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Park, Innwon and Park, Soonchan

Korea University

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Innwon Park[**] and Soonchan Park[***]

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Abstract

As the impact of trade in services on the current global financial crisis appears to overtake that of trade in goods, we propose to examine liberalization of trade in services through regional trade agreements (RTAs). The regional liberalization of trade in services is expected to generate significant welfare gains both in the services and goods sectors. However, the quantitative effect of RTAs under GATS (General Agreement on Trade in Services) Article V has not been sufficiently investigated. We attempt to fill this gap by applying a gravity regression analysis to four major services sectors—financial services, business services, communication services, and transportation services—while controlling for both country-specific and time-varying importer and exporter fixed effects. We find that (i) the RTAs under GATS Article V create services trade among members and do not divert services trade from nonmembers, but the trade-enhancing effect is sector-specific; (ii) the sector-specific trade-enhancing effect ranges from the highest in business services sector to the lowest in transportation services; (iii) the trade effect on aggregate services trade is weaker when we control for the time-varying multilateral trade resistance factor with the time-varying exporter and importer fixed effect, however, the sectoral effects show a reverse pattern; (iv) there is no anticipatory effect expected from services RTA negotiations, unlike the case of trade in goods; (v) there is a complementary relationship between goods and services imports; and (vi) the trade-enhancing effect of RTAs is stronger between developed members compared to the effect between developed and developing countries.

Keywords: *trade in services, regional trade agreements, gravity, GATS*

JEL Classification: C23, F13, F15

[**] Corresponding author: Professor, Division of International Studies, Korea University, 5-1 Anam-Dong, Sungbuk-Gu, Seoul 136-701, Korea; Telephone: 82-2-3290-2406; Fax: 82-2-929-0402; Email: iwpark@korea.ac.kr.
[***] Associate Professor, Department of Economics and International Trade, Kongju National University, Kongju, Korea; Email: spark@kongju.ac.kr.

I. INTRODUCTION

Trade in services has been expanding rapidly as a result of innovations in telecommunication and information technology, deregulations in public sectors, liberalization of capital flows, and facilitation of services trade through proliferating free trade agreements (FTAs). The volume of world trade in services increased 10 times from 387 billion US$ in 1980 to 3,730 billion US$ in 2008. The growth rate of trade in services (8.5 percent per year on average) exceeded that of trade in goods (7.6 percent) for the last three decades (from 1981 to 2007). The proportion of services trade, however, shows sluggish increase from 16.0% in 1980 to 18.8% in 2008.[1]

As the importance of trade in services increases, liberalization of the sector has received more attention from international trade negotiations since the Uruguay Round in 1986. The liberalization of trade in services has been adopted as a major issue in the Doha Development Agenda (DDA) negotiations of the World Trade Organization (WTO).[2] However, services liberalization at the multilateral level has seen limited progress. In contrast, services liberalization at the regional level has seen rapid progress through regional trade agreements (RTAs), which go well beyond the achievements at the multilateral level.[3] Of the 240 RTAs notified to the WTO and in force as of December 2008, 58 cover trade in services under the General Agreement on Trade in Services (GATS) Article V.[4] Of that number, 51 RTAs (88 percent) were ratified between 2001 and 2008.

Trade in services is expected to contribute significantly to economic growth mainly through enhanced productivity as services are basic inputs or intermediates for industrial production.[5] RTAs in general have proven to be a welfare enhancing tool of commercial policy by creating

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[1] Data from UNCTAD.

[2] For the service trade liberalization in the context of the DDA, see Fung and Siu (2008) and Gootiiz and Mattoo (2009).

[3] For an informative benefit-cost analysis about the preferential trade agreements compared to the multilateral approach like GATS, see Roy, Marchetti, and Lim (2006). Stephenson (2002), Mattoo and Fink (2002), and Park (2002) argue that the regional liberalization of services is more efficient than multilateral liberalization.

[4] In this paper, we define the RTAs notified under GATS Article V as "services RTAs."

