

Impacts of Venezuela's accession to the Mercosur: an applied general equilibrium evaluation.

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Resumo

O objetivo deste estudo é avaliar os impactos da entrada da Venezuela no Mercosur utilizando para tanto o modelo de equilíbrio geral computável multi-setorial e multi-regional denominado *Global Trade Analysis Project* (GTAP). Além da introdução, o estudo está dividido em outras 5 seções. Na seção 2, apresenta-se o marco legal da adesão da Venezuela ao Bloco; na seção 3, descreve-se o estado atual do fluxo de comércio entre Venezuela e Mercosur, assim como as condições de acesso a mercados, ressaltando a importância da Venezuela para o Mercosur e a proteção ligeiramente maior aplicada pela economia venezuelana quando comparada com a do Mercosur. Na seção seguinte, descrevem-se os choques tarifários implementados em três simulações, representativas da adesão da Venezuela ao Mercosur, além de hipóteses de fechamento do modelo. Na seção 5, os resultados das simulações são apresentados e discutidos. Na Seção 6, comparam-se os resultados obtidos na seção anterior com os resultados obtidos a partir da introdução de um fechamento de curto prazo no modelo, no qual se permite equilíbrio no mercado de trabalho aquém do pleno emprego. Uma última seção sumaria as principais conclusões do trabalho. Sinteticamente, chama-se a atenção para o aumento de bem estar nos países envolvidos e o significativo impacto setorial, especialmente nos setores de automóveis, máquinas e equipamentos e têxteis e vestuário e para as possíveis implicações políticas decorrentes da entrada da Venezuela no Bloco.

Abstract

This study assesses the impacts of the incorporation of Venezuela in Mercosur, using a multi-sector and multi-region CGE model, the *Global Trade Analysis Project* (GTAP). The study is divided into 5 sections besides the introduction. In section 2, it presents the legal framework of Venezuela's accession to Mercosur. In section 3, it describes the current trade flow between Mercosur and Venezuela, as well as the conditions of market access, stressing the importance of Venezuela to exports from Mercosur and the relatively higher level of protection applied by Venezuela, as compared to the protection of the Mercosur. In the next section, it describes the tariff shocks applied in three simulations, each of them representatives of the incorporation of Venezuela to Mercosur, as well as the closing of the model. In section 5, the main results are presented and discussed. These results are compared to the ones generated in Section 6, which introduces a short run closure, allowing for less than full employment equilibrium in the labor market. The last section synthesizes the main conclusions of the study. In short, it emphasizes the increase in the welfare and the impacts on industrial sectors, particularly automobile, capital goods and textiles and clothing, and the political implications of Venezuela accession to the Mercosur.

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1. Introduction

This study aims at analyzing the impacts of the accession of Venezuela to Mercosur with the *Global Trade Analysis Project (GTAP)* model, a multi-sectoral and multi-regional computable general equilibrium (CGE) model that is largely used to estimate the economic impacts of trade liberalization policies at national and global levels. Recent studies that have used CGE models for this purpose are Jean, Laborde and Martin (2005) and Bchir, Fontagné and Jean (2005)¹; and, in Brazil, Coelho *et al.* (2005) and Ferreira Filho and Horridge (2005)².

The present paper is divided into five sections, besides this introduction. Section 2 examines the main documents and the context of the negotiations related to Venezuela's accession as a State Party of the block. Section 3 analyzes some characteristics of the trade flow between Venezuela and the other Mercosur members, as well as market access conditions, aiming at evaluating the relative importance of Venezuela's market to Mercosur exports. Section 4 describes the main features of the GTAP model, the database and the model closure. This section also brings the method to compute the tariff shocks used in the three alternative simulations for Venezuela's accession to Mercosur³ are presented. Section 5 presents and discusses the simulated results. These results are compared to the ones generated in Section 6, which introduces a short run closure, allowing for less than full employment equilibrium in the labor market. Finally, a last section summarizes the main conclusions of this research and discusses few issues regarding Venezuela's accession to Mercosur in May 2006.

2. Mercosur and Venezuela: the Negotiations Frame

Venezuela's accession process to Mercosur was considered by CNI (2005) as surprisingly fast. Indeed, Mercosur's own formation process and other trade negotiations in South America have taken significantly more time. The Andean Community of Nations (ACN), for example, of which Venezuela was a member until April 2006 started its negotiation process in 1996.

2.1. The Treatise of Asuncion and the accession of Venezuela to the Mercosur

The Treatise of Asuncion signed by Argentina, Brazil, Paraguay, and Uruguay, aimed at the formation of a common market in the region. According to Article 1st of the Treatise, the creation of the Southern Common Market (Mercosur) should include:

- the free movement of goods, services and production factors between countries through the elimination of customs duties and non-tariff restrictions on the movement of goods, and any other equivalent measures;
- The establishment of a common external tariff (CET)⁴ and the adoption of a common trade policy in relation to third States or groups of States, and the coordination of positions in regional and international economic and commercial fora;
- The coordination of macroeconomic and sectoral policies between the States Parties, in order to ensure proper competition among the States Parties;

¹ In Anderson and Martin (2006).

² In Hertel and Winters (2006).

³ Further details on the way these shocks were calculated can be found at Coelho *et al.* (2006b).

⁴ In January 1995, when a Customs Union was established involving the Mercosur countries, an External Common Tariff (ECT) was adopted, being applied on imports from non-member countries. The ECT is regulated by the CMC Decision: MERCOSUR/CMC/DEC. n° 22/94, based on the following documents: Treatise of Asuncion, Decisions of CMC n° 5/94, 7/94 and 9/94, resolutions of Common Market Group (GMC) n° 47/94 and 48/94.

- The harmonization of their legislation in the relevant areas in order to strengthen the integration process.

The Treatise of Asuncion foresaw the possibility of the accession of new members to the Mercosur. The Article 20th of the Treatise presents the conditions of future accessions in the following terms:

“This Treaty shall be open to accession, through negotiation, by other countries members of the Latin American Integration Association; their applications may be considered by the States Parties once this Treaty has been in force for five years.

Notwithstanding the above, applications made by countries members of the Latin American Integration Association who do not belong to subregional integration schemes or an extraregional association may be considered before the date specified.

Approval of applications shall require the unanimous decision of the States Parties”

Article 20th second paragraph was applied to the case of Chile, which accessed as an Associated State to Mercosur before the conclusion of the procedures related to the formation of the free trade area and of the custom union. Bolivia, Colombia, Ecuador and Peru have also been accessed as Associated States to the Block.

However, rules regarding transition periods and specific accession terms had not been clearly defined. This gap was covered by means of a decision of the Common Market Council (CMC) in 2005.⁵ First, the State Parties of Mercosur shall unanimously approve the accession applications.

After that, the following terms should be negotiated:

- i. Adhesion to the Treatise of Asuncion, to the Protocol of Ouro Preto and to the Protocol of Olivos for Controversies Solution in Mercosur;
- ii. Adoption of the CET, through a time frame is needed;
- iii. Adhesion of the adherent State to the Economic Complementation Agreement N° 18 and its Additional Protocols by means of the adoption of a trade liberalization program;
- iv. Adoption of Mercosur legislation, including the rules about the incorporation process;
- v. Adoption of the international instruments agreed in the Treatise of Asuncion; and
- vi. The mode of incorporation into the agreements signed by Mercosur with non-member countries or groups of countries, as well as the adherent State’s participation in current external negotiations.

Venezuela has established economic cooperation agreements with Mercosur since late 90’s through the Andean Community (ACN). In 1998 the Framework Agreement for the Creation of the Free Trade Area between the Andean Community and the Mercosur was signed. In the following year, Brazil signed the Economic Complementation Agreement n° 39 with Colombia, Ecuador, Peru, and Venezuela (as members of the ACN). Relations between ACN and Mercosur were strengthen with the signature, in 2002 and 2003, of the Economic Complementation Agreements n° 56 and n° 59, respectively. And since 2004 by CMC’s decision, Venezuela is an Associated State to the Mercosur.

In December, 2005, CMC approved⁶ Venezuela’s application to become a State-Party. The Framework Agreement for Venezuela’s accession to Mercosur was presented containing the general

⁵ MERCOSUL/CMC/DEC. No. 28/05

⁶ MERCOSUR/CMC/DEC. N° 29/05 – Accession Application of Bolivarian Republic of Venezuela to the Southern Common Market.

directions of this process.⁷ Following recommendation of Article 2nd of the Framework Agreement, an *Ad Hoc* Group composed by representatives of the Mercosur's State Parties and Venezuela was created, in May 2006, to negotiate the timeframe and conditions of the accession process.

In May, 2006, the negotiations for Venezuela's accession to Mercosur were concluded. Moreover, a Protocol of Accession was signed in July, 2006, defining the commitments and stages of the accession process. In this document, the parties foresaw a timeframe for CET adoption and for trade flows liberalization between the Venezuela and other Mercosur countries. Conditions for the adoption of a set of communitarian norms were established as well. In general, Venezuela will have up to four years to adopt CET and by the end of this transition period in 2014, the country will have to adapt to the Mercosur's Rules of Origin.

