

Regional Trade Agreements for MERCOSUR: the FTAA and the FTA with the European Union¹

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October 2001

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¹ Paper prepared for presentation at the Conference "Impacts of Trade Liberalization Agreements on Latin America and the Caribbean", organized by the Inter-American Development Bank and the Centre d'Etudes Prospectives et d'Information Internationales, November 5-6, 2001, Washington, DC.

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1. Introduction

Regional integration provides a promising answer for developing countries to the challenge of opening their markets to international trade. MERCOSUR countries adopted this strategy and, since the signing of the Treaty of Asuncion in 1991, they have aimed to consolidate their integration efforts. During the nineties the bloc eliminated most of the trade barriers among them and established an “almost perfect” customs union (CU). For a decade the group achieved one of the highest levels of integration in Latin America; however, the economic slowdown in the region in the last couple years, and especially in Argentina, has put a halt to that virtuous process which brought fast export growth and promoted export diversification among its members.

Preferentialism is not just a question of comparing economic costs and benefits, since it calls for non-economic as well as economic considerations. The negotiations involving a free trade area (FTA) with the European Union (EU) and talks for a free trade area in the Americas (FTAA) remind us that MERCOSUR can be a powerful tool to maximize scale advantages as well as to increase the countries’ bargaining power in broader regional agreements. Acknowledging this fact, the four member countries have usually negotiated, since the beginning of MERCOSUR, as a joint bloc in the international arena. In fact, MERCOSUR seeks an international agenda that, in a context of increasing global interdependence, would enable the bloc to successfully respond and adapt to the changing outside world. The policymakers face an FTAA and an FTA with the EU as the two broadest schedules under negotiation. Both agreements will bring about large gains in both trade and GDP growth to MERCOSUR countries, but also substantial structural changes with important domestic economic and political implications. Having good *ex-ante* knowledge of the anticipated structural transformations is an excellent tool at the negotiation table as well as at home.

In this paper, we analyze the economic impact on MERCOSUR countries of these two FTAs (individually and simultaneously considered) using a computable general equilibrium (CGE) model. We use a multi-country, multi-sector, and comparative static model benchmarked in 1997. The model incorporates trade-linked externalities that increase efficiency in the production process in all sectors. Many authors have shown how important economies of scale can be in assessing the results of trade liberalization. In this spirit, the model also incorporates economies of scale in the manufacturing sectors, thus allowing countries to take further advantage of the scale of the new market created.

As in most models dealing with trade liberalization, we use tariff elimination as one of the main trade

policy variables. However, tariff protection is already fairly low in most countries (agriculture in the EU being an exception with important consequences for MERCOSUR), and most protection now comes from non-tariff barriers (NTBs). In order to have a model as close to reality as possible, we incorporate NTBs as an additional trade policy variable. However, the accurate estimation of the NTBs is not an easy task and we borrow estimations from the literature for the EU, Mexico, Canada and the United States.

The empirical results show the large trade creation generated by the two agreements. But we also observe significant trade diversion away from extra-regional partners when tariffs are removed (which is not the case when NTBs are also removed). We find that the introduction of the NTBs makes the FTAA a better option for MERCOSUR countries than the FTA with EU, reversing the ranking from the tariff-only scenario. The elimination of NTBs greatly increases the factor reallocation impact and, thus, the structural adjustment in MERCOSUR countries being an indication for policy makers of the importance of gaining a complete market access in a negotiation agreement.

Another related finding is the fact that the Hemispheric integration promotes exports with higher value-added than integration with the European market. However, in relative terms, exports to Latin-American partners in the FTAA agreement are more valued-added exports than exports to the US market (especially for Brazil). Since policy-makers may be interested in identifying the effects on sensitive sectors and targeting key dynamic industries, these sectoral results are extremely useful.

We note that the benefits of the realization of economies of scale in manufactures spill over to other sectors as output further grows in all industries, except machinery and equipment in Argentina which contracts. In addition, the additional gains are evenly distributed across sectors. This should not come as a surprise since MERCOSUR countries are not the only countries that can benefit from the potential realization of economies of scale in manufactures.

The rest of the paper is organized as follows. Section 2 presents the model and its main characteristics. Section 3 describes the data sources and analyses the countries' trade and production structure at the benchmark year. Section 4 describes in detail the scenarios and different versions considered in the paper. Section 5 deals with the results and contains an aggregated and detailed analysis. Finally, Section 6 concludes the analysis.

2. The MERCOSUR CGE Model

This section presents a brief description of the MERCOSUR CGE model. The model is a multi-region, multi-sector and static general equilibrium model with 15 sectors 12 regions that follows the standard theoretical specifications of trade-focused CGE models. All regions are fully endogenized, including the rest of the world, and linked through trade. The model deals with the real side of the economy and therefore does not consider financial or monetary markets. The base year used is 1997. Table 1 summarizes the main features and assumptions underlying the model that we describe in some detail next and Table 2 contains the sectors and regions.³

<INSERT TABLE 1 and 2>

The model used has some salient features giving it an advantage over conventional multi-region CGE models for MERCOSUR. It identifies key industries and partners of MERCOSURs external agenda and incorporates the latest trade agreements in effect in the Western Hemisphere: US preferential trade arrangements with Latin American countries (CBI, Andean Trade Preferences Act), bilateral agreements (MERCOSUR-Chile, Chile-Canada, Mexico-Chile), and regional agreements (MERCOSUR, NAFTA, EU, CACM and CARICOM, Andean Community, and G-3 among Mexico, Colombia and Venezuela). These are very important elements to take into account in order to evaluate accurately any integration policy.

In addition, the MERCOSUR CGE model extends beyond standard static CGE models in two directions. First, it incorporates trade-related externalities that induce efficiency gains as a result of increased trade. It is widely acknowledged that a greater liberalization has dynamic effects resulting from economies of scale, technical changes, technological spillover, specialization and increased investment (Lewis, Robinson and Wang, 1995). Today this is a crucial element in Latin America where trade, namely exports, has become an important source of growth and foreign currency earnings and a key policy variable. In order to capture some of these dynamic effects, the model draws the theoretical structure from Melo and Robinson (1992), and follows the work of Hinajosa-Ojeda, Lewis and Robinson (1995, 1997) on Western Hemisphere integration in its empirical implementation.⁴

³ Due to their economic size and trade flows, Argentina and Brazil represent MERCOSUR in the paper.

⁴ We also rely on our previous work (Monteagudo and Watanuki, 2001) in which we evaluate a broader set of MERCOSUR's integration alternatives.

The model includes three types of trade-productivity links. The first one is a sectoral export externality linked to sectoral export performance. Higher export growth leads to an increase in domestic productivity at the sectoral level. The second one is an externality associated with import of intermediate inputs and capital goods. The degree of efficiency gains depends on the import share of intermediates and capital goods in production. The last one is an aggregate export externality; in this case, an increase in total exports raises the physical productivity of capital, embedded in the capital stock, thereby leading to economy-wide efficiency gains in the production process.

The three externalities are expressed in equations (1)-(3). EK_i^k is sectoral exports where i represents the sector and k the region, $ETOT^k$ and $MTOT^k$ correspond to the aggregate exports and imports in each region. The exponents ηe^k , ηm^k and ηk^k are the externality elasticities, and n_i is the import share of intermediate inputs and capital goods. The subscript 0 refers to the benchmark. Thus, the growth of sectoral exports increases productivity in each of the exporting sectors (equation 1); the growth of aggregated imports yields to a larger productivity parameter in all sectors (equation 2); and the growth of aggregate exports increases capital productivity (equation 3).

- (1) Sectoral export externality: $SAD_i^k = (EK_i^k / EK_{0i}^k)^{\eta e^k}$
- (2) Import externality: $SAD2_i^k = n_i \cdot (MTOT^k / MTOT_0^k)^{\eta m^k} + (1 - n_i)$
- (3) Aggregate export externality: $SAC_i^k = (ETOT^k / ETOT_0^k)^{\eta k^k}$

Specifically, the sectoral export performance externality (SAD_i^k) and import externality ($SAD2_i^k$) are included in the primary variable cost function and factor demands equations derived from the firm's optimization behavior (they reduce production cost and improve efficiency in the use of factors of production, thus reducing its demand). The aggregate export externality (SAC_i^k) improves capital productivity, which is embedded in the capital stock.

The externalities' elasticities are key parameters that will influence the simulation results. For this paper, we used estimations from the work of Mauricio and Najberg (2000) on the productivity analysis of Brazilian manufacturing industries in 1990-97, the most expansionary phase of the dynamic MERCOSUR integration process. The parameter values are estimated from sectoral trade data in that period for Brazil and are applied to other regions in Latin America in the model, adjusted with trade flows as weights. For

developed countries, the parameters were estimated on the basis of the productivity growth analysis by Roberts (2000) and Stiroh (2001) for the United States. For Canada and the European Union, we sectorally adjust the estimations by Lewis, Robinson and Wang (1995), and Hinojosa-Ojeda, Lewis and Robinson (1997). In all regions the trade externalities' elasticities estimations are larger in manufacturing sectors than in agricultural ones.

The second extension of the model is the inclusion of economies of scale in manufacturing industries. Following the pioneering work by Harris (1984), the nature of industrial organization—scale economies, imperfect competition, and product differentiation—has been introduced into the static framework, and applied to the evaluation of trade liberalization (Rodrik, 1988; Gunasekara, 1991; Melo and Tarr, 1992). Some applications for multi-region models include Roland-Holst, Reinert and Shiells (1994) for NAFTA, Harrison, Rutherford and Tarr (1994) and Brown, Deardorff and Stern (1998) for the Chile's accession to NAFTA and hemispheric integration. On MERCOSUR, Flores (1997) examined the trade policy scenarios using the multi-region static model with imperfect competition and scales economies.

The degree of economies of scale is specified with one parameter, the cost disadvantage ratio (CDR), which is defined by the difference between average cost (AC) and marginal cost (MC) over average cost for the industry or representative firm in each sector. With a simple algebraic transformation CDR then becomes the ratio of fixed cost (FC) over total cost (TC):

$$(4) \quad \text{Cost disadvantage ratio: } CDR_i^k = \frac{AC_i^k - MC_i^k}{AC_i^k} = \frac{FC_i^k}{TC_i^k}$$

The larger the CDR, the greater the potential gains from trade liberalization due to the realization of scale economies. The estimates of the CDR are obtained from cost structure data on manufacturing industries for Brazil, Mexico and the United States, and they are also applied to other countries or regions in the Western Hemisphere, after some adjustments. The estimates for the European Union are drawn directly from the work of Harrison, Rutherford, and Tarr (1994).

The presence of scale of economies has implications for the market structure since perfect competition is not possible. The simplest way to deal with increasing returns to scale (IRTS) in the CGE model has traditionally been assuming contestable markets, since that implies a structure analogous to the perfect competition in the presence of constant returns to scale (CRTS). Contestable market assumes low-cost entry or exit and that the threat of entry drives the incumbent firm to behave competitively so that it

sets the price at average costs.⁵ The pricing rule for contestable market is defined in equation 5:

$$(5) \quad \text{Contestable market pricing:} \quad PX_i^k = \frac{TC_i^k}{X_i^k} = AC_i^k$$

where PX is the unit prices of domestic output by sector. Thus, the average cost pricing under the contestable market, similar to the competitive case, implies that no firm will enter the industry. Since the number of firms per industry is constant, the efficiency gains are directly influenced by industry output (as firms move down its average cost curve) and by the trade externalities arising from increased trade; thus if trade liberalization leads to an expansion of output, the incumbent firms will increase production while lowering their average costs. In this paper we also assume that there are not initial profits for the industries. Scale economies are present only in manufacturing industries, while the other industries in the economy are modeled according to the CRTS assumption. Figure 1 illustrates the pricing and cost structure in the contestable markets of the model following the common assumption in other studies of constant marginal cost.

<INSERT Figure 1>

In addition to the 15 sectors in each region, the model includes three factors of production: labor, capital and land. Output is produced with a constant elasticity of substitution (CES) technology for the variable cost component that comprises primary factors and intermediate inputs in fixed proportions. The variable cost function (CV) is derived from the cost minimization by the representative firm using primary inputs and intermediates subject to the technology constraint. Factor returns (wages, capital rent and land prices) are not assumed to be uniform across sectors, as factor market rigidities or distortions are assumed to be present. We model such distortions by using the factor returns differential ($wfdist$) observed in the benchmark data. As mentioned above, scale economies are modeled by introducing a fixed cost component in the cost function so that the total cost function for the sectors with IRTS is:

$$(6) \quad \text{Total cost:} \quad TC_i^k = FC_i^k + CV_i^k$$

⁵ Other ways of modeling imperfect competitive markets in the literature include: assuming that firms behave like in a Cournot oligopoly market (conjectural variations) in which case they apply a mark-up pricing policy; or assuming product differentiation in a monopolistic competition framework. Due to data availability at this stage of the paper we only use the contestable market case.

where the fixed cost component is estimated by multiplying the CDR (equation 4) by the total cost. Under the assumption of uniform factor share between the fixed and value-added components, we derive the factor demands associated with each component.⁶

Both labor and capital in the variable cost component are completely mobile across the sectors, but immobile internationally. Factors allocated to the fixed cost component are by definition fixed at the benchmark level. Land is a sector-specific factor and is only used in agriculture. The aggregate supply of capital and labor is exogenously fixed in each region. It is important to notice that although the introduction of trade externalities and IRTS in the model will clearly lead to a higher output expansion after a trade liberalization, the effects on resource allocation are, *ex-ante*, ambiguous, being that this is merely an empirical question. For example, factor demand per unit of output decreases as externalities enter into play, especially in manufacturing industries, but the overall factor demand per industry depends also on the effects on total output (that depends on other elements such as trade-externalities and degree of economies of scale in other countries, sectoral initial protection, etc.)

The treatment of international trade follows standard CGE modeling assumptions. That is, the model specifies a set of export-supply and import-demand equations for traded sectors, which are imperfect substitutes. Exports are modeled with a constant elasticity of transformation (CET) between domestic sales and exports. Producers optimally allocate sales between the domestic market and exports to the respective partners in order to maximize revenue from total sales. Following the “Armington” assumption, imports are modeled by a CES function, implying that imports from different sources are differentiated each other by country of origin. The rest of the world is modeled as a large supplier of imports to each of the 11 regions and a demander of exports from these regions at the fixed world market prices.

In common with other CGE models, the MERCOSUR model only determines relative prices and therefore needs to specify the absolute price level exogenously. In the model, the aggregate consumer price index in each region is set exogenously, defining the *numeraire*. With this specification, equilibrium goods prices, wages and other factor rents as well as exchange rate are measured in real terms. World prices are converted into domestic currencies using nominal exchange rates, and adjusted through market distortions such as tariffs, export taxes or subsidies.

⁶ This process allows for the same factor returns between fixed cost and variable cost (See Appendix A in Melo and Tarr, 1992).

As with most of the static models, the MERCOSUR model has three key macro closures: saving-investment identity, balance of trade, and balanced public budget. Investment is completely financed by savings which, in the model, come from four sources: private (households), firms, government and external borrowing. The saving rate for firms is fixed constant and government savings are determined as residual between its receipt and expenditures, while the marginal propensity to save for households is allowed to adjust to achieve the saving-investment equality. Trade is also balanced for each region, valued at world prices, and exchange rates in each region are required to vary to achieve external balance in the respective regions. In other words, initial balance of trade (in goods and services) remains constant. Finally, the government also maintains a balanced budget. Since some of the expenses and revenues items are set exogenously (for example, government consumption is kept constant in real terms as well as foreign borrowing) other items has to adjust to keep the budget balanced (for example, taxes—indirect taxes, direct taxes from households and firms, commodity taxes, social security taxes, tariffs and export taxes from external transactions—are all endogenized).

3. Data Sources and Economic Structure at Benchmark

3.1. Data Sources

The MERCOSUR CGE model is constructed on the basis of the individual country/region Social Accounting Matrix (SAM), benchmarked in 1997. SAM, which displays a comprehensive snapshot of the economies, is used to derive the economy-wide income-expenditure balance subject to the underlying budget constraints by each institution.

Since the policy parameter in this paper is the elimination of the existing trade protection (*ad valorem* tariff and NTBs) and trade flows are the key elements to transmit the effects among partners, it is of vital importance to estimate these data as accurately as possible. To this end, we used DATAINTAL, FTAA and the OECD database for bilateral trade flows aggregated into 15 sectors. Trade protection data (tariff) comes from several sources: official country data for MERCOSUR (Argentina and Brazil), FTAA database for other Latin American Countries or regions, and UNCTAD database for the European Union. Trade liberalization analysis that only focuses on tariff elimination underestimates, in general, the overall effects of trade policy. Although some attempts have been made to correct this shortcoming, this is no doubt an area clearly in need of improvement. Based on the estimations made by other studies, we incorporate in the paper a tariff equivalent quantification of the NTBs only for Canada, the US, Mexico and the EU.⁷

⁷ Bussolo and Roland-Holst (1998) for Canada, United States, and Mexico. For the European Union, NTBs are from Lewis, Robinson and Wang (1995) with some adjustment.

