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# Integration Options for MERCOSUR: A Quantitative Analysis by the AMIDA Model

Renato G. Flôres Jr.  
Masakazy Watanuki

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# INTEGRATION OPTIONS FOR MERCOSUR: A QUANTITATIVE ANALYSIS BY THE *AMIDA* MODEL<sup>1</sup>

**Renato G. Flôres Jr.<sup>2</sup>**  
**Masakazu Watanuki<sup>3</sup>**

*The recent developments at the multilateral and regional fronts call for a re-evaluation of trade and integration options for MERCOSUR. Applying a brand new CGE model, we evaluated six scenarios. The simulation results indicate that trade agreements will generate relatively small but positive gains. Integration with the United States and the European Union, two key partners, will have somewhat divergent and opposite outcomes. Agriculture will be a clear winner, while MERCOSUR has competitiveness issues in capital-intensive manufacturing sectors. It is revealed that the bloc's present trade policy is on a right track. Nevertheless it is undoubtedly important for the bloc to clinch regional initiatives with long-term perspective, and essential to streamline and modernize their productive sectors for sustained trade balance and growth.*

## I. INTRODUCTION

The recent developments in the external front of MERCOSUR (*Mercado Común del Sur*-Southern Common Market) announce that the second half of this decade will witness a revival of regional initiatives. The Doha multilateral trade negotiations under the auspices of the World Trade Organization (WTO), once concluded, will deliver a package of resolutions that are more likely to set key targets for future liberalisation in the main trade areas. But the recent WTO Ministerial Meeting could not break the persistent impasse among the leading trading players, and it will take a while to reach an agreement on key areas. This will inevitably trigger a new push for regional approaches. For MERCOSUR, it is nearly a certainty that the negotiations that have been put aside, the Free Trade Agreements (FTAs) with the European Union and sub-regional blocs in the

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<sup>1</sup> This paper is based on a joint IDB/FGV(EPGE) project for designing a comprehensive Computable General Equilibrium model (CGE) for analysing MERCOSUR's trade policies. The authors are grateful to Martín Cicowiez at the Center for International Economics (CEI), Argentina, for his excellent technical inputs and data contribution in constructing MERCOSUR SAM and modeling work. The authors are indebted to Robert Devlin, Antoni Esteveordal, Paolo Giordano, and participants in informal discussions at IDB/INT and workshop held at INTAL in Buenos Aires in collaboration with CEI in December 2006; they are solely responsible for the findings and analysis in the text, which in no case represent the views of their institutions or of the project sponsors. The authors also acknowledge Augusto Stabilito for his superb research assistance in tremendous data processing in the course of the project. Thanks also go to Maximiliano M. Parra for his proofreading in preparing final documentation. The authors are responsible for remaining errors and omissions.

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Americas will resume. Furthermore, it will also pave the way to launch new regional initiatives with Asian partners.

In South America, there is a significant movement at present -tied with recent and challenging political incentives- leading, through more than one route, to a closer integration of the Southern sub-continent. At the same time, the United States, which has long pursued the hemisphere -wide integration initiative- the Free Trade Area of the Americas (FTAA), has switched to bilateral approaches, following the collapse of the negotiations. It has already signed several agreements with Central and South American groups of countries as well as Asian partner recently. Once these agreements come into force, they will certainly change the direction of trade flows. In fact, there is a sort of subdued competition between MERCOSUR and the rest of South America to see which side will attract more partners and gain greater commercial chunks. Additional complexity is provided by China's growing role in an international arena and dynamism in regional integration in Asian continent, which all affect the world trade flows not only the major Northern blocs -European Union<sup>4</sup> and the North American Free Trade Area (NAFTA)- but also MERCOSUR particularly Brazil and Argentina.

All of these developments call for a re-evaluation of exercises performed some time ago, together with the introduction of new scenarios. In this paper, we use a brand new static CGE model, called *AMIDA*<sup>5</sup> (Analysing MERCOSUR's Integration Decisions and Agreements) to help in shedding light on this diversity of options and opportunities. The *AMIDA* is a powerful model, which incorporates modern technical features and uses a state-of-the-art database for the Western Hemisphere. In its present first version, in spite of incorporating two service sectors to close the structure of the economy, it is more suitable for the analysis of *market access for goods*. Refinements and improvements, as a better treatment of services, are planned, in order to encompass other important issues.

The structure of the paper is as follows. Section II summarizes the methodological aspects related to the *AMIDA* model. Section II presents the sectoral aggregation and regions, and discusses benchmark datasets with focus on trade and protection. Section IV describes the alternative scenarios -six regional initiatives- and simulation results are analyzed in some detail. Section V assesses MERCOSUR's potentialities and shortcomings, based on the evaluation of the policy simulations. Section VI concludes, adding also further technical comments.

From the MERCOSUR perspective, this study considered six FTAs with the respective partners: the United States, the EU25, Mexico, the Andean Community, FTAA and China. The main policy findings are as follows:

- FTAs with the United States or the European Union, while improving MERCOSUR's competitiveness, have somewhat divergent consequences: the former channels bloc's exports to the United States, all other partners losing market share in the bloc; the latter has nearly

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<sup>4</sup> After incorporating 10 new countries in May 2004, the European Union comprises 25 countries. Therefore, the European Union means EU25, and both are interchangeable in this study.

<sup>5</sup> AMIDA, infinite light, is also a great Budha who, in our bodies, occupies the mouth. The authors hope the model to be a voice that will help MERCOSUR in choosing the best agreements.

the opposite effect, MERCOSUR drastically re-orienting its exports to the EU25, while increasing its import demand from most other markets;

- Between an FTA with only the United States (the 4+1 arrangement that has been regaining momentum) and the FTAA, the latter is preferable to the former;
- South-South type of agreement -the MERCOSUR-Andean FTA can, contrary to some established views, bring rewards to both partners;
- In spite of a proviso on the quality of Chinese data, the results of the MERCOSUR-China FTA signal that the Asian giant is already an important and serious partner for the bloc with a potential pattern of gains similar to the North-South arrangements; and
- Though present MERCOSUR's trade policy is correct in pushing for greater market access, particularly in agriculture in any trade negotiations and in having been quite aggressive in exploiting regional and comparative advantages as well as opening new markets and improving distribution channels, the bloc experiences a serious deficit in trade of 'higher technology goods'. Adding to it a persistent deficit in services trade, sustainability of the present MERCOSUR trade accounts is by no means guaranteed, if it cannot either extract or, out of internal measures, induce positive structural changes in the international trade flows.



## II. OVERVIEW OF THE AMIDA MODEL

In order to analyze trade and integration options for MERCOSUR, we developed a new CGE model, called *AMIDA*. The model is a multi-region, trade-focused, comparative static model with scale economies and imperfect competition at firm level. It consists of 25 sectors and 10 regions, and is benchmarked in 2001. Distinguished from other models in this line, however, our model incorporated several salient features in both modeling and database. First, it introduced economies of scale and imperfect competition in certain sectors, key elements of the new trade theory based on "industrial organization" literature. This means that, contrary to the common practice of introducing *ad hoc* "scale gains" in an otherwise perfectly competitive framework,<sup>6</sup> perfect and explicitly imperfectly competitive sectors coexist in the model. This approach was fashioned in Gasiorek, Smith and Venables [1991, 1992] -drawing on a pioneer partial equilibrium structure by Smith and Venables [1988]- who used it to evaluate the impacts of the Europe 92 Delors' initiative.

The novel feature is, in expressing economies of scale, its unique application of a polynomial cost structure. This is at the heart of the model, differentiating it from other similar models.<sup>7</sup> Equation (1) defines the cost function  $C(x)$  at output level  $x$ , and equation (2) cost function coefficient.

$$C(x) = f(x) UC \quad (1)$$

$$f(x) = a_0 + a_1 \cdot x + a_2 \cdot x^b \quad (a_0, a_1, a_2 > 0, 0 < b < 1) \quad (2)$$

where  $UC$  is a unit cost, which is independent of the level of output  $x$ ,  $a_0$ ,  $a_1$ ,  $a_2$  and  $b$  are all positive parameters. In the model, the parameter  $a_2$  is set to zero for all developing regions including MERCOSUR, due largely to scarcity and inaccuracy on cost data. Then cost function collapses to a linear form.

Second, firms in imperfectly competitive sectors are symmetric and play a Cournot-Nash strategy in each market or region. This allows analyzing strategic interaction among firms at home and with foreign competitors. From the Lerner formula, firm's optimal mark-up prices are given in equation (3), differentiating market prices at destination, applying *segmented* market hypothesis.<sup>8</sup> In equation,  $P_{irs}$  represents market price at destination for products  $i$  in region  $r$  produced in region  $s$ ,  $\tau_{irs}$  denotes the aggregate protection inclusive of transport costs and trade margins,  $\varepsilon_{irs}$  the perceived elasticity of demand and  $MC_{ir}$  marginal cost of the firm.

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<sup>6</sup> For a discussion of this topic, and of the (usually) accompanying "dynamic elasticities" device, see, among others, Flôres [2000].

<sup>7</sup> Scale economies and imperfect competition in many other CGE models are defined in the existence of fixed costs and constant returns to scale technology for variable costs. In our model, however, they are dealt with in the cost function coefficients expressed in a polynomial structure. This added more flexibility in specifying cost structure, and thereby the magnitude of economies of scale.

<sup>8</sup> Other alternative pricing is the integrated market hypothesis, applied by Smith and Venables [1988]; Gasiorek, Smith and Venables [1991, 1992] and Flôres [1997], where firms set the same prices for integrated market. In more extreme cases, firms charge the identical prices for all market, as in Francois and Roland-Holst [1997].

$$P_{irs} \cdot (1 - \tau_{irs}) \cdot \left(1 - \frac{1}{\varepsilon_{irs}}\right) = MC_{ir} \quad (3)$$

Under this framework, a key parameter is the perceived elasticity of demand as defined in equation (4).

$$\frac{1}{\varepsilon_{irs}} = \frac{1}{\sigma_{is}} + \left(1 - \frac{1}{\sigma_{is}}\right) \cdot \varphi_{irs} \quad (4)$$

where  $\sigma_{is}$  is the elasticity of substitution for goods  $i$  in region  $s$ , and  $\varphi_{irs}$  is the market share of region  $r$  in region  $s$ . In this oligopolistic paradigm, output is the strategic variable for the Cournot-competing firms.

Third, scale economies are estimated on the basis of recent relevant studies by Oliveira-Martins, Scarpetta and Pilat [1996a, 1996b] of the mark-up ratios for manufacturing industries in the OECD countries, which are used as reference. Other related sources include Pratten [1988] for the European Union, Cline [1984] and Pratten [1991] for the United States, using the Minimum Efficiency Scale (MES) approach. Pratten [1988] applies this method to Brazil, as a percentage of the US production.

Fourth, the parameters of market concentration of the imperfectly competition sectors are directly estimated from manufacturing data for key regions. This measures the intensity of competition in industries, and is estimated by the Herfindahl index of concentration. The inverse of the Herfindahl index gives the equivalent number of symmetric firms in imperfectly competition sectors. For the United States, the "Concentration Ratios in Manufacturing for 1997", classified by the (NAICS) at 4-digit level, published by the US Census Bureau is used, whereas the "Annual Enterprise Statistics on Industry and Construction broken down by Size Classes", grouped by the size of employee following the classification of Economic Activities in the European Community (NACE), estimated by the EUROSTAT, are applied for the EU25.<sup>9</sup> The estimates for MERCOSUR come from a study by López-Córdova and Moreira [2004], examining the competitiveness of the Brazilian manufacturing industries at the 4-digit level based on the International Standard Industrial Classification (ISIC) revision 3.

Finally, the model was built on the comprehensive hemispheric tariff database, which incorporates a number of agreements reported to the Latin American Integration Association (ALADI), together with preferential treatments in place in the Western Hemisphere. This is discussed in some detail in the following subsection.

In general, due to the scale effects, enhanced in the larger markets created by the regional integrations, welfare gains are higher than those produced by the perfect competition alternatives (Baldwin and Venables [1995], and Flôres [1996]). However, in all FTAs, markets remain *segmented*, as what is at stake is the creation of free-trade areas and *not* a common market. The results are driven by the joint effect of lowering trade barriers, production efficiency in the imperfectly competitive sectors

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<sup>9</sup> Davies and Lyons [1996] made detailed and comprehensive industrial study in the European Union, analyzing four key elements of structure: concentration and the specialization of the EU production across the member countries at industry level; and diversification and multi-nationality at firm level.

and the internal search for equilibrium, common to all CGE structures. As discussed in section 4, they point to patterns and effects unable to be unveiled by other models.

From the theoretical viewpoint, handling the two kinds of competition in a single general equilibrium framework poses theoretical problems related to the existence and uniqueness of solutions.<sup>10</sup> In our particular case, the model specifications guarantee the existence of a unique solution, and we do not mention this question hereafter.

Another important issue is that, beyond tariffs, Flôres [1997, 2003] and Gasiorek, Smith and Venables [1991, 1992] assumed the existence of additional trade costs, which can be associated with a variety of factors, impairing or raising the cost of trade among partner countries, like transportation, bureaucracy, distribution margins, and so on. Integration assumes zero tariffs and reduces, without necessarily eliminating, these latter costs. We estimated gross transport margins with the aid of the United Nations Commodity Trade Statistics Database (COMTRADE), minimizing discrepancies with official statistics. In most bilateral flows, they amount to less than 10 per cent, though there are significant differences at the sectoral level, due to inconsistencies and misreporting. They were reduced, between the partners in each scenario, by four percentage points, at most, as trade facilitation. No evaluation was made of other trade costs.

The rest of the model follows the standard trade-focused CGE models. It includes three factors of production: labor, capital and land. The model traces the circular flow of income from producers to households through factor payments, and back to demand of goods for intermediate inputs and final goods in private and public consumption plus investment. The representative household in each region receives factor income plus exogenous foreign remittances, and spends it on goods following a fixed sectoral expenditure share function, following the Cobb-Douglas utility function. Government revenues include sectorally differentiated indirect and commodity taxes, household income taxes and social security taxes; there are also import tariffs and export taxes (or subsidies) from the external transactions. Its expenditures include public consumption, and income transfers to households.

The model requires a set of equilibrium conditions, which guarantee the supply-demand equality in commodity and factor markets. For commodity markets, output must be equal to the aggregate quantities of the final and intermediate demands, generated by the domestic and respective regional markets.

For factor markets, equilibrium conditions differ by factor, depending on the assumptions imposed on the closure rules. Labor is a factor, which can move freely and costlessly across sectors, but is immobile over regions. For the default setting, the aggregate supply of labor in each region is held fixed at benchmark. This is the standard closure. The model also incorporates three additional closure options: (i) endogenous labor supply, (ii) infinite labor supply, and (iii) the combination of

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<sup>10</sup> For detailed discussions, refer to Chapter 11 of Ginsburgh and Keyzer [1997].

the default closure plus either (i) or (ii). The choice of these options greatly depends upon the labor market situations in each region, and they all may be applied in the policy experiments.<sup>11</sup>

Capital is sector-specific. While the economy-wide average rental return is fixed at benchmark, the parameters of the sectoral "factor wage differentials" are endogenized, permitting differentiated returns over sectors. In the variant framework, capital is treated as sectorally mobile but interregionally immobile, as is the case with labor. However, the aggregate supply is held fixed at benchmark. Finally, land is a factor used only in agriculture, and modeled as labor in the standard closure.

Firms in imperfectly competitive sectors potentially earn non-zero profits. At the benchmark, however, it is assumed that imperfectly competitive markets are in long-run equilibrium, so that firms are forced to earn zero profits. For simulations, the model considers two options: (a) no firm entry/exit; and (b) firm entry/exit. The former corresponds to the short-run experiments. The number of identical firms in each imperfectly competitive sector is kept constant, so that profits can be different from zero in these sectors. In the long-run, however, profits are imposed to be zero, and the number of firms is adjusted to satisfy this condition. It is also assumed that firm's entry and exit is completely costless.

The model includes three macroeconomic closures: government fiscal balance, external balance, and saving-investment equality. Some of them have alternative closures, depending upon the policy questions addressed, as well as macro-economic environments in the respective regions. The choice does not affect the equilibrium solution at benchmark, but influences those for the simulations because of different closure rules.

For government fiscal balance, government savings, derived as residuals between current revenues and expenditures, are adjusting variables to maintain balanced budget in public finance. An alternative closure is to endogenize the government transfers to households as an adjusting variable, while fixing government savings.<sup>12</sup> For external balance, the closure is to fix trade balance. Trade remains balanced for each region at benchmark. Namely, the current account of trade in goods and services is held fixed at benchmark. Lastly, in saving-investment account, investment is fully financed by domestic and foreign savings in each region. The model follows the neo-classical saving-driven closure rule; the private saving rates in each region are fixed. The aggregate amount of investment is distributed by constant ratios, fixed at benchmark, to allocate the sectoral investment demand.