Article 11th of the Protocol of Accession created a Working Team which included representatives of Mercosur's State Parties and of Venezuela, responsible for defining a timeframe for legislation and CET adoption. Moreover, this Team will determine the conditions for the trade liberalization program to be adopted by Venezuela. The first Team meeting should happen up to 30 days from the date of signature of the Protocol, and it should conclude its tasks in up to 180 days from the date of the first meeting.

Article 3rd establishes that the adoption of Mercosur current legislation by Venezuela shall happen in up to four years at most, counted from the adoption of the Protocol. Venezuela should therefore incorporate the commitments agreed on in the documents that constitute the basis of Mercosur integration : the Treatise of Asuncion, Protocol of Ouro Preto, Protocol of Olivos for Controversies Solution and Protocol of Ushuaia, and other documents as the Protocols on Government Procurement, on Trade in Services and for the Defense of Competition.

The adoption of the Common Nomenclature of Mercosur (CNM)⁸ and of CET by Venezuela, in accordance with Article 4th, shall occur up to four years at most, counted from the adoption of the Protocol. Additionally, Article 5th establishes maximum periods for the fulfillment of the free trade commitments adopted by the countries, which should follow the timeframe shown in Table 2.1.

It is important to notice that Mercosur's original State Parties and Venezuela have agreed that the tariff removal schedules should be asymmetric. Mercosur free trade area is regulated by the Economic Complementation Agreement n° 18 (and its additional protocols); Venezuela, on the other hand, is signatory of the Economic Complementation Agreement n° 59, which establishes tariff reduction conditions timeframe different from those in the Economic Complementation Agreement n° 18. Specifically, tariff reduction timeframes are different for the members of the Mercosur and for Venezuela.⁹

⁷ According to the Brazilian Ministry of International Affairs, due to the entry of Venezuela in the Mercosur, the trade block will have more than 250 millions of inhabitant, an area of 12.7 millions of km², GDP superior to one thousand billions dollars (almost 76% of South America GDP) and trade chain superior to US\$ 300 billions.

⁸ Based on the Harmonic System of commodities designation and code, made of 8 digits, that constitutes the pillar of Common External Tariff.

⁹ As example, based on survey made by the Confederação Nacional da Indústria (CNI, National Industry Organization), the analysis of the Tariff Liberalization Program of Economic Complementation Agreements n° 59 related to bilateral trade between Brazil and Venezuela, points out that in five years, 91.2% of Brazilian imports of Venezuelan goods will be completely duty free. By the opposite, in ten years, only 43.4% of the current flow of Brazilian exports to Venezuela will be completely free of duties.

Table .1: Timeframe for the fulfillment of the free trade commitments adopted by Mercosur’s State Parties of the adhesion agreement of Venezuela to the Block.

Country	Deadline
Argentina to Venezuela	January 01, 2010*
Brazil to Venezuela	January 01, 2010*
Paraguay to Venezuela	January 01, 2013*
Uruguay to Venezuela	January 01, 2013*
Venezuela to Argentina	January 01, 2012*
Venezuela to Brazil	January 01, 2012*
Venezuela to Paraguay	January 01, 2012**
Venezuela to Uruguay	January 01, 2012**

(*) The deadline can be postponed until January 01, 2014 to sensible products. (**) The tariff liberalization will be complete, immediate and related to all the goods considered as exportable supply in the Annex IV of the Protocol.

Source: Authors’ elaboration based on Mercosur (2006).

Concerning the free trade area, the Economic Complementation Agreement n° 59 establishes a safeguard mechanism, which can be seen as an additional barrier to Venezuela’s in Mercosur. The crisis generated during Brazil-Argentina bilateral negotiations, whose objective was the introduction of safeguard special mechanisms such as the Measure of Competitive Adaptation (MCA),¹⁰ should also be Paid attention to.

Regarding the adhesion to the customs union, although the Protocol of Adhesion establishes a deadline for Venezuela’s adoption of the CET, the exception items have not been defined yet. Moreover, it is not clear if Venezuela will be obliged to fulfill a gradual process of reduction of this list like the one established for other State Parties.

It should be also stressed that, as a former member of the Andean Community and the Group of Three (Venezuela, Colombia and Mexico)¹¹, Venezuela applied the union’s preferential tariffs and common external tariff that differ from the CET adopted by Mercosur States Parties. Therefore, a convergence mechanism for these tariffs has to be created, preventing holes in the CET, as well as preventing non-member countries to be treated in a preferential way as compared to Mercosur partners.

The new deadlines¹² for CET convergence, established by the CMC decisions¹³ can be used by Venezuela in two different ways: the new deadlines allow Venezuela to keep its national regimen for computers, telecommunications and capital goods and to contribute for CET revision process for these sectors.

During the trade liberalization program transition period and until Venezuela adopts Mercosur’s Rules of Origin, the Rules of Origin foreseen by the Economic Complementation Agreements n° 59 will be applied and will be effective until January 01, 2014, at most.

¹⁰ The Measure of Competitive Adaptation (MCA) is an additional protocol of Economic Complementation Agreements n° 14 between Brazil and Argentina, signed in February 2006. It is considered an anomaly to the free trade area constituted by the Mercosur, because it restrain the trade relations, and should be seen as an occasional and temporary mechanism. The MCA intends to protect, by means of safeguards, Brazilian and Argentinean industrial sectors, when the exports from one of them are causing or potentially cause “significant damage” to the domestic economy. One of the significant gaps of the MCA is that the protocol does not establish a deadline for its validity. There is only the establishment of revision mechanism at each four years and, in this sense, one can say that the MCA is not a temporary instrument.

¹¹ The idea about the Group of Three aroused in 1989, when their members were trying to find other markets for their exports as part of a trade opening strategy, starting negotiations that finished in 1994.

¹² Until January 01, 2009.

¹³ MERCOSUR/CMC/DEC. N° 39/05: computer and telecommunication goods; MERCOSUR/CMC/DEC N° 40/05: capital goods.

3. Bilateral trade Mercosur–Venezuela

This section will present the main features of the bilateral trade flow between Mercosur and Venezuela. The main conclusions of this Section are:

- Mercosur is not an important destination market to Venezuelan exports, nor does Venezuela represent an important source of Mercosur imports.
- On the other side, Mercosur's exports to Venezuela are relatively significant, corresponding to almost 10% of all Venezuelan imports.
- Venezuela's main exported goods, fuels, represent 84% of all its exports; for exports to Mercosur, however, the fuels' share reaches only around 20%.
- Venezuela's imports of automobiles represent 22% of all imports from Mercosur countries, and 27% of all imports from Brazil.
- Venezuela is relatively more protected than Mercosur, especially for agricultural products and for some industrial sectors such as automobiles and parts.

Analysis in this section used data from TradeMap (www.trademap.org) and MacMap (www.macmap.org) databases, which are maintained by the *International Trade Centre* (ITC, a partnership of the *United Nations Conference on Trade and Development* – Unctad – and the *World Trade Organization* – WTO) and the *Centre d'Études Prospectives et d'Informations Internationales* (CEPII). The focus of the analysis is on trade flows between Venezuela and the Mercosur; more details on trade flows between Venezuela and Brazil can be found at CNI (2006).

3.1. Trade flows features

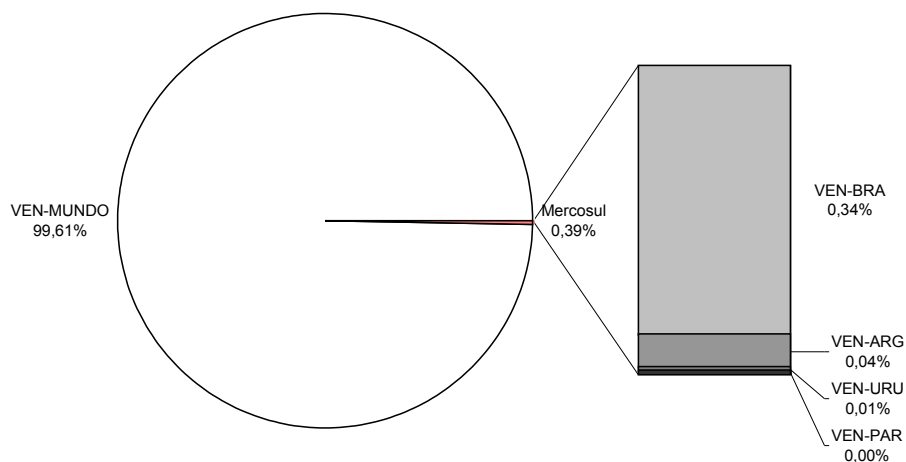
An initial examination of Trade Map 2004 trade data indicates that the trade flow from Venezuela to Mercosur original States Parties is not significant. According to Table .2 and Chart .3, Venezuelan exports to Mercosur represented, in that year, only 0.16% of total imports of the trade block, and only 0.39% of all Venezuelan exports. In other words, Venezuela is not an important supplier of commodities to Mercosur, and the later is not an important destination market for the former exports.

