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Bilateral agreements and imbalances in international trade

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Abstract

Using a Ricardian model of trade, this article analyzes a new framework in the international trade literature, namely: the effects of "Regional Trade Agreements" -- RTAs -- on the imbalance of bilateral trade, understood as the share of net exports in trade bilateral gross. The results indicate that all types of trade agreements are associated with an average fall of 3.95% in the trade imbalance. In addition, the reported values are in line with the results of Baier, Bergstrand and Feng (2014) that there is an accumulation effect of the impacts of RTAs. Finally, the analyzes considering a generic measure for the RTAs underestimated the effects of the agreements.

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1. Introduction

The impact on trade flows of bi- and multilateral agreements, such as *Regional Trade Agreements* (RTAs), has been extensively studied in empirical literature (Limão, 2016). These studies have confirmed the predtictions of modern trade theories, as seen in Melitz (2003) and Chaney (2008), thus demonstrating that RTAs can reduce trade costs by facilitating the entry of new firms into the international market. This, in turn, increases both intensive and extensive trade margins (cf. Figueiredo and Loures, 2016). Furthermore, the literature highlights the significant effects RTAs have on other economic and political aggregates, including international direct investment (Baltagi, Egger and Pfaffermayr, 2008), consolidation of democracy (Liu and Ornelas, 2014), and international migration flows (Figueiredo, Lima and Orefice, 2016).

While measuring the effects of RTAs, Sokolova (2016) suggests their correlation with trade imbalances. Specifically, the following effects are expected: a) signatory countries of a particular RTA may experience a reduction in trade imbalance, as the enactment of a trade agreement affects bilateral trade flows, drawing exports and imports closer in terms of amount; b) this effect will follow a "*deepening*" pattern,[1] from less integrated to more integrated agreements. This means that agreements with a lower degree of integration will have a smaller effect on trade imbalance, while more comprehensive agreements – more "*deep*" agreements – will result in a greater effect.

This article aims to test two hypotheses using two approaches. The first approach is econometric in nature, while the second approach is related to the construction of the variable of interest, namely, RTAs. To advance the econometric approach, we adopt the estimator proposed by Santos Silva, Tenreyro and Wei (2014), which allows the analysis to consider all observations within the interval [0, 1]. Regarding the construction of the levels of coverage of RTAs, we follow a standard procedure from the literature, which involves aggregating the most comprehensive agreements – customs union, commom market, and economic union – into a single binary variable, *CUCMEUN*. Thus, we can show that "*deeper*" agreements are more effective at reducing trade imbalance.

Balance of trade, which measures trade imbalance, is based on the Ricardian model of trade. This is because Ricardo (1817) suggested: "*It would therefore be advantages for Portugal to export wine in exchange for cloth. This exchange might even take place, notwithstanding that the commodity imported by Portugal could be produced there with less labour than in England*".

In the short term, the implementation of an RTA is likely to reduce imbalances among member countries. This is because RTAs are expected to boost trade between member countries, as higlighted by Feenstra and Taylor (2014, p. 375), through two "*mechanisms*": **trade creation** and **trade diversion**. Trade creation occurs when a member country starts importing a product that was previously produced domestically from another member country. Trade diversion, on the other hand, occurs when a member country starts importing from another member country a product that was previously imported *from a country that is now outside the new regional agreement*. Consequently, imports increase as member countries shift from producing certain goods domestically to importing them from other member countries, while exports remain at the same level with a reallocation of trade.

[1] The impact of broader agreements can be partially attributed to previous stages. For instance, a customs union has a more significant effect partly due to the preceding stage, FTA (cf. Baier, Bergstrand and Feng, 2014).

This article explores another hypothesis related to the indication of trade imbalance at the time of the RTA's promulgation. If the indicator is positive, an increase in imports will lead to a decrease in the imbalance. However, if the indicator is negative, an increase in imports will aggravate the imbalance. Nonethelsess, countries can increase the competitiveness of their domestic industry by signing an RTA (Loures, Figueiredo and Mariano, 2019).[2] This results in a positive impact on exports within and outside the RTA bloc, ultimately reducing trade imbalance.

The findings suggest that all types of RTAs lead to a reduction in trade imbalance. The impact of "*deeper*" agreements is greater, with the *CUCMEUN* parameter reporting a significant 9.10% decrease in trade imbalance and a pattern of "*deepening*". The remainder of this paper is tructured as follows: Section 2 defines the measure of imbalance and presents the data used in the analysis. Section 3 outlines the results and their implications, and Section 4 presents the concluding remarks of the paper.