The structure of the model allows it to portray distinct levels of regional integration in a progressive scenario evaluation. Other features are summarized below:

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<sup>11</sup> For instance, it is possible to differentiate labor market equilibrium between developed and developing regions. Full employment assumption may be valid for developed regions, where labor growth is relatively small and unemployment is relatively low. However, this is too restricted and may not be appropriate for developing regions, which tend to pose high unemployment and underemployment.

<sup>12</sup> Another closure option is to free one of the *ad valorem* tax rates in domestic tax components such as output taxes, factor taxes, commodity taxes on intermediate inputs. This can be done by introducing new tax variable by the same number of percentage points or by a flexible scalar.

- i) The model has two demand structures, intermediate and final demand. Final demand is constructed in a two-stage nested structure. At the upper stage, household preferences are defined in a Cobb-Douglas utility function. At the lower stage, the aggregate demand is specified with the *a la* Armington Dixit-Stiglitz-Spence Constant Elasticity of Substitution (CES) aggregate.
- ii) In the production, the aggregate value added is expressed in CES functional form as the standard technology, with Cobb-Douglas as an optional form.
- iii) Intermediate inputs are specified using the input-output (I-O) coefficients.
- iv) There is no monetary or financial market in the model.

Flôres and Watanuki [2007] provide a detailed description of the model equations, carefully discussing their role, and pros and cons. Calibration process and data issues are also addressed in detail. The whole model is run in GAMS programming software.



### III. BENCHMARK DATASETS

An outstanding database for the model was developed, combining information from the CONTRADE, EUROSTAT, OECD, TRAINS, United States International Trade Commission (USITC), United Nations Economic Commission of Latin America and the Caribbean (ECLAC), the World Bank, the Inter-American Development Bank (IDB), national statistical offices, central banks, and Global Trade Analysis Project (GTAP) latest database.

Production and demand structures received careful attention in the case of MERCOSUR. A key element relates to the I-O matrices for Brazil and Argentina. The 1996 and 2000 matrices, respectively, were updated and used for the model. Armington elasticities are based on regional studies, as much as possible. Capital remuneration rates were improved whenever possible. Economic data on the United States, Mexico, Andean Community, the European Union, Japan, China were also carefully checked.

Trade and protection are, among others, the cores of the database to evaluate trade and integration policies. This is particularly the case with the multi-region models, which have no financial or monetary accounts and only deal with the real side of the economy. This is because trade is the sole agent to transmit policy shocks among partners, and protection is the key policy variable. They are discussed later.

#### A. Sectors and Regions

We aimed at decomposing world regionalization and sectoral disaggregation as comprehensive as possible. The model comprises 25 sectors, identifying key industries from a MERCOSUR perspective. They are grouped into 6 macro-sectors: 6 agricultural sectors; 5 food-processing industries; 2 energy industries; 4 light manufacturing industries; 7 heavy manufacturing industries; utilities and construction; and trade and services. Table 1 shows the sectors in the model, and Annex Table 1 presents the sectoral concordance with the GTAP database.

The first five groups comprise the sectors of 23 trade in goods, which will be the main focus of our analyses. Five out of them -those marked with an '#' in the Table- were modeled under imperfect competition. These structures are better portrayed in the model regions related to MERCOSUR, the United States, Japan and the EU25. The criteria to identify imperfectly competitive sectors is those, in which final demand accounts for more than half of total demand across regions. This is primarily because final demand is the key in determining market prices in the model, thus being the source of imperfect competition. Due to this assumption, the sectors such as *dairy products*, *electric equipment* and *machinery* were not included in imperfectly competitive sectors.

**TABLE 1**  
**SECTORS OF THE AMIDA MODEL**

| N°                      | Sectors | Description                  |   | N°                            | Sectors | Description                   |   |
|-------------------------|---------|------------------------------|---|-------------------------------|---------|-------------------------------|---|
| <i>I. Agriculture</i>   |         |                              |   | <i>IV. Light Manufactures</i> |         |                               |   |
| 1                       | GRAIN   | Wheat, Corn and Other Grains |   | 14                            | TXTIL   | Textiles and Apparel          |   |
| 2                       | VEGET   | Vegetables and Fruits        |   | 15                            | LTMFG   | Leather, Wood and Paper       |   |
| 3                       | OLSYB   | Oil seeds and Soybeans       |   | 16                            | OLMFG   | Other Light Manufactures      |   |
| 4                       | SUGAR   | Sugar                        |   | <i>V. Heavy Manufactures</i>  |         |                               |   |
| 5                       | OTCRP   | Coffee, Rice and Other Crops |   | 17                            | CHMCL   | Chemical and Plastic Products |   |
| 6                       | LVSTK   | Animal products              |   | 18                            | FRMTL   | Ferrous metals                |   |
| <i>II. Agribusiness</i> |         |                              |   | 19                            | NFMTL   | Non-ferrous Metals            |   |
| 7                       | BMEAT   | Bovine Meat                  | # | 20                            | VEHCL   | Motor Vehicles                | # |
| 8                       | OMEAT   | Poultry Meat                 | # | 21                            | OTREQ   | Other Transport Equipment     | # |
| 9                       | DAIRY   | Dairy Products               |   | 22                            | ELCEQ   | Electric Equipment            |   |
| 10                      | BVTBC   | Beverages and Tobaccos       | # | 23                            | MCHNY   | Machinery                     |   |
| 11                      | OTHFD   | Vegetable Oils               |   | <i>VI. Services</i>           |         |                               |   |
| <i>III. Energy</i>      |         |                              |   | 24                            | UTLTY   | Utilities and                 |   |
| 12                      | MINRL   | Minerals                     |   | 25                            | SERVC   | Trade and Services            |   |
| 13                      | ENRGY   | Energy Products              |   |                               |         |                               |   |

Note: Sectors with (#) are imperfectly competitive sectors.

Source: AMIDA Model.

Decisions on the regions must face one of the most classical dilemmas in CGE practice: due attention to the areas of concern, and those which affect them together with care in not fragmenting too much the model, what, among other practical problems, may add distortions to its construction and operation. Because our main objective lies in analyzing different scenarios *from* the MERCOSUR *perspective*, we divided the world into 10 regions, as listed in Table 2.

Regarding the data quality to these regions, the best is with MERCOSUR, the United States, Mexico, the Andean as well as the EU25 and Japan. The Rest of the Americas is of less quality, though it includes, beyond the whole Central America, countries like Canada and Chile. Asia10 includes all the former New Tigers -Hong Kong, Korea, Singapore and Taiwan- beyond six new emerging Asian economies, like Indonesia, Malaysia or Vietnam, which are becoming more competitive either in specific agricultural goods or in traditional sectors like textiles. The Rest of the World comprises countries, which do not belong to the above regions, and covers Australia, New Zealand, and India that may be relevant for certain sectors for MERCOSUR.

**TABLE 2**  
**COUNTRIES AND REGIONS OF THE AMIDA MODEL**

| Abbreviation                      | Countries and Regions | Member Countries and Sub-regions  |
|-----------------------------------|-----------------------|---|
| <i>Western Hemisphere</i>         |                       |   |
| 1 USA                             | United States         |   |
| 2 MEX                             | Mexico                |   |
| 3 A_C                             | Andean Community      | Bolivia, Colombia, Ecuador, Peru, Venezuela   |
| 4 MERC                            | MERCOSUR              | Argentina, Brazil, Paraguay, Uruguay  |
| 5 ROA                             | Rest of the Americas  | Canada, Central American Common Market (CACM), Caribbean Community and Common Market (CARICOM), Chile, Rest of Latin America  |
| <i>Extra-Hemispheric Partners</i> |                       |   |
| 6 EU25                            | EU25                  | Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, United Kingdom |
| 7 JPN                             | Japan                 |   |
| 8 CHN                             | China                 |   |
| 9 AS10                            | Asia10                | Brunei, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, Vietnam  |
| 10 ROW                            | Rest of World         | All countries not listed above  |

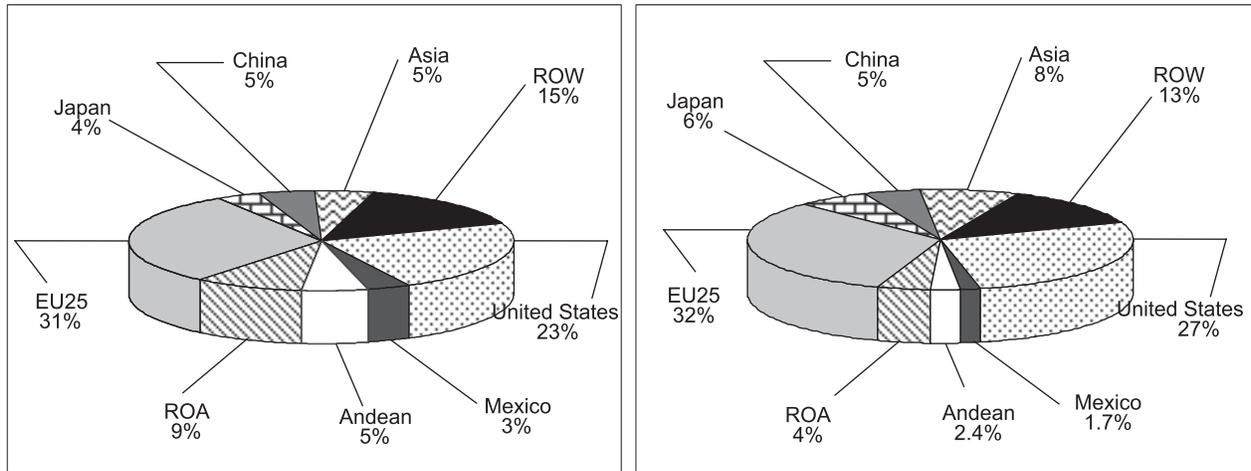
Source: AMIDA Model.

## **B. Trade Flows**

Regarding merchandise trade, COMTRADE is the main source due to its global coverage. But in the meantime, FTAA and DATAINTAL databases, both from IDB, were also used to construct consistent trade flows. Figure 1 shows the MERCOSUR trade by country or region identified in the model, contrasting between the aggregate exports and imports. The United States is the second largest destination, absorbing 23 percent of exports from MERCOSUR. Globally, the most important partner is the EU25, which purchases 31 percent of the bloc's aggregate exports. The neighboring Andean is still a relatively new partner, with only 5 percent. Mexico is much fresh; the country has merely a 3-percent market share. Asian partners, including China, are all new markets for MERCOSUR, with market shares of 4 to 5 percent.

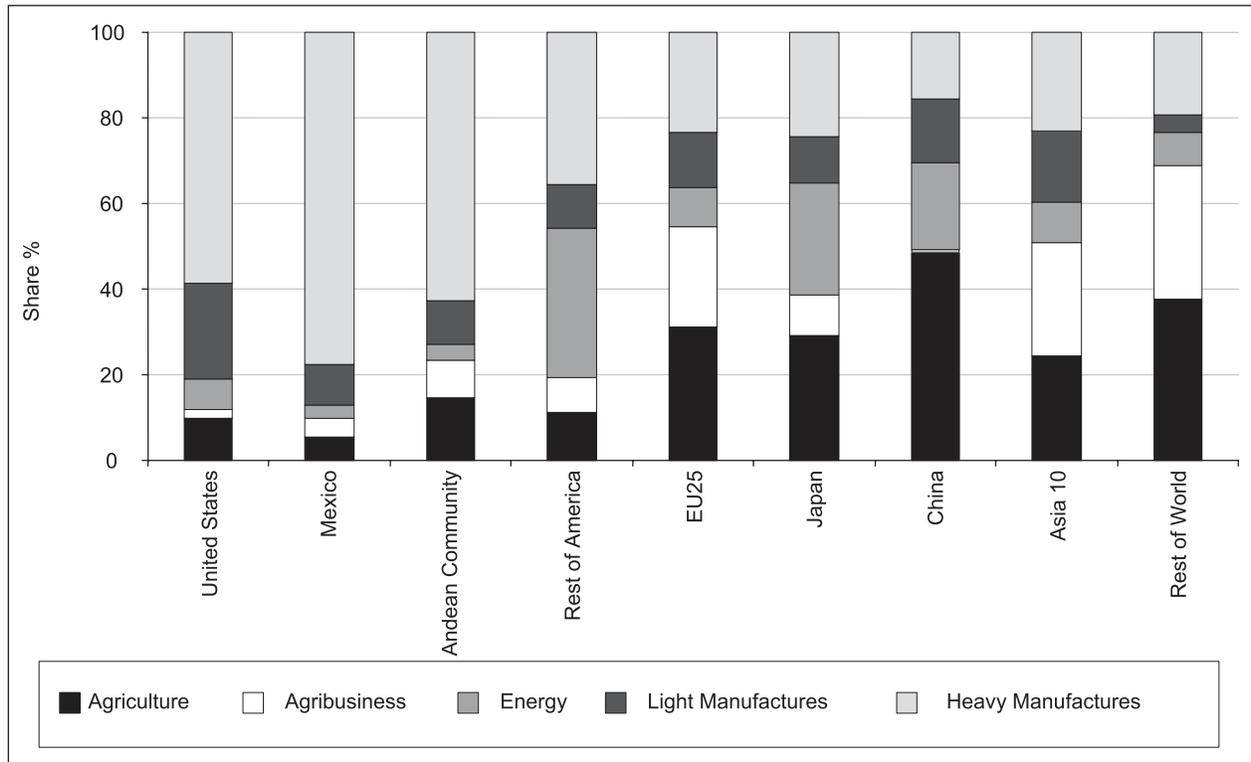
Figure 2 presents the composition of MERCOSUR exports to its trade partners, and Annex Table 2 shows the bloc's sectoral trade flows for all partners. In terms of the composition of exports, industrial goods, both light and heavy manufacturing products, dominate exports and account for 72 percent of the bloc's sales in the Americas. This share jumps to 80 percent to the US market. In Mexico, industrial exports have the share of more than three-quarter of the value of exports from MERCOSUR. Strikingly enough, the motor vehicles sector alone accounts for 44 percent of exports destined to Mexico. Like other hemispheric partners, heavy manufacturing goods dominate exports to the Andean, but agriculture is also important to that market.

**FIGURE 1**  
**MERCOSUR TRADE WITH PARTNERS**  
(2001)



Source: MERCOSUR SAM Database.

**FIGURE 2**  
**COMPOSITION OF MERCOSUR EXPORTS BY MACRO-SECTOR**  
(2001)

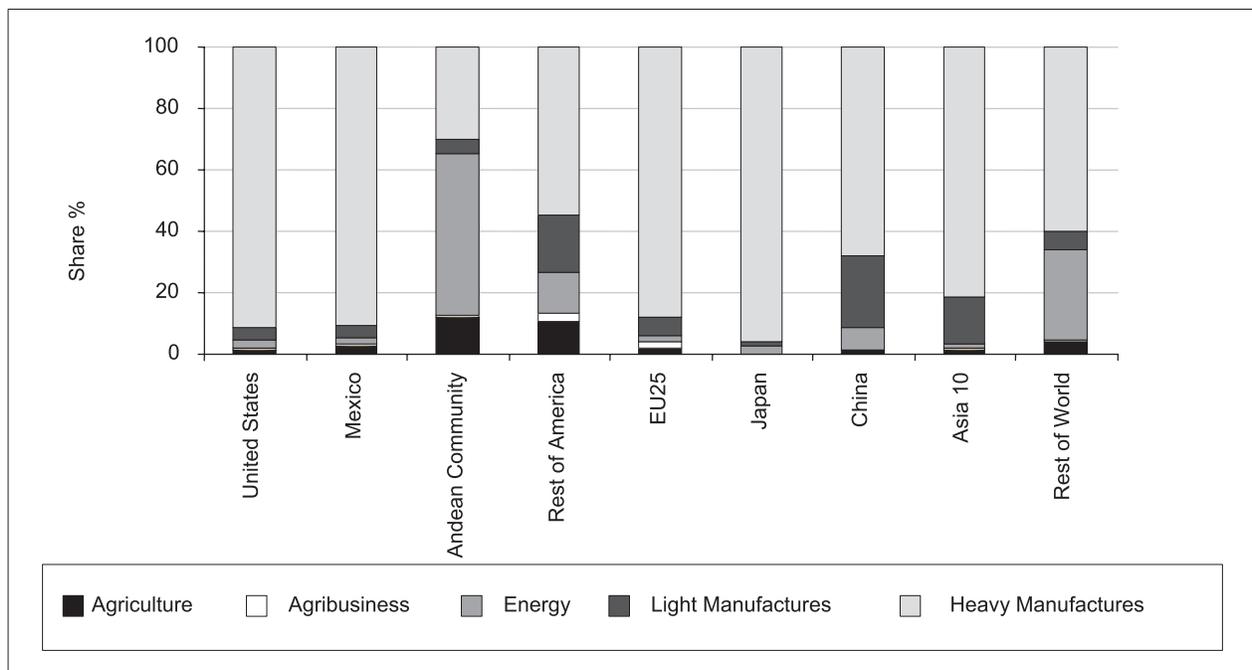


Source: MERCOSUR SAM Database.

