

Trade in services and Regional Trade Agreements: do negotiations on services have to be specific?

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Abstract

Trade in services has been on a substantial positive trend since the last decades, and the number of Regional Trade Agreements (RTA) in force has increased regularly overtime. However, negotiations on services remain hesitant even at the bilateral level. To evaluate the impact of RTAs on trade in services, a general classification as Balassa's classification is not exactly appropriate. To go through the 211 RTAs notified to the WTO permits a data analysis, and then to sort RTAs according to the own level of liberalization in services of every agreement. I estimate a gravity equation using panel data covering the period 1999-2007, adding time-varying dummies, country-and-time fixed effects, and variables relatives to the degree of liberalization of the RTAs. The main results are: i) the deeper agreements impact positively trade between members; ii) even if the RTAs has been in force since several years, if services are kept aside in the agreement, trading ties (thanks to trade in manufacture) do not lead to increase trade in services, except if an agreement on services is signed later; and iii) the economic effect due to the agreement fully appears after 2 years, a "phase-in" is required whatever the degree of liberalization of the RTA is high or not.

JEL codes: F15.

Keywords: Services; Negotiations; Gravity model.

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1 Introduction

Multilateral negotiations on services seem to have difficulties to find a consensus. From a bilateral point of view, it is not necessarily easier to conclude to an agreement with the partners. Indeed, even recent free trade agreements do not include services in the scope of the agreement like the free trade treaties signed between Turkey and Georgia or between the European Community and Cameroon. And even with the services as a part of the agreement, exceptions on services are numerous, particularly on financial services.

Considering the effect of RTAs on bilateral trade in services cannot be evaluated as for trade in goods. Negotiations in merchandise are on tariff cuts, each sector by each sector. But, most of the barriers in services are non-tariff barriers. Consequently, it is not possible to negotiate on a decrease of the tariffs. On services, the main points of the negotiations are about the market access and the national treatment for the foreign providers. Commitments on national treatment consist in giving others the same treatment as one's own nationals while commitments on market access prevent limitations on the number of services suppliers, of transactions, and of persons employed in a given sector.

Moreover, according to the RTA database provided by the WTO, the RTAs can be classified in four types : PTA, FTA, EIA, and CU¹. Balassa (1961) classifies RTAs according to their degree of economic integration, each one reflects a different level of liberalization. So, amongst the RTAs, there are different sorts and even within a given sort of agreement, commitments can differ significantly. The literature has largely treated the question of the regional trade agreements (RTAs) and their impact on trade. The omitted variables bias is a big source of endogeneity in the examination of the effect of RTAs. To handle it, we use panel data with bilateral fixed effects and country-and-time fixed effects, and first-differenced panel estimates. Only few papers focus on the depth of the agreements, and also trade in services is relatively not examined in previous works. In this paper, we aim to evaluate the role of the RTAs on the trade in services, and particularly to test if the depth of EIAs matters for services.

¹The acronyms correspond to :

PTA: Preferential Trade Agreement; FTA: Free Trade Agreement; EIA: Economic Integration Agreement; CU: Custom Union.

Our analysis is based on the official texts of the agreements for 211 RTAs between 1957 (EC Treaty) and 2010 (ASEAN-ANZCERTA). Thanks to those texts, we collected information for each agreement on cross-border trade in services (mode 1), investment in services (mode 3), temporary movements of natural persons (mode 4) and exceptions relative to each mode².

Nevertheless, converting qualitative information in quantitative information requires in general to attribute weights to each topic, that is to say, to make arbitrages which induces rough estimates because the weighting-methods is not exact. In order to avoid all the questions of which weight to impute to which article of the agreement, we use data analysis techniques to transform our qualitative data. Using Eurostat and OECD databases between 1999 and 2007, we find that only EIAs have a positive and significant impact on trade in services. Besides, deeper the agreement is, more intra-trade the signatory countries have.

The paper is structured as follows. The first section provides a short review of literature. In section 2, I give more details on the data sources and on the different classifications of the RTAs. Then, in section 3, the theoretical background and the strategy of the estimations are developed. Section 4 presents the empirical results and we conclude.

2 Review of literature

In the literature, the question whether or not FTAs have an effect on trade flows is still wavering.

Some studies come to the conclusion that trade agreements have no impact on trade flows (Bergstrand (1985); Frankel, Stein and Wei (1995)), or quite fragile effects even considering five kind of RTAs in the estimations (Gosh and Yamarik (2004)). Urata and Okabe (2007) observe a weaker impact of the different FTAs overtime.