Table .2: Venezuelan exports to Mercosur, 2004

Destination	Values (US\$ millions)	Share in total imports (%)
MERCOSUR	150,310	0.16%
BRAZIL	131,130	0.20%
ARGENTINA	15,663	0.07%
URUGUAY	1,929	0.06%
PARAGUAY	1,588	0.05%

Source: Trademap. Authors' elaboration.

Chart .3: Venezuelan exports to the world and to Mercosur, 2004



Source: Trademap. Authors' elaboration.

However, data on Venezuelan imports shows a different picture. Table .4 shows that 1.22% of all Mercosur exports went to Venezuela. In 2005 this country was the destination of 1.3% of total Brazilian exports, being the 13th most important market for these exports, a destination market more important than countries such as Spain, Canada or South Korea¹⁴. Also, according to Chart .5, almost 10.0% of Venezuelan imports originated in Mercosur, 7.6% from Brazil only.

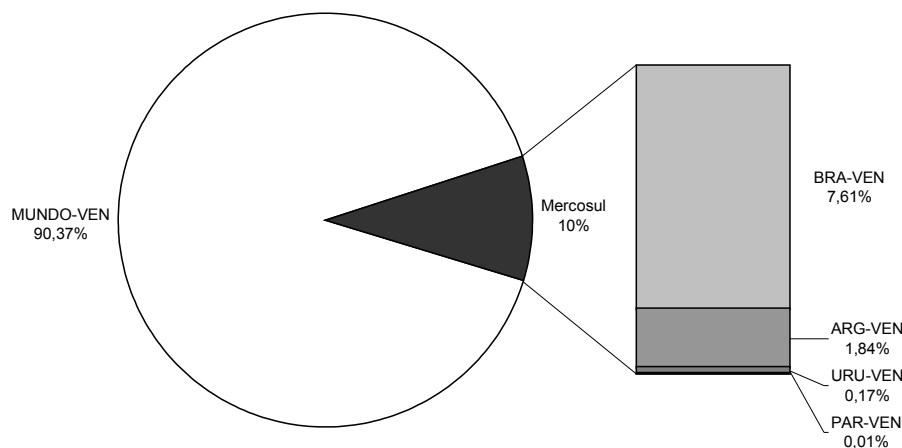
Table .4: Venezuelan imports of goods from Mercosur, 2004

Origin	Values (US\$ millions)	Share in total exports (%)
MERCOSUR	1,641,545	1.22%
BRAZIL	1,238,305	1.30%
ARGENTINA	299,413	0.87%
URUGUAY	26,896	0.92%
PARAGUAY	1,588	0.10%

Source: Trademap. Authors' elaboration.

¹⁴ Data from Sistema Alice, Ministério do Desenvolvimento, Indústria e Comércio (Ministry of Development, Industry and Trade).

Chart .5: Venezuelan imports from the world and Mercosur, 2004



Source: Trademap. Authors' elaboration.

In other words, the 2004 data from TradeMap shows that Venezuela does not export a significant amount to Mercosur although the country imports a considerable amount from the Block, especially from Brazil.

Concerning trade composition, 2004 total Venezuela's exports were concentrated in fuels (84%). However, the composition of exports to Mercosur and Brazil are more diversified. Fuels represent only 20% of total exports to Mercosur and 22% to Brazil. Aluminum, inorganic chemicals and fishes are other Venezuelan products with high shares in exports to Mercosur and Brazil.

Table .6: Total Venezuelan exports, 2004

HS Chap.	Description	Share %
27	Fuels	84%
72	Iron e steel	5%
76	Aluminum	3%
29	Organic chemicals	1%
87	Automobiles	1%
	Other products	6%

Source: Trademap. Authors' elaboration.

Table .7: Venezuelan exports to Mercosur and Brazil, 2004

Venezuela exports to:					
MERCOSUR			BRAZIL		
HS Chap.	Description	Share	HS Chap.	Description	Share
27	Fuels	20%	27	Fuels	22%
76	Aluminum	9%	76	Aluminum	9%
28	Inorganic chemicals	8%	03	Fishes	9%
03	Fishes	8%	39	Plastic products	8%
39	Plastic products	7%	28	Inorganic chemicals	8%
	Other products	48%		Other products	36%

Source: Trademap. Authors' elaboration.

Concerning Venezuela's imports, its composition is more diversified. Machines and mechanical equipments (17%), automobiles (11%) and electrical and electronic equipments (10%) are among the most important products.

Table .8: Total Venezuelan imports, 2004

HS Chap.	Description	Share
84	Machines and mechanical equipments	17%
87	Automobiles	11%
85	Electrical and electronic equipments	10%
30	Pharmaceutical goods	4%
29	Organic Chemicals	3%
39	Plastic products	3%
	Other products	52%

Source: Trademap. Authors' elaboration.

As shown in Table .9, the share of automobiles in Venezuela's imports from Mercosur and, more specifically, from Brazil, represents 22% and 27%, respectively. Data from Sistema Alice (Ministério do Desenvolvimento, Indústria e Comércio), for 2005, also reveals that Venezuela is the sixth major importer of automobiles from Brazil, just after Argentina, Mexico, EUA, Chile and Germany.

Table .9: Venezuelan imports from Mercosur and Brazil, 2004

Venezuela imports from:					
MERCOSUR			BRAZIL		
HS Chap.	Description	Share	HS Chap.	Description	Share
87	Automobiles	22%	87	Automobiles	27%
84	Machines and mech. equip.	12%	84	Machines and mech. equip.	14%
15	Veg. and animal fats	8%	85	Electrical and electronics	9%
85	Electrical and electronics	7%	24	Tobacco	6%
73	Iron and steel products	5%	73	Iron and steel products	4%
	Other products	46%		Other products	40%

Source: Trademap. Authors' elaboration.

3.2. Market Access Conditions

Table 3.9 compares basic statistics regarding import tariffs applied by Venezuela and Mercosur which were elaborated based on weighted tariffs from MAcMap (www.macmap.org)¹⁵. There is an average slight tariff preference among Latin-American countries when compared to the OECD, taken as a *proxy* to the rest of the world: Venezuelan tariffs on imports from Mercosur are, on average, 2 percentage points lower than those on imports from OECD; likewise, Mercosur tariffs on imports from Venezuela are, on average, 0.5 percentage point lower than those on imports from OECD.

Table .10: Statistics of tariffs applied by Venezuela and Mercosur, intra e extra trade-block.

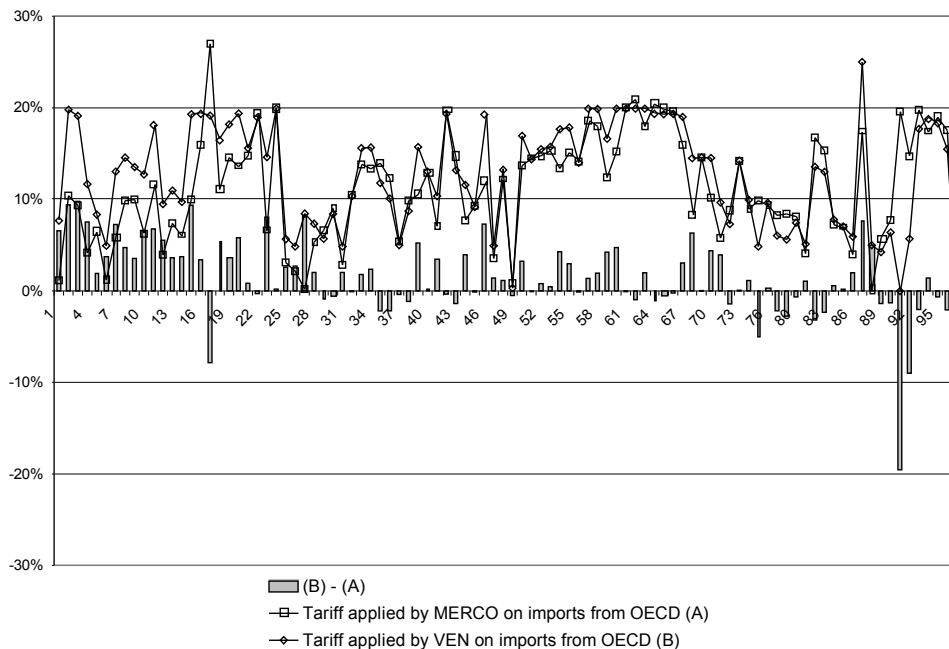
		Average mean and Standard deviation of tariffs applied by	
		Venezuela	Mercosur
On goods from	OECD	12.69 (5.68)	11.15 (5.79)
	Mercosur	10.74 (5.22)	
	Venezuela		10.66 (5.27)

Numbers in parenthesis are the standard deviations. Source: MacMap. Authors' elaboration.

