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MSc Dissertation

The Impacts of a Potential Free Trade Agreement Between Mercosur and the European Union – A Structural Gravity Model General Equilibrium Analysis

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Abstract

This paper examines the welfare effects of a potential Free Trade Agreement between Mercosur and the European Union on both partners and non-partners. To this aim, the structural gravity model is applied to a dataset of 76 countries, using a pooled panel data from 1990 to 2015 with five years intervals. In addition to the standard Ordinary Least Squares log-linear estimations, one alternative approach is applied: The multiplicative Poisson-Pseudo Maximum Likelihood with fixed effects, which considers the information present in the large number of zero trade flows and corrects for endogeneity and heteroskedasticity. Moreover, a general equilibrium analysis is performed in order to evaluate the impacts of the agreement on exports and real GDP of all countries in the sample. As a result, this article presents evidence that the agreement would affect both indicators positively on all members, even though unevenly, favouring more the South American than the European countries. On third countries, the impacts are almost null. Moreover, simulations show that a broader agreement would increase the positive effects on members, keeping impacts on non-members still close to zero.

JEL Classification Codes: F13, F14, F15, F17

Keywords: Structural Gravity, General Equilibrium Effects, Mercosur, European Union, Regional Trade Agreement.

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1. Introduction

Negotiations to sign a Regional Trade Agreement (RTA) between Mercosur and the European Union (EU) are almost as old as Mercosur itself. Both parts signed the EU-Mercosur Framework Cooperation Agreement in Madrid in 1995, the year that Mercosur officially became a customs union and started operating. However, only in 1999, this cooperation agreement came into effect. The proposed RTA would be the largest in the world and the first one between two blocs. In 2004, after 13 meetings of the Bi-regional Negotiations Committee (BNC), both blocs exchanged offer lists, but they did not reach a consensus, suspending negotiations. Conversations were resumed in 2010 and suspended again in 2013. In 2015, the two parts restarted negotiating and it is expected that they will reach an agreement at any time.

So far, the main barriers have been that Mercosur does not accept the EU proposal on the agricultural sector, whereas the EU's main concern regards to the conditions on services and government procurement. Apart from that, as in any negotiation, some sectors may end up losing and make pressure on their governments against the signature of the RTA. Hence, it is crucial to conduct a quantitative evaluation of the impacts of the agreement so that both parts may be aware of the magnitude of the potential gains and losses. The present paper analyses the macroeconomic effects (in real GDP and exports) of the agreement on both members and non-members.

This article contributes to the empirical trade literature by extending to the analysis of a potential RTA the General Equilibrium method developed by Anderson et al. (2015b), following an *ex-ante* approach, using the Structural Gravity (SG) model framework. This methodology is still not frequently used in this regard. This exercise allows the analysis of how the potential gains of the RTA are distributed among members. As intuition predicts, gains from the agreement should be distributed unevenly. Moreover, sectoral evaluation of the impacts can also be estimated in this framework as long as output and trade data (including tariffs) by sector are available per country and for a significant period. Nevertheless, due to the lack of data, this is beyond the scope of this paper, which focuses on aggregate effects only.

The key findings from the benchmark model are that the long-run increase in exports and real GDP for Mercosur could reach 5.58% and 0.42%, respectively, while for European countries these gains are significantly more modest: 0.22% and 0.04%, respectively. Also, in the most comprehensive agreement scenario simulated, gains for Mercosur countries should vary from 13.6% (Paraguay) to 27.6% (Brazil) in exports and from 1.1% (Argentina) to 1.9% (Paraguay) in real GDP. For the EU average, numbers are 0.5% and 0.2%, respectively. In any scenario impacts on third countries are minimal. By simulating the Transatlantic Trade and Investments Partnership (TTIP) as well, impacts on European countries increase sharply

(2.19% on exports and 0.30% in GDP), but Mercosur countries and non-partners are not significantly affected.

For evaluating the impacts of the RTA, this paper uses the average impact of all agreements signed between 1990 and 2015 as the benchmark. Estimates are performed according to the six recommendations given by Piermartini and Yotov (2016): i) using panel data; ii) allowing for adjustments by using five years intervals; iii) including intranational trade flows; iv) including importer-time and exporter-time Fixed Effects (FE); v) employing pair FE; and iv) estimating with the Poisson-Pseudo Maximum Likelihood (PPML) estimator. Aside from that, the elasticity of substitution among products is also estimated here, not taken from the literature, as it is common in gravity analysis.

To conclude this introduction, it should be mentioned that Venezuela became an associate member of Mercosur in 2004. In 2006, the protocol of accession was signed, and in 2012 the country became a full member of the customs union. Nevertheless, Venezuela had four years to adapt to the trade bloc regulations fully and failed to do so, being thus suspended from Mercosur on December of 2016. Even though, Venezuela never took part in the negotiations between the two parts. Therefore, for this article, Mercosur countries are restricted to Argentina, Brazil, Paraguay and Uruguay.

Apart from this introduction, the remainder of this paper is divided as follows: Section 2 brings a brief literature review, including studies that also evaluate the impacts of the agreement, even though using other methodologies; Sections 3 and 4 present the theoretical framework and the empirical SG model, detailing the evolution of the gravity theory and of the techniques used to estimate the model; section 5 is where the dataset is described, including its variables description, sources and limitations; section 6 brings the results of the estimation of the gravity model; in section 7, it is presented the GE analysis, with simulations of different depths in the agreement; section 8 brings the simulation of the impacts of TTIP on both members and non-members; section 9 is where the robustness check is performed; sections 10, 11 and 12 bring the conclusions, references and the appendix (where tables with the effects on each country are presented), respectively.

2. Literature Review

Albeit negotiations have been in place for almost twenty years, not many authors have evaluated the economic impacts of the agreement. Governments of affected countries probably have studies to base their decisions, but only a few academic papers have been published on this subject. Furthermore, articles about Mercosur-EU agreement mostly use other methodologies, such as Computable General Equilibrium (CGE), instead of the gravity model. This paper seems to be the first one using this methodology.

One example of an article using CGE is Monteagudo and Watanuki (2003), which developed a multi-country, multi-sector CGE model, assuming all barriers removed, to compare the impacts of an RTA between Mercosur-EU with a Free Trade Area in the Americas. They found that both agreements would be beneficial to Mercosur countries, even though gains are higher in the case of an RTA with the EU. Taking 1997 as the benchmark year, the impact on Mercosur's real GDP would be 2.95% and 7.9% on exports growth. They did not present the impacts either on European or on third countries. All those results are relative to a scenario without the agreement, as all other General Equilibrium (GE) results presented in this paper.

Boyer and Schuschny (2010) used a CGE model to assess the possible effects of the RTA between Mercosur and the EU simulating two scenarios: One with full liberalisation, removing tariff barriers of all products, and another excluding sensitive products. In both scenarios, the authors found a positive impact on exports for all members. In the full liberalisation, exports in Mercosur would increase 7.45% and 0.45% in EU. For GDP, Mercosur would gain 4.58%, while EU would lose 0.15%. Considering the sensitivities, results are more modest: exports would grow 1.91% in Mercosur and 0.06% in the EU. Also, Mercosur's GDP would increase by 1.37%, and the EU's would fall 0.08%. Impacts on third countries are always negative, even though very small.

Bouët et al. (2011) applied a multi-sector, multi-region CGE model that introduced household heterogeneity. As Boyer and Schuschny (2010), they presented scenarios with full liberalisation and sensitive products. Using the year of 2020 as the benchmark, they showed that the impacts on exports are unevenly positive for all members. In the full liberalisation scenario, exports would increase by 15.4% in Brazil and 3.8% in Argentina. Taking into account the sensitive products, these numbers fall to 6.8% and 2.4%, respectively. Once again, impacts in European countries are much lower, varying from 0.7% to 0.4% in both scenarios. The authors did not present results for real GDP.

It should be noted that all these CGE models simulate RTAs with full liberalisation or excluding only a few sensitive products. Thus, differently from the gravity model that is employed in this article, they are extremely comprehensive if compared with the reality of the trade agreements signed between 1990 and 2015, the period covered by this paper. Although the direction is the same, the magnitude of the impacts on exports and GDP tends to be lower in a model that uses past RTAs as the benchmark.

Furthermore, as explained by Bekkers (2017), CGE and SG models present some other differences. Firstly, CGE models contain more features and describe the economic environment with more details, while SG models are more parsimonious, containing fewer characteristics (and variables). Another difference is that SG models are more rigorous, deriving the equations and estimating all parameters using the same model and database used for the counterfactual scenarios. CGE models tend to be less rigid, using more parameters from the literature. These parsimony and rigour of the SG models are essential to explain the differences in the results found in both models, which are presented in section 7. However, before reaching the comparison of the results, it is important to understand the theoretical framework and the empirical model techniques, which are presented in the next two sections.

3. Theoretical Framework

The gravity model is known as the workhorse of the empirical research in economic flows, such as trade, Foreign Direct Investments (FDI) and migration. Inspired by the Law of Universal Gravitation, developed by Isaac Newton, it states that economic flows are determined by the size of two economies and the geographical distance between them.

The first applications of the gravity theory to economics were not theoretically-founded. For instance, Ravenstein (1885) and Tinbergen (1962) applied gravity to examine migration and trade flows, respectively, but without any solid gravity theory to back-up their results. Only with Anderson (1979), the theoretical economic foundation was provided. He assumed Constant Elasticity of Substitution (CES) among products and differentiation by origin (Armington, 1969), features still present in recent studies, such as this one.

The structural gravity model presented in this paper is derived by the demand side of the economy[1], based on Anderson and van Wincoop (2003). They take into account GE effects of trade barriers. Particularly, they assume identical CES preferences across countries. Also, countries produce a variety of goods that are differentiated by origin and traded to the rest of the world. Moreover, the supply of each good is fixed.

Assume a world with N countries producing differentiated goods and trading with each other. Products are supplied in a fixed quantity Q_i and with factor-gate price p_i. Thus, domestic production (nominal output) is given by $Y_i = p_i Q_i$. Also, Expenditure E_i in country *i* is given by:

$$E_i = \phi_i Y_i, = \phi_i p_i Q_i \qquad (3.1)$$

where $0 < \phi_i < 1$ represents that country *i* runs a trade surplus and $\phi_i > 1$ accounts for a trade deficit (both surpluses and deficits are exogenous in this model). The time dimension *t* is omitted for brevity.

[1] A model derived by the supply side reaches the same results, as Eaton and Kortum (2002).

Consumers of any country *j* have homothetic preferences, identical across countries, and given by the following utility function:

$$u_j = \left[\sum_{i=1}^{N} \alpha_i^{\frac{1-\sigma}{\sigma}} c_{ij}^{\frac{\sigma-1}{\sigma}}\right]^{\frac{\sigma}{\sigma-1}}, \tag{3.2}$$

where $\alpha_i > 0$ represents the exogenous CES preference parameter, σ >1 is the elasticity of substitution among products from different countries and c_{ij} represents the consumption of good *j* in country *i*.

Consumers in country *j* maximize utility (3.1) subject to the budget constraint:

$$\sum_{i=1}^{N} p_{ij} c_{ij} = E_j. \tag{3.3}$$

Equation (3.3) assumes that the expenditure E_j in country *j* is equal to the total spending on products from all origins, including *j*. Exporters face iceberg costs $t_{ij} > 1$ and consumer's prices p_{ij} are related to mill prices p_i:

$$p_{ij} = p_i t_{ij}. \tag{3.4}$$

The Armington assumption is based on the principle that bilateral trade costs are variable (iceberg costs). Nevertheless, SG models may also be developed assuming the existence of fixed trade costs, such as Helpman (2008), which uses heterogeneous firms features from Melitz (2003). These fixed costs are responsible for explaining the large number of zeros in bilateral trade flows. In this derivation of the model, fixed costs are not present for brevity, but this assumption is easily relaxed, such as in Egger and Larch (2011).

