

Why do Countries Enter into Preferential Agreements on Trade in Services? Assessing the Potential for Negotiated Regulatory Convergence in Asian Services Markets*

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Abstract

More than a third of the World Trade Organization (WTO)-notified services trade agreements (STAs) in effect over January 2008 - August 2015 have involved at least one (South or Southeast) Asian trading partner. Drawing on Baier and Bergstrand's (2004) determinants of preferential trade agreements and using the World Bank's database on the restrictiveness of domestic services regimes (Borchert et.al. 2012), we examine the potential for negotiated regulatory convergence in Asian services markets. Our results suggest that countries within Asia with high levels of pre-existing bilateral merchandise trade and wide differences in services regulatory frameworks are more likely candidates for STA formation. Such results lend support to the hypothesis that the heightened "servicification" of production generates a demand for the lowered service input costs resulting from negotiated market opening.

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1 Introduction

One of the striking features of trade diplomacy in recent years has been the seemingly unstoppable march of preferential trade liberalization and rule-making (Kawai and Wignajara 2010). Such a trend is now extending to services, most spectacularly of late in the Asia-Pacific region (Chanda 2011, PECC and ADBI 2011, Shepherd and Pasadilla 2012). Of the 81 preferential trade agreements (PTAs) in force prior to January 2000, 73 (90%) featured provisions dealing exclusively with trade in goods. Since then, 124 of the additional 194 PTAs that have entered into force up until August 2015 also include provisions on services trade. The above trends signal the heightened importance of services trade in general, the growing need among 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 (Sauvé and Shingal 2011). Interestingly, more than one-third (28) of the 78 World Trade Organization (WTO)-notified services trade agreements (STAs) in effect since January 2008 and up until August 2015 have involved at least one South or Southeast Asian trading partner.

Unlike trade in goods, where the removal of border barriers retains significant negotiating traction, domestic regulation is the sole currency of negotiations in services trade (Mattoo and Sauvé 2010). The importance and potentially trade- and investment-inhibiting impact of domestic regulation on service sector performance has received significant attention in policy research circles (Kox and Nordas 2007 and 2009). However, less well understood and investigated has been the question of whether certain countries are more likely candidates for negotiated regulatory convergence from a services trade perspective. Simply put: are countries that display greater ex-ante regulatory convergence more likely candidates for deeper integration agreements in services markets? Is the demand for negotiated market opening a by-product of what has been dubbed the “servicification”¹ of production? What is the role of geography in trade-facilitating regulatory convergence in services? And can the presence of significant developmental or institutional capacity gaps impede integration and convergence in services markets?

This paper seeks answers to the above questions in an Asian² setting. According to the WTO’s Regional Trade Agreements Information System (RTA-IS), 103 PTAs entered into effect during January 2008–August 2015. A vast majority of these (exceeding 70% of WTO-

¹For a fuller discussion of “servicification”, see National Board of Trade (2012).

²For the purpose of this paper, Asia comprises Bangladesh, Cambodia, the People’s Republic of China, India, Indonesia, Japan, the Republic of Korea, Sri Lanka, Malaysia, Mongolia, Nepal, Pakistan, the Philippines, Thailand, and Viet Nam. These are the countries for which information on services regulation is available in the World Bank’s Services Trade Restrictiveness Index (STRI) database (Borchert et.al. 2012).

notified agreements) include provisions that cover both goods and services trade. Twenty-eight of the 78 STAs notified over January 2008-August 2015 involve at least one Asian trading partner, and 11 of these have been entered into with another partner from Asia. Clearly then, Asian economies have been at the forefront of the burgeoning trend toward services preferentialism, offering a potentially fertile setting for exploring this paper’s core research questions.

Regulatory heterogeneity has been shown to exert a significantly negative impact on bilateral services trade via Mode 3 (commercial presence) (Kox and Nordas 2009) and commercial presence is the most dominant mode of service delivery, accounting for 55%–60% of all services trade flows. We would thus expect trading partners in a services accord to exhibit lower levels of regulatory heterogeneity compared to those not party to such an agreement. Interestingly, this is not found to be true for the Asian economies studied in this paper. The causal links actually run in the opposite direction.

Regulatory approximation or convergence thus appears as one of the main objectives of negotiated services agreements rather than its chief determinant: the greater the extent of regulatory heterogeneity between trading partners, the more likely are they to enter into a services agreement to promote trade- and investment-facilitating regulatory convergence. Significantly, this proposition is validated by the empirical analysis undertaken for our sample countries, also lending support to the hypothesis that servicification trends – the heightened share of services value added in final production – generate demands to lower the services costs that may arise from regulatory heterogeneity.