¹⁵ The two-digit Harmonized System tariffs from MAcMap (Market Access Mapping) are weighted according to methodology of the *Centre d'Études Prospectives et d'Informations Internationales* (CEPII) and of the *International Trade Centre* (ITC) that together maintain the data base. According to this methodology, the tariffs of each country are weighted by the imports from its reference group of countries. The Table .10 presents the simple average and the standard deviation of the weighted tariffs from MAcMap. Further details on tariffs from MacMap can be found in Bouët et al. (2004).

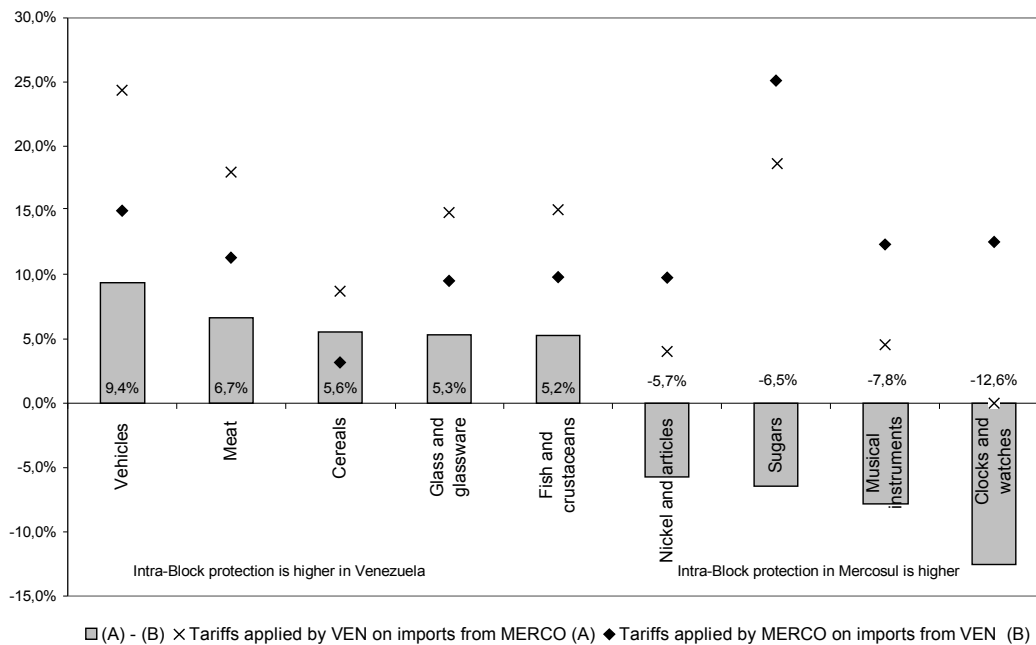
Table .11 shows that for most chapters in the Harmonized System, especially for those related to agricultural goods (concentrated in the left side of the chart), the protection imposed by Venezuela on imports from OECD (*proxy* to the rest of the world) is higher than the one imposed by Mercosur. Comparing to Mercosur original countries, Venezuela especially protects the fish industries (CNM 03; difference of 9.8%), meats (CNM 02; 9.4%), vegetable and animal fats (CNM 15; 9.3%), and fuels (CNM 27; 8.3%). The difference is 7.6% for the automobile sector. On the other side, the protection imposed by Mercosur on imports from OECD is relatively higher in the case of clocks and watches (CNM 91; -19.6%), musical instruments (CNM 92; -9.0%) and, most significantly for Brazil, sugar (CNM 17; -7.9%), for its large production.

Table .11: Extra-block protection – Difference between tariffs charged by Venezuela and Mercosur on goods from OECD.



Source: MacMap. Authors' elaboration.

Table .12: Intra-block protection - Difference between tariffs charged by Venezuela on goods from Mercosur and vice-versa.



Source: MacMap. Authors' elaboration.

Concerning intra-Mercosur protection, Table .12 presents the main differences between tariffs on imports applied by Venezuela and Mercosur. Among the goods that Venezuela most protect, one should notice Automobiles (CNM 87; difference of 9.4%), Meats (CNM 02; 6.7%) and Cereals (CNM 10; 5.6%). On other side, the intra-Mercosur protection is higher in the case of clocks and watches (CNM 91; 12.6%), musical instruments (CNM 92; 7.8%) and Sugar (CNM 17; 6.5%).

4. The model, the data base and simulation construction

4.1. The GTAP Model and data base

The evaluation of the impacts of Venezuela's entry in Mercosur was using the model and database developed by the *Global Trade Analysis Project* (GTAP) based on Purdue University, EUA.¹⁶

This study used the GTAP Database 6 (Spring 2005), the most recent version available, which presents input-output matrices for 87 countries/regions with 57 economic activities,¹⁷ corresponding to the world economy in 2001. This database is largely used in institutions dedicated to the study of multilateral negotiations and international trade, such as the World Bank, Inter-American Development Bank (IADB) and Organization for Economic Cooperation and Development (OECD).

In this study, the world economy is represented by eight countries/regions: Brazil, Venezuela, Argentina, Uruguay, Paraguay, European Union, Nafta¹⁸ and a region representing the Rest of the

¹⁶ The simulations with the GTAP model (version 6.2, September 2003) were run with the GEMPACK (General Equilibrium Modeling Package) release 9.0 (April 2005), developed by the Centre of Policy Studies (COPS) at Monash University, Australia.

¹⁷ The complete relation of countries and/or regions in the database can be found at https://www.gtap.agecon.purdue.edu/databases/v6/v6_regions.asp, while the list of the economic activities can be found at https://www.gtap.agecon.purdue.edu/databases/v6/v6_sectors.asp

¹⁸ Stands for North America Free Trade Area, and it includes USA, Canada and Mexico.

World. Regarding sectoral aggregation, the model recognizes all the 57 economic activities (sectors) available in the GTAP database.

4.2. Macroeconomic closure

Concerning macroeconomic closure, the GTAP, as well as the majority of general equilibrium models, is a real variable model and does not capture monetary phenomena. It is also a static model: investment does not affect productivity in the following periods. On other hand, investment reallocation among regions affects production and trade because of its effects on final demand. External balance usual conditions are observed, which means that savings minus investment equals current account balance. The closure admits as exogenous all behavioral variables present in the model: (1) technological innovations, (2) tax rates and (3) structural shifts of supply and demand schedules due to exogenous shocks.

The simulated scenarios intend to capture the long-run effects of Venezuela's entry in Mercosur. Thus, it is admitted that the economies present in the model operate with full employment of primary factors. Therefore, the simulated scenarios tend to emphasize the effects on structural (sectoral) composition of these economies, revealing the sectors that would win or lose with the Venezuela's entry in the trade-block.

The long-term effects on each economy's aggregate output tend to be less pronounced due to the adoption of the hypothesis of full employment of primary factors. Theoretically, this hypothesis is guaranteed by the free inter-sectoral mobility of factors inside each economy equalizing the marginal productivity of each primary factor.

4.3. Simulations description and tariff shocks generation

The effects of Venezuela's entry in Mercosur were analyzed by means of three representative simulations of this event. The first simulation attributed to Venezuela's commercial relations with other countries/regions the same average protection in place between Mercosur countries and these other countries/regions, the average Mercosur external common tariff (CET). The second simulation attributed to Venezuela a similar protection adopted by Brazil in this country's trade relations with intra and extra-block partners. Finally, the third simulation evaluates the possible effects of Venezuela's entry in Mercosur if all tariffs between the country members were removed.

All economic flows in the GTAP database are measured in dollars. Each imported commodity i has an international market price (pwm_i) on which the *ad-valorem* tariff associated to its imports (t_i) is applied if there is one, in a way that its price in the domestic market (pm_i) corresponds to $pm_i = pwm_i * (1 + t_i)$.

Therefore, a change in tariff cause an initial variation in the internalized price of imported commodities, which affects demand decisions of economic agents in each economy, once their demands are price sensitive. Due to the inter-relations between internal and external economic agents, the effects of these changes in demand decisions spread through the economic system. Each simulation compares exclusively the effects of implemented tariff change on resource allocation in the economy. One should stress that these results does not capture the effects of other economic policies that are part of the process of Venezuela's accession agreement, such as the non-tariff barriers removal.

The following sections present the features of alternative simulated scenarios.

4.3.1. Simulation 1: Adoption of average protection.

Features:

- Venezuela starts to apply on imports from countries/regions non-members of Mercosur the lower tariff between: (1) the current Venezuelan tariff or (2) the Mercosur Common External Tariff (CET), on these imports.
- Venezuela starts to apply on imports from members of Mercosur the lower tariff between: (1) the current Venezuelan tariff or (2) the average tariff applied by the other three members, on these imports.
- Each State Party of Mercosur starts to apply on imports from Venezuela the lower tariff between: (1) its current tariff or (2) the average tariff applied by the other three members, on these imports.

