Why Do Economies Enter into Preferential Agreements on Trade in Services? Assessing the Potential for Negotiated Regulatory Convergence in Asian Services Markets[+]

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More than one-third of the World Trade Organization-notified services trade agreements that were in effect between January 2008 and August 2015 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, Gootiiz, and Mattoo 2012), we examine the potential for negotiated regulatory convergence in Asian services markets. Our results suggest that Asian economies with high levels of preexisting bilateral merchandise trade and wide differences in services regulatory frameworks are more likely candidates for services trade agreement formation. Such results lend support to the hypothesis that the heightened "servicification" of production generates demand for the lowered services input costs resulting from negotiated market openings.

Keywords: Asia, preferential trade agreements, regulation, regulatory convergence, services trade
JEL codes: F10, F13, F15

I. 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 now extends to services, particularly in the Asia-Pacific region (Chanda 2011, PECC and ADBI 2011, Shepherd and Pasadilla 2012). Of the 81 preferential trade agreements (PTAs) that entered in force prior to January 2000, 73 (90%) featured provisions dealing exclusively with trade in goods. Between January 2000 and August 2015, 124 of the 194 PTAs that

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entered into force also included provisions on services trade. The above trend signals the heightened importance of services trade in general, the growing need among economies 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) that were in effect between January 2008 and August 2015 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 Nordås 2007, 2009). However, less well understood and investigated has been the question of whether certain economies are more likely candidates for negotiated regulatory convergence from a services trade perspective. Simply put, are economies that display greater ex ante regulatory convergence more likely candidates for deeper integration agreements in services markets? Is the demand for negotiated market openings a by-product of what has been dubbed the "servicification" of production?[1] What is the role of geography in trade-facilitating regulatory convergence in services? Finally, 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 Asian setting.[2] According to the WTO's Regional Trade Agreements Information System, 103 PTAs entered into force during January 2008–August 2015. A vast majority of these (exceeding 70% of WTO-notified agreements) included provisions that cover both goods and services trade. Twenty-eight of the 78 STAs notified over the same period involved 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 Nordås 2009) and commercial presence is the most dominant mode of service delivery, accounting for 55%–60% of all services trade flows (Maurer and Magdeleine 2008). We would thus expect trading partners in a services accord to exhibit lower levels of regulatory heterogeneity compared to those that are not

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

[2] For 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 economies for which information on services regulation is available in the World Bank's Services Trade Restrictiveness Index (STRI) database (Borchert, Gootiiz, and Mattoo 2012).

party to such an agreement. Interestingly, this was 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 economies, 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.

II. 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 techniques from the rapidly evolving gravity model empirical literature (Park 2002; Francois and Hoekman 2010; Grünfeld and Moxnes 2003; Kimura and Lee 2004; Lennon 2009; Marchetti 2011; Shingal 2014a, 2014b; van der Marel and Shepherd 2013; Walsh 2006).[3]

A second strand has explored the impact that differing levels of (and heterogeneity in) regulation exert on bilateral services trade flows (Francois, Hoekman, and Woerz 2007; Fink 2009; Kox and Lejour 2006; Kox and Nordås 2007, 2009; Schwellnus 2007; van der Marel and Shepherd 2013). A third strand has resorted to theoretical and empirical techniques to estimate barriers to trade in services and foreign direct investment, and/or to provide estimates of services trade costs (Francois, Hoekman, and Woerz 2007; Miroudot, Sauvage, and Shepherd 2012, 2013; van der Marel 2011).

The literature has also evolved to explain services commitments in the General Agreement on Trade in Services (GATS) (Roy 2011), those made reciprocally (Marchetti, Roy, and Zoratto 2012), as well as GATS+ commitments in STAs (van der Marel and Miroudot 2014).

The papers closest to ours include 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

[3] An elaboration of these techniques is beyond the scope of this paper but an excellent review is provided in Head and Mayer (2014).