2 Related literature

Services preferentialism has spawned three strands of literature to date. A first strand has investigated the trade effect of services accords on aggregate and disaggregated services trade flows, using advanced estimation techniques³ from the rapidly evolving gravity model empirical literature (Park 2002, Francois and Hoekman 2009, Grunfeld and Moxnes 2003, Kimura and Lee 2004, Lennon 2009, Marchetti 2009, Shingal 2014a, 2014b, van der Marel and Shepherd 2011, Walsh 2006).

A second strand has explored the impact that differing levels of (and heterogeneity in) regulation exert on bilateral services trade flows (Francois et al. 2007, Fink 2009, Kox and Lejour 2006, Kox and Nordas 2007 and 2009, Schwellnus 2007, van der Marel and Shepherd

³An elaboration of these techniques is beyond the scope of this paper but an excellent review is provided in Head and Mayer (2013).

2011). A third strand has resorted to theoretical and empirical techniques to estimate barriers to trade in services and foreign direct investment (FDI), and/or provide estimates of services trade costs (Francois et al. 2007, Miroudot et al. 2010 and 2012, van der Marel 2011).

The literature has also evolved to explain services commitments in the GATS (Roy 2011), those made reciprocally (Marchetti et al. 2012) as well as GATS+ commitments in STAs (Van der Marel and Miroudot 2012).

The papers closest to ours are Baier and Bergstrand (2004), who were the first to examine the determinants of partners' propensities to negotiate PTAs, and Cole and Guillin (2015) and Egger and Wamser (2013), who explored this issue for services accords. The latter two papers, however, did not consider regulatory convergence as a determinant for entering into negotiations. Studying the role of regulatory convergence is thus the main contribution of this paper. This is done through recourse to a new World Bank dataset on measures of services (regulatory) restrictiveness, the STRI (Borchert et.al. 2012)⁴.

Baier and Bergstrand (2004) found the potential welfare gains and likelihood of a PTA in goods trade between a pair of countries to be higher: (i) the closer in terms of distance two trading partners are; (ii) the more remote they are from the ROW; (iii) the larger and more similar they are economically (in terms of real GDPs) to enable exploitation of economies of scale in the presence of differentiated products; (iv) the greater is the difference in relative factor endowments between them, leading to Heckscher–Ohlin trade; and (v) the smaller is the difference in relative factor endowment ratios of the member countries relative to those of the ROW (leading to less inter-industry trade diversion). Baier and Bergstrand (2004) found these factors to have economically and statistically significant effects on the probability of negotiating a goods agreement.

In comparison, Cole and Guillin (2015) examined a dyad's propensity to negotiate a services agreement and in their baseline specification found statistically significant evidence only for the “natural trading partner hypothesis,” similarity in terms of economic size, and relative factor endowment differences - both those emanating from Heckscher–Ohlin trade and those leading to less inter-industry trade diversion. Egger and Wamser (2013) found the determinants of goods and services trade agreements to be similar.

⁴See the World Bank's STRI database at <http://iresearch.worldbank.org/servicetrade/home.htm>

3 Regulation in services trade

Regulatory measures affect cross-border trade and investment in services by increasing both the fixed cost of entering a market and the variable cost of servicing that market. Where regulation is destination-specific, such costs can become sunk, which makes the decision to export similar to an investment decision, and involves a self-selection process studied in the heterogeneous firm trade literature (Melitz 2003; Helpman, Melitz, and Yeaple 2004; Bernard, Redding, and Scott 2007; Chaney 2008). Essentially, only firms with the highest productivity and/or lowest marginal costs tend to profitably overcome sunk market-entry costs, thereby self-selecting themselves into becoming exporters.

In the context of an STA, regulatory requirements assume significance for firms in both markets and the objective of the agreement is usually two-fold: (i) to bring down the level and incidence of restrictive regulation in both markets; and (ii) to promote convergence and approximation (including through mutual recognition), and ultimately (but less frequently and successfully) to harmonize regulatory practices between trading partners.

The measure of regulation in services markets used in this paper is the Services Trade Restrictiveness Index (STRI) recently released by the World Bank. 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 Organisation for Economic Co-operation and Development (OECD) countries, STRI is a quantitative index of restrictions on services trade encompassing 103 countries, 5 major service sectors, and 19 sub-sectors. The information is also available by modes of service delivery.

A comparison of STRI by regions and groups in Table 1 shows that the Middle East and North Africa (MENA) has the most restrictive services trade policies, followed by South Asia (SA), East Asia and the Pacific (EAP), and Sub-Saharan Africa (SSA), with the last also being the most heterogeneous cohort. As expected, OECD countries and Eastern Europe and Central Asia (ECA) not only report the lowest STRI values but also form the most homogeneous cohorts. Significantly, the Asian region is not only very restrictive but also highly heterogeneous in terms of services trade impediments, which again makes it a relevant case study for the purposes of this enquiry.