However, conclusions of several papers differ from this non significant result. Indeed, Baier and Bergstrand (2002) find a positive impact of RTAs on trade. It arises from the fact that countries which enter into a trade agreement, are already a good trading partner

²Mode 2 which consists in consumption abroad is never the subject of limitations in those legal texts. Consequently, this mode is not included.

of each other. Consequently, a further liberalization can only lead to a larger trade between the members. Besides, they note that the common specification of the gravity equation under-estimates the RTA coefficient (roughly by 75% with OLS), as in Trefler (1993) due to a bias. To handle the heterogeneity problem, several methodologies have been proposed in the literature. Using a panel, bilateral-pair fixed effects and multilateral resistance terms, Baier and Bergstrand (2007) conclude that FTAs increase trade by 58% in average, and by 86% after fifteen years, as well as in Carrere (2006). Similarly, Baier et al. (2008) carry out a *ex-post* analysis of the economic integration agreements on trade; and find a large and positive impacts of EIAs on trade.

Using an augmented gravity model on panel data, Glick and Rose (2002) find that the establishment of a currency union nearly doubles the bilateral trade. In the same way, a global positive effect of currency unions on trade has been obtained by Frankel and Rose (2002)

In a non-parametric analysis, RTAs enhance trade of the members, but impact negatively the trade between the members and the rest of the world in the long run. There is also an “anticipation effect” which incites the future members to trade with current members before the official signature of the agreement. Nevertheless, for the Mercosur members, commercial relationships has been established five years before the entry into force of the treaty, while the intra-regional trade started increasing for Andean Community (CAN) members three years before the signature. Baier et al. (2008) conclude to an inverse result. A "*phase-in*" period is required to start seeing the complete economic effects of the EIAs, with a intra-regional trade increased by 100%, fifteen years after the date of entry into force.

Concerning the effect of specific trade agreements, Frankel (1997) highlights the positive and significant impact of Mercosur agreement on intra-members trade. Besides, the economic impact due to the European Union has been investigated since a long time³. Globally the Europe is trade-creating for the members. CGE analysis find a large positive *ex-ante* effect of Europe and also of the enlarged Europe for the members in terms of trade⁴. Capturing the *ex-post* effects, Baier et al. estimate a gravity equation with different dummies for the European

³See Aitken (1973), and Brada and Mendez (1985) for previous studies.

⁴See Grabbe and Hughes (1998); Baldwin et al. (1997); Bchir et al. (2003); etc

Union (EU), the European Free Trade Association (EFTA), the European Economic Area (EEA) and all other EIAs (OEIA). In average, the trade effects of all the EIAs considered have a similar magnitude. From cross-sectional analysis, the magnitude of the European effect is lower, as in Bayoumi and Eichengreen (1997) than using panel data, but still positive and significant. Vicard (2009) uses the Balassa classification to examine the impact of the depth of the agreements. He shows that different sorts of RTAs have a analogous effect on trade. Marchetti (2009) includes country-and-time fixed effects and finds a similar impact of PTAs and European Union on trade in services.

3 Agreements on services : What is inside the RTAs?

Over 211 regional trade agreements, 77 agreements cover goods and services⁵. More and more services are included in agreements. However, some recent agreements do not cover services, particularly when one party is composed of developed countries while the other one is developing countries. For instance, European Union and the Côte d'Ivoire signed a free trade agreement covering only goods in 2009. But, some counterexamples exist like the agreements concluded between Mercosur⁶ and India, or between Canada and EFTA⁷ signatories in 2009.

Nevertheless, some agreements are classified as covering services, although when you look at the official text, the coverage of services is very limited. As an example, we can cite the CARICOM⁸ or Chile-India agreements, or the treaty between the European Union and Albania. Consequently, it is necessary to go through the legal texts of the RTAs in order to classify the trade agreements according to the depth of the liberalization in services.

Based on the World Trade Organization notifications, I collect information on all the RTAs into force⁹ since 1957 I focus on 30 articles¹⁰: some are general. Concerning the mode

⁵The parties declare by themselves the coverage of the agreement to the WTO.

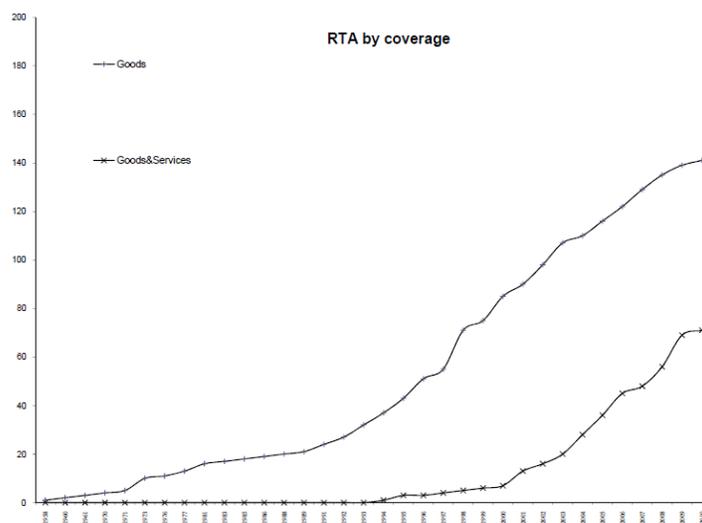
⁶Mercosur is composed of Argentina, Brazil, Paraguay and Uruguay.