Industrial data to estimate the CDR are drawn from the literature and available for four countries—Brazil, Mexico, the United States, and the European Union—and the parameter values for other Latin American countries are averaged from these industrial data in the Hemisphere.⁸ Other data sources include International Financial Statistics (IMF) for national accounts, Government Finance Statistics (IMF) for public finance, Industrial Statistics (UNIDO) for industrial production, and Labor Statistics (ILO) for sectoral employment and wages. Finally, the model applies the input-output tables provided from Argentina (1997) and Brazil (1990) in the construction of the country SAMs. For other countries and regions, we used the I-O data from the GTAP (version 5) as reference. Final adjustment to balance the corresponding rows and columns in each account is made through RAS procedure.⁹

3.2 Economic Structure at Benchmark

A close look at the structure of production, trade and protection of the countries in the base year is crucial in understanding the simulation results reported later. Argentina and Brazil together constitute more than 50 percent of Latin America's GDP. The low average wage in Argentina and Brazil reveals a relative comparative advantage in the production of labor intensive goods when compared to United States and the European Union that with the highest average wage reveals a comparative advantage in the production of capital intensive goods. Still, since Argentina and Brazil have a higher average wage than Central America and the Andean countries, their comparative advantage in labor intensive goods is relatively biased towards more high valued-added goods.

Concerning the structure of production (see Table 1 in Appendix), Argentina and Brazil have fairly similar and well-developed manufacturing industries, with light and heavy industries accounting for almost half of the national outputs. Still, they have large primary sector compared to the European Union and United States (7.8 percent in Brazil and 10.5 percent in Argentina, compared to 3.1 percent and 2.4 percent in the other two countries). Other countries in the hemisphere (Mexico, Central America and Caribbean countries, Andean countries and Chile) also have primary sectors near or above 10 percent. Services account for around 50 percent in most Latin American (LAC) countries in the base year. Still, they are far from the European Union or United States, where services make up more than 60 percent.

⁸ For Brazil, Instituto Brasileiro De Geografia E Estatística, Annual Industrial Survey, 1996. For Mexico, INEGI, Censos Económicos 1994, Sistema Automatizado de Información Censal 3.1, For the United States, US Economic Census, Detailed Statistics by Industry, Sector 31: Manufacturing, 1997. For the European Union, Harrison, Rutherford and Tarr (1994).

⁹ This is the technique in the I-O literature to balance the sums of rows and the corresponding columns.

Argentina and Chile share a similar export structure at the aggregate level: large primary sectors with a share of around 27 percent, and manufacturing shares of around 60 percent. Brazil and Mexico also present a similar export structure with higher manufacturing shares—more than 70 percent—and smaller primary exports shares, around 15 percent. These figures contrast, on the one hand, with the Andean Community whose exports are more concentrated on the primary sector (more than 42 percent), and on the other hand, with the EU and US, whose primary sectors have a share of 3 and 5 percent, respectively. At a more disaggregated level we observe that, when compared to Chile and the Andean Community, both Argentina and Brazil show relatively high exports shares in the machinery and equipment, and automobile sectors.¹⁰ However, the share is relatively small when compared to Mexico, EU or US. Trade data also show strong evidence of intra-industry trade in the EU, Mexico and US, with similar shares for imports and exports in the capital goods sectors. On the contrary, Argentina and Brazil's import share of capital goods is well above its export share.

Regarding the patterns of trade, Brazil is the main destination market for Argentine exports, a trend that has been stimulated since the formation of MERCOSUR. In 1997, Argentina's exports to Brazil amounted to almost a third of its total exports; and imports from Brazil had a share of around 20 percent of the country's total imports (see Table 2 and Table 3 in Appendix). On the other hand, Brazil's dependency on the Argentine market is smaller (the Argentine share in both Brazilian exports and imports was some 10 percent). Intra-regional trade between Argentina and Brazil is highly characterized by intra-industrial trade of manufactures, accounting for more than 70 percent of the intra-regional trade. By product, automobiles and parts are the leading sectors (almost 30 percent), jointly with machinery and equipment and petroleum and chemicals—particularly in Brazil. There is, however, considerable asymmetry in the structure of intra-regional trade between Argentina and Brazil. Exports of agricultural origin (grains, processed foods and vegetables) have a substantial weight in Argentine exports, while manufactured goods are the main products exported by Brazil. Table 3 below shows the relative sectoral intensity of bilateral exports. A value equal to one means that the sector has the same weight in the country's bilateral exports that it has in the country's total exports. The index shows that intra-regional exports are more oriented toward heavy manufactures than are total exports in both countries; it also shows for Brazil a small concentration on primary goods relative to the composition of its total exports. Thus although both countries have been taking advantage of the internal market to diversified exports towards more high valued products, this has been true particularly for Brazil.

¹⁰ During the 1990s the automotive sector has undergone a major restructuring, and specialization has been taking place among auto-part producers in MERCOSUR. For the European Union, the sectoral NTB equivalents were estimated as differences between total minus estimated protection.

<INSERT TABLE 3>

With respect to other partners, the US buys 18 percent of Brazilian exports and 9 percent of Argentinean exports. The sectoral intensity indexes show that exports to the US are more oriented towards heavy manufactured goods than total exports for Brazil, and more light-manufactured goods oriented for Argentina. MERCOSUR's purchases from the US account for 23 percent of the region's total imports; capital and intermediate goods are the main imports accounting for more than 85 percent of the total imports from the US. For MERCOSUR, the EU is the most important partner. At the base year, it accounted for 23 percent of the bloc's total exports, and 26 percent of total imports. Biregional trade between MERCOSUR and the EU is highly complementary. Agricultural products, including meat and processed foods, dominate MERCOSUR's exports to the EU market, while manufactured products, dominated by capital goods (machinery and equipment) and intermediates (petroleum and chemicals), are the bloc's main imports from the EU. Compared with the sectoral intensity of exports to the US, exports to the EU are much more oriented in primary goods (especially for Brazil). Figure 2 illustrates the differences in MERCOSUR's export composition to the EU and US markets. MERCOSUR's import composition from the EU and US is very similar: more than 85 percent are heavy manufactures and around 8 percent light manufactures; primary imports have a share of 5 percent for imports from the US and 1 percent for imports from the EU.

<INSERT FIGURE 2>

Regarding exports to other LAC countries, exports from Argentina are less oriented in primary goods and more oriented towards light manufactures than total exports (except to the Chilean market). In the case of Brazil, its exports to the LAC market are clearly oriented to high manufacture goods (see Table 3).

As we mentioned previously, the paper focuses mainly on the elimination of *ad valorem* tariff rates and, to a lesser extent, the elimination of NTBs. Table 4 shows MERCOSUR's *ad valorem* intra-regional rates and the MFN rate in the base year. Almost all intra-regional trade was already liberalized and even as sensitive a sector as automobiles still has a tariff of only around 3 percent in Argentina. The result is that the average trade-weighted tariff for intra-bloc trade is similar and low in both countries, with very small deviations. In contrast, the MFN tariff shows a higher average protection (trade weighted) in Brazil (18 percent) than in Argentina (14 percent), especially in heavy manufacturing sectors. By sectors, both countries applied the higher degree of protection to manufacturing goods.

<INSERT TABLE 4>

Regarding the nominal protection of MERCOSUR's selected trade partners, the US' highest tariffs (11 percent) are on textiles and apparel, followed by processed foods. Chile has a moderate and uniform protection across sectors (11 percent). Mexico is the country with the highest average protection among the countries at the benchmark year (14 percent) and heavily protects its agricultural related industries (grains, meat products and processed foods). While having completely liberalized intra-regional flows, the EU heavily protects agricultural sectors by imposing MFN tariffs with rates as high as 48 percent on sensitive goods such as grains and meats. Table 5 indicates the trade protection applied by Mercours's selected partners.

<INSERT TABLE 5>

Based on the estimations made by other studies, we incorporate in the paper a tariff equivalent quantification of the NTB for Canada, the US, Mexico and the EU. Table 6 shows the data. The most striking characteristic is the large level of protection that the estimated NTB provides to the domestic markets. For the United States and Canada, it goes as high as 23 percent on average for non-NAFTA countries, while the EU has the lower average NTB protection to extra-regional partners (5 percent). The EU protection is, however, mainly concentrated in primary goods, while manufacturing industries are relatively little protected. In contrast, the protection faced in the US market by manufacturing exporters can go as high as 68 percent in "automobiles and parts" and 41 percent in "textiles and apparel". Given the high protection level compared to the *ad valorem* tariffs, we anticipate big gains and large differences in the absolute and sectoral composition results of our simulations when NTBs are eliminated.

<INSERT TABLE 6>

4. Alternative Scenarios for Policy Simulations

We simulate the formation of the two FTAs independently as well as simultaneously. Scenario 1 examines the creation of the FTAA where the countries in the Western Hemisphere eliminate all tariff barriers to intra-hemispheric trade while keeping their individual protection structures with third partners, namely the European Union and the rest of the world. Scenario 2 simulates the formation of a FTA between MERCOSUR and the EU with both blocs maintaining their protection to third partners. Lastly, scenario 3 is designed to measure the impact of creating simultaneously the FTAA and the FTA with the

European Union (EU-FTA below), with MERCOSUR serving as a hub for the two integration processes.

The countries in the Hemisphere formally launched the negotiations to create a hemispheric FTA at the second Summit of the Americas in April 1998. In spite of the considerable skepticism regarding the prospects of liberalizing a number of sensitive sectors, the FTAA process has steadily progressed and has already generated significant positive impacts in a variety of areas.¹¹ Among other things, it has increasingly served as a catalyst for widening and deepening regional integration, supplementing the commitment of the multilateral system to achieve a more free and open trade in the hemisphere and beyond.

Trade talks between MERCOSUR and the EU countries started with the Interregional Framework Cooperation Agreement, signed in December 1995, which was designed to increase economic cooperation, enhance political dialogue and prepare for the bilateral liberalization process. At the Rio Summit, held in June 1999, the two sides agreed to launch negotiations for the creation of an FTA between the two blocs through a gradual and reciprocal process. Although both blocs recognize the importance of creating an FTA, one of the most difficult challenges lies in the negotiations in agriculture, in which MERCOSUR has a clear comparative advantage, while the EU maintains a protectionist CAP (Common Agricultural Policy) to protect the domestic industries. This issue is increasingly dominating the agenda of the trade negotiations, and the possibilities of deepening and balancing trade links between the two blocs will depend greatly on the progress in this area. It is expected that the planned EU enlargement to Eastern Europe (some of them being big agricultural producers) will alter the EU's trade policy on agriculture.

An important aspect of the MERCOSUR-EU relationship is that in light of the growing US trade dominance and the ongoing hemispheric negotiations, MERCOSUR views the EU as a counterbalance to the US, particularly in the FTAA negotiation process. For the EU, MERCOSUR is an important extra-regional trade partner: it absorbs some 50 percent of its exports to Latin America, and represents half of total exports from Latin America to the EU market. From the EU perspective, MERCOSUR has been a traditional stronghold in the Americas, and is now increasingly important partner to block US dominance and to restore the lost share in Latin America by strengthening trade relations and promoting business opportunities. Since the EU and the US are competitors in the South American market, this is a very important parallel agenda to the FTAA.

¹¹ See *Integration and Trade in the Americas, Periodic Note*, IDB, Department of Integration and Regional Programs, several issues.

The paper uses two policy instruments: *ad valorem* tariff protection and non-tariff barriers (NTBs). It is widely acknowledged that, in addition to tariff protection, NTBs are crucial elements in the trade liberalization negotiations for developing countries, and without their elimination it will not be possible to realize all the processes' benefits. This is particularly true today, given that the levels of nominal protection on trade flows have become fairly low in the Western Hemisphere and in the European Union.

Table 7 summarizes the alternative scenarios. Simulations under Experiment A consider only the elimination of the *ad valorem* tariff barriers, while simulations under Experiment B include the complete elimination of the NTBs in addition to tariffs. In each case we assume the IRTS version of the model. We also simulate a CRTS version of the economies (Version A) and use the simulation results under Experiment A (tariff only) and Version A (CRTS) as the base experiment in evaluating the effects of the NTBs and scale economies.

<INSERT TABLE 7>

5. Simulation Results

5.1. Aggregate Results

In this section, we evaluate the aggregate impact on MERCOSUR countries of the three integration scenarios analyzed in the paper. The aggregate effects are examined by focusing on the absolute increment and rate of growth of exports and imports, as well as on the rate of growth of real GDP.

As expected, the results reveal that regional integration generates considerable gains for all countries in the agreement, substantial changes in trade patterns, and structural adjustment in domestic production. Overall exports to intra- and extra-hemispheric markets grow for Argentina and Brazil as efficiency gains and global competitiveness increase. Guaranteed access to large markets, enabling firms to exploit economies of scale, and the dynamic externality effects resulting from the trade liberalization enhance the gains. Table 4 in the Appendix shows the aggregate results for all scenarios and regions in the model. Figure 3 next shows the real GDP effects in the IRTS case for the FTAA and EU-FTA scenarios (scenarios 1 and 2).

<INSERT FIGURE 3>

In the presence of IRTS and tariff-only elimination, FTAA induces export growth by 4.7 percent in Argentina and 7.4 percent in Brazil. Exports destined to the US are up by 7.4 percent in Argentina and 9 percent in Brazil. Due to the relatively high initial protection and low base exports, exports to Central America and the Caribbean as well as to the Andean Community see a substantial increase of 15 percent. For these countries, export growth under FTAA is 8.5 percent in Central America and the Caribbean and 5.4 percent in the Andean Community; the expansion of exports in the NAFTA countries is smaller than in other hemispheric partners due to a market which was already highly liberalized at the benchmark. The EU—excluded from the agreement—faces trade diversion in the MERCOSUR market as imports from the EU decrease by 2.5 percent and 3.2 percent in Argentina and Brazil, respectively (mainly heavy manufactures). Imports from the Rest of the World also decrease by more than 3 percent.

For MERCOSUR, integration with the European Union generates a greater impact on export performance than the FTAA, as exports grow an additional 1.4 percentage point. In addition to the 27 percent and 16 percent growth in exports to the EU from Argentina and Brazil, respectively, exports to extra-agreement countries also increase (thus translating the increased efficiency into an overall increase in other countries' import market share). The EU-FTA is also likely to create negative trade effects on countries left outside the agreement: imports of light and heavy manufacturing products from non-EU countries are displaced in the MERCOSUR market (although imports of primary goods increase).

The simultaneous arrangement scenario (scenario 3) generates important gains for MERCOSUR. It doubles the bloc's aggregate trade and GDP gains when compared to the FTAA, and increases it by as much as 80 percent compared to the EU-FTA. The growth of exports from other non-members in the Western Hemisphere remains virtually unchanged from the level of gains realized in the FTAA-only scenario. Left outside of the agreement, MERCOSUR's imports from the Rest of the World decrease by around 4 percent.

The inclusion of NTBs in the liberalization process (Experiment B) further expands exports in all countries. MERCOSUR's aggregate export growth more than doubles from the tariff-only simulation (15 percent growth or more in the first two scenarios and more than 30 percent growth in the simultaneous arrangement). The gains of eliminating the NTBs are slightly greater for Argentina than for Brazil in terms of additional real GDP and export growth from the tariff-only scenario. In the FTAA case, MERCOSUR's exports to all countries further increase from the tariff-only experiment favored by the increased demand in Hemispheric partners that benefit from the removal of the NTBs by NAFTA members, especially on key exports that faced high NTBs in the US. In fact, export growth is now more

than five times higher than it is shown to be under the tariff-only simulation for Central America and the Caribbean, Colombia and Venezuela. A main difference from the tariff-only experiment is that we do not observe trade diversion effects in the MERCOSUR market. Given the balanced trade assumption as well as technology and resources constraints in each region, intra-hemispheric export supply cannot meet the increased demand in the hemisphere. As a result, countries expand imports also from extra-hemispheric sources.¹² Although, to a lesser extent, the same happens in the EU-FTA scenario.

The impact on welfare measured in real GDP is highly correlated with trade performance. Under the tariff-only experiment, FTAA induces a growth in MERCOSUR's real GDP of 2.8 percent (followed by Chile, 2.5 percent, and Central America and the Caribbean, 2.3 percent). MERCOSUR's gains from integration with the European Union (scenario 2) are greater than under the FTAA, and real GDP in MERCOSUR grows now by 3.2 percent. MERCOSUR greatly benefits from the cross-fertilization effects of the simultaneous integration (scenario 3), which nearly doubles the real GDP growth from the FTAA and is 80 percent greater than in the integration with the European Union.