2. Empirical strategy and data

2.1 International trade and the trade balance

The impact of RTAs on bilateral trade flows has been extensively studied in the gravity literature (Ornelas, 2008; Santos Silva and Tenreyro, 2010; Cafiso, 2011; Handley and Limão, 2015; Figueiredo, Lima and Schaur, 2016). However, according to Sokolova (2016), neither has the effect of RTAs on trade imbalances been examined in the literature, nor has it been examined by type of RTA. In other words, while studies have shown that RTAs lead to an increase in trade flows between members and non-members (third-party effect, Bond, Riezman and Syropoulos, 2004), it remains unclear whether RTAs can reduce trade imbalances between any pair of countries.

Bown, Blanchard and Johnson (2016) argue that RTAs can reduce both variable and fixed costs of international trade. Therefore, it can be said that greater cooperation among the signatory countries of an RTA will lead to a neutralization of the terms of trade within the RTA, causing market prices for goods produced within the RTA to fall. This further reveals the comparative advantages of each RTA member (Bagwell and Staiger, 1999). In other words, it demonstrates the capacity of countries to specialize vertically (Yi, 2003). Additionally, Sokolova (2016) states that the proliferation of vertical specialization among countries, resulting from reduced trade costs, has given rise to the formation of global value chains. Thus, it is evident that the influence of RTAs on the bilateral trade imbalance will manifest through the comparative advantages of each RTA member and the capacity of countries to specialize vertically, that is, through the creation of global value chains within the RTAs.

It is worth noting that several measures are used to represent countries' trade imbalances, but this article employs a commonly used measure in the literature. This measure calculates the ratio of the difference between exports and imports and the sum of these two trade flows, i.e., the share of net exports in bilateral gross trade between countries i and j. Therefore, the measure of trade imbalance has the following specification:

$$des_{ij,\,t} = \frac{|exp_{ij,\,t} - imp_{ij,\,t}|}{exp_{ij,\,t} + imp_{ij,\,t}},$$

[2]Economies of scale in production, *learning-by-exporting*, and economies of scale in exporting.

here, $des_{ij,\,t}$ represents the trade imbalance between i and j during period t, while $exp_{ij,\,t}$ and $imp_{ij,\,t}$ denote the exports and imports, respectively, between i and j in the same period t. It is important to note that a trade imbalance result closer to zero indicates a balance in bilateral trade between i and j, wherein the values of exports and imports are similar. Furthermore, it is worth highlighting that the variables $exp_{ij,\,t}$ and $imp_{ij\,,t}$ strictly represent the trade flow between the single country i and single country j, not the trade between i and all its j partners. Finally, the modulus of the difference is assumed in the numerator.

After obtaining the trade imbalance variable, the focus now shifts to the econometric specification of the trade imbalance model, with the aim of highlighting the heterogeneity of the effect of different types of RTAs on the trade imbalance. It is important to evaluate each type of RTA separately.[3] To achieve this, two specifications are estimated for the imbalance equation. Note that to demonstrate that the results of this article are not an artifact of the adopted specification, the standard practice in the literature was employed to represent the bilateral trade cost term, characterized by using a series of observable variables: distance, contiguity, language, and colonial ties (Piermartini and Yotov, 2016; Yotov, Piermartini, Monteiro and Larch, 2016).[4]

It is also worth noting that, according as Keele and Kelly (2006), lagged dependent variables (LDVs) are used to capture the dynamics of policies, "*an attitude at time t is a function of that same attitude at* $t-1$ *as modified by new information*". In other words, "*a theoretically motivated reason to include a lagged dependent variable is to capture, through specification, a type of dynamics that frequently occurs in politics*".[5] Therefore, since the volume of bilateral trade flow at time t, as well as at $t-1$, is affected by the trade policy adopted at $t-1$, this article chose to add the LDV as one of the regressors, controlling for the persistence of trade policy on the volume of bilateral trade flow, i.e., the dynamics of the model (cf. Olivero and Yotov, 2012). The first specification considers a generic measure for RTAs, without differentiating between their various classifications. Thus, the imbalance equation is presented as:

$$des_{ij,\,t} = \beta_0 + \beta_1\, RTA_{ij,\,t} + \beta_2\, des_{ij,\,t-1} + \beta\, \chi_{ij} + \gamma_{i,\,t} + \delta_{j,\,t} + \epsilon_{ij,\,t}, \tag{1}$$

here, $RTA_{ij,\,t}$ is a *dummy* variable that takes the value of one if a trade agreement exists between two countries and zero otherwise. This variable captures the effect of trade agreements on trade imbalances. The variable $des_{ij,\,t\,-\,1}$ represents the impact of past trade imbalances on current imbalances. The vector β contains coefficients, while the vector χ_{ij} includes all standard gravity covariates.[6] The variable $\gamma_{i,\,t}$ represents the

[3]To learn more about the various types of RTAs, see Frankel, Stein and Wei (1997).