The structure of exports with hemispheric destination sharply contrasts with that for partners outside the Americas. In the EU25, agriculture-related products account for more than half of exports. In fact, *vegetable oils* are the leading exports, with a share of 17 percent, while *oilseeds and soybean* account for another 10 percent. Even sensitive meat products (*bovine* and *poultry*) have a 6 percent share in the EU. For Asia, agricultural commodities dominate. In China, *oilseeds and soybeans* are the most important commodities (44 percent share). Energy products are also important exports to China, but its value is less than half that of agricultural sales at the base year.

Figure 3 demonstrates the composition of MERCOSUR imports by its partner. Market orientation follows the similar patterns as with the pattern of exports. The EU25 is the largest source of imports (32 percent), followed by the United States (27 percent). Other partners in the Americas -Mexico, Andean, and the Rest of the Americas- have relatively smaller importance as a source of imports. Compared with exports, their market shares are half those of exports. Interestingly, the opposite appears for the Asian partners, except China. The market shares of Japan and Asia10 are twice larger than those of imports, whereas China has the same share on both exports and imports.

**FIGURE 3**  
**COMPOSITION OF MERCOSUR IMPORTS BY MACRO-SECTOR**  
 (2001)



Source: MERCOSUR SAM Database.

The striking evidence is that industrial goods are by far the dominant imports for MERCOSUR. Globally, imports of manufacturing products account for around 90 percent. Typical to semi-industrialized countries, MERCOSUR heavily relies on capital and intermediate goods to meet domestic demand and to export manufactured goods. *Heavy manufactures* alone share 80 percent of the bloc's aggregate imports. Among these products, *electric equipment* and *machinery* (capital

goods) are the leading imports, with a 40 percent share, followed by *chemical and plastic products* (intermediate goods), with a 23 percent share.

However, the composition of imports differs considerably by market, due largely to the partners comparative advantage. The share of imports for *Heavy Manufactures* jumps to 90 percent for the United States, Mexico, EU25 and Japan. In this regard, the Andean is in a unique position. Energy is the leading import, accounting for more than half of imports of the Andean origin.

### **C. Structure of Protection**

For protection, a new hemispheric tariff database was constructed, accommodating trade agreements reported to the Latin American Integration Association (ALADI). These include 5 sub-regional blocs, including intra-regional protection: the North American Free Trade Agreement (NAFTA); the Central America Common Market (CACM); the Caribbean Community and Common Market (CARICOM); the Andean Community (CAN), and the Southern Common Market (MERCOSUR). It also updated 4 bilateral agreements (MERCOSUR-Bolivia, MERCOSUR-Chile, Canada-Chile, Mexico-Chile), plus 11 FTAs, 10 Economic Complementations Agreements (ECA), and 6 Partial Scope Agreements (PCA). In addition, the database also incorporates 3 key US preferential treatments for Latin America (the Andean Trade Preference Act - ATPA; the Caribbean Basin Initiative - CBI and the Generalized System of Preference - GSP), based on the USITC, and Canada's General Preferential Tariff (GTP). Outside the Americas, the European Union is included from the TRAINS database (World Bank), including the GSP applied to MERCOSUR.

Protection only covers tariffs, and does not include any non-tariff measures, and non-quantifiable barriers to trade. Specifically, tariff includes *ad valorem*, and *ad valorem* equivalents of specific and compound tariffs plus tariff rate quota (TRQ), applied by the NAFTA countries and the European Union. For the United States, which imposes the largest number of non-*ad valorem* tariffs, the database is due primarily to the USITC official estimates. For Canada and Mexico, the *ad valorem* equivalent estimates are drawn from the database constructed by Jank, Fuchsloch and Krutas [2002]. For the European Union, TRAINS data is used for the estimates of *ad valorem* equivalents of specific and compound tariffs, plus GSP applied to Latin America. On the other hand, protection for services is set to zero, simply because there are very few studies and credible estimations for this sector. Tariffs are in principle estimated as a simple average from the HTS 8 digits for each sector and for the respective partners.

Table 3 reports tariffs imposed by MERCOSUR on its trade partners. As seen in the table, MERCOSUR has relatively high tariffs with low deviations over sectors. The bloc's trade-weighted average tariff is 11.7 percent. The aggregate protection with most trade partners is close to the global level except for the Andean Community and the Rest of the Americas. This is due to the associate membership by Bolivia and Chile, plus several Economic Complementary Agreements between MERCOSUR and the Andean.

**TABLE 3**  
**AD VALOREM TARIFF RATES IMPOSED BY MERCOSUR**  
(% - 2001)

| Sectors                       | United States | Mexico       | Andean Community | Rest of Americas | EU 25        | Japan        | China        | Asia 10      | Rest of World | Global       |
|-------------------------------|---------------|--------------|------------------|------------------|--------------|--------------|--------------|--------------|---------------|--------------|
| Wheat, Corn and Other Grains  | 6.21          | 6.21         | 5.63             | 4.94             | 6.21         | 6.21         | 6.21         | 6.21         | 6.21          | 5.64         |
| Vegetables and Fruits         | 10.64         | 10.64        | 9.56             | 8.11             | 10.64        | 10.64        | 10.64        | 10.64        | 10.64         | 9.31         |
| Oil seeds and Soybeans        | 5.60          | 5.60         | 5.04             | 4.31             | 5.60         | 5.60         | 5.60         | 5.60         | 5.60          | 5.21         |
| Sugar                         | 18.26         | 18.26        | 17.00            | 16.03            | 18.26        | 18.26        | 18.26        | 18.26        | 18.26         | 0.00         |
| Coffee, Rice and Other Crops  | 9.11          | 9.11         | 8.29             | 6.74             | 9.11         | 9.11         | 9.11         | 9.11         | 9.11          | 8.92         |
| Other Agricultural Products   | 12.07         | 12.07        | 10.99            | 9.10             | 12.07        | 12.07        | 12.07        | 12.07        | 12.07         | 11.52        |
| <i>Agriculture</i>            | <i>11.24</i>  | <i>11.75</i> | <i>10.25</i>     | <i>8.43</i>      | <i>11.57</i> | <i>10.77</i> | <i>11.27</i> | <i>11.04</i> | <i>11.36</i>  | <i>10.69</i> |
| Bovine Meat                   | 11.55         | 11.55        | 10.82            | 8.53             | 11.55        | 11.55        | 11.55        | 11.55        | 11.55         | 11.04        |
| Other Meat                    | 13.59         | 13.59        | 12.48            | 10.25            | 13.59        | 13.59        | 13.59        | 13.59        | 13.59         | 12.76        |
| Dairy Products                | 18.01         | 18.01        | 16.37            | 13.80            | 18.01        | 18.01        | 18.01        | 18.01        | 18.01         | 17.79        |
| Beverages and Tobaccos        | 20.02         | 20.02        | 18.13            | 15.74            | 20.02        | 20.02        | 20.02        | 20.02        | 20.02         | 19.38        |
| Vegetable Oils and Fats       | 11.72         | 11.72        | 10.67            | 8.95             | 11.72        | 11.72        | 11.72        | 11.72        | 11.72         | 11.70        |
| <i>Agribusiness</i>           | <i>17.13</i>  | <i>19.78</i> | <i>13.01</i>     | <i>14.79</i>     | <i>17.81</i> | <i>16.73</i> | <i>20.02</i> | <i>11.92</i> | <i>17.91</i>  | <i>17.11</i> |
| Minerals                      | 10.43         | 10.43        | 9.58             | 7.91             | 10.43        | 10.43        | 10.43        | 10.43        | 10.43         | 9.76         |
| Energy Products               | 0.75          | 0.75         | 0.71             | 0.56             | 0.75         | 0.75         | 0.75         | 0.75         | 0.75          | 0.74         |
| <i>Energy</i>                 | <i>3.95</i>   | <i>10.43</i> | <i>1.77</i>      | <i>6.06</i>      | <i>8.76</i>  | <i>5.87</i>  | <i>2.96</i>  | <i>6.42</i>  | <i>1.29</i>   | <i>2.92</i>  |
| Textiles and Apparel          | 19.36         | 19.36        | 17.87            | 15.33            | 19.36        | 19.36        | 19.36        | 19.36        | 19.36         | 19.21        |
| Leather, Wood and Paper       | 14.25         | 14.25        | 13.05            | 11.40            | 14.25        | 14.25        | 14.25        | 14.25        | 14.25         | 13.66        |
| Other Light Manufactures      | 18.88         | 18.88        | 17.30            | 14.40            | 18.88        | 18.88        | 18.88        | 18.88        | 18.88         | 18.78        |
| <i>Light Manufactures</i>     | <i>16.12</i>  | <i>17.88</i> | <i>15.33</i>     | <i>11.93</i>     | <i>16.10</i> | <i>17.55</i> | <i>18.01</i> | <i>18.40</i> | <i>18.17</i>  | <i>16.58</i> |
| Chemical and Plastic Products | 9.83          | 9.83         | 9.16             | 7.63             | 9.83         | 9.83         | 9.83         | 9.83         | 9.83          | 9.75         |
| Ferrous Metals                | 13.54         | 13.54        | 12.52            | 10.19            | 13.54        | 13.54        | 13.54        | 13.54        | 13.54         | 13.46        |
| Non-ferrous Metals            | 14.26         | 14.26        | 13.14            | 10.81            | 14.26        | 14.26        | 14.26        | 14.26        | 14.26         | 13.66        |
| Motor Vehicles                | 18.72         | 18.72        | 18.26            | 16.36            | 18.72        | 18.72        | 18.72        | 18.72        | 18.72         | 18.69        |
| Other Transport Equipment     | 10.82         | 10.82        | 9.99             | 8.30             | 10.82        | 10.82        | 10.82        | 10.82        | 10.82         | 10.76        |
| Electric Equipment            | 11.14         | 11.14        | 10.88            | 9.24             | 11.14        | 11.14        | 11.14        | 11.14        | 11.14         | 11.10        |
| Machinery                     | 12.63         | 12.63        | 11.74            | 9.63             | 12.63        | 12.63        | 12.63        | 12.63        | 12.63         | 12.58        |
| <i>Heavy Manufactures</i>     | <i>11.53</i>  | <i>12.48</i> | <i>11.06</i>     | <i>9.50</i>      | <i>12.52</i> | <i>13.26</i> | <i>11.57</i> | <i>11.87</i> | <i>11.50</i>  | <i>11.98</i> |
| Utilities and Construction    | 0.00          | 0.00         | 0.00             | 0.00             | 0.00         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00         |
| Trade and Services            | 0.00          | 0.00         | 0.00             | 0.00             | 0.00         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00         |
| <i>Utilities and Services</i> | <i>0.00</i>   | <i>0.00</i>  | <i>0.00</i>      | <i>0.00</i>      | <i>0.00</i>  | <i>0.00</i>  | <i>0.00</i>  | <i>0.00</i>  | <i>0.00</i>   | <i>0.00</i>  |
| <i>Total</i>                  | <i>11.51</i>  | <i>12.69</i> | <i>6.26</i>      | <i>9.50</i>      | <i>12.76</i> | <i>13.17</i> | <i>12.45</i> | <i>12.79</i> | <i>9.01</i>   | <i>11.65</i> |

Notes: (1) Tariffs include *ad valorem* and *ad valorem* equivalents of specific, mixed plus TRQs, and estimated as simple average based on HTS 8 digit.

(2) Tariff rates on "macro-sectors", "total", and "global" are trade-weighted by the respective partners. "Total" is measured in terms of merchandise trade, excluding trade in services. Sources: Hemispheric Tariff Database (IDB) for Latin America, USITC for the United States, TRAINS for the EU25 and Asian countries and regions, and GTAP database v.6.0 for the rest of world.

**TABLE 4**  
**AD VALOREM TARIFF RATES IMPOSED ON MERCOSUR BY MAJOR PARTNERS**  
(% - 2001)

| Sectors                       | United States | Mexico       | Andean Community | Rest of Americas | EU 25        | Japan        | China        | Asia 10      | Rest of World | Global       |
|-------------------------------|---------------|--------------|------------------|------------------|--------------|--------------|--------------|--------------|---------------|--------------|
| Wheat, Corn and Other Grains  | 0.56          | 57.20        | 8.75             | 3.77             | 16.20        | 32.97        | 1.05         | 256.45       | 8.12          | 35.23        |
| Vegetables and Fruits         | 2.56          | 20.86        | 11.65            | 4.19             | 7.95         | 13.20        | 20.30        | 8.62         | 15.94         | 7.52         |
| Oil seeds and Soybeans        | 17.07         | 3.20         | 8.03             | 1.30             | 0.00         | 0.56         | 0.14         | 71.70        | 29.00         | 6.13         |
| Sugar                         | 11.16         | 14.30        | 13.72            | 10.05            | 31.44        | 283.28       | 20.71        | 28.94        | 25.07         | 23.70        |
| Coffee, Rice and Other Crops  | 11.51         | 13.06        | 8.15             | 2.67             | 16.96        | 6.65         | 18.34        | 29.06        | 14.72         | 14.73        |
| Other Agricultural Products   | 5.56          | 18.72        | 12.43            | 6.73             | 13.24        | 14.56        | 17.41        | 23.65        | 15.40         | 12.27        |
| <i>Agriculture</i>            | <i>7.32</i>   | <i>13.10</i> | <i>10.05</i>     | <i>5.46</i>      | <i>9.12</i>  | <i>12.78</i> | <i>1.98</i>  | <i>95.89</i> | <i>18.27</i>  | <i>14.59</i> |
| Bovine Meat                   | 4.87          | 29.12        | 14.21            | 5.59             | 40.33        | 40.75        | 22.52        | 2.31         | 29.95         | 27.07        |
| Other Meat                    | 1.61          | 21.10        | 15.69            | 34.31            | 21.46        | 29.66        | 11.90        | 1.12         | 15.35         | 16.55        |
| Dairy Products                | 20.52         | 34.27        | 15.28            | 18.46            | 45.62        | 64.36        | 13.80        | 8.48         | 12.04         | 23.32        |
| Beverages and Tobaccos        | 14.04         | 34.28        | 13.86            | 7.14             | 7.81         | 34.31        | 20.65        | 28.11        | 22.57         | 16.23        |
| Vegetable Oils and Fats       | 3.03          | 19.79        | 12.46            | 6.42             | 8.96         | 0.95         | 7.71         | 1.95         | 23.37         | 12.86        |
| <i>Agribusiness</i>           | <i>6.07</i>   | <i>33.96</i> | <i>13.11</i>     | <i>7.83</i>      | <i>14.38</i> | <i>27.61</i> | <i>9.25</i>  | <i>2.70</i>  | <i>22.13</i>  | <i>15.54</i> |
| Minerals                      | 1.89          | 16.06        | 8.60             | 1.98             | 1.25         | 0.01         | 0.80         | 1.42         | 5.74          | 2.02         |
| Energy Products               | 0.38          | 9.88         | 5.57             | 2.37             | 0.65         | 0.34         | 1.51         | 3.60         | 10.82         | 2.35         |
| <i>Energy</i>                 | <i>1.09</i>   | <i>15.96</i> | <i>7.37</i>      | <i>2.33</i>      | <i>1.19</i>  | <i>0.01</i>  | <i>0.83</i>  | <i>1.42</i>  | <i>6.76</i>   | <i>2.15</i>  |
| Textiles and Apparel          | 9.76          | 15.95        | 15.08            | 4.75             | 7.24         | 8.17         | 20.01        | 6.66         | 11.80         | 10.41        |
| Leather, Wood and Paper       | 3.76          | 17.35        | 11.38            | 3.58             | 3.26         | 2.74         | 6.40         | 2.56         | 11.86         | 4.52         |
| Other Light Manufactures      | 0.73          | 21.58        | 11.99            | 3.86             | 0.75         | 0.30         | 18.82        | 6.62         | 9.41          | 3.98         |
| <i>Light Manufactures</i>     | <i>4.24</i>   | <i>17.25</i> | <i>12.88</i>     | <i>3.85</i>      | <i>3.68</i>  | <i>3.35</i>  | <i>9.30</i>  | <i>2.75</i>  | <i>11.74</i>  | <i>5.28</i>  |
| Chemical and Plastic Products | 0.83          | 11.56        | 6.58             | 1.92             | 1.26         | 0.30         | 10.94        | 5.97         | 9.93          | 3.75         |
| Ferrous metals                | 1.40          | 12.78        | 7.25             | 1.78             | 0.96         | 0.22         | 4.81         | 4.54         | 10.41         | 3.62         |
| Non-ferrous Metals            | 0.54          | 16.97        | 9.12             | 2.39             | 1.40         | 0.21         | 7.52         | 3.25         | 4.79          | 2.35         |
| Motor Vehicles                | 1.53          | 8.54         | 5.12             | 1.37             | 4.85         | 0.00         | 29.92        | 24.70        | 20.76         | 6.51         |
| Other Transport Equipment     | 0.95          | 15.12        | 8.94             | 2.54             | 1.72         | 0.00         | 8.77         | 3.35         | 0.49          | 1.37         |
| Electric Equipment            | 0.79          | 15.67        | 7.92             | 1.50             | 2.55         | 0.00         | 9.94         | 3.93         | 6.81          | 2.55         |
| Machinery                     | 0.62          | 14.33        | 8.31             | 2.03             | 0.31         | 0.00         | 10.23        | 4.94         | 9.01          | 3.88         |
| <i>Heavy Manufactures</i>     | <i>0.97</i>   | <i>10.73</i> | <i>6.94</i>      | <i>1.85</i>      | <i>1.87</i>  | <i>0.21</i>  | <i>13.63</i> | <i>5.50</i>  | <i>9.45</i>   | <i>3.71</i>  |
| Utilities and Construction    | 0.00          | 0.00         | 0.00             | 0.00             | 0.00         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00         |
| Trade and Services            | 0.00          | 0.00         | 0.00             | 0.00             | 0.00         | 0.00         | 0.00         | 0.00         | 0.00          | 0.00         |
| <i>Utilities and Services</i> | <i>0.00</i>   | <i>0.00</i>  | <i>0.00</i>      | <i>0.00</i>      | <i>0.00</i>  | <i>0.00</i>  | <i>0.00</i>  | <i>0.00</i>  | <i>0.00</i>   | <i>0.00</i>  |
| Total                         | 2.45          | 12.65        | 8.54             | 3.10             | 7.20         | 6.77         | 4.68         | 25.71        | 16.62         | 8.17         |

Source: Hemispheric Tariff Database (IDB) for Latin America, USITC for the United States, TRAINS for the EU25 and Asian countries and regions, and GTAP database v.6.0 for the rest of world.