[5] For a general introduction to services trade, see Copeland and Mattoo (2004). For the growth effect of trade in services, see Hoekman and Mattoo (2008). For the impact of services trade liberalization on developing countries and an informative survey on the issue, see Whalley (2004).

more trade in services.[6] However, the benefits of RTAs might be at risk in the face of growing demands for protectionist measures induced by the current global economic turbulence and the increasing impact of trade in services on the crisis.[7] This research proposes to examine the liberalizing effect of RTAs on trade in services.

So far, the quantitative effect of RTAs under the WTO's GATS provision on trade in services has not been extensively investigated. The existing studies investigate the trade effect of RTAs without distinguishing the RTAs according to the legal provisions applied, such as GATS Article V.[8] We attempt to fill this gap by applying a gravity regression analysis to four major services sectors[9]—financial services, business services, communication services, and transportation services—controlling for both country-specific and time-varying importer and exporter fixed effects. In addition, we compare trade effects of RTAs between North-North and North-South countries under GATS Article V. We also examine whether there is a complementary relationship between goods and services imports.[10]

The paper is organized as follows. Section II specifies data, gravity equations, and relevant estimation techniques. Section III summarizes the empirical findings to support our argument for regional liberalization of trade in services. Section IV summarizes our empirical findings.

II. TRADE EFFECTS OF SERVICES RTAs: A GRAVITY REGRESSION ANALYSIS

1. Model Specifications, Estimation Techniques, and Data

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[6] See Konan and Maskus (2006).
[7] See Borchert and Mattoo (2009).
[8] For the empirical evidence of services trade liberalization by using computable general equilibrium (CGE) model analysis, see Konan and Maskus (2006) for the Tunisian economy; Francois, Pindyuk, and Wörz (2008) for the European Union; Fritz and Streicher (2008) for Austria; and Chisari, Maquieyra, and Romero (2009) for South America. For empirical evidence using gravity regression analysis, see Park (2002), Kimura and Lee (2006), and Walsh (2006).
[9] Travel services, construction services, insurance services, personal, cultural, and recreational services, and government services are not separated from the aggregate services. Computer and information services, royalties and license fees, and other business services are included in business services.
[10] For the complementary relation between trade in goods and trade in services, see Kimura and Kim (2006), Lennon (2006), and Blyde and Sinyavskaya (2007).

We employ a standard gravity model of bilateral trade flows to estimate the trade effects of RTAs.

[Equation 1]

$$\ln M_{ijt} = \alpha_{ij} + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln Dist_{ij} + \mu X_{ijt} + \gamma_1 SVRTA_{ijt} + \gamma_2 SVRTAout_{ijt}$$
$$+ \delta Year_t + \varepsilon_{ijt}$$

where i and j denote particular countries, and t denotes time,

- M_{ijt} denotes real imports in services from i to j at time t,
- GDP is real gross domestic product,
- $Dist$ is the distance between i and j,
- X is a set of control variables that includes border, common language, colony, and landlocked dummy,
- $SVRTA$ is a binary variable that is unity if i and j belong to the same RTA under GATS Article V,
- $SVRTA\_Out$ is a binary variable that is unity if i belongs to an RTA and j does not, or vice versa,
- $Year$ denotes a set of binary variables that is unity in the specific year t.

Including the country-pair fixed effect (α_{ij}) in Equation (1) has the advantage of controlling any factors that are specific to the country pair, such as distance, border, common language and unobserved ties. However, this fixed effect does not capture the impact of factors that vary over time. When we use a panel data set, the multilateral trade resistance factor of Anderson and van Wincoop (2003) would vary over time. If there are time specific shocks that affect the bilateral trade flows, the country-pair fixed effect could suffer from an omitted variable bias, and consequently the estimates would be biased. Recent studies[11] suggest that this problem can be dealt with using time-varying exporter and importer fixed effects (α_{it} and α_{jt} in the following Equation 2). Equation (1) thus becomes:

[Equation 2]