⁷EFTA members are Iceland, Liechtenstein, Norway and Switzerland.

⁸CARICOM current signatories are Antigua and Barbuda, Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname and Trinidad and Tobago

⁹<http://rtais.wto.org/UI/PublicAllRTAList.aspx>

¹⁰Obviously, the number of articles included in the agreements are greater than 30. In order to concentrate



1, *cross-border supply*, national treatment, most-favoured nation, market access, common market, local presence requirement are considered. The mode 2, consumption abroad, is not included, because no restriction appears in all the agreements. The mode 3, *commercial presence*, has been looked at through national treatment, most-favoured nation, right of establishment, performance requirements and senior management and boards of directors obligation. For the mode 4, *presence of natural person*, only free movements, grant and the limitations of the definition are examined. Then, some articles which can be characterised as secondary items are considered. For the first mode, licensing facilitation, cooperation, promotion of trade, preferential treatment, regulation, recognition, no discrimination, ensuring that any provider do not abuse its monopoly position. Taxations rules (to avoid expropriation), promotion of investments, fair treatment of foreign investors, recognition of labor rights, no discrimination and no restriction on international transfers constitute the secondary articles considered for the mode 3. Finally, only the facilitation of movements and the availability of public information concerning the procedures are included for the fourth mode. The exceptions are part of the agreements and can also explain the degree of liberalization. There are two sorts of reservations : reservations on a particular services sector, and

the analysis on the main important points of the liberalization in services (according to us), we limit the items to those described above to avoid close scores and to highlight the different degrees of liberalization amongst RTAs.

reservations on a specific commitment. Only exceptions on modes 1, 3 and 4 are taken into consideration because again any additional restrictions on mode 2 have been found on all the RTAs. Generally, reservations are about national treatment and most-favoured nation treatment (mode 1 and 3), market access and commercial presence requirement (mode 1), performance requirements and senior management and board of directors condition (mode 3). For the mode 4, we just take into account whether or not the definition of natural persons is large and if the temporary movements of natural persons is delimited overtime. As the number of exceptions on modes are very close amongst agreements, we will only use the sectoral exceptions in the analysis.

Then, I calculate score by mode attributing a weight of 1 for every general item and 0.5 for any secondary item if it is included, 0 otherwise. In those conditions, the maximum potential score, which corresponds to the most liberalized situation, is 9.5 for the mode 1, 8 for the mode 3 and 4 for the mode 4.

	Years*	General			Secondary		
		Mode1*	Mode3*	Mode4*	Mode1*	Mode3*	Mode4*
PTA	16	0.1	0.3	0	0.1	0.2	0
CU	19	1	0.3	0.3	0.2	0.2	0.003
FTA	12	0.5	0.3	0.2	0.4	0.3	0.1
EIA	6	4.2	4.2	1.5	1.4	0.6	0.6
ALL	11	2	1.8	0.7	0.7	0.4	0.3

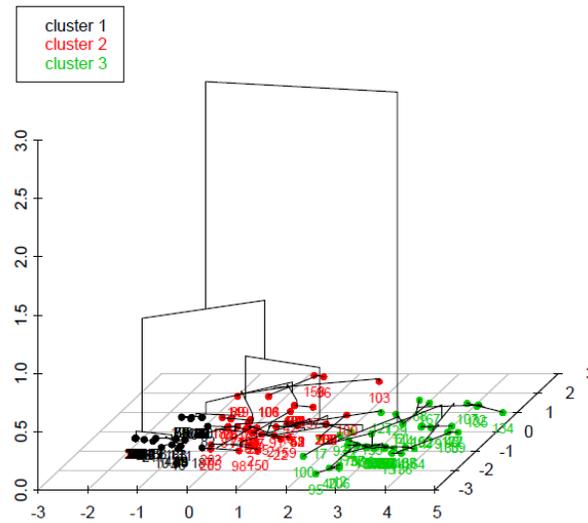
*Simple average

EIAs have higher scores in average for general items, as well as secondary items. The liberalization in the mode 4 (temporary movements of natural persons) seems more hesitant than for mode 1 and 3. Nevertheless, the number of years into force is only 6 years, much less than all the other RTAs. About non EIAs, PTAs are, in average, less liberalized concerning services than FTAs, which are less opened than CUs.

In maps (see *Appendix*) Mode 1, Mode 3 and Mode 4, you can find the scores¹¹ by country at the year 2010. Asia, North America and Europe are especially liberalized for the three

¹¹The maps are based on the highest score for each country thanks to one agreement at least.

