} and use its weighted average for all country pairs except ij to construct a contagion variable for pair ij.

6.6 Descriptive statistics

Table 1 provides standard summary statistics for all variables in use. Apart from that, the table is useful in that it contains variable descriptions next to the acronyms for all variables, and it provides information about the nature of variables (binary, bounded, continuous).

A comparison of STRI by regions/groups in Figure 8 shows that the Middle-East & North Africa (MENA) have the most restrictive services trade policies, followed by South Asia (SA), East Asia & the Pacific (EAP), and Sub-Saharan Africa (SSA), with the last also being the most heterogeneous group. As expected, the OECD and East & Central Asia (ECA) not only have the lowest STRI values but also form the most homogeneous groups in that regard.

– Insert Table 1 and Figure 8 here –

A closer look at Figure 8 also provides an insight into the factors likely to influence the choice of partners for negotiated regulatory convergence in the context of STA membership. For instance, high levels of per-capita income, economic development, and political stability all likely feature behind the observed homogeneity in STRI among OECD countries though there are significant differences in language, culture, and bilateral distances within this group of countries. In the case of ECA, on the other hand, there is far more homogeneity in terms of language, culture, and distances, while there are bigger differences in terms of per-capita income, and levels of development. This seems to suggest that a combination of these factors could determine which countries are potential candidates for negotiated regulatory convergence in an STA.

– Insert Figure 9 here –

Figure 9 reveals that STA members relative to non-members in our sample are closer geographically in terms of distance, larger in terms of real GDP and more similarly-sized, have smaller differences in real per-capita incomes (and hence, relative factor endowments) with respect to each other but not compared to the ROW, display less restrictive and more

homogeneous services regulation, are more likely to have a common language, common colonial antecedents and be a part of the same country but show lesser inclination to have a common legal framework. The 103 countries in our sample are listed in Appendix A1 .

7 Estimation results

In this section, we present two sets of results: one which relates to STRIs as dependent variables (which are treated as endogenous in some of the probability models assessing the determinants of STA membership) and probability models for having an STA. The former should be viewed as first-stage regressions pertaining to the probit models where STRIs are treated as endogenous.

7.1 Determinants of STRIs

Table 2 provides linear model regression results for the minimum ($MINSTRI_{ij}$) and the maximum level of the STRI index ($MAXSTRI_{ij}$) among two countries i and j in a pair. The two index values are modeled separately as functions of almost the same exogenous regressors. Part of the regressors are all exogenous determinants of STA membership which will be included later on the right-hand side of the probit models determining such membership. Other regressors – namely variables capturing characteristics of countries' political regimes in the year 1980 which is prior to the conclusion of all STAs – serve as instruments of the country-specific regulatory provisions regarding services sales and trade.

– Insert Table 2 here –

Since the regressions in Table 2 serve as first-stage models, we refrain from a detailed discussion of the corresponding model results. What is relevant is the relative importance of the identifying instruments – i.e. the political variables in the bottom block of regressors – among all variables included on the right-hand side. The explanatory power amounts to values of the R^2 of between 23 an 26 percent in Table 2, and the joint significance of the

identifying instruments alone is evident from the tiny p-values on F-statistics from tests against the null hypothesis of the identifying instruments being jointly zero.

However, let us note that, at a given joint size of two countries, a larger difference in country size is associated with a lower maximum level of unilateral services trade costs and a higher minimum one (see the negative sign on "*Absolute Difference in Log GDP of i and j*" in the MAXSTRI column of Table 2 and the positive one on the MINSTRI column). This is aligned with the expectations based on *Hypothesis* H^U *3*. Yet, that regulatory barriers are higher in two large economies (see the positive sign on "*Log Sum of GDP of i and j*" in both columns of Table 2) is somewhat surprising. It would not be inconsistent with *Hypothesis* H^U *2*, if regulatory services trade costs would be at or lower than their equilibrium level in the outset, according to *Hypothesis* H^U *1*.

The two regressions for $MINSTRI_{ij}$ and $MAXSTRI_{ij}$ as dependent variables also condition on the share of services in total GDP as a measure of the services cost share in goods production. We condition on the share of the respective country whose STRI is lower in the regression for $MINSTRI_{ij}$ and on the share of the respective country whose STRI is higher between two countries in the regression for $MAXSTRI_{ij}$. However, using the average value in the two countries instead would not have changed the qualitative insight. We find that countries with a higher services cost share have less stringent unilateral regulatory provisions in place, which is consistent with *Hypothesis* H^U 5.

7.2 Determinants of unilateral services liberalization

To further examine the theoretical predictions inherent in *Hypotheses* H^U 1 - H^U 5, we combined data on STRI from two different sources – the World Bank (Borchert, Gootiiz and Mattoo, 2014) for the year 2008 and the OECD for the year 2014, 2015 – for the common sample of 32 OECD and non-OECD countries[17] for which STRI data are available from both sources.

We then constructed a variable *dSTRI* as the difference in the level of STRI between

[17]These countries include Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, India, Indonesia, Ireland, Italy, Japan, South Korea, Mexico, Netherlands, New Zealand, Poland, Portugal, Russia, South Africa, Spain, Sweden, Turkey, United Kingdom and United States.

2008 and the average for 2014-2015.[18] The mean of *dSTRI* was found to be positive in the data at hand, suggesting that, on average, the sample of countries became more services trade restrictive over the considered time span.

Monodic economic determinants including per capita income, real GDP, total goods and services trade, and the services share in GDP were then used to explain *dSTRI* in an OLS regression. The results from this regression only provided evidence for the theoretical prediction in *Hypothesis* H^U 5, i.e., more services intensive economies tend to more likely liberalize their services trade unilaterally. However, the lack of evidence for the remaining unilateral services liberalization hypotheses in these results needs to be interpreted with caution given the data limitations with the STRI, which materialize in a small sample size of only 31 observations with the corresponding regressions.

7.3 Determinants of STA membership

In this subsection, we summarize the results for probit models about STA membership. In general, we report marginal (or, for binary regressors, discrete) effects of variables which are evaluated at the average value of all regressors. It is worth mentioning that the numerical analysis in Section 4 establishes qualitative relationships between some of the regressors and the latent variable in the probit models. However, since this relationship is formulated by way of a linear index in the probit models (akin to, e.g., Baier and Bergstrand, 2004; and Bergstrand and Egger, 2013; in a different context), the disturbance term of the probit model – which captures also the approximation error of the underlying theoretical model by the linear index – will likely be heteroskedastic. Since the maximum likelihood estimator (not only of the probit but also of other models) is inconsistent in the presence of heteroskedasticity, we report three types of models: a linear probability model (where the parameters reflect marginal effects but the standard errors are heteroskedastic); a standard probit model; and a heteroskedastic probit model (following Harvey, 1976; Greene, 2012). Whenever we consider the included STRI measures, $\{MINSTRI_{ij}, MAXSTRI_{ij}\}$, to be endogenous, we include a control function and estimate two alternative probit models as-

[18] The STRI values from the two sources were converted to the same scale, namely 0-100, to enable any comparison.

suming heteroskedasticity: one which relies on a linear control function as part of the probit model's linear index, and one that relies on a semi-parametric control function. The latter is parametrized by quantile-specific parameters on the control function and it is preferable over a single-parameter control function with heteroskedasticity, since the variance on the disturbances of the latent variable is not constant. We present the main results of the analysis in Table 3 assuming exogenous $\{MINSTRI_{ij}, MAXSTRI_{ij}\}$ and Table 4 assuming endogenous $\{MINSTRI_{ij}, MAXSTRI_{ij}\}$.

Before turning to a discussion of the regression results, one general feature of the binary STA_{ij} indicator should be borne in mind, namely that it is much more rarely unity than traditional trade agreement membership indicators are. Moreover, STAs emerge only in a few regions. This has important consequences for estimation: we would expect generally less robust results for STA membership than for trade agreement memberships at large; we would expect the most important economic (and, eventually, political) variables such as unilateral services trade restrictiveness, country size, and geography to come out robustly. However, it should be noted that there is a fair degree of collinearity among some of the regressors which may lead to a lack of precision in the estimation of parameters on some of the less important regressors.

– Insert Tables 3 and 4 here –

Table 3 reports effects of the regressors on the probability of forming an STA between two countries in three probability models from left to right: the linear probability model (LPM), the probit (PM), and the heteroskedastic probit model (HPM). The sample comprises 3,403 observations in the LPM and 3,387 observations in the PM and HPM. The coefficients on the STRI variables suggest the following qualitative insight which is independent of the estimated model: as services trade restrictiveness increases in either one of two countries, the probability of signing an STA declines; however, as the restictiveness towards services transactions becomes more similar between the two countries ($MINSTRI_{ij}$ rises and $MAXSTRI_{ij}$ declines proportionately), the probability of signing an STA rises. This results is consistent with *Hypothesis* H^P 1 which states that "*[C]ountries with the*

biggest willingness to reduce regulatory services costs unilaterally would also benefit the most from abolishing services trade costs bilaterally."