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 (Borchert, Gootiiz, and Mattoo 2012).[4]

Baier and Bergstrand (2004) found the potential welfare gains and likelihood of a PTA in goods trade between a pair of economies to be higher

(i) the closer the two trading partners are in terms of geographic distance;

(ii) the more remote they are from the rest of the world (ROW);

(iii) the larger and more similar they are economically, in terms of real gross domestic product (GDP), to enable exploitation of economies of scale in the presence of differentiated products;

(iv) the greater the difference in relative factor endowments between them, leading to Heckscher–Ohlin trade; and

(v) the smaller the difference in the relative factor endowment ratios relative to those of the ROW, leading to less interindustry 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 interindustry trade diversion. Egger and Wamser (2013) found the determinants of goods and services trade agreements to be similar.

III. 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 et al. 2007; Chaney 2008). Essentially, only firms with the highest productivity and/or lowest marginal costs tend

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

Table 1. **Comparison of STRI across Regions and Groups**

Region or 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

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, STRI = Services Trade Restrictiveness Index.
Source: Authors' calculations based on World Bank STRI database.

to profitably overcome sunk market-entry costs, thereby self-selecting themselves into becoming exporters.

In the context of an STA between trading partners, regulatory requirements assume significance for firms in both markets and the objective of the agreement is usually twofold: (i) to reduce 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 by the World Bank to 79 developing economies on impediments to international integration, and from publicly available information for Organisation for Economic Co-operation and Development (OECD) economies, STRI is a quantitative index of restrictions on services trade encompassing 103 economies, 5 major service sectors, and 19 subsectors. The information is also available by mode of service delivery.

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

A closer look at Table 1 provides an intuitive feel for the factors likely to make economies 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 economies despite significant differences in language, culture, and distances within this cohort. In the case of Eastern Europe and Central Asia, 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 suggests that a combination

of these factors could determine which economies are potential candidates for negotiated regulatory convergence.

IV. Empirical Methodology

Our empirical framework draws on McFadden's (1975, 1976) qualitative choice models where utility, here the (minimum or average) net gains for two economies 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 that takes the value 1 (indicating $y^* > 0$) if two economies participate in a common STA and 0 (indicating $y^* \leq 0$) otherwise.

More formally,

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

where P is the response probability associated with a trading dyad (ij) signing a services accord, $G(.)$ 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 economy 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 nonlinear nature of $G(.)$ implies that the coefficient estimates only reveal the signs of the partial effects of changes in x_{ij} on the probability of signing an STA. Thus, the direction of the effect of variable x_k on $E(y^* \mid x) = \alpha + \beta x$ is only qualitatively (not quantitatively) identical to the effect of x_k on $E(STA \mid x) = G(\alpha + \beta x)$, where $E(.)$ denotes the expectation operator.

As a robustness check, however, we also estimate (1) using the linear probability model (LPM).

V. 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, size of the economy, and relative factor endowments were the main economic determinants of goods trade agreement 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. Economy sizes are represented by $SRGDP_{ij}$, which is the sum of the

logs of real GDP of economies i and j, and $DRGDP_{ij}$, which is the absolute value of the difference between the logs of real GDP of both economies.

DKL_{ij} and $DROWKL_{ij}$ determine the role of factor endowments in economies' propensities to negotiate agreements. DKL_{ij} is the absolute value of the difference between the logs of capital–labor ratios of economies 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 nonlinear 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–labor ratios of economies i and j and those of the ROW.

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 former colony ($COLONY_{ij}$), 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 of economies i and j) and regulatory heterogeneity between partners by including the absolute value of the difference between the logs of STRI of both economies ($DREG_{ij}$).

Finally, to examine the role of embedded supply chains in the region and complementarities between goods and services trade, we include the log of average merchandise trade between economies 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,

(i) economies 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;

(ii) similar and larger economies 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;

(iii) the greater the difference in relative factor endowments between economies, and the larger the intercontinental trade costs, the more trade creation there is likely to be;

(iv) the greater the difference in relative factor endowments between potential partners and the ROW, the more likely trade diversion becomes;

(v) 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; and

(vi) 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 $DREG_{ij}$ are expected to be negative.