Hierarchical clustering on the factor map



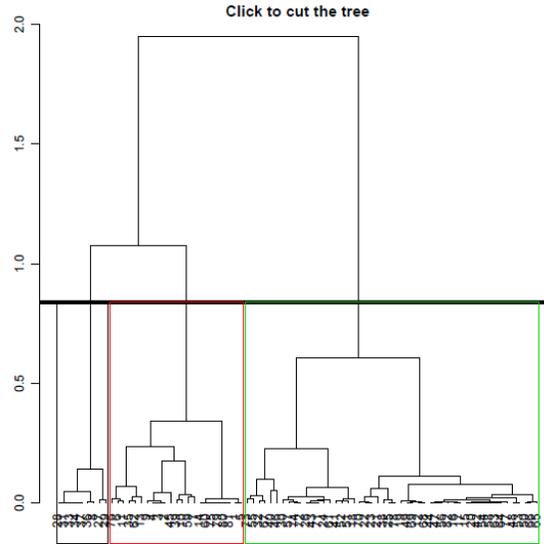
modes while Africa is the less opened region for services. We can observe some changes between the modes. Russia is not opened at all for commercial presence, and Canada allows more temporary movements of natural persons than the United States.

I use a hierarchical clustering on principal components analysis to generate the dendrograms or factor maps. The classification is based on general and secondary items. Thanks to the Ward's method which minimizes intra-cluster variance (or maximizes the inter-group distance), it is possible to classify all the RTAs according to their degree of liberalization in services.

In the cluster 3 (green points), there are the more liberalized trade agreements concerning services. In this cluster, we can find all the EIAs. However, the intensity of the liberalization varies across EIAs. Reducing the sample to EIAs only, I do another hierarchical clustering to classify EIAs in line with their depth. Then, it is possible to generate three groups sorting EIAs according to openness: the less liberalized to the most. In the first group, you have for example European Union-Albania, while ANZCERTA¹² belongs to the second group.; and Japan-Singapore to the more opened group Note that in some cases, the parties renegotiate, in particular on services. So, an agreement can change from one group to another over time.

¹²It is composed of Australia and New Zealand.

Hierarchical Clustering



Indeed, the treaty between Chile and the European Union was extremely limited in 2003 (included in the first cluster), but in 2005 new negotiations were carried out leading to a deeper liberalization in services (included in the third cluster).

I choose to classify the EIAs taking into consideration the three modes and not only the mode 1 which should impact directly the trade in services. It can be explained by two reasons. On one hand, EIAs which have a deep integration in mode 1 are also largely integrated according to either mode 3 and mode 4. On the other hand, a complete liberalization in services whatever the mode, would generate a friendly environment for trade.

As a result of the data analysis, we can say that the degree of liberalization is heterogeneous within all the RTAs and even within the EIAs. Consequently, it is crucial to differentiate amongst the trade agreements to capture their impact on trade in services.

4 Theoretical framework

Gravity equation is the common *ex post* methodology to examine the impact of the trade agreements in the literature¹³. Initially introduced by Tinbergen (1962), gravity models explain trade between two countries by the economic size of each partner (GDP) and inversely by the distance. Over time, additional variables have been used to determine bilateral trade, such as the contiguity ($Border_{ij}$), common language ($Lang_{ij}$), and regional trade agreements, RTA_{ij} .

$$X_{ij} = \theta_0(GDP_i)^{\theta_1}(GDP_j)^{\theta_2}(Dist_{ij})^{\theta_3}e^{\theta_4(Lang_{ij})}e^{\theta_5(Border_{ij})}e^{\theta_6(RTA_{ij})}\epsilon_{ij} \quad (1)$$

with X_{ij} the real bilateral trade between country i and country j , the distance between the exporter and the importer $Dist_{ij}$, and the error term ϵ_{ij} .

Since Anderson and van Wincoop (2003) and Feenstra (2004), we know that gravity equation estimates without considering the prices cause omitted variables bias. They point out the importance to account for the trade costs in country of origin and in all the countries of destination, noted P_i and P_j .and called multilateral resistance terms (MRT). Besides, they recommend to include the average trade costs of importation and of exportation through country-specific fixed effects.