The additional elimination of the NTBs (Experiment B) further enhances real GDP growth, although the results vary considerably by country. FTAA now increases MERCOSUR's GDP by 6 percent from the benchmark, more than twice the growth under the tariff-only elimination (Experiment A). The Andean Community (especially Venezuela and Colombia) as well as Central America and the Caribbean are again the largest beneficiaries from the FTAA. Compared to the tariff-only simulation results, the EU's removal of NTBs in scenario 2, mostly in agriculture, increases GDP for MERCOSUR by an additional 90 percent, and the simultaneous arrangement (scenario 3) by nearly an additional 100 percent. An interesting point to make is that the introduction of NTBs as a policy variable makes the FTAA a better option for MERCOSUR countries than the EU-FTA, thus reversing the ranking from the tariff-only scenario. An explanation for this is the fact that NTBs in the EU are concentrated in agriculture industries, while NTBs in the NAFTA countries are also high in key manufacturing sectors such as, *inter alia*, automobiles and textiles. Therefore, the additional impact of trade liberalization on manufacturing industries would be greater in the FTAA than in the EU-FTA case (and remember that the highest productivity gains of trade liberalization will be in the manufacturing industries).

Compared to the CRTS case (Version A), the IRTS engenders an additional increase in export and real GDP growth, the extent of which depends on the degree of realization of economies of scale during

¹² This is, however, not the case with NAFTA members. Due to the elimination of high protection to intra-hemispheric imports only (thus maintaining it against third parties), we observe strong trade diversion effects.

the adjustment process. As the number of firms in each industry is fixed, firms reduce their average costs as the industry expands outputs, lowering prices accordingly. Therefore, efficiency varies with total sectoral output. In particular, the presence of economies of scale induces an additional increase in total production, although the results by sector vary according to the degree of unrealized economies of scale in each country (see next section).

5.2 Sectoral Results

As in the previous section, we focus on the IRTS scenario and use the CRTS scenario as a reference point. To facilitate the analysis, we aggregate the 13 sectors into three macro-sectors: primary, light and heavy manufactures.¹³ Figures 4 and 6 present the impact on exports and imports growth from the benchmark, Figure 5 shows the macro-sector composition of the increased exports and Table 8 the sectoral export growth differences. Tables 5 and 6 in the Appendix shows a more detailed sectoral impact on exports and imports by market.

(1) Tariff-only elimination

The light-manufacturing sector experiences the highest export growth across the macro-sectors. It grows by more than 12 percent under the EU-FTA scenario and by around 10 percent under the FTAA formation.

In terms of products or sectors, the EU-FTA generates a more heterogeneous export growth across sectors than the FTAA, which presents smaller growth differences across sectors (see Table 8). Under the EU-FTA, the sectors in Argentina which exhibit more dynamic growth are “meat products” (growing 22 percentage points above the average growth) followed by “processed foods” (7.5 percentage points above average), while Brazil’s are “meat products” and “processed foods”(growing 15 percentage points above the average).¹⁴ In fact, agricultural related exports (raw products and agro-products) constitute 87 percent of the increased exports to the European Union, and meat products and processed foods alone account for approximately half of those exports. Under FTAA Argentina’s most dynamic sector is “processed foods” (grows 4.3 percentage points above the average growth), while Brazil’s is “textiles and apparel” (4.4 percentage points above the average).

¹³ Primary sectors include: grains; vegetables and fruits; sugarcane, coffee and soybeans; livestock and other agriculture; and gas and oil. Light manufactures include: meat products; processed foods; textiles and apparel; and other light manufactures. Heavy manufactures include: petroleum and chemicals; iron and steel; automobiles and parts; and machinery and equipment.

¹⁴ An interesting case is the “grain” sector in Brazil that grows 30 percentage points above the average. This is due primarily to the small value of exports in the base year and the EU’s highest initial MFN tariff (48 percent) on this sector.

An important difference between the two scenarios is that FTAA brings a stronger export growth in the heavy manufacturing sectors than the EU-FTAA, particularly in Brazil. In value terms, heavy manufactured exports in the FTAA case account for nearly half of the increased exports in Brazil, and around 15 percent in Argentina; in the EU-FTA case the share is slightly over 20 percent and 5 percent in Brazil and Argentina, respectively. In contrast with these figures, agricultural related exports (raw products and agro-products) constitute 87 percent of the increased exports to the European Union, and meat products and processed foods alone account for approximately half of those exports destined to the EU market.

Thus the Hemispheric integration scheme promotes exports with higher value-added than integration with the European market. This result is due to the differences in export composition between the Hemispheric and European markets in the base-year, together with the initial highly protected European market for agricultural goods (primary and agro-products, such as meat and processed goods). It is important to note, however, that in relative terms exports to Latin-American partners in the FTAA agreement are more valued-added exports than exports to the US market (especially for Brazil). Also interesting is the fact that Argentina's exports of heavy manufactures to the Brazilian market suffer a decrease in both scenarios, as they are displaced by more efficient producers in the Hemisphere, in one case, and more efficient European producers, in the other. For Brazil, intra-regional exports decrease only in the "machinery and equipment" sector.

The impact on imports growth is more balanced than it is for exports (Figure 6). In value terms, however, heavy manufactured goods, typified by intermediate (petroleum and chemicals, and iron and steel) and capital goods (machinery and equipment) account for more than three-quarters of the increased imports in both the FTAA and EU-FTA scenarios. In the EU-FTA case it accounts for nearly 90 percent of the manufactured imports.

MERCOSUR countries undergo a substantial adjustment in production. The aggregated income effects of the FTAA and EU-FTA formations induce an expansion in production in all sectors (except machinery in Argentina). Production capacity expands more rapidly in the primary and light manufactures industries, the latter presenting a strong export orientation.¹⁵ Given the fixed resource constraint, these adjustments in production effect a reallocation of domestic resources (labor and capital).

Labor and capital thus move away from manufacturing industries (especially from heavy industries such as machinery and equipment) into agriculture. Manufactures experience the highest productivity increase from the trade liberalization, and thus increase output while decreasing factors demands (especially light manufactures), while labor-intensive primary goods absorb factors, mainly labor.

The results of the scenario involving the simultaneous FTAs (scenario 3) lie between those of the two individual arrangements. Light manufactures lead the bloc's export growth (20 percent in Argentina and 27 percent in Brazil). Processed foods account for nearly half of the increased exports in Argentina and for one-third in Brazil. Exports of heavy manufactures grow at a slow pace (2.7 percent) in Argentina, but show a marked increase (of 10 percent) in Brazil. Heavy manufactured goods account for approximately one-third of the new exports in Brazil. The booming economy forces domestic industries to undergo an even bigger structural adjustment in the production and factor markets. As in the other two scenarios, production capacity expands more rapidly in agriculture and light manufacturing industries than in heavy industries. Processed foods undergo the largest production increase—12 percent in Brazil and 8.5 percent in Argentina.

Compared to the CRTS case, we note that the benefits of the realization of economies of scale in manufactures spill over to other sectors as we see further growth in output across all industries. Moreover, the additional gains are evenly distributed across sectors. This should not come as a surprise since MERCOSUR countries are not the only countries that can benefit from the potential realization of economies of scale in manufactures.

(2) Tariffs plus NTBs elimination

In the FTAA case, the elimination by the US of NTBs on highly protected domestic industries—mining, textiles and apparel, other light manufactures and automobiles—produces a strong additional export growth in almost all sectors, but especially in those mentioned above. There are big differences in the sectoral or product composition of exports compared to the tariff-only case (see Table 8); however, we observe a similar pattern at the macro-sector level: light manufactures lead export growth in both countries, while heavy manufactures account for around 35 percent of the increased exports in Brazil. The bloc's exports to the US jump to 55 percent in Argentina a 45 percent in Brazil (7.4 and 5 times the growth under the tariff-only experiment); but exports to the other NAFTA countries also increase by more than 60 percent (in fact, Argentinean exports to the Mexican market growth by 100 percent). In the EU-

¹⁵ In general, we observe a relative export specialization --an increase in the ratio exports over production, $d(E/X)/(E/X)$ -- in manufacturing industries, especially in Brazil due to the high export growth in heavy

FTA scenario, the gains of eliminating NTBs are very concentrated in agriculture. Primary goods exports increase by more than 12 percent and almost 50 percent in Argentina and Brazil, respectively, a large change compared to the growth rate in the tariff-only scenario of around 5 percent. Both countries become much more primary goods exports oriented (especially Brazil). Aggregate exports to the EU jump by 50 percent, more than twice the export growth under the tariff-only experiment. Agricultural exports account for more than 90 percent of the increased exports to the European Union.

Compared with the tariff-only experiment, the MERCOSUR countries –and especially Brazil— greatly expand automobile production, demanded primarily by the United States after eliminating the high NTBs in the industry. The same happens in Argentina with the mining sector. In the EU-FTA case, primary industries with a high NTB protection (grain, vegetables and fruits, and sugar, coffee and soybeans) experience higher additional output growth. As a consequence, domestic resources are driven away from heavy industries into primary industries. In fact, in the simultaneous agreement scenario, around seven percent of labor and capital are pulled from machinery and equipment industries, which grow the most slowly in Brazil, and even shrink by 2.7 percent in Argentina. Since the primary sectors are characterized by low efficiency relative to manufacturing industries, the resource pull in the former sectors is larger in the EU-FTA than in the FTAA scenario.

Given that the additional manufacturing industries' output growth is larger under the FTAA than under the FTA-EU (the industries with the higher productivity arising from trade externalities and scale economies), the additional overall growth from eliminating the NTBs is greater in the FTAA than in the EU-FTA scenario.

6. Summary and Conclusions

Regional integration is not simply a process of maximizing potential economic gains, but rather a strategic process that also involves political elements concerning the adjustment costs arising from structural reforms and transformation (particularly labor market adjustment and industrial lobbying from the sensitive sectors). As is the case for many other countries in Latin America, the members of MERCOSUR have an active regional integration agenda that includes the FTAA and an FTA with the EU, the two broadest agreements under negotiation.

Applying a multi-region, multi-sector general equilibrium model incorporating trade-linked

manufacturing.

externalities and scale economies in manufacturing industries, this study examines the potential economic gains and structural adjustment of the two FTAs under negotiation (individually and simultaneously considered). The integration options are evaluated by eliminating the *ad valorem* tariffs only and also by eliminating simultaneously NTBs for selected countries.

The simulation results show the FTAA and the MERCOSUR-EU FTA generate substantial economic gains for the two MERCOSUR countries. When only tariffs are eliminated, we observe that the FTAA option is slightly inferior to the FTA with the EU (although the opposite is true when NTBs are also eliminated). Hemispheric integration greatly stimulates export specialization in manufacturing industries relative to the primary sector (this impact being stronger in Brazil than in Argentina). Latin American countries greatly contribute to this result since exports of MERCOSUR to these countries have a higher valued-added content than exports to the North-American neighbors. Policy makers should be aware of the importance of reinforcing the trade links with other Latin American countries as a means to increase the valued content of exports. On the other hand, mainly due to the EU's initially high tariff protection in agriculture, integration with the EU largely expands agricultural exports, in which MERCOSUR has a clear comparative advantage and competitiveness in global markets. The simultaneous approach (that generates dynamic cross-fertilization effects) almost doubles the gains from the individual FTAs. The bloc expands manufactured exports to the hemispheric market, and agricultural exports to the European Union, while heavily concentrating on imports of capital and intermediate goods from both sources.

Although, when compared to tariffs, the measurement of NTBs is imperfect and less accurate, the results show how important the inclusion of NTBs in the negotiation can be for MERCOSUR, as well as for other Latin American countries. When considering the elimination of NTBs, the gains in trade and GDP growth are twice that of the benefits which accrued from only the elimination of tariffs and, given the model's assumption regarding resource constraints, also limits the amount of trade diverted from partners outside the agreement relative to that which is observed when only tariffs are eliminated.

The increase in industry outputs is largely met by the efficiency gains arising from trade-linked externalities and scale economies. The results showing that output grows after liberalization in all sectors (except machinery in Argentina) should be read with caution. The substantial adjustment in production induces a strong adjustment in factor markets as domestic resources are reallocated from manufacturing or contracting industries into the primary sectors freely and costlessly, not taking into consideration that the reallocation of labor has considerable social and political costs (nor accounting for factor market rigidities).

MERCOSUR faces a difficult moment in its drive toward trade liberalization and regional economic integration; a moment made especially crucial by its prolonged internal economic instabilities. In the meantime, the group will confront a busy timetable on its external agenda in the coming years, which requires crucial decision-making. While being a formidable challenge, it may also offer an excellent opportunity for the bloc to harmonize internal and external policies, to identify common grounds and interests, and to raise global credibility and competitiveness.

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Table 1. Main Features and Assumptions of the MERCOSUR CGE Model

Items	Description
1. Production Sectors	All regions produce 15 goods using primary inputs and intermediate goods with a CES production technology. The 15 sectors in ROW are fully endogenized. Version A assumes CRTS across the sectors, while version B assumes IRTS for the manufacturing industries.
2. Market Structure	Version A applies perfect competition for all sectors. In version B, each of the manufacturing industries faces contestable market, and other sectors are in perfect competition in their respective markets.
3. Demand	Final demand in each country or region is derived from household's utility maximizing behavior subject to budget constraint. Intermediate demands are determined by the fixed proportion of the input-output coefficients.
4. Trade	Exports are specified by a CET function, and differentiated by market of destination and from domestic supply. Imports are modeled with a CES specification, and differentiated by market of origin.
5. Factors	
(i) Land	Sectorally fixed, and only used in agriculture.
(ii) Capital	Sectorally mobile, but immobile internationally. Total supply in each country or region is fixed.
(iii) Labor	Same as capital.
6. Trade-linked Externalities	
(i) Sectoral export externality	
(ii) Import externality of intermediate inputs and capital goods	
(iii) Aggregate export externality	
7. Major Assumptions	
(i) Saving-Investment Identity: Current amount of savings are fully utilized for investment.	
(ii) Balanced Trade: Trade remains balanced for each country and region. In other words, initial balance of trade in goods and services remains constant.	
(iii) Balanced Budget: Government balances revenues and expenditures including exogenous foreign transactions.	
(iv) Small Country: No country has market power to influence world prices through trade, and each country behaves as a price taker.	
(v) No Financial Market: The model deals with the real side of the economy.	
Note:	CET means Constant Elasticity of Transformation, and CES is Constant Elasticity of Substitution. CRTS and ITRS are Constant Return to Scale and Increasing Returns to Scale, respectively.