In MERCOSUR, a wide range of industries is protected by high tariffs. Among them, *beverages and tobaccos* impose the highest tariff of 20 percent, whereas *oilseeds and soybeans*, which has strong comparative advantage in trade and is highly competitive in the global market, has the lowest tariff of 5 percent. In agriculture, tariff escalation is present, as processed-food products have higher protection than raw agricultural products. In spite of huge demand for capital and intermediate goods, the bloc keeps 10 to 12 percent tariffs on these imports. *Motor vehicles*, one of the strategic sectors in MERCOSUR, maintains the highest border protection due to their sensitivity.

Table 4 presents the applied tariffs imposed on MERCOSUR by its trade partners. As clearly demonstrated, MERCOSUR trade is constrained by high protection in the global market. The bloc faces an aggregate trade-weighted tariff of 8 percent worldwide, although this is 3-percentage points lower than the bloc's overall protection. *Agriculture* is more protected than industrial goods, and *agribusiness* has a slightly higher border protection than *agriculture*.

The structure of protection differs greatly by partner. The United States has the lowest aggregate trade-weighted protection of 2.5 percent against MERCOSUR goods. Yet, some sensitive agricultural products are guarded by high protection. Tariffs on *dairy products* are still 20 percent, and *oilseeds and soybeans* has 17 percent. While the protection on products of *heavy manufactures*, the bloc's main exports to the US market, is marginal; MERCOSUR faces modest tariffs on *light manufactures* (4 percent).

In the Americas, other partners impose higher protection than the United States. Mexico is the most protected market, with an aggregate protection of 13 percent, and the most heterogeneous protection structure. All agricultural sectors except for *oilseeds and soybeans* are heavily protected, with the highest tariffs of 57 percent on *wheat, corn and other grains*. Among the industrial sectors, *motor vehicles*, which account for more than three-quarters of the bloc's exports to Mexico, has the lowest, but still a considerably high protection (8.5 percent).

The Andean Community has lower and less heterogeneous protection than Mexico on aggregate and over sectors. *Agribusiness* is the most protected across the board, with tariffs of 13 percent. The bloc maintains similar high level of protection on *light manufactures*. The protection on *heavy manufactures* is low, but the aggregate tariff is still 7 percent at macro-sector.

Outside the Americas, protection is considerably distorted in favor of *agriculture* in the EU25. The aggregate tariff on agriculture is 9 percent, whereas it jumps to 14 percent on *agribusiness*. In particular, sensitive products are heavily protected by gigantic tariffs: dairy products by 45 percent, *bovine meat* by 40 percent, and *sugar* by 31 percent, respectively. Due to high tariffs on *agriculture*, the aggregate trade-weighted protection on MERCOSUR products reaches 7 percent, 3 times higher than that of the United States.

In Asia, the structure of protection is heterogeneous. Similar to the EU25, Japan maintains high protection in *agriculture*. Overall, *agribusiness* is more protected than *agriculture*. At the sectoral level, *sugar* has a prohibitive tariff of more than 280 percent, and *dairy products* by 64 percent. In Asia10, *agriculture* is the most sensitive sector. The aggregate protection in *agriculture* is 96 percent, with the highest tariff of 250 percent on *wheat, corn and other grains*. In sharp

contrast, China has a protection regime completely different from the other partners. At the macro-level, the industrial sectors enjoy higher protection than *agriculture*: *heavy manufactures* with 14 percent, and *light manufactures* with 9 percent. At the sectoral level, *motor vehicles* has the highest tariffs of 30 percent.

## IV. ALTERNATIVE SCENARIOS AND POLICY SIMULATIONS

### A Alternative Scenarios

We tried to run a diversified set of scenarios to produce a global idea on the different options nowadays on the table for MERCOSUR. The main options are, naturally, the FTAs with, respectively, the United States and the European Union. Both can be contrasted to the FTAA initiative -in its original form- as well as to a set of alternatives, comprising different international positions MERCOSUR may assume. Moreover, they should also be confronted with possible outcomes from the present the Doha Round, which has not been done in this paper.

Table 5 lists the alternative scenarios to analyze MERCOSUR trade and integration options. Five scenarios, which will be called *basic*, have then been defined. These basic options may be translated into manifold ways as well as combined in multiple forms. A sixth scenario, involving an FTA with China is also considered.

**TABLE 5**  
**ALTERNATIVE SCENARIOS FOR MERCOSUR SIMULATIONS**

| Scenario | Partners | Description  |
|----------|----------|--|
| A        | US       | MERCOSUR closes a full FTA with the US               |
| B        | EU25     | MERCOSUR closes a full FTA with EU25                 |
| C        | Mexico   | MERCOSUR closes a full FTA with Mexico               |
| D        | Andean   | MERCOSUR closes a full FTA with the Andean Community |
| E        | FTAA     | A full FTA in the Americas                           |
| F        | China    | MERCOSUR closes a full FTA with China                |

Source: Authors' estimation.

Policy variable is tariffs. Of course, it is also desirable to evaluate the impact of not-so-perfect FTAs, something that will be pursued later, following lines in Flôres [2003]. At present, full FTAs are implemented in all cases, allowing a clearer cross evaluation of them.

### B Simulation Results

The alternative scenarios are evaluated, with focus on the impacts on trade flows measured in terms of percentage changes from the benchmark. All deserve careful analysis and will be briefly discussed below. It is worth reminding -specially given the previous remarks on the database and the aggregate level of the study- that all the figures should be basically evaluated in relation to each other, within and between tables, and not taken separately, as a precise single value for the changes. The importance of this section is to identify areas or situations, or rather sectors and industries, where things can go better *or* worse. Detailed quantification of profits or losses should be made at a greater level of detail, ultimately with the aid of partial equilibrium models.<sup>13</sup>

<sup>13</sup> Given all the methodological caveats already mentioned, we decided not to translate the results into monetary values, something that could easily be misleading.

### *Scenarios A (FTA with the United States) and B (FTA with the EU25)*

Figure 4 describes the changes in trade flows in macro-sectors under the two main scenarios: FTAs with the United States (scenario A) and the EU25 (scenario B). In the scenario A, MERCOSUR enjoys higher export growth of manufacturing goods relative to agriculture-related products to the United States: 21 percent for *light manufactures* and 17 percent for *heavy manufactures*. In the scenario B, *agribusiness* will penetrate into the EU market with the highest export growth of 62 percent. At sectoral level, traditional products such as textiles and apparel, and leather, wood and paper will expand exports to both the United States and the EU25. Annex Table 3 reports the sectoral impact on both scenarios.

In a rough overall picture, the EU25 FTA favours demand for more traditional exports, while an FTA with the United States promotes some higher value-added exports. Even so, there are sensible increases in MERCOSUR's exports of *non-ferrous metals* and *machinery*, for instance.

The very protectionist European CAP (Common Agricultural Policy) shows itself indirectly in the significant increases in *bovine* and *poultry meat*; the US figures in *agribusiness* sectors are more modest. However, the EU25 remains competitive in this area and, either due to this, or to compensate the demand surge in the EU25, or both, MERCOSUR's imports changes in commodities of *agriculture* and *agribusiness* are, but for exception of *bovine meat*, considerably higher in the EU25 FTA. Indeed, this is also valid for most of the remaining sectors, only exceptions being *chemical products* and *electric equipment*.

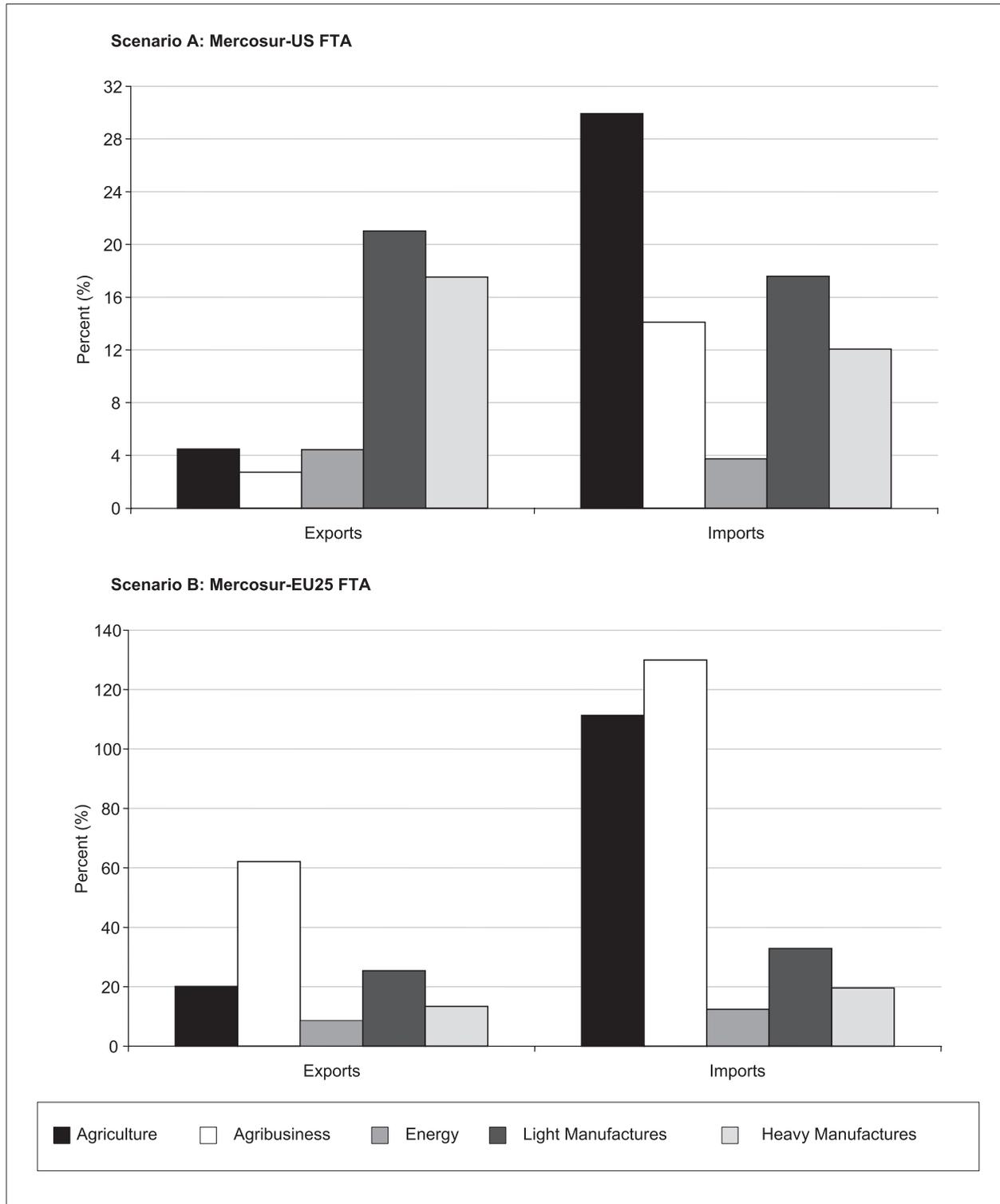
The value of the correlation coefficients excluding services between each two corresponding vectors are calculated. Given high increase in bovine meat exports to the EU market in scenario B, the coefficients for exports were computed with and without this sector. There is no linear relation between the two exports patterns: minus (-) 0.08 without *bovine meat* and minus (-) 0.21 with *bovine meat*, while the coefficient for imports show a certain degree of common behaviour with the coefficient of 0.27. Nearly all these contrasting results may be partially explained by the more open, in relative terms, US protectionist structure.

Tables 6 deepens the insight, showing the regional distribution of the increases, according to the five macro-sectors. Both regional agreements present limited territorial externalities, with however certain nuances. The US FTA seems to provide either advantages or efficiency gains in *light* and *heavy manufactures* sectors,<sup>14</sup> where MERCOSUR is able to increase exports to other regions in the world. In the latter group, sensible increases take place in three Asian regions, the EU25 and the Rest of the World. Nevertheless, the export patterns are largely dominated by high penetration of the flows to the US market, with slight decreases in the demand for *agriculture* elsewhere. Though these are usually small, the impact on two groups of *manufactures* become more significant, particularly for *heavy manufactures*, exactly in the same regions already mentioned. Very clearly, the agreement will provoke trade deviation, in these sectors, from Asia and the EU25 to US suppliers. A similar pattern, reasonably significant, also takes place with the *energy* group. Globally, the EU25 loses around US\$ 2.4 billion of exports to the Southern Cone market, and even the bloc's "neighbours" experience losses from US\$ 52.6 million in the Andean Community to US\$ 169.4 million in the Rest of the Americas.

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<sup>14</sup> Strictly speaking, efficiency gains only take place in sectors under imperfect competition.

**FIGURE 4**  
**IMPACT OF MERCOSUR'S FTAS WITH THE US AND EU25:**  
**TOTAL TRADE FLOW CHANGES**



Source: Authors' estimation.

**TABLE 6**  
**IMPACT OF MERCOSUR'S FTAS: TOTAL FLOW CHANGES**

**Scenario A: MERCOSUR FTA with the United States**

a) Exports

| Macro-sectors      | United States | Mexico      | Andean Community | Rest of Americas | EU25        | Japan       | China       | Asia 10     | Rest of World |
|--------------------|---------------|-------------|------------------|------------------|-------------|-------------|-------------|-------------|---------------|
| Agriculture        | 56.92         | -1.67       | -0.26            | -0.51            | -1.64       | -1.57       | -0.93       | -0.57       | -0.30         |
| Agribusiness       | 60.67         | 0.50        | 0.48             | 0.85             | 0.71        | 1.46        | 1.01        | 0.88        | 0.79          |
| Energy             | 21.24         | 0.62        | 1.00             | 0.42             | 2.18        | 2.36        | 2.46        | 2.33        | 2.27          |
| Light Manufactures | 52.44         | 0.57        | 1.04             | 0.75             | 1.32        | 1.89        | 2.39        | 1.00        | 1.89          |
| Heavy Manufactures | 33.39         | 7.16        | 5.27             | 6.35             | 8.96        | 8.96        | 10.77       | 7.81        | 9.20          |
| <b>Total</b>       | <b>39.70</b>  | <b>5.55</b> | <b>3.46</b>      | <b>2.48</b>      | <b>2.12</b> | <b>2.69</b> | <b>2.09</b> | <b>2.27</b> | <b>2.16</b>   |

b) Imports

| Macro-sectors      | United States | Mexico       | Andean Community | Rest of Americas | EU25          | Japan         | China        | Asia 10      | Rest of World |
|--------------------|---------------|--------------|------------------|------------------|---------------|---------------|--------------|--------------|---------------|
| Agriculture        | 175.50        | -0.56        | 0.39             | 0.01             | 0.31          | 2.94          | 0.67         | 2.02         | 0.90          |
| Agribusiness       | 192.49        | -1.73        | -1.34            | -1.76            | -1.59         | -1.69         | -1.30        | -1.12        | -1.57         |
| Energy             | 54.44         | -2.74        | -1.58            | -2.39            | -2.43         | -1.41         | -1.73        | -1.54        | -1.52         |
| Light Manufactures | 141.28        | -3.17        | -2.28            | -0.95            | -2.23         | -5.21         | -5.06        | -3.59        | -3.16         |
| Heavy Manufactures | 64.45         | -9.06        | -7.55            | -9.37            | -12.01        | -12.09        | -10.94       | -9.26        | -9.20         |
| <b>Total</b>       | <b>69.26</b>  | <b>-8.42</b> | <b>-3.16</b>     | <b>-5.69</b>     | <b>-10.76</b> | <b>-11.70</b> | <b>-8.77</b> | <b>-8.08</b> | <b>-6.16</b>  |