Cross-section analysis does not address endogeneity bias due to omitted variables bias and leads to inconsistent coefficients. Indeed, in this analysis, the error term ϵ_{ij} and RTA_{ij} might be correlated in case of self-selection, because bilateral RTAs are endogeneous what is a cross-sectional concern. Note that in case of negative correlation between ϵ_{ij} and RTA_{ij} , the estimated coefficient of RTA would be under-estimated. Two countries select into RTAs for no observable motives but which are correlated with bilateral trade flows predicted by a traditional gravity equation. In other words, the decision to conclude a trade agreement with another country tends to be affected by the actual levels of trade relative to the "natural" levels between both countries, and not linked with recent changes in trade levels (Baier and Bergstrand, 2007). Moreover, in cross-section, Baier and Bergstrand (2004) show how the

¹³Here, we focus only on the following question: does depth in agreements matter for trade in services or not? We do not investigate if the agreements are source of trade-creation or trade-diversion.

economic determinants of large bilateral trading flows and the economic determinants of the signature of a FTA between two countries tend to be similar. They identify various economic determinants of FTAs (GDPs, distance, etc); but the pseudo- R^2 of the probit is 0.70, still allowing for unobserved heterogeneity amongst trading partners. Until now, no appropriate exogeneous instrumental variables have been found in the literature. Consequently, any gravity equation using cross-sectional data would provide biased results. It is required to examine the impact of RTAs on trade using panel data with bilateral fixed effects or first difference in order to account for this omitted unobserved variables issue and the self-selection.

Baldwin and Taglioni (2006) generalize MRT, because the MRT derived by Anderson and van Wincoop can only be applied in cross-section. Time-varying dummies permit to account for it with panel data, so they suggest to use country-and-time fixed effects. So, the following equation is estimated using panel data with bilateral and country-and-time fixed effects:

$$\begin{aligned} \ln X_{ijt} = & \theta_0 + \theta_1 \ln(RGDP_{it}) + \theta_2 \ln(RGDP_{jt}) + \theta_3 \ln(Dist_{ij}) + \theta_4(Lang_{ij}) \\ & + \theta_5(Border_{ij}) + \theta_6(RTA_{ijt}) - \ln P_{it}^{1-\sigma} - \ln P_{jt}^{1-\sigma} + \epsilon_{ijt} \end{aligned} \quad (2)$$

However, country-and-time fixed effects will capture GDPs impact as well as address the MRTs. In the same way, adding bilateral fixed (and even first difference) will drop all the time-invariant explanatory variables: $Dist_{ij}$ as $Lang_{ij}$ and $Border_{ij}$. Consequently, using panel data with bilateral and country-and-time fixed effects leads to keep as explanatory variable only the RTA_{ijt} which varies over time (and the MRTs).

As it has been pointed out above, it is necessary to account for omitted variables bias and selection bias, the first differenced panel estimations is also a solution. Note that it is still necessary to include country-and-time fixed effects to account for time-variant MRTs for the exporter and the importer which might cause omitted variables bias. Wooldridge (2002) compares the two estimates and concludes that when the number of periods is greater than two, the first difference estimator is more efficient if the error term follows a random walk. While the fixed effects estimator is more efficient when the error term is not serially

correlated. But as Wooldridge brought out, "In many cases, truth is likely to lie somewhere in between." [Chapter 10, pp 284], so we report both estimates.

$$\begin{aligned}
 d\ln X_{ij,t-(t-1)} &= \theta_6 dRTA_{ij,t-(t-1)} + \theta_{i,t-(t-1)} Dummy_{i,t-(t-1)} + \\
 &\theta_{j,t-(t-1)} Dummy_{j,t-(t-1)} + (\epsilon_{ijt} - \epsilon_{ij,t-1})
 \end{aligned} \tag{3}$$

with the white noise as the difference between ϵ_{ijt} and $\epsilon_{ij,t-1}$. $Dummy_{i,t-(t-1)}$ represents the eventual evolution of multilateral resistance term for the exporting country, as noted earlier $\ln P_{it}^{1-\sigma}$, and $Dummy_{j,t-(t-1)}$ for the importing country. $d\ln X_{ij,t-(t-1)}$ is the first difference of the real bilateral trade between i and j , obtained from $X_{ijt} - X_{ij,t-1}$. Similarly, $dRTA_{ij,t-(t-1)}$ is the difference between RTA_{ijt} and $RTA_{ij,t-1}$.

Baier and Bergstrand (2007) highlight the fact that trade agreements are phase-in over time. The full economic impact of the RTAs cannot be captured only with the dummy RTA in time t (t representing the year of entry into force). Indeed, it is plausible that several periods may be required to evaluate the entire economic effect of the agreement, if time is required to implement it completely in all the signatory countries. The average treatment effect (ATE) is examined including RTA variable lags (see Baier and Bergstrand (2007) and Baier et al.(2008)).