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[11] See Baldwin and Taglioni, 1996; Baier and Bergstrand, 2007; Magee, 2008

$$\ln M_{ijt} = \alpha_{ij} + \alpha_{it} + \alpha_{jt} + \gamma_1 SVRTA_{ijt} + \gamma_2 SVRTAout_{ijt} + \delta Year_t + \varepsilon_{ijt}$$

Most previous studies estimate the trade effects of RTAs by using Equations (1) and (2). However, as Magee (2008) points out, these estimations make an implicit assumption that the impact of RTAs on trade does not vary over time and remains constant after the first year that the RTA is in force. It would be more realistic if the trade effects of RTAs vary over time. To reflect the dynamic effects of RTAs on trade and thus estimate the cumulative effects of RTAs on trade, Equation (2) is modified as follows:

[Equation 3]

$$\ln M_{ijt} = \alpha_{ij} + \alpha_{it} + \alpha_{jt} + \sum_{s=0}^{k} (\gamma_{1,s} SVRTA_{ij(t-s)} + \gamma_{2,s} SVRTAout_{ij(t-s)}) + \delta Year_t + \varepsilon_{ijt}$$

$s = 0$ is the first year of the RTA.

The trade flows data for this study are drawn mainly from United Nations Service Trade Statistics Database, which provides bilateral trade in services beginning in 2000. The dependent variable in this paper is bilateral imports for trade flows from 2000 to 2005. These data are deflated by importer GDP deflators to generate real imports. The list of the services RTAs is obtained from the WTO. The data for real GDP at purchasing power parity (PPP) are from the World Bank's *World Development Indicators*. Data on country-pair specific variables, such as distance, colonial ties, common land border, and common languages, are obtained from the Central Intelligence Agency's *World Factbook*. The following 19 bilateral RTAs notified under GATS Article V are included in this research: Anzcerta (Australia New Zealand Closer Economic Agreement), Canada-Chile, EC (European Community) 15, EC 25, EC-Chile, EC-Mexico, EFTA (European Free Trade Association), EFTA-Singapore, EEA (European Economic Area), India-Singapore, Japan-Mexico, Japan-Singapore, New Zealand-Singapore, NAFTA (North American Free Trade Agreement), Singapore-Australia, Thailand-Australia, US-Australia, US-Chile, US-Singapore.[12]

2. Summary Statistics

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[12] WTO regards all of the EC enlargements—EC 9, EC 10, EC 12, EC 15 and EC 25—as separate RTAs. In this paper we include only EC 15 and EC 25 in our count of RTAs.

The gravity regression analysis in this study uses annual data consisting of 20,986 country pairs in total. The number of observations varies per year. Summary statistics for the data used in the estimations are presented in Table 1. Out of all observations, 2,271 country pairs (10.8 percent) belong to services RTAs ("insiders"), and 17,267 country pairs (82.3 percent) belong to the member-nonmember ("outsiders") relationship. The majority, 52.4 percent, of the 2,271 country pairs are services RTAs between developed countries, while 44.2 percent are RTAs between developed and developing countries.[13]

In Table 1, we observe some notable findings. First, the bilateral aggregate services trade between RTA members is more than twice as high as the average bilateral services trade in the whole sample, and the trade creating effect of services RTAs is much stronger between developed members. The bilateral services trade between members and nonmembers is also higher than the average volume of the bilateral services trade in the whole sample. These observations are valid for all four services sectors examined.

Second, the bilateral trade linkage through trade in services (2.1=5.02/2.42) between members of services RTAs is stronger than the linkage through trade in goods (1.5=6.21/4.17), although the absolute volume of services trade is smaller than that of goods trade.

From the previous observations, we may expect that services RTAs, especially RTAs between developed countries, create more trade among members without diverting trade from nonmembers. However, this is a casual observation because other important variables, such as year and country size, are not controlled. In addition, self-selection may have played an important role in generating a large services trade volume between RTA members because countries that trade services more than goods are more likely to form services RTAs in the first place.