**Scenario B: MERCOSUR FTA with the EU25**

a) Exports

| Macro-sectors      | United States | Mexico       | Andean Community | Rest of Americas | EU25         | Japan         | China         | Asia 10      | Rest of World |
|--------------------|---------------|--------------|------------------|------------------|--------------|---------------|---------------|--------------|---------------|
| Agriculture        | -17.08        | -18.51       | -21.89           | -17.26           | 79.72        | -26.65        | -17.32        | -21.28       | -17.19        |
| Agribusiness       | -6.49         | -2.75        | -8.28            | -5.71            | 144.99       | -5.72         | -16.08        | -11.20       | -8.89         |
| Energy             | -3.51         | -3.15        | -5.45            | -2.15            | 54.04        | -11.30        | -11.35        | -11.89       | -11.71        |
| Light Manufactures | -4.05         | -2.84        | -0.96            | -3.05            | 100.41       | -7.99         | -8.14         | -7.79        | -7.68         |
| Heavy Manufactures | -2.09         | -2.39        | 1.02             | 1.52             | 69.21        | 3.36          | 3.75          | 3.46         | 2.40          |
| <b>Total</b>       | <b>-4.20</b>  | <b>-3.36</b> | <b>-3.59</b>     | <b>-2.94</b>     | <b>92.67</b> | <b>-11.30</b> | <b>-11.45</b> | <b>-9.77</b> | <b>-10.00</b> |

b) Imports

| Macro-sectors      | United States | Mexico       | Andean Community | Rest of Americas | EU25         | Japan         | China        | Asia 10      | Rest of World |
|--------------------|---------------|--------------|------------------|------------------|--------------|---------------|--------------|--------------|---------------|
| Agriculture        | 57.04         | 51.61        | 43.52            | 44.76            | 312.61       | 66.33         | 49.09        | 62.53        | 58.03         |
| Agribusiness       | 10.19         | 8.11         | 16.76            | 6.66             | 201.38       | 9.35          | 8.21         | 26.85        | 10.22         |
| Energy             | 5.02          | 4.38         | 5.08             | 4.52             | 86.58        | 2.18          | 5.12         | 2.51         | 5.49          |
| Light Manufactures | 0.28          | -0.34        | 0.16             | 1.51             | 117.17       | -2.11         | -2.04        | -0.78        | -0.41         |
| Heavy Manufactures | -9.82         | -7.38        | -6.89            | -8.04            | 73.11        | -10.72        | -8.97        | -6.89        | -7.73         |
| <b>Total</b>       | <b>-7.93</b>  | <b>-5.11</b> | <b>5.98</b>      | <b>1.52</b>      | <b>82.93</b> | <b>-10.10</b> | <b>-5.69</b> | <b>-4.58</b> | <b>-0.68</b>  |

Source: Authors' estimation.

Increases in exports to the partners are usually more modest in scenario A than in B. This very often also corresponds to lower absolute values. Manufacturing industries sell to the United States, under scenario A, extra values of US\$ 1.98 billion by *light manufactures* and US\$ 3.30 billion by *heavy manufactures* respectively, while the much higher European percentages under scenario B amount to US\$ 2.83 billion and US\$ 3.55 billion respectively: a sizeable difference in the first case.

It is worth noticing that the EU25 FTA pattern is nearly opposite to the agreement with the United States. The considerable rise in exports to the EU market takes place at the expense of generalised decreases in all other regions, for every sector but *heavy manufactures*, where only the Mexican and US flows decrease. Imports, however, increase almost everywhere, with exceptions for the Asian regions and Mexico in *light manufactures*, and all destinations in *heavy manufactures*, where, as happened in the US FTA, there is a clear trade deviation in favour of the partner's exports.

The combination of all results suggests a few important perspectives. First, both FTAs with a Northern bloc will enhance MERCOSUR's competitiveness in heavy manufactures, very likely at the cost of inducing a considerable, though needed, readjustment in this group of sectors. Second, while scenario A transforms the United States into the major MERCOSUR supplier, in spite of probably also turning the Southern Cone into a more competitive bloc, scenario B strongly channels MERCOSUR exports to the EU, in such a way that it is impelled to demand more goods from all other regions. Clearly, this signals to the more distorting EU protection structure, but also warns on the higher US dependency the sole completion of scenario A may entail. Both situations seem, in principle, undesirable.

#### *Scenarios C (FTA with Mexico) and D (FTA with the Andean)*

The US scenario A has two variations and one widening, the FTAA itself: an FTA with Mexico (scenario C) and with the Andean (scenario D). The impacts are more modest, though the increases in exports of *manufactures* are somewhat higher in the case of scenario C. The Andean Community, on the other hand, shows its competitiveness in *agriculture* and *energy*, where the highest changes in MERCOSUR's imports take place.

The agreement with the Andean Community causes deviation of MERCOSUR exports in all other regions, though in general low; the highest is uniformly in *wheat, corns and other grains*.<sup>15</sup> It dramatically unlocks MERCOSUR exports of *sugar, animal and dairy products*, but the increases are significant for all sectors: *electric equipment* with 29.5 percent increase is the lowest. The sectoral impact on trade flows under the South-South integration scheme for main regions is presented in Annex Table 4.

Contrasting the impacts on exports and imports, evidences of intra-industry trade between the two blocs, among others, emerge in *beverages and tobacco, machinery, textiles and apparel, other light manufactures* and *motor vehicles*. These last two sectors account for the highest percentage increases in Andean exports to MERCOSUR, due largely to the highest protection imposed by MERCOSUR. Combining them with the impacts on *coffee, rice and other crops, animal products*,

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<sup>15</sup> This pattern also repeats itself in the other five regions.

*vegetable oils* and *electric machinery*, there is an interesting evidence on the complementarities between the two blocs.

**TABLE 7**  
**MERCOSUR'S FTAS WITH MEXICO AND THE ANDEAN COMMUNITY:**  
**TOTAL FLOW CHANGES**

| Macro-sectors      | Scenario C: Mexico FTA |             | Scenario D: Andean FTA |             |
|--------------------|------------------------|-------------|------------------------|-------------|
|                    | Exports                | Imports     | Exports                | Imports     |
| Agriculture        | 0.36                   | 5.02        | 2.72                   | 16.02       |
| Agribusiness       | 1.72                   | 3.07        | 1.73                   | 3.14        |
| Energy             | -0.04                  | 1.31        | 0.96                   | 4.64        |
| Light Manufactures | 2.62                   | 2.93        | 1.51                   | 3.20        |
| Heavy Manufactures | 6.69                   | 2.82        | 4.45                   | 1.61        |
| (Services)         | -0.89                  | 1.06        | -1.13                  | 1.37        |
| <i>Total</i>       | <i>2.47</i>            | <i>2.36</i> | <i>2.20</i>            | <i>2.11</i> |

Source: Authors' estimation.

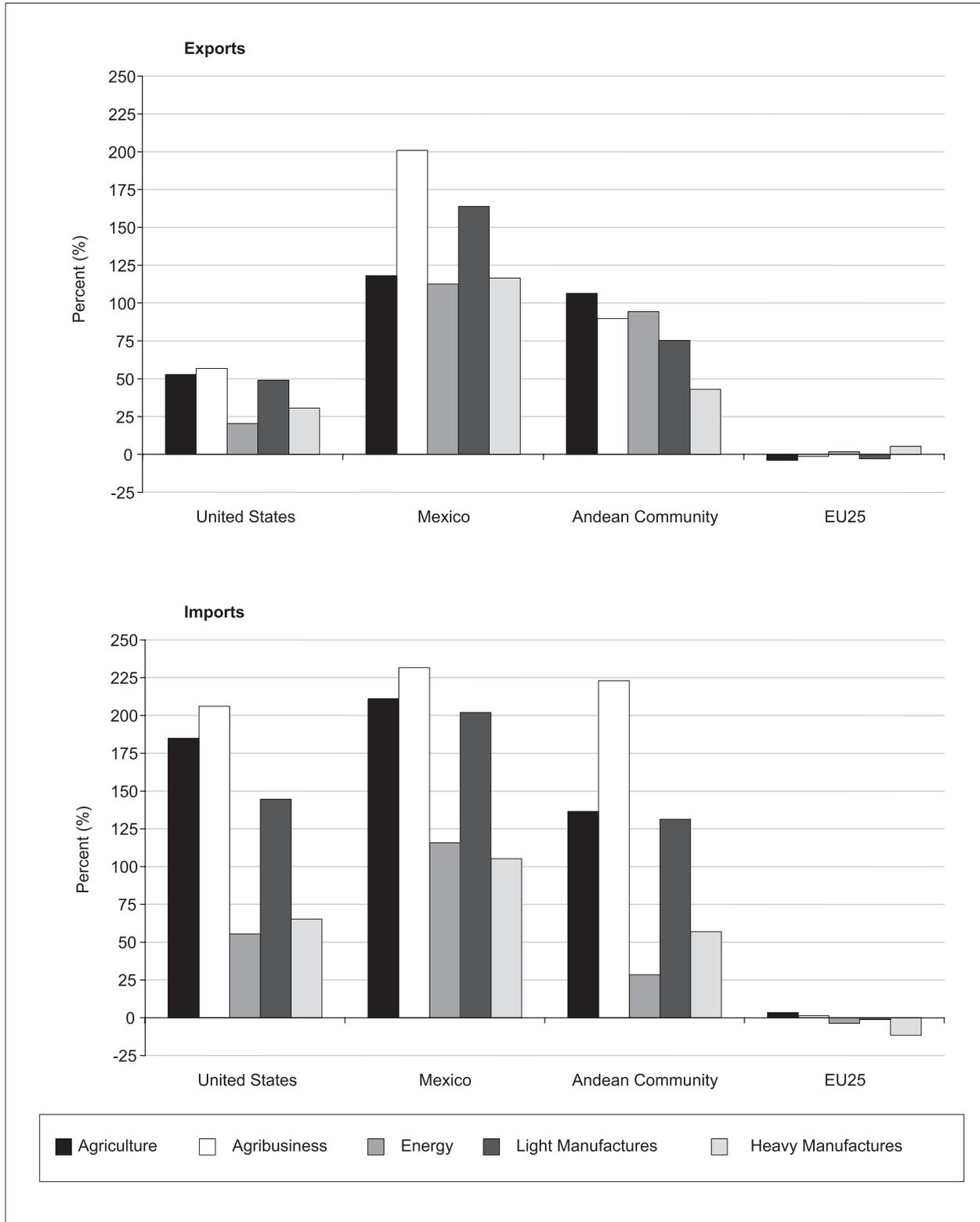
Of course, the Andean Community becomes a main supplier of energy products to MERCOSUR, the negative though very small decreases taking place in all other regions. The opposite applies to *vegetables and fruits*, whose exports marginally increase in all market. Apart from this, the FTA does not much induce the bloc's exports to other regions. Finally, the effects on the United States and the EU25 are strikingly similar, as synthesised by the two correlation coefficients: 0.84 for exports and 1.0 for imports.

#### *Scenario E (FTAA)*

The FTAA under scenario E provides the integrated picture for scenarios A, C and D, in which the United States is responsible for a few non-linearities. Figure 5 shows the impact on trade by macro-sector for major markets. While Annex Table 5 reports the sectoral impact of the FTAA on trade for major markets, Table 6 in Annex gives the difference of impacts between FTAA and the corresponding FTA with the United States under scenario A. They reveal that the effects of scenario A are thoroughly enhanced. As expected, the FTAA induces MERCOSUR 'coming closer' to its hemispheric partners. Though the impact outside the Americas is somewhat negligible; Japan even shows no decrease in the case of exports. For imports, the changes are both uniform and remarkable, notwithstanding increases in *agriculture* and *agribusiness*, Japan now loses nearly half a US\$ billion of its exports to MERCOSUR. Even so, losses are slightly lower than in the US-MERCOSUR FTA.<sup>16</sup>

<sup>16</sup> The EU25 now loses 2.3 instead of US\$ 2.4 billion.

**FIGURE 5**  
**IMPACT OF FTAA ON MAJOR MARKET: TRADE FLOW CHANGES**



Source: Authors' estimation.

Exports increases are usually superior in the full FTAA case, while imports are always the case. For exports, *dairy products, motor vehicles, beverages and tobacco, and textiles and apparel*, in this order, present the greatest impacts, sectors where MERCOSUR, but perhaps for *motor vehicles*, clearly has an advantage *vis à vis* more competitive blocs/economies. Notwithstanding, increases are also positive in all remaining non-services sectors. On imports, the pattern is somehow reverted, with substantial increases now in the agricultural group. However the impact by percentage changes can be misleading, and the interpretation requires due care: for instance, a 117.80 percent rise in *grains* amounts to mere US\$ 39.3 million, while an increase of 15.45 percent in *machinery* leads to US\$ 2.7 billion gains!

Table 8 adds a further insight, by comparing the total flow changes for the four scenarios dealing with Hemispheric integrations. The Table shows that the FTAA is as distorting -with respect to regions outside the agreement- as the MERCOSUR-US FTA, though, in the latter, MERCOSUR still increases its exports to all other regions. Overall, the FTAA is roughly as beneficial to Mexico and the Andean Community, in terms of their trade relations with MERCOSUR, as the individual scenarios C and D. It is undoubtedly a competitive choice within the realm of these four agreements.

**TABLE 8**  
**COMPARISON OF THE HEMISPHERIC APPROACHES ON MERCOSUR TRADE:**  
**TOTAL TRADE FLOW CHANGES**

| Trade Scenarios      | Exports     |                 |                 |           | Imports     |                 |                 |           |
|----------------------|-------------|-----------------|-----------------|-----------|-------------|-----------------|-----------------|-----------|
|                      | A<br>US FTA | C<br>Mexico FTA | D<br>Andean FTA | E<br>FTAA | A<br>US FTA | C<br>Mexico FTA | D<br>Andean FTA | E<br>FTAA |
| <i>Regions</i>       |             |                 |                 |           |             |                 |                 |           |
| United States        | 39.70       | -1.06           | -1.10           | 36.75     | 69.26       | 0.54            | 1.19            | 70.43     |
| Mexico               | 5.55        | 119.58          | -1.08           | 124.65    | -8.42       | 138.96          | 0.83            | 113.18    |
| Andean Community     | 3.46        | -0.81           | 78.64           | 61.54     | -3.16       | 0.66            | 55.33           | 55.59     |
| Rest of the Americas | 2.48        | -0.72           | -0.92           | 38.03     | -5.69       | 0.65            | 0.87            | 70.23     |
| EU25                 | 2.12        | -1.24           | -1.77           | -0.53     | -10.76      | 0.19            | 1.07            | -10.33    |
| Japan                | 2.69        | -1.67           | -2.21           | 0.34      | -11.70      | -0.12           | 0.97            | -11.66    |
| China                | 2.09        | -1.26           | -1.93           | -0.66     | -8.77       | 0.57            | 1.07            | -7.79     |
| Asia 10              | 2.27        | -1.52           | -2.32           | -0.88     | -8.08       | 0.26            | 1.00            | -7.43     |
| Rest of the World    | 2.16        | -1.09           | -1.97           | -0.67     | -6.16       | 0.42            | 0.60            | -5.02     |

Source: Authors' estimation.

The additional insight refers to the bilateral trade positions caused by the FTAA. Taking, for instance, the differences of the impact of MERCOSUR with the Andean Community shows that the bloc tends to reduce trade surplus with the Andean, especially in 9 manufacturing industries. Indeed, with the exceptions of *leather, wood and paper, chemical products, and non-ferrous metals*, the losses are significant. In the case with the United States, trade balance further deteriorate the

bloc's trade accounts in all manufacturing industries with the exception of *chemical products* and *electric equipment*.

### Scenario F: FTA with China

With the proviso that statistical data for China are the least accurate in our database, Table 9 displays the regional impact by macro-sector groups by generated the agreement. Close examination reveals that qualitatively the MERCOSUR-China FTA induces a pattern similar to the one generated by the MERCOSUR-EU25 FTA. The difference in exports lies in *heavy manufactures*, where MERCOSUR exports now suffer a deviation in Asian countries and the Rest of the World, while the patterns of exports to other regions are not affected. Deviations in *heavy manufactures* are, however, more modest. In the case of imports, *light manufacture* are now affected in all regions. Annex Table 7 gives the impact on total trade and bilateral impact with China.

In general, though the magnitudes of the impact for China are usually high to very high, the values of impact in terms of trade flows are small. Even so, the fact that many negative impacts due to trade diversion appear on trade outside the partner must be taken into account. Definitely, however, China is a partner whose role will evolve.