[4]Moreover, this article chooses to use the standard variables of gravity models (distance, contiguity, language, and colonial ties) instead of country-pair fixed effects because, like Felbermayr and Yotov (2021), we want to avoid the impression that the predictive power of the model is inflated by exporter and importer fixed effects

[5]Keele and Kelly (2006) highlight that even if the process is weakly dynamic, the estimation will be biased if the specification does not include the lagged variable, and if the process is strongly dynamic, the bias caused by the misspecification of the model will be severe.

[6]The variable $ldist_{ij}$ represents the logarithm of the distance between i and j, thus capturing the impact of distance on trade imbalance. The variable $cntg_{ij}$ is a *dummy* variable that takes the value of one when the pair of countries shares a border and zero otherwise., thus capturing the effect of contiguity. The variable $clny_{ij}$ is another *dummy* variable that takes the value of one when the pair countries has a history of metropolis and colony and zero otherwise, thus capturing the effect of colonial ties. Finally,

origin-year fixed effect, and $\delta_{j,t}$ represents the destination-year fixed effect. Finally, the variable $\epsilon_{ij,t}$ represents the error term.

The following specification estimates each type of RTA separately in the imbalance equation, thus capturing the individual effects of each RTA. Therefore, the second specification has the following structure:

$$\begin{aligned} des_{ij,t} = \alpha_0 + \alpha_1 NRPTA_{ij,t} + \alpha_2 PTA_{ij,t} + \alpha_3 FTA_{ij,t} + \alpha_4 CUCMEUN_{ij,t} + \\ + \alpha_5 des_{ij,t-1} + \alpha \eta_{ij} + \phi_{i,t} + \varphi_{j,t} + \xi_{ij,t}, \end{aligned} \tag{2}$$

here, $NRPTA_{ij,t}$ is a *dummy* variable representing non-reciprocal preferential trade agreements, $PTA_{ij,t}$ is a *dummy* variable for reciprocal preferential trade agreements, $FTA_{ij,t}$ is a *dummy* variable representing free trade agreements, and $CUCMEUN_{ij,t}$ is a *dummy* variable for deeper agreements.[7] The variable $des_{ij,t-1}$ represents the effect of past trade imbalances on current imbalances. The vector α contains coefficients, η_{ij} is a vector of standard gravity covariates,[8] $\phi_{i,t}$ is the origin-year fixed effect, $\varphi_{j,t}$ is the destination-year fixed effect, and $\xi_{ij,t}$ is a stochastic term.

As mentioned above, the purpose of differentiating by RTA is to highlight the varying effects of each agreement, based on the degree of integration. However, it is important to note that RTAs follow a pattern of "*deepening*", starting from less integrated agreements and progressing toward more integrated ones. Therefore, it is expected that the magnitude of the parameter of more comprehensive agreements will be greater owing to the accumulation of effects. For instance, CM or EUN agreements are built upon previous agreements such as FTAs and CUs. Similar to Baier, Bergstrand and Feng (2014), Figueiredo and Lima (2017) also found that "*deeper*" trade agreements have greater effects than those with lower degrees of integration, confirming the perception that impacts have a cumulative effect. Therefore, the effect of deeper agreements can be partially attributed to preceding levels, whose values may be underestimated.

Finally, RTAs are expected to have a favorable impact on trade imbalance, as indicated by the negative signs of the parameters β_1 and $\alpha_{1\text{-}4}$. This implies that the implementation of an RTA between i and j would aid in reducing the trade imbalance between these regions.

2.2 Data souce

The data on bilateral trade between i and j were sourced from the UN Comtrade Database, Comtrade, which is prepared by the United Nations Statistics Division. Standard gravity variables (distance, colonial ties, contiguity, and language) were obtained from the *Base pour l'Analyse du Commerce International* (BACI) of the *Centre D'Etudes Prospectives Et D'Informations Internationales* (CEPII). *Mario Larch's Regional Trade Agreements Database*[9] was also used as a source of information for data on RTAs. The sample covers the period 1962–2012 and includes 186 countries[10] and

the variable $lang_{ij}$ is a *dummy* variable that takes the value of one if the pair of countries shares the same language and zero otherwise, thus capturing the effect of language on trade imbalance.