As in the regional trade agreements some sectors exhibit exceptions, or some limitations on the scope of application. Generating a sectoral RTA dummy variable equals to one if the sector is included in the scope of the agreement, zero otherwise (if the services are not included at all in the trade agreement or if the agreement does not apply to this sector in particular). It is required to account for the diversity of sectors. In average, financial services lead more to exceptions than travel in the agreements. The sectoral heterogeneity can be taken into consideration through sector fixed effects, because it is time-invariant. I assume that the period considered is too small so that structural or infrastructures changes take place. Besides, the bilateral fixed effects and country-and-time fixed are still needed to control for the omitted variables bias. The equation (2) can be written as :

$$\begin{aligned} \ln X_{ijst} = & \theta_0 + \theta_1 \ln(RGDP_{it}) + \theta_2 \ln(RGDP_{jt}) + \theta_3 \ln(Dist_{ij}) + \theta_4(Lang_{ij}) \\ & + \theta_5(Border_{ij}) + \theta_6(RTA_{ijst}) - \ln P_{it}^{1-\sigma} - \ln P_{jt}^{1-\sigma} + \epsilon_{ijst} \end{aligned} \quad (4)$$

Again, the first differencing estimator and the fixed effects estimator are tested in order to evaluate the impact of regional trade agreements on bilateral trade.

5 Results

5.1 Data

The dependent variable is the real bilateral trade in total services. The data on nominal bilateral trade in total services are provided by Eurostat and the OECD for the period 1999-2007. Information is given for thirty-seven exporters with one-hundred and sixty-five commercial partners. Then, we generate a panel every two years¹⁴, *id est* 5 periods, scaling the nominal bilateral trade by the GDP deflator of the exporter. For a finer examination, the data are disaggregated by sector. Here, only eleven are considered : transportation, travel, communication, construction, insurance services, financial services, computer and information services, royalties and license fees, other business services, personal, cultural and recreational services and government services.

Nominal GDPs are from International Monetary Funds Statistics, as well as GDP deflators. In order to obtain the real GDPs, nominal GDPs are scaled by GDP deflators of each country.

The distance between capitale cities of the exporter and of the importer, as the common language between the two countries and the common border variables are from Cepii database.

¹⁴In this paper, we present the results for the panel 1999-2001-2003-2005-2007.

5.2 Agreements and trade in services

The real bilateral trade in total services is explained positively by the real GDP of the exporter and of the importer and negatively by the distance in the column (1). The impact of the membership of a Regional Trade Agreement is positive and significant (46% with time fixed effects). Accounting for the potential endogeneity issue, the coefficient of RTAs suprisingly decreases. However, the RTA coefficient is still positive and significant, increasing intra-trade in services by 11%-17% according to the methodology.

	(1)	(2)	(3)
$\ln\text{RGDP}_{it}$	0.84 ^a (0.01)		
$\ln\text{RGDP}_{jt}$	0.68 ^a (0.01)		
$\ln\text{Dist}_{ij}$	-0.63 ^a (0.02)		
Lang_{ij}	1.35 ^a (0.05)		
Border_{ij}	0.67 ^a (0.07)		
RTA_{ijt}	0.38 ^a (0.04)	0.16 ^a (0.03)	0.09 ^a (0.03)
Overall R ²	0.70		0.16
Within R ²		0.48	
No. observations	10033	10033	6872
Time fixed effects	Yes		
Bilateral fixed effects		Yes	
Country-and-time fixed effects		Yes	Yes
First difference			Yes

Notes: Value of standard-errors in parentheses; ^a Significant at 1%; ^b Significant at 5%; ^c Significant at 10%.

Table 1: Role of Regional Trade Agreements

The magnitude of the effect of a trade agreement is much lower for services than for goods. Indeed, Baier and Bergstrand (2007) find that, thanks to FTAs, trade goes up by 58% in average, that is to say three times smaller than the estimated coefficient for RTA.

Nevertheless, all the RTAs do not increase trade in services : only Economic Integration Agreements make trade grown (by 32%). Even distinguishing amongst non EIAs, as Preferential Trade Agreements, Custom Unions and Free Trade Agreements, no other trade agreements impact significantly trade in services.

Concluding an agreement on goods and negotiate later an agreement on services is not useless (case of European Union and ANZCERTA as examples) because it increases slightly trade : by 34% instead of 32% without any previous negotiations. Creating strong commercial relationships with the other signatories, encouraging those countries to choose the members of the agreement as trading partner for services. Linkages thanks to trade in goods give few incentives to trade services later.

Table 2: Agreements sorted by type

	(1)	(2)	(3)	(4)	(5)	(6)
EIA _{ijt}	0.28 ^a (0.04)	0.17 ^a (0.04)			0.28 ^a (0.04)	0.17 ^a (0.04)
noEIA _{ijt}	-0.03(0.05)	0.06(0.05)				
PastAgreement_goods _{ijt,t-1}			0.29 ^a (0.04)	0.15 ^a (0.04)		
PTA _{ijt}					0.20(0.26)	-0.12(0.21)
FTA _{ijt}					-0.04(0.05)	0.06(0.05)
CU _{ijt}					0.28(0.22)	0.11(0.23)
Overall R ²		0.16		0.16		0.16
Within R ²	0.48		0.48		0.48	
No. observations	10033	6872	10033	6872	10033	6872
Bilateral fixed effects	Yes		Yes		Yes	
Country-and-time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
First difference		Yes		Yes		Yes

Notes: Value of standard-errors in parentheses;^a Significant at 1%; ^b Significant at 5%; ^c Significant at 10%.