The Table .15 presents: (1) the number of commodity groups whose import tariffs were reduced, among the 56 tradable commodities in the model¹⁹, (2) the average initial reduction of internalized prices of commodities imported by Venezuela by origin and (3) the dispersion of these price falls. Further details on these price declines in all scenarios can be found in Coelho et al. (2006b).

Table .13: Initial reduction of import prices in Venezuela (%)

	BRA	ARG	URU	PAR	NAFTA	EU	ROW
Number of groups of goods	34	30	23	18	30	27	13
Average reduction (%)	-11.0	-11.3	-11.7	-11.8	-3.7	-2.9	-3.0
Standard deviation (percentage points)	3.7	4.2	4.8	4.7	2.4	2.0	2.6

Source: Authors' elaboration.

In this scenario, at least half of the groups of goods imported from Brazil (61%), Argentina (54%) and Nafta (54%) would present reduction of their prices in the Venezuelan market but only 23% of the groups of commodities imported from the Rest of the World would have their prices reduced. The fall in import prices from the Mercosur countries (about 11.5%) is bigger than that from other regions (around 3.2%), which would tend to relatively favor the exports from the Mercosur members to Venezuela in relation to the ones from other regions. However, price fall of the Mercosur imports is more dispersed than price fall of import from other regions.

Table .14 presents descriptive statistics on initial price reduction of Venezuelan goods imported by Mercosur members.

Table .14: Initial price reduction of Venezuelan goods imported by Mercosur members (%)

	BRA	ARG	URU	PAR
Number of groups of goods	22	19	11	21
Average reduction (%)	-8.8	-10.8	-8.4	-10.4
Standard deviation (percentage points)	4.2	3.8	4.2	6.1

Source: Authors' elaboration.

In this case, the internalized price of about 35% (20 out of 56) of Venezuelan goods would decline in the Mercosur members' markets, except in Uruguay, where only 20% of these commodities would present price reductions. Thus, in this scenario, Venezuela would promote the reduction of tariffs for a larger number of commodity groups for exports from its future Mercosur partners. The fall of the prices of these imports would be a little larger in Argentina and Paraguay (around 10.6%), deserving mention that in the latter the reduction of import prices would be less homogeneous than for the other countries in the block.

¹⁹ Among the sectors in the model, "Dwellings rental" is not traded by the countries/regions.

4.3.2. *Simulation 2: Venezuela adopts Brazilian protection.*

Features:

- Venezuela starts to apply on imports from all countries/regions, except Brazil, the lower tariff between: (1) the current Venezuelan tariff or (2) the Brazilian tariff, on these imports.
- Venezuela starts to apply on imports from Brazil the lower tariff between: (1) the current Venezuelan tariff or (2) the average tariff applied by the other three members, on these imports.
- Each member of Mercosur starts to apply on imports from Venezuela the lower tariff between: (1) its current tariff or (2) the average tariff applied by the other three members, on these imports.

The Table .15 presents descriptive statistics about the initial reduction of the prices of Venezuelan imports in the second simulation.

Table .15: Initial reduction of prices of imports in Venezuela (%)

	BRA	ARG	URU	PAR	NAFTA	EU	ROW
Number of groups of goods	34	30	22	19	31	28	13
Average reduction (%)	-11.0	-11.3	-11.8	-10.8	-3.7	-2.5	-3.0
Standard deviation (percentage points)	3.7	4.4	4.7	5.5	2.4	2.2	2.6

Source: Authors' elaboration.

Comparing Table 4.3 with Table 4.1, one sees that the simulation features are very similar, i. e., the price fall of imports in the Venezuelan market: (1) would affect at least half of imported goods from Brazil, Argentina, Nafta and European Union, (2) would be less intense for imports from Mercosur, and (3) would be more homogeneous for imports from regions that are non-members of the Mercosur.

4.3.3. *Simulation 3: Mercosur deepening and enlargement.*

This simulation evaluates the impacts of Venezuela's accession to Mercosur in a scenario of complete tariff removal among the block State Parties.

Features:

- Complete removal of all tariffs that each Mercosur State Party (Argentina, Brazil, Paraguay and Uruguay) charge imports from the other partners.
- Complete removal of tariffs that Venezuela charges on imports from other State Parties; and
- Venezuela starts to apply on imports from all other countries/regions the lower tariff between: (1) its current tariff or (2) the Mercosur CET.

The tables below present the impacts of tariff removals on import prices in the Brazilian market and on prices of Brazilian exports in their destination markets due to the removal of tariffs on these trade flows.

Table .16: Initial reduction of prices of imports in Brazilian market by origin (%)

	ARG	URU	PAR	VEN
Number of groups of goods	13	9	4	23
Average reduction (%)	-4.0	-5.9	-4.4	-10.4
Standard deviation (percentage points)	5.3	7.6	3.8	4.4

Source: Authors' elaboration.

Concerning the current Mercosur State Parties, the prices of 13 commodity groups (23% of total) imported from Argentina decline in the Brazilian market. It should be noted that, in this scenario, the prices of motor vehicles and parts reduce 17.4%. Considering Venezuela as Mercosur member, the

removal of all tariffs on intra-Mercosur trade flows, the prices of a larger number of commodity groups would decline; specifically, the prices of 23 groups imported from Venezuela present reduction, as this country is not member of the Mercosur and, thus, has not taken advantage of the trade block benefits yet. Therefore, price fall of imports from Venezuela (around 10.4%) are more intense than the price fall of imports from Mercosur partners (around 4.8%). Finally, prices of Venezuelan goods in the Brazilian market decline in a more homogeneous way than those of imports from other Mercosur partners.

Brazilian commodities price reduction will affect a larger number of products in Paraguay and will be on average more intense in Uruguay (-8.5%), as shown in Table .17. Although the price fall of Argentina's imports is neither intense nor extensive, it will constitute an important stimulus for the Brazilian national sectors due to the importance of this country as a destination market for Brazilian exports.

Table .17: Initial reduction of prices of Brazilian goods by destination market (%)

	ARG	URU	PAR	VEN
Number of groups of goods	14	2	24	34
Average reduction (%)	-3.0	-8.5	-2.9	-12.0
Standard deviation (percentage points)	4.7	0.7	3.7	4.2

Source: Authors' elaboration.

Considering Venezuela as a Mercosur member and removing all tariffs on intra-block trade, broad and intense price reductions of Brazilian exports in destination markets will take place. In Venezuela, prices of 34 (out of 56) commodity groups exported by Brazil will decrease 12.0% on average. Since Venezuela is not a Mercosur member, the country does grant as many trade benefits to the members of the trade block as these countries do.

Finally, it deserves mention that the prices of motor vehicles and parts show significant reduction due to the removal of tariffs on Brazilian exports to these destination markets, which can represent a significant stimulus to this industry in Brazil. According to GTAP database, Argentina and Venezuela receive 13.3% and 7.7% of all Brazilian exports of motor vehicles and parts. The price of sugar also shows significant declines in the markets of other Mercosur members, but once they are not the destination of significant shares for these Brazilian exports, one should not expect important gains for this industry in Brazil.

5. Simulation results

The simulation results will be presented in four sub-sections: international trade indicators, welfare indicators, prices and output aggregates, and, finally, sectoral indicators for Brazilian economy.

5.1. International trade indicators.

The changes in international trade resulting from the three simulations are presented in Table .18. There was a slight increase in export volumes for the expanded Mercosur, but not for Uruguay. In simulations, Venezuela was the main beneficiary of exports increase, with grows of 0.45% (S1 e S2) and 0.75% (S3). Brazil, Argentina, and Paraguay, in this order, presented small increases, ranging from 0.08% (Brazil, S1 and S2) to 0.03% (Paraguay, S1 e S2). In S3, changes are more pronounced (Brazil, 0.13%). For the other regions, this variable does not change due to the small share of Mercosur in their international trade flows.

Table .18: Changes in international trade indicators: exports and imports quantum (%), terms of trade (%) and trade balance (US\$ millions)

	Exports Quantum			Imports Quantum			Terms of Trade			Trade Balance		
	S(1)	S(2)	S(3)	S(1)	S(2)	S(3)	S(1)	S(2)	S(3)	S(1)	S(2)	S(3)
NAFTA	0,00	0,00	0.01	-0.01	-0.01	-0.01	0,00	0,00	0.00	177.11	173.32	263.73
EU	0,00	0,00	0.01	0.00	0.00	0.00	0,00	0,00	0.00	119.61	119.52	172.18
BRA	0,08	0,08	0.13	0.55	0.55	0.90	0,21	0,21	0.33	-210.21	-211.49	-343.76
ARG	0,05	0,05	0.08	0.25	0.24	0.36	0,09	0,09	0.12	-19.90	-19.12	-28.19
URU	-0,19	-0,22	-0.20	0.27	0.25	0.27	0,34	0,35	0.34	-7.26	-7.16	-7.73
PAR	0,03	0,03	0.02	0.14	0.14	0.10	0,05	0,05	0.04	-1.81	-1.78	-1.52
VEN	0,45	0,45	0.73	1.87	1.84	2.59	0,06	0,06	0.02	-270.91	-263.76	-362.26
ROW	0,00	0,00	0.00	-0.01	-0.01	-0.01	0,00	0,00	0.00	213.37	210.47	307.55

Source: Authors' elaboration from simulation results.