**TABLE 9**  
**IMPACT OF MERCOSUR-CHINA FTA: TRADE FLOW CHANGES**

a) Exports

| Macro-sectors      | United States | Mexico      | Andean Community | Rest of Americas | EU25         | Japan        | China         | Asia 10      | Rest of World |
|--------------------|---------------|-------------|------------------|------------------|--------------|--------------|---------------|--------------|---------------|
| Agriculture        | -1.47         | -1.49       | -1.09            | -1.21            | -1.75        | -2.07        | 31.20         | -1.54        | -1.71         |
| Agribusiness       | -1.06         | -0.54       | -0.60            | -0.72            | -0.66        | -1.23        | 117.26        | -0.85        | -0.73         |
| Energy             | -0.19         | -0.10       | -0.54            | -0.26            | -0.81        | -0.80        | 10.29         | -0.75        | -0.97         |
| Light Manufactures | -0.83         | -0.53       | -0.01            | -0.56            | -1.64        | -1.50        | 311.57        | -1.90        | -1.49         |
| Heavy Manufactures | 0.93          | 1.57        | 0.40             | 0.22             | 0.20         | -1.48        | 490.03        | -1.30        | -0.05         |
| <i>Total</i>       | <i>0.18</i>   | <i>1.06</i> | <i>0.02</i>      | <i>-0.27</i>     | <i>-0.94</i> | <i>-1.45</i> | <i>141.13</i> | <i>-1.29</i> | <i>-1.02</i>  |

b) Imports

| Macro-sectors      | United States | Mexico       | Andean Community | Rest of Americas | EU25         | Japan        | China         | Asia 10      | Rest of World |
|--------------------|---------------|--------------|------------------|------------------|--------------|--------------|---------------|--------------|---------------|
| Agriculture        | 2.32          | 1.81         | 1.39             | 1.29             | 2.28         | 3.95         | 196.71        | 3.35         | 2.66          |
| Agribusiness       | 1.35          | 1.45         | 1.15             | 1.48             | 1.39         | 1.43         | 339.17        | 0.99         | 1.47          |
| Energy             | 0.44          | -0.05        | 0.63             | 0.22             | 0.20         | 0.06         | 35.77         | 0.05         | 0.73          |
| Light Manufactures | -2.75         | -2.75        | -2.03            | -0.44            | -2.29        | -7.40        | 286.55        | -3.21        | -2.50         |
| Heavy Manufactures | -0.86         | -1.41        | -0.15            | -0.49            | -1.51        | -1.97        | 103.92        | -1.18        | -0.76         |
| <i>Total</i>       | <i>-0.84</i>  | <i>-1.34</i> | <i>0.37</i>      | <i>-0.14</i>     | <i>-1.40</i> | <i>-2.01</i> | <i>142.74</i> | <i>-1.40</i> | <i>-0.27</i>  |

Source: Authors' estimation.

### *Impact on Labor and Production*

Changes in trade flows have no clear, unidirectional relation with what happens to output and, most importantly, welfare -the ultimate goal of any CGE evaluation. Synthetic information on all the scenarios shows, respectively, the changes in labor, output and welfare. Reminding that labor is reallocated in each scenario, keeping its total supply constant, the analysis shows that, in general, changes induced by the six scenarios are not very drastic. As expected, the directions of change are the similar between labor and production. Table 10 shows the impact of all scenarios on labor market by macro-sector, and Table 11 on production. Annex Tables 8 detail the impact on labor market by sector, and Annex Table 9 reports the impact on production.

**TABLE 10**  
**IMPACT ON LABOR MARKET: PERCENTAGE CHANGE FROM BASE**

| Sectors/<br>Macro-<br>sectors | Base Labor*     | Scenarios/Partners |             |             |             |             |             |
|-------------------------------|-----------------|--------------------|-------------|-------------|-------------|-------------|-------------|
|                               |                 | A<br>US            | B<br>EU25   | C<br>Mexico | D<br>Andean | E<br>FTAA   | F<br>China  |
| Agriculture                   | 10,851.7        | 0.57               | 4.16        | -0.06       | 0.15        | 0.67        | 0.12        |
| Agribusiness                  | 1,905.5         | 0.66               | 10.34       | 0.64        | 0.51        | 2.28        | -0.10       |
| Energy                        | 1,497.0         | 0.43               | 0.60        | -0.16       | -0.41       | 0.09        | -0.24       |
| Light<br>Manufactures         | 4,077.4         | 2.90               | 1.90        | 0.30        | 0.00        | 3.07        | -1.17       |
| Heavy<br>Manufactures         | 6,259.6         | -2.68              | -6.94       | 0.53        | 0.63        | -1.63       | 1.23        |
| Services                      | 65,879.7        | -0.05              | -0.46       | -0.07       | -0.09       | -0.21       | -0.05       |
| <i>Total</i>                  | <i>90,470.9</i> | <i>0.00</i>        | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> | <i>0.00</i> |

Note: (\*) in 1,000 workers.

Source: MERCOSUR database and Authors' estimation.

**TABLE 11**  
**IMPACT ON PRODUCTION: PERCENTAGE CHANGE FROM BASE**

| Sectors/<br>Macro-<br>sectors | Base Values*   | Scenarios/Partners |              |             |             |             |             |
|-------------------------------|----------------|--------------------|--------------|-------------|-------------|-------------|-------------|
|                               |                | A<br>US            | B<br>EU25    | C<br>Mexico | D<br>Andean | E<br>FTAA   | F<br>China  |
| Agriculture                   | 111.4          | 0.28               | 1.92         | -0.03       | 0.09        | 0.33        | 0.08        |
| Agribusiness                  | 68.2           | 0.47               | 8.31         | 0.26        | 0.17        | 1.37        | -0.07       |
| Energy                        | 61.3           | 0.07               | -0.76        | -0.15       | -0.37       | -0.02       | -0.17       |
| Light<br>Manufactures         | 87.2           | 1.84               | 1.23         | 0.18        | 0.01        | 1.95        | -0.48       |
| Heavy<br>Manufactures         | 191.8          | -1.18              | -4.95        | 0.35        | 0.45        | -0.39       | 1.48        |
| Services                      | 766.2          | -0.05              | -0.26        | 0.00        | 0.03        | -0.14       | -0.03       |
| <i>Total</i>                  | <i>1,286.0</i> | <i>-0.03</i>       | <i>-0.21</i> | <i>0.15</i> | <i>0.15</i> | <i>0.09</i> | <i>0.17</i> |

Note: (\*) in US\$ billion.

Source: MERCOSUR database and Authors' estimation.

The MERCOSUR-EU25 agreement induces a more worrying contraction on the sectors of *heavy manufactures* such as *motor vehicles*, *other transport equipment* and *machinery*, what, for the two last ones, also happens with the US or FTAA agreements, though with less intensity. This might be due to the impact of the major unleashing of *agribusiness* exports to the EU, what might be distorting somewhat the results. Moreover, given the more traditional sides of the European economy, there is less scope for MERCOSUR manufactures in that market, the reverse taking place.

The FTAA reduces output in *other light manufactures*, *chemicals and plastics*, *non-ferrous metals* and, especially, in *other transport equipment* and *machinery* sectors. The most notable increase takes place in *motor vehicles* due largely to the bloc's robust exports to Mexico and relatively high Mexican protection at benchmark. This shows increasing intra-industry trade between two markets. Apart from this, a production loss could be anticipated for *other transport equipment*, where the corresponding exports increase less in the FTAA than in the US-MERCOSUR FTA on one hand, and domestic demand is substituted by strong imports from partners on the other.

### *Impact on Welfare and Macroeconomic Indicators*

Judging from a single figure of merit, Table 12 easily ranks the options. Irrespectively whether GDP or Equivalent Variation (EV) is used, the competing pairs of scenarios are 'EU25' *versus* 'FTAA' and 'US' *versus* 'China'. The latter means that China, if on one hand inducing, via its FTA with MERCOSUR, a trade flows pattern similar to that created by the EU25-MERCOSUR FTA, on the other hand, in welfare gains, is already competing with a US-MERCOSUR FTA.

**TABLE 12**  
**IMPACT ON WELFARE AND MACROECONOMIC INDICATORS:**  
**PERCENTAGE CHANGE FROM BASE**

| Indicators   | Base Values | Scenarios/Partners |         |             |             |           |            |
|--------------|-------------|--------------------|---------|-------------|-------------|-----------|------------|
|              |             | A<br>US            | B<br>EU | C<br>Mexico | D<br>Andean | E<br>FTAA | F<br>China |
| Real GDP     | 438.1       | 0.19               | 0.79    | 0.16        | 0.16        | 0.65      | 0.30       |
| Welfare (EV) | 75.7        | 0.38               | 0.48    | 0.08        | 0.06        | 0.63      | 0.26       |
| Exports*     | 72.8        | 11.09              | 23.52   | 3.09        | 2.82        | 19.41     | 6.18       |
| Imports*     | 68.5        | 12.31              | 23.40   | 2.77        | 2.34        | 19.86     | 5.93       |

Note: (\*) only merchandise trade.

Source: Authors' estimation.

Welfare results, both in real GDP variation or in EV computation, are however relatively low, for a model including imperfect competition. The explanation probably lies on the fact that most gains, in all agreements, derive from perfectly competitive sectors, those in strategic interaction many times suffering a contraction. This is linked to an important policy issue to be developed in the next section.



## V. MERCOSUR: OPPORTUNITIES AND DEFICIENCIES

The simultaneous analysis on several integration possibilities provides additional insights on the performance of the "invariant" partner, namely MERCOSUR. In particular, questions of efficiency and adjustment may be identified in a more consistent way. It is tempting to divide the respective results in order to evaluate the variations in gross labor productivity by sector for each agreement; this, however, is not very informative in the present exercise. The constant total labor closure enhances the absolute value of the changes in this factor, which, as mentioned above, have the similar directions as those for output. This implies that, uniformly, productivity *decreases* for a sector where output expands, and *increases* for those that suffer a contraction. Though this can make sense, the fact that it is a consequence of the mechanics of the model makes the productivity analysis less realistic.

The issue of adjustment, called upon in a CGE context by Giordano and Watanuki [2002] and Flôres [2003], remains a major one, especially for a bloc with mixed characteristics like MERCOSUR. Based on the sectoral impact on production, we classified the sectors into winning (W), neutral (N), conflicting (C) and losing (L) categories. Neglecting variations less than 1 per cent in absolute value, a sector is defined as:

- i) Winning: if all other output variations are positive;
- ii) Neutral: if no variations outside the 1 per cent range take place;
- iii) Conflicting: if positive and negative variations appear outside the range; and
- iv) Losing: if all other output variations are negative.

Table 13 shows the result of directly applying the above criteria. The outcome is informative and insightful. Among the globally competitive groups of *agriculture* and *agribusiness*, one loser appears *beverages and tobacco* due to its contraction in the EU25 FTA. It is worth pointing out that orange juice, a very performing Brazilian export is grouped in this sector. Also, *oilseeds and soybeans* turns out as a neutral sector.

In *light manufactures* group, the situation is not very encouraging, but for *leather, wood, paper*, where a basket of goods from Argentina, Brazil and Uruguay have established market niches, with growth potential. *Textiles and apparel* manages to be a winner, thanks to China, but *other light manufactures* is a total loser. Things get worse in *heavy manufactures*. The analysis finds three losing industries -*chemical and plastic products, machinery* and *non-ferrous metals*, what is both surprising and worrying- and two conflicting cases: *motor vehicles*, and *other transport equipment*. Out of the latter category, *motor vehicles* are more of a winner, but will be big loser for the strong contraction in the EU25 scenario. On the other hand, *other transport equipment* is more of a loser, if an increase in exports due to China FTA does not take place. The competitive Brazilian middle-sized aircraft are included in this last sector.

**TABLE 13**  
**EVALUATION OF WINNERS AND LOSERS BASED ON TOTAL OUTPUT CHANGES**

| Sectors                       | Categories | Scenarios/Partners |         |             |             |           |            |
|-------------------------------|------------|--------------------|---------|-------------|-------------|-----------|------------|
|                               |            | A<br>US            | B<br>EU | C<br>Mexico | D<br>Andean | E<br>FTAA | F<br>China |
| <i>Agriculture</i>            |            |                    |         |             |             |           |            |
| Wheat, Corn and Other Grains  | W          | -                  | 2.50    | -           | -           | -         | -          |
| Vegetables and Fruits         | W          | -                  | 1.65    | -           | -           | -         | -          |
| Oil seeds and Soybeans        | N          | -                  | -       | -           | -           | -         | -          |
| Sugar                         | W          | 1.54               | 1.28    | -           | -           | 1.79      | -          |
| Coffee, Rice and Other Crops  | W          | -                  | 2.19    | -           | -           | -         | -          |
| Animal products               | W          | -                  | 2.12    | -           | -           | -         | -          |
| <i>Agribusiness</i>           |            |                    |         |             |             |           |            |
| Bovine Meat                   | W          | -                  | 20.63   | -           | -           | 1.54      | -          |
| Poultry Meat                  | W          | 1.67               | 23.06   | -           | -           | 3.48      | -          |
| Dairy Products                | W          | -                  | -       | 1.28        | -           | 1.97      | -          |
| Beverages and Tobaccos        | L          | -                  | -4.28   | -           | -           | -         | -          |
| Vegetable Oils                | W          | -                  | 8.56    | -           | -           | -         | -          |
| <i>Energy</i>                 |            |                    |         |             |             |           |            |
| Minerals                      | N          | -                  | -       | -           | -           | -         | -          |
| Energy Products               | L          | -                  | -1.60   | -           | -           | -         | -          |
| <i>Light Manufactures</i>     |            |                    |         |             |             |           |            |
| Textiles and Apparel          | W          | -                  | -       | -           | -           | -         | 1.52       |
| Leather, Wood and Paper       | W          | 3.81               | 3.31    | -           | -           | 3.97      | -          |
| Other Light Manufactures      | L          | -1.80              | -2.71   | -           | -           | -1.96     | -6.74      |
| <i>Heavy Manufactures</i>     |            |                    |         |             |             |           |            |
| Chemical and Plastic Products | L          | -1.14              | -1.96   | -           | -           | -1.08     | -          |
| Ferrous metals                | W          | 2.32               | -       | -           | -           | 3.15      | -          |
| Non-ferrous Metals            | L          | -                  | -2.11   | -           | -           | -1.68     | -          |
| Motor Vehicles                | C          | -                  | -16.34  | 1.59        | 2.37        | 5.62      | 11.14      |
| Other Transport Equipment     | C          | -4.37              | -13.81  | -           | -           | -4.77     | 2.58       |
| Electric Equipment            | W          | 1.08               | -       | -           | -           | 1.87      | -          |
| Machinery                     | L          | -4.56              | -5.28   | -           | -           | -3.63     | -          |

Note: In Categories; (W) Winning; (N) Neutral; (C) Conflicting and (L) Losing.

Source: Authors' estimation.

Finally, the pattern in the *energy* group is faithful to MERCOSUR's relatively neutral standing in the two aggregate sectors. It is also important to highlight that, out of the 13 winning sectors, 5 sectors are classified by a single FTA evaluation, namely the EU FTA: all are in *agriculture* and *agribusiness* groups. The FTA with the EU25, as mentioned in the previous section, presents perhaps the more distorted, though not uninteresting, result, driven by the opening of the CAP-protected market.

Summing up the previous analysis, three broad groups can be extracted from the outcome in Table 13:

- i) MERCOSUR is clearly competitive in the sectors: *sugar; bovine and poultry meat; dairy products; leather, wood, paper; ferrous metals; electric equipment and motor vehicles*; the last one presenting problems in a EU25 FTA;
- ii) MERCOSUR has competitiveness problems in the sectors: *other light manufactures; chemicals and plastics; non-ferrous metals; other transport equipment and machinery*;
- iii) For the remaining 10 sectors, the bloc is roughly:
  - neutral for 6 sectors presenting some competitiveness, depending on agreements: *wheat, corn and other grains; vegetable and fruits; coffee, rice and other crops; animal products; vegetable oils; and textiles and apparel*;
  - more of a loser character of 2 sectors: *beverages and tobaccos*; and *energy products*; and
  - true neutral of 2 sectors: *oil seeds and soybeans*; and *minerals*.

Despite the proviso that the aggregation level at stake mixes positive and negative situations, some exemplified above, and the inevitably arbitrary character of any "classification", the final synthesis doesn't look absurd. It lays bare a key deficiency of the bloc, which, unfortunately, is really competitive in a few classical manufactures sectors and selected segments of the *agribusiness* plus *sugar* with lower value-added products. All non-competitive sectors comprise key manufacturing industries. Table 14 gives a more concrete and dramatic round-up of this situation, by grouping merchandise trade balance into our three categories.

**TABLE 14**  
**MERCOSUR'S TRADE ACCOUNT BY THE COMPETITIVENESS GROUP**

| Categories      | N° of Sectors | Trade in Goods Account |       |           |       | Balance<br>(US\$ bn) |
|-----------------|---------------|------------------------|-------|-----------|-------|----------------------|
|                 |               | Exports                |       | Imports   |       |                      |
|                 |               | (US\$ bn)              | (%)   | (US\$ bn) | (%)   |                      |
| Competitive     | 8             | 24.9                   | 34.2  | 18.4      | 26.8  | 6.5                  |
| Non-Competitive | 5             | 15.3                   | 21.0  | 40.7      | 59.4  | -25.4                |
| Neutral         | 10            | 32.6                   | 44.8  | 9.4       | 13.8  | 23.2                 |
| <i>Total</i>    | 23            | 72.8                   | 100.0 | 68.5      | 100.0 | 4.3                  |

Source: Authors' estimation cited in text and MERCOSUR database.