Third, there is no significant difference in economic size for the membership of RTAs, but

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[13] The classification of developed and developing countries is based on Subramanian and Wei (2003). Developed countries included in this research are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Out of the 19 services RTAs included in this research, the India-Singapore RTA is the only one between developing countries. Thus, we ignore this case as we examine the trade effect by level of economic development.

geographical distance matters. Fourth, RTA membership seems to have been chosen after taking account of specific, possibly exogenous, country characteristics. RTA member countries are more likely to share a common land border and common language, but not necessarily a common history. Whether the countries are landlocked does not appear to matter.

III. TRADE EFFECTS OF SERVICES RTAs: EMPIRICAL RESULTS

1. Trade Effects of Services RTAs in General

Columns (1) and (2) in Table 2 present the results of the impact of services RTAs on intra- and extra-bloc membership as a whole. As we interpret the random effects in column (1), the conventional variables behave the way the model predicts and the estimated coefficients are statistically significant. To summarize, the estimated coefficients on log of both importer's and exporter's GDP are significantly positive. The estimated coefficients on bilateral distance and landlocked dummy are significantly negative. The adjacency, common language dummy, and colony dummy are all significantly positive. This indicates that the market size, transaction costs, and historical background matter for increasing bilateral trade in services.

From column (2) of the country-pair fixed effect estimation covering aggregate services trade, estimated coefficient on the RTA membership dummy variable is positive and statistically significant. The estimate on the intra-bloc membership implies that a pair of countries that joins a service RTA experiences a 20.8 percent increase in imported services, with other variables constant.[14] The estimate on the extra-bloc dummy variable is also positive and statistically significant. The estimate implies that RTA members' trade with nonmembers is estimated to rise by 12.6 percent. Hence, services RTAs as a whole increase trade among members and do not divert trade from other countries that do not belong to the bloc.

The strong trade-enhancing effects of services RTAs are sector-specific as reported in columns (3) through (6) in Table 2. The sector-specific effect ranges from the highest in business services to the lowest in goods-related transportation services. In particular, the

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[14] Since $\exp^{0.189}$=1.208, an increase from zero (no membership) to one (membership) in the RTA dummy variable raises bilateral imports by 20.8 percent.

current crisis-related financial services create significantly more imports from members, a 64.9 percent increase, without diverting imports from nonmembers.

The trade effects on aggregate services trade are weaker when we estimate the trade effects of services RTAs to control a time-varying multilateral trade resistance factor with a time-varying exporter and importer fixed effect in the gravity model specification 2 (Equation 2) as shown in Table 3. In contrast, the sectoral effects show a reverse pattern, except for the insignificant trade effects expected from the transportation services.

2. Additional Concerns in Services RTAs

Anticipatory Effect: In order to examine whether there exists an anticipatory effect of services RTAs on trade, we estimate the cumulative effects of RTAs on trade using Equation (3). Table 4 summarizes the estimates. We limited our lags to three years because of the limitations of our data set covering only six years, from 2000 to 2005. Most of the coefficients of lagged RTA membership and nonmembership dummies are not statistically significant and have unexpected signs. This means that there is no anticipatory effect expected from services RTA negotiations, unlike the case of goods trade examined in Magee (2008).

Complementary Relationship between Trade in Goods and Trade in Services: Table 5 indicates that goods and services trade are complementary and that goods imports have a much stronger trade effect on services imports. A 10 percent increase in imported goods raises imported services by 1.6 percent with various specifications. Reciprocally, imported services generate imported goods by 0.6 percent with various specifications.[15] The estimated coefficients of RTA membership and nonmembership in column (2) of Table 2 (0.189 and 0.119) are not significantly affected by the inclusion of goods imports when we compare column (3) of Table 5 (0.183 and 0.116, respectively) with Table 2. The estimated elasticities in columns (4) and (8) fall as we control the time-varying multilateral resistance.