**Table 2. Sectors and Regions
in the MERCOSUR CGE Model**

Sectors	Countries/regions
Primary Sectors	Argentina
Grains	Brazil
Vegetables and Fruits	Chile
Sugarcane, Coffee and Soybeans	Canada
Livestock and Other Agriculture	United States
Mining	Mexico
	Central America and the Caribbean
Light Manufactures	Colombia
Meat Products	Venezuela
Processed Foods	Rest of the Andean Community
Textiles and Apparel	European Union
Other Light Manufactures	Rest of the World (ROW)
Heavy Manufactures	
Petroleum and Chemicals	
Iron and Steel	
Automobiles and Parts	
Machinery and Equipment	
Services	
Utilities and Construction	
Trade and Services	

Table 3. Sectoral Intensity of MERCOSUR's Exports by Market

Argentina											
	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World
Grains	0.88	0.44	0.00	0.09	0.00	1.78	1.76	1.67	1.52	0.29	1.78
Vegetables and Fruits	1.12	0.10	4.43	0.65	0.99	0.94	0.00	1.80	0.12	2.80	0.32
Sugarcane, Coffee and Soybeans	0.14	0.66	0.00	1.64	0.00	0.00	0.00	0.00	0.00	3.38	0.84
Livestock and Other Agriculture	0.49	0.07	0.00	0.94	0.50	0.00	0.00	0.00	0.23	2.57	1.19
Mining	1.19	4.35	0.00	2.22	0.00	0.19	0.00	0.00	0.00	0.09	0.35
Primary	0.93	1.56	0.60	0.99	0.21	0.87	0.67	0.88	0.63	0.98	1.03
Meat Products	0.28	1.88	0.83	1.44	0.00	0.27	0.00	0.00	0.62	3.05	0.53
Processed Foods	0.36	0.49	0.86	0.79	1.35	2.06	1.24	1.91	0.81	1.49	1.52
Textiles and Apparel	1.92	1.42	0.00	0.20	1.14	0.00	1.91	0.00	0.93	0.45	0.54
Other Light Manufactures	0.58	0.51	4.30	2.51	0.91	0.63	0.52	0.22	0.37	1.24	1.09
Light Manufactures	0.51	0.71	1.43	1.13	1.11	1.45	1.03	1.25	0.71	1.53	1.26
Petroleum and Chemicals	1.10	1.38	0.48	1.06	1.77	0.76	2.03	0.63	2.46	0.47	0.89
Iron and Steel	0.35	0.99	4.21	1.42	3.85	0.48	2.30	2.13	4.03	0.68	1.21
Automobiles and Parts	2.82	0.19	0.00	0.34	0.27	0.34	0.00	0.18	0.10	0.07	0.20
Machinery and Equipment	1.79	0.87	0.00	0.88	2.01	0.74	1.46	1.10	1.31	0.33	0.55
Heavy Manufactures	1.68	0.82	0.85	0.84	1.64	0.57	1.29	0.80	1.72	0.34	0.65
Brazil											
	Argentina	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World
GRAIN	0.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02	1.15
VEGET	0.37	0.00	3.99	2.46	0.00	0.00	0.00	0.00	0.00	1.37	0.28
OTHAG	0.15	0.15	0.82	0.50	0.24	0.12	0.15	0.00	0.10	2.38	0.71
LIVES	0.27	0.00	0.00	1.94	0.00	0.00	0.00	0.00	0.00	1.20	0.95
MINING	0.35	0.05	1.51	0.37	0.87	0.80	0.00	0.23	0.00	1.37	1.54
Primary	0.24	0.10	1.15	0.55	0.45	0.35	0.09	0.08	0.06	1.96	1.00
MEATP	0.69	0.00	0.37	0.25	0.00	0.57	0.00	0.00	0.00	1.20	1.73
PFOOD	0.20	0.21	0.56	0.42	0.29	0.40	0.13	0.25	0.19	1.41	1.59
TXNIL	2.13	1.57	1.73	1.05	0.57	0.92	3.65	0.43	2.82	0.54	0.66
OTLMF	0.64	0.67	1.12	1.95	0.22	0.80	0.46	0.49	0.99	0.98	0.72
Light Manufactures	0.52	0.43	0.80	0.92	0.26	0.58	0.48	0.31	0.61	1.20	1.27
PETRO	1.58	1.65	0.87	1.09	1.54	0.82	1.92	1.27	1.69	0.56	0.94
STEEL	0.79	1.39	2.32	1.27	1.59	0.66	0.93	1.38	0.93	0.54	1.24
VEHCL	2.61	2.40	0.13	0.76	1.76	3.40	1.54	2.98	1.30	0.47	0.55
MCHNY	1.59	1.54	0.92	1.67	1.96	1.45	2.35	1.76	2.45	0.47	0.52
Heavy Manufactures	1.61	1.73	1.08	1.22	1.72	1.53	1.70	1.82	1.61	0.51	0.82

Note:

- 1: Sectoral intensity is measured by the ratio of the sectoral share in bilateral trade over the corresponding share in total exports.
- 2: Exports in services are excluded.

Table 4. MERCOSUR's Ad Valorem Tariff Rates (1997)

Sectors	(%)			
	Intra-region		MFN	
	Argentina	Brazil	Argentina	Brazil
Grains	0.00	0.00	9.17	11.72
Vegetables and Fruits	0.00	0.00	10.96	13.61
Sugarcane, Coffee and Soybeans	0.00	0.00	9.43	11.56
Livestock and Other Agriculture	0.00	0.00	10.62	13.21
Mining	0.00	0.00	5.87	9.61
Meat Products	0.00	0.00	14.87	18.14
Processed Foods	0.26	0.58	16.18	19.67
Textiles and Apparel	0.65	0.32	20.35	23.06
Other Light Manufactures	1.07	0.00	16.61	19.23
Petroleum and Chemicals	0.02	0.18	11.11	14.18
Iron and Steel	1.56	0.00	16.55	18.52
Automobiles and Parts	3.15	0.00	18.24	31.91
Machinery and Equipment	0.02	0.00	13.27	18.44
Utilities and Construction	-	-	-	-
Trade and Services	-	-	-	-
Average	1.17	1.08	13.81	17.95

Sources: Country's official tariff data.

Note: The sectoral protection rates are estimated as the simple average of the corresponding tariff line schedules. "Average" is measured as an aggregate weighed by trade flows excluding utilities and construction, trade and services. The protection includes 3 percent temporary tariff rates applied for non-capital goods imported from extra regional markets.

Table 5. MFN Ad Valorem Tariff Rates by MERCOSUR Partners

Sectors	(%)								
	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union
Grains	11.00	10.49	2.63	40.40	12.81	12.50	12.32	11.94	48.19
Vegetables and Fruits	11.00	3.32	7.12	17.78	16.02	13.46	13.42	13.32	7.21
Sugarcane, Coffee and Soybeans	11.00	1.75	1.30	17.24	10.69	9.26	9.65	8.64	3.70
Livestock and Other Agriculture	11.00	0.71	0.93	15.92	12.12	14.58	14.65	13.14	9.22
Mining	11.00	1.42	0.75	10.36	7.25	5.23	5.27	5.86	0.14
Meat Products	11.00	3.67	4.11	54.08	29.41	20.00	20.00	20.00	33.68
Processed Foods	11.00	4.61	8.29	23.48	16.98	18.13	18.19	17.94	19.90
Textiles and Apparel	11.00	11.44	11.12	21.58	13.93	18.14	18.14	18.21	7.92
Other Light Manufactures	10.90	3.81	3.77	16.26	13.82	13.94	14.36	14.63	2.20
Petroleum and Chemicals	11.00	3.19	3.82	12.42	6.23	8.64	9.11	8.75	4.24
Iron and Steel	11.00	2.84	3.88	13.36	6.95	10.42	10.91	10.22	2.05
Automobiles and Parts	10.27	4.99	3.98	14.58	12.48	13.18	12.83	13.18	4.14
Machinery and Equipment	10.72	2.74	3.20	14.13	6.60	9.33	10.01	9.19	2.53
Utilities and Construction	-	-	-	-	-	-	-	-	-
Trade and Services	-	-	-	-	-	-	-	-	-
Average	10.77	4.65	4.05	14.41	10.69	11.01	11.38	11.46	4.17

Sources: FTAA Hemispheric Database CD-ROM Prerelease, Jul 2001 for the countries and regions in the Western Hemisphere, and UNCTAD(Indicators of Tariff and Non-Tariff Trade Barriers CD-ROM), 2000.

Table 6. NTB Tariff Equivalents for Selected Countries

Sectors	Canada			United States			Mexico			European Union
	USA	Mexico	Rest	Canada	Mexico	Rest	Canada	USA	Rest	
Grains	10.3	12.1	80.0	1.5	5.4	23.0	12.5	10.4	80.0	42.6
Vegetables and Fruits	10.3	12.1	80.0	1.5	5.4	23.0	12.5	10.4	80.0	42.5
Sugarcane, Coffee and	10.3	12.1	80.0	1.5	5.4	23.0	12.5	10.4	80.0	42.5
Livestock and Other Agriculture	10.3	12.1	80.0	1.5	5.4	23.0	12.5	10.4	80.0	-
Mining	5.9	0.9	26.0	8.3	12.0	90.0	10.0	10.5	26.0	0.1
Meat Products	6.8	9.1	54.0	2.6	2.9	23.0	10.0	12.3	54.0	6.4
Processed Foods	6.8	9.1	54.0	2.6	2.8	23.0	10.0	12.3	54.0	6.4
Textiles and Apparel	6.5	11.3	55.0	0.3	6.3	41.0	0.0	0.4	55.0	0.9
Other Light Manufactures	1.6	1.5	26.0	0.3	2.6	24.0	0.6	0.6	26.0	1.5
Petroleum and Chemicals	0.6	-	5.0	0.5	1.3	4.0	0.5	0.3	5.0	6.6
Iron and Steel	1.1	0.4	14.0	-	7.1	3.0	0.4	0.4	14.0	-
Automobiles and Parts	7.1	9.5	61.0	8.1	0.5	68.0	2.1	2.1	61.0	4.7
Machinery and Equipment	0.1	-	1.0	0.4	0.1	9.0	1.9	1.8	1.0	4.7
Utilities and Construction	-	-	-	-	-	-	-	-	-	-
Trade and Services	-	-	-	-	-	-	-	-	-	-
Average	2.8	4.8	23.6	2.9	2.5	23.2	3.4	1.9	13.1	5.0

Sources: Bussolo and Roland-Holst (1998) for Canada, United States, and Mexico. With the NAFTA, NTBs among NAFTA countries are adjusted in to the tariff reduction. For the European Union, the sectoral NTB equivalents were estimated as differences between total protection minus ad valorem tariff rates, reported in Lewis, Robinson, and Wang

Table 7. Alternative scenarios

Scenarios	Experiment A	Experiment B
1. FTAA	Countries in the Western Hemisphere create a hemisphere-wide FTA by eliminating tariff barriers among them.	In addition to experiment A, NTBs in Canada, United States and Mexico on trade in the Western Hemisphere are completely eliminated.
2. MERCOSUR -EU FTA	MERCOSUR and the EU eliminate tariff barriers completely, including intra-regional protection.	Both tariff protection and NTBs in the EU are completely eliminated on trade between the two blocs.
3. FTAA plus MERCOSUR -EU FTA	Simultaneous undertaking of FTAA plus MERCOSUR-EU FTA: elimination of tariff protection only.	Tariff protections and NTBs among the countries in the Western Hemisphere, and between MERCOSUR and the EU are completely eliminated.

Table 8. Sectoral Export Growth Minus Average Growth under IRTS

Argentina						
Sectors	Experiment A: Tariff only			Experiment B: Tariff plus NTBs		
	Scenario-1	Scenario-2	Scenario-3	Scenario-1	Scenario-2	Scenario-3
Grains	-0.2	-1.9	-2.3	-4.4	-1.3	-5.9
Vegetables and Fruits	-2.4	-0.8	-3.2	-0.1	37.3	37.6
Sugarcane, Coffee and Soybeans	-2.6	-4.4	-7.0	-7.2	28.5	21.0
Livestock and Other Agriculture	-2.9	0.5	-2.6	-8.9	-6.7	-15.4
Mining	-0.4	-4.7	-5.0	11.6	-7.5	4.1
Meat Products	0.1	21.9	22.0	-1.7	23.0	21.1
Processed Foods	4.3	7.5	11.8	5.3	7.8	13.2
Textiles and Apparel	-0.7	-3.5	-4.1	-1.6	-5.7	-7.6
Other Light Manufactures	1.0	-2.9	-1.9	6.2	-8.7	-2.6
Petroleum and Chemicals	-0.4	-4.1	-4.5	-3.4	-7.2	-10.6
Iron and Steel	1.8	-4.4	-2.7	-1.6	-11.2	-12.7
Automobiles and Parts	-6.3	-7.1	-13.0	-8.1	-8.1	-16.2
Machinery and Equipment	-3.7	-7.1	-10.8	-9.2	-11.3	-20.6
Average Rate of Growth (%)	4.7	6.3	10.8	12.1	11.6	23.5

Brazil						
Sectors	Experiment A: Tariff only			Experiment B: Tariff plus NTBs		
	Scenario-1	Scenario-2	Scenario-3	Scenario-1	Scenario-2	Scenario-3
Grains	-3.7	30.6	27.3	-15.6	91.6	75.4
Vegetables and Fruits	0.9	-2.4	-1.4	19.9	24.5	46.2
Sugarcane, Coffee and Soybeans	-2.8	-0.9	-3.7	-7.5	61.4	54.6
Livestock and Other Agriculture	-3.1	-0.1	-3.2	-0.5	-11.7	-12.5
Mining	-4.4	-6.1	-10.5	-7.4	-16.5	-24.0
Meat Products	-1.4	16.7	15.6	-10.6	11.2	0.1
Processed Foods	1.9	14.4	17.0	-1.7	14.5	13.0
Textiles and Apparel	4.4	-1.3	3.1	19.9	-8.8	11.6
Other Light Manufactures	2.4	-2.3	0.2	15.6	-11.8	4.3
Petroleum and Chemicals	-1.8	-4.8	-6.5	-7.6	-11.8	-19.4
Iron and Steel	1.0	-3.9	-3.0	-5.3	-15.2	-20.8
Automobiles and Parts	0.3	-4.1	-5.4	16.6	-13.2	1.8
Machinery and Equipment	-0.1	-6.2	-6.2	-4.3	-17.3	-21.4
Average Rate of Growth (%)	7.4	8.6	15.8	17.5	18.4	35.7

Note: Trade in services is excluded.

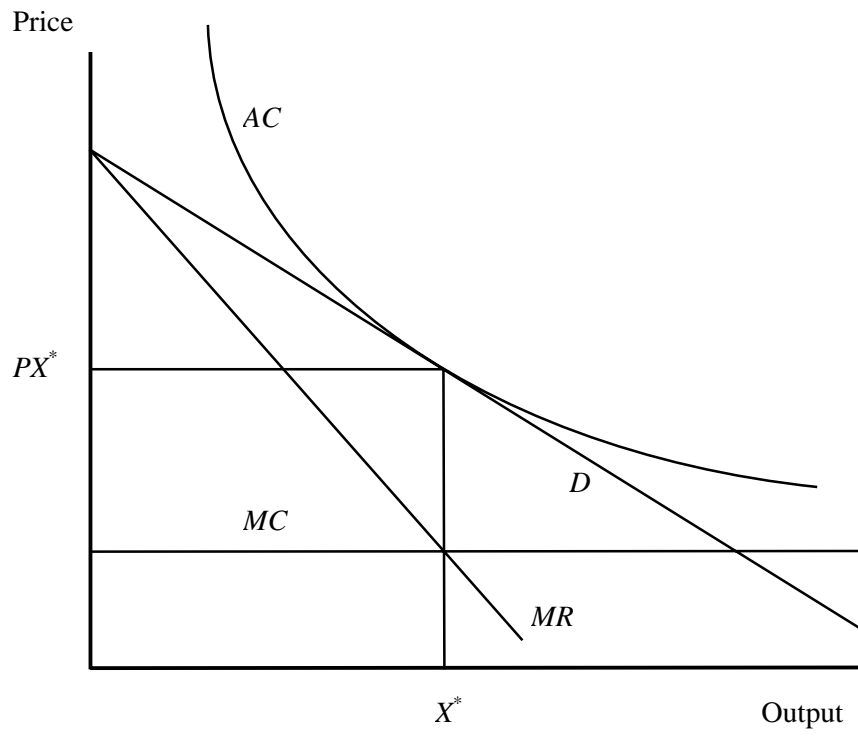
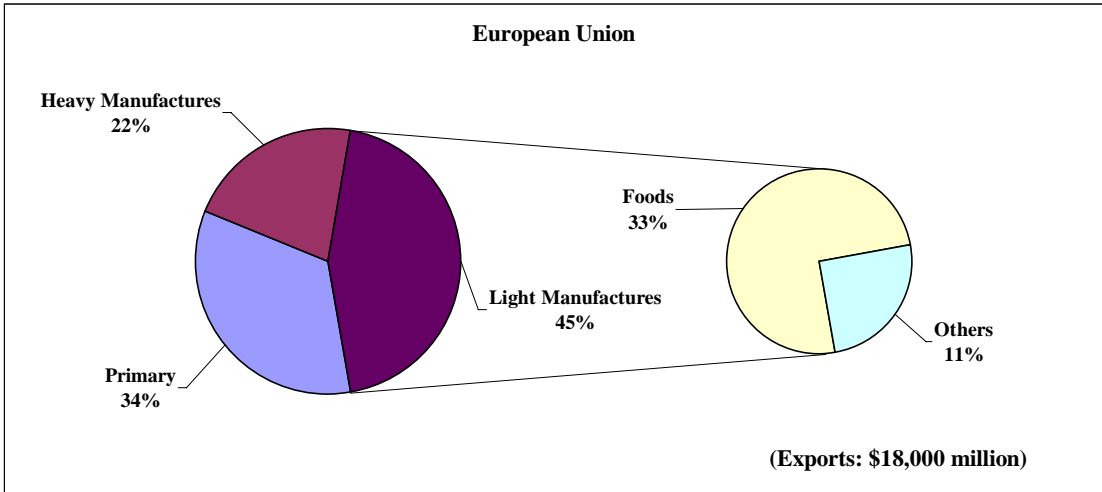
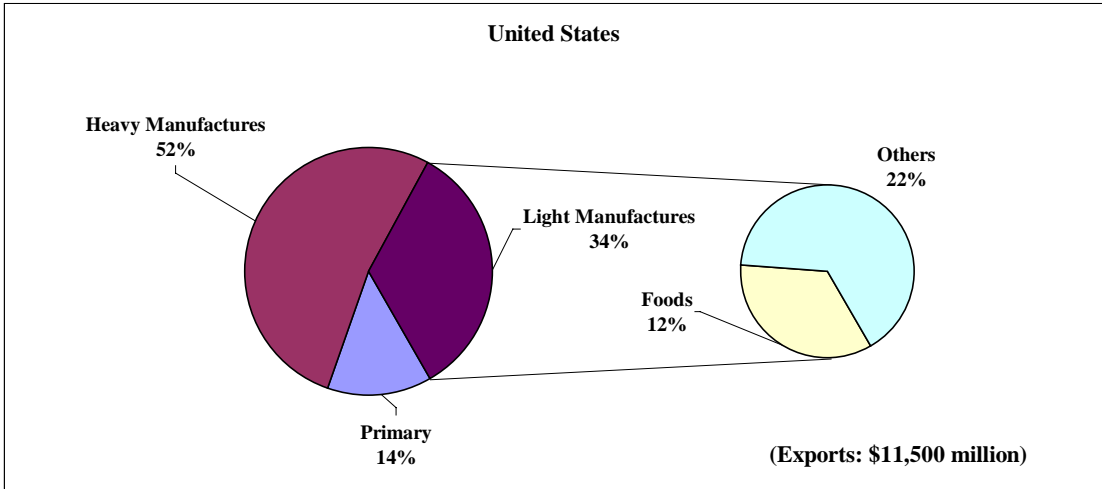