The coefficients on the absolute and relative endowment variables suggest similar results for STAs as for preferential trade agreements in general (confer Baier and Bergstrand, 2004), independent of the type of model estimated: economically larger and more similar economies are more likely to negotiate STAs and we find evidence for this in all three sets of results. These results are consistent with *Hypothesis* H^P 2 (regarding joint absolute size) and *Hypothesis* H^P 3 (regarding relative size, if regulatory costs are higher in larger countries as is the case on average in the data). The coefficients on the per-capita income variable, $DGDPPC_{ij}$, are less robust (they are negative for the homoskedastic models but tend to be indistinguishable from zero with the heteroskedastic models).[19] An increase in $DRGDPPC_{ij}$ tends to raise the probability of an STA between two countries i and j, ceteris paribus, when considering the linear probability model and the heteroskedastic probit results. This result is different from both the simple probit as well as the findings in Baier and Bergstrand (2004) for goods-trade agreements. However, we need to bear in mind that STAs are extremely rare events and that the per-capita income variables are relatively highly collinear with each other and also with country size and similarity.

Unlike with the unilateral services-policy provisions, we do not find a strong link between services cost shares (measured as average services expenditure shares in GDP for two countries) and the probability of an STA membership. Hence, there is no support for *Hypothesis* H^P 5, and all the impact of services cost shares appears to run through unilateral provisions.

Note that a more precise empirical evaluation of *Hypothesis* H^P 3 would require looking at the marginal effect of differential economic size on the probability of STA membership at various levels of regulatory costs in the large economy. Similarly, a more precise empirical evaluation of *Hypothesis* H^P 5 would require looking at the marginal effects of services-

[19]Notice that we followed Baier and Bergstrand (2004) in including the simple as well as the squared term for the underlying variable ($DGDPPC_{ij}$, $SQDDGDPPC_{ij}$). However, the coefficients on polynomial expressions cannot be interpreted with nonlinear models such as probit. Therefore, since reporting marginal effects throughout, we always report the marginal effect of $DGDPPC_{ij}$ only. For instance, Baier and Bergstrand (2004) did not report marginal effects. Therefore, the results on STAs in this paper cannot be directly compared to the ones in Baier and Bergstrand (2004).

intensiveness of the economies at various (conditional) levels of the explanatory variables. However, notice that the cumulative probability of STA membership in any customary nonlinear probability model follows an S-shaped pattern in terms of the linear index. On average for the data analyzed, much fewer than 50 percent of the country pairs actually are members of an STA. This means that the data are situated in the left branch of the S-shaped probability function. Thus, everything evaluated on average except for one explanatory variable in the data does not move a country pair beyond the 50-percent probability threshold. Hence, if we marginally raised $DGDP_{ij}$ for a country pair with such a ratio in the 25-th or the 75-th percentile of the distribution, we would get a higher or lower, respectively, marginal effect than on average. Conversely, if we marginally raised $AVGSRATIO_{ij}$ for a country pair with such a ratio in the 25-th or the 75-th percentile of the distribution, we would get a lower or higher, respectively, marginal effect (though not statistically significantly so) than on average. This empirically supports the theoretical prediction inherent in *Hypothesis* H^P 3 but provides statistically insignificant evidence for the theoretical prediction inherent in *Hypothesis* H^P 5.

The coefficients on geographical and cultural variables suggest that geographically remote countries are unlikely candidates for STA membership and this result is statistically significant across estimation techniques. The coefficients of all other bilateral trade cost variables are statistically insignificant from zero, though having a common colonizer and a common colonial relationship since 1945 seems to dampen STA formation in these results in the LPM.

The politics variables matter jointly. However, we refrain from interpreting their coefficients, since they display a relatively high degree of multicollinearity in the considered sample. Clearly, the linear probability model (LPM) in the first column of Table 3 is problematic, since it predicts a negative probability of STA membership for almost one-quarter of the observations (this being an outcome of the high frequency of no-STA events). Moreover, the simple probit model (PM) in the center of the table is rejected against the heteroskedastic probit (HPM) on the outer right according to a likelihood-ratio test.

Table 4 reports the corresponding results for an LPM, a PM, a parametric het-

eroskedastic probit (HPMP), and a semiparametric heteroskedastic probit (HPMSP), in that order. From a general perspective, the results are similar to the ones obtained from the models in Table 3. The estimates are less precise, though. The reason is that – given STA membership to be so rare – it is not worthwhile to consider the endogeneity of the STRI indices, $\{MINSTRI_{ij}, MAXSTRI_{ij}\}$, in estimation, even though the instruments are highly relevant in Table 2. For the same reason, it is not necessary or worthwhile to consider a semiparametric control-function approach as in HPMSP relative to the parametric one in HPM.

In Table 5, we assess the role of contagion for STA membership in 2007 and thereafter. We do so by adding average STA and GTA memberships (a weighted propensity of such memberships) and also average (weighted) minimum and maximum STRIs of those other countries and country-pairs that had signed STAs prior to 2007 in order to assess *Hypothesis* H^P 4. Clearly, doing so means considering a smaller sample, since all country pairs with STAs prior to 2007 will not be included in this analysis of a choice of STAs in 2007 or thereafter. Accordingly, the sample size drops from 3,403 observations in Tables 3-4 to 3,005 in Table 5. According to Table 1, not only the number of observations but also the propensity of STA membership drops by more than one-half between Tables 3-4 and Table 5. Moreover, it turns out that the number of observations drops even further when estimating nonlinear probability models (such as PM and HPM) due to variable collinearities. Hence, we expect the corresponding results to be even less robust in that table than in the prior analysis. It turns out that estimating an HPM drastically aggravates this problem in the small sample so that we suppress it here but focus on LPM and PM estimation for the cases of assumed exogenous versus endogenous STRIs.

– Insert Table 5 here –

According to the results in Table 5, we learn relative to the earlier analysis based on preferable nonlinear probability models that STA membership is strongly positively related to neighbors' goods trade agreement (GTA) membership (see the positive coefficient on "*Neighbor-weighted Pre-2007 GTA Membership for i and j*"). Notice that neighbors'

GTA membership is negatively associated with goods-trade-remoteness so that this result is in support of *Hypothesis* H^P 4.[20] In order to put the magnitude of the effect in perspective, let us consider the (large) positive marginal effect on prior-to-2007 GTA memberships on 2007-and-after STA memberships relative to that of geographical distance. Let us normalize the marginal effects by the standard deviations of the underlying variables as provided in Table 1, so that they can directly be compared. Then, it turns out that the one-standard-deviation impact of pre-2007 GTA membership of other pairs is only about smaller by one-quarter (in absolute value) relative to the one of geographical distance. In other words, contagion in GTA membership has offset about three-quarters of the detrimental impact of geographical distance on the inclination towards STA membership for the average country pair. STA membership is not related to neighbors' STA membership prior to 2007 in a statistically significant way.

8 Conclusion

This paper examines the role of regulatory incidence and convergence and other economic (and political) fundamentals in determining STA membership. It proposes a numerical model of intermediate services trade and final goods trade to derive hypotheses regarding the adoption of unilateral services provisions (or regulations) as well as their bilateral, preferential removal.

The model is used to generate predictions, in particular, about economic size and services as well as goods trade costs as determinants of the strength of unilateral services impediments and the probability of their preferential removal. Main results are that two larger economies should have more similar levels of regulatory provisions, and two more dissimilarly-sized economies should be found to have more similar levels of unilateral regulations. Moreover, the model suggests that regulatory convergence (more similar unilateral provisions) between two countries will more likely lead to welfare gains from reciprocal preferential market access in services trade. Moreover, larger and more similarly-sized

[20] Notice that goods-trade remoteness is negatively associated with $WGTA_{ij}$, and the latter is positively associated with STA membership between i and j, which supports the claim.

economies should be more likely to conclude services-trade agreements, and goods-trade-remoteness reduces the likelihood of (and welfare gains from) services-trade agreements, while services-trade remoteness does the opposite.

The data and empirical results support most of these hypotheses. In particular, more similar services trade provisions are indeed positively related to a greater likelihood of the conclusion of services-trade agreements. Larger and more similar countries are indeed more likely to conclude services-trade agreements (as is the case for goods-trade agreements). Finally, goods-trade and services-trade remoteness (measured by the inverse of prior goods-trade and services-trade agreements with other countries, respectively) are indeed related to services-trade agreement membership as hypothesized (though the result with respect to services-trade remoteness lacks statistical significance).

These results complement the relatively rich evidence on the determinants of goods-trade agreements, and they add insights on the role of fundamentals which are specifically related to services trade as potential drivers of the welfare gains of preferential market access not only in services but also in goods.

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Appendix A1: Sample composition

Size of the data-set

The STRI data are available for 103 countries, so that there are 5,253 [$= (103 \times 102)/2$] possible dyads (treating pair ij and pair ji as the same dyad). By August 2014, 542 of these dyads were members of an STA.