The solution of the consumer's problem brings the quantity sold X_{ij} from country *i* to market *j* (not forgetting that *i* and *j* may be equal in the case of intranational trade), which is determined by:

$$X_{ij} = p_i t_{ij} c_{ij} = \left(\frac{\alpha_i p_i t_{ij}}{P_j}\right)^{1-\sigma} E_j, \tag{3.5}$$

where P_j denotes the CES consumer price index in market *j*:

$$P_j = \left[\sum_{i=1}^{N}\left(\alpha_i p_i t_{ij}\right)^{1-\sigma}\right]^{\frac{1}{1-\sigma}}, \tag{3.6}$$

Finally, imposing as market clearance condition that country *i*'s total output is equal to its total sales to all markets:

$$Y_i = \sum_{j=1}^{N} X_{ij} = \sum_{j=1}^{N}\left(\frac{\alpha_i p_i t_{ij}}{P_j}\right)^{1-\sigma} E_j. \tag{3.7}$$

Now defining the world output $Y_W = \sum_{i=1}^{N} Y_i$, dividing equation (3.7) by Y_W and rearranging:

$$(\alpha_i p_i)^{1-\sigma} = \frac{\left(\frac{Y_i}{Y_W}\right)}{\sum_{j=1}^{N}\left(\frac{t_{ij}}{P_j}\right)^{1-\sigma}\left(\frac{E_j}{Y_W}\right)}. \tag{3.8}$$

The denominator of equation (3.8) can be defined as $\Pi_i^{1-\sigma} = \sum_{j=1}^{N}\left(\frac{t_{ij}}{P_j}\right)^{1-\sigma}\left(\frac{E_j}{Y_W}\right)$, following Anderson and van Wincoop (2003). Substituting back in equation (3.8):

$$(\alpha_i p_i)^{1-\sigma} = \frac{\left(\frac{Y_i}{Y_W}\right)}{\Pi_i^{1-\sigma}}. \tag{3.9}$$

Rearranging (3.9) it is possible to obtain the equation for mill prices, that is used in the general equilibrium analysis:

$$p_i = \left(\frac{Y_i}{Y_W}\right)^{\frac{1}{1-\sigma}}\left(\frac{1}{\alpha_i \Pi_i}\right). \tag{3.10}$$

Replacing equation (3.9), in (3.5), it is possible to obtain the following structural gravity equation:

$$X_{ij} = \left(\frac{Y_i E_j}{Y_W}\right)\left(\frac{t_{ij}}{\Pi_i P_j}\right)^{1-\sigma}. \tag{3.11}$$

Note that $\Pi_i^{1-\sigma}$ and $P_j^{1-\sigma}$ cannot be observed. Nevertheless, they can be found by solving the following system of 2N equations:

$$\Pi_i^{1-\sigma} = \sum_{j=1}^{N} \left(\frac{t_{ij}}{P_j}\right)^{1-\sigma} \frac{E_j}{Y_W}, \tag{3.12}$$

$$P_j^{1-\sigma} = \sum_{i=1}^{N} \left(\frac{t_{ij}}{\Pi_i}\right)^{1-\sigma} \frac{Y_i}{Y_W}. \tag{3.13}$$

Equation (3.11) is the theory-consistent structural gravity equation. Exports from country *i* to country *j* can be decomposed in two terms: a size term, $\frac{Y_i E_j}{Y_W}$, and a trade costs term, $\left(\frac{t_{ij}}{\Pi_i P_j}\right)^{1-\sigma}$. The first one represents a hypothetical trade with no frictions between *i* and *j*, supposing no trade costs. This term relates trade to the size of both economies, i.e., large exporters will export more to all destinations and big markets will import more from all origins. The second term captures the effects of trade costs, that can be divided into three components: i) Bilateral trade costs (t_{ij}) between *i* and *j*, which are proxied in the literature by geographical and policy variables, such as bilateral distance, tariffs and the presence of an RTA; ii) The structural term P_j, referred to as inward multilateral resistance by Anderson and van Wincoop (2003), that captures the ease of market access of importer *j*; and iii) The structural term Π_i, defined as outward multilateral resistance by Anderson and van Wincoop (2003), representing the ease of market access of exporter *i*.

These multilateral resistance terms Π_i and P_j are responsible for translating trade costs partial equilibrium changes into general equilibrium trade policy effects. It means that a bilateral trade liberalisation shock is transmitted to the world economy through these terms. In other words: Changes in bilateral trade costs between a pair of countries (for example, a signature of an RTA) leads to additional effects (besides the direct partial effects) in its members and affects all other countries as well, with potential feedback effects in the original liberalising countries.

Having presented the theory-consistent derivation of the structural gravity equation and explained the importance of the multilateral resistance terms in the general equilibrium analysis, the next step is to translate it into an empirical model, as presented below.

4. Empirical Model

The present section has the objective of presenting how the estimation techniques of the SG model evolved until its current form. As the theoretically-consistent SG equation (3.11) is presented in a multiplicative form, it is possible to log-linearise it and include an error term ϵ_{ijt}, as follows:

$$ln(X_{ijt}) = ln(Y_{it}) + ln(E_{jt}) + ln(Y_{Wt}) + (1-\sigma)\ ln(t_{ijt}) + (1-\sigma)\ ln(\Pi_{it}) + (1-\sigma)\ ln(P_{jt}) + \epsilon_{ijt}. \quad (4.1)$$

The time subscript *t* is made explicit in this section. As usual, this explanation starts with the basic Ordinary Least Squares (OLS) specification. However, the first specifications of the gravity equation were not based on a consistent theory, being subject to many problems. Starting from the most popular one:

$$lnX_{ijt} = \beta_1 lnY_{it} + \beta_2 lnE_{jt} + \beta_3 lnY_{Wt} + \beta_4 DIST_{ij} + \beta_5 \mathrm{LANG}_{ij} + \beta_6 CNTG_{ij} + \beta_7 CLNY_{ij} + \beta_8 RTA_{ijt} + \epsilon_{ijt}, \quad (4.2)$$

where $DIST_{ij}$ represents the bilateral distance between countries *i* and *j*, LANG_{ij} is a *dummy* variable that assumes the value 1 if both countries speak the same language and 0 otherwise, $CNTG_{ij}$ is equal to 1 if countries share a common border and 0 if not, $CLNY_{ij}$ is equal to 1 if they had the same colonizer in the past and zero otherwise and RTA_{ijt} is equal to 1 if countries *i* and *j* are part of the same RTA in year *t* and 0 otherwise. Such variables are used as *proxies* of trade costs t_{ijt}, since these are not directly observed.

The main problem with this specification is that it does not consider the multilateral resistance terms, Π_{it} and P_{jt}. According to Anderson and van Wincoop (2003), the absence of the multilateral resistances leads to an endogeneity problem caused by omitted variables, since the independent variables are correlated to the error term. Thus, this OLS estimation is biased and inconsistent. The challenge now is how to include the multilateral resistances in the estimation, since they are not observed.

In order to consider the multilateral resistances, many authors have used a remoteness index, constructed as functions of bilateral distances and GDPs, as a proxy, such as Baier and Bergstrand (2009). However, Head and Mayer (2014) argued that this measure is not theoretically-consistent and should be avoided. Feenstra (2016) shows that the multilateral resistances can be accounted for by using importer-time and exporter-time FE when estimation is performed with panel data. It is important to note that the use of FE absorbs the impacts of all country-specific characteristics, including the size variables Y_{it} and E_{jt} and many national policies, such as infrastructure and exchange rates, among others. The equation to be estimated is:

$$lnX_{ijt} = \pi_{it} + \chi_{jt} + \beta_1 DIST_{ij} + \beta_2 \text{LANG}_{ij} + \beta_3 CNTG_{ij} + \beta_4 CLNY_{ij} + \beta_5 INTL_{ij} + \beta_6 RTA_{ijt} + \epsilon_{ijt}, \quad (4.3)$$

where π_{it} and χ_{jt} are the exporter-time and importer-time FE, respectively. Also, the inclusion of a dummy variable accounting for international trade $INTL_{ij}$ is used as a control, which captures the barriers to international trade.

Albeit correcting for the endogeneity problem brought by the omission of the multilateral resistances, this specification presents another issue: The endogeneity of trade policy variables, such as RTA, as shown by Baier and Bergstrand (2007). Indeed, countries do not select randomly to be part of an RTA. Usually, they tend to sign agreements with partners that they already trade intensively with, in order to reduce trade costs.

Two approaches have been used to control for this endogeneity. In cross-section samples, the use of Instrumental Variables (IV) is one of them. Nonetheless, due to the lack of reliable instruments, this approach has not been successful in addressing this issue. Another suggestion is made by Baier and Bergstrand (2007), with the use of pair FE μ_{ij} in panel data to account for the correlation between endogenous trade variable RTA and the error term. However, it should be noted that the pair FE absorbs the effects of bilateral time-invariant variables, such as distance, common language or colonizer, international border, etc., but will not affect the estimation of the time-varying trade policy variables, such as RTA:

$$lnX_{ijt} = \pi_{it} + \chi_{jt} + \mu_{ij} + \beta_1 RTA_{ijt} + \epsilon_{ijt}. \quad (4.4)$$

Endogeneity is not an issue anymore, but another problem arises from this specification: Since this additive form uses the logarithm of the exports, it makes impossible to take into account the information contained in the zero trade flows, because these observations are excluded from the sample, leading to a sample selection bias. One convenient and simple solution for this problem is to add an extremely small number to replace the zeros, making it possible to apply the logarithm on these numbers. Notwithstanding, as pointed by Head and Mayer (2014), this is not consistent with gravity theory and changes the interpretation of the coefficients, which cannot be seen as elasticities anymore.

The solution proposed by Santos Silva and Tenreyro (2006) is to estimate the model in a multiplicative form, instead of the log-linear additive form. After testing different estimators and performing a series of Monte Carlo simulations, they suggested the use of the PPML estimator, as follows:

$$X_{ijt} = e^{\left(\pi_{it}+\chi_{jt}+\mu_{ij}+\beta_1 RTA_{ijt}\right)} \text{ x } \epsilon_{ijt}. \tag{4.5}$$

Another advantage of the PPML estimator is that it accounts for heteroskedasticity, which is very frequent in trade data, as also shown by Santos Silva and Tenreyro (2006).

In this paper, all these specifications are estimated. Considering the explanations abovementioned, the preferred specification is estimated with the PPML estimator, including importer-time, exporter-time and pair FE.

One more specification is estimated in this article, including bilateral tariffs τ_{ijt}:

$$X_{ijt} = e^{\left(\pi_{it}+\chi_{jt}+\mu_{ij}+\beta_1 RTA_{ijt}+\beta_2 \tau_{ijt}\right)} \text{ x } \epsilon_{ijt}. \tag{4.6}$$

The variable τ_{ijt} is defined as $\tau_{ijt} = \ln\left(1 + tariff_{ijt}\right)$, where $tariff_{ijt}$ is the import duty imposed by country *j* on products imported from country *i* in year *t*. Since tariffs are direct price shifters, the τ_{ijt} coefficient can be interpreted as the elasticity of substitution among products ($\sigma = -\beta_2$), following Head and Mayer (2014). However, in this specification, the RTA coefficient β_1 considers just the non-tariff barriers (NTBs) elimination due to the signature of the agreement. The impacts of tariff reduction are now captured only by β_2. Therefore, this specification is used only to estimate σ, since the idea of this article is to capture both effects in the RTA coefficient, tariffs and NTBs.

Before presenting the results of the estimations, the description of the dataset and its limitations is presented in the next section.

5. Data

The dataset used in this article consists of a balanced panel with 76 countries, including all the Mercosur and the European Union members (Venezuela is not included in the list of Mercosur countries, as already explained). These countries were responsible for 98.3% of the World GDP in 2015. The period covered stretches from 1990 to 2015, with five years intervals, as proposed by Baier and Bergstrand (2007), to consider the impacts of trade policy on trade flows, since these effects do not appear immediately.

Bilateral trade flows were constructed using data from UN/Comtrade[2]. This database reports aggregate bilateral trade flows for over 160 countries since 1962, containing the information sent by the importer and the exporter. When available, data from importer was used, since it is more reliable (governments tend to monitor them closely to collect import

[2] https://comtrade.un.org

duties); otherwise, the numbers sent by the exporter completed the dataset. A large number of missing data for bilateral trade flows is present in the database: those were replaced with zeros. GDP and GDP per capita were collected from the World Bank Open Data[3]. Both trade flows and GDP are expressed in current US dollars. Gravity variables, such as the bilateral distance between countries, common language, common colonizer, common border and being part of the same RTA come from CEPII[4].

Two critical variables for the estimation are exporters aggregate output and importer total expenditure. Gross output is equal to the total sales of a country, whether international (exports) or intranational. The same happens to expenditure, which is equivalent to the total purchases of a country, both international (imports) and intranational. Imports and exports data are available, but intranational sales are not. Since it is not feasible to compile data on all internal transactions of a country, intranational sales are usually constructed as the apparent consumption, i.e., the difference between gross output and exports. Nevertheless, gross output data is not available for a large set of countries and a comprehensive period. For this reason, value-added output (GDP) was used as a *proxy* for gross output to construct these variables. A robustness check is conducted in section 9 to evaluate if this procedure alters the results significantly.