<Insert Table 1 here>

A closer look at Table 1 provides an intuitive feel for the factors likely to make countries potential candidates for negotiated regulatory convergence. For instance, high levels of per

capita income, economic development, and political stability all likely contribute to the observed homogeneity in STRI among OECD countries despite significant differences in language, culture, and distances within this cohort. In the case of ECA, on the other hand, there is greater homogeneity of language, culture, and distances, though more differences in terms of per capita income and economic development. This seems to suggest that a combination of these factors could determine which countries are potential candidates for negotiated regulatory convergence.

4 Empirical methodology

Our empirical framework draws on McFadden's (1975 and 1976) qualitative choice models, where utility, here the (minimum or average) net gains for two countries from participating in an STA, is modeled as a latent, unobservable variable (y^*), which can be explained by a vector of explanatory variables (x). Since y^* cannot be observed, an indicator variable STA is used which takes the value 1 (indicating $y^* > 0$) if two countries participate in a common STA and 0 (indicating $y^* \leq 0$) otherwise.

More formally,

$$STA_{ij} = 1 \text{ if } y^* > 0 \text{ and } P(STA_{ij} = 1) = P(y^* > 0) = G(\alpha + \beta x_{ij}) \quad (1)$$

where P is the response probability associated with a trading dyad (ij) signing a services accord; $G(\cdot)$ is a cumulative distribution function that ensures that $P(STA_{ij} = 1)$ lies in the unit interval; and x_{ij} is the vector of explanatory variables for a generic country pair.

Consistent with Baier and Bergstrand (2004), empirically, (1) is estimated by a probit model, assuming normality about the error term in the latent process. Clearly, independent of the assumed cumulative distribution function, the non-linear nature of $G(\cdot)$ implies that the coefficient estimates only reveal the signs of the partial effects of changes in x_{ij} on the probability of signing a STA. Thus, the direction of the effect of variable x_k on $E(y^* | x) = \alpha + \beta x$ is only qualitatively (not quantitatively) identical to the effect of x_k on $E(STA | x) = G(\alpha + \beta x)$, where $E(\cdot)$ denotes the expectation operator.

As a robustness check, however, we also estimate (1) using the Linear Probability Model (LPM).

5 Explanatory variables

In their seminal work exploring the determinants of partners' propensities to negotiate bilateral trade agreements, Baier and Bergstrand (2004) documented that distance, remoteness, economic country size, and relative factor endowments were the main economic determinants of goods trade agreements membership and that their impact on empirical membership probability was consistent with economic theory. Following them, we use a largely overlapping set of determinants in our empirical analyses.

For any dyad ij , we include $DIST_{ij}$ which is the log of bilateral distance between i and j . Economic country sizes are represented by $SRGDP_{ij}$, which is the sum of the logs of real GDP of country i and j and $DRGDP_{ij}$, which is the absolute value of the difference between the logs of real GDP of two countries.

DKL_{ij} and $DROWKL_{ij}$ determine the role of factor endowments in countries' propensities to negotiate agreements. DKL_{ij} is the absolute value of the difference between the logs of capital-labour ratios of country i and j . Apart from DKL_{ij} , Baier and Bergstrand (2004) suggest using $SQDKL_{ij}$ – the squared value of DKL_{ij} – in order to control for the likely non-linear impact of DKL_{ij} on the net gains from participating in a trade agreement. Moreover, to account for dependence of i and j on each other, Baier and Bergstrand (2004) suggested including $DROWKL_{ij}$ which is calculated as the absolute value of the difference between the logs of capital-labour ratios of countries i and j and those of ROW.

$$\text{Formally, } DROWKL_{ij} = \frac{1}{2} \left[\left\{ \log \left(\frac{\sum_{k=1, k \neq i}^N K_k}{\sum_{k=1, k \neq i}^N L_k} \right) - \log \left(\frac{K_i}{L_i} \right) \right\} + \left\{ \log \left(\frac{\sum_{k=1, k \neq j}^N K_k}{\sum_{k=1, k \neq j}^N L_k} \right) - \log \left(\frac{K_j}{L_j} \right) \right\} \right]$$

Cultural determinants include having a common language ($COMLANG_{ij}$), being a part of the same colonial set-up ($COLONY_{ij}$), having a common colonizer ($COMCOL_{ij}$), having common legal origins ($COMLAW_{ij}$) and being a part of the same country in the past ($SAMECTRY_{ij}$). More importantly from the perspective of this paper, we also control for the level of services regulation in the dyad ($SREG_{ij}$, which is the sum of the logs of $STRI_i$ and $STRI_j$) and regulatory heterogeneity between partners by including the absolute value of the difference between the logs of STRI of both countries ($DREG_{ij}$).