List of included countries

Albania, Argentina, Armenia, Australia, Austria, Burundi, Belgium, Bangladesh, Bulgaria, Bahrain, Belarus, Bolivia, Brazil, Botswana, Canada, Chile, China, Cote d'Ivoire, Cameroon, Congo (Democratic Republic), Colombia, Costa Rica, Czech Republic, Germany, Denmark, Dominican Republic, Algeria, Ecuador, Egypt, Spain, Ethiopia, Finland, France, Great Britain, Georgia, Ghana, Greece, Guatemala, Honduras, Hungary, Indonesia, India, Ireland, Iran, Italy, Jordan, Japan, Kazakhstan, Kenya, Kyrgyz Republic, Cambodia, South Korea, Kuwait, Lebanon, Sri Lanka, Lesotho, Lithuania, Morocco, Madagascar, Mexico, Mali, Mongolia, Mozambique, Mauritius, Malawi, Malaysia, Namibia, Nigeria, Nicaragua, the Netherlands, Nepal, New Zealand, Oman, Pakistan, Panama, Peru, the Philippines, Poland, Portugal, Paraguay, Qatar, Romania, Russian Federation, Rwanda, Saudi Arabia, Senegal, Sweden, Thailand, Trinidad & Tobago, Tunisia, Turkey, Tanzania, Uganda, Ukraine, Uruguay, USA, Uzbekistan, Venezuela, Vietnam, Yemen, South Africa, Zambia, Zimbabwe.

Non-existence of some countries in 1980

Note that ten countries in our sample did not exist in the year 1980: Czech Republic and nine former former Soviet Union republics (Armenia, Belarus, Georgia, Kazakhstan, the Kyrgyz Republic, Lithuania, Russia, Ukraine, and Uzbekistan). GDP and population for these countries were constructed for the year 1980 and 1980-82, respectively. This was done by multiplying historical GDP (corrected for inflation) and population for Czechoslovakia and the USSR by the shares of the Czech Republic and each of the nine former USSR

republics, respectively, in the year 1994.[21]

Appendix: Two remarks on evaluating marginal effects in nonlinear models

Let us use $z_h \equiv m_h\beta$ to denote the linear index determining a latent variable for unit $h = 1, ..., n$ in the data. Moreover, let us denote the ℓth element of the $1 \times L$ vector m_h by $m_{\ell,h}$, so that $m_h = (m_{\ell,h})$. Let us use the convention to refer to the vector of averages of $m_{\ell,h}$, $\overline{m}_\ell$, as $\overline{m} = (\overline{m}_\ell)$ and to the average of z_h based on $\overline{m}$ as $\overline{z} = \overline{m}\beta$. Moreover, let us refer to the average of $z_h \equiv m_h\beta$ as $\overline{z}_0$.

Remark 1: Linear indices which are linear in parameters but nonlinear in variables through powers or interaction terms.

Clearly, if z_h is linear in both all elements $m_{\ell,h}$ and all elements β_ℓ, then $\overline{z}_0 = \overline{z}$. However, consider the case where z_h is linear only all elements β_ℓ but not all elements $m_{\ell,h}$. For instance, this is the case if some arbitrary element in m_h is a squared value of another element, e.g., $m_{3,h} = m_{1,h}^2$. Then, $\overline{m}_3 \neq \overline{m}_1^2$, unless $\overline{m}_1 = 1$.[22] It was correctly pointed out by Ai and Norton (2003) that, in such a case, a correct computation of the marginal effect of $m_{1,h}$ on z_h has to take into account that $m_{3,h}$ is a function of $m_{1,h}$ (which apparently had been ignored in a substantive body of work). Suppose z_h is linear in all terms $m_{\ell,h}$ for $h \leq 4$. Clearly, with the example of the quadratic term, $\frac{\partial \overline{z}}{\partial \overline{m}_1} = \beta_1 + \beta_2\overline{m}_1$. However, now a potential problem emerges with respect to the evaluation point in the data: Evaluating the marginal effect of linearly-entering variables such as $\overline{m}_4$ at the sample mean of the other variables (including $\overline{m}_1$ and $\overline{m}_3$), while evaluating the marginal effect of nonlinearly-entering variables such as $\overline{m}_1$ and $\overline{m}_3$ at $\overline{m}_1$, the evaluation point will change. The reason is that $\beta_1\overline{m}_1 + \beta_3\overline{m}_3 \neq \beta_1\overline{m}_1 + \beta_3 m_3(\overline{m}_1)$, where $m_3(\overline{m}_1)$ is the value of m_3 when being evaluated at $\overline{m}_1$. Hence, in that case, linearly- and non-linearly entering variables in the

[21] This was the earliest year data on all these ten countries existed.

[22] Clearly the same holds true, if some arbitrary element in m_h is an interaction term of two other elements, e.g., $m_{3,h} = m_{1,h}m_{2,h}$.

index are evaluated at potentially hugely different points and the marginal effects might not be comparable with each other. A solution to this problem for the case of a squared term in the function is the following. First, compute the value $d = \beta_1 \overline{m}_1 + \beta_3 \overline{m}_3$ and solve the equation $d = \beta_1 \widetilde{m}_1 + \beta_3 \widetilde{m}_1^2$, given $\{d, \beta_1, \beta_3\}$ for the two roots of $\widetilde{m}_1$. This will maintain $\overline{z}(\overline{m}_1, \overline{m}_3) = \overline{z}(\widetilde{m}_1)$ and guarantee that the marginal effects of $\widetilde{m}_1$ as well as all the linearly-entering terms are evaluated at the same point of the linear index, corresponding to $\overline{z}$.

Remark 2: Evaluation at the point of the linear index corresponding to the average probability versus the average index value.

One might also consider the average (estimated) probability of outcome, $\overline{\Phi}$. Notice that for reasons of nonlinearity of probability models $\overline{\Phi} < \Phi(\overline{z})$ with sufficiently unlikely events.[23] However, we could calculate the linear index corresponding to $\overline{\Phi}$ by inversion of the function, $\check{z}$. When evaluating marginal effects at any actually-represented vector of values of z in the data, e.g., one closest-possible to $\check{z}$ (or, alternatively, the vector of median values of z_h), all problems mentioned in Remark 1 could be avoided.

[23] E.g., with probit models, that would be the case whenever $\overline{\Phi} < 0.5$.