VI. 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 through August 2015 and 0 otherwise. With the exception of the PRC, the STRI for all economies 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 later.[5] The STRI for the PRC pertains to 2011. However, the PRC has only concluded one services accord to date (with Pakistan) among our sample of Asian economies since January 2008, which is unlikely to influence either its STRI considerably or this paper's overall results.

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 multiyear transition periods and to control for potential endogeneity in our estimation, our data on the time-varying independent variables

[5]Only 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.

are averages for 1979–1981 and 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 for 1989–1991 and 1999–2001 in separate regressions.[6] The Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) gravity dataset (Head, Mayer, and Ries 2010) provides geographic distances between capital cities that are used to compute $DIST_{ij}$. Data on real GDP are taken from the World Bank's *World Development Indicators* 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 for two reasons: (i) 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, and (ii) real per capita incomes are highly correlated with capital–labor ratios (Egger and Larch 2008; Bergstrand, Egger, and Larch 2016). Data on real per capita income are also taken from the World Bank's *World Development Indicators*.

Data on common language and colonial antecedents are taken from the CEPII gravity dataset (Head, Mayer, and Ries 2010), while data on legal origins were compiled using La Porta et al. (1999). The World Bank's STRI data (Borchert, Gootiiz, and Mattoo 2012) are used to calculate $SREG_{ij}$ and $DREG_{ij}$. Data used to calculate BTG_{ij} were sourced from the United Nations Commodity Trade Statistics Database (UN Comtrade). To the extent possible, all trade data were also averaged for 1979–1981, 1989–1991, and 1999–2001 to minimize fluctuations in recording practices.[7] Descriptive statistics are provided in Table 2.

VII. 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 for 1979–1981. In columns (3) and (4), the time-varying regressors are averaged for 1989–1991, while in columns (5) and (6), these are averaged for 1999–2001. Standard errors are clustered by trading partner pair in all specifications.

Unfortunately, with data on time-varying regressors averaged for 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

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

[7] In some cases, the earliest available years were 1984–1986 (the PRC), 1998–2000 (Mongolia and Viet Nam), and 2000–2002 (Cambodia).

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 the rest of the 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 the rest of the 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 the rest of the 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

GDP = gross domestic product, STA = services trade agreement, STRI = Services Trade Restrictiveness Index.
Sources: World Trade Organization. Regional Trade Agreements Information System. http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx; Borchert, Gootiiz, and Mattoo 2012; World Bank. World Development Indicators. http://data.worldbank.org/data-catalog/world-development-indicators; United Nations. UN Commodity Trade Statistics Database. http://comtrade.un.org/; Head, Mayer, and Ries 2010; La Porta et al. 1999.

Table 3. **Explaining STA Membership within Asia, Assuming Exogenous Unilateral STRI**