Finally, to examine the role of embedded supply chains in the region and complementarities between goods and services trade, we also include the log of average merchandise trade between countries i and j (BTG_{ij}) as an additional explanatory variable.

The testable propositions from Baier and Bergstrand (2004) are likely to be similar for STA membership as well. Thus:

- (a) Countries are more likely to negotiate accords with geographically-closer economies, though the effect of distance is likely to be benign for services traded over the internet.
- (b) Similar and larger economically-sized countries are also likely to gain more due to the exploitation of economies of scale and the presence of greater varieties flowing from deeper integration in services markets.
- (c) The greater the difference in relative factor endowments between countries, and the larger the intercontinental trade costs, the more trade creation is likely to be.
- (d) The greater the difference in relative factor endowments between potential partners and the ROW, the more likely trade diversion becomes.
- (e) Dyads with common cultural factors and homogeneity in regulation are more likely to enter into agreements as are partners with low initial barriers to services trade.
- (f) Partners with high levels of existing bilateral trade in goods are also more likely to negotiate STAs, not least because the intensity of such trade (and the competitiveness of goods exporters) stands to be enhanced through a negotiated lowering of services input costs.

In estimating equation (1), we thus expect the coefficients of $SRGDP_{ij}$, DKL_{ij} , $SQDKL_{ij}$, BTG_{ij} , and the cultural variables to be positive while those of $DIST_{ij}$, $DRGDP_{ij}$, $DROWKL_{ij}$, $SREG_{ij}$, and $DREG_{ij}$ to be negative.

6 Data

Data on trade agreements are taken from the WTO's Regional Trade Agreements Information System database, where $STA = 1$ for agreements notified under Article V of the GATS up until August 2015 and 0 otherwise. With the exception of the People's Republic of China (PRC), the STRI for all countries in our sample relates to 2008. Since regulatory convergence is an objective of services preferentialism, to minimize endogeneity in our estimation emanating from reverse causality we only consider services accords that came into effect in 2008 or later⁵. The STRI for the PRC pertains to 2011. However, the PRC has only concluded one services accord to date (with Pakistan) amongst our sample of Asian countries since January 2008, which is unlikely to influence either its STRI considerably or this paper's overall results.

⁵Only two services agreements were negotiated between Asian economies prior to 2008: Japan–Malaysia (2006) and Japan–Thailand (2007). Our sample size thus remains effectively the same even without these two agreements.

The earliest STA involving at least one Asian partner (New Zealand–Singapore) entered into effect on 1 January 2001. Since trade agreements are typically phased in over multi-year transition periods and to control for potential endogeneity in our estimation, our data on the time-varying independent variables are averages over 1979-1981 centered on 1980. The choice of this early year is also likely to control for any domino effects that the earliest STAs may have exerted on the recent wave of services preferentialism involving Asian economies. As robustness checks, however, we also include data on the time-varying independent variables averaged over 1989-1991 and 1999-2001 in separate regressions⁶.

The Centre d’Etudes Prospectives et d’Informations Internationales (CEPII) gravity dataset (Head et al. 2010) provides geographic distances between capital cities, used to compute $DIST_{ij}$. Data on real GDP are taken from the World Bank’s World Development Indicators (WDI) and these are used to calculate $SRGDP_{ij}$ and $DRGDP_{ij}$.

We approximate the relative factor endowment ratios K_i/L_i by using data on real per capita income (PCY) for two reasons. One, using the perpetual inventory method to estimate capital stocks as in Baier and Bergstrand (2004) in earlier time periods leads to an unjustifiable loss of observations. Two, real per-capita incomes are highly correlated with capital-labour ratios (see Egger & Larch 2008; Bergstrand et al. 2010). Data on real PCY are also taken from the WDI.

Data on common language and colonial antecedents are taken from the CEPII gravity dataset (Head et al. 2010), while those on legal origins are compiled using Shleifer (1999)⁷. To the extent possible, all trade data were also averaged over 1979-1981 to minimize fluctuations in recording practices⁸. Data on BTG_{ij} were sourced from UN Comtrade.

Descriptive statistics are provided in Table 2.

<Insert Table 2 here>

7 Results

The results from the LPM and Probit estimation of equation (1), assuming exogenous unilateral STRI, are reported in Table 3. In the first two columns of Table 3, the time-varying regressors are averaged over 1979-1981. In columns (3) and (4), the time-varying regressors

⁶We would like to thank an anonymous referee for this suggestion.

⁷http://www.economics.harvard.edu/faculty/shleifer/files/qgov_web.xls

⁸In some cases, the earliest available years were 1984–86 (PRC), 1998–2000 (Mongolia and Viet Nam), and 2000–02 (Cambodia).

are averaged over 1989-1991, while in columns (5) and (6), these are averaged over 1999-2001. Standard errors are clustered by trading partner pair in all specifications.