Figure 1: Graphical description of the numerical model

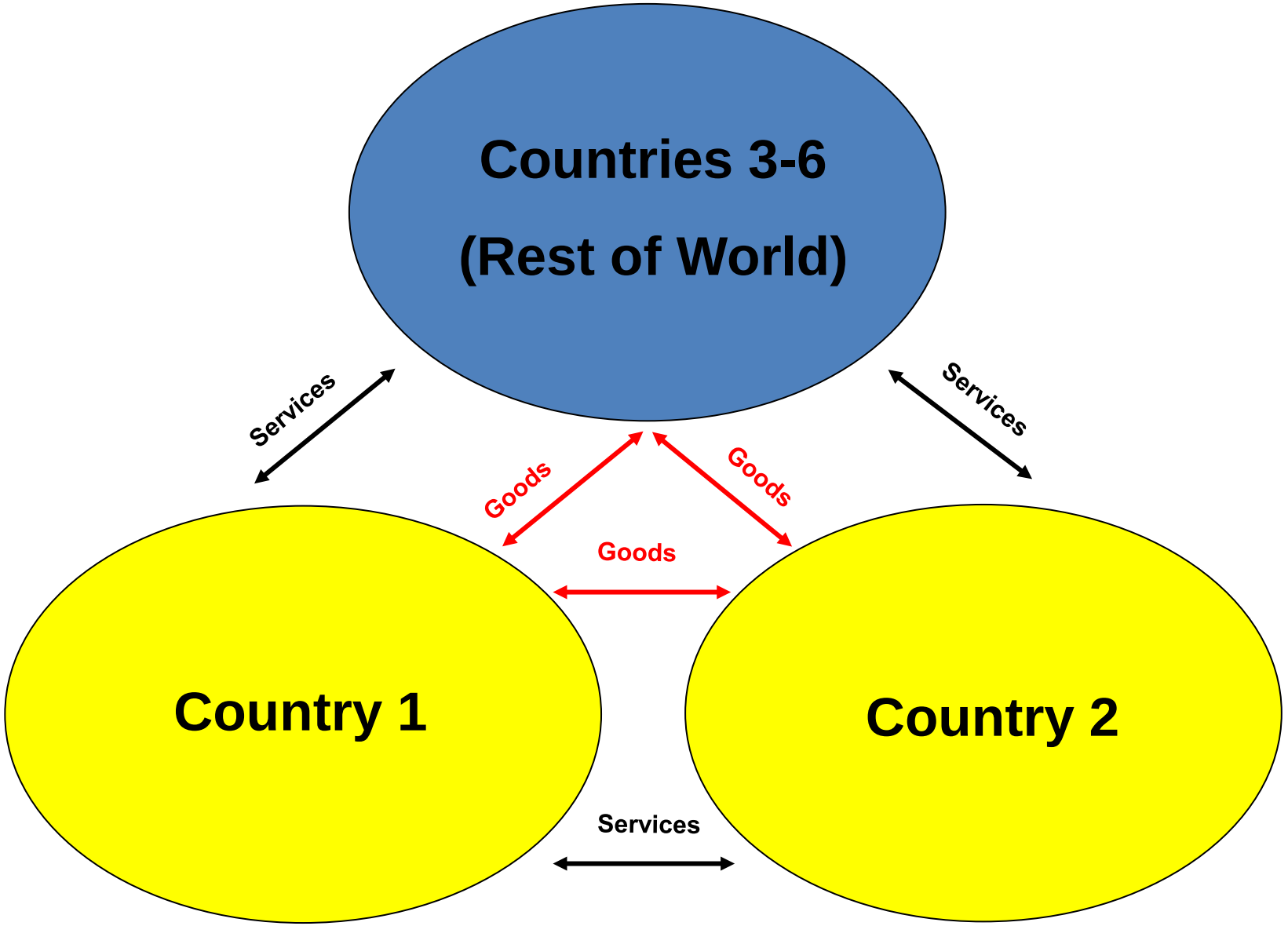
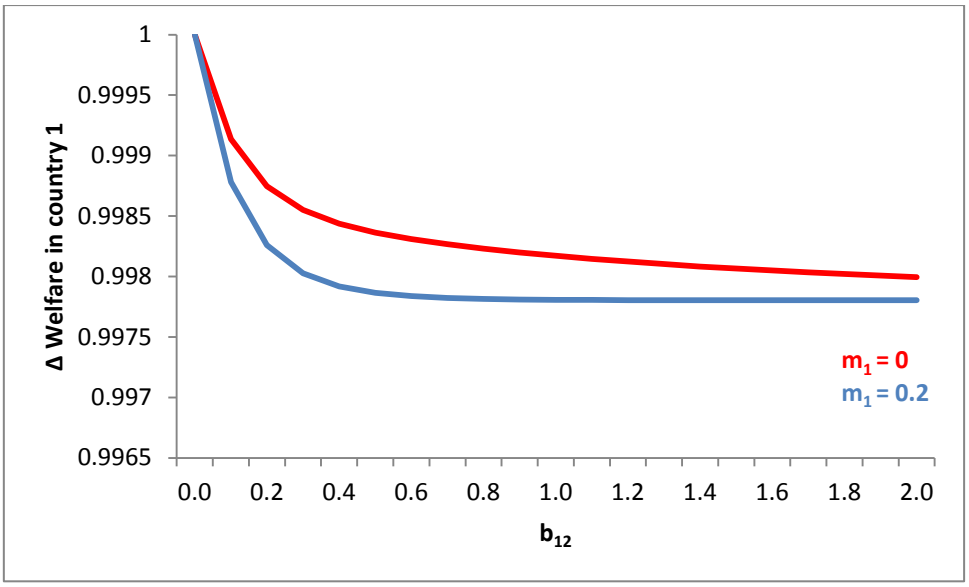
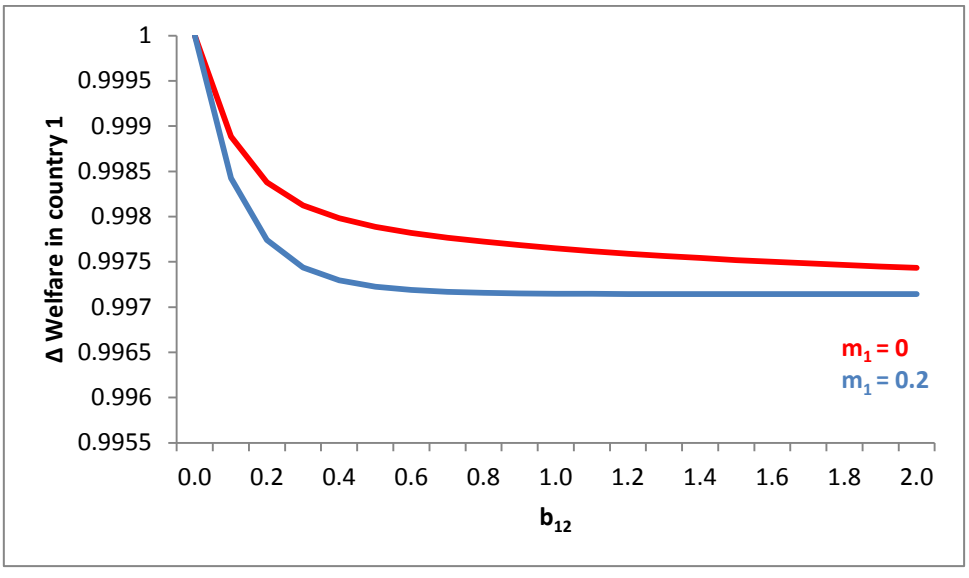


Figure 2: Services liberalization in symmetric economies



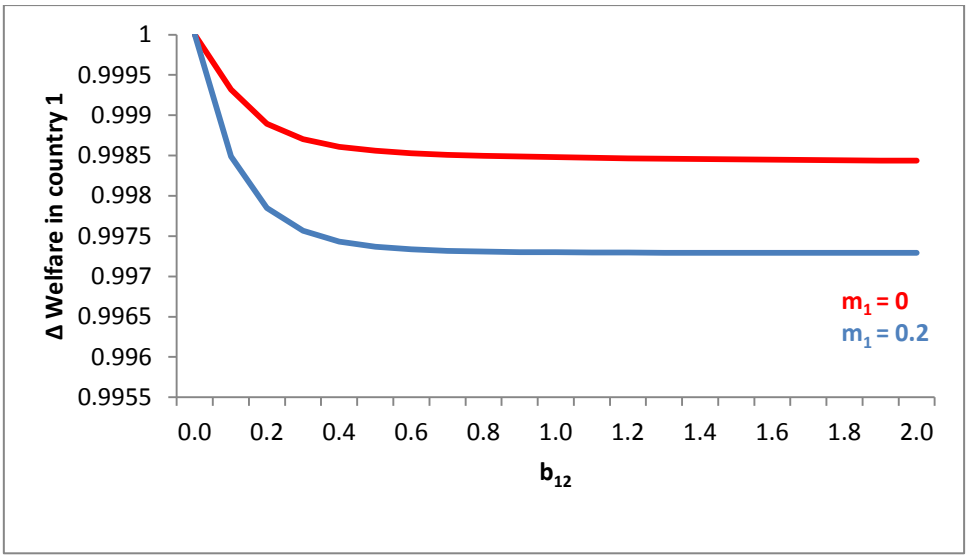
Note: m_1 = Unilateral services regulatory costs in country 1; b_{12} = Symmetric bilateral services trade costs between countries 1 and 2.

Figure 3: Services liberalization in two large economies



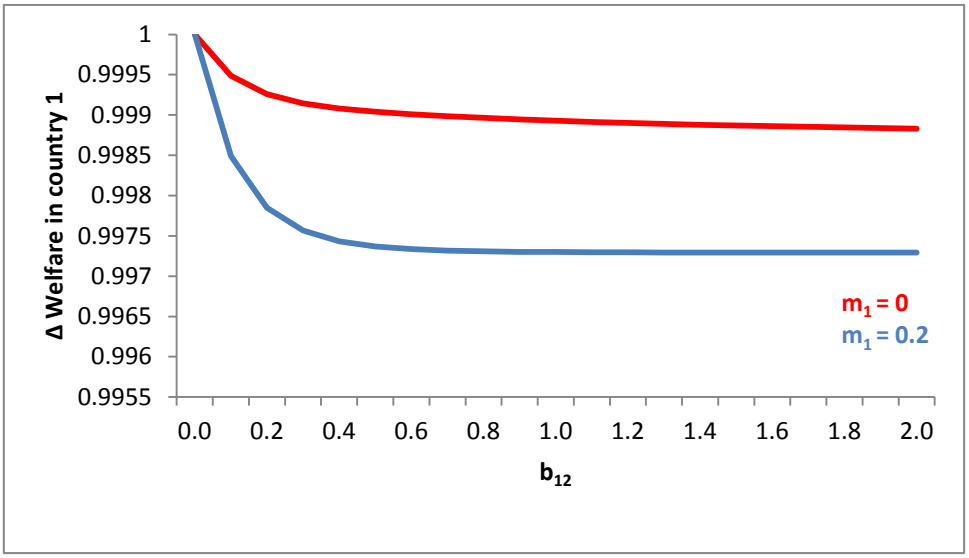
Note: m_1 = Unilateral services regulatory costs in country 1; b_{12} = Symmetric bilateral services trade costs between countries 1 and 2.

Figure 4: Services liberalization between a large and a small economy



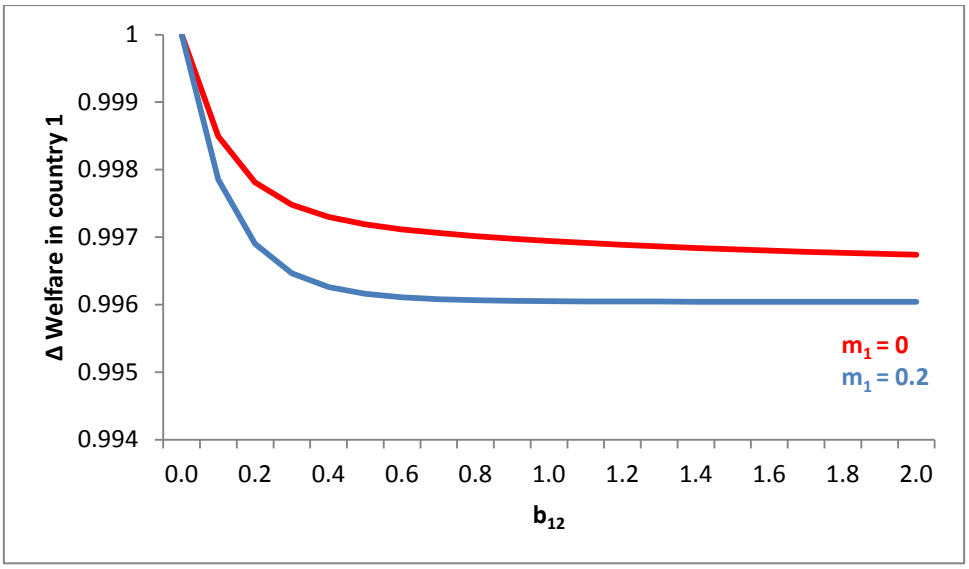
Note: m_1 = Unilateral services regulatory costs in country 1; b_{12} = Symmetric bilateral services trade costs between countries 1 and 2.