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[15]   Lennon (2006) finds a much stronger complementarity relationship between bilateral trade in goods and bilateral trade in services with general RTAs as an explanatory variable. The estimated elasticity of goods trade to services trade is close to 1 and that of services trade to goods trade is 4.6 percent. Blyde and Sinyavskaya (2007) also find that the trade creating effect of services trade on goods trade is much stronger than our results without controlling the RTA membership.

Partnership Issues of Services RTAs: The trade-enhancing effect is stronger between developed members compared to the effect between developed and developing countries. According to Table 2, the services RTAs between developed countries increase bilateral trade in services by 22.4 percent between members, compared to a 20.8 percent increase for RTAs as a whole; the RTAs between developed countries and developing countries increase the bilateral services trade only by 7.7 percent. This means that services RTAs are strongly recommended for developed countries to enhance their welfare.

IV. CONCLUDING REMARKS

Empirical evidence shows that the impact of the current global financial crisis on trade in services is more stable than that of trade in goods. A number of studies argue that RTAs in general have proven to be a welfare-enhancing tool of commercial policy by creating more trade in services. Thus, we support liberalizing trade in services through RTAs, especially services RTAs under GATS Article V, to revitalize the world economy.

In order to demonstrate that regional liberalization of trade in services is a suitable policy option for the world economy to recover from the recent crisis, we apply a gravity regression analysis to four major services sectors—financial services, business services, communication services, and transportation services—while controlling for both country-specific and time-varying importer and exporter fixed effects.

From the gravity regression analysis, we find that (i) the RTAs under GATS Article V create services trade among members and do not divert services trade from nonmembers, but the trade-enhancing effect is sector specific; (ii) the sector-specific trade-enhancing effect ranges from the highest in business services sector to the lowest in transportation services; (iii) the trade effect on aggregate services trade is weaker when we control for the time-varying multilateral trade resistance factor with the time-varying exporter and importer fixed effect, however, the sectoral effects show a reverse pattern; (iv) there is no anticipatory effect expected from services RTA negotiations, unlike the case of trade in goods; (v) there is a complementary relationship between goods and services imports; and (vi) the trade-enhancing

effect is stronger between developed members compared to the effect between developed and developing countries.

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Table 1. Summary Statistics

	All (N=20,986)	RTA/insiders (N=2,271)	RTA/North-North insiders (N=1,191)	RTA/North-South insiders (N=1,004)	RTA/outsiders (N=17,267)
log of imports in aggregate services	2.42 (3.39)	5.02 (2.46)	6.24 (1.90)	3.93 (2.06)	2.93 (3.11)
log of imports in financial services	0.38 (1.07)	1.01 (1.78)	1.64 (2.12)	0.34 (0.90)	0.43 (1.15)
log of imports in business services	1.12 (1.90)	2.23 (2.64)	3.36 (2.79)	1.02 (1.80)	1.27 (1.99)
log of imports in communication services	0.36 (0.94)	0.92 (1.53)	1.50 (1.79)	0.30 (0.78)	0.40 (0.99)
log of imports in transportation services	1.58 (2.13)	3.52 (2.24)	4.51 (2.06)	2.58 (1.89)	1.76 (2.21)
log of imports in goods	4.17 (2.71)	6.21 (2.41)	7.14 (2.16)	5.34 (2.19)	4.44 (2.69)
log of GDP(importer)	12.06 (1.74)	12.34 (1.50)	12.55 (1.43)	12.11 (1.56)	12.16 (1.76)
log of GDP(exporter)	12.11 (1.73)	12.34 (1.51)	12.52 (1.40)	12.16 (1.60)	12.21 (1.76)
log of distance	7.84 (0.94)	6.97 (0.87)	6.63 (0.63)	7.26 (0.91)	7.87 (0.92)
border	0.04 (0.19)	0.10 (0.31)	0.16 (0.37)	0.04 (0.20)	0.03 (0.17)
common language	0.11 (0.31)	0.08 (0.28)	0.11 (0.32)	0.05 (0.22)	0.12 (0.32)
colony	0.04 (0.19)	0.03 (0.17)	0.04 (0.20)	0.02 (0.14)	0.04 (0.20)
landlocked	0.34 (0.53)	0.35 (0.53)	0.35 (0.52)	0.37 (0.55)	0.30 (0.50)

Note: N is the number of observations, figures are mean, and the figures in parentheses are standard deviation.