<Insert Table 3 here>

Unfortunately with data on time-varying regressors averaged over 1979-1981, the small number of observations meant that the Probit model was left with no degrees of freedom to contend with. We thus focus on the LPM results reported in column (1). These results suggest that only BTG_{ij} and $DREG_{ij}$ were statistically significant determinants of STA membership in Asia for this earliest time period. Moreover, while the coefficient of BTG_{ij} is positive as predicted, that of $DREG_{ij}$ is also positive, which runs counter to our predictions. The latter suggests that Asian trading partners with divergent regulatory frameworks may in fact be negotiating services accords to foster regulatory convergence. The explanatory power of the LPM was also found to be high at 0.8264.

The results from the LPM with data on time-varying explanatory variables averaged over 1989-1991 reported in column (3) were qualitatively similar to those reported in column (1), though the positive coefficient of BTG_{ij} was now found to be weakly significant. Moreover, being a part of the same country in the past seemed to have a negative impact on the propensity to negotiate services accords in Asia.

The Probit results reported in column (4) provided evidence for the positive role of BTG_{ij} , $DREG_{ij}$, and having a common colonizer ($COMCOL_{ij}$) but the negative role of a common legal system ($COMLAW_{ij}$) in determining STA membership in Asia. Significantly, the Probit model correctly predicted STA membership for 94.2% of the observations in our sample⁹. Of the total, fourteen dyads actually negotiated an STA and nine of these were correctly predicted by our model. The remaining 89 dyads did not have a services accord and our model correctly predicted 88 (98.9%) of these.

With data on time-varying regressors averaged over 1999-2001, more explanatory variables exhibit statistical significance in the LPM and Probit results reported in columns (5) and (6) respectively, but some of these results are also more counter-intuitive. For instance, the coefficient of $DIST_{ij}$ is positive (thus negating the role of geography in the choice of STA partners within Asia) and that of $SRGDP_{ij}$ is negative (thereby negating the role of the economic size of potential markets) in the Probit results in column (6), both of which run counter to theoretical predictions in Baier & Bergstrand (2004). Given that the underlying

⁹To enable this comparison, we used the decision-rule from Baier and Bergstrand (2004). If $STA_{ij}^{pred} > 0.5$, then we take this value to be 1. If $STA_{ij}^{pred} \leq 0$, then we take this value to be 0.

data on time-varying regressors has been averaged over 1999-2001 in these results, potential endogeneity in estimation cannot be ruled out.

We thus focus on the results reported in columns (1) through (4) to explain STA membership in Asia and these results suggest that trading partner pairs with greater historical levels of bilateral merchandise trade and wider differences in their services regulatory frameworks are more likely candidates for STA formation in Asia. Thus, the “servicification” hypothesis appears to command the strongest empirical appeal in explaining our sample countries’ propensities to sign services accords.

7.1 Endogenous unilateral STRI

In this sub-section, we relax the assumption of the exogeneity of the services regulatory frameworks.

The main objective of STAs is to increase trade in services between partners. Reducing levels of restrictive regulation and promoting regulatory convergence are important channels through which services accords expand services trade volumes. Thus, the determinants of a country’s choice to negotiate a services accord are likely to be indistinguishable from those that inform whether certain countries are more likely candidates for a reduction in restrictive regulation as well as for regulatory convergence.

To examine this secondary hypothesis, in distinct regressions, we explain the restrictiveness of services regimes in a dyad and regulatory heterogeneity between partners using the same set of controls as used for explaining STA membership in equation (1).

Formally,

$$DREG_{ij} = \theta + \pi x + \varepsilon \quad (2)$$

where $DREG_{ij}$ is the absolute value of the difference between the logs of the services trade restrictiveness index ($STRI$) of two countries and ε is an error term.

Moreover,

$$SREG_{ij} = \mu + \varphi x + \xi \quad (3)$$

where $SREG_{ij}$ is the sum of the log levels of $STRI$ of two countries and ξ is an error term.

We then use the predicted values of $DREG_{ij}$ and $SREG_{ij}$ from equations (2) and (3), respectively, as additional control variables in equation (1). Statistically significant coefficients

of $DREG_{ij}^{pred}$ and $SREG_{ij}^{pred}$ would suggest that these variables were endogenous in explaining STA membership, thereby validating our secondary hypothesis. Equations (2) and (3) were estimated using OLS but these results are not reported.

The results from the LPM and Probit estimation of equation (1), testing for the endogenous treatment of STRI, are reported in Table 4. Once again, the time-varying regressors are averaged over 1979-1981 in the first two columns of Table 4. In columns (3) and (4), the time-varying regressors are averaged over 1989-1991, while in columns (5) and (6), these are averaged over 1999-2001. Standard errors are clustered by trading partner pair in all specifications.