Figure 5: Services liberalization in a goods-trade-remote economy



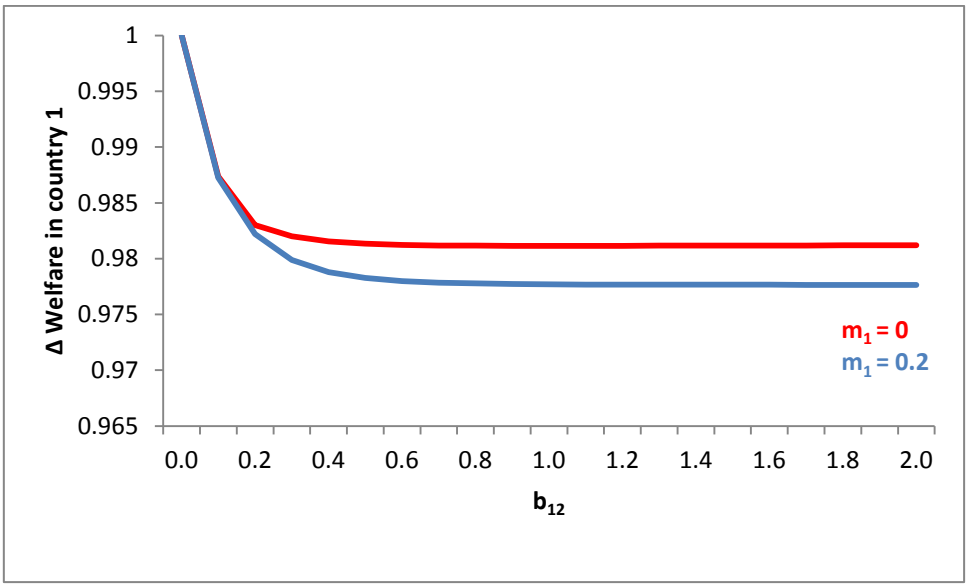
Note: m_1 = Unilateral services regulatory costs in country 1; b_{12} = Symmetric bilateral services trade costs between countries 1 and 2.

Figure 6: Services liberalization in a services-trade-remote economy



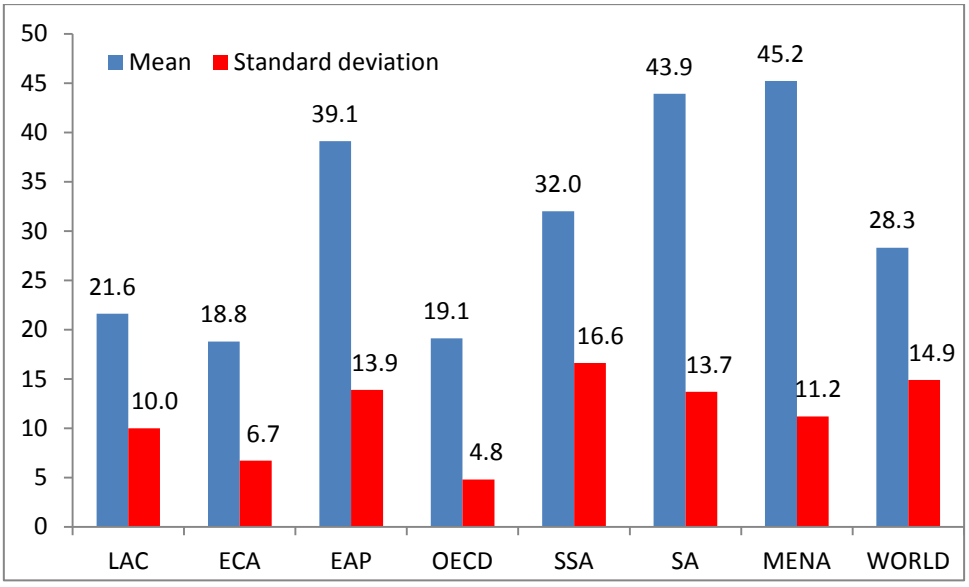
Note: m_1 = Unilateral services regulatory costs in country 1; b_{12} = Symmetric bilateral services trade costs between countries 1 and 2.

Figure 7: Services liberalization in a high services cost share economy



Note: m_1 = Unilateral services regulatory costs in country 1; b_{12} = Symmetric bilateral services trade costs between countries 1 and 2.

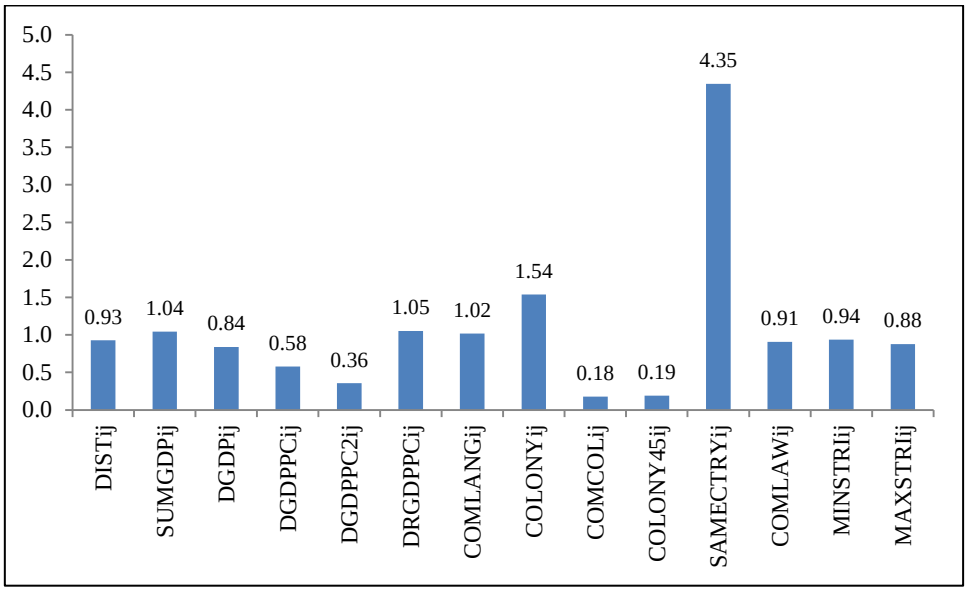
Figure 8: Comparison of STRI by regions/groups



Source: Authors' calculations based on STRI data in Borchert, Gootiz and Mattoo (2012a, b)

Note: LAC = Latin America & Caribbean; ECA = East & Central Asia; EAP = East Asia & Pacific; SSA = Sub-Saharan Africa; SA = South Asia; MENA = Middle-East and North Africa.

Figure 9: Ratio of mean values of explanatory variables between STA members and non-members



Note: $DIST_{ij}$ = Log bilateral distance between i and j; $SUMGDP_{ij}$ = Log sum of GDP of i and j; $DGDP_{ij}$ = Absolute difference in log GDP of i and j; $DGDPPC_{ij}$ = Absolute difference in log GDP per capita of i and j; $DGDPPC2_{ij}$ = Squared absolute difference in log GDP per capita of i and j; $DRGDPPC_{ij}$ = Absolute difference in log GDP per capita of i plus j with rest-of-world; $COMLANG_{ij}$ = Common language between i and j; $COLONY_{ij}$ = Colonial relationship between i and j; $COMCOL_{ij}$ = Common colonizer between i and j; $COLONY45_{ij}$ = Colonial relationship between i and j after 1945; $SAMECTRY_{ij}$ = Units i and j belonged to the same country; $COMLAW_{ij}$ = Common legal system between i and j; $MINSTRI_{ij}$ = Minimum log services-trade restrictiveness index in i and j; $MAXSTRII_{ij}$ = Maximum log services-trade restrictiveness index in i and j.