Table 2. Trade Effects of Services RTAs:
Standard panel estimation with year fixed effect

log of real imports in services	Random Effect	Country-Pair Fixed Effect				
	Aggregate (1)	Aggregate (2)	Financial (3)	Business (4)	Communication (5)	Transportation (6)
$\ln(GDP_i)$	0.839 (0.019)***	0.267 (0.123)**	0.91 (0.11)***	2.19 (0.16)***	1.06 (0.09)***	-0.00 (0.10)
$\ln(GDP_j)$	0.668 (0.019)***	0.688 (0.122)***	0.96 (0.11)***	2.05 (0.16)***	0.93 (0.09)***	0.15 (0.02)***
$\ln(Dist_{ij})$	-1.187 (0.043)***					
$border_{ij}$	0.923 (0.226)***					
$lang_{ij}$	1.574 (0.128)***					
$colony_{ij}$	0.625 (0.199)***					
$landlock_i$	-0.640 (0.068)***					
RTA_{ij}	0.231 (0.023)***	0.189 (0.023)***	0.50 (0.02)***	0.64 (0.03)***	0.43 (0.02)***	0.08 (0.02)***
$RTAout_i$	0.281 (0.026)***	0.119 (0.028)***	0.04 (0.02)	0.20 (0.04)***	0.05 (0.02)**	0.11 (0.04)***
Obs.	20,986	20,986	20,984	20.986	20.986	20.986

Notes: Standard errors are in parentheses. Intercept is included but not reported. *, **, and *** indicate that the estimated coefficients are statistically significant at 10 percent, 5 percent, and 1 percent, respectively.

Table 3. Trade Effects of Services RTAs:
Standard panel estimation with country-pair fixed effect, time-varying exporter and importer fixed effect, and year fixed effect

log of real imports in services	Aggregate	Financial	Business	Communication	Transportation
RTA_{ij}	0.137 (0.030)***	0.62 (0.03)***	0.81 (0.04)***	0.50 (0.02)***	-0.04 (0.04)
$RTAout_i$	0.026 (0.047)	0.31 (0.04)***	0.55 (0.06)***	0.18 (0.04)***	-0.24 (0.04)

Notes: Standard errors are in parentheses. Intercept is included but not reported. *, **, and *** indicate that the estimated coefficients are statistically significant at 10 percent, 5 percent, and 1 percent, respectively.