The table highlights important features of the present state of MERCOSUR's trade policy. First, the bloc is right in pushing for greater *market access*, particularly in *agriculture* in all international trade negotiations. Its competitive sectors reap a surplus of US\$ 6.5 billion, which could be much bigger, were key markets more open to its competitive goods. Second, the bloc has correctly been quite aggressive in the 'neutral' sectors, exploiting regional and comparative advantages, as well as opening new markets and improving distribution channels, in a way that has procured a sizeable surplus in this category. This surplus is, however, lower than the deficit it experiences in 'higher technology goods' trade. Adding to the latter a US\$ 8.1 billion deficit in services trade (see Annex Table 2), sustainability of the present MERCOSUR trade accounts is by no means guaranteed, if it cannot either extract or induce positive structural changes in the international trade flows.

It is of course not necessarily bad to have the bloc's own trade assets in low value-added sectors. Creativity, upgrading and top quality are important tools for improving the terms of trade, as the Brazilian '*sandalias havaianas*', the Argentine '*dulce de leche*' -based goods and the Uruguayan '*talabarteria*'<sup>17</sup> respectively show, beyond the persistent upgrading that meat exporters are accomplishing. But, this is not enough. As evidenced even in this aggregate CGE exercise, the bloc must seriously consider an industrial adjustment process, in order to enhance its overall competitiveness and to provide it a better insertion in the world value-added chains. Whether this will be pursued through a coordinated, internal political will, or forced, in a less planned and worse way, via the route of FTAs, is a decision already in the realm of politics.

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<sup>17</sup> This Spanish word refers to the whole set of leather goods and implements used in horse riding, from saddles to the rider's boots.

## VI. CONCLUSIONS

It seems that the imperfect competition sectors, by keeping the segmented markets strategy, are able, in all scenarios, to practice a kind of reciprocal dumping, cited by *à la* Brander and Krugman [1983], what partially "saved" them from more drastic outcomes. Indeed, compared with a carefully conducted study like Harrison *et al.* [2003], our corresponding results are much less dramatic as regards output changes; decreases in these quantities are relatively small, even in the full FTAA scenario.

Imperfect competition accounts also for less volatile changes than in full perfect competition exercises, where though welfare does not vary much, output, imports and exports vary wildly to accommodate the changes in the equilibrium price vector. Nevertheless, welfare changes were somewhat low, signalling perhaps perfect competition effects were still strong. One needed development then is the inclusion of more sectors under imperfect competition; the sectors in *agribusiness* group, among them, will be the first natural candidates. Nevertheless, given the aggregation level of the model, it will not be easy to portray a minimally coherent strategic interaction for some of them, like *chemicals and plastics*.

We point out again that the study focussed mainly on market access for goods. The dynamics of other crucial concessions -regarding, for instance, foreign direct investment- may greatly affect the results here discussed. Moreover, better treatment of the services sector seems mandatory.

Another key issue is rules of origin (RoO). Brenton and Manchin [2002] call attention to the fact that, in 1999, two-thirds of the products eligible to preferences of different forms, which entered the EU from developing countries, did so under the most-favoured-nation (MFN) tariff, thanks to the appallingly cumbersome and costly red tape needed to prove that one complied with the specific RoO. Since at least Hoekman [1993] and Garay and Estevadeordal [1996], specialists have been emphasizing the role played by RoO in concessions and preferential agreements, like the GSP or NAFTA. Adequate treatment of RoO in the CGE framework is only beginning though, and in fairly debatable ways. The IDB has been making efforts to develop a system that may allow an easier and more systematic way of treating these questions, something to be incorporated in later versions of the model.<sup>18</sup>

It is also worth pointing out that an indirect sensitivity analysis has been performed, when contrasting the 6 sets of FTA results, but this doesn't exclude the need for further investigations in this line.

In qualitative terms, a main message stands out. With being a less competitive economy, MERCOSUR, while facing FTA's with the United States or the European Union, will be able to reap profits or welfare gains in its performing traditional sectors, where, to its competitive advantages, one must add the richness of related natural endowments. In the more value-added sectors, the situation is not very clear. In general, there will be a domestic contraction, imports will raise and, rather than from a competitiveness effect, which would set the sector in better shape for surviving

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<sup>18</sup> See, for approaches within the CGE context, Bouët *et al.* [2003]; Gasiorek *et al.* [1992]; Garay and Cornejo [2001], as one of the documents related to the IDB efforts.

in the world arena, welfare gains in imperfect competition are mostly due to the sheer reduction in tariffs. This pattern is reasonably serious in the FTAA and in an FTA with the United States, but also arises, in a more distorted way, when the United States is discarded for the EU25.

The broad finding above raises a flag for the timing of tariff liberalisation or, thinking on the negotiation strategies, for perhaps a Grossman and Helpman [1995] approach of mere sector exclusions in some of the FTAs examined, be it either to appease legitimate internal (sector) fears or to control the development of possibly competitive ones.

*Agriculture*, which fits into the basic message just highlighted, shows the usually promising figures, both for commodities and *agribusiness*, being of interest now to allocate the results among the four members. It is also important because, in our optimistic versions of FTAs, subsidies were disregarded. Given that most production subsidies lie in the CAP, this signals that the EU25 will be an extremely competitive partner, *vis à vis* the United States, for an FTA with MERCOSUR, provided a move beyond tariffs is made.

From a regional viewpoint, the results showed that South-South agreements, like the one with the Andean Community, can turn out better than expected. Moreover, the signs of China getting closer to the US and the EU25 -in terms of "after FTA" effects- only add to the certainty of its importance in the very near future.

Finally, it is worth reminding the multilateral dimension, due to its interrelationships with the final objectives of this study. Indeed, it is somehow ironic that in sectors, where the bloc will undoubtedly reap gains in almost any FTA scenario, like *leather, wood, paper* or *textiles and apparel*, and even agriculture in general, multilateral liberalization will have an impact on these very *gains*, by enhancing the market access of other competitors not only in underdeveloped countries but also in India, China or other Asiatic countries. It is perhaps not too radical to bring back the importance and precedence of multilateral negotiations. Also, given the encompassing character of the FTA proposals here evaluated, in areas like services, where MERCOSUR in principle lags behind, the multilateral forum seems a better locus for exchanges.

It is undoubtedly important to clinch FTAs, however, negotiations must not be conducted with a short-term perspective; nowadays appealing gains may become vapid conquests even before full implementation of the agreement. Market access concessions and demands must be designed keeping in mind the bloc's global competitiveness and potentialities, as well as the possible outcomes of the different negotiations. Moreover, it is high time for MERCOSUR to decide whether it will, moved primarily by its internal forces, streamline and upgrade its exports profile, or will let it at the mercy of distinct integration shocks, many not in the desired directions.

## VI. ANNEX

**ANNEX TABLE 1**  
**SECTORAL CONCORDANCE OF THE AMIDA AND THE GTAP CLASSIFICATION**

| N°                            | AMIDA Model |                              | N° | GTAP Database |  |
|-------------------------------|-------------|------------------------------|----|---------------|--|
|                               | Commodities | Description                  |    | Commodities   | Description                                  |
| <i>I. Agriculture</i>         |             |                              |    |               |  |
| 1                             | GRAIN       | Wheat, Corn and Other Grains | 2  | WHT           | Wheat  |
| 2                             | VEGET       | Vegetables and Fruits        | 3  | GRO           | Corn, Cereal grains nec*                     |
| 3                             | OLSYB       | Oil seeds and Soybeans       | 4  | V_F           | Vegetables, fruit, nuts                      |
| 4                             | SUGAR       | Sugar                        | 5  | OSD           | Oil seeds and Soybeans                       |
|                               |             |                              | 6  | C_B           | Sugar cane, sugar beet                       |
|                               |             |                              | 24 | SGR           | Sugar  |
| 5                             | OTCRP       | Coffee, Rice and Other Crops | 1  | PDR           | Paddy rice                                   |
|                               |             |                              | 8  | OCR           | Coffee Crops nec*                            |
|                               |             |                              | 23 | PCR           | Processed rice                               |
| 6                             | LVSTK       | Animal products              | 9  | CTL           | Bovine cattle, sheep and goats, horses       |
|                               |             |                              | 10 | OAP           | Animal products nec*                         |
| <i>II. Agribusiness</i>       |             |                              |    |               |  |
| 7                             | BMEAT       | Bovine Meat                  | 19 | CMT           | Bovine meat products                         |
| 8                             | OMEAT       | Poultry Meat                 | 20 | OMT           | Meat products nec*                           |
| 9                             | DAIRY       | Dairy Products               | 11 | RMK           | Raw milk                                     |
|                               |             |                              | 22 | MIL           | Dairy products                               |
| 10                            | BVTBC       | Beverages and Tobaccos       | 26 | B_T           | Beverages and tobacco products               |
|                               |             |                              | 7  | PFB           | Plant-based fibers                           |
|                               |             |                              | 12 | WOL           | Wool, silk-worm cocoons                      |
| 11                            | OTHFD       | Vegetable Oils               | 13 | FOR           | Forestry                                     |
|                               |             |                              | 14 | FSH           | Fishing                                      |
|                               |             |                              | 21 | VOL           | Vegetable oils and fats                      |
|                               |             |                              | 25 | OFD           | Food products nec*                           |
| <i>III. Energy</i>            |             |                              |    |               |  |
| 12                            | MINRL       | Minerals                     | 18 | OMN           | Minerals nec*                                |
|                               |             |                              | 34 | NMM           | Mineral products (china, glass, cement) nec* |
|                               |             |                              | 15 | COL           | Coal   |
| 13                            | ENRGY       | Energy Products              | 16 | OIL           | Oil  |
|                               |             |                              | 17 | GAS           | Gas  |
|                               |             |                              | 32 | P_C           | Petroleum, coal products                     |
| <i>IV. Light Manufactures</i> |             |                              |    |               |  |
| 14                            | TXTIL       | Textiles and Apparel         | 27 | TEX           | Textiles                                     |
|                               |             |                              | 28 | WAP           | Wearing apparel                              |
|                               |             |                              | 29 | LEA           | Leather products, footwear                   |
| 15                            | LTMFG       | Leather, Wood and Paper      | 30 | LUM           | Wood products (furniture)                    |
|                               |             |                              | 31 | PPP           | Paper products, publishing                   |

**ANNEX TABLE 1 (Continued)**

| <b>AMIDA Model</b> |                           |                               | <b>GTAP Database</b> |                    |   |
|--------------------|---------------------------|-------------------------------|----------------------|--------------------|---|
| <b>N°</b>          | <b>Commodities</b>        | <b>Description</b>            | <b>N°</b>            | <b>Commodities</b> | <b>Description</b>                                |
| 16                 | OLMFG                     | Other Light Manufactures      | 42                   | OMF                | Manufactures nec*                                 |
| V.                 | <i>Heavy Manufactures</i> |                               |                      |                    |   |
| 17                 | CHMCL                     | Chemical and Plastic Products | 33                   | CRP                | Chemical, rubber, plastic products                |
| 18                 | FRMTL                     | Ferrous metals                | 35                   | I_S                | Ferrous metals                                    |
| 19                 | NFMTL                     | Non-ferrous Metals            | 36                   | NFM                | Metals nec*                                       |
| 20                 | VEHCL                     | Motor Vehicles                | 37                   | FMP                | Metal products                                    |
| 21                 | OTREQ                     | Other Transport Equipment     | 38                   | MVH                | Motor vehicles and parts                          |
| 22                 | ELCEQ                     | Electric Equipment            | 39                   | OTN                | Transport equipment nec*                          |
| 23                 | MCHNY                     | Machinery                     | 40                   | ELE                | Electronic equipment                              |
| VI.                | <i>Services</i>           |                               | 41                   | OME                | Machinery and equipment nec*                      |
| 24                 | UTLTY                     | Utilities and Construction    | 43                   | ELY                | Electricity                                       |
|                    |                           |                               | 44                   | GDT                | Gas manufacture, distribution                     |
|                    |                           |                               | 45                   | WTR                | Water   |
|                    |                           |                               | 46                   | CNS                | Construction                                      |
|                    |                           |                               | 47                   | TRD                | Trade   |
|                    |                           |                               | 48                   | OTP                | Transport nec                                     |
|                    |                           |                               | 49                   | WTP                | Water transport                                   |
|                    |                           |                               | 50                   | ATP                | Air transport                                     |
|                    |                           |                               | 51                   | CMN                | Communication                                     |
|                    |                           |                               | 52                   | OFI                | Financial services nec                            |
| 25                 | SERV                      | Trade and Services            | 53                   | ISR                | Insurance   |
|                    |                           |                               | 54                   | OBS                | Business services nec                             |
|                    |                           |                               | 55                   | ROS                | Recreational and other services                   |
|                    |                           |                               | 56                   | OSG                | Public Administration, Defense, Education, Health |
|                    |                           |                               | 57                   | DWE                | Dwellings   |

Source: AMIDA Model based on GTAP sectors.

**ANNEX TABLE 2**  
**MERCOSUR TRADE FLOWS BY REGIONS AT BENCHMARK**  
(2001)

(1) Exports

| Sectors/ Macro-sectors        | (US\$ million)  |                |                  |                  |                 |                |                |                |                 |                 |
|-------------------------------|-----------------|----------------|------------------|------------------|-----------------|----------------|----------------|----------------|-----------------|-----------------|
|                               | United States   | Mexico         | Andean Community | Rest of Americas | EU25            | Japan          | China          | Asia 10        | Rest of World   | Total           |
| Wheat, Corn and Other Grains  | 19.0            | 3.0            | 191.6            | 155.5            | 301.4           | 134.6          | 2.5            | 207.1          | 1,112.2         | 2,127.0         |
| Vegetables and Fruits         | 210.7           | 2.7            | 18.2             | 54.7             | 797.0           | 1.4            |                | 10.2           | 88.7            | 1,183.6         |
| Oil seeds and Soybeans        | 26.1            | 44.4           | 116.4            | 52.6             | 2,312.9         | 171.3          | 1,496.7        | 286.5          | 308.6           | 4,815.4         |
| Sugar                         | 105.6           |                | 6.0              | 107.7            | 24.4            | 0.2            | 25.1           | 106.1          | 1,639.2         | 2,014.3         |
| Coffee, Rice and Other Crops  | 464.6           | 37.6           | 47.0             | 112.9            | 1,441.3         | 194.0          | 88.3           | 84.4           | 423.1           | 2,893.1         |
| Animal products               | 838.0           | 53.0           | 207.5            | 271.7            | 1,976.7         | 299.2          | 56.3           | 179.6          | 526.6           | 4,408.7         |
| <i>Agriculture</i>            | <i>1,663.9</i>  | <i>140.7</i>   | <i>586.7</i>     | <i>755.0</i>     | <i>6,853.6</i>  | <i>800.7</i>   | <i>1,669.0</i> | <i>874.0</i>   | <i>4,098.4</i>  | <i>17,442.1</i> |
| Bovine Meat                   | 39.5            | 2.6            | 14.7             | 215.7            | 547.8           | 7.4            | 1.0            | 103.1          | 324.1           | 1,255.9         |
| Poultry Meat                  | 186.7           |                | 5.3              | 18.9             | 828.8           | 177.8          | 6.2            | 206.5          | 731.1           | 2,161.2         |
| Dairy Products                | 33.9            | 94.7           | 55.0             | 29.9             | 0.5             | 1.9            |                | 4.4            | 40.2            | 260.6           |
| Beverages and Tobaccos        | 62.0            | 9.8            | 15.6             | 36.9             | 91.2            | 43.9           | 0.4            | 9.6            | 28.6            | 298.0           |
| Vegetable Oils                | 39.0            | 1.3            | 256.6            | 221.6            | 3,653.7         | 31.1           | 21.5           | 638.9          | 2,285.3         | 7,149.0         |
| <i>Agribusiness</i>           | <i>361.2</i>    | <i>108.4</i>   | <i>347.2</i>     | <i>523.0</i>     | <i>5,122.0</i>  | <i>262.0</i>   | <i>29.1</i>    | <i>962.6</i>   | <i>3,409.4</i>  | <i>11,124.8</i> |
| Minerals                      | 556.7           | 72.9           | 87.4             | 228.2            | 1,857.8         | 716.9          | 668.4          | 336.0          | 668.2           | 5,192.4         |
| Energy Products               | 639.1           | 1.4            | 61.0             | 2,104.2          | 226.9           |                | 27.3           |                | 168.8           | 3,228.6         |
| <i>Energy</i>                 | <i>1,195.9</i>  | <i>74.3</i>    | <i>148.4</i>     | <i>2,332.4</i>   | <i>2,084.6</i>  | <i>716.9</i>   | <i>695.6</i>   | <i>336.0</i>   | <i>837.0</i>    | <i>8,421.1</i>  |
| Textiles and Apparel          | 357.0           | 49.8           | 158.8            | 152.6            | 329.2           | 40.6           | 126.2          | 17.8           | 66.2            | 1,298.2         |
| Leather, Wood and Paper       | 3,306.2         | 188.2          | 215.3            | 512.3            | 2,438.9         | 240.3          | 387.0          | 580.2          | 371.1           | 8,239.6         |
| Other Light Manufactures      | 115.9           | 11.4           | 27.1             | 24.7             | 48.8            | 16.6           | 1.4            | 7.8            | 20.7            | 274.4           |
| <i>Light Manufactures</i>     | <i>3,779.2</i>  | <i>249.4</i>   | <i>401.2</i>     | <i>689.6</i>     | <i>2,816.9</i>  | <i>297.5</i>   | <i>514.6</i>   | <i>605.8</i>   | <i>458.0</i>    | <i>9,812.2</i>  |
| Chemical and Plastic Products | 1,033.9         | 204.6          | 745.4            | 732.6            | 954.0           | 107.4          | 78.4           | 159.3          | 357.4           | 4,373.2         |
| Ferrous metals                | 1,382.3         | 154.9          | 303.6            | 275.8            | 695.5           | 113.2          | 116.3          | 429.8          | 385.5           | 3,857.1         |
| Non-ferrous Metals            | 861.4           | 70.7           | 134.5            | 206.7            | 837.7           | 385.3          | 24.3           | 52.5           | 379.7           | 2,952.8         |
| Motor Vehicles                | 1,356.0         | 1,142.6        | 593.8            | 445.0            | 931.1           | 9.3            | 130.0          | 31.7           | 332.4           | 4,972.0         |
| Other Transport Equipment     | 2,430.4         | 9.7            | 25.1             | 44.1             | 707.2           | 0.8            | 60.9           | 18.9           | 256.1           | 3,553.2         |
| Electric Equipment            | 1,417.6         | 104.7          | 131.3            | 136.9            | 213.9           | 19.1           | 25.6           | 40.2           | 36.0            | 2,125.2         |
| Machinery                     | 1,387.2         | 283.2          | 578.3            | 519.3            | 793.2           | 36.6           | 101.9          | 94.6           | 354.6           | 4,148.9         |
| <i>Heavy Manufactures</i>     | <i>9,868.8</i>  | <i>1,970.6</i> | <i>2,512.1</i>   | <i>2,360.3</i>   | <i>5,132.6</i>  | <i>671.7</i>   | <i>537.4</i>   | <i>827.1</i>   | <i>2,101.8</i>  | <i>25,982.4</i> |
| Utilities and Construction    |                 |                |                  | 28.3             |                 |                |                |                |                 | 28.3            |
| Trade and Services            | 2,166.4         | 139.5          | 85.5             | 487.1            | 5,839.4         | 837.2          | 205.6          | 1,552.5        | 2,159.8         | 13,473.0        |
| <i>Services</i>               | <i>2,166.4</i>  | <i>139.5</i>   | <i>85.5</i>      | <i>515.4</i>     | <i>5,839.4</i>  | <i>837.2</i>   | <i>205.6</i>   | <i>1,552.5</i> | <i>2,159.8</i>  | <i>13,501.3</i> |
| <i>Total (Merchandise)</i>    | <i>16,869.0</i> | <i>2,543.4</i> | <i>3,995.5</i>   | <i>6,660.3</i>   | <i>22,009.8</i> | <i>2,748.8</i> | <i>3,445.7</i> | <i>3,605.4</i> | <i>10,904.7</i> | <i>72,782.5</i> |
| <i>Total (Gross)</i>          | <i>19,035.4</i> | <i>2,682.9</i> | <i>4,081.0</i>   | <i>7,175.7</i>   | <i>27,849.2</i> | <i>3,586.0</i> | <i>3,651.3</i> | <i>5,157.9</i> | <i>13,064.5</i> | <i>86,283.8</i> |