Tariff database was built by the Brazilian Ministry of Industry, Foreign Trade and Services (MDIC), with data from World Integrated Trade Solutions (WITS), from World Bank[5]. For the years with no tariff data informed by the countries, it was inserted the value of the closest year. Tariffs can be classified into three groups: i) MFN bound tariffs, which are the maximum level, by product, above which countries committed in WTO not to raise their tariff; ii) MFN applied tariff, which are the tariffs that WTO members charge each other; and iii) preferential tariffs, which are the tariffs negotiated bilaterally under an RTA. For this paper, applied tariffs were used.

Furthermore, since countries set their tariffs on products level, it is necessary to aggregate them in order to evaluate their impact on bilateral trade flows. Two approaches are usually used: Simple average and import-weighted average. Both procedures present some drawbacks. Using import-weighted averages tend to not take into account the extremely high tariffs applied by countries since for those products' imports are likely to be very small or even zero. On the other hand, simple averages give exactly the same weight to products that are intensively imported and products with zero or almost no imports. Considering the caveats of both methodologies, the simple average is used in this article, since it brings less distortion,

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[3] https://data.worldbank.org
[4] http://www.cepii.fr
[5] https://wits.worldbank.org

uses more reliable data (only tariffs, comparing to import-weighted that uses trade flows by product as well) and it is easier to construct.

Table 1 presents a summary of the data used in the sample, taking 2015 as the reference year. Average GDP per capita in EU countries is three times the average of Mercosur countries. Luxembourg, the highest in the sample, goes over US$ 100,000, comparing to Paraguay, the lowest in the agreement, with US$ 4,109. Exports follow the same trend. EU countries sales abroad more than doubles the Mercosur countries'. Brazilian exports (the highest in Mercosur) sum US$ 2,6 billion, less than the 15% of Germany, even though having more than twice the German population.

Table 1: Summary Statistics

	(1)	*(2)*	*(3)*	*(4)*
	Mean	***Std Dev***	***Min***	***Max***
GDP Per Capita (Thousands USD)	**23,073.5**	**21,917.8**	**1,210.2**	**101,446.8**
Mercosur	*10,520.7*	*5,143.9*	*4,109.4*	*15,524.8*
European Union	*30,496.9*	*20,647.9*	*6,993.5*	*101,446.8*
Exports per Country (Millions USD)	**2,519.8**	**4,452.6**	**45.4**	**29,705.2**
Mercosur	*901.9*	*1,195.5*	*78.1*	*2,629.1*
European Union	*2,304.2*	*3,374.4*	*45.4*	*16,317.4*
Average Tariff per Country (%)	**5.33**	**3.69**	**0.00**	**15.52**
Mercosur	*10.67*	*1.71*	*9.05*	*12.17*
Mercosur to European Union	*11.95*	*1.66*	*10.08*	*13.64*
European Union	*2.72*	*0.00*	*2.71*	*2.73*
European Union to Mercosur	*5.70*	*0.0*	*5.69*	*5.72*
Contiguity (% of country-pairs)	**3.5**			
Common Language (% of country-pairs)	**7.7**			
Common Colonizer (% of country-pairs)	**3.8**			
RTA (% of country-pairs)	**34.7**			
Number of Countries	**76**			
Number of Observations (1990-2015)	**33,896**			
% of World GDP Covered by the Sample	**98.6**			

Contructed by the author. Reference year: 2015

A significant disparity is also seen on average tariffs per country. While the EU average is around 2.7%, for Mercosur this number is 10.7%. Considering the trade between blocs, European countries charge 5.7% in average imports from Mercosur; on the opposite direction, import duties are almost 12%, showing that there is ample space for a reduction in both ways.

Moreover, the total sample consists of 33,896 observations, covering 98.3% of the world GDP. Only 3.5% of the country-pairs have common borders, 7.7% share the same language and 3.8% the same colonizer. Also, 34.7% pairs contain countries that are in the same RTA.

Considering the findings in the literature, Mercosur countries are expected to benefit more from the agreement due to these disparities. Higher tariffs, together with lower exports and

GDP per capita, open space for more substantial gains for the South American countries after the agreement. The results in the next two sections confirm these expectations.

6. Estimation Results

Regressions in this section are used to calculate the RTA coefficient and the parameter sigma (σ), the elasticity of substitution across varieties, which in turn is used to calculate the trade elasticity $(1-\sigma)$, that can be interpreted as follows: If the trade costs t_{ijt} increase by 1%, trade flows tend to decrease by $(1-\sigma)\%$. These estimations are used to calculate the GE impacts on exports and GDP on section 7.

Following the procedures described in section 4, the results are presented in *Table 2*:

Table 2: Regressions Table

Variables	(1)	(2)	(3)	(4)	(5)
	OLS			PPML	
RTA	0.4679 (0.0532)***	0.2985 (0.1031)***	0.0856 (0.0425)**	**0.3200 (0.0577)*** **	-0.0486 (0.0505)
Log Distance	-0.7925 (0.0328)***	-1.1447 (0.0674)***	-	**-**	-
Contiguity	1.0194 (0.1382)***	0.4804 (0.1533)***	-	**-**	-
Common Language	0.6191 (0.0986)***	0.5921 (0.0962)***	-	**-**	-
Colony	0.7970 (0.1851)***	0.9294 (0.1664)***	-	**-**	-
International Borders	-	-4.1162 (0.2294)***	-	**-**	-
Tariffs	-	-	-	**-**	-3.8303 (0.5095)***
Observations	29,751	30,193	30,193	**33,488**	22,632
R-squared	0.6442	0.7932	0.8873	**0.9996**	0.9998
Intranational Trade	No	Yes	Yes	**Yes**	Yes
Importer-Time Fixed Effects	No	Yes	Yes	**Yes**	Yes
Importer-Time Fixed Effects	No	Yes	Yes	**Yes**	Yes
Pair Fixed Effects	No	No	Yes	**Yes**	Yes

Robust Std Errors in parenthesis. * p-value < 0.10, ** p-value < 0.05, *** p-value < 0.01. FE dummies excluded for brevity.

Column (1) presents the traditional naïve log-linear Ordinary Least Squares (OLS) specification with no FE from equation (4.2). As already described in section 4, this specification is not robustly theory-based, presenting many problems. As shown by Anderson and van Wincoop (2003) ignoring the multilateral resistances makes the variables correlated to the error term, leading to an endogeneity problem due to omitted variables. Hence, this OLS estimation is biased and inconsistent. Also, intranational trade data was not included in this specification.

The second specification, from equation (4.3), includes importer-time and exporter-time FE, correcting for the exclusion of the multilateral resistance terms. Also, it includes intranational trade data and a dummy variable that assumes value 1 for international and 0 for intranational trade, which can be seen as the barriers to international trade. Nevertheless, this specification does not consider that the policy variables are endogenous. Again, this specification leads to biased estimates of the RTA coefficient.

Head and Mayer (2014) aggregated the results found in 159 papers and more than 2500 estimates, thus summarizing findings in the literature. It is possible then to compare the results in this specification with the average of a large number of other studies. For example, for the bilateral distance, the elasticity found was -1.1, the same found by the authors. For common language, numbers are higher (0.59 here and 0.39 in their analysis). The same pattern is found by having a common colonizer (0.92 and 0.75, respectively). For a common border, the inverse happens (0.48% against 0.66%). All these differences are smaller than one standard deviation.

By including the dummy variable that accounts for international trade, it can be seen that there is a considerable impact of the barriers on exports: External sales are expected to be around 98% smaller than their internal counterparts ($e^{-4.1162} - 1 = -0.9837$).

The inclusion of pair FE was used to control for the endogeneity problem abovementioned, as explained in section 4. Results are in column (3), which brings estimation of equation (4.4). In this specification, the RTA coefficient is positive and statistically significant at a level of 5%, although economically insignificant; Trade increases by only 8.9% ($e^{0.0856} - 1 = 0.089$) due to the signature of an RTA. Since the pair FE absorbs all bilateral effects, gravity variables cannot be estimated. That is why the coefficients for bilateral distances, contiguity, common language and common colonizer are not present in this specification in *Table 2*.

As already mentioned, the problem with this specification is that it excludes all the zero trade flows from the sample and does not account for heteroskedasticity. As prescribed by Santos Silva and Tenreyro (2006), the PPML estimator was applied.

Column (4), which brings results of estimation of equation (4.5), is the preferred specification. It takes into account the information contained in the zero trade flows and accounts for heteroskedasticity by using the PPML estimator. Also, it considers the endogeneity problem of omitting the multilateral resistances, by including importer-time and exporter time FE. Additionaly, it corrects for another endogeneity issue, due to the non-random selection into RTAs, by including pair FE. Finally, in is performed using intratrade data.

The RTA coefficient of 0.32 indicates that being part of the same free trade agreement increased exports from country *i* to country *j* by 37.7% ($e^{0.32} - 1 = 0.377$) on average between 1990 and 2015. The coefficient is significant at the level of 1% and the R-squared is 0.9996, as is usual in this kind of studies. Comparing to Head and Mayer (2014) average findings, estimations do not vary significantly: the average RTA coefficient found by them was 0.36 (impact of 43.3%), close to the one estimated in the present article.

This result is in line with what was expected. Nevertheless, some papers found much higher coefficients, reaching 1.21 (impact of 235.3%), such as Egger et al. (2011). It is important to notice that most of these papers use a period that covers the years before 1990, when the most comprehensive agreements were signed. At those times, tariffs were much higher and decreased much more if compared with the most recent agreements. Moreover, these new agreements are mostly preferential trade agreements, including just partial tariff reductions. Thus, it is expected that the coefficient found in a study which considers only more recent years, such as this one, to be significantly lower.

More than expected, it makes sense to believe that the agreement between Mercosur and EU would be less comprehensive than to the ones signed before that. Even though the proposal is to close an agreement with at least 90% of the trade flows included, after almost twenty years of negotiations it seems that the agreement is probably going to be more modest than that and, even if it reaches this level of openness, it will not be a full liberalisation, as proposed by the authors in section 2. Despite that, in next the section, it is possible to find simulations of more comprehensive agreement scenarios.

Column (5), with results of the estimation of equation (4.6), includes the effects of tariffs on the PPML estimator presented on (4). As described by Head and Mayer (2014), the coefficient of a direct price shifter, such as tariff, can be used to estimate σ. This was the original idea when the choice of specification (5) was made, but the results brought a lot more information than only the expected σ.

Indeed, $\sigma = -\beta_{tariff} = 3.83$. This value is used in the GE analysis performed in the next section. However, this regression brings another interesting piece of information: with the inclusion of tariffs, the coefficient of RTA is close to zero and not significant at 10% level. This result indicates that most, if not all, the impacts of signing an RTA between 1990 and 2015 came from the reduction of import duties, leaving for non-tariff barriers (NTBs) a secondary role in the agreements. This result is in line with the findings of Head and Mayer (2014), which argued that RTAs liberalise trade mainly through the elimination or reduction of tariffs. Even so, it is expected that NTBs will be more relevant in the next trade agreements, since import duties are lower, leaving little space for gains due to tariff reductions.

Again, it is important to emphasise that this specification was used only to estimate σ. Specification (4) is the preferred one since it keeps in the RTA coefficient all the effects of the signature of the agreement, tariffs and NTBs. In the specification (5), RTA coefficient corresponds only to NTBs.

Head and Mayer (2014) also aggregated the estimations of price elasticities σ found in the literature, collecting data from 32 papers and 744 estimations. Different approaches were used in these articles, not only the use of the coefficient of tariffs. As pointed out by the authors, numbers vary widely, making more useful to compare the findings in this paper to the median of the coefficients found by them instead of the mean, in order to eliminate the influence of outliers. They found as the median of elasticities of substitution among products $\sigma = 4.19$ (trade elasticity $1 - \sigma =$ -3.19) for the whole sample and 4.78 ($1 - \sigma =$ -3.78) when using only SG estimates, not far from the elasticities found in this paper, considering also that they found a standard deviation for the estimations higher than the trade elasticities themselves (-4.51 and -5.13, respectively).