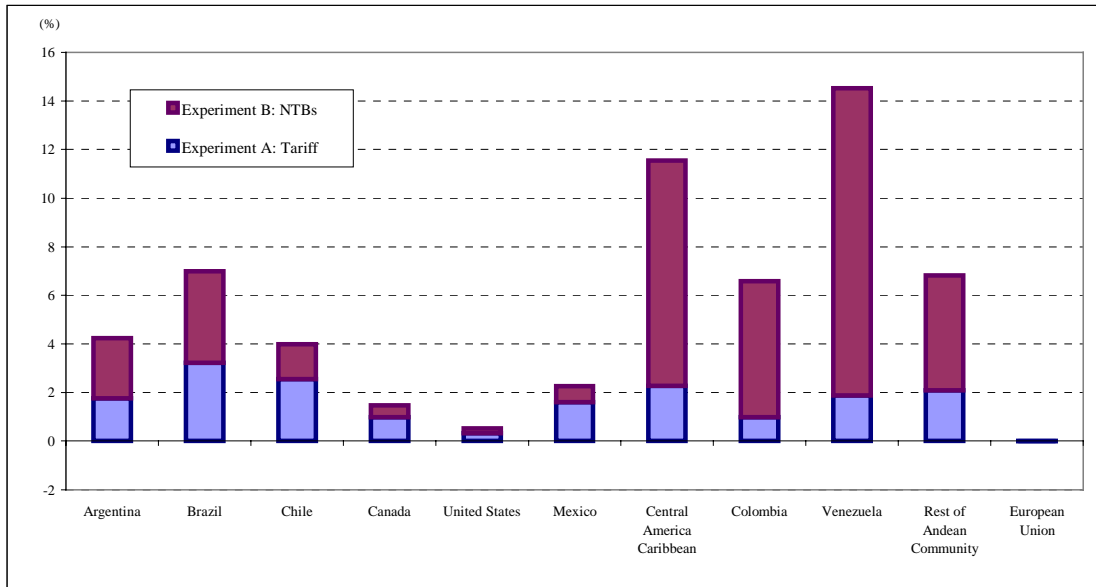
Figure 1. Pricing and Cost Structure of the Contestable Market



Excluding trade in services.

Figure 2. MERCOSUR's Exports to the United States and the European Union (1997)

Scenario 1: FTAA



Scenario 2: EU FTA

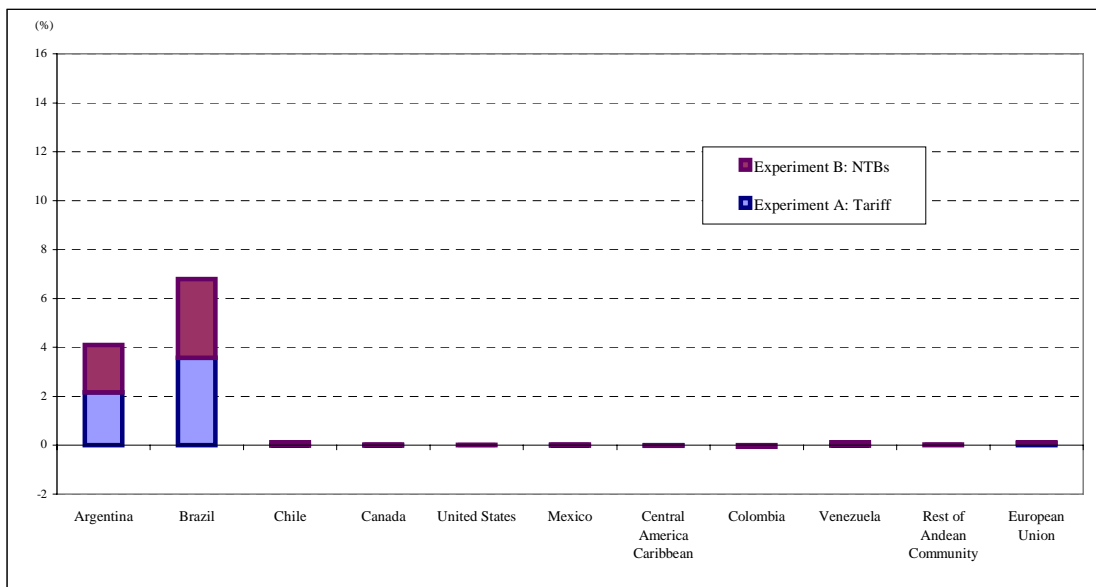
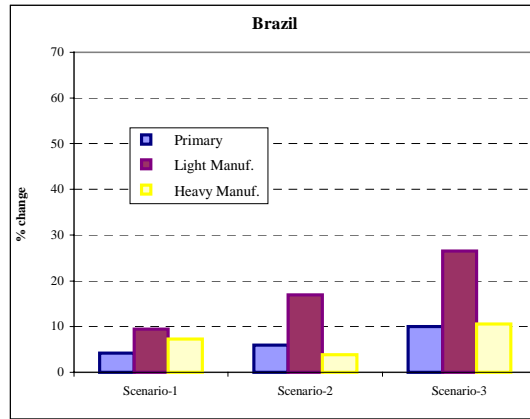
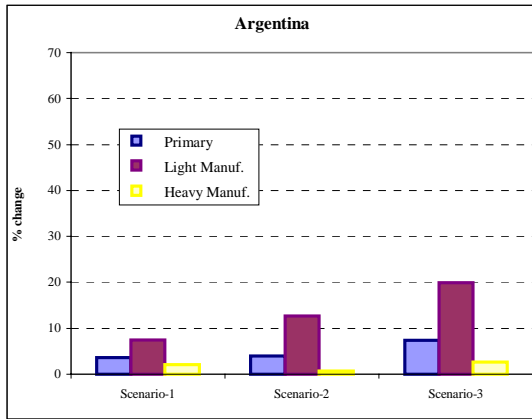
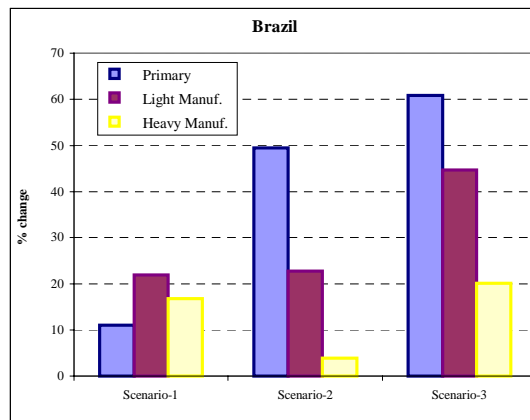
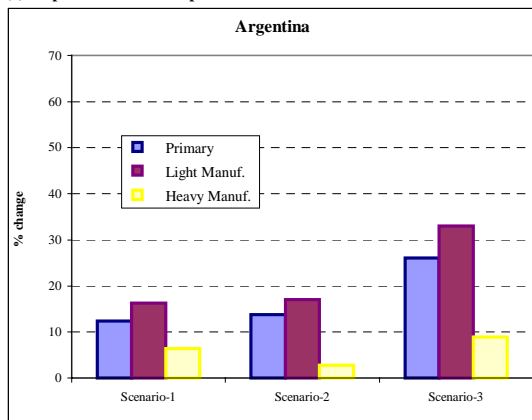


Figure 3. Impact of the Elimination of Trade Barriers on Real GDP under the FTAA and EU FTA (Version B: IRTS)

(1) Experiment A: Tariff only



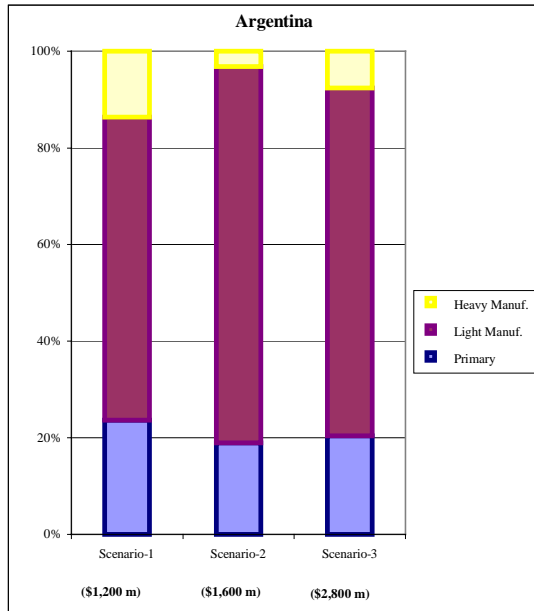
(2) Experiment B: Tariff plus NTBs



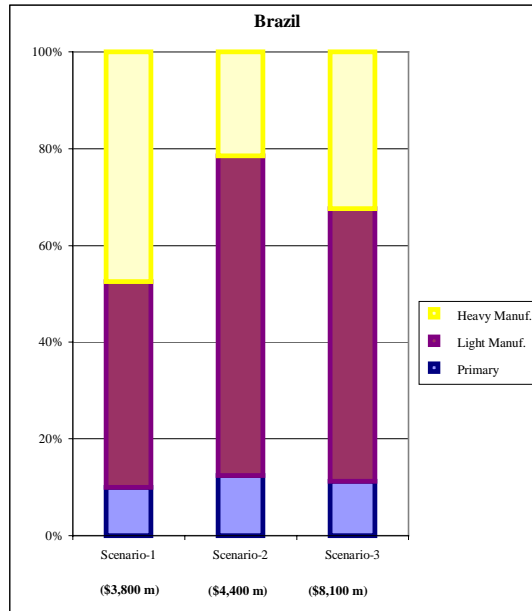
Note: Primary sector includes: grain; vegetable and fruits; sugarcane, coffee and soybeans; livestock and other agriculture; and mining.
 Light manufactures include: metal products; processed foods; textiles and apparel; and other light manufactures.
 Heavy manufactures include: petroleum and chemicals; iron and steel; automobiles and parts; and machinery and equipment.

Figure 4. Impact on Exports by Macro-sector for MERCOSUR under IRTS

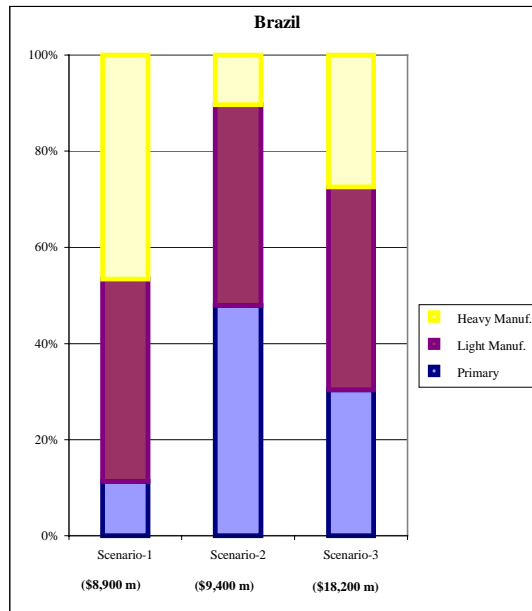
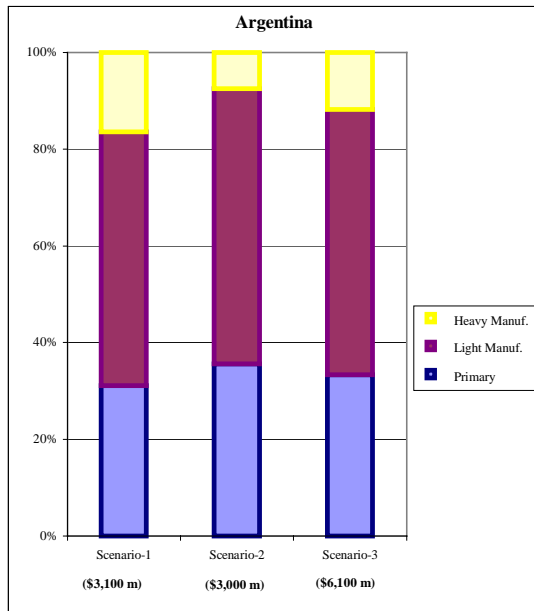
(1) Experiment A: Tariff only



(\$:million)



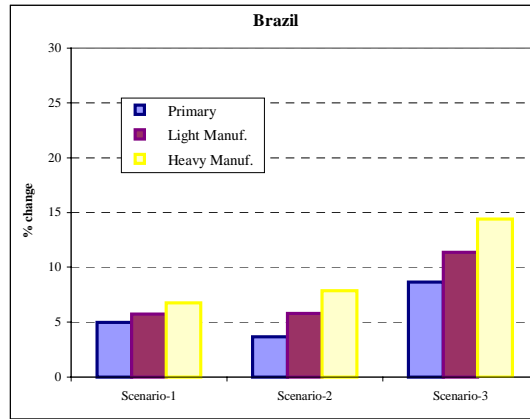
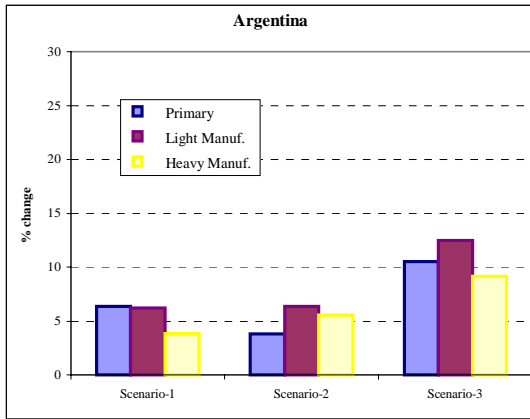
(2) Experiment B: Tariff plus NTBs



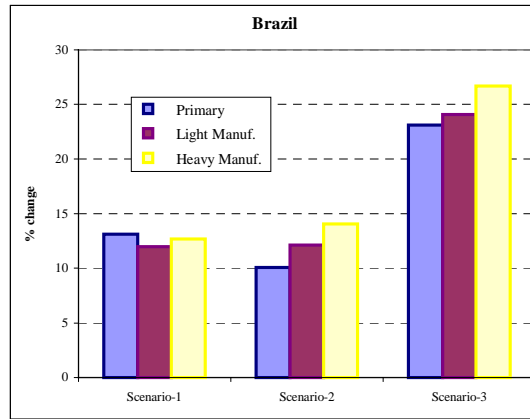
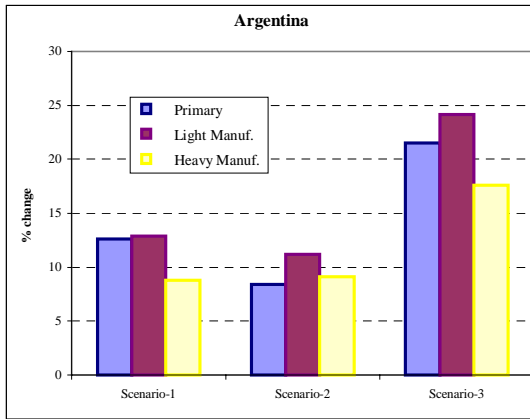
Note: Primary sector includes: grain; vegetable and fruits; sugarcane, coffee and soybeans; livestock and other agriculture; and mining.
 Light manufactures include: metal products; processed foods; textiles and apparel; and other light manufactures.
 Heavy manufactures include: petroleum and chemicals; iron and steel; automobiles and parts; and machinery and equipment.

Figure 5. Impact on the Composition of the Increased Exports by Macro-sector for MERCOSUR under IRTS

(1) Experiment A: Tariff only



(2) Experiment B: Tariff plus NTBs



Note: Primary sector includes: grain; vegetable and fruits; sugarcane, coffee and soybeans; livestock and other agriculture; and mining.
 Light manufactures include: metal products; processed foods; textiles and apparel; and other light manufactures.
 Heavy manufactures include: petroleum and chemicals; iron and steel; automobiles and parts; and machinery and equipment.