<Insert Table 4 here>

While the overall results from these regressions are qualitatively similar to those reported in Table 3, the coefficient of $DREG_{ij}^{pred}$ is omitted while that of $SREG_{ij}^{pred}$ is statistically indifferent from zero, thereby pointing to the validity of the exogenous treatment of the services regulatory frameworks in our baseline estimations of equation (1). This is also confirmed by the p-values of the parameter tests reported at the end of Table 4.

8 Conclusion

This paper explored the question of whether certain countries within Asia are more likely candidates for negotiated regulatory convergence and harmonization in the context of services agreements. The two papers closest to the analysis on offer in this paper are Baier and Bergstrand (2004), who were the first to ask this question from the perspective of agreements focusing on goods trade, and Cole and Guillin (2015), who first explored the issue for services accords without, however, considering the influence of regulation in services trade.

While our results may be Asia-specific, the goodness-of-fit of our empirical model, demonstrated by the probabilities predicted successfully, is in line with the results found in Baier and Bergstrand (2004) and improve on those found in Cole and Guillin (2015).

Our results suggest that Asian economies with high pre-existing levels of bilateral goods trade and divergent services regulatory frameworks are more likely to negotiate services agreements with each other.

A number of policy implications can be derived from the above results. For starters, far from inhibiting the quest for deeper market integration, ex ante divergences in regulatory regimes

and enforcement capacities may well prove a significant spur to negotiated convergence, allowing parties to import best trade- and investment-facilitating standards from partners with greater overall regulatory efficiency. Where regulatory divergences are so marked as to inhibit market integration, the supply of adequate doses of variable geometry in meeting otherwise common policy objectives may represent a useful means to promote convergence. A case in point is ASEAN where, despite far-reaching income and development gaps within the regional grouping, significant regulatory convergence has been achieved through formulas that internalize the need for differentiated implementation modalities across members.

Among economic variables, the positive and significant relationship found between past bilateral trade flows and STA membership in Asia clearly stands out. This may lend support to the idea that bindings in the area of services are increasingly perceived by governments as important instruments to complement goods trade. This has particular resonance in Asia given the growing insertion of the region in supply chain production. Producer services (e.g., transportation and logistics, telecommunications, finance, business and professional services) play a significant role in goods-dominated supply chains, and legally bound commitments in treaty instruments (governing both trade and investment) assume heightened value as they provide a degree of predictability and stability that is essential for the proper functioning of complex cross-border operations (Baldwin and Kawai, 2013; Baldwin and Lopez-Gonzalez, 2013).

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Table 1: Comparison of STRI across regions/groups

Region/Group	LAC	ECA	EAP	OECD	SSA	SA	MENA	World
Mean	21.6	18.8	39.1	19.1	32.0	43.9	45.2	28.3
Standard deviation	10.0	6.7	13.9	4.8	16.6	13.7	11.2	14.9

Note: EAP = East Asia and the Pacific, ECA = Eastern Europe and Central Asia, LAC = Latin America and the Caribbean, MENA = Middle East and North Africa, OECD = Organisation for Economic Co-operation and Development, SA = South Asia, SSA = Sub-Saharan Africa.

Source: Author calculations based on World Bank STRI database (Borchert et al. 2012).