Before moving to the GE analysis, the premises of the model should be clarified. Firstly, this analysis is made considering that the impact of the agreement would be equal to the average impact of all the agreements signed between 1990 and 2015, given by the 37.7% found above. If the final agreement is more comprehensive than this average, impacts tend to be higher (different RTA coefficients are used in the analysis in the next section). Moreover, there is a *ceteris paribus* assumption, i.e., nothing else changes in the world, except for the agreement. Notably, no other agreement is signed by any of the countries present in the sample. If any other agreement is signed, impacts should be attenuated or magnified (a simulation of an agreement between EU and the United States is presented in section 8). To conclude, these results should be seen as long-run effects. According to Baier and Bergstrand (2007), the effect of an RTA is complete only after ten to fifteen years.

7. General Equilibrium Analysis

Using the RTA coefficient and the elasticity σ estimated in the previous section, it is possible to calculate the general equilibrium effects of the signature of the agreement, not only on partners but also on third countries.

Initially, it is essential to present the system of equations to be solved:

$$X_{ij} = \left(\frac{Y_i E_j}{Y_W}\right)\left(\frac{t_{ij}}{\Pi_i P_j}\right)^{1-\sigma} \quad (7.1)$$

$$\Pi_i^{1-\sigma} = \sum_{j=1}^{N} \left(\frac{t_{ij}}{P_j}\right)^{1-\sigma} \frac{E_j}{Y_W} \quad (7.2)$$

$$P_j^{1-\sigma} = \sum_{i=1}^{N} \left(\frac{t_{ij}}{\Pi_i}\right)^{1-\sigma} \frac{Y_i}{Y_W} \quad (7.3)$$

$$E_i = \phi_i Y_i = \phi_i p_i Q_i \tag{7.4}$$

$$p_i = \left(\frac{Y_i}{Y_W}\right)^{\frac{1}{1-\sigma}} \left(\frac{1}{\alpha_i \Pi_i}\right) \tag{7.5}$$

The equations above have already been derived. They are equal to (3.11), (3.12), (3.13), (3.1) and (3.10), respectively, and have been rewritten here only to facilitate the analysis.

A 3-step estimation is used to obtain the GE effects of the agreement, following Anderson et al. (2015b). A brief description of the process is presented here. For a more detailed explanation, see Anderson et al. (2015b).

The first step is to obtain the baseline scenario, by estimating the baseline trade costs and the trade elasticities with respect to the bilateral trade policy. After that, it is possible to construct the baseline indexes. Equation (7.6) is used to estimate the trade costs $t_{ij}^{1-\sigma}$ and the trade elasticities β_1:

$$\left(t_{ij}^{1-\sigma}\right)^{BLN} = e^{(\mu_{ij} + \beta_1 RTA_{ij})}, \tag{7.6}$$

where the superscript *BLN* indicates the baseline scenario.

Using these estimates and the actual data on output and expenditure to solve the system of equations (7.1)-(7.5), it is possible to recover all desired indexes for the construction of baseline scenario, such as the multilateral resistances and the consumer's prices.

The baseline gravity equation is estimated using PPML, with exporter, importer and pair FE, as already explained:

$$\left(X_{ij}\right)^{BLN} = e^{\left(\beta_1 RTA_{ij} + \pi_i + \chi_j + \mu_{ij}\right)} + \epsilon_{ij}. \tag{7.7}$$

In order to avoid perfect collinearity, it is necessary to drop one of the importer or exporter FE. An importer FE χ_0 was chosen, implying that all other FE are constructed relative to χ_0. Moreover, solving the system requires the normalization of one multilateral resistance. For convenience, the normalization is made on the multilateral resistance corresponding to the dropped importer FE ($\widehat{\mathrm{P}}_0 = 1$). Normalizing $\widehat{\mathrm{P}}_0 = 1$, the interpretation of the importer FE χ_0 is E_0. However, since it was dropped, $\chi_0 = 0$. Then, all other FE can be interpreted relative to E_0.

After that, using the FE estimates together with output and expenditures data, it is possible to construct the multilateral resistance terms and other baseline indexes of interest, such as predicted exports. Considering the abovementioned normalization, Fally (2015), making use of an additive property of the PPML estimator which guarantees a perfect match between the multilateral resistances and the importer and exporter FE, shows how to recover those terms, as follows:

$$\widehat{\Pi}_i^{1-\sigma} = Y_i \, E_0 \, e^{-\hat{\pi}_i}, \tag{7.8}$$

$$\widehat{\mathrm{P}}_j^{1-\sigma} = \frac{E_j}{E_0} e^{-\hat{\chi}_j} \, , \tag{7.9}$$

where $\hat{\pi}_i$ and $\hat{\chi}_j$ are the estimated FE and Y_i, E_j and E_0 are taken from the data.

The second step is to obtain the conditional scenario, which induces changes in the multilateral resistance terms due to changes in trade costs but does not consider changes in output and expenditure. This is made by redefining the policy variable (indicated by ${RTA_{ij}}^{CDL}$), in order to simulate the intended policy, but constraining the trade costs coefficients β and μ to the estimated values obtained in the baseline scenario (indicated by $\bar{\beta}$ and $\bar{\mu}$, respectively) [6].

$$\left(t_{ij}^{1-\sigma}\right)^{CDL} = e^{(\bar{\mu}_{ij} + \bar{\beta}_1 {RTA_{ij}}^{CDL})}, \tag{7.10}$$

where the superscript *CDL* indicates the conditional scenario.

After that, it is necessary to re-estimate using PPML and construct the conditional GE indexes:

$$\left(X_{ij}\right)^{CDL} = e^{\left(\bar{\beta}_1 {RTA_{ij}}^{CDL} + \pi_i^{CDL} + \chi_j^{CDL} + \bar{\mu}_{ij}\right)} + \epsilon_{ij}^{CDL}. \tag{7.11}$$

The data is still the same in this estimation: Y_i and E_j remain equal. This scenario estimates the FE (consequently, multilateral resistances) using the original data and the counterfactual trade costs $\left(t_{ij}^{1-\sigma}\right)^{CDL}$. After that, as in the first step, it is possible to construct the conditional indexes of interest. The percental changes between the indexes in this conditional scenario and the ones in the baseline scenario measure the conditional GE impacts of the new RTA. For instance, the changes in welfare $(\Delta W_i)^{CDL}$ may be obtained as a change in real GDP, as follows:

[6] The values of μ_{ij} were estimated using panel data and the values for RTA use 2015 as the baseline.

$$(\Delta W_i)^{CDL} = \left[\frac{\left(\frac{Y_i^{CDL}}{\hat{P}_i^{\frac{1}{1-\sigma}\,CDL}} \right)}{\left(\frac{Y_i^{BLN}}{\hat{P}_i^{\frac{1}{1-\sigma}\,BLN}} \right)} - 1 \right] \text{x } 100\% = \left[\left(\frac{\hat{P}_i^{\,BLN}}{\hat{P}_i^{\,CDL}} \right)^{\frac{1}{1-\sigma}} - 1 \right] \text{x } 100\%. \tag{7.12}$$

Output remains exogenous in the conditional scenario ($Y_i^{BLN} = Y_i^{CDL}$).

The third and last step is to obtain what Anderson et al. (2015b) define as full endowment scenario, which estimates the full endowment GE indexes by capturing changes in output and expenditure due to changes in factory-gate prices, in addition to the changes in multilateral resistance terms from the second step. Similar to steps 1 and 2, it is made by estimating the full endowment gravity equation and constructing the full endowment GE indexes.

This scenario allows for endogenous changes in output and expenditure, which allow for additional changes in multilateral resistance terms, which in turn trigger another round of changes in output and expenditure and so on. Then, using the structural gravity equation (7.1), it is possible to use changes in output and expenditure due to changes in factory-gate prices to calculate changes in exports:

$$\left(X_{ij}\right)^{FULL} = \frac{Y_i^{FULL} E_j^{FULL}}{Y_i^{BLN} E_j^{BLN}} \left(\frac{\frac{t_{ij}{}^{FULL}}{\Pi_i^{FULL} P_j^{FULL}}}{\frac{t_{ij}{}^{BLN}}{\Pi_i^{BLN} P_j^{BLN}}} \right)^{1-\sigma} \left(X_{ij}\right)^{BLN}, \tag{7.13}$$

where:

$$\left(t_{ij}^{1-\sigma}\right)^{FULL} = e^{(\bar{\mu}_{ij} + \bar{\beta}_1 RTA_{ij}{}^{FULL})} = e^{(\bar{\mu}_{ij} + \bar{\beta}_1 RTA_{ij}{}^{CDL})}, \tag{7.14}$$

$$Y_i^{FULL} = \left(\frac{p_i^{FULL}}{p_i^{BLN}} \right) Y_i^{BLN}, \tag{7.15}$$

$$E_i^{FULL} = \left(\frac{p_i^{FULL}}{p_i^{BLN}} \right) E_i^{BLN}, \tag{7.16}$$

and the multilateral resistances Π_i^{FULL} and P_j^{FULL} are estimated. Also, changes in factory-gate prices used to find the values of output Y_i^{FULL} and expenditure E_i^{FULL} are given by:

$$\frac{p_i^{FULL}}{p_i^{BLN}} = \left[\frac{e^{\left(\hat{\pi}_i^{FULL}\right)}}{e^{\left(\hat{\pi}_i^{BLN}\right)}}\right]^{\frac{1}{1-\sigma}}. \tag{7.17}$$

After having the new values for exports, start over from step 2 in order to translate the changes in factory-gate prices into changes in the gravity FE, which can be used to trigger new responses in the multilateral resistance terms. Then, repeat the process described in step 3 for new factory-gate prices and new values of output, expenditure and exports. This process should be repeated until convergence, i.e., until the change becomes smaller than a predetermined value between two consecutive iterations.

After reaching the convergence, it is time to construct the full endowment GE indexes. Again, the percentage difference between the indexes found in the full endowment scenario and the ones found in the baseline scenario measure the full endowment GE effects of the desired policy. For welfare, it is given by:

$$(\Delta W_i)^{FULL} = \left[\frac{\left(\frac{Y_i^{FULL}}{\hat{P}_i^{\frac{1}{1-\sigma}FULL}}\right)}{\left(\frac{Y_i^{BLN}}{\hat{P}_i^{\frac{1}{1-\sigma}BLN}}\right)} - 1\right] \text{x } 100\%. \tag{7.18}$$

where the superscript *FULL* indicates that the variables refer to the full endowment scenario. Note that, differently from equation (7.14), $Y_i^{FULL} \neq Y_i^{BLN}$, i.e., output is now endogenous.

This procedure was conducted in the present analysis. Before starting the analysis, it is necessary to define the counterfactual scenario to perform the comparative analysis. In this case, the RTA dummy variable was changed from 0 to 1 for all country-pairs including one member from Mercosur and another from the EU, thus simulating the agreement between both parts.

The country chosen for normalization was Canada, a country with reliable data and which should not be significantly affected by the agreement. Hence, since impacts on the normalization reference country are not relevant, the relative counterfactual changes in the multilateral resistance terms should not be significantly different from their absolute values.

The aggregate results for three blocs (Mercosur, EU and non-RTA partners) are presented in *Table 3*. For the impacts on each country of the sample, see *Table 6* in the Appendix:

Table 3: General Equilibrium Effects – Main Specification

	Partial Effect	*Conditional GE*	*Full Endowment GE*	
	(1)	*(2)*	*(3)*	*(4)*
Country	*%∆ Exports*	*%∆ Exports*	*%∆ Exports*	*%∆ Real GDP*
Mercosur	6,306	5,540	5,583	0,317
European Union	0,282	0,224	0,224	0,036
Non-RTA Partners	0,000	(0,020)	(0,016)	(0,002)

Constructed by the author

Column (1) shows the partial equilibrium effects, i.e., the direct impacts on partners exports to each other, not considering third countries. These effects are calculated by adjusting the bilateral trade costs t_{ij} while keeping exporter's output Y_i, importer's expenditure E_j, world output Y_W and multilateral resistances Π_i and P_j constant. By construction, the impact on non-RTA partners is zero. These changes can be seen as trade creation effects of the agreement. Mercosur countries would experiment a long-run increase of 6.31% on average in their exports in this scenario and EU countries, 0.28%. All these numbers, as well as all other results presented in this and the next sections, are calculated relative to the scenario where no RTA is signed.

Moving to the GE scenarios, the conditional GE allows changes in bilateral trade costs t_{ij} to spread to the rest of the world via changes in multilateral resistance terms Π_i and P_j. Nevertheless, it does not allow changes in output Y_i and expenditure E_j. On members, the difference between the numbers in this scenario and the partial equilibrium is usually negative due to trade diversion. In third countries, they also tend to be negative, due trade diversion and preference erosion.