[7]Since "*deeper*" agreements such as CM and EUN are new and limited observations are available, the literature has treated them as single variable (Baier, Bergstrand and Feng, 2014; Figueiredo and Lima, 2017).

[8]The same set of variables as in Equation 1.

[9]Available at `http://www.ewf.uni-bayreuth.de/en/research/RTA-data/index.html`.

[10]The comprehensive list of countries is presented in Table II of Appendix A.1.

652, 771 observations. Of these observations, 20% and 9.71% are characterized as zero bilateral flow for exports and imports, respectively.

Trefler (2004) and Cheng and Wall (2005) have highlighted an econometric challenge faced by studies that use panel data, stating that the regression and regressors, when considering data grouped over consecutive years, do not fit perfectly in a single year. In other words, changes in trade policies, such as RTAs, do not immediately affect bilateral trade flows (Piermartini and Yotov, 2016). To avoid such criticism, this study adopted the same approach followed by Trefler (2004), Baier and Bergstrand (2007), and Anderson, Larch and Yotov (2015*b*), which involves estimating the gravity model using intervals of years. In this study, a five-year interval was used.[11] Empirical evidence has shown that estimates made with three- or five-year intervals are very similar (Olivero and Yotov, 2012). However, estimates considering the entire sample period report dubious parameters for trade costs. Anderson, Larch and Yotov (2015*b*) conducted their analyses using a three-year interval and employed four- and five-year intervals for the robustness test, finding that the reported values were very close to those of the three-year interval.

The dependent variable in this study is a ratio, and it is important to use an estimator that considers this characteristic. To address this issue, the study used the "*Flex*" estimator proposed by Santos Silva, Tenreyro and Wei (2014) to empirically investigate trade imbalance. This choice is justified because the "*Flex*" estimator analyses the interval [0, 1], while the "*Beta regression*" model developed by Ferrari and Cribari-Neto (2004) considers the interval (0, 1), excluding observations equal to zero and unitary observations. In this study, 193, 982 (29.72% of the sample) values were equal to one and were hence excluded from the analysis. Therefore, the "*Beta regression*" values are expected to be underestimated owing to the exclusion of information from the analysis.

Finally, it is worth noting that while previous literature considers negative values of the symmetric and redundant imbalance variable (which records the same phenomenon), this study has opted to work with the absolute value of the dependent variable. This is because, in theory, country i's exports to j should be equal to j's imports from i for any commodity and year. However, in practice, this may not always be the case owing to various reasons such as countries not reporting their trade in a detailed or disaggregated manner for confidentiality reasons, or the reporting year being different if goods are shipped at the end of the year (cf. Gaulier and Zignago, 2010, p. 11).

3. Results

This section begins by highlighting that Table I demonstrates the cumulative impact of different types of RTAs, which results in "*deeper*" trade agreements with greater magnitudes of reporting parameters compared with those with lower degrees of integration, as observed in some international trade literature and noted in the above section. As discussed in Subsection 2.1, Table I reports results for both a generic measure of RTAs and an estimation in which each type of agreement is included separately in the equation to capture the heterogeneous effects of each RTA type. It is important to note that the coefficients for the fixed effects of origin-year and destination-year will not be reported in the results table. Additionally, the parameters of the "*Flex*" and "*Beta regression*" estimators alone do not provide any information, excluding their indication of the relationship between the regression and the regressors. Therefore, the values

[11] For the sample period of this study, the following years were taken into account: 1962, 1967, 1972, 1977, 1982, 1987, 1992, 1997, 2002, 2007, and 2012.

presented in Table I refer to partial effects, calculated after estimating the aforementioned parameters.

Table I shows that the "*Beta regression*" proposed by Ferrari and Cribari-Neto (2004) underestimated both estimations, as expected. In the case of non-reciprocal agreements, an insignificant value was reported, which may be explained by the exclusion of approximately 20% of these agreements. The "*Flex*" estimator, on the other hand, as shown in Table I, indicates that a non-reciprocal trade agreement reduces the trade imbalance between i and j by approximately 1.6%. Regarding non-reciprocal preferential agreements, the coefficient for reciprocal preferential trade agreements reported a negative and statistically significant value, implying that the enactment of a PTA reduces trade imbalance by 2.06%. Therefore, it can be observed that as trade agreements become more comprehensive, – more "*deep*" – the impact on imbalance becomes greater, characterizing the empirically demonstrated cumulative effect in the literature (Baier, Bergstrand and Feng, 2014; Figueiredo and Lima, 2017).