Figure 6. Impact on Imports by Macro-sector for MERCOSUR under IRTS

APPENDIX

Appendix Table 1. Structure of Production and Trade at Benchmark

Sectors/Commodities	Sectoral Composition (percent)			Sectors/Commodities	Sectoral Composition (percent)		
	Output (1)	Exports ^a (2)	Imports ^b (3)		Output (1)	Exports ^a (2)	Imports ^b (3)
Argentina				Central America and the Caribbean			
Primary	10.2	26.7	4.3	Primary	12.6	14.5	7.6
Manufacturing	54.1	62.1	81.7	Manufacturing	40.8	62.7	82.6
Services	35.7	11.1	14.1	Services	46.6	22.8	9.8
Total	100.0	100.0	100.0	Total	100.0	100.0	100.0
Brazil				Colombia			
Primary	7.8	15.5	10.5	Primary	13.0	43.1	4.9
Manufacturing	47.5	71.5	69.7	Manufacturing	31.2	30.2	75.0
Services	44.6	12.9	19.8	Services	55.8	26.7	20.1
Total	100.0	100.0	100.0	Total	100.0	100.0	100.0
Chile				Venezuela			
Primary	13.3	26.9	9.6	Primary	18.5	52.0	4.5
Manufacturing	35.5	58.5	76.4	Manufacturing	34.7	41.4	74.4
Services	51.2	14.5	14.0	Services	46.8	6.5	21.1
Total	100.0	100.0	100.0	Total	100.0	100.0	100.0
Canada				Rest of the Andean Community			
Primary	6.3	11.4	5.2	Primary	13.1	42.1	15.8
Manufacturing	33.9	75.1	80.7	Manufacturing	40.7	43.9	70.7
Services	59.9	13.6	14.1	Services	46.2	14.0	13.5
Total	100.0	100.0	100.0	Total	100.0	100.0	100.0
United States				European Union			
Primary	2.4	4.6	7.9	Primary	3.1	3.1	8.3
Manufacturing	27.6	70.7	76.9	Manufacturing	34.9	79.3	73.9
Services	69.9	24.8	15.2	Services	62.0	17.6	17.8
Total	100.0	100.0	100.0	Total	100.0	100.0	100.0
Mexico							
Primary	9.1	12.6	4.2				
Manufacturing	49.0	78.0	86.4				
Services	41.9	9.4	9.4				
Total	100.0	100.0	100.0				

Source: MERCOSUR Model Database.

Notes: ^a Exports in FOB. ^b imports in CIF.

Appendix Table 2. Sectoral Exports by Destination at Benchmark (Percent)

Argentina

	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total (percent)	Total (\$million)
Grains	10.1	5.1	0.0	1.0	0.0	20.5	20.2	19.2	17.4	3.4	20.5	11.5	3,006.1
Vegetables and Fruits	4.6	0.4	18.1	2.7	4.1	3.8	0.0	7.4	0.5	11.5	1.3	4.1	1,071.3
Sugarcane, Coffee and Soybeans	0.1	0.6	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.0	0.7	0.9	231.6
Livestock and Other Agriculture	2.1	0.3	0.0	4.0	2.2	0.0	0.0	0.0	1.0	11.0	5.1	4.3	1,122.3
Mining	11.1	40.6	0.0	20.7	0.0	1.8	0.0	0.0	0.0	0.8	3.3	9.3	2,434.6
Primary	28.1	46.9	18.1	29.8	6.2	26.1	20.2	26.6	18.9	29.6	30.9	30.1	7,865.9
Meat Products	1.2	7.9	3.4	6.0	0.0	1.1	0.0	0.0	2.6	12.7	2.2	4.2	1,089.7
Processed Foods	8.9	12.0	21.1	19.4	33.2	50.7	30.6	47.0	19.9	36.8	37.3	24.6	6,436.8
Textiles and Apparel	5.6	4.1	0.0	0.6	3.3	0.0	5.6	0.0	2.7	1.3	1.6	2.9	759.0
Other Light Manufactures	4.2	3.7	31.0	18.1	6.5	4.5	3.8	1.6	2.6	8.9	7.8	7.2	1,883.5
Light Manufactures	19.8	27.6	55.5	44.0	43.0	56.4	39.9	48.6	27.8	59.7	48.9	38.9	10,169.0
Petroleum and Chemicals	11.2	14.0	4.9	10.8	18.1	7.7	20.8	6.4	25.1	4.7	9.1	10.2	2,665.7
Iron and Steel	1.8	5.0	21.4	7.2	19.6	2.4	11.7	10.8	20.5	3.5	6.1	5.1	1,328.2
Automobiles and Parts	30.0	2.0	0.0	3.6	2.9	3.7	0.0	2.0	1.1	0.7	2.1	10.6	2,779.8
Machinery and Equipment	9.1	4.4	0.0	4.5	10.2	3.8	7.4	5.6	6.7	1.7	2.8	5.1	1,326.8
Heavy Manufactures	52.1	25.5	26.3	26.1	50.8	17.6	39.9	24.8	53.3	10.6	20.1	31.0	8,100.5
Total (\$million)	8,105.6	1,919.9	127.0	2,197.7	214.5	314.3	163.5	313.5	850.4	3,992.9	7,936.0		26,135.4

Brazil

	Argentina	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total (percent)	Total (\$million)
Grains	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	48.8
Vegetables and Fruits	0.2	0.0	2.4	1.5	0.0	0.0	0.0	0.0	0.0	0.8	0.2	0.6	310.4
Sugarcane, Coffee and Soybeans	1.6	1.5	8.6	5.2	2.6	1.3	1.5	0.0	1.1	24.8	7.4	10.4	5,338.1
Livestock and Other Agriculture	0.1	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.5	0.4	0.4	214.7
Mining	2.2	0.3	9.5	2.3	5.5	5.0	0.0	1.4	0.0	8.6	9.7	6.3	3,224.1
Primary	4.2	1.8	20.5	9.9	8.0	6.3	1.5	1.4	1.1	34.9	17.8	17.8	9,136.1
Meat Products	2.1	0.0	1.1	0.8	0.0	1.7	0.0	0.0	0.0	3.7	5.3	3.1	1,575.1
Processed Foods	3.6	3.7	10.0	7.5	5.1	7.1	2.4	4.4	3.4	25.1	28.2	17.7	9,087.5
Textiles and Apparel	5.2	3.8	4.2	2.6	1.4	2.3	8.9	1.1	6.9	1.3	1.6	2.4	1,252.4
Other Light Manufactures	6.6	6.9	11.7	20.3	2.3	8.4	4.8	5.0	10.3	10.2	7.5	10.4	5,328.2
Light Manufactures	17.5	14.5	27.0	31.1	8.8	19.5	16.1	10.5	20.6	40.3	42.7	33.7	17,243.2
Petroleum and Chemicals	19.4	20.4	10.7	13.4	19.0	10.1	23.7	15.7	20.9	6.9	11.5	12.3	6,309.8
Iron and Steel	9.7	17.1	28.3	15.6	19.5	8.1	11.4	16.9	11.4	6.7	15.2	12.2	6,268.2
Automobiles and Parts	28.5	26.3	1.5	8.3	19.2	37.2	16.8	32.6	14.2	5.2	6.0	10.9	5,596.9
Machinery and Equipment	20.6	20.0	11.9	21.7	25.5	18.8	30.5	22.9	31.8	6.1	6.8	13.0	6,653.7
Heavy Manufactures	78.3	83.7	52.4	59.0	83.2	74.2	82.4	88.1	78.3	24.8	39.5	48.5	24,828.6
Total (\$million)	6,760.5	1,188.7	572.8	9,260.2	795.0	720.5	501.4	760.7	1,163.0	14,056.9	15,428.2		51,207.8

Appendix Table 3. Sectoral Imports by Origin at Benchmark

Argentina

	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total (percent)	Total (\$million)
Grains	0.1	0.0	1.4	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.3	82.8
Vegetables and Fruits	0.2	5.2	0.9	0.3	0.0	0.0	0.0	0.0	14.3	0.1	0.3	0.5	155.3
Sugarcane, Coffee and Soybeans	1.6	1.0	1.9	2.9	0.0	0.0	13.9	0.0	11.8	0.2	1.4	1.5	471.9
Livestock and Other Agriculture	0.1	2.0	0.0	0.3	0.0	0.0	0.0	0.0	1.1	0.3	0.4	0.3	100.8
Mining	2.2	0.5	1.8	0.6	0.0	0.0	38.4	0.0	27.9	0.1	5.4	2.3	714.5
Primary	4.2	8.8	6.0	4.8	0.0	0.0	52.3	0.0	55.1	0.8	7.8	5.0	1,525.3
Meat Products	2.1	3.9	0.0	0.1	0.0	0.0	0.0	0.0	3.6	0.5	0.6	0.9	286.5
Processed Foods	3.6	9.4	1.3	1.4	2.7	0.0	0.0	0.0	17.0	2.0	1.8	2.5	779.7
Textiles and Apparel	5.1	5.9	2.0	1.4	6.7	0.0	10.4	0.0	2.5	1.8	5.5	3.5	1,078.2
Other Light Manufactures	6.7	17.9	14.0	4.4	4.9	0.0	13.4	0.0	13.6	5.8	5.8	6.2	1,908.5
Light Manufactures	17.5	37.0	17.3	7.3	14.2	0.0	23.8	0.0	36.7	10.1	13.7	13.2	4,052.9
Petroleum and Chemicals	19.8	11.3	15.9	25.1	24.3	82.7	17.4	86.3	4.2	24.0	19.8	21.8	6,683.1
Iron and Steel	9.6	19.3	3.5	4.0	10.3	17.3	0.0	13.7	1.8	6.0	6.2	6.8	2,089.6
Automobiles and Parts	28.4	10.8	21.6	9.0	23.0	0.0	0.0	0.0	0.0	18.0	11.0	16.7	5,125.3
Machinery and Equipment	20.6	12.9	35.7	49.8	28.1	0.0	6.5	0.0	2.2	41.0	41.5	36.4	11,165.7
Heavy Manufactures	78.4	54.2	76.7	87.9	85.8	100.0	23.9	100.0	8.2	89.1	78.5	81.8	25,063.7
Total (\$million)	7,128.2	778.7	444.3	6,123.4	532.9	34.4	95.6	52.8	347.7	8,320.9	6,782.9		30,641.8

Brazil

	Argentina	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total (percent)	Total (\$million)
Grains	10.3	0.0	10.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	2.1	1,335.8
Vegetables and Fruits	4.7	11.4	0.8	0.3	0.9	2.5	0.0	0.0	4.5	0.4	0.4	1.2	747.2
Sugarcane, Coffee and Soybeans	0.1	0.5	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.7	440.1
Livestock and Other Agriculture	2.1	3.6	0.3	0.3	0.0	0.0	0.0	0.0	1.4	0.4	1.9	1.0	670.8
Mining	11.0	16.3	9.2	2.9	0.7	0.0	8.3	57.3	43.0	0.5	14.4	8.1	5,242.7
Primary	28.3	31.8	21.1	4.9	1.5	2.5	8.3	57.3	48.8	1.3	19.3	13.1	8,436.6
Meat Products	1.2	0.0	0.7	0.1	0.0	0.0	0.0	0.8	3.8	0.1	0.7	0.5	301.9
Processed Foods	8.8	6.6	4.1	1.4	4.5	6.2	3.4	1.7	5.3	3.4	4.0	3.9	2,507.5
Textiles and Apparel	5.5	2.4	0.4	2.2	3.4	6.8	16.5	1.4	4.3	1.8	7.3	4.0	2,573.2
Other Light Manufactures	4.2	12.9	11.9	3.8	1.3	4.5	10.9	0.0	1.2	4.0	2.2	3.7	2,379.8
Light Manufactures	19.7	21.9	17.1	7.6	9.1	17.5	30.8	4.0	14.6	9.3	14.2	12.0	7,762.5
Petroleum and Chemicals	11.4	15.0	22.2	23.0	35.6	57.4	52.7	36.1	11.2	25.8	22.4	22.5	14,484.3
Iron and Steel	1.7	28.3	5.0	3.6	7.2	4.5	0.0	1.9	24.1	6.1	3.1	4.4	2,860.6
Automobiles and Parts	30.1	0.6	9.2	10.4	12.3	2.2	0.0	0.0	0.0	10.3	5.6	11.2	7,225.3
Machinery and Equipment	8.8	2.3	25.4	50.5	34.2	16.0	8.2	0.7	1.2	47.2	35.3	36.8	23,741.1
Heavy Manufactures	52.1	46.3	61.8	87.5	89.3	80.1	60.9	38.7	36.5	89.4	66.5	74.9	48,311.3
Total (\$million)	8,566.6	1,016.1	1,507.3	15,324.0	1,250.0	168.8	144.6	1,179.2	376.4	16,792.2	18,185.2		64,510.4

Appendix Table 4. Aggregate Impact of the Alternative Integration Options (Percent)

(1) Version A: CRTS

	Benchmark (\$billion)	Experiment A			Experiment B		
		Scenario-1	Scenario-2	Scenario-3	Scenario-1	Scenario-2	Scenario-3
		FTAA	EU FTA	Both	FTAA	EU FTA	Both
Gross Exports							
Argentina	26.1	4.44	6.13	10.41	11.56	11.21	22.53
Brazil	51.2	7.10	8.31	15.18	16.68	17.54	33.99
MERCOSUR	77.3	6.20	7.58	13.57	14.95	15.40	30.12
Chile	16.7	6.27	0.00	6.29	11.18	0.32	11.52
Canada	174.7	2.59	-0.03	2.56	4.42	0.05	4.48
United States	623.2	2.47	-0.05	2.42	5.50	0.05	5.57
Mexico	110.1	3.38	-0.03	3.35	4.74	0.04	4.79
NAFTA	908.0	2.60	-0.04	2.56	5.20	0.05	5.26
Central America and the Caribbean	30.7	7.59	-0.03	7.56	40.66	-0.18	40.53
Colombia	10.6	3.05	-0.06	2.99	30.53	-0.36	30.18
Venezuela	22.8	3.74	0.03	3.79	36.59	0.28	36.93
Rest of AC	13.2	5.17	0.03	5.22	19.62	0.10	19.75
Andean Community	46.7	3.99	0.01	4.01	30.40	0.08	30.53
European Union	1,917.5	-0.09	0.41	0.31	-0.10	0.55	0.44
Gross Imports							
Argentina	30.6	4.10	5.41	9.29	9.09	8.98	17.85
Brazil	64.5	6.17	6.86	12.81	12.09	12.75	24.73
MERCOSUR	95.2	5.50	6.39	11.68	11.12	11.53	22.52
Chile	18.0	5.66	0.00	5.68	9.06	0.25	9.33
Canada	190.4	2.36	-0.01	2.34	4.24	0.06	4.30
United States	856.0	1.45	0.01	1.45	3.86	0.07	3.94
Mexico	105.4	3.55	-0.02	3.53	5.07	0.05	5.13
NAFTA	1,151.7	1.79	0.00	1.79	4.03	0.07	4.11
Central America and the Caribbean	53.2	4.71	0.00	4.71	20.78	-0.05	20.75
Colombia	13.9	3.80	0.00	3.79	19.42	-0.15	19.27
Venezuela	14.6	6.50	0.06	6.57	45.03	0.35	45.47
Rest of AC	15.9	5.08	0.05	5.14	15.29	0.10	15.42
Andean Community	44.3	5.14	0.04	5.19	26.36	0.11	26.50
European Union	1,907.8	-0.03	0.35	0.31	0.01	0.52	0.54
Real GDP							
Argentina	336.5	1.62	2.02	3.58	3.90	3.78	7.48
Brazil	964.1	2.90	3.25	5.95	6.25	6.00	11.85
MERCOSUR	1,300.7	2.57	2.93	5.34	5.64	5.43	10.72
Chile	76.1	2.22	-0.01	2.22	3.63	0.11	3.74
Canada	594.1	0.84	0.00	0.83	1.18	0.03	1.20
United States	7,914.5	0.31	0.00	0.31	0.44	0.02	0.46
Mexico	380.5	1.39	0.00	1.39	1.92	0.02	1.94
NAFTA	8,889.2	0.39	0.00	0.39	0.55	0.02	0.57
Central America and the Caribbean	93.8	1.62	0.00	1.62	9.03	-0.03	9.01
Colombia	93.7	0.91	0.00	0.90	6.00	-0.05	5.94
Venezuela	84.7	1.72	-0.01	1.74	13.68	0.10	13.78
Rest of AC	91.4	1.86	0.01	1.87	6.04	0.03	6.07

(continued)