Considering the conditional GE, numbers fall in comparison to the partial equilibrium scenario. Exports in Mercosur would increase by 5.54% and in the EU, 0.22%. Third countries would lose 0.02% on average, with no one of them losing more than 0.06%.

The full endowment GE scenario endogenises the exporter's output Y_i, importer's expenditure E_j, world output Y_W, besides the multilateral resistances Π_i and P_j already considered in the conditional scenario. This is made by letting trade cost changes t_{ij} to affect the factory-gate prices (and, consequently, changes in multilateral resistances Π_i and P_j), impacting the values of domestic production Y_i and aggregate expenditure E_j. More precisely, a decrease in the outward multilateral resistance Π_i allows firms in the exporter's market to benefit from higher factory-gate prices, which in turn, leads to higher output Y_i and expenditure E_j values. The opposite happens in third countries: outward multilateral resistance P_j increases and factory-gate prices fall. It is important to remember that the exporter's country *i* production

Q_i is kept constant in this model. As abovementioned, changes in GDP occur only due to changes in factory-gate prices (price effect), since the supply of each good (quantity effect) is kept fixed in this analysis. To allow for changes in the quantities produced, a dynamic GE model is necessary, but it is out of the scope of this paper.

In this scenario, sales abroad increase marginally compared to the conditional GE. Exports would increase by 5.58% in Mercosur, the highest being Brazil (6.43%), and the lowest being Paraguay (4.88%). The average gain for the EU would be 0.22%, varying from 0.05% (Lithuania) to 0.64% (Spain). Third countries would lose 0.016% on average. For the welfare effects (changes in real GDP), gains in Mercosur would reach 0.32% (varying from 0.24% for Argentina to 0.40% for Paraguay) and 0.04% in EU (0.01 for Greece and 0.09% for the Netherlands). Non-Partners would lose 0.002% on average, with the most significant loss being 0.007% (Chile).

These results confirm what was expected: Impacts on Mercosur countries are higher than in EU. Also, impacts on third countries are negligible, both on exports and GDP. The same pattern is found in Felbermayr et al. (2015) which simulates impacts of the Transatlantic Trade and Investment Partnership (TTIP).

Furthermore, numbers are significantly lower than the ones found on the CGE model analysis shown in section 2, as predicted. Since those papers, in addition to using another methodology, simulate an agreement with full trade liberalisation, it is expected that they present stronger impacts.

It is also important to keep in mind that, as an endowment model, this SG framework keeps constant the supply of each good, the productivity of the economies and capital/labour allocation. The only source of gains is the reduction of trade costs and, consequently, the increase in the real income and expenditure of the agents. Therefore, the results tend to be underestimated, since the expected massive reallocation of resources should bring gains of efficiency, reduction of intermediate products costs and other sources of gains that are not considered in this model.

But what drives these impacts on exports and real GDP? Although GE analysis involves many features, not being feasible to explain all the causes of the presented results, it is possible to obtain some explanations. Notably, an RTA would bring trade creation between the members, but also affect third countries through trade diversion and preference erosion. Trade diversion happens when non-partners lose competitiveness in the partners' markets due to cost reductions in these partners. Preference erosion occurs when countries see their preferential access to partners markets diluted due to the agreement. That is what happens to Chile, which has trade agreements with both Mercosur and the EU and is the country that loses more with the signature of the RTA, albeit the losses are not significant.

Another question that may be raised is: Is it reasonable to believe that an RTA between Mercosur and EU are comparable with the ones signed between 1990 and 2015? It is possible to estimate the heterogeneous effect of particular RTAs on trade in a two-stage model as shown by Baier et al. (2016), but before their signature, it is not. Thus, it is necessary to define a value for the coefficient of the variable RTA in order to conduct the GE analysis. As already said, the negotiators aim to conclude an agreement with 90% of the bilateral trade included. Despite not appearing that this level will be reached, the agreement should at least be comprehensive enough to increase exports by more than the average 37.7% that was found for past RTAs. It should be remembered that many of these agreements have only a partial scope, not affecting trade by much. Since Mercosur-EU includes many features in addition to trade in goods, such as services, investments, intellectual property, among other features, it is expected to increase trade significantly. Therefore, this model is likely to be underestimating the impact of the potential agreement.

For this reason, it is interesting to evaluate how a more profound agreement would affect members and non-members. This analysis is presented in *Figure 1* for exports and *Figure 2* for real GDP. For the impacts on all individual countries, see *Table 7* in the Appendix.

Figure 1: Changes in Exports Considering Different RTA Coefficients

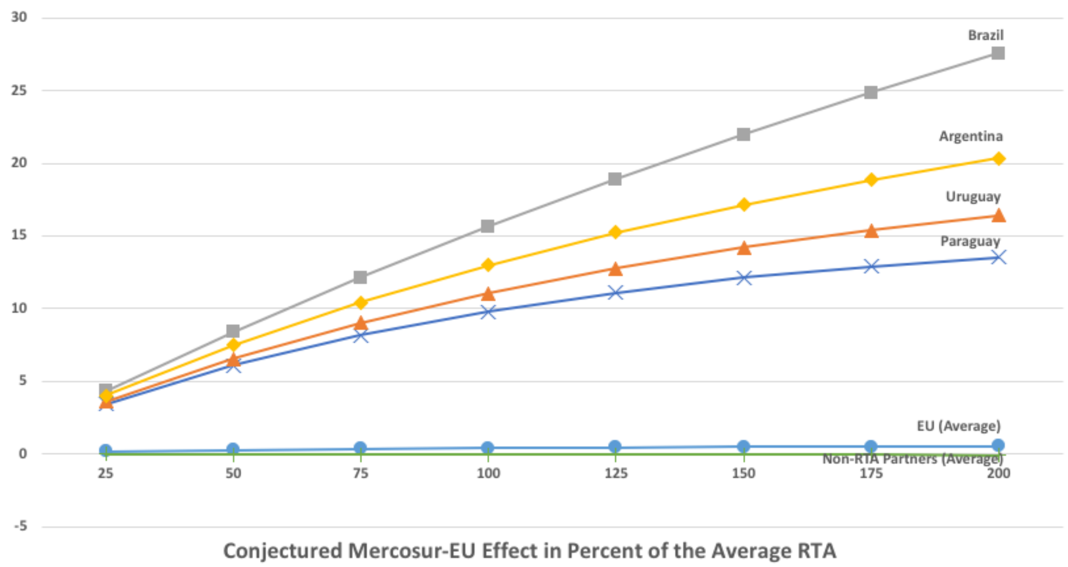

Figure 1 shows what happens to exports if the RTA induces costs reductions which are sufficient to increase exports by different percentages, from 25% to 200%. These numbers were not randomly chosen: 200% is close to the highest value for the impact of RTAs found in the literature using structural gravity models with PPML estimator and FE to account for endogeneity, present on Egger et al. (2011).

Considering this range, Brazil would face the highest increase in exports, reaching 27.6% in the best case. Paraguay, the lowest value in Mercosur, would increase exports by 13.6% In this scenario. Latin European countries, such as Spain, Portugal and Italy, would be the only ones in the bloc to reach more than 1% increase. For non-partners, Bosnia-Herzegovina and Egypt would be the ones that lose more, 0.19%.

Figure 2: Changes in Real GDP Considering Different RTA Coefficients

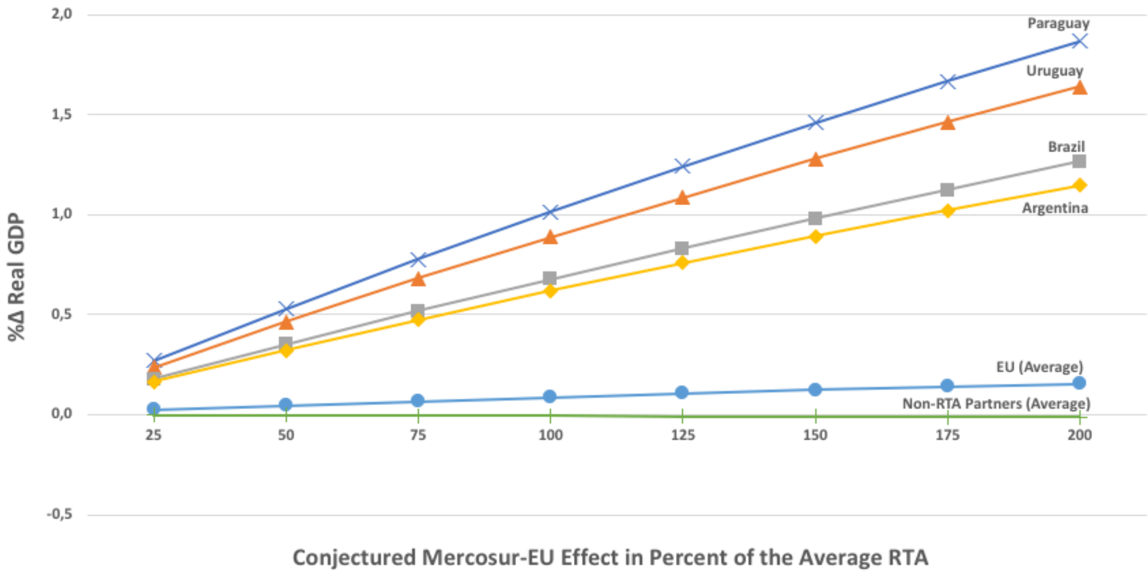

Figure 2 brings the impacts on real GDP. In the most optimistic scenario, Paraguay would grow 1.9% more than if the agreement was not signed, followed by Uruguay (1.6%), Brazil (1.3%) and Argentina (1.1%). In Europe, gains would vary from 0.04% (Lithuania and Slovak Republic) to 0.40% (Netherlands). For third countries, losses would be around 0.01% on average, with Chile being the country that loses more (0.06%).

This analysis brings an important message: partners should aim the most comprehensive agreement possible, especially the Mercosur countries, the ones which gain more. Also, non-members should not be worried about the adverse effects on them, since these are only marginal in any scenario.

Also, as already said, it is necessary to keep in mind that the only sources of gains in this model are reductions of trade costs. Consequently, it is not taking into account other sources, such as the access to cheaper raw material for EU and more productive capital goods for Mercosur, for example. For this reason, the gains for European countries, which appear to be low, might actually be higher.

Besides, some sectors in third countries might even benefit from the agreement, since both Mercosur and EU markets would increase. They tend to be supplied by partners in most of the cases, but some shares may be captured by companies on non-members. More than that, with the redirection of the exports of partners to each other, they open space on the non-partners market for other suppliers.

Again, it is important to remember that the results presented in this section considered a *ceteris paribus* scenario, in which nothing else changes in the world except for the RTA between Mercosur and EU. However, what if another agreement is signed as well? Which would be the impacts on European and South American countries? In order to try to answer this question, in the next section, it is simulated together with Mercosur-EU an RTA between EU and the USA.

8. Alternative Scenario: the inclusion of TTIP

It was already shown that the impacts of an agreement on third countries are almost null. Therefore, if third countries sign an agreement among them, it is not expected to affect the members of Mercosur-EU significantly. Notwithstanding, if one of the parts signs an RTA with other countries, this should affect the other part. That is what is shown in this section.

For this purpose, an agreement between EU and the USA, the TTIP, is simulated. The analysis was conducted with three different scenarios: i) TTIP is signed before Mercosur-EU; ii) TTIP is signed after the GE effects of Mercosur-EU are completed; iii) both agreements are signed simultaneously. Since the results are qualitatively the same and quantitatively very similar, only the first scenario is presented in *Table 4*. For effects on each country, see *Table 8* in the Appendix.

Table 4: General Equilibrium Effects – Including TTIP

	%∆ Exports		**%∆ Real GDP**	
	(1)	***(2)***	***(3)***	***(4)***
Country	***MERCOSUR-EU***	***MERCOSUR-EU + TTIP***	***MERCOSUR-EU***	***MERCOSUR-EU + TTIP***
Mercosur	5,583	5,851	0,317	0,311
European Union	0,224	2,193	0,036	0,302
Non-RTA Partners	(0,016)	0,396	(0,002)	(0,014)

Constructed by the author

Columns (1) and (3) are brought from *Table 3* in order to facilitate the comparison. As expected, effects on European countries increase sharply. Exports increase goes from 0.22% in the scenario without TTIP to 2.19% with the agreement, reaching 5.24% in the United Kingdom and 4.04% in Ireland (the smallest would be the Slovak Republic, 1.03%). Real GDP changes would reach 0.30% on average (1.46% in Ireland and 0.08% in Greece), indicating that an agreement with the USA would be almost ten times more impacting for EU than with Mercosur.