As in the case of exports, the Venezuela's entry in Mercosur increases real import volumes of the enlarged trade block. Again, Venezuela presents the highest growth rates 1.87% (S1), 1.84 % (S2) and 2.59% (S3), followed by Brazil, with increases of 0.55% (S1 e S2) and 0.90% (S3). Argentina experiences lower import increases, around 0.25% (S1 e S2) and 0.36% (S4). The import changes for the other two members are lower but still positive. It should be mentioned that among the analyzed real macroeconomic variables, this is the one that presented the most significant variations.

As result of imports and exports changes, all countries of the enlarged trade block suffer trade balance decreases. The reduction is more pronounced in Venezuela: USD -270.91 millions (S1), -263.76 (S2), -362.26 (S3), followed by Brazil with estimated decreases of: USD -210.11 millions (S1), -211.49 (S2), -343.76(S3). The falls in the other countries of the enlarged Mercosur are less pronounced. Seeing from another perspective, the three regions that contain the remaining countries in the model show an improvement of their trade balance, with estimated values of USD 510.09 millions (S1), 503.31 (S2), and 743.46 (S3).

A possible explanation for the decrease in trade balance in all countries at the new block can be found in the internal absorption. Reduction in trade balance could be caused by increase in private consumption that would not be satisfied by the immediate magnification of the domestic supply, given the adopted hypothesis in the model closure, which, by its turn, establishes fixed amounts of primary factors in each region in the model. In this sense, the only way to satisfy increases in internal demand is through imports from other regions. Still concerning international trade, it is important to mention that Uruguay and Brazil present more significant positive changes in their terms of trade, which shows that they benefited from price movements of traded goods.

5.2. Welfare indicators.

Due to the adopted model closure, the amounts of primary factors (labor, capital and natural resources) are held constant in the simulations, while their yield may vary, becoming a significant element in private income domestic changes. The effects on skilled and unskilled labor, and also on capital earnings are presented in Table 5.2.

Table .19: Change in production factors earnings (%)

	Less skilled labor			Skilled labor			Capital		
	S(1)	S(2)	S(3)	S(1)	S(2)	S(3)	S(1)	S(2)	S(3)
NAFTA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EU	0.00	0.00	-0.01	0.00	0.00	-0.01	0.00	0.00	-0.01
BRA	0.06	0.06	0.23	0.06	0.06	0.20	0.08	0.08	0.35
ARG	0.03	0.03	0.40	0.02	0.02	0.45	0.02	0.02	0.49
URU	0.08	0.08	0.49	0.02	0.01	0.41	0.03	0.02	0.23
PAR	0.05	0.05	0.23	0.02	0.02	0.19	0.04	0.04	0.32
VEN	0.37	0.36	0.45	0.31	0.29	0.34	0.39	0.38	0.49
ROW	0.00	0.00	-0.01	0.00	0.00	-0.01	0.00	0.00	-0.01

Source: Authors' elaboration from simulation results.

Unskilled labor yields in all block countries showed small increases in S1 and S2, and for Venezuela the numbers are 0.36%, in S1 and S2, and 0.45% in S3. In S3, the impacts on these yields in Uruguay and Argentina are of the same magnitude of the new country's. Skilled workers yields present a similar pattern but with less pronounced changes, with Venezuelan workers' yields increasing around 0.3% (S1, S2, S3); and Argentinian and Uruguayan workers' yields increasing by 0.45% and 0.41% in S3.

Capital stock in the expanded Mercosur has higher returns as well. In S1 and S2, the most significant impacts occur again in Venezuela (+ 0.39%). In S3, returns go more than 0.3% up in all Mercosur countries except in Uruguay, going up 0.5% in Venezuela and Argentina. The generalized increase of production factors returns corroborate the previous hypothesis about the increase in total demand requiring expansion of domestic production of goods and services, which increases the scarcity of the production factors.

There is a small increase in private expenditure that is related to the previous results. Although in Table .20 the impacts on consumption are presented as nominal changes, it is possible identify this movement in Mercosur countries, especially in Uruguay (increase of 0.5% in all simulations) and Brazil (increase of 0.29% (S1 e S2) and 0.47% (S3)).

Table .20: Effects on nominal private consumption, CPI and equivalent change (%)

	yp: nominal private consumption			ppriv: Consumer Price Index (CPI)			Equivalent change		
	S(1)	S(2)	S(3)	S(1)	S(2)	S(3)	S(1)	S(2)	S(3)
NAFTA	-0,01	-0,01	-0,01	-0,01	-0,01	-0,01	-72,25	-72,2	-118.81
EU	-0,01	-0,01	-0,01	-0,01	-0,01	-0,01	-86,43	-82,52	-121.43
BRA	0,29	0,29	0,47	0,27	0,27	0,38	222,85	224,14	361.03
ARG	0,18	0,18	0,27	0,18	0,18	0,25	28,01	27,17	45.15
URU	0,48	0,49	0,52	0,44	0,46	0,42	17,9	18,51	18.78
PAR	0,13	0,12	0,13	0,1	0,1	0,09	4,14	4,06	3.78
VEN	0,12	0,12	0,03	0,09	0,09	0,06	31,14	29,23	-16.03
ROW	-0,01	-0,01	-0,01	-0,01	-0,01	-0,02	-158,85	-157,56	-219.21

Source: Authors' elaboration from simulation results.

The Equivalent Change variable captures impacts on each regions' welfare, being a money measure that is equivalent to the changes in utility. It shows that all the countries in the enlarged trade block present welfare gains. Brazil presents the most significant gains: USD 222.85 millions (S1), 224.14 (S2), 361.03 (S3); which represents around 73% and 87% of the gains in the trade block. After

Brazil, Venezuela and Argentina present similar absolute gains, with more advantage for the entering member. The maximum welfare gain for the trade block occurs in S3, reaching USD 412.71 millions.

5.3. Aggregate indicators of prices and production

Table 5.4 shows that the impacts on real GDP are not significant, ranging between -0.02% (Venezuela, S3) and 0.03% (Uruguay, S3), for all countries in all scenarios. However, it deserves mention that these were expected due to the hypothesis adopted in the model closure. Once factors stocks and their productivity are held constant in each region²⁰, there is no room for expressive changes in aggregate production; the impacts on real GDP are derived from the changes in the existing resources allocation that induces small movements of production frontier.

Table .21: Change in GDP, capital stock and GDP deflator (%)

	GDP			Capital stock (end of period)			pgdp: GDP deflator		
	S(1)	S(2)	S(3)	S(1)	S(2)	S(3)	S(1)	S(2)	S(3)
NAFTA	0.00	0.00	0.00	0.00	0.00	0.00	0,00	0,00	0.00
EU	0.00	0.00	0.00	0.00	0.00	0.00	0,00	0,00	0.00
BRA	0.01	0.01	0.02	0.02	0.02	0.02	0,02	0,02	0.02
ARG	0.00	0.00	0.01	0.00	0.00	0.01	0,00	0,00	0.01
URU	0.02	0.02	0.03	0.02	0.02	0.01	0,02	0,02	0.01
PAR	0.02	0.02	0.02	0.01	0.01	0.01	0,01	0,01	0.01
VEN	0.01	0.01	-0.02	0.08	0.08	0.10	0,08	0,08	0.10
ROW	0.00	0.00	0.00	0.00	0.00	0.00	0,00	0,00	0.00

Source: Authors' elaboration from simulation results.

However, real GDP components can present more pronounced changes. In the simulations, trade balance decreases (falls of net exports) are offset by increases in domestic absorption: consumption (Brazil, Uruguay and Paraguay) or in investment (Venezuela).

Other evidence that points to increases in domestic demand is the price movement as shown by the Consumer Price Index (CPI). Table 5.4 indicate that these changes can be significant in Brazil, 0.24% (S1 e S2) and 0.38% (S3), and in Uruguay, 0.38% (S1 e S2) and 0.42% (S3); giving room to imports increases by making domestic products less attractive. However, this behavior is not verified in all Mercosur countries, as Venezuela presents small inflation ($0.06\% \sim 0.1\%$). In this case, it seems that the increase of imports is due to the price falls of imported commodities in the domestic market caused by the tariff reductions. The fact that this country's CPI lowers with block integration reinforces this hypothesis. Summarizing, one can say that the simulated alternative ways of entry of Venezuela in Mercosur brings a slight inflationary trend.

5.4. Sectoral Indicators in the Brazilian Economy

Table 5.5 below presents the main changes in sectoral output in Brazil. The sectoral analyzes is restricted to the Brazilian economy, because this is the main focus of this study.²¹

²⁰ The production factor stocks are held fixed in each region, but they can move across the sectors inside each region. Therefore, there is migration of factors towards the sectors that present higher earnings (profits and wages).