	Dependent Variable: STA Membership					
Time-Varying Regressors Averaged Over	**(1) LPM**	**(2) Probit**	**(3) LPM**	**(4) Probit**	**(5) LPM**	**(6) Probit**
	1979–1981		**1989–1991**		**1999–2001**	
$DIST_{ij}$	−0.020	11.016	0.028	1.143	0.096	2.016**
	(0.106)	.	(0.080)	(0.863)	(0.068)	(0.774)
$SRGDP_{ij}$	−0.029	7.157	−0.013	−0.872	−0.005	−0.687#
	(0.036)	.	(0.031)	(0.715)	(0.033)	(0.358)
$DRGDP_{ij}$	−0.053	−1.768	−0.039	−0.012	−0.047*	−0.059
	(0.039)	(0.000)	(0.029)	(0.213)	(0.019)	(0.158)
DKL_{ij}	0.216	−5.482	0.103	−0.909	0.138#	0.864
	(0.145)	(0.000)	(0.124)	(1.593)	(0.073)	(0.943)
$SQDKL_{ij}$	−0.038	0.338	−0.014	0.190	−0.014	−0.119
	(0.030)	.	(0.029)	(0.278)	(0.021)	(0.252)
$DROWKL_{ij}$	−0.057	−16.825	−0.012	−0.138	0.060	0.802
	(0.101)	(0.000)	(0.090)	(1.415)	(0.077)	(0.650)
BTG_{ij}	0.088**	−1.260	0.057#	1.563*	0.050*	1.153***
	(0.026)	(0.000)	(0.031)	(0.618)	(0.023)	(0.303)
$SREG_{ij}$	0.098	−0.382	−0.004	0.139	−0.064	−1.023
	(0.101)	(0.000)	(0.132)	(1.023)	(0.092)	(0.658)
$DREG_{ij}$	0.818***	13.760	0.599***	5.374***	0.334**	2.083*
	(0.120)	.	(0.164)	(1.470)	(0.112)	(0.909)
$COMLAW_{ij}$	0.027	7.907	0.008	−4.494***	0.005	−4.019***
	(0.121)	.	(0.076)	(0.787)	(0.046)	(1.193)
$COMLANG_{ij}$	−0.044	−2.255	−0.042	0.062	0.004	0.026
	(0.112)	(0.000)	(0.106)	(0.610)	(0.114)	(0.639)
$COLONY_{ij}$	−0.211	.	−0.254	.	−0.104	.
	(0.263)	.	(0.224)	.	(0.174)	.
$COMCOL_{ij}$	0.062	15.294	0.116	5.190***	0.169	5.394***
	(0.143)	.	(0.147)	(1.278)	(0.129)	(1.184)
$SAMECTRY_{ij}$	−0.238	.	−0.349*	.	−0.288#	.
	(0.189)	.	(0.171)	.	(0.154)	.
Constant	−0.764	−397.235	−0.601	2.037	−1.097	−0.750
	(1.795)	(0.000)	(1.461)	(20.402)	(1.091)	(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

LPM = linear probability model, STA = services trade agreement, STRI = Services Trade Restrictiveness Index.
Notes: # = 10% level of significance, * = 5% level of significance, ** = 1% level of significance, *** = 0.1% level of significance. Standard errors, clustered by trading partner pair, are reported in parentheses.
Source: Authors' calculations.

column (1), which suggest that only BTG_{ij} and $DREG_{ij}$ were statistically significant determinants of STA membership in Asia for the earliest time period (1979–1981). 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 for 1989–1991 and 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 economy 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 provided evidence for 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 sample.[8] Of the total, 14 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 for 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 counterintuitive. 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 (thus negating the role of the size of potential markets) in the probit results in column (6), both of which run counter to theoretical predictions in Baier and Bergstrand (2004). Given that the underlying data on time-varying regressors has been averaged for 1999–2001 in these results, potential endogeneity in the 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 economies' propensities to sign services accords.

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[8]To 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 $STA_{ij}^{pred} <= 0$, then we take this value to be 0.

A. Endogenous Unilateral STRI

In this subsection, 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 an economy's choice to negotiate a services accord are likely to be indistinguishable from those that inform whether certain economies are more likely candidates for a reduction in restrictive regulation levels 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,

$$DREG_{ij} = \theta + \pi x_{ij} + \varepsilon_{ij} \tag{2}$$

where $DREG_{ij}$ is the absolute value of the difference between the logs of the STRI of two economies and ε_{ij} is the error term.

Moreover,

$$SREG_{ij} = \mu + \eta x_{ij} + \xi_{ij} \tag{3}$$

where $SREG_{ij}$ is the sum of the log levels of STRI of two economies and ξ_{ij} is the 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). The statistically significant coefficients of $DREG_{ij}^{pred}$ and $SREG_{ij}^{pred}$ suggest that these variables were endogenous in explaining STA membership, thereby validating our secondary hypothesis. Equations (2) and (3) were estimated using ordinary least squares 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 for 1979–1981 in the first two columns of Table 4. In columns (3) and (4), the time-varying regressors are averaged for 1989–1991, while in columns (5) and (6), these are averaged for 1999–2001. Standard errors are clustered by trading partner pair in all specifications.