Free trade agreements, in turn, are linked to a 3.08% decrease, as indicated by the negative and statistically significant value of the FTA coefficient. Additionally, the implementation of "*deeper*" agreements is associated with greater effects, as evidenced by the negative and statistically significant value of the $CUCMEUN$ coefficient, which implies that agreements with higher levels of integration lead to a reduction of 9.10% in trade imbalance. However, the most crucial finding from Table I is that a generic measure for RTAs is associated with a reduction of 2.70% in imbalance, while the average of each type of agreement is linked to a decrease of 3.95%. In other words, the effects of RTAs on trade imbalance is underestimated when using a generic measure for "*Regional Trade Agreements*", confirming the perception of a section of the trade literature that different types of trade agreements have different, heterogeneous effects. Furthermore, it is noteworthy that both the estimation using a generic measure for RTAs and the estimation which considers each type of RTA separately show that the coefficient for the lagged imbalance variable is negative, indicating that it reduces contemporary imbalance and suggesting that countries prioritize a more balanced trade balance.

Finally, it is worth noting that the standard gravity variables showed opposite signals in all estimations when compared with the analyses on bilateral trade flow. However, this was expected since the dependent variable of this study is trade imbalance. A positive signal for the logarithm of distance implies that the greater the distance between i and j, the greater the trade imbalance between them. This is because countries tend to import less from more distant countries owing to transportation costs, buying only what is essential. This applies to both i and j. Therefore, exports between them will be greater than imports owing to essentiality. On the other hand, a negative signal for the other trade cost variables, such as contiguity, language, and colonial ties, indicates that these factors have a positive effect on trade imbalance and, therefore, reduce it between trading partners. Unlike distance, these variables reduce the cost of trade between i and j. Consequently, instead of negotiating with third countries, i and j will buy from each other, increasing their respective imports.

4. Conclusion

This article examined the effects of "*Regional Trade Agreements*" on bilateral trade imbalance from 1962 to 2012, both as a general measure and for each classification of RTAs. The study used a robust gravity equation and the "*Flex*" estimator to determine

Table I: Trade imbalance

Variables	Flex		Beta	
	(1)	(2)	(1)	(2)
$RTA_{ij,t}$	-0.0270^a (0.0030)	-	-0.0214^a (0.0030)	-
$NRPTA_{ij,t}$	-	-0.0155^a (0.0043)	-	-0.0049 (0.0042)
$PTA_{ij,t}$	-	-0.0206^a (0.0046)	-	-0.0156^a (0.0045)
$FTA_{ij,t}$	-	-0.0308^a (0.0046)	-	-0.0405^a (0.0045)
$CUCMEUN_{ij,t}$	-	-0.0910^a (0.0072)	-	-0.0597^a (0.0063)
$des_{ij,t-1}$	-0.0081^a (0.0014)	-0.0083^a (0.0013)	0,0059^a (0.0015)	0.0058^a (0.0015)
$ldist_{ij}$	0.0947^a (0.0020)	0.0910^a (0.0020)	0.0600^a (0.0014)	0.0542^a (0.0015)
$cntg_{ij}$	-0.0508^a (0.0067)	-0.0525^a (0.0068)	-0.0301^a (0.0058)	-0.0296^a (0.0058)
$lang_{ij}$	-0.0676^a (0.0029)	-0.0663^a (0.0028)	-0.0394^a (0.0028)	-0.0381^a (0.0028)
$clny_{ij}$	-0.0496^a (0.0062)	-0.0529^a (0.0063)	-0.0461^a (0.0059)	-0.0491^a (0.0059)
Constante	0.1989^a (0.0305)	0.1280^a (0.0302)	0.5919^a (0.0008)	-0.5920^a (0.0008)
Sample	144,986		101,482	

Note: Standard error in parentheses. Statistical significance: ^{a}1%, ^{b}5% and ^{c}10%.

that previous results obtained using the "*Beta regression*" model underestimated the impact of RTAs. Overall, the enactment of an RTA was found to reduce trade imbalance. Specifically, a general measure for RTAs was associated with a 2.70% reduction, while the average for different classifications of RTAs was associated with a 3.95% decrease. This suggests that analyses using a general measure underestimated the effects of RTAs. Additionally, the results highlight the cumulative effect of RTAs, with deeper agreements showing greater impact.