These results are in line with theory. Gravity equation predicts that larger countries trade more between them. Since the USA is the largest economy in the world, any country or bloc that signs an agreement with them should experience a substantial increase in exports, more significant than in the case of signing an agreement with Mercosur.

For Mercosur countries, effects on real GDP are as predicted. The increase in this indicator falls from 0.317% to 0.311% between both scenarios, just an insignificant reduction. However, for exports, the expected reduction is not seen. Actually, exports would increase more, by 5.85% on average instead of the 5.58% predicted in the scenario without TTIP. This could be explained by the potential spillover effects of TTIP. This may happen because simplification in regulatory requirements in TTIP members after the signature of the RTA also leads to an increase in exports from other countries, as pointed by Francois et al. (2013). Moreover, if third countries adopt the new regulatory requirements as well, i.e., if TTIP imposes global standards, it may reduce trade costs even among non-members. This could bring gains in welfare for third countries instead of losses, as predicted by the model. Since TTIP includes a significant portion of world GDP, it is not unreasonable to think that this effect should not be marginal.

The same spillover logic can be used to analyse the impacts on third countries. Exports would not fall 0.02% anymore; actually, they would increase by 0.40%. Also, impacts are uneven. Mexico and Canada would lose 0.20%, while Belarus and Ukraine would gain 0.47% and 0.44%, respectively. On GDP, impacts are negative and much more substantial with TTIP, going from losses of 0.002% to 0.014%. Countries with close ties to the USA, Mexico and Canada would lose 0.059% and 0.042%, respectively. Even though the impacts on third countries are stronger, they are still very close to zero. In the USA, numbers are both positive: 8.42% on exports and 0.23% on GDP.

Once again, the message of this analysis is clear: Partners should foster the most comprehensive agreement possible, and non-partners should not be concerned about their welfare losses since they are marginal.

9. Robustness Check

As mentioned in section 5, the use of intranational trade flows data is consistent with gravity theory, since consumers make their consumption decision by choosing between domestic and foreign goods. Thus, using only international trade data would not take this consumers' choice into account. More than that, according to Dai et al. (2014), it makes possible to identify the impacts of bilateral trade policies, such as the effect of an RTA, in a theoretically consistent way.

Nonetheless, intranational trade data are not readily available. Some efforts to construct those databases have been conducted, but this is not a simple task. The best way to build this dataset is to aggregate sectoral production data, which are reported in value added and gross values, and subtract the exports. However, besides being an intricated work, it is subject to measurement errors and double-counting. Also, these sectoral data are not publicly available for a broad set of countries and an extensive period.

For this reason, in this paper, the value-added output (GDP) is used as a proxy for gross output. Bergstrand et al. (2015) employ the same methodology in a robustness check they perform to expand to all goods an analysis that was made only for manufacturing goods, since this sector was the only one with data for intranational trade. Also, Head and Mayer (2014) also argued that, in practice, GDP is frequently used as a proxy for gross production.

In this paper, the opposite of what was done by Bergstrand et al. (2015) is considered. The main specification uses GDP as a proxy for gross production and the robustness check is performed using manufacturing goods gross production. This is made due to the availability of the data: For this robustness check, the period covered by the sample goes from 1986 to 2006, with four years intervals. The dataset is the same used by Piermartini and Yotov (2016), which was assembled and provided by Thomas Zylkin, using data from three sources to construct the gross production: i) the CEPII's Trade, Production and Bilateral Protection (TradeProd); ii) the UN Unido Indstat database; and iii) the World Bank's TPP database. For a complete description of the dataset, refer to Piermatini and Yotov (2016) or to *An Advanced guide to trade policy analysis: The Structural Gravity Model*, developed by the United Nations Conference on Trade and Development (UNCTAD) and the World Trade Organization (WTO), which also uses the same database.

Despite using a different database, this robustness check is performed with the same RTA coefficient and elasticity σ estimated before. The only differences are the period (1986-2006 instead of 1990-2015), the set of countries (69 in the robustness check and 76 in the main specification, being 51 of them in common in both samples), the goods covered (only manufacturing in this robustness check, against all goods in the main specification) and the construction of the variable intranational trade. Concerning the countries selected to the robustness check, 8 of the 28 from EU are not present (Croatia, Check Republic, Estonia, Latvia, Lithuania, Luxembourg, Slovak Republic and Slovenia) and 1 of 4 from Mercosur (Paraguay). Also, 16 from the 44 non-partners of the original sample are not present in this robustness check.

The same methodology of section 7 was applied to this dataset. Results for the three groups of countries are presented in *Table 5*. For results on individual countries, see *Table 9* in the Appendix:

Table 5: *General Equilibrium Effects – Alternative Database*

	Partial Effect	*Conditional GE*	*Full Endowment GE*	
	(1)	*(2)*	*(3)*	*(4)*
Country	*%∆ Exports*	*%∆ Exports*	*%∆ Exports*	*%∆ Real GDP*
Mercosur	9,834	8,177	8,229	0,821
European Union	0,242	0,201	0,201	0,031
Non-RTA Partners	0,000	(0,037)	(0,031)	(0,003)

Constructed by the author

Focusing on the full endowment scenario, results for the EU countries practically do not change. Exports in this scenario increase by 0.20% against 0.22% in the baseline the scenario and GDP goes from 0.036% to 0.031%. In third countries, exports decrease moves from 0.016% to 0.031% and negative impacts on GDP changes from 0.002% to 0.003%. Even though the effects on exports are almost the double, in practice they are still close to zero, not changing the analysis qualitatively.

For Mercosur countries, the results in the robustness check scenario are stronger than in the baseline specification. Exports growth varies from 5.58% to 8.23% and changes in real GDP go from 0.32% to 0.82%. It should be remembered that the exclusion of the agricultural sector in the robustness check might be affecting the results positively since this sector is significantly protected in the whole world and its inclusion tend to reduce the effects on GE aggregate analysis.

In any case, these results show that the model developed in this paper presents conservative results, i.e., results may be underestimated, but it is highly unlikely that they are overestimated.

10. Conclusion

This paper presented an analysis that shed some light on the macroeconomic impacts of the potential RTA that has been under negotiations between Mercosur and EU for almost twenty years. The benchmark specification predicts an increase in exports of around 5.6% in Mercosur countries and 0.2% in the EU and a reduction of 0.02% on third parts. On real GDP, estimated impacts should reach 0.3% and 0.04% on the South American and the European countries, respectively. On non-members, they are practically null. Considering the most comprehensive scenario simulated, positive effects on members increase sharply, with GDP increasing 1.5% and 0.2% in Mercosur and EU, respectively. Nonetheless, negative results for third countries remain very close to zero. Consequently, partners should foster the most comprehensive agreement possible and third parts should not be concerned about negative impacts on them.

Also, an agreement between EU and the USA (TTIP) is simulated in the same framework. Impacts on European countries are much more significant in this scenario (almost ten times larger) on both exports and real GDP. Once again, adverse impacts on non-members GDPs are negligible. Curiously, exports in third countries are expected to increase, probably due to spillover effects of regulatory simplifications in the RTA members, which could also facilitate exports from non-partners.

Furthermore, the use of past RTAs effects on trade to estimate the impacts of this particular agreement is likely to underestimate the impacts. Indeed, compared to the full liberalisation scenario simulated in articles using CGE models, results presented here were expected to be lower, as indeed occurred, implying that this is a more conservative model.

On the econometric part of the paper, results seem robust. Estimations were performed using the best practices prescribed in the literature so far, with the use of the PPML estimator and the inclusion of importer-time, exporter-time, pair FE and intranational trade flows, in a panel data set. Gravity elasticities are not far from the findings in the literature and the impacts of bilateral distance on trade found here are equal to the average of estimations in other studies cataloged by Head and Mayer (2014). The same similarity could be seen in the RTA coefficient (0.32 against 0.36 in literature). Also, the elasticity of substitution among products σ was estimated as minus the coefficient of the price shifter variable τ_{ij} (tariffs) and the coefficient found is also in line with findings in literature: 3.83 against 4.19 in the median found by Head and Mayer (2014).

A robustness check was performed to evaluate if the variable GDP is a consistent *proxy* for gross output, used to construct the intranational trade variable. The simulation showed another proof of the conservatism of the approach proposed in this paper, meaning that results could be underestimated, but it is improbable that they are overestimated.

Notwithstanding, there is a drawback in using this approach. Considering that the scope of this paper is to evaluate the long-run aggregate impacts of the agreement on each country of the sample and not to present the adjustment dynamics and distributional effects, it does not evaluate its effects on each sector. It is possible, within this same framework, to perform this sectoral analysis. However, due to lack of public data on sectoral output and trade data (including tariffs) for a broad set of countries and a comprehensive period, this evaluation could not be executed.

Additionally, including sectors leads to many difficulties, such as assuming elasticities of substitution and factor mobility between sectors, as well as empirical issues, such as the abovementioned data availability. In fact, Caliendo and Parro (2015) had information on only 31 countries to develop their CGE model. The present analysis aims to evaluate the overall general equilibrium impacts of the agreement and is complementary to models (usually CGE but, as already said, in theory, it can be performed by using this SG model as well) that evaluate the sectoral impact since for policymakers both effects are important.

It is important to consider that, as in any trade policy, there will always be winners and losers. Some sectors tend to struggle with the liberalisation, but this could not be used to prevent negotiations. Policymakers should realise that the economy as a whole wins, albeit some sectors lose. They should try to elaborate policies to compensate those sectors in order to make them less reluctant to the agreement, improving aggregate welfare.

Taking this into consideration, future research could focus on expanding this analysis by using sectoral data to evaluate the distributional effects. One of the main computational restrictions has been overcome recently: a command developed by Larch et al. (2017) made possible the inclusion of as many pair FE as necessary in the estimation, allowing to estimate the model with a large number of countries and sectors in the econometric software Stata. With the construction of a reliable and comprehensive sectoral output and trade database, both aggregate and distributional effects may be estimated, making it possible to present to policymakers a complete macroeconomic analysis of any trade agreement or even other trade policies, such as the formation of a currency union.

Another advance that could be made by future researchers in this field is to expand the present framework into a dynamic GE model, endogenising production and capital accumulation. In the present article, the supply of each good is kept constant, so a potential increase in production (quantity effect) due to trade costs reduction is not a source of gains from trade. Output in this model only increases due to the increase in factory-gate prices (price effect). The expansion into a dynamic framework would make possible to consider changes in the productive structure, allowing a more robust estimation of the macroeconomic impacts of the trade policies.