Table 1: Descriptive statistics

Variable	Acronym	Type	Mean	Std.Dev.	Minimum	Maximum
Services Trade Agreement Membership						
STA Membership Status Between i and j in 2014 (end August)	STA_{Iij}	binary	0.1175	0.3220	0	1
STA Membership Status Between i and j of Agreements Concluded After 2007	$STAPOST07_{Iij}$	binary	0.0584	0.2345	0	1
Unilateral Services Trade Restrictiveness						
Minimum Log Services-trade Restrictiveness Index in i and j	$MINSTRI_{ij}$	bounded	-1.4092	0.5231	-2.7166	0.6500
Maximum Log Services-trade Restrictiveness Index in i and j	$MAXSTRI_{Iij}$	bounded	-0.5551	0.7387	-2.1010	2.0115
Absolute and Relative Endowment Variables						
Log Sum of GDP of i and j	$SUMGDP_{ij}$	continuous	49.1759	2.5188	42.1580	57.7910
Absolute Difference in Log GDP of i and j	$DGDP_{ij}$	bounded	2.0645	1.4912	0	8.6787
Absolute Difference in Log GDP per Capita of i and j	$DGDPPC_{ij}$	bounded	1.5101	1.0679	0.0004	4.9922
Squared Absolute Difference in Log GDP per Capita of i and j	$DGDPPC2_{ij}$	bounded	3.4204	4.0895	0.0000	24.9222
Absolute Difference in Log GDP per Capita of i plus j with Rest-of-World	$DRGDPPC_{ij}$	bounded	1.1240	0.4934	0.0023	2.6897
Geographical and Cultural Distance						
Log Bilateral Distance Between i and j	$DIST_{ij}$	continuous	8.7619	0.7617	4.9345	9.8940
Common Legal System Between i and j	$COMLAW_{ij}$	binary	0.3736	0.4838	0	1
Common Language Between i and j	$COMLANG_{ij}$	binary	0.1612	0.3677	0	1
Colonial Relationship Between i and j	$COLONY_{ij}$	binary	0.0181	0.1332	0	1
Common Colonizer Between i and j	$COMCOL_{ij}$	binary	0.0611	0.2395	0	1
Colonial Relationship Between i and j after 1945	$COLONY45_{ij}$	binary	0.0088	0.0934	0	1
Units i and j Belonged to the Same Country	$SAMECTRY_{ij}$	binary	0.0098	0.0984	0	1
Services Share in GDP						
Average Share of Services in GDP between i and j	$AVGSRATIO_{ij}$	continuous	43.7524	9.5885	14.6	69.77
Minimum Share of Services in GDP between i and j	$MINSRATIO_{ij}$	bounded	44.8621	14.1553	10.44	71.55
Maximum Share of Services in GDP between i and j	$MAXSRATIO_{ij}$	bounded	42.6153	13.0086	10.44	71.55
Politics						
Polity IV Index of Country i in 1980	$POLITY80_{i}$	bounded	-6.0210	20.6168	-88	10
Polity IV Index of Country j in 1980	$POLITY80_{j}$	bounded	-4.4186	18.3074	-88	10
Regime Durability Index of Country i in 1980	$REGDUR80_{i}$	bounded	20.7941	22.1917	0	171
Regime Durability Index of Country j in 1980	$REGDUR80_{j}$	bounded	23.4476	31.6000	0	171
State Fragility Index of Country i in 1995	$SFI95_{i}$	bounded	9.7812	7.0869	0	23
State Fragility Index of Country j in 1995	$SFI95_{j}$	bounded	10.0869	6.6354	0	23
Contagion						
Neighbor-weighted Pre-2007 STA Membership for i and j	$WSTA_{ij}$	fractional	0.0996	0.2194	0	1
Neighbor-weighted Pre-2007 GTA Membership for i and j	$WGTA_{ij}$	fractional	0.0260	0.1153	0	1
Neighbor-weighted Mininum Log Services-trade Restrictiveness Index in i and j	$WMINSTRI_{Iij}$	bounded	-1.2981	0.4324	-2.7166	-0.1563
Neighbor-weighted Maxinum Log Services-trade Restrictiveness Index in i and j	$WMAXSTRI_{Iij}$	bounded	-0.7156	0.5910	-1.7906	2.0115
Instruments for Unilateral Services Trade Restrictiveness (Minimum and Maximum)						
Minimum Regulation of Chief Executive Recruitment Index in i and j in 1980	$MINXRREG80_{ij}$	bounded	-6.6586	25.3644	-88	3
Minimum Competitiveness of Executive Recruitment Index in i and j in 1980	$MINXRCOMP80_{ij}$	bounded	-7.4764	25.0895	-88	3
Minimum Openness of Executive Recruitment Index in i and j in 1980	$MINXROPEN80_{ij}$	bounded	-5.8613	25.6767	-88	4
Minimum Regulation of Participation Index in i and j in 1980	$MINPARREG80_{ij}$	bounded	-5.5131	25.7690	-88	5
Minimum Competitiveness of Participation Index in i and j in 1980	$MINPARCOMP80_{ij}$	bounded	-7.0440	25.2464	-88	5
Maximum Regulation of Chief Executive Recruitment Index in i and j in 1980	$MAXXRREG80_{ij}$	bounded	2.4828	3.8171	-88	3
Maximum Competitiveness of Executive Recruitment Index in i and j in 1980	$MAXXRCOMP80_{ij}$	bounded	2.0479	3.8790	-88	3
Maximum Openness of Executive Recruitment Index in i and j in 1980	$MAXXROPEN80_{ij}$	bounded	3.6855	3.8931	-88	4
Maximum Regulation of Participation Index in i and j in 1980	$MAXPARREG80_{ij}$	bounded	4.0845	3.9243	-88	5
Maximum Competitiveness of Participation Index in i and j in 1980	$MAXPARCOMP80_{ij}$	bounded	3.1099	4.1186	-88	5

Table 2: Determinants of minimum and maximum unilateral services trade restrictiveness indices (STRI) in a country pair
(All coefficients and standard errors pertain to marginal effects evaluated at sample means of variables)

Regressor	Acronym	$MINSTRII_{ij}$	$MAXSTRII_{ij}$
Absolute and Relative Endowment Variables			
Log Sum of GDP of i and j	$SUMGDP_{ij}$	0.0430 ***	0.0493 ***
		0.0037	0.0050
Absolute Difference in Log GDP of i and j	$DGDP_{ij}$	0.0195 ***	-0.0341 ***
		0.0058	0.0078
Absolute Difference in Log GDP per Capita of i and j	$DGDPPC_{ij}$	-0.0082	0.0371 ***
		0.0093	0.0128
Absolute Difference in Log GDP per Capita of i plus j With Rest-of-World	$DRGDPPC_{ij}$	0.1311 ***	0.2783 ***
		0.0222	0.0315
Geographical and Cultural Distance			
Log Bilateral Distance Between i and j	$DIST_{ij}$	-0.0487 ***	0.0244
		0.0116	0.0153
Common Legal System Between i and j	$COMLAW_{ij}$	-0.0013	0.0890 ***
		0.0173	0.0233
Common Language Between i and j	$COMLANG_{ij}$	0.0304	-0.0574 *
		0.0237	0.0323
Colonial Relationship Between i and j	$COLONY_{ij}$	-0.1104	-0.2630 **
		0.0872	0.1114
Common Colonizer Between i and j	$COMCOL_{ij}$	0.2779 ***	0.0667
		0.0350	0.0485
Colonial Relationship Between i and j after 1945	$COLONY45_{ij}$	0.1357	0.2558
		0.1425	0.1572
Units i and j Belonged to the Same Country	$SAMECTRY_{ij}$	-0.2120 *	-0.1711
		0.0852	0.1141
Services Share in GDP			
Minimum Share of Services in GDP between i and j	$MINSRATIO_{ij}$	-0.0023 **	
		0.0008	
Maximum Share of Services in GDP between i and j	$MAXSRATIO_{ij}$		-0.0058 ***
			0.0010
Politics			
Polity IV Index of Country i in 1980	$POLITY80_{i}$	-0.0126 **	0.0124 *
		0.0048	0.0066
Polity IV Index of Country j in 1980	$POLITY80_{j}$	-0.0114 *	0.0132 **
		0.0048	0.0066
Regime Durability Index of Country i in 1980	$REGDUR80_{i}$	0.0010 *	-0.0002
		0.0005	0.0006
Regime Durability Index of Country j in 1980	$REGDUR80_{j}$	-0.0020 ***	-0.0015 ***
		0.0003	0.0004
State Fragility Index of Country i in 1995	$SFI95_{i}$	0.0149 ***	0.0230 ***
		0.0014	0.0019
State Fragility Index of Country j in 1995	$SFI95_{j}$	0.0167 ***	0.0213 ***
		0.0015	0.0021
Instruments (in First Stage Only)			
Minimum Regulation of Chief Executive Recruitment Index in i and j in 1980	$MINXRREG80_{ij}$	0.0306	0.2914 ***
		0.0273	0.0371
Minimum Competitiveness of Executive Recruitment Index in i and j in 1980	$MINXRCOMP80_{ij}$	0.0115	-0.2520 ***
		0.0358	0.0493
Minimum Openness of Executive Recruitment Index in i and j in 1980	$MINXROPEN80_{ij}$	-0.0126	0.0786 ***
		0.0089	0.0124
Minimum Regulation of Participation Index in i and j in 1980	$MINPARREG80_{ij}$	-0.0133	-0.0703 ***
		0.0119	0.0163
Minimum Competitiveness of Participation Index in i and j in 1980	$MINPARCOMP80_{ij}$	-0.0054	-0.0645 ***
		0.0182	0.0245
Maximum Regulation of Chief Executive Recruitment Index in i and j in 1980	$MAXXRREG80_{ij}$	0.0978 **	0.2705 ***
		0.0305	0.0415
Maximum Competitiveness of Executive Recruitment Index in i and j in 1980	$MAXXRCOMP80_{ij}$	-0.1563 ***	-0.3391 ***
		0.0353	0.0490
Maximum Openness of Executive Recruitment Index in i and j in 1980	$MAXXROPEN80_{ij}$	-0.0207	0.1084 ***
		0.0148	0.0202
Maximum Regulation of Participation Index in i and j in 1980	$MAXPARREG80_{ij}$	0.0135	-0.0701 ***
		0.0165	0.0230
Maximum Competitiveness of Participation Index in i and j in 1980	$MAXPARCOMP80_{ij}$	0.0765 ***	0.0088
		0.0183	0.0245
Model Characteristics			
Obervations (Country Pairs)		3690	3779
Explanatory Power		0.2350	0.2614
F-test on joint significance of instruments (p-value)		0.0000	0.0000

Notes: ***, **, and * indicate statistical significance at 1, 5, and 10%, respectively, based on two-sided test statistics.