Table 3: Depth of EIAs

	(1)	(2)	(3)	(4)
EIA_Total ^{low} _{ijt}	-0.05(0.08)	-0.01(0.08)		
EIA_Total ^{med} _{ijt}	0.31 ^a (0.04)	0.17 ^a (0.04)		
EIA_Total ^{high} _{ijt}	0.23 ^b (0.10)	0.18 ^c (0.10)		
EIA _{ijst}			0.19 ^a (0.04)	0.18 ^b (0.07)
Overall R ²		0.16		0.0650
Within R ²	0.48		0.50	
No. observations	10033	6872	30744	19568
Sector fixed effects			Yes	
Bilateral fixed effects	Yes		Yes	
Country-and-time fixed effects	Yes	Yes	Yes	Yes
First difference		Yes		Yes

Notes: Value of standard-errors in parentheses; ^a Significant at 1%; ^b Significant at 5%; ^c Significant at 10%.

Table 9 highlights the importance of the European Union. It was important to test if all the results were driven by European Union treaty. We observe that the magnitude of the coefficient is larger for Europe than the coefficient for all the other EIAs, but both are still positive and significant. Note that using the first-differenced panel, the coefficients are even closer.

Considering the three groups obtained from the hierarchical clustering, we can say that even amongst EIAs, all do not have a similar impact on trade in services. Indeed, a deep negotiated liberalization leads to a higher intra-trade between the members of a same EIA. The depth does matter for trade in services. As, there is no impact at all of EIA^{low}, while the coefficients of EIA^{medium} and EIA^{high} are positive and significant¹⁵ Those two coefficients are relatively close, meaning that it is important to negotiate enough on services to have a substantial effect of the agreement. Nevertheless, between EIA^{medium} (average score 9) and EIA^{high} (average score 12), the impact is similar as long as the liberalization included the main important articles.

¹⁵Including exceptions in the data analysis generates equivalent results.

Table 4: ATE, Panel with bilateral and country-and-time fixed effects

	(1)	(2)	(3)
EIA _{ij,t}	0.28 ^a (0.04)	0.27 ^a (0.05)	0.18 ^c (0.10)
EIA _{ij,t-1}		0.04(0.03)	0.06(0.07)
EIA _{ij,t+1}			0.08(0.06)
Total ATE	0.28		
Overall R ²	0.48	0.50	0.07
No. observations	10033	7181	4287

Notes: Value of standard-errors in parentheses; ^a Significant at 1%; ^b Significant at 5%; ^c Significant at 10%.

Table 5: ATE, Panel with First-differenced estimations

	(1)	(2)	(3)
dEIA _{ij,t-(t-1)}	0.16 ^a (0.04)	0.10 ^b (0.05)	0.12 ^b (0.05)
dEIA _{ij,(t-1)-(t-2)}		0.05(0.04)	0.10(0.04)
dEIA _{ij,(t+1)-(t)}			-0.11(0.04)
Total ATE	0.16		
Overall R ²	0.0025	0.0027	0.0028
No. observations	6872	4313	

Notes: Value of standard-errors in parentheses; ^a Significant at 1%; ^b Significant at 5%; ^c Significant at 10%.

5.3 "Phase-in" RTAs

I test for the strict exogeneity. As Woolridge (2002) recommend it, the strict exogeneity can be checked adding a dummy accounting for future level of EIA. The results show that there is no feedback effect caused by EIA changes. It is strictly exogeneous. The coefficient is not significant at all.

Only one period is required to the entire economic effect of EIA that is to say 2 years. The average treatment effect represents 32% using panel with pair and country-and-time fixed effects while it is about 17 % with first-difference estimator.

Baier and Bergstrand (2007) find that, in average, a period of 10 years is necessary to obtain the full economic impact of a Free Trade Agreement, and the ATE is between 84% and 114% according to the methodology. Consequently, it seems that it is "easier" to implement a new regulation in services than in goods (at least it takes less time).

6 Conclusion

As a conclusion, we can say that concluding a trade agreement which includes services has a positive and significant impact on trade in services. One could expect a higher coefficient for economic integration agreement variable in the future, because in the last three years, more than fifteen EIAs has been signed. Nevertheless, deeper the EIA is, more trade the partners do. Indeed, we find that only the EIAs belonging to the second and third clusters have a substantial impact on trade, while the first group (very low liberalization in services) have a non significant coefficient. So, depth of the agreements does matter for services. Balassa's classification of the agreement is not exactly appropriate for services, it is necessary to go into details to evaluate how it is important to negotiate on services and how far the negotiations have to go.