Table 2: Descriptive statistics

Variable	Acronym	Obs.	Mean	Std.Dev.	Min.	Max.
Services Trade Agreement Membership						
STA Membership Status Between i and j in 2015 (end August)	STA _{ij}	103	0.136	0.344	0.000	1.000
Unilateral Services Trade Restrictiveness						
Log Sum of STRI of i and j	SREG _{ij}	103	7.165	0.554	5.757	8.165
Absolute Difference in Log STRI of i and j	DREG _{ij}	103	0.464	0.358	0.013	1.568
Absolute and Relative Endowment and Trade Variables (avg. 1979-1981)						
Log Sum of GDP of i and j	SRGDP _{ij}	76	48.880	2.551	42.643	54.625
Absolute Difference in Log GDP of i and j	DRGDP _{ij}	76	2.218	1.649	0.016	7.626
Absolute Difference in Log GDP per Capita of i and j	DKL _{ij}	76	1.431	1.184	0.004	4.734
Squared Absolute Difference in Log GDP per Capita of i and j	SQDKL _{ij}	76	3.431	5.228	0.000	22.411
Absolute Difference in Log GDP per Capita of i plus j with Rest-of-World	DROWKL _{ij}	76	2.135	0.618	0.513	3.355
Log Average Bilateral Goods Trade Between i and j	BTG _{ij}	68	16.477	2.793	8.375	22.587
Absolute and Relative Endowment and Trade Variables (avg. 1989-1991)						
Log Sum of GDP of i and j	SRGDP _{ij}	89	49.799	2.607	43.491	55.983
Absolute Difference in Log GDP of i and j	DRGDP _{ij}	89	2.298	1.636	0.016	7.654
Absolute Difference in Log GDP per Capita of i and j	DKL _{ij}	89	1.473	1.271	0.005	4.917
Squared Absolute Difference in Log GDP per Capita of i and j	SQDKL _{ij}	89	3.766	5.696	0.000	24.174
Absolute Difference in Log GDP per Capita of i plus j with Rest-of-World	DROWKL _{ij}	89	2.093	0.563	0.519	3.110
Log Average Bilateral Goods Trade Between i and j	BTG _{ij}	83	17.656	2.630	9.628	23.442
Absolute and Relative Endowment and Trade Variables (avg. 1999-2001)						
Log Sum of GDP of i and j	SRGDP _{ij}	103	50.312	2.839	43.457	57.072
Absolute Difference in Log GDP of i and j	DRGDP _{ij}	103	2.524	1.740	0.039	7.744
Absolute Difference in Log GDP per Capita of i and j	DKL _{ij}	103	1.459	1.274	0.016	4.761
Squared Absolute Difference in Log GDP per Capita of i and j	SQDKL _{ij}	103	3.738	5.489	0.000	22.664
Absolute Difference in Log GDP per Capita of i plus j with Rest-of-World	DROWKL _{ij}	103	2.026	0.518	0.581	3.068
Log Average Bilateral Goods Trade Between i and j	BTG _{ij}	103	17.920	3.375	8.922	24.404
Geographical and Cultural Distance						
Log Bilateral Distance Between i and j	DIST _{ij}	103	7.952	0.543	6.284	8.834
Common Legal System Between i and j	COMLAW _{ij}	103	0.291	0.457	0.000	1.000
Common Language Between i and j	COMLANG _{ij}	103	0.087	0.284	0.000	1.000
Colonial Relationship Between i and j	COLONY _{ij}	103	0.019	0.139	0.000	1.000
Common Colonizer Between i and j	COMCOL _{ij}	103	0.107	0.310	0.000	1.000
Units i and j Belonged to the Same Country	SAMECTRY _{ij}	103	0.049	0.216	0.000	1.000

Table 3: Explaining STA membership within Asia, assuming exogenous unilateral STRI

Time-varying regressors averaged over:	Dependent variable: STA membership					
	(1)	(2)	(3)	(4)	(5)	(6)
	LPM 1979-1981	Probit	LPM 1989-1991	Probit	LPM 1999-2001	Probit
DIST _{ij}	-0.020 (0.106)	11.016 .	0.028 (0.080)	1.143 (0.863)	0.096 (0.068)	2.016** (0.774)
SRGDP _{ij}	-0.029 (0.036)	7.157 .	-0.013 (0.031)	-0.872 (0.715)	-0.005 (0.033)	-0.687# (0.358)
DRGDP _{ij}	-0.053 (0.039)	-1.768 (0.000)	-0.039 (0.029)	-0.012 (0.213)	-0.047* (0.019)	-0.059 (0.158)
DKL _{ij}	0.216 (0.145)	-5.482 (0.000)	0.103 (0.124)	-0.909 (1.593)	0.138# (0.073)	0.864 (0.943)
SQDKL _{ij}	-0.038 (0.030)	0.338 .	-0.014 (0.029)	0.190 (0.278)	-0.014 (0.021)	-0.119 (0.252)
DROWKL _{ij}	-0.057 (0.101)	-16.825 (0.000)	-0.012 (0.090)	-0.138 (1.415)	0.060 (0.077)	0.802 (0.650)
BTG _{ij}	0.088** (0.026)	-1.260 (0.000)	0.057# (0.031)	1.563* (0.618)	0.050* (0.023)	1.153*** (0.303)
SREG _{ij}	0.098 (0.101)	-0.382 (0.000)	-0.004 (0.132)	0.139 (1.023)	-0.064 (0.092)	-1.023 (0.658)
DREG _{ij}	0.818*** (0.120)	13.760 .	0.599*** (0.164)	5.374*** (1.470)	0.334** (0.112)	2.083* (0.909)
COMLAW _{ij}	0.027 (0.121)	7.907 .	0.008 (0.076)	-4.494*** (0.787)	0.005 (0.046)	-4.019*** (1.193)
COMLANG _{ij}	-0.044 (0.112)	-2.255 (0.000)	-0.042 (0.106)	0.062 (0.610)	0.004 (0.114)	0.026 (0.639)
COLONY _{ij}	-0.211 (0.263)	. .	-0.254 (0.224)	. .	-0.104 (0.174)	. .
COMCOL _{ij}	0.062 (0.143)	15.294 .	0.116 (0.147)	5.190*** (1.278)	0.169 (0.129)	5.394*** (1.184)
SAMECTRY _{ij}	-0.238 (0.189)	. .	-0.349* (0.171)	. .	-0.288# (0.154)	. .
Constant	-0.764 (1.795)	-397.235 (0.000)	-0.601 (1.461)	2.037 (20.402)	-1.097 (1.091)	-0.750 (11.329)
N	55	51	78	72	103	96
df _m	13	0	14	12	14	12
r ²	0.683		0.457		0.403	
Explanatory power	0.8264	0.6757	0.6757	0.553	0.6346	0.5081
Number of predictions at which P(STA _{ij} =1)<0	16		22		32	
Correct predictions (%)						
overall				94.2		95.1
for STA=1				64.3		85.7
for STA=0				98.9		96.6