Table 3: Determinants of services trade agreement (STA) membership assuming exogenous unilateral STRI
(All coefficients and standard errors pertain to marginal effects evaluated at sample means of variables)

Regressor	Acronym	Linear Prob. Model	Probit	Heterosked. Probit
Unilateral Services Trade Restrictiveness				
Minimum Log Services-trade Restrictiveness Index in i and j	$MINSTRI_{Iij}$	-0.0120	0.0056	0.0088
		0.0080	0.0071	0.0064
Maximum Log Services-trade Restrictiveness Index in i and j	$MAXSTRI_{Iij}$	-0.0795 ***	-0.0566 ***	-0.0576 ***
		0.0069	0.0069	0.0079
Absolute and Relative Endowment Variables				
Log Sum of GDP of i and j	$SUMGDP_{ij}$	0.0203 ***	0.0109 ***	0.0187 ***
		0.0021	0.0015	0.0024
Absolute Difference in Log GDP of i and j	$DGDP_{ij}$	-0.0130 ***	-0.0058 ***	-0.0066 ***
		0.0031	0.0021	0.0021
Absolute Difference in Log GDP per Capita of i and j	$DGDPPC_{ij}$	-0.0325 ***	-0.0263 ***	0.0000
		0.0055	0.0076	0.0000
Absolute Difference in Log GDP per Capita of i plus j With Rest-of-World	$DRGDPPC_{ij}$	0.0445 ***	-0.0105	0.0123 *
		0.0128	0.0076	0.0063
Geographical and Cultural Distance				
Log Bilateral Distance Between i and j	$DIST_{ij}$	-0.1073 ***	-0.0368 ***	-0.0328 ***
		0.0084	0.0047	0.0050
Common Legal System Between i and j	$COMLAW_{ij}$	-0.0001	-0.0064	-0.0063
		0.0097	0.0064	0.0058
Common Language Between i and j	$COMLANG_{ij}$	-0.0099	0.0072	-0.0006
		0.0143	0.0081	0.0070
Colonial Relationship Between i and j	$COLONY_{ij}$	0.0389	-0.0030	0.0110
		0.0929	0.0197	0.0211
Common Colonizer Between i and j	$COMCOL_{ij}$	-0.0235 *	0.0012	0.0059
		0.0138	0.0179	0.0123
Colonial Relationship Between i and j after 1945	$COLONY45_{ij}$	-0.2101 **	omitted	omitted
		0.1015		
Units i and j Belonged to the Same Country	$SAMECTRY_{ij}$	-0.0953	-0.0184	-0.0158
		0.0667	0.0245	0.0155
Services Share in GDP				
Average Share of Services in GDP between i and j	$AVGSRATIO_{ij}$	0.0005	-0.0001	0.0000
		0.0006	0.0004	0.0003
Politics				
Polity IV Index of Country i in 1980	$POLITY80_{i}$	-0.0006 *	-0.0004 **	-0.0005 ***
		0.0003	0.0002	0.0001
Polity IV Index of Country j in 1980	$POLITY80_{j}$	-0.0001	-0.0002	-0.0003 *
		0.0004	0.0002	0.0001
Regime Durability Index of Country i in 1980	$REGDUR80_{i}$	-0.0004	0.0000	0.0001
		0.0003	0.0001	0.0001
Regime Durability Index of Country j in 1980	$REGDUR80_{j}$	-0.0007 ***	-0.0002 **	-0.0002
		0.0002	0.0001	0.0001
State Fragility Index of Country i in 1995	$SFI95_{i}$	-0.0073 ***	-0.0034 ***	-0.0029 ***
		0.0008	0.0006	0.0006
State Fragility Index of Country j in 1995	$SFI95_{j}$	-0.0086 ***	-0.0040 ***	-0.0029 ***
		0.0009	0.0006	0.0006
Model Characteristics				
Obervations (Country Pairs)		3403	3387	3387
Explanatory Power		0.5265	0.5000	0.4807
Likelihood-ratio Test Against Homoskedasticity (p-value)		-	-	0.0000 ***
Likelihood-ratio Test Against Parametric Probit (p-value)		-	-	-
Number of predictions at which $P(STA_{ij}=1)<0$		845	-	-

Notes: ***, **, and * indicate statistical significance at 1, 5, and 10%, respectively, based on two-sided test statistics.

Table 4 - Determinants of STA membership assuming endogenous unilateral STRI
(All coefficients and standard errors pertain to marginal effects evaluated at sample means of variables)

Regressor	Acronym	Linear Prob. Model	Probit	Heterosked. Probit First-order Contr. Fun.	Heterosked. Probit Semi-par. Contr. Fun.
Unilateral Services Trade Restrictiveness					
Minimum Log Services-trade Restrictiveness Index in i and j	$MINSTRI_{Iij}$	-0.0950 **	-0.0303	-0.0103	0.0033
		0.0375	0.0266	0.0200	0.0057
Maximum Log Services-trade Restrictiveness Index in i and j	$MAXSTRI_{Iij}$	-0.1183 ***	-0.0521 ***	-0.0917 ***	-0.0448 ***
		0.0289	0.0183	0.0167	0.0085
Absolute and Relative Endowment Variables					
Log Sum of GDP of i and j	$SUMGDP_{ij}$	0.0246 ***	0.0121 ***	0.0215 ***	0.0182 ***
		0.0023	0.0019	0.0029	0.0026
Absolute Difference in Log GDP of i and j	$DGDP_{ij}$	-0.0132 ***	-0.0050 **	-0.0067 ***	-0.0053 ***
		0.0035	0.0023	0.0021	0.0018
Absolute Difference in Log GDP per Capita of i and j	$DGDPPC_{ij}$	-0.0305 ***	-0.0283 ***	0.0000	0.0000
		0.0057	0.0081	0.0000	0.0000
Absolute Difference in Log GDP per Capita of i plus j With Rest-of-World	$DRGDPPC_{ij}$	0.0670 ***	-0.0066	0.0240 ***	0.0095 *
		0.0155	0.0093	0.0075	0.0052
Geographical and Cultural Distance					
Log Bilateral Distance Between i and j	$DIST_{ij}$	-0.1106 ***	-0.0387 ***	-0.0297 ***	-0.0257 ***
		0.0089	0.0050	0.0052	0.0050
Common Legal System Between i and j	$COMLAW_{ij}$	0.0038	-0.0068	-0.0027	-0.0044
		0.0100	0.0065	0.0054	0.0046
Common Language Between i and j	$COMLANG_{ij}$	-0.0091	0.0089	-0.0022	-0.0010
		0.0145	0.0082	0.0065	0.0055
Colonial Relationship Between i and j	$COLONY_{ij}$	0.0161	-0.0082	-0.0034	0.0089
		0.0935	0.0204	0.0203	0.0172
Common Colonizer Between i and j	$COMCOL_{ij}$	0.0016	0.0102	0.0158	0.0098
		0.0166	0.0190	0.0126	0.0097
Colonial Relationship Between i and j after 1945	$COLONY45_{ij}$	-0.1857 *	omitted	omitted	omitted
		0.1017			
Units i and j Belonged to the Same Country	$SAMECTRY_{ij}$	-0.1212 *	-0.0259	-0.0330 **	-0.0205
		0.0667	0.0255	0.0158	0.0124
Services Share in GDP					
Average Share of Services in GDP between i and j	$AVGSRATIO_{ij}$	-0.0003	-0.0003	-0.0005	0.0000
		0.0007	0.0004	0.0004	0.0003
Politics					
Polity IV Index of Country i in 1980	$POLITY80_{i}$	-0.0010 ***	-0.0005 ***	-0.0007 ***	-0.0005 ***
		0.0004	0.0002	0.0002	0.0001
Polity IV Index of Country j in 1980	$POLITY80_{j}$	-0.0005	-0.0003 *	-0.0004 ***	-0.0002 **
		0.0005	0.0002	0.0001	0.0001
Regime Durability Index of Country i in 1980	$REGDUR80_{i}$	-0.0004	0.0000	0.0001	0.0001
		0.0003	0.0001	0.0001	0.0001
Regime Durability Index of Country j in 1980	$REGDUR80_{j}$	-0.0010 ***	-0.0003 ***	-0.0003 **	-0.0001
		0.0002	0.0001	0.0001	0.0001
State Fragility Index of Country i in 1995	$SFI95_{i}$	-0.0052 ***	-0.0030 ***	-0.0016 ***	-0.0024 ***
		0.0010	0.0008	0.0006	0.0006
State Fragility Index of Country j in 1995	$SFI95_{j}$	-0.0067 ***	-0.0035 ***	-0.0016 **	-0.0022 ***
		0.0009	0.0008	0.0006	0.0006
Model Characteristics					
Obervations (Country Pairs)		3403	3387	3387	3387
Explanatory Power		0.528	0.5006	0.4776	0.4787
Wald-test Against Exogeneity (p-value)		0.0000 ***	0.3870	1.0000	1.0000
Likelihood-ratio Test Against Homoskedasticity (p-value)		-	-	0.0000 ***	0.0000 ***
Likelihood-ratio Test Against First-order Control Function (p-value)		-	-	-	1.0000
Number of predictions at which $P(STA_{ij}=1)<0$		852	-	-	-

Notes: ***, **, and * indicate statistical significance at 1, 5, and 10%, respectively, based on two-sided test statistics.