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11. Appendix

Table 6: General Equilibrium Effects by Country – Main Specification

		Partial Effect	Conditional GE	Full Endowment GE	
		(1)	(2)	(3)	(4)
	Country	%Δ Exports	%Δ Exports	%Δ Exports	%Δ Real GDP
Mercosur	Argentina	6,629	5,803	5,844	0,246
	Brazil	7,768	6,502	6,429	0,269
	Paraguay	4,787	4,739	4,880	0,402
	Uruguay	6,040	5,115	5,181	0,353
European Union	Austria	0,218	0,146	0,147	0,025
	Belgium	0,281	0,162	0,163	0,079
	Bulgaria	0,252	0,201	0,196	0,037
	Croatia	0,204	0,202	0,205	0,017
	Cyprus	0,247	0,281	0,276	0,021
	Czech Republic	0,134	0,057	0,055	0,025
	Denmark	0,337	0,263	0,263	0,035
	Estonia	0,147	0,078	0,074	0,031
	Finland	0,369	0,277	0,276	0,043
	France	0,356	0,316	0,319	0,027
	Germany	0,415	0,306	0,305	0,053
	Greece	0,268	0,306	0,314	0,012
	Hungary	0,149	0,058	0,057	0,036
	Ireland	0,201	0,093	0,092	0,043
	Italy	0,526	0,442	0,443	0,043
	Latvia	0,218	0,175	0,170	0,033
	Lithuania	0,104	0,060	0,054	0,013
	Luxembourg	0,189	0,129	0,132	0,016
	Malta	0,158	0,111	0,107	0,040
	Netherlands	0,424	0,283	0,286	0,089
	Poland	0,262	0,188	0,188	0,026
	Portugal	0,611	0,587	0,589	0,065
	Romania	0,247	0,205	0,205	0,025
	Slovak Republic	0,091	0,032	0,028	0,014
	Slovenia	0,232	0,133	0,131	0,048
	Spain	0,643	0,631	0,638	0,050
	Sweden	0,302	0,239	0,238	0,032
	United Kingdom	0,297	0,312	0,320	0,018
Non-RTA Partners	Algeria	0,000	(0,059)	(0,045)	(0,005)
	Angola	0,000	(0,013)	(0,009)	(0,003)
	Australia	0,000	(0,008)	(0,007)	(0,001)
	Bangladesh	0,000	(0,026)	(0,021)	(0,002)
	Belarus	0,000	(0,016)	(0,017)	(0,003)
	Bosnia and Herzegovina	0,000	(0,052)	(0,056)	(0,006)
	Canada	0,000	(0,006)	(0,004)	(0,001)
	Chile	0,000	(0,049)	(0,010)	(0,007)
	China	0,000	(0,014)	(0,008)	(0,001)
	Colombia	0,000	(0,035)	(0,020)	(0,002)
	Ecuador	0,000	(0,026)	(0,010)	(0,002)
	Egypt	0,000	(0,056)	(0,048)	(0,001)
	Hong Kong	0,000	(0,008)	(0,008)	(0,002)
	India	0,000	(0,019)	(0,015)	(0,001)
	Indonesia	0,000	(0,008)	(0,005)	(0,001)
	Iran	0,000	(0,021)	(0,018)	(0,001)
	Iraq	0,000	(0,012)	(0,010)	(0,002)
	Israel	0,000	(0,025)	(0,023)	(0,003)
	Japan	0,000	(0,008)	(0,006)	(0,001)
	Kazakhstan	0,000	(0,018)	(0,021)	(0,002)
	Kuwait	0,000	(0,007)	(0,006)	(0,002)
	Malaysia	0,000	(0,001)	(0,003)	(0,004)
	Mexico	0,000	(0,010)	(0,005)	(0,001)
	Morocco	0,000	(0,051)	(0,048)	(0,004)
	New Zealand	0,000	(0,008)	(0,010)	(0,001)
	Nigeria	0,000	(0,043)	(0,022)	(0,002)
	Norway	0,000	(0,033)	(0,035)	(0,005)
	Pakistan	0,000	(0,018)	(0,017)	(0,001)
	Peru	0,000	(0,035)	(0,013)	(0,003)
	Philippines	0,000	(0,006)	(0,005)	(0,001)
	Qatar	0,000	(0,007)	(0,006)	(0,002)
	Russia	0,000	(0,020)	(0,018)	(0,002)
	Saudi Arabia	0,000	(0,014)	(0,010)	(0,002)
	Singapore	0,000	(0,002)	(0,005)	(0,004)
	South Africa	0,000	(0,021)	(0,017)	(0,003)
	South Korea	0,000	(0,007)	(0,005)	(0,002)
	Sudan	0,000	(0,008)	(0,008)	(0,000)
	Switzerland	0,000	(0,027)	(0,027)	(0,006)
	Thailand	0,000	(0,006)	(0,005)	(0,002)
	Turkey	0,000	(0,035)	(0,036)	(0,002)
	Ukraine	0,000	(0,015)	(0,019)	(0,004)
	United Arab Emirates	0,000	(0,008)	(0,009)	(0,002)
	United States	0,000	(0,022)	(0,016)	(0,001)
	Vietnam	0,000	(0,005)	(0,004)	(0,004)

Constructed by the author

Table 7: General Equilibrium Effects by Country – Including TTIP

		%∆ Exports		*%∆ Real GDP*	
		(1)	***(2)***	***(3)***	***(4)***
	Country	***MERCOSUR-EU***	***MERCOSUR-EU + TTIP***	***MERCOSUR-EU***	***MERCOSUR-EU + TTIP***
Mercosur	Argentina	5,844	6,109	0,246	0,241
	Brazil	6,429	6,651	0,269	0,261
	Paraguay	4,880	5,178	0,402	0,395
	Uruguay	5,181	5,466	0,353	0,346
European Union	Austria	0,147	1,990	0,025	0,240
	Belgium	0,163	2,124	0,079	0,704
	Bulgaria	0,196	1,348	0,037	0,139
	Croatia	0,205	1,895	0,017	0,104
	Cyprus	0,276	2,030	0,021	0,114
	Czech Republic	0,055	1,201	0,025	0,233
	Denmark	0,263	2,351	0,035	0,237
	Estonia	0,074	1,666	0,031	0,404
	Finland	0,276	2,308	0,043	0,277
	France	0,319	3,207	0,027	0,233
	Germany	0,305	2,807	0,053	0,404
	Greece	0,314	2,495	0,012	0,077
	Hungary	0,057	1,328	0,036	0,385
	Ireland	0,092	4,035	0,043	1,466
	Italy	0,443	2,760	0,043	0,222
	Latvia	0,170	1,391	0,033	0,141
	Lithuania	0,054	1,551	0,013	0,208
	Luxembourg	0,132	2,027	0,016	0,171
	Malta	0,107	2,115	0,040	0,557
	Netherlands	0,286	2,344	0,089	0,548
	Poland	0,188	1,513	0,026	0,126
	Portugal	0,589	2,373	0,065	0,196
	Romania	0,205	1,572	0,025	0,119
	Slovak Republic	0,028	1,021	0,014	0,167
	Slovenia	0,131	1,324	0,048	0,235
	Spain	0,638	2,815	0,050	0,184
	Sweden	0,238	2,560	0,032	0,273
	United Kingdom	0,320	5,242	0,018	0,284
Non-RTA Partners	Algeria	(0,045)	0,185	(0,005)	(0,028)
	Angola	(0,009)	0,210	(0,003)	(0,022)
	Australia	(0,007)	0,210	(0,001)	(0,007)
	Bangladesh	(0,021)	0,194	(0,002)	(0,010)
	Belarus	(0,017)	0,472	(0,003)	(0,010)
	Bosnia and Herzegovina	(0,056)	0,367	(0,006)	(0,031)
	Canada	(0,004)	(0,195)	(0,001)	(0,042)
	Chile	(0,010)	0,160	(0,007)	(0,023)
	China	(0,008)	0,179	(0,001)	(0,013)
	Colombia	(0,020)	(0,117)	(0,002)	(0,017)
	Ecuador	(0,010)	(0,018)	(0,002)	(0,021)
	Egypt	(0,048)	0,141	(0,001)	(0,007)
	Hong Kong	(0,008)	0,217	(0,002)	(0,014)
	India	(0,015)	0,194	(0,001)	(0,006)
	Indonesia	(0,005)	0,229	(0,001)	(0,007)
	Iran	(0,018)	0,364	(0,001)	(0,003)
	Iraq	(0,010)	0,259	(0,002)	(0,011)
	Israel	(0,023)	0,063	(0,003)	(0,030)
	Japan	(0,006)	0,145	(0,001)	(0,010)
	Kazakhstan	(0,021)	0,399	(0,002)	(0,009)
	Kuwait	(0,006)	0,261	(0,002)	(0,014)
	Malaysia	(0,003)	0,229	(0,004)	(0,059)
	Mexico	(0,005)	(0,201)	(0,001)	(0,041)
	Morocco	(0,048)	0,291	(0,004)	(0,022)
	New Zealand	(0,010)	0,187	(0,001)	(0,011)
	Nigeria	(0,022)	0,108	(0,002)	(0,014)
	Norway	(0,035)	0,335	(0,005)	(0,034)
	Pakistan	(0,017)	0,192	(0,001)	(0,006)
	Peru	(0,013)	0,084	(0,003)	(0,015)
	Philippines	(0,005)	0,160	(0,001)	(0,017)
	Qatar	(0,006)	0,309	(0,002)	(0,007)
	Russia	(0,018)	0,410	(0,002)	(0,012)
	Saudi Arabia	(0,010)	0,211	(0,002)	(0,015)
	Singapore	(0,005)	0,225	(0,004)	(0,058)
	South Africa	(0,017)	0,276	(0,003)	(0,017)
	South Korea	(0,005)	0,184	(0,002)	(0,022)
	Sudan	(0,008)	0,340	(0,000)	(0,001)
	Switzerland	(0,027)	0,276	(0,006)	(0,046)
	Thailand	(0,005)	0,219	(0,002)	(0,024)
	Turkey	(0,036)	0,276	(0,002)	(0,014)
	Ukraine	(0,019)	0,438	(0,004)	(0,022)
	United Arab Emirates	(0,009)	0,287	(0,002)	(0,013)
	United States	(0,016)	8,418	(0,001)	0,225
	Vietnam	(0,004)	0,231	(0,004)	(0,039)