Note: Levels of significance: #10% * 5% **1% ***0.1%; standard errors, clustered by trading partner pair, reported in parentheses; LPM = Linear Probability Model.

Table 4: Explaining STA membership within Asia, allowing for endogenous unilateral STRI

Time-varying regressors averaged over:	Dependent variable: STA membership					
	(1)	(2)	(3)	(4)	(5)	(6)
	LPM	Probit	LPM	Probit	LPM	Probit
	1979-1981		1989-1991		1999-2001	
DIST _{ij}	0.007 (0.102)	11.016 .	0.051 (0.078)	1.143 (0.863)	0.106# (0.061)	2.016** (0.774)
SRGDP _{ij}	-0.041 (0.028)	7.157 .	-0.021 (0.030)	-0.872 (0.715)	-0.008 (0.030)	-0.687# (0.358)
DRGDP _{ij}	-0.034 (0.050)	-1.768 (0.000)	-0.022 (0.032)	-0.012 (0.213)	-0.041# (0.021)	-0.059 (0.158)
DKL _{ij}	0.219 (0.145)	-5.482 (0.000)	0.106 (0.123)	-0.909 (1.593)	0.144# (0.074)	0.864 (0.943)
SQDKL _{ij}	-0.035 (0.030)	0.338 .	-0.010 (0.029)	0.190 (0.278)	-0.013 (0.020)	-0.119 (0.252)
DROWKL _{ij}	-0.106 (0.138)	-16.825 (0.000)	-0.051 (0.093)	-0.138 (1.415)	0.039 (0.080)	0.802 (0.650)
BTG _{ij}	0.089** (0.026)	-1.260 (0.000)	0.058# (0.031)	1.563* (0.618)	0.044# (0.026)	1.153*** (0.303)
SREG _{ij}	0.262 (0.191)	-0.382 (0.000)	0.199# (0.111)	0.139 (1.023)	0.010 (0.076)	-1.023 (0.658)
DREG _{ij}	0.818*** (0.120)	13.760 .	0.599*** (0.164)	5.374*** (1.470)	0.334** (0.112)	2.083* (0.909)
COMLAW _{ij}	0.009 (0.115)	7.907 .	-0.025 (0.075)	-4.494*** (0.787)	-0.006 (0.049)	-4.019*** (1.193)
COMLANG _{ij}	-0.044 (0.112)	-2.255 (0.000)	-0.065 (0.108)	0.062 (0.610)	-0.008 (0.118)	0.026 (0.639)
COLONY _{ij}	.	.	.	.	.	.
COMCOL _{ij}	0.063 (0.143)	15.294 .	0.110 (0.148)	5.190*** (1.278)	0.156 (0.129)	5.394*** (1.184)
SAMECTRY _{ij}	-0.159 (0.203)	.	-0.246 (0.155)	.	-0.231 (0.141)	.
DREG ^{pred} _{ij}	.	.	.	.	.	.
SREG ^{pred} _{ij}	-0.165 (0.205)	.	-0.203 (0.179)	.	-0.074 (0.124)	.
Constant	-1.539 (2.240)	-397.235 (0.000)	-1.852 (1.526)	2.037 (20.402)	-1.450 (1.287)	-0.750 (11.329)
N	55	51	78	72	103	96
df_m	13	0	14	12	14	12
r ²	0.683		0.457		0.403	
Explanatory power	0.8264	0.6757	0.6757	0.553	0.6346	0.5081
Number of predictions at which P(STA _{ij} =1)<0	17		22		32	
Test for SREG ^{pred} = 0 (p-value)	0.4247		0.2606		0.5514	

Note: Levels of significance: #10% * 5% **1% ***0.1%; standard errors, clustered by trading partner pair, reported in parentheses; LPM = Linear Probability Model.