²¹ The choice of the sectoral indicators that shows temporal evolution is relatively arbitrary. For example, the gross revenue captures the effects on prices and quantities. Nevertheless, the owners of the invested capital in any sector would certainly be more interested in the changes of earnings to their capital, while the workers would be interested in the changes of their real wages.

Table .22: Brazil – Most benefited and hurt sectors.

Code	Sector)	S(1)	S(2)	S(3)
mvh	Motor vehicles and parts	1.21	1.24	3.09
CGDS	Capital Goods	0.22	0.22	0.37
wea	Wearing apparel	0.37	0.37	0.36
cns	Construction	0.21	0.21	0.34
tex	Textiles	0.44	0.44	0.28
fmp	Metal products	0.04	0.04	0.14
sgr	Sugar	-0.33	-0.33	-0.53
wht	Wheat	-0.29	-0.30	-0.56
wtp	Water transport	-0.36	-0.36	-0.57
omt	Meat products nec	-0.53	-0.54	-0.84
nfm	Metals nec	-0.56	-0.57	-0.94
wol	Wool, silk-worm cocoons	-0.71	-0.69	-1.19

Source: Authors' elaboration from simulation results.

The automobile sector is the most benefited economic activity, in all simulations, presenting increases ranging from 1.21% (S1) and 3.09% (S3). The second most benefited sector depends on the scenario considered. In simulations S1 and S2, textiles (+ 0.44%) while in S3 the capital goods sector²² (+ 0.37%) are most benefited. Following we have wearing apparel, construction and metal products. The performance of metal products is related to that of automobile sector, since the products from the former are largely used as inputs to the production process of the later.

Table .23 shows the percentage changes in Brazilian sectoral exports to Venezuela. The performance of automobile industry is directly related to its tariff reductions in Venezuela, which induces an increase on Brazilian exports to this country by 76.93% (S2), which is an important destination for Brazilian car industry.

Table .23: Change in Brazilian sectoral exports to Venezuela.

Code	Sector	Simulation 1 – Average protection	Simulation 2 - Protection BR	Simulation 3 - Entry of Venezuela in ideal Mercosur
omt	Meat products nec	280.19	284.75	274.75
omf	Manufactures nec	245.63	245.61	240.49
wap	Wearing apparel	231.42	231.33	244.38
tex	Textiles	202.07	203.00	204.06
lea	Leather products	191.79	192.47	196.18
cmt	Bovine meat products	188.53	171.49	196.92
wol	Wool, silk-worm cocoons	180.88	180.68	178.59
mil	Dairy products	158.42	185.87	158.93
fmp	Metal products	135.01	135.92	203.04
mvh	Motor vehicles and parts	75.23	76.93	178.48
oil	Oil	-36.31	-36.31	-36.29
wht	Wheat	-43.85	-33.06	-43.36

Source: Authors' elaboration from simulation results.

The results above indicate that the behavior is the same for textiles and wearing apparel, once the exports to Venezuela increase by, respectively, 203.00% and 231.33% in S2.²³ Other sectors whose

²² Rigorously speaking, the investment sector is a kind of aggregate of some industrial sectors.

²³ The magnitude of the whole sectoral impact will depend of the importance of Brazilian exports to Venezuela as final destination of the sectoral output.

exports to Venezuela increase in a very significant way are: “meat products” (284.75%), “other manufactured products” (245.61%), “leather products” (192.47%), and “dairy products” (185.87%).

Among hurt sectors one finds “wool and silk”, “non-iron metals”, and “meat products” (non-bovine meat). Among the demand factors causing these reductions, the most important are the exports that respectively fall by -0.74% , -0.79% , -1.47% ; in S2.

The information above helps to explain the apparent contradiction in the “non-bovine meats” production. Even though these exports to Venezuela are the ones that present the higher increase rate (table 5.6), this effect on total production is more than offset by the fall of total exports of this sector. The same fact applies for the “wool and silk production”.

Another important issue related to the declines in sectoral output is that these falls can occur due to other indirect effects as migration of labor to the most benefited sectors and reduction of shares in exports composition due to competitiveness gains of products from other sectors.

6. Analysis of sensitivity: long and short run

This section introduces a short run closure to the model and compares S(1) results to the original closure’s ones. The new closure assumes fixed wages for all regions, implying less than full employment equilibrium at the labor market. The following five tables compares these new results to the original ones regarding international trade indicators, welfare indicators, production indicators and most benefited and harmed sectors respectively.

According to Table 6.1, international trade indicators show very significant differences in Trade Balance: trade deficits become trade superavits and vice-versa in all regions but Venezuela, where trade deficit increases by approximately 230 percent points. These variations result from changes in both quantum and prices of imports and exports.

Table .24: Changes in international trade indicators: exports and imports quantum (%), terms of trade (%) and trade balance (US\$ millions)

	Exports Quantum		Imports Quantum		Terms of Trade		Trade Balance	
	S(1) - SR	S(1)	S(1) - SR	S(1)	S(1) - SR	S(1)	S(1) - SR	S(1)
NAFTA	-0,01	0,00	0,00	-0,01	0,00	0,00	-89,35	177,11
EU	0,00	0,00	0,00	0,00	0,00	0,00	-44,01	119,61
BRA	0,72	0,08	0,35	0,55	0,08	0,21	300,68	-210,21
ARG	0,42	0,05	0,16	0,25	0,03	0,09	98,61	-19,90
URU	0,55	-0,19	0,23	0,27	0,17	0,34	14,24	-7,26
PAR	0,19	0,03	0,13	0,14	0,05	0,05	5,95	-1,81
VEN	1,01	0,45	1,26	1,87	-0,06	0,06	-37,03	-270,91
ROW	-0,01	0,00	-0,01	-0,01	0,00	0,00	-249,09	213,37

Source: Authors’ elaboration from simulation results.

Concerning welfare effects, Table 6.2 shows that welfare gradually improves from short run to long run in all Mercosur countries: both real private consumption and equivalent changes increase.

Table .25: Effects on nominal private consumption, CPI and equivalent change (%)

	yp: nominal private consumption		ppriv: Consumer Price Index (CPI)		Real private consumption		Equivalent changes	
	S(1) - SR	S(1)	S(1) - SR	S(1)	S(1) - SR	S(1)	S(1) - SR	S(1)
NAFTA	0,00	-0,01	0,00	-0,01	0,00	0,00	-35,11	-72,25
EU	0,00	-0,01	0,00	-0,01	0,00	0,00	-39,05	-86,43
BRA	0,10	0,29	0,07	0,24	0,03	0,05	199,25	222,85
ARG	0,04	0,18	0,04	0,17	0,00	0,01	24,26	28,01
URU	0,28	0,48	0,23	0,38	0,05	0,10	12,39	17,9
PAR	0,07	0,13	0,03	0,08	0,04	0,05	3,53	4,14
VEN	-0,32	0,12	-0,31	0,10	-0,01	0,02	4,03	31,14
ROW	0,00	-0,01	0,00	-0,01	0,00	0,00	-127,08	-158,85

Source: Authors' elaboration from simulation results.

Table 6.3 shows that short run effects on GDP and GDP deflator are superior in all Mercosur countries, except for Venezuela, where impact on GDP are better in the long run. On the other hand, capital Stock (end of period) increases more in the long run in all Mercosur countries.

Table .26: Change in GDP, GDP deflator and capital stock, pp.

	GDP		pgdp: GDP deflator		Capital stock (end of period)	
	S(1) - SR	S(1)	S(1) - SR	S(1)	S(1) - SR	S(1)
NAFTA	0,00	0,00	0,00	-0,01	0,00	-0,01
EU	0,00	0,00	0,00	-0,01	0,00	-0,01
BRA	0,08	0,01	0,06	0,27	0,01	0,38
ARG	0,04	0,00	0,04	0,18	0,19	0,25
URU	0,11	0,02	0,23	0,44	0,44	0,42
PAR	0,06	0,02	0,05	0,10	-0,20	0,09
VEN	-0,04	0,01	-0,34	0,09	-0,48	0,06
ROW	0,00	0,00	0,00	-0,01	0,00	-0,02

Source: Authors' elaboration from simulation results.

Table 6.4 shows that short run results to Brazilian sectors seem to be better in the short run, when fewer sectors are potentially harmed by the Trade Agreement and almost all benefited sectors but “motor vehicles and parts” show better performances.

Table .27: Brazil – Most benefited and hurt sectors.

S(1) - SR			S(1)		
mvh	Motor vehicles and parts	0,84	mvh	Motor vehicles and parts	1,21
lea	Leather products	0,58	tex	Textiles	0,44
tex	Textiles	0,45	wap	Wearing apparel	0,37
wap	Wearing apparel	0,39	CGDS	Capital goods	0,22
i_s	Ferrous metals	0,32	cns	Construction	0,21
lum	Wood products	0,26	lea	Leather products	0,20
gas	Gás	0,00	wtp	Water transport	-0,36
cns	Construction	0,00	otn	Transport equipment nec	-0,39
CGDS	Capital goods	0,00	omt	Meat products nec	-0,53
omt	Meat products nec	-0,05	nfm	Metals nec	-0,56
sgr	Sugar	-0,11	wol	Wool, silk-worm cocoons	-0,71

Source: Authors' elaboration from simulation results.