It is important to note that international trade does not account for bilateral trade flows below US$ 1,000. Therefore, the impact of RTAs on the bilateral trade imbalance variable may be even greater than what is presented in this analysis. Additionally, this study's results highlight the significance of "*deeper*" agreements in reducing trade *deficit*. This suggests that international trade policies aimed at establishing trade agreements with greater integration between economies can improve the welfare of member countries. This finding is in line with the trade and growth model proposed by Anderson, Larch and Yotov (2014, 2015*a*).

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APPENDIX A.1

Table II: List of countries

Afghanistan	Dominica	Lesotho	Russia
Albania	Ecuador	Liberia	Rwanda
Algeria	Egypt	Libya	Saint Kitts and Nevis
Angola	El Salvador	Lithuania	Saint Lucia
Antigua and Barbuda	Equatorial Guinea	Luxembourg	Saint Vincent and the Grenadines
Argentina	Eritrea	Macao	Samoa
Armenia	Estonia	Macedonia, FYR	San Marino
Aruba	Ethiopia	Madagascar	Sao Tome and Principe
Australia	Faroe Islands	Malawi	Saudi Arabia
Austria	Fiji	Malaysia	Senegal
Azerbaijan	Finland	Maldives	Seychelles
Bahamas	France	Mali	Singapore
Bahrain	Gabon	Malta	Slovakia, Rep.
Bangladesh	Gambia	Marshall Islands	Slovenia
Barbados	Georgia	Mauritania	Solomon Islands
Belarus	Germany	Mauritius	Somalia
Belgium	Ghana	Mexico	South Africa
Belize	Greece	Micronesia	Spain
Benin	Greenland	Moldavia	Sri Lanka
Bermuda	Grenade	Mongolia	Sudan
Bhutan	Guatemala	Morocco	Suriname
Bolivia	Guinea	Mozambique	Swaziland
Bosnia and Herzegovina	Guinea Bissau	Myanmar	Sweden
Botswana	Guyana	Namibia	Switzerland
Brazil	Haiti	Nepal	Syria
Brunei Darussalam	Honduras	Netherlands	Tajikistan
Bulgaria	Hong Kong	New Caledonia	Tanzania
Burkina Faso	Hungary	New Zealand	Thailand
Burundi	Iceland	Nicaragua	Togo
Cambodia	India	Niger	Tongaf
Cameroon	Indonesia	Nigeria	Trinidad and Tobago
Canada	Iran, Rep. Islamic of	Norway	Tunisia
Cape Green	Iraq	Oman	Turkey
Cayman Islands	Ireland	Pakistan	Turkmenistan
Chad	Israel	Panama	Uganda
Chile	Italy	Papua New Guinea	UK
China	Jamaica	Paraguay	Ukraine
Colombia	Japan	Peru	United Arab Emirates
Comoros	Jordan	Philippines	United States
Congo, Rep. Dem. of	Kazakhstan	Poland	Uruguay
Costa do Marfim	Kenya	Portugal	Uzbekistan
Costa Rica	Kiribati	Qatar	Venezuela
Croatia	Korea, Rep. of	Rep. Central African	Vietnam
Cuba	Kuwait	Rep. Czech	Yemen
Cyprus	Laos	Rep. Dominican	Zambia
Denmark	Latvia	Rep. kyrgyz	
Dijibouti	Lebanon	Romania	

Table III: Descriptive statistics

Variables	**Mean**	**Max**	**Min**	**SD**
Imbalance	0.7312	1	4.82e-07	0.3261
RTA	0.2204	1	0	0.4145
NRPTA	0.1155	1	0	0.3196
PTA	0.0375	1	0	0.1900
FTA	0.0407	1	0	0.1976
CUCMEUN	0.0267	1	0	0.1613
cntg	0.0228	1	0	0.1493
lang	0.1727	1	0	0.3780
clny	0.0195	1	0	0.1384
ldist	8.6501	9.8858	4.5462	0.8100

Notes:
RTA: Regional Trade Agreement.
NRPTA: Non-reciprocal Preferential Trade Agreements.
PTA: Reciprocal Preferential Trade Agreements.
FTA: Free Trade Agreements.
CUCMEUN: Customs Union, Common Market and Economic Union.
cntg: Contiguity.
lang: Language.
clny: Colonial ties.
ldist: Logarithm of distance.
Max: Maximum value.
Min: Minimum value.
SD: Standard deviation.