(2) Version B: IRTS

	Benchmark (\$billion)	Experiment A			Experiment B		
		Scenario-1	Scenario-2	Scenario-3	Scenario-1	Scenario-2	Scenario-3
		FTAA	EU FTA	Both	FTAA	EU FTA	Both
Gross Exports							
Argentina	26.1	4.66	6.31	10.82	12.05	11.64	23.45
Brazil	51.2	7.44	8.61	15.83	17.50	18.38	35.66
MERCOSUR	77.3	6.50	7.83	14.14	15.66	16.10	31.54
Chile	16.7	6.72	0.01	6.76	11.40	0.36	11.79
Canada	174.7	2.76	-0.03	2.72	4.80	0.06	4.87
United States	623.2	2.53	-0.05	2.48	5.77	0.06	5.85
Mexico	110.1	3.57	-0.03	3.54	5.04	0.04	5.09
NAFTA	908.0	2.70	-0.04	2.65	5.50	0.06	5.57
Central America and the Caribbean	30.7	8.49	-0.03	8.46	44.40	-0.16	44.29
Colombia	10.6	3.17	-0.06	3.11	31.13	-0.36	30.78
Venezuela	22.8	3.92	0.04	3.98	37.23	0.31	37.61
Rest of AC	13.2	5.41	0.04	5.47	20.28	0.13	20.45
Andean Community	46.7	5.38	0.02	4.20	31.03	0.11	31.19
European Union	1,917.5	-0.09	0.43	0.33	-0.11	0.58	0.47
Gross Imports							
Argentina	30.6	4.29	5.57	9.65	9.51	9.35	18.65
Brazil	64.5	6.41	7.07	13.28	12.66	13.32	25.90
MERCOSUR	95.2	5.73	6.58	12.11	11.65	12.04	23.57
Chile	18.0	6.01	0.01	6.05	9.28	0.28	9.59
Canada	190.4	2.50	-0.01	2.48	4.58	0.06	4.65
United States	856.0	1.50	0.01	1.50	4.02	0.08	4.11
Mexico	105.4	3.72	-0.01	3.71	5.34	0.06	5.41
NAFTA	1,151.7	1.87	0.00	1.87	4.23	0.08	4.32
Central America and the Caribbean	53.2	5.22	0.00	5.22	22.96	-0.04	22.94
Colombia	13.9	3.89	0.00	3.89	19.98	-0.15	19.84
Venezuela	14.6	6.74	0.06	6.83	46.20	0.39	46.70
Rest of AC	15.9	5.26	0.06	5.33	15.81	0.13	15.97
Andean Community	44.3	5.32	0.04	5.37	27.10	0.13	27.28
European Union	1,907.8	-0.03	0.36	0.33	0.02	0.55	0.57
Real GDP							
Argentina	336.5	1.76	2.17	3.87	4.24	4.10	8.11
Brazil	964.1	3.22	3.57	6.57	6.98	6.80	13.31
MERCOSUR	1,300.7	2.84	3.21	5.87	6.27	6.10	11.97
Chile	76.1	2.55	-0.01	2.55	3.98	0.12	4.11
Canada	594.1	0.98	0.00	0.98	1.47	0.03	1.50
United States	7,914.5	0.33	0.00	0.33	0.52	0.02	0.54
Mexico	380.5	1.61	0.00	1.61	2.26	0.03	2.29
NAFTA	8,889.2	0.43	0.00	0.43	0.66	0.02	0.68
Central America and the Caribbean	93.8	2.27	0.00	2.27	11.56	-0.02	11.55
Colombia	93.7	0.99	0.00	0.98	6.58	-0.05	6.53
Venezuela	84.7	1.89	-0.01	1.91	14.52	0.12	14.65
Rest of AC	91.4	2.09	0.01	2.10	6.81	0.04	6.85

Appendix Table 5. Impact on Sectoral Exports by Market (Version B: IRTS)

(1) Experiment A: Tariff only

Argentina

Scenario 1: FTAA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		2.49	13.84		5.62		15.88	14.37	14.88	17.80	0.73	2.95	4.47
Vegetables and Fruits		-0.36	14.89	3.88	11.18	18.39	25.10		20.46	22.01	0.76	3.22	2.27
Sugarcane, Coffee and Soybeans		-0.12	13.69		3.72						0.32	2.78	2.04
Livestock and Other Agriculture		1.21	16.14		3.46	16.69				24.03	0.56	2.21	1.80
Mining		2.19	8.84		1.03		8.54				0.30	3.79	4.26
Meat Products		0.22	14.21	5.33	7.69		47.13			31.10	0.92	3.71	4.75
Processed Foods		0.49	14.27	7.94	14.89	27.58	25.83	27.96	29.51	28.26	2.31	9.21	8.93
Textiles and Apparel		-0.40	12.62		14.24	23.98		25.59		27.68	1.86	7.27	4.00
Other Light Manufactures		-1.73	12.75	7.20	8.53	24.93	22.14	21.79	23.97	23.06	2.07	7.35	5.69
Petroleum and Chemicals		0.19	9.09	5.93	6.23	16.41	6.83	8.23	10.14	9.15	0.78	5.25	4.25
Iron and Steel		-1.25	8.12	5.75	7.90	19.04	9.10	11.77	13.24	11.24	1.37	6.02	6.50
Automobiles and Parts		-2.62	6.07		4.41	13.02	19.16		15.19	16.09	0.82	3.49	-1.67
Machinery and Equipment		-3.65	8.04		6.75	26.58	8.71	10.92	11.00	11.01	1.21	4.08	0.97
Total		-0.66	10.45	6.32	7.44	22.47	20.77	17.60	21.62	16.72	1.47	6.15	4.66

Scenario 2: MERCOSUR-EU FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		3.20	0.33		0.40		0.39	0.36	0.33	0.31	59.68	1.57	4.43
Vegetables and Fruits		2.47	1.14	1.06	1.06	1.08	1.12		1.12	1.16	9.63	4.10	5.51
Sugarcane, Coffee and Soybeans		0.21	-0.48		-0.24						3.98	-0.25	1.94
Livestock and Other Agriculture		3.04	-0.19		-0.19	-0.18				-0.15	16.65	-0.53	6.78
Mining		3.57	-0.23		0.29		0.26				0.60	3.07	1.64
Meat Products		1.20	1.37	1.38	1.36		1.40			1.35	57.63	5.19	28.17
Processed Foods		1.01	2.84	2.87	2.85	2.85	2.85	2.83	2.86	2.80	35.49	10.99	13.83
Textiles and Apparel		0.87	1.63		1.63	1.62		1.55		1.56	15.02	6.18	2.84
Other Light Manufactures		-0.33	1.71	1.69	1.66	1.68	1.69	1.64	1.69	1.60	5.90	5.77	3.46
Petroleum and Chemicals		1.27	0.48	0.71	0.70	0.69	0.69	0.65	0.68	0.56	5.97	4.42	2.24
Iron and Steel		-0.32	0.34	0.77	0.77	0.78	0.76	0.70	0.70	0.50	4.23	3.29	1.86
Automobiles and Parts		-1.19	0.27		0.59	0.54	0.55		0.49	0.43	6.79	2.48	-0.79
Machinery and Equipment		-2.41	0.35		0.45	0.45	0.43	0.37	0.36	0.31	4.85	1.51	-0.74
Total		0.60	0.61	1.57	1.20	1.49	1.77	1.33	1.67	1.00	26.73	5.91	6.31

Scenario 3: FTAA plus MERCOSUR-EU FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		5.55	14.06		5.83		16.12	14.56	15.08	17.98	60.51	3.82	8.47
Vegetables and Fruits		1.94	16.00	4.78	12.15	19.45	26.26		21.60	23.19	10.25	6.73	7.59
Sugarcane, Coffee and Soybeans		0.07	13.07		3.33						4.18	2.03	3.77
Livestock and Other Agriculture		4.10	15.74		3.07	16.24				23.60	17.06	1.02	8.24
Mining		5.56	8.66		1.28		8.79				0.86	6.56	5.81
Meat Products		1.28	15.55	6.55	8.91		48.85			32.58	58.70	8.21	32.85
Processed Foods		1.23	17.15	10.66	17.76	30.77	28.97	31.13	32.78	31.41	38.14	19.74	22.63
Textiles and Apparel		0.29	14.22		15.85	25.71		27.25		29.38	16.90	13.00	6.67
Other Light Manufactures		-2.06	14.37	8.71	10.01	26.67	23.84	23.44	25.72	24.67	7.78	12.50	8.87
Petroleum and Chemicals		1.32	9.56	6.57	6.86	17.09	7.46	8.82	10.81	9.67	6.68	9.27	6.32
Iron and Steel		-1.55	8.38	6.39	8.55	19.76	9.75	12.36	13.87	11.64	5.47	8.79	8.12
Automobiles and Parts		-3.47	6.34		4.93	13.54	19.72		15.69	16.51	7.57	5.68	-2.19
Machinery and Equipment		-6.00	8.15		6.93	26.79	8.87	11.02	11.12	11.05	5.82	4.68	0.03
Total		-0.05	11.05	7.73	8.54	24.03	22.65	18.96	23.44	17.73	28.29	11.52	10.82

Brazil

Scenario 1: FTAA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains	4.07										1.77	6.93	3.78
Vegetables and Fruits	3.56			5.89	13.34						2.71	10.74	8.29
Sugarcane, Coffee and Soybeans	3.55		13.42	4.74	5.87	23.82	25.14	17.07		18.38	2.40	10.07	4.62
Livestock and Other Agriculture	3.00				4.84						1.90	6.82	4.38
Mining	0.09		7.40	2.93	1.18	12.00	8.69		10.63		0.44	5.25	3.04
Meat Products	1.67			6.60	8.98		48.90				2.13	8.36	6.04
Processed Foods	1.61		12.92	8.92	15.94	28.74	26.97	29.13	30.69	29.43	3.25	12.91	9.38
Textiles and Apparel	3.04		12.33	16.01	16.36	26.28	22.60	27.92	30.59	30.05	3.75	14.76	11.83
Other Light Manufactures	3.48		12.26	9.28	10.63	27.35	24.51	24.15	26.38	25.44	4.06	14.45	9.83
Petroleum and Chemicals	0.23		7.89	6.50	6.80	17.03	7.40	8.80	10.73	9.73	1.32	8.66	5.63
Iron and Steel	1.63		7.25	6.98	9.15	20.42	10.37	13.07	14.56	12.53	2.54	11.03	8.47
Automobiles and Parts	5.08		5.09	7.90	6.00	14.74	20.97	17.65	16.95	17.86	2.36	9.94	7.78
Machinery and Equipment	-0.56		7.24	8.44	8.65	28.84	10.65	12.90	12.98	13.00	3.02	10.42	7.33
Total	2.09		7.66	7.35	9.13	21.11	17.48	15.07	15.79	16.03	2.59	10.70	7.44

Scenario 2: MERCOSUR-EU FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains	7.88										63.11	9.80	39.18
Vegetables and Fruits	3.99			2.27	2.27						10.95	8.75	6.18
Sugarcane, Coffee and Soybeans	8.33		2.77	2.90	3.02	3.02	3.09	3.03		3.19	7.37	11.03	7.69
Livestock and Other Agriculture	6.50				1.62						18.76	5.59	8.55
Mining	0.82		-0.08	0.43	0.44	0.40	0.41		0.41		0.75	4.65	2.53
Meat Products	2.46			2.64	2.62		2.65				59.57	10.03	25.29
Processed Foods	2.87		4.24	4.27	4.25	4.25	4.25	4.23	4.26	4.20	37.33	16.62	22.97
Textiles and Apparel	3.61		3.31	3.32	3.31	3.31	3.32	3.23	3.35	3.24	16.93	12.77	7.27
Other Light Manufactures	3.99		3.37	3.35	3.31	3.34	3.34	3.30	3.34	3.26	7.62	11.62	6.34
Petroleum and Chemicals	0.99		1.00	1.23	1.22	1.21	1.22	1.17	1.21	1.09	6.52	7.73	3.80
Iron and Steel	2.51		1.46	1.90	1.90	1.91	1.89	1.83	1.83	1.63	5.39	8.00	4.74
Automobiles and Parts	4.86		1.36	1.69	1.69	1.64	1.65	1.62	1.59	1.52	7.96	7.04	4.46
Machinery and Equipment	-0.79		1.61	1.72	1.71	1.70	1.69	1.62	1.62	1.56	6.16	5.81	2.39
Total	2.44		1.69	2.23	2.28	1.79	1.97	1.85	1.79	1.86	16.36	10.54	8.61

Scenario 3: FTAA plus MERCOSUR-EU FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains	12.10										65.52	16.21	43.15
Vegetables and Fruits	7.72			8.02	15.62						13.66	19.34	14.46
Sugarcane, Coffee and Soybeans	11.81		16.26	7.43	8.72	27.14	28.56	20.22		21.74	9.61	20.86	12.13
Livestock and Other Agriculture	9.67				6.24						20.66	11.76	12.67
Mining	1.00		7.36	3.31	1.56	12.39	9.08		11.03		1.13	9.49	5.36
Meat Products	4.30			9.09	11.51		52.39				62.49	17.98	31.39
Processed Foods	4.27		17.30	13.15	20.41	33.71	31.87	34.08	35.77	34.37	41.25	29.91	32.81
Textiles and Apparel	5.71		15.64	19.42	19.78	29.98	26.21	31.57	34.48	33.77	20.86	27.70	18.98
Other Light Manufactures	5.78		15.64	12.55	13.90	31.14	28.22	27.79	30.15	29.07	11.59	26.29	16.05
Petroleum and Chemicals	1.36		8.89	7.66	7.95	18.29	8.56	9.93	11.94	10.79	7.77	16.15	9.38
Iron and Steel	2.02		8.63	8.75	10.96	22.42	12.19	14.86	16.40				

(continued)

(2) Experiment B: Tariff plus NTBs

Argentina

Scenario 1: FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		12.09	21.91		44.13		39.49	40.13	65.11	35.82	-0.48	-1.96	7.61
Vegetables and Fruits		2.39	25.84	152.12	51.78	198.66	56.91		97.07	39.05	0.58	1.35	11.99
Sugarcane, Coffee and Soybeans		5.63	21.42		41.08						-1.34	-5.41	4.89
Livestock and Other Agriculture		8.56	24.07		43.93	215.79				42.32	-1.77	-6.13	3.16
Mining		9.26	7.47		91.14		21.90				0.54	6.47	23.62
Meat Products		7.00	21.28	103.56	46.82		81.64			46.68	-0.39	-1.74	10.38
Processed Foods		7.03	21.32	110.82	58.73	150.52	52.92	54.79	94.67	44.13	2.44	9.10	17.37
Textiles and Apparel		4.58	17.32		88.36	146.10		47.97		40.47	1.82	6.83	10.43
Other Light Manufactures		1.43	17.12	57.94	56.40	84.40	45.57		81.94	34.90	1.89	6.37	18.21
Petroleum and Chemicals		6.29	13.13	11.04	9.61	22.71	27.60	25.85	49.11	19.71	0.73	5.03	8.63
Iron and Steel		4.11	13.07	27.65	11.36	41.80	22.77	28.72	57.39	20.96	0.61	2.63	10.43
Automobiles and Parts		-0.24	6.76		121.03	123.48	24.51		51.69	22.75	0.40	1.32	3.97
Machinery and Equipment		-1.09	7.94		20.60	24.33	17.60	20.75	39.01	17.05	-0.90	-3.00	2.87
Total		4.19	12.99	78.97	55.09	91.34	44.72	39.53	78.05	29.46	0.90	4.00	12.05

Scenario 2: MERCOSUR-EU FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		10.99	0.16		-0.24		-0.41	-0.48	0.05	-0.21	178.72	-1.16	10.33
Vegetables and Fruits		7.80	6.16	5.77	5.77	5.87	5.60		6.14	5.88	101.24	22.77	48.93
Sugarcane, Coffee and Soybeans		-9.32	-2.04		-1.65						80.87	-3.44	40.12
Livestock and Other Agriculture		10.44	-1.30		-1.74	-1.68				-1.74	14.55	-5.92	4.98
Mining		10.15	0.11		0.29		0.27				0.77	2.29	4.10
Meat Products		7.06	0.96	0.58	0.54		0.34			0.49	72.13	1.67	34.68
Processed Foods		6.28	4.06	3.81	3.76	3.77	3.51	3.42	4.08	3.70	50.15	14.29	19.48
Textiles and Apparel		6.15	1.69		1.45	1.49		1.09		1.41	16.34	5.30	5.92
Other Light Manufactures		4.36	0.85	0.63	0.57	0.60	0.42	0.25	0.90	0.49	7.32	1.70	2.91
Petroleum and Chemicals		6.50	0.66	0.69	0.66	0.67	0.53	0.40	0.86	0.53	14.61	3.82	4.49
Iron and Steel		4.44	-0.21	-0.15	-0.16	-0.15	-0.25	-0.34	0.09	-0.28	3.20	-0.78	0.45
Automobiles and Parts		3.78	0.17		0.23	0.23	0.15		0.44	0.19	13.78	0.80	3.51
Machinery and Equipment		1.13	-1.03		-1.12	-1.10	-1.20	-1.29	-0.91	-1.10	11.62	-3.85	0.33
Total		6.02	0.77	2.07	1.01	1.53	1.93	0.97	2.42	0.78	51.22	5.61	11.64