However, superior short run effects in Brazilian economy when compared to long run effects, can not be attributed to increases in Brazilian sectoral exports to Venezuela. As Table 6.5 finally

shows, only minor changes in Brazilian exports to Venezuela are observed between short and long run closures.

Table .28: Change in Brazilian sectoral exports to Venezuela.

S(1) - SR			S(1)		
omt	Meat products nec	279,74	omt	Meat products nec	280,19
omf	Manufactures nec	248,73	omf	Manufactures nec	245,63
wap	Wearing apparel	232,81	wap	Wearing apparel	231,42
tex	Textiles	200,17	tex	Textiles	202,08
lea	Leather products	191,57	lea	Leather products	191,79
cmt	Bovine meat products	186,90	cmt	Bovine meat products	188,53
gas	Gas	186,36	wol	Wool, silk-worm cocoons	180,88
wol	Wool, silk-worm cocoons	178,38	mil	Dairy products	158,42
mil	Dairy products	160,92	fmp	Metal products	135,01
fmp	Metal products	134,52	lum	Wood products	98,72
pdr	Paddy rice	-15,17	pdr	Paddy rice	-14,84
oil	Oil	-36,39	oil	Oil	-36,31
wht	Wheat	-45,40	wht	Wheat	-43,85

Source: Authors' elaboration from simulation results.

7. Conclusions

This study evaluated the economic impacts of Venezuela's accession process to Mercosur as a full member. For this purpose, the legal framework of Venezuela's entry in Mercosur and the current trade flows between Venezuela and Mercosur were analyzed. The study also built three simulations of tariff shocks, with a multi-regional and multi-industry CGE model that measured economic impacts of the block's expansion.

Section 2 highlighted the speed of Venezuela's accession process to Mercosur compared to other negotiations involving Latin American countries. It took only six months since the application approval, in December 2005, to the conclusion of the negotiations, in May 2006. However, important decisions regarding this adhesion were not taken, such as establishing the composition of exception list of Venezuela's CET. Moreover, the study stressed the asymmetry conditions for Venezuela's accession to Mercosur: the maximum periods for the fulfillment of the free trade commitments adopted by the parts are at least two years longer for the Venezuela than for the Brazil and Argentina.

In section 3, the analyses of bilateral trade between Mercosur and Venezuela stressed the importance of Venezuela's market to the trade block: it is an important destination to Mercosur exports and a significant share of Venezuelan imports comes from Mercosur. Moreover, the "quality", in terms of value-added, of the composition of Venezuela's imports from Mercosur and especially from Brazil was emphasized. The study also showed that Venezuela currently applies higher tariff protection on imports from extra and intra-block countries, compared to that of applied by Mercosur members.

In section 4, three scenarios to simulate the effects of the Venezuela's accession to Mercosur were designed. In the first simulation, Venezuelan protection was became similar to the average protection applied by Mercosur original members; in the second simulation, this protection was similar to the one Brazil applies to both extra and intra-block imports. Finally, the third simulation examines the effects of the complete removal of tariffs on imports among the enlarged Mercosur members.

Section 5 showed simulation results. In the first two simulations, lower tariffs applied by Venezuela on imports from Mercosur countries resulted in significant reductions, from 11% to 12%, of the internal prices of imported commodities. Although relatively high, these tariff reductions were adopted by one country only (Venezuela), minimizing the potential impacts on macroeconomic aggregates. In third simulation, the declines of internalized prices of imported commodities are more pronounced, especially in the case of the intra-block trade among the previous Mercosur members.

The highest effects on trade flows were observed in Venezuela, with increase of imports and exports quanta, besides the significant increase of the trade deficit. Brazil is the country that benefits most by the increase in trade flows. Mercosur members and Venezuela have gains in welfare due to the increases in labor yields (skilled and less-skilled) or in private consumption, a fact also indicated by the increase in the consumer price index. However, the impacts on real GDP can be explained by the absolute (small) size of macro shocks and the adopted macroeconomic closure.

The most important results from the simulations are those related to sectoral impacts. Although the tariff reduction was implemented only by Venezuela, the sectoral impacts were relatively important. In terms of output, the more benefited sectors in Brazil were automobiles (whose production increased by more than 1% in the first two simulations and more than 3% in the third), wearing apparel, construction and textiles (production increases around 0.35% in all scenarios); the sectors that suffered most were wool and silk, non-iron metals, meat (non-bovine) products, with changes between -0.5% and -1.3% in all scenarios.

The statements above indicate that the sectoral impacts should not be ignored, not only because they result from a relatively low tariff reduction, but also because they affect the trade flows between Brazil and Venezuela in an significant way. Significant changes are expected in the production of “other manufactured products”, whose exports to Venezuela increase by almost 240% in all scenarios, wearing apparel (increase around 230% in all scenarios), textiles (increase around 200% in all scenarios) and automobiles (increase around 75%, in the first two scenarios, and 178% in the third).

Section 6 introduced a short run closure to the model which allowed less than full employment in labor market. Results from the first simulation in short and long run closures were then compared. Briefly, the comparison showed superior results to Mercosur countries in the short run, except for Venezuela, where long run effects seemed to better. These results suggest that political support to the Free Trade agreement between Mercosur and Venezuela can be misled by short run results.

Notwithstanding the mentioned sectoral gains and the opportunity of expanding the regional market, the lack of clear definitions concerning trade issues and the scarce participation of the private sector in the negotiation process indicate potential future problems concerning the implementation of a customs union, or even of a free trade area among the countries of the enlarged Mercosur.

It is well-known that Mercosur already presents many difficulties to sustain a custom union. Among the challenges one can mention are unresolved commercial issues with Argentina, the threats of denunciation of the agreement made by Uruguay and, more recently, from Paraguay and the claims from original members against their internal asymmetry and problems.

Pressure from the US to sign free trade agreements with Latin American countries is an issue that should not be neglected. In December 1994, negotiations on the Free Trade Area of America (FTAA), which aimed at the integration of 34 economies in the Americas were officially launched at the Summit of the Americas, in Miami (USA).²⁴ The negotiations should be finished at the end of 2005, which has not happened.

²⁴ In 1990 there was the “Initiative for the Americas”, whose objective was deep the relations between USA and Latin America, arising the idea about the creation of a continental free trade area.

In September 2001, the US and Mercosur had launched a joint report²⁵ in which reaffirmed the principles in the 4+1 Agreement, aiming at concentrate efforts towards a new round of negotiations under WTO and to conclude the FTAA negotiations. However, these negotiations did not advance and, the US offered instead a series of bilateral agreements that aimed at establishing free trade areas – Free Trade Treatise (FTT) – with other countries in the Americas.²⁶

Recently, they initiated negotiations for a free trade agreement with the Andean Community (ACN) – Colombia and Peru – a fact that caused the dissatisfaction of the Venezuelan government with the ACN.

In April of the current year, Venezuela had left the Andean Sub-Regional Integration Agreement (Cartagena Agreement).²⁷ In denunciation, Venezuela expressed its disagreement concerning the management of ACN external policy mainly concerning the recent negotiations of bilateral agreements – free trade treatise – among Colombia and Peru with the US. According to the Venezuelan government, these agreements would change the legal nature and the original principles of the Andean Community once the rules created by this agreement would be applied to the ACN.²⁸

Considering the above mentioned facts, with the entry of Venezuela in Mercosur it is reasonable to believe that the negotiation 4+1 with the US became unlikely to become in a 5+1 negotiation. Also, negotiations between Mercosur and European Union (EU) were postponed by the European negotiators that consider other preferential agreements strategically more interesting than this one.

Finally, one could argue about the convenience of Venezuela's accession as a full member of Mercosur in a context of proliferation of preferential agreements conducted by the US and European Union and the latent difficulties of Doha Round. Therefore, the analysis of the economic impacts resulting from the Mercosur enlargement should consider not only the gained opportunities, but also the risks involved in this process.

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²⁵ *United States-Mercosur Four-Plus-One: Joint Statement – Economic Growth Through Increased Trade*, Washington, DC, September 24, 2001, USTR.

²⁶ Besides NAFTA, the USA present Free Trade Treatise (FTT) with the following American countries or regions: Chile, Central America and Dominican Republic, and Panama.

²⁷ The Cartagena Agreement was established in May 26, 1969.

²⁸ According to the Venezuelan document, the FTTs offered by the USA would have “colonialist” intention, and would deep the social injustices by means of an unequal income distribution. In the same document of denunciation of the Cartagena Agreement there is the defense of national production and of the economic sovereign, asserting that “In a general manner, the FTTs have the neo-liberal structure of the FTAA (...)”.

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