Table 4. Cumulative Trade Effects of Services RTAs

log of real imports in services	Aggregate				Financial		Business		Communication		Transportation	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)				
RTA (0)	0.142 (0.037)***	0.412 (0.092)***	0.127 (0.043)***	0.149 (0.052)***	0.37 (0.04)***	0.46 (0.06)***	0.46 (0.06)***	0.56 (0.07)***	0.16 (0.04)***	0.12 (0.04)***	0.05 (0.04)	0.11 (0.05)**
RTA (-1)	0.060 (0.036)*	-0.099 (0.053)*	-0.021 (0.042)	-0.027 (0.054)	-0.10 (0.04)**	-0.12 (0.06)**	-0.12 (0.06)**	-0.16 (0.07)**	-0.02 (0.04)	0.03 (0.05)	0.05 (0.04)	0.05 (0.05)
RTA (-2)	0.127 (0.242)	0.875 (0.258)	0.179 (0.234)	0.200 (0.232)	0.02 (0.24)	0.00 (0.24)	-0.17 (0.32)	-0.18 (0.32)	-0.26 (0.20)	-0.30 (0.20)	0.14 (0.31)	0.13 (0.31)
RTA (-3)	-0.024 (0.342)	0.600 (0.282)	-0.119 (0.322)	-0.097 (0.321)	-0.12 (0.03)	-0.17 (0.34)	1.11 (0.44)**	1.02 (0.44)	-0.03 (0.27)	-0.09 (0.27)		
RTAout (0)				0.087 (0.094)		0.25 (0.10)**		0.30 (0.13)**		-0.11 (0.08)		0.18 (0.11)*
RTAout (-1)				-0.024 (0.100)		-0.05 (0.11)		-0.09 (0.14)		0.17 (0.08)**		-0.01 (0.10)
RTAout (-2)				0.165 (0.146)		-0.15 (0.15)		-0.41 (0.20)		-0.10 (0.12)		-0.03 (0.12)
RTAout (-3)				0.087 (0.108)		-0.08 (0.11)		-0.22 (0.15)		-0.14 (0.09)		
Time-varying exporter and importer fixed effect	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-pair fixed effect	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cumulative Trade-creating effect	0.303***	1.789***	0.166**	0.227*	0.17***	0.18***	1.28***	1.24***	-0.15***	-0.23***	0.23	0.28**
Cumulative trade-diverting effect				0.315		-0.03**		-0.05**		-0.17**		0.15

Notes: Standard errors are in parentheses. Intercept is included but not reported. *, **, and *** indicate that the estimated coefficients are statistically significant at 10 percent, 5 percent, and 1 percent, respectively.

Table 5. Complementary Relations

A. Trade in Goods to Trade in Services

log of real imports in services ($\ln MSV_{ijt}$)	(1)	(2)	(3)	(4)
$\ln(GDP_i)$	0.358 (0.122)***	0.304 (0.122)**	0.234 (0.123)***	
$\ln(GDP_j)$	0.671 (0.121)***	0.618 (0.121)***	0.546 (0.122)***	
$\ln MG_{ijt}$	0.161 (0.013)***	0.159 (0.013)***	0.158 (0.013)***	0.043 (0.014)***
RTA_{ij}		0.178 (0.023)***	0.183 (0.023)***	
$RTAout_i$			0.116 (0.028)***	
Year fixed effect	yes	yes	yes	yes
Country-pair fixed effect	yes	yes	yes	yes
Time-varying exporter and importer fixed effect	no	no	no	yes
Obs.	20,986	20,986	20,986	20,986

B. Trade in Services to Trade in Goods

log of real imports in goods ($\ln MG_{ijt}$)	(5)	(6)	(7)	(8)
$\ln(GDP_i)$	0.206 (0.073)***	0.224 (0.073)***	0.236 (0.073)***	
$\ln(GDP_j)$	0.869 (0.072)***	0.886 (0.072)***	0.899 (0.073)	
$\ln MSV_{ijt}$	0.058 (0.005)***	0.057 (0.005)***	0.057 (0.005)***	0.016 (0.005)***
RTA_{ij}		0.064 (0.017)***	-0.014 (0.043)	
$RTAout_i$			-0.058 (0.012)*	
Year fixed effect	yes	yes	yes	yes
Country-pair fixed effect	yes	yes	yes	yes
Time-varying exporter and importer fixed effect	no	no	no	yes
Obs.	20,986	20,986	20,986	20,986

Notes: Standard errors are in parentheses. Intercept is included but not reported. *, **, and *** indicate that the estimated coefficients are statistically significant at 10 percent, 5 percent, and 1 percent, respectively.

Table 6. Trade Effects of Services RTAs by Membership:
Standard panel estimation with country-pair fixed effect, time-varying exporter and importer fixed effect, and year fixed effect

log of real imports in services	
$RTA(north-north)$	0.202 (0.050)***
$RTA(north-south)$	0.074 (0.042)*
$RTAout_i$	-0.007 (0.047)
Obs.	20,986

Notes: Standard errors are in parentheses. Intercept is included but not reported. *, **, and *** indicate that the estimated coefficients are statistically significant at 10 percent, 5 percent, and 1 percent, respectively.