Table 5: Determinants of STA membership considering contagion

(All coefficients and standard errors pertain to marginal effects evaluated at sample means of variables. Dependent variables are STAs formed after 2007.)

		Assuming exog. unilateral STRI		Assuming endog. unilateral STRI	
Regressor	**Acronym**	**Linear Prob. Model**	**Probit**	**Linear Prob. Model**	**Probit**
Unilateral Services Trade Restrictiveness					
Minimum Log Services-trade Restrictiveness Index in i and j	$MINSTRI_{Iij}$	0.0046	0.0007	-0.0065	0.0025
		0.0076	0.0006	0.0292	0.0022
Maximum Log Services-trade Restrictiveness Index in i and j	$MAXSTRI_{Iij}$	-0.0336 ***	-0.0006	-0.0765 ***	0.0001
		0.0050	0.0005	0.0237	0.0011
Absolute and Relative Endowment Variables					
Log Sum of GDP of i and j	$SUMGDP_{ij}$	0.0157 ***	0.0006 *	0.0177 ***	0.0005 *
		0.0017	0.0003	0.0018	0.0003
Absolute Difference in Log GDP of i and j	$DGDP_{ij}$	-0.0070 ***	-0.0001	-0.0085 ***	-0.0001
		0.0023	0.0001	0.0027	0.0001
Absolute Difference in Log GDP per Capita of i and j	$DGDPPC_{ij}$	-0.0324 ***	-0.0010	-0.0302 ***	-0.0013
		0.0043	0.0007	0.0045	0.0009
Absolute Difference in Log GDP per Capita of i plus j With Rest-of-World	$DRGDPPC_{ij}$	0.0832 ***	0.0001	0.0956 ***	-0.0008
		0.0102	0.0004	0.0127	0.0006
Geographical and Cultural Distance					
Log Bilateral Distance Between i and j	$DIST_{ij}$	-0.1146 ***	-0.0018 *	-0.1133 ***	-0.0019 *
		0.0079	0.0011	0.0084	0.0011
Common Legal System Between i and j	$COMLAW_{ij}$	-0.0042	-0.0003	-0.0005	-0.0004
		0.0078	0.0003	0.0080	0.0004
Common Language Between i and j	$COMLANG_{ij}$	-0.0128	0.0005	-0.0147	0.0006
		0.0118	0.0005	0.0122	0.0005
Colonial Relationship Between i and j	$COLONY_{ij}$	-0.0772	-0.0014 *	-0.0903	-0.0010
		0.0739	0.0011	0.0745	0.0011
Common Colonizer Between i and j	$COMCOL_{ij}$	-0.0055	0.0000	0.0017	0.0000
		0.0092	(omitted)	0.0110	(omitted)
Colonial Relationship Between i and j after 1945	$COLONY45_{ij}$	-0.0268	0.0000	-0.0163	0.0000
		0.0783	(omitted)	0.0786	(omitted)
Units i and j Belonged to the Same Country	$SAMECTRY_{ij}$	-0.1404 ***	-0.0021	-0.1495 ***	-0.0018
		0.0500	0.0018	0.0507	0.0019
Services Share in GDP					
Average Share of Services in GDP between i and j	$AVGSRATIO_{ij}$	0.0006	0.0000	0.0001	0.0000
		0.0005	0.0000	0.0006	0.0000
Politics					
Polity IV Index of Country i in 1980	$POLITY80_{i}$	-0.0002	0.0000	-0.0004	0.0000
		0.0002	0.0000	0.0002	0.0000
Polity IV Index of Country j in 1980	$POLITY80_{j}$	0.0003	0.0000	0.0001	0.0000
		0.0002	0.0000	0.0003	0.0000
Regime Durability Index of Country i in 1980	$REGDUR80_{i}$	-0.0007 ***	0.0000	-0.0007 ***	0.0000
		0.0002	0.0000	0.0002	0.0000
Regime Durability Index of Country j in 1980	$REGDUR80_{j}$	-0.0005 ***	0.0000	-0.0006 ***	0.0000
		0.0002	0.0000	0.0002	0.0000
State Fragility Index of Country i in 1995	$SFI95_{i}$	-0.0054 ***	-0.0001 *	-0.0042 ***	-0.0002 *
		0.0006	0.0001	0.0008	0.0001
State Fragility Index of Country j in 1995	$SFI95_{j}$	-0.0067 ***	-0.0002 *	-0.0058 ***	-0.0002 *
		0.0006	0.0001	0.0007	0.0001
Contagion					
Neighbor-weighted Pre-2007 STA Membership for i and j	$WSTA_{ij}$	0.0070	-0.0047	-0.0035	-0.0003
		0.0104	0.0030	0.0112	0.0015
Neighbor-weighted Pre-2007 GTA Membership for i and j	$WGTA_{ij}$	0.2866 ***	0.0094 *	0.2888 ***	0.0054
		0.0598	0.0052	0.0596	0.0035
Neighbor-weighted Mininum Log Services-trade Restrictiveness Index in i and j	$WMINSTRI_{Iij}$	-0.0244 **	0.0008	-0.0209 *	0.0009
		0.0119	0.0008	0.0123	0.0009
Neighbor-weighted Maximum Log Services-trade Restrictiveness Index in i and j	$WMAXSTRI_{Iij}$	-0.0165 **	-0.0021 *	-0.0180 **	-0.0022
		0.0078	0.0012	0.0079	0.0014
Model Characteristics					
Obervations (Country Pairs)		3005	2992	3005	2813
Explanatory Power		0.5723	0.4971	0.5735	0.4966
Wald-test Against Exogeneity (p-value)		-	-	0.0000 ***	0.4108
Number of predictions at which $P(STA_{ij}=1)<0$		1157	-	1155	-

Notes: ***, **, and * indicate statistical significance at 1, 5, and 10%, respectively, based on two-sided test statistics.

Table 6: The importance of producer services in total services output and GDP (avg. 2010-2015)

Country	Share of producer services (%)	
	In total services	In GDP
Australia	63.84	46.99
Austria	65.04	44.28
Belgium	63.45	46.72
Canada	61.63	42.04
Chile	54.8	34.37
Czech Republic	64.96	38.81
Denmark	61.12	42.28
Estonia	67.65	44.04
Finland	58.71	38.53
France	62.46	47.33
Germany	63.84	42.05
Greece	65.95	48.77
Hungary	64.9	37.87
Iceland	63.33	39.07
Ireland	71.41	46.34
Israel	66.24	48.76
Italy	66.62	47.42
Japan	52.82	40.91
Korea	62.19	36.4
Latvia	68.87	48.34
Luxembourg	74.9	62.13
Mexico	70.16	46.58
Netherlands	64.04	47.09
New Zealand	66.47	46.33
Norway	56.19	32.76
Poland	64.64	40.97
Portugal	64.96	45.87
Slovak Republic	63.27	40.18
Slovenia	63.96	39.7
Spain	62.97	45.98
Sweden	57.99	39.57
Switzerland	58.27	44.19
Turkey	75.45	46.58
United Kingdom	65.9	50.09
United States	64.18	50.89
Euro area (19 countries)	64.12	45.4
European Union (28 countries)	64.22	45.52
Non-OECD		
Brazil	60.46	38.03
China	54	28.79
Costa Rica	62.12	43.46
Indonesia	62.59	32.12
Lithuania	68.42	44.78
Average (OECD)	64.09	44.01
Average (Non-OECD)	61.52	37.44

Source: OECD; own calculations

Table 7: The importance of producer services in commercial services trade (avg. 2010-2015)

	Average (2010-2015)			
	HIC	**LIC**	**MIC**	**World**
Services, value added (% of GDP)	73.51	47.22	54.78	67.84
Computer, communications and other services (% of commercial service exports)	44.94	na	38.22	42.83
Computer, communications and other services (% of commercial service imports)	45.59	23.29	27.05	40.08
Insurance and financial services (% of commercial service exports)	10.66	na	3.93	8.57
Insurance and financial services (% of commercial service imports)	8.9	6.18	8.07	8.65
Transport services (% of commercial service exports)	22.29	na	20.76	21.83
Transport services (% of commercial service imports)	22.86	53.58	34.06	26.35
Sum of these producer services (% of commercial service exports)	77.89	na	62.91	73.24
Sum of these producer services (% of commercial service imports)	77.35	83.05	69.18	75.08

Source: World Bank World Development Indicators; own calculations

Note: HIC = High income countries; LIC = Low income countries; MIC = Middle income countries as per World Bank classification

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