Scenario 3: FTA plus MERCOSUR-EU FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		22.62	22.01		43.65		38.86	39.40	64.96	35.47	177.13	-3.42	17.58
Vegetables and Fruits		10.35	32.84	165.24	59.72	214.54	64.90		107.79	46.45	101.37	22.09	61.07
Sugarcane, Coffee and Soybeans		-4.11	18.97		38.74						78.55	-8.57	44.44
Livestock and Other Agriculture		18.62	22.45		41.43	210.46				39.85	12.52	-11.70	8.03
Mining		18.90	7.62		91.62		22.20				1.27	8.43	27.55
Meat Products		13.48	22.16	104.32	47.30		81.94			47.08	71.08	-0.87	44.56
Processed Foods		12.75	25.57	117.70	63.84	158.57	57.50	59.30	101.35	48.68	53.00	22.32	36.67
Textiles and Apparel		10.04	19.02		90.63	149.14		49.28		42.10	18.15	11.49	15.88
Other Light Manufactures		5.29	17.86	58.63	57.00	85.16	45.96	45.95	83.06	35.31	9.14	7.51	20.84
Petroleum and Chemicals		12.23	13.81	11.70	10.23	23.41	28.20	26.28	50.19	20.27	15.33	8.44	12.82
Iron and Steel		8.11	12.83	27.43	11.16	41.55	22.46	28.26	57.37	20.60	3.80	1.72	10.75
Automobiles and Parts		3.30	6.99		121.49	123.94	24.68		52.27	22.98	14.21	2.04	7.28
Machinery and Equipment		-0.43	6.76		19.16	22.87	16.13	19.12	37.60	15.68	10.53	-6.96	2.85
Total		9.80	13.77	83.03	56.41	94.64	47.23	40.76	81.97	30.35	52.03	9.01	23.45

(2) Brazil

Scenario 1: FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		11.19									0.45	1.45	1.87
Vegetables and Fruits		12.54		163.27	58.50						5.03	18.78	37.38
Sugarcane, Coffee and Soybeans		13.00	23.16	132.20	46.42	223.53	76.26	42.79		39.19	2.39	7.06	9.98
Livestock and Other Agriculture		10.87			46.87						0.24	0.42	17.05
Mining		1.88	5.73	31.69	90.84	45.26	21.71		22.89		0.38	4.81	10.07
Meat Products		8.18		107.05	49.32		84.75				1.31	4.56	6.89
Processed Foods		7.79	20.45	113.73	60.92	153.98	55.03	56.93	97.36	46.13	3.85	14.73	15.85
Textiles and Apparel		10.72	19.30	132.85	95.60	155.56	59.52	53.66	94.18	45.87	5.73	22.67	37.36
Other Light Manufactures		10.59	19.04	64.37	62.77	91.91	51.50	51.74	89.34	40.39	6.04	21.51	33.13
Petroleum and Chemicals		5.08	12.16	11.91	10.46	23.67	28.60	26.84	50.27	20.65	1.51	10.05	9.91
Iron and Steel		5.60	12.77	29.83	13.27	44.22	24.87	30.93	60.08	23.03	2.33	9.83	12.16
Automobiles and Parts		11.02	7.80	125.85	128.69	131.22	28.82	35.34	56.96	27.01	3.88	16.12	34.06

Appendix Table 6. Impact on Sectoral Imports by Market (Version B: IRTS)

(1) Experiment A: Tariff only

Argentina

Scenario 1: FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		4.07		17.35	17.27						2.20	3.02	11.97
Vegetables and Fruits		3.56	13.21	19.15	18.60					20.25	0.73	0.98	12.94
Sugarcane, Coffee and Soybeans		3.55	13.79	17.89	17.35			19.46		19.42	0.64	0.88	10.36
Livestock and Other Agriculture		3.00	14.48		20.04					22.45	1.01	1.40	8.06
Mining		0.09	6.42	6.24	6.12			6.52		6.54	-0.42	-0.47	1.39
Meat Products		1.67	14.21		24.02					27.29	-0.51	-0.73	3.89
Processed Foods		1.61	14.20	25.48	24.26	26.16				27.93	-2.09	-2.89	6.45
Textiles and Apparel		3.04	17.81	33.24	32.77	34.76				36.60	-1.78	-2.45	5.41
Other Light Manufactures		3.48	16.88	28.93	27.20	29.64				30.91	32.34	-2.44	-3.50
Petroleum and Chemicals		0.23	8.97	12.99	12.72	13.23	13.96	13.81	14.03	13.95	-1.16	-1.40	3.07
Iron and Steel		1.63	13.58	22.47	21.47	22.71	24.29		24.50	24.94	-3.28	-4.34	3.38
Automobiles and Parts		5.08	16.69	27.60	25.99	28.27					-2.05	-2.71	5.28
Machinery and Equipment		-0.56	14.07	22.41	19.74	21.82			21.93		23.12	-3.54	-4.98
Total		2.08	14.34	22.72	19.03	22.67	15.75	16.91	15.47	19.85	-2.51	-3.30	4.29

Scenario 2: MERCOSUR-EU FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		7.88		5.15	5.17						20.84	7.17	7.23
Vegetables and Fruits		3.99	1.62	1.64	1.65					1.63	19.91	2.26	2.68
Sugarcane, Coffee and Soybeans		8.33	5.04	5.00	5.02			5.03		4.99	22.75	7.19	6.86
Livestock and Other Agriculture		6.50	4.76		4.79					4.80	24.93	6.89	11.11
Mining		0.82	0.36	0.36	0.36			0.36		0.36	6.99	0.40	0.58
Meat Products		2.46	-0.20		-0.17					-0.14	24.51	-0.25	5.04
Processed Foods		2.87	-1.78	-1.76	-1.75	-1.76				-1.74	24.76	-2.41	5.21
Textiles and Apparel		3.61	-0.79	-0.76	-0.75	-0.76		-0.76		-0.73	33.39	-1.05	5.24
Other Light Manufactures		3.99	-1.37	-1.25	-1.24	-1.25		-1.23		-1.22	29.09	-1.77	7.65
Petroleum and Chemicals		0.99	-0.26	-0.28	-0.27	-0.28	-0.28	-0.27	-0.28	-0.27	13.75	-0.33	4.18
Iron and Steel		2.51	-1.69	-1.77	-1.76	-1.77	-1.76		-1.83	-1.78	23.58	-2.34	5.58
Automobiles and Parts		4.86	-1.78	-1.59	-1.59	-1.60					26.60	-2.11	9.13
Machinery and Equipment		-0.79	-2.58	-2.54	-2.53	-2.50		-2.51		-2.50	21.30	-3.56	4.72
Total		2.43	-1.11	-1.38	-1.42	-1.48	-0.53	0.38	-0.50	0.40	21.32	-1.95	5.57

Scenario 3: FTA plus MERCOSUR-EU FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		12.11		23.56	23.51						23.67	10.61	20.03
Vegetables and Fruits		7.72	15.37	21.44	20.90					22.55	21.12	3.66	16.16
Sugarcane, Coffee and Soybeans		11.81	19.51	23.80	23.24			25.47		25.39	23.54	8.14	17.69
Livestock and Other Agriculture		9.67	20.23		26.12					28.64	26.52	8.79	19.93
Mining		1.00	6.97	6.78	6.67			7.07		7.09	6.70	0.10	2.14
Meat Products		4.30	14.45		24.31					27.63	24.39	-0.42	9.24
Processed Foods		4.27	12.77	23.93	22.74	24.61				26.38	22.81	-4.53	11.82
Textiles and Apparel		5.71	17.37	32.76	32.32	34.29				36.17	31.56	-2.92	10.58
Other Light Manufactures		5.78	15.88	27.94	26.25	28.66				29.94	31.38	26.57	-4.54
Petroleum and Chemicals		1.36	9.00	13.00	12.74	13.25	13.98	13.82	14.04	13.98	12.76	-1.39	7.48
Iron and Steel		2.02	12.20	20.87	19.90	21.11	22.68		22.83	23.32	20.10	-5.98	8.41
Automobiles and Parts		5.41	15.29	26.27	24.68	26.93					24.70	-4.06	12.82
Machinery and Equipment		-1.21	11.58	19.79	17.19	19.26			19.36		20.55	17.50	-7.82
Total		2.92	13.57	21.51	17.76	21.36	15.49	17.61	15.25	20.63	18.77	-4.65	9.65

Brazil

Scenario 1: FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains	2.49			21.16	21.08						1.69	2.31	4.82
Vegetables and Fruits	-0.36		5.79	21.37	20.81	21.27	22.13			22.48	-1.20	-1.67	2.92
Sugarcane, Coffee and Soybeans	-0.12		6.68		19.50						-0.92	-1.34	8.73
Livestock and Other Agriculture	1.21		8.21	25.23	24.47					26.96	0.57	0.78	3.29
Mining	2.19		6.50	12.96	12.83	12.95			13.26	13.21	1.81	2.01	5.22
Meat Products	0.22			29.88	29.40					31.79	32.81	-0.75	-1.06
Processed Foods	0.49		7.36	31.69	30.40	32.40	32.68	33.37	33.55	34.26	-2.00	-2.76	3.89
Textiles and Apparel	-0.40		8.43	37.20	36.71	38.76	49.02	39.95	38.22	40.66	-2.39	-3.28	4.77
Other Light Manufactures	-1.73		7.29	32.20	30.43	32.93	33.66	34.24		35.70	-3.77	-5.37	8.72
Petroleum and Chemicals	0.19		5.47	17.48	17.20	17.73	18.50	18.34	18.57	18.48	-0.67	-0.82	5.59
Iron and Steel	-1.25		7.34	26.36	25.33	26.61	28.24		28.45	28.91	-2.69	-3.56	6.65
Automobiles and Parts	-2.62		9.85	48.18	46.31	48.96	50.21				-3.46	-4.57	9.78

(continued)

(2) Experiment B: Tariff plus NTBs

Argentina

Scenario 1: FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		11.20		27.22	27.54						10.77	15.09	22.24
Vegetables and Fruits		12.54	18.09	27.76	26.73					24.78	7.38	10.28	19.28
Sugarcane, Coffee and Soybeans		13.00	22.28	31.88	29.68			24.63		25.34	10.66	15.64	21.61
Livestock and Other Agriculture		10.87	22.26		31.97					28.76	10.70	15.68	18.73
Mining		1.88	8.03	8.28	8.35			7.14		8.09	1.40	1.55	3.24
Meat Products		8.18	20.33		33.73					34.88	6.85	9.57	11.18
Processed Foods		7.79	19.84	33.72	31.74	34.38				33.55	3.37	4.70	12.80
Textiles and Apparel		10.72	25.00	39.91	41.64	43.98		43.17		46.56	3.53	5.03	12.84
Other Light Manufactures		10.59	22.28	36.09	34.00	37.62		32.69		39.54	2.34	3.42	13.20
Petroleum and Chemicals		5.08	13.68	18.48	18.88	18.85	18.03	17.40	15.73	18.68	3.38	4.09	8.25
Iron and Steel		5.60	14.00	28.40	27.11	29.47	22.52		15.73	26.87	0.73	1.04	7.61
Automobiles and Parts		11.02	26.94	36.74	31.95	34.33					1.99	2.79	10.73
Machinery and Equipment		2.12	14.36	28.57	25.58	28.12		15.74		24.98	0.24	0.54	8.41
Total		7.11	18.76	29.74	25.29	29.13	18.80	19.08	15.73	24.43	1.69	2.46	9.51

Scenario 2: MERCOSUR-EU FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		15.22		11.68	11.75						28.42	16.54	14.55
Vegetables and Fruits		4.04	-1.56	-1.48	-1.46					-1.46	16.26	-1.98	-0.30
Sugarcane, Coffee and Soybeans		23.47	10.42	10.39	10.45			10.74		10.35	28.98	15.08	15.13
Livestock and Other Agriculture		12.12	11.42		11.58					11.59	33.23	16.98	19.00
Mining		3.62	3.32	3.32	3.32			3.33		3.32	10.15	3.70	3.69
Meat Products		6.83	4.56		4.66					4.72	30.65	6.48	10.11
Processed Foods		7.50	0.95	1.03	1.04	1.05				1.02	28.62	1.45	8.99
Textiles and Apparel		8.22	3.10	3.06	3.10	3.10		3.17		3.11	38.77	4.28	10.07
Other Light Manufactures		8.18	3.21	3.30	3.33	3.33		3.44		3.38	35.17	4.83	12.93
Petroleum and Chemicals		4.74	3.18	3.17	3.17	3.18	3.19	3.20	3.15	3.17	17.71	3.82	7.98
Iron and Steel		5.50	2.09	2.00	2.02	2.02	2.11		1.88	2.11	28.44	2.73	9.62
Automobiles and Parts		7.29	1.68	1.63	1.64	1.64					30.84	2.21	12.51
Machinery and Equipment		0.10	0.51	0.50	0.53	0.54		0.73		0.62	25.28	0.83	8.11
Total		5.42	2.30	2.05	1.94	1.91	3.00	4.16	2.98	3.14	25.57	2.60	9.35

Scenario 3: FTA plus MERCOSUR-EU FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total
Grains		26.41		40.80	41.27						41.00	32.49	38.39
Vegetables and Fruits		15.83	16.35	25.96	24.97					23.05	24.94	8.20	18.77
Sugarcane, Coffee and Soybeans		36.79	33.69	44.06	41.77			36.60		36.92	41.29	31.14	37.77
Livestock and Other Agriculture		22.94	35.24		46.18					42.63	46.42	33.92	39.60
Mining		5.35	11.46	11.72	11.79			10.54		11.52	11.53	5.15	6.87
Meat Products		14.87	25.62		39.73					41.01	39.36	16.41	21.72
Processed Foods		14.58	21.19	35.33	33.33	36.03				35.15	33.19	6.47	22.02
Textiles and Apparel		17.69	28.74	44.05	45.89	48.31		47.56		50.97	43.53	9.38	22.87
Other Light Manufactures		16.80	26.15	40.48	38.36	42.10		37.13		44.17	38.24	8.30	26.12
Petroleum and Chemicals		9.61	17.09	22.03	22.44	22.41	21.58	20.94	19.20	22.23	21.49	7.85	16.41
Iron and Steel		8.61	16.35	30.94	29.65	32.06	25.05		17.95	29.52	29.35	3.77	16.56
Automobiles and Parts		13.50	29.25	39.15	34.27	36.71					33.61	5.24	21.72
Machinery and Equipment		2.19	14.94	29.22	26.25	28.82		16.56		25.76	25.58	1.37	16.58
Total		10.65	21.47	32.32	27.62	31.56	22.18	23.77	19.03	28.11	27.65	5.10	18.65

(2) Brazil

Scenario 1: FTA

Commodities	Argentina	Brazil	Chile	Canada	United States	Mexico	Central America	Colombia	Venezuela	Rest of AC	European Union	Rest of World	Total	
Grains	12.09			34.33	34.66						12.71	17.87	16.12	
Vegetables and Fruits	2.39		6.89	26.06	25.05	25.51	19.31			23.12	2.02	2.79	5.69	
Sugarcane, Coffee and Soybeans	5.63		12.97		30.13						7.37	10.75	19.80	
Livestock and Other Agriculture	8.56		15.96	38.81	37.30					33.97	10.61	15.53	15.05	
Mining	9.26		13.23	20.58	20.65	20.50		19.30	20.23	20.36	8.57	9.57	12.59	
Meat Products	7.00			41.90	40.71					31.15	41.92	7.48	14.54	
Processed Foods	7.03		13.62	41.53	39.43	42.23	35.58	38.59	33.88	41.34	4.36	6.08	11.35	
Textiles and Apparel	4.58		14.61	43.53	45.30	47.70	84.26	46.87	35.86	50.34	2.49	3.59	11.40	
Other Light Manufactures	1.43		10.66	37.58	35.48	39.13	34.61	34.15		41.08	-0.47	-0.62	12.83	
Petroleum and Chemicals	6.29		11.61	24.96	25.39	25.35	24.49	23.82	22.07	25.18	5.38	6.51	12.53	
Iron and Steel	4.11		9.90	35.16	33.80	36.28	28.96			21.81	33.54	3.39	4.61	13.24
Automobiles and Parts	-0.24		18.10	56.94	51.43	54.17	43.51				-0.66	-0.75	13.25	