Compared to the linkage between trade agreements and trade in goods to trade agreements and trade in services, we observe a lower impact (the coefficient is three times smaller than the coefficient obtained by Baier and Bergstrand, 2007).

As a general result, RTAs increase intra-trade in services as in goods. Consequently, it is crucial that countries enter into negotiations, concluded written agreements on services.

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8 Appendix

Table 6: List of RTAs into force between 1999 and 2007

Names of RTAs		
ANZCERTA	EC-JOR	NAFTA
APTA	EC-LBN	JPN-MEX
CAN-CHL	EC-MAR	JPN-MYS
CAN-CRI	EC-MEX	JPN-SGP
CAN-ISR	EC-MKD	JPN-THA
CEFTA	EC-SYR	PATCRA
CHN-HKG	EC-TUN	SGP-AUS
EAEC	EC-TUR	SPARTECA
EC-ALB	EC-ZAF	THA-AUS
EC-CHE-LIE	EEA	TUR-HRV
EC-CHL	EFTA	USA-AUS
EC-DZA	EFTA-HRV	USA-CHL
EC-EGY	EFTA-SGP	USA-ISR
EC-HRV	EFTA-TUR	USA-SGP
EC-ISR	European Union	

Table 7: Classification based only on mode 1

	(1)	(2)
EIA_Model $_{ijt}^{low}$	-0.04(0.08)	-0.01(0.08)
EIA_Model $_{ijt}^{med}$	0.23 ^c (0.13)	0.17(0.13)
EIA_Model $_{ijt}^{high}$	0.30 ^a (0.04)	0.17 ^a (0.04)
Overall R ²		0.16
Within R ²	0.48	
No. observations	10033	6872
Bilateral fixed effects	Yes	
Country-and-time fixed effects	Yes	Yes
First difference		Yes

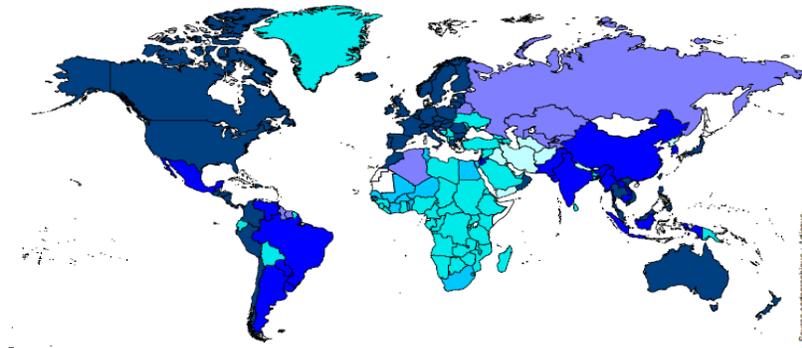
Notes: Value of standard-errors in parentheses; ^a Significant at 1%; ^b Significant at 5%; ^c Significant at 10%.

Table 8: Role played by the European Union

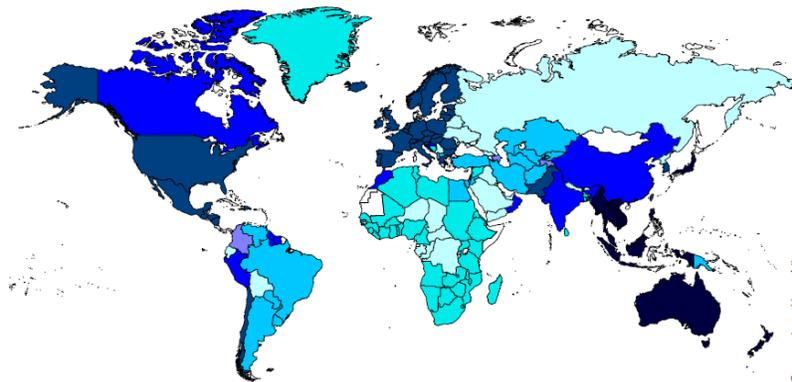
	(1)	(2)
European Union	0.30 ^a (0.04)	0.16 ^a (0.05)
Other EIA	0.22 ^a (0.07)	0.17 ^b (0.07)
Overall R ²		0.16
Within R ²	0.48	
No. observations	10033	6872
Bilateral fixed effects	Yes	
Country-and-time fixed effects	Yes	Yes
First difference		Yes

Notes: Value of standard-errors in parentheses; ^a Significant at 1%; ^b Significant at 5%; ^c Significant at 10%.

Mode 1



Mode 3



Note: The lightest blue corresponds to the less opened countries (those countries are involved in an agreement but nothing about services forms a part of the negotiations) while the darkest blue corresponds to the more liberalized ones.

Mode 4