While the overall results from these regressions are qualitatively similar to those reported in Table 3, the coefficient of $DREG_{ij}^{pred}$ is omitted and that of

Table 4. **Explaining STA Membership within Asia, Allowing for Endogenous Unilateral STRI**

	Dependent Variable: STA Membership					
Time-Varying Regressors Averaged Over	**(1) LPM 1979–1981**	**(2) Probit 1979–1981**	**(3) LPM 1989–1991**	**(4) Probit 1989–1991**	**(5) LPM 1999–2001**	**(6) Probit 1999–2001**
$DIST_{ij}$	0.007	11.016	0.051	1.143	0.106#	2.016**
	(0.102)	.	(0.078)	(0.863)	(0.061)	(0.774)
$SRGDP_{ij}$	−0.041	7.157	−0.021	−0.872	−0.008	−0.687#
	(0.028)	.	(0.030)	(0.715)	(0.030)	(0.358)
$DRGDP_{ij}$	−0.034	−1.768	−0.022	−0.012	−0.041#	−0.059
	(0.050)	(0.000)	(0.032)	(0.213)	(0.021)	(0.158)
DKL_{ij}	0.219	−5.482	0.106	−0.909	0.144#	0.864
	(0.145)	(0.000)	(0.123)	(1.593)	(0.074)	(0.943)
$SQDKL_{ij}$	−0.035	0.338	−0.010	0.190	−0.013	−0.119
	(0.030)	.	(0.029)	(0.278)	(0.020)	(0.252)
$DROWKL_{ij}$	−0.106	−16.825	−0.051	−0.138	0.039	0.802
	(0.138)	(0.000)	(0.093)	(1.415)	(0.080)	(0.650)
BTG_{ij}	0.089**	−1.260	0.058#	1.563*	0.044#	1.153***
	(0.026)	(0.000)	(0.031)	(0.618)	(0.026)	(0.303)
$SREG_{ij}$	0.262	−0.382	0.199#	0.139	0.010	−1.023
	(0.191)	(0.000)	(0.111)	(1.023)	(0.076)	(0.658)
$DREG_{ij}$	0.818***	13.760	0.599***	5.374***	0.334**	2.083*
	(0.120)	.	(0.164)	(1.470)	(0.112)	(0.909)
$COMLAW_{ij}$	0.009	7.907	−0.025	−4.494***	−0.006	−4.019***
	(0.115)	.	(0.075)	(0.787)	(0.049)	(1.193)
$COMLANG_{ij}$	−0.044	−2.255	−0.065	0.062	−0.008	0.026
	(0.112)	(0.000)	(0.108)	(0.610)	(0.118)	(0.639)
$COLONY_{ij}$	.	.	.	.	.	.
$COMCOL_{ij}$	0.063	15.294	0.110	5.190***	0.156	5.394***
	(0.143)	.	(0.148)	(1.278)	(0.129)	(1.184)
$SAMECTRY_{ij}$	−0.159	.	−0.246	.	−0.231	.
	(0.203)	.	(0.155)	.	(0.141)	.
$DREG_{ij}^{pred}$	.	.	.	.	.	.
$SREG_{ij}^{pred}$	−0.165	.	−0.203	.	−0.074	.
	(0.205)	.	(0.179)	.	(0.124)	.
Constant	−1.539	−397.235	−1.852	2.037	−1.450	−0.750
	(2.240)	(0.000)	(1.526)	(20.402)	(1.287)	(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	

LPM = linear probability model, STA = services trade agreement, STRI = Services Trade Restrictiveness Index.
Notes: # = 10% level of significance, * = 5% level of significance, ** = 1% level of significance, *** = 0.1% level of significance. Standard errors, clustered by trading partner pair, are reported in parentheses.
Source: Authors' calculations.

$SREG_{ij}^{pred}$ is statistically indifferent from 0, 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 bottom of Table 4.

VIII. Concluding Remarks

This paper explores the question of whether certain economies 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 that were predicted successfully, is in line with the results found in Baier and Bergstrand (2004) and improves on those found in Cole and Guillin (2015). Our results suggest that Asian economies with high preexisting 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 the Association of Southeast Asian Nations 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 binding agreements 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 role 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 binding 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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