Constructed by the author

Table 8: General Equilibrium Effects by Country – Different RTA Coefficients

		%∆ Exports								%∆ Real GDP							
		(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*	*(7)*	*(8)*	*(9)*	*(10)*	*(11)*	*(12)*	*(13)*	*(14)*	*(15)*	*(16)*
	Country	*25%*	*50%*	*75%*	*100%*	*125%*	*150%*	*175%*	*200%*	*25%*	*50%*	*75%*	*100%*	*125%*	*150%*	*175%*	*200%*
Mercosur	Argentina	4,02	7,47	10,44	13,01	15,23	17,17	18,86	20,34	0,17	0,32	0,47	0,62	0,76	0,89	1,02	1,15
	Brazil	4,34	8,38	12,14	15,64	18,92	21,99	24,86	27,55	0,18	0,35	0,52	0,68	0,83	0,98	1,12	1,26
	Paraguay	3,44	6,10	8,18	9,81	11,10	12,12	12,92	13,56	0,27	0,53	0,78	1,01	1,24	1,46	1,67	1,87
	Uruguay	3,60	6,56	9,01	11,05	12,76	14,19	15,40	16,42	0,24	0,46	0,68	0,89	1,09	1,28	1,46	1,64
European Union	Austria	0,11	0,18	0,23	0,26	0,28	0,30	0,31	0,32	0,02	0,03	0,05	0,06	0,07	0,08	0,09	0,10
	Belgium	0,12	0,19	0,24	0,27	0,28	0,29	0,30	0,30	0,05	0,10	0,15	0,19	0,22	0,25	0,28	0,31
	Bulgaria	0,14	0,24	0,30	0,34	0,38	0,40	0,41	0,42	0,03	0,05	0,07	0,09	0,11	0,13	0,15	0,17
	Croatia	0,15	0,25	0,31	0,35	0,38	0,40	0,41	0,42	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,07
	Cyprus	0,20	0,34	0,43	0,49	0,54	0,58	0,61	0,63	0,01	0,03	0,04	0,05	0,07	0,08	0,09	0,10
	Czech Republic	0,04	0,06	0,08	0,08	0,08	0,08	0,08	0,07	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,08
	Denmark	0,19	0,32	0,42	0,49	0,55	0,59	0,62	0,65	0,02	0,05	0,07	0,09	0,11	0,12	0,14	0,16
	Estonia	0,06	0,09	0,11	0,12	0,12	0,12	0,12	0,12	0,02	0,04	0,06	0,07	0,08	0,10	0,11	0,12
	Finland	0,20	0,34	0,46	0,55	0,62	0,68	0,73	0,77	0,03	0,06	0,08	0,11	0,13	0,16	0,18	0,20
	France	0,23	0,40	0,52	0,62	0,71	0,77	0,83	0,87	0,02	0,03	0,05	0,07	0,08	0,10	0,11	0,13
	Germany	0,22	0,38	0,51	0,61	0,69	0,76	0,82	0,87	0,04	0,07	0,10	0,14	0,17	0,20	0,23	0,26
	Greece	0,23	0,38	0,49	0,57	0,63	0,68	0,71	0,74	0,01	0,02	0,02	0,03	0,04	0,04	0,05	0,06
	Hungary	0,04	0,07	0,08	0,08	0,09	0,08	0,08	0,08	0,03	0,05	0,06	0,08	0,09	0,10	0,11	0,12
	Ireland	0,07	0,11	0,15	0,18	0,20	0,22	0,23	0,24	0,03	0,06	0,08	0,11	0,13	0,15	0,17	0,19
	Italy	0,31	0,55	0,74	0,89	1,01	1,12	1,21	1,28	0,03	0,06	0,08	0,11	0,14	0,16	0,19	0,21
	Latvia	0,13	0,20	0,26	0,29	0,32	0,34	0,35	0,36	0,02	0,04	0,06	0,08	0,10	0,11	0,13	0,14
	Lithuania	0,04	0,06	0,08	0,08	0,08	0,08	0,08	0,08	0,01	0,02	0,02	0,03	0,03	0,04	0,04	0,04
	Luxembourg	0,10	0,16	0,20	0,22	0,24	0,25	0,26	0,27	0,01	0,02	0,03	0,04	0,04	0,05	0,06	0,06
	Malta	0,08	0,13	0,16	0,18	0,20	0,20	0,21	0,21	0,03	0,05	0,07	0,09	0,11	0,13	0,15	0,16
	Netherlands	0,21	0,35	0,45	0,53	0,59	0,63	0,67	0,69	0,06	0,12	0,17	0,22	0,27	0,32	0,36	0,40
	Poland	0,14	0,23	0,30	0,35	0,38	0,41	0,43	0,45	0,02	0,03	0,05	0,06	0,08	0,09	0,10	0,12
	Portugal	0,43	0,72	0,92	1,07	1,18	1,26	1,32	1,37	0,04	0,08	0,13	0,16	0,20	0,24	0,28	0,31
	Romania	0,15	0,25	0,32	0,36	0,40	0,42	0,44	0,45	0,02	0,03	0,05	0,06	0,08	0,09	0,10	0,11
	Slovak Republic	0,02	0,03	0,03	0,03	0,03	0,03	0,02	0,02	0,01	0,02	0,02	0,03	0,03	0,04	0,04	0,04
	Slovenia	0,10	0,16	0,19	0,21	0,23	0,23	0,24	0,24	0,03	0,06	0,09	0,11	0,13	0,15	0,17	0,19
	Spain	0,46	0,79	1,03	1,22	1,37	1,49	1,59	1,67	0,03	0,07	0,10	0,13	0,16	0,19	0,22	0,25
	Sweden	0,17	0,29	0,38	0,45	0,50	0,54	0,57	0,60	0,02	0,04	0,06	0,08	0,10	0,12	0,13	0,15
	United Kingdom	0,23	0,40	0,53	0,63	0,72	0,79	0,85	0,90	0,01	0,02	0,03	0,05	0,06	0,07	0,08	0,09
Non-RTA Partners	Algeria	(0,03)	(0,06)	(0,09)	(0,11)	(0,13)	(0,16)	(0,18)	(0,20)	(0,00)	(0,01)	(0,01)	(0,02)	(0,02)	(0,03)	(0,03)	(0,04)
	Angola	(0,01)	(0,01)	(0,02)	(0,02)	(0,02)	(0,02)	(0,03)	(0,03)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
	Australia	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,02)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Bangladesh	(0,01)	(0,03)	(0,04)	(0,05)	(0,06)	(0,06)	(0,07)	(0,07)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)
	Belarus	(0,01)	(0,02)	(0,03)	(0,03)	(0,04)	(0,04)	(0,05)	(0,05)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
	Bosnia and Herzegovina	(0,04)	(0,07)	(0,10)	(0,12)	(0,14)	(0,16)	(0,18)	(0,19)	(0,00)	(0,01)	(0,01)	(0,02)	(0,02)	(0,03)	(0,04)	(0,04)
	Canada	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Chile	(0,01)	(0,01)	(0,02)	(0,02)	(0,03)	(0,03)	(0,03)	(0,03)	(0,00)	(0,01)	(0,02)	(0,02)	(0,03)	(0,04)	(0,05)	(0,06)
	China	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,02)	(0,02)	(0,02)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)
	Colombia	(0,01)	(0,03)	(0,03)	(0,04)	(0,05)	(0,05)	(0,06)	(0,06)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)
	Ecuador	(0,01)	(0,01)	(0,02)	(0,02)	(0,03)	(0,03)	(0,03)	(0,03)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
	Egypt	(0,03)	(0,06)	(0,09)	(0,11)	(0,14)	(0,16)	(0,18)	(0,19)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)
	Hong Kong	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)
	India	(0,01)	(0,02)	(0,03)	(0,03)	(0,04)	(0,04)	(0,04)	(0,05)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Indonesia	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Iran	(0,01)	(0,02)	(0,03)	(0,04)	(0,05)	(0,06)	(0,07)	(0,07)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Iraq	(0,01)	(0,01)	(0,02)	(0,02)	(0,02)	(0,03)	(0,03)	(0,03)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)
	Israel	(0,02)	(0,03)	(0,04)	(0,05)	(0,07)	(0,08)	(0,08)	(0,09)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)
	Japan	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Kazakhstan	(0,01)	(0,03)	(0,04)	(0,04)	(0,05)	(0,06)	(0,06)	(0,07)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)
	Kuwait	(0,00)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,02)	(0,02)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)
	Malaysia	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
	Mexico	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)
	Morocco	(0,03)	(0,06)	(0,09)	(0,11)	(0,13)	(0,14)	(0,16)	(0,17)	(0,00)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,03)	(0,03)
	New Zealand	(0,01)	(0,01)	(0,02)	(0,02)	(0,02)	(0,02)	(0,02)	(0,02)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Nigeria	(0,02)	(0,03)	(0,04)	(0,05)	(0,06)	(0,07)	(0,08)	(0,09)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
	Norway	(0,02)	(0,05)	(0,07)	(0,09)	(0,11)	(0,12)	(0,14)	(0,15)	(0,00)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,03)	(0,04)
	Pakistan	(0,01)	(0,02)	(0,03)	(0,03)	(0,04)	(0,04)	(0,05)	(0,05)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Peru	(0,01)	(0,02)	(0,02)	(0,02)	(0,03)	(0,03)	(0,03)	(0,04)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
	Philippines	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Qatar	(0,00)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,02)	(0,02)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)
	Russia	(0,01)	(0,02)	(0,03)	(0,04)	(0,05)	(0,05)	(0,06)	(0,06)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
	Saudi Arabia	(0,01)	(0,01)	(0,02)	(0,02)	(0,03)	(0,03)	(0,03)	(0,04)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)
	Singapore	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
	South Africa	(0,01)	(0,02)	(0,04)	(0,05)	(0,06)	(0,08)	(0,09)	(0,10)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)
	South Korea	(0,00)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,03)	(0,03)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
	Sudan	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,02)	(0,03)	(0,03)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Switzerland	(0,02)	(0,04)	(0,05)	(0,07)	(0,08)	(0,10)	(0,11)	(0,12)	(0,00)	(0,01)	(0,01)	(0,02)	(0,02)	(0,03)	(0,04)	(0,04)
	Thailand	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)
	Turkey	(0,02)	(0,05)	(0,07)	(0,09)	(0,11)	(0,13)	(0,15)	(0,17)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,02)
	Ukraine	(0,01)	(0,03)	(0,04)	(0,05)	(0,06)	(0,07)	(0,08)	(0,09)	(0,00)	(0,01)	(0,01)	(0,01)	(0,02)	(0,02)	(0,02)	(0,03)
	United Arab Emirates	(0,01)	(0,01)	(0,02)	(0,02)	(0,02)	(0,03)	(0,03)	(0,03)	(0,00)	(0,00)	(0,00)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)
	United States	(0,01)	(0,02)	(0,03)	(0,03)	(0,03)	(0,04)	(0,04)	(0,04)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)	(0,00)
	Vietnam	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,00)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)	(0,01)

Constructed by the author

Table 9: General Equilibrium Effects by Country – Alternative Database

		Partial Effect	Conditional GE	Full Endowment GE	
		(1)	(2)	(3)	(4)
	Country	%∆ Exports	%∆ Exports	%∆ Exports	%∆ Real GDP
Mercosur	Argentina	9,861	8,109	8,194	1,002
Mercosur	Brazil	10,928	8,933	8,835	0,443
Mercosur	Paraguay	-	-	-	-
Mercosur	Uruguay	8,713	7,489	7,658	1,017
European Union	Austria	0,115	0,051	0,048	0,016
European Union	Belgium	0,215	0,147	0,147	0,023
European Union	Bulgaria	0,309	0,349	0,347	0,030
European Union	Croatia	-	-	-	-
European Union	Cyprus	0,334	0,544	0,556	0,028
European Union	Czech Republic	-	-	-	-
European Union	Denmark	0,199	0,114	0,112	0,037
European Union	Estonia	-	-	-	-
European Union	Finland	0,269	0,171	0,171	0,034
European Union	France	0,253	0,193	0,190	0,031
European Union	Germany	0,280	0,175	0,173	0,038
European Union	Greece	0,138	0,135	0,131	0,008
European Union	Hungary	0,176	0,111	0,108	0,020
European Union	Ireland	0,099	0,034	0,030	0,021
European Union	Italy	0,404	0,319	0,319	0,042
European Union	Latvia	-	-	-	-
European Union	Lithuania	-	-	-	-
European Union	Luxembourg	-	-	-	-
European Union	Malta	0,149	0,093	0,088	0,033
European Union	Netherlands	0,321	0,186	0,189	0,077
European Union	Poland	0,229	0,188	0,190	0,014
European Union	Portugal	0,308	0,279	0,273	0,049
European Union	Romania	0,238	0,263	0,266	0,018
European Union	Slovak Republic	-	-	-	-
European Union	Slovenia	-	-	-	-
European Union	Spain	0,385	0,376	0,380	0,036
European Union	Sweden	0,223	0,130	0,129	0,040
European Union	United Kingdom	0,203	0,165	0,163	0,026
Non-RTA Partners	Algeria	-	-	-	-
Non-RTA Partners	Angola	-	-	-	-
Non-RTA Partners	Australia	0,000	(0,016)	(0,017)	(0,001)
Non-RTA Partners	Bangladesh	-	-	-	-
Non-RTA Partners	Belarus	-	-	-	-
Non-RTA Partners	Bosnia and Herzegovina	-	-	-	-
Non-RTA Partners	Canada	0,000	(0,005)	(0,004)	(0,001)
Non-RTA Partners	Chile	0,000	(0,092)	(0,033)	(0,011)
Non-RTA Partners	China	0,000	(0,008)	(0,007)	(0,001)
Non-RTA Partners	Colombia	0,000	(0,075)	(0,042)	(0,003)
Non-RTA Partners	Ecuador	0,000	(0,112)	(0,077)	(0,005)
Non-RTA Partners	Egypt	0,000	(0,072)	(0,065)	(0,004)
Non-RTA Partners	Hong Kong	0,000	(0,007)	(0,011)	(0,003)
Non-RTA Partners	India	0,000	(0,024)	(0,022)	(0,001)
Non-RTA Partners	Indonesia	0,000	(0,011)	(0,012)	(0,001)
Non-RTA Partners	Iran	0,000	(0,101)	(0,088)	(0,002)
Non-RTA Partners	Iraq	-	-	-	-
Non-RTA Partners	Israel	0,000	(0,023)	(0,023)	(0,004)
Non-RTA Partners	Japan	0,000	(0,007)	(0,006)	(0,001)
Non-RTA Partners	Kazakhstan	-	-	-	-
Non-RTA Partners	Kuwait	0,000	(0,028)	(0,028)	(0,003)
Non-RTA Partners	Malaysia	0,000	(0,006)	(0,008)	(0,002)
Non-RTA Partners	Mexico	0,000	(0,015)	(0,008)	(0,003)
Non-RTA Partners	Morocco	0,000	(0,071)	(0,069)	(0,007)
Non-RTA Partners	New Zealand	-	-	-	-
Non-RTA Partners	Nigeria	0,000	(0,101)	(0,090)	(0,001)
Non-RTA Partners	Norway	0,000	(0,044)	(0,045)	(0,007)
Non-RTA Partners	Pakistan	-	-	-	-
Non-RTA Partners	Peru	-	-	-	-
Non-RTA Partners	Philippines	0,000	(0,007)	(0,008)	(0,002)
Non-RTA Partners	Qatar	0,000	(0,041)	(0,042)	(0,002)
Non-RTA Partners	Russia	-	-	-	-
Non-RTA Partners	Saudi Arabia	-	-	-	-
Non-RTA Partners	Singapore	0,000	(0,005)	(0,009)	(0,002)
Non-RTA Partners	South Africa	0,000	(0,038)	(0,033)	(0,003)
Non-RTA Partners	South Korea	0,000	(0,008)	(0,008)	(0,001)
Non-RTA Partners	Sudan	-	-	-	-
Non-RTA Partners	Switzerland	0,000	(0,034)	(0,034)	(0,006)
Non-RTA Partners	Thailand	0,000	(0,008)	(0,010)	(0,002)
Non-RTA Partners	Turkey	0,000	(0,048)	(0,052)	(0,003)
Non-RTA Partners	Ukraine	-	-	-	-
Non-RTA Partners	United Arab Emirates	-	-	-	-
Non-RTA Partners	United States	0,000	(0,029)	(0,021)	(0,002)
Non-RTA Partners	Vietnam	-	-	-	-

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