ANNEX TABLE 2 (Continued)

(2) Imports

| Sectors/ Macro-sectors        | US\$ Million    |                |                  |                  |                 |                |                |                |                 |                 |
|-------------------------------|-----------------|----------------|------------------|------------------|-----------------|----------------|----------------|----------------|-----------------|-----------------|
|                               | United States   | Mexico         | Andean Community | Rest of Americas | EU25            | Japan          | China          | Asia 10        | Rest of World   | Total           |
| Wheat, Corn and Other Grains  | 17.6            |                | 0.1              | 15.0             | 0.2             |                |                |                | 0.7             | 33.4            |
| Vegetables and Fruits         | 9.7             | 3.3            | 79.1             | 114.5            | 32.5            |                | 10.5           | 3.3            | 28.2            | 281.2           |
| Oil seeds and Soybeans        | 1.8             | 0.7            | 0.1              | 2.0              | 1.1             |                | 0.1            |                | 1.1             | 6.9             |
| Coffee, Rice and Other Crops  | 38.4            | 0.7            | 13.3             | 13.6             | 48.7            | 4.5            | 4.6            | 27.7           | 68.6            | 219.9           |
| Animal products               | 224.2           | 29.5           | 110.9            | 180.1            | 310.5           | 5.8            | 21.4           | 53.2           | 257.3           | 1,192.9         |
| <i>Agriculture</i>            | <i>291.7</i>    | <i>34.2</i>    | <i>203.4</i>     | <i>325.3</i>     | <i>392.9</i>    | <i>10.3</i>    | <i>36.5</i>    | <i>84.1</i>    | <i>355.9</i>    | <i>1,734.3</i>  |
| Bovine Meat                   | 4.9             |                |                  | 2.3              | 3.7             |                |                | 0.3            | 2.8             | 14.0            |
| Poultry Meat                  | 3.5             |                | 0.6              | 8.2              | 21.0            | 0.2            |                |                | 0.4             | 33.8            |
| Dairy Products                | 11.0            | 0.2            |                  | 4.2              | 41.1            |                |                |                | 21.0            | 77.5            |
| Beverages and Tobaccos        | 26.4            | 5.0            | 1.2              | 60.5             | 272.3           | 0.4            | 0.1            | 0.8            | 42.7            | 409.3           |
| Vegetable Oils                | 8.6             | 0.1            | 2.4              | 0.2              | 81.9            | 0.1            |                | 33.4           | 11.8            | 138.4           |
| <i>Agribusiness</i>           | <i>54.4</i>     | <i>5.3</i>     | <i>4.2</i>       | <i>75.4</i>      | <i>420.0</i>    | <i>0.6</i>     | <i>0.1</i>     | <i>34.5</i>    | <i>78.6</i>     | <i>673.2</i>    |
| Minerals                      | 166.9           | 21.1           | 105.3            | 298.6            | 381.5           | 47.8           | 54.8           | 38.6           | 143.0           | 1,257.5         |
| Energy Products               | 337.8           |                | 773.5            | 100.3            | 79.4            | 42.6           | 185.6          | 27.4           | 2,399.6         | 3,946.1         |
| <i>Energy</i>                 | <i>504.7</i>    | <i>21.1</i>    | <i>878.8</i>     | <i>398.9</i>     | <i>460.9</i>    | <i>90.4</i>    | <i>240.4</i>   | <i>65.9</i>    | <i>2,542.6</i>  | <i>5,203.6</i>  |
| Textiles and Apparel          | 163.7           | 32.5           | 31.3             | 60.5             | 357.7           | 18.4           | 302.7          | 597.2          | 368.0           | 1,932.0         |
| Leather, Wood and Paper       | 446.7           | 14.6           | 40.9             | 464.3            | 894.7           | 23.6           | 177.0          | 149.3          | 117.4           | 2,328.5         |
| Other Light Manufactures      | 109.8           | 4.9            | 6.8              | 15.5             | 177.8           | 33.6           | 295.7          | 100.5          | 37.2            | 781.9           |
| <i>Light Manufactures</i>     | <i>720.2</i>    | <i>52.1</i>    | <i>79.1</i>      | <i>540.3</i>     | <i>1,430.1</i>  | <i>75.6</i>    | <i>775.4</i>   | <i>847.1</i>   | <i>522.6</i>    | <i>5,042.4</i>  |
| Chemical and Plastic Products | 4,950.9         | 470.2          | 252.1            | 485.1            | 5,389.5         | 532.5          | 550.4          | 805.6          | 2,582.7         | 16,018.9        |
| Ferrous metals                | 105.3           | 13.4           | 5.9              | 20.2             | 438.1           | 68.6           | 23.0           | 59.4           | 186.5           | 920.4           |
| Non-ferrous Metals            | 545.4           | 16.2           | 172.3            | 423.3            | 964.1           | 143.8          | 117.0          | 111.5          | 263.0           | 2,756.6         |
| Motor Vehicles                | 537.4           | 232.8          | 9.8              | 69.6             | 2,516.1         | 847.5          | 8.2            | 301.7          | 307.7           | 4,830.8         |
| Other Transport Equipment     | 2,075.4         | 0.7            |                  | 92.1             | 951.9           | 135.3          | 87.5           | 70.2           | 90.5            | 3,503.7         |
| Electric Equipment            | 3,633.5         | 200.3          | 0.7              | 254.0            | 1,784.6         | 807.1          | 644.8          | 2,110.5        | 735.9           | 10,171.5        |
| Machinery                     | 5,211.3         | 147.8          | 58.3             | 292.8            | 7,367.9         | 1,496.2        | 830.6          | 1,053.0        | 1,156.7         | 17,614.5        |
| <i>Heavy Manufactures</i>     | <i>17,059.2</i> | <i>1,081.4</i> | <i>499.0</i>     | <i>1,637.1</i>   | <i>19,412.3</i> | <i>4,031.0</i> | <i>2,261.5</i> | <i>4,512.0</i> | <i>5,322.9</i>  | <i>55,816.5</i> |
| <i>Services</i>               | <i>4,129.2</i>  | <i>209.0</i>   | <i>98.8</i>      | <i>1,002.9</i>   | <i>9,650.2</i>  | <i>699.7</i>   | <i>297.4</i>   | <i>2,614.2</i> | <i>2,948.1</i>  | <i>21,649.5</i> |
| <i>Total (Merchandise)</i>    | <i>18,630.1</i> | <i>1,194.1</i> | <i>1,664.4</i>   | <i>2,977.0</i>   | <i>22,116.3</i> | <i>4,207.9</i> | <i>3,314.0</i> | <i>5,543.6</i> | <i>8,822.7</i>  | <i>68,470.1</i> |
| <i>Total (Gross)</i>          | <i>22,759.3</i> | <i>1,403.1</i> | <i>1,763.2</i>   | <i>3,979.9</i>   | <i>31,766.5</i> | <i>4,907.6</i> | <i>3,611.4</i> | <i>8,157.8</i> | <i>11,770.8</i> | <i>90,119.6</i> |

Source: MERCOSUR Database.

**ANNEX TABLE 3**  
**IMPACTS OF MERCOSUR'S FTAS WITH THE US AND THE EU25**  
**TOTAL TRADE FLOWS CHANGES**

| Sectors/ Macro-sectors        | Scenario A: US FTA |              | Scenario B: EU FTA |               |
|-------------------------------|--------------------|--------------|--------------------|---------------|
|                               | Exports            | Imports      | Exports            | Imports       |
| Wheat, Corn and Other Grains  | 1.09               | 66.74        | 11.86              | 59.48         |
| Vegetables and Fruits         | 3.70               | 5.69         | 28.67              | 46.25         |
| Oil seeds and Soybeans        | 0.39               | 34.03        | -5.26              | 62.06         |
| Sugar                         | 6.01               |              | 7.59               |               |
| Coffee, Rice and Other Crops  | 7.95               | 35.52        | 41.61              | 135.55        |
| Animal products               | 7.81               | 33.57        | 40.98              | 123.91        |
| <i>Agriculture</i>            | <i>4.48</i>        | <i>29.94</i> | <i>20.08</i>       | <i>111.31</i> |
| Bovine Meat                   | 3.76               | 34.42        | 269.02             | 25.99         |
| Poultry Meat                  | 4.36               | 6.70         | 81.55              | 60.92         |
| Dairy Products                | 13.02              | 32.65        | 0.33               | 114.67        |
| Beverages and Tobaccos        | 25.71              | 10.67        | 10.23              | 118.95        |
| Vegetable Oils                | 0.70               | 13.62        | 24.32              | 198.44        |
| <i>Agribusiness</i>           | <i>2.71</i>        | <i>14.10</i> | <i>62.12</i>       | <i>129.96</i> |
| Minerals                      | 5.89               | 12.87        | 14.03              | 33.53         |
| Energy Products               | 2.04               | 0.80         | -0.08              | 5.72          |
| <i>Energy</i>                 | <i>4.42</i>        | <i>3.74</i>  | <i>8.62</i>        | <i>12.37</i>  |
| Textiles and Apparel          | 25.09              | 14.44        | 42.36              | 31.80         |
| Leather, Wood and Paper       | 20.87              | 12.00        | 23.30              | 23.88         |
| Other Light Manufactures      | 6.21               | 42.02        | 9.34               | 62.56         |
| <i>Light Manufactures</i>     | <i>21.02</i>       | <i>17.59</i> | <i>25.43</i>       | <i>32.91</i>  |
| Chemical and Plastic Products | 15.08              | 7.89         | 12.37              | 8.44          |
| Ferrous metals                | 13.52              | 7.63         | 15.75              | 26.12         |
| Non-ferrous Metals            | 12.83              | 9.38         | 24.88              | 15.86         |
| Motor Vehicles                | 19.11              | 22.27        | 9.95               | 100.34        |
| Other Transport Equipment     | 26.05              | 41.32        | 4.42               | 25.21         |
| Electric Equipment            | 20.73              | 5.61         | 8.91               | 3.71          |
| Machinery                     | 16.35              | 11.61        | 18.26              | 15.76         |
| <i>Heavy Manufactures</i>     | <i>17.53</i>       | <i>12.06</i> | <i>13.40</i>       | <i>19.55</i>  |
| <i>Services</i>               | <i>0.97</i>        | <i>-1.10</i> | <i>-2.67</i>       | <i>3.29</i>   |
| <i>Total</i>                  | <i>9.51</i>        | <i>9.09</i>  | <i>19.42</i>       | <i>18.57</i>  |

Source: Authors' estimation.

**ANNEX TABLE 4**  
**IMPACT OF MERCOSUR'S FTAS WITH THE ANDEAN COMMUNITY:**  
**TOTAL TRADE FLOWS CHANGES**

(1) Exports

| Sectors/ Macro-sectors        | United States | Mexico       | Andean Community | EU25         |
|-------------------------------|---------------|--------------|------------------|--------------|
| Wheat, Corn and Other Grains  | -6.24         | -3.39        | 93.95            | -7.75        |
| Vegetables and Fruits         | 0.61          | 0.42         | 94.11            | 0.85         |
| Oil seeds and Soybeans        | -1.50         | -1.31        | 55.83            | -1.22        |
| Sugar                         | -0.94         |              | 216.24           | -1.52        |
| Coffee, Rice and Other Crops  | -1.08         | -1.09        | 112.01           | -1.40        |
| Animal products               | -1.40         | -1.63        | 236.17           | -3.09        |
| <i>Agriculture</i>            | <i>-1.08</i>  | <i>-1.39</i> | <i>139.38</i>    | <i>-1.84</i> |
| Bovine Meat                   | -2.02         | -1.25        | 134.36           | -1.35        |
| Poultry Meat                  | -1.92         | 0.00         | 109.05           | -1.86        |
| Dairy Products                | -1.06         | -1.18        | 208.28           | -2.84        |
| Beverages and Tobaccos        | -1.13         | -0.89        | 110.64           | -1.12        |
| Vegetable Oils                | -2.21         | -1.42        | 77.28            | -1.43        |
| <i>Agribusiness</i>           | <i>-1.75</i>  | <i>-1.16</i> | <i>102.43</i>    | <i>-1.48</i> |
| Minerals                      | -0.49         | -0.27        | 100.47           | -0.89        |
| Energy Products               | -0.04         | -0.08        | 62.59            | -0.25        |
| <i>Energy</i>                 | <i>-0.25</i>  | <i>-0.27</i> | <i>84.90</i>     | <i>-0.82</i> |
| Textiles and Apparel          | -1.20         | -0.80        | 121.99           | -2.74        |
| Leather, Wood and Paper       | -1.24         | -1.01        | 44.83            | -2.29        |
| Other Light Manufactures      | -0.10         | -0.38        | 105.26           | -1.78        |
| <i>Light Manufactures</i>     | <i>-1.20</i>  | <i>-0.94</i> | <i>79.45</i>     | <i>-2.34</i> |
| Chemical and Plastic Products | -1.75         | -0.93        | 39.23            | -1.72        |
| Ferrous metals                | -1.56         | -1.18        | 40.80            | -3.47        |
| Non-ferrous Metals            | -0.99         | -0.65        | 46.76            | -2.26        |
| Motor Vehicles                | -0.37         | -1.09        | 92.93            | -0.89        |
| Other Transport Equipment     | -1.31         | -1.48        | 135.58           | -1.54        |
| Electric Equipment            | -1.03         | -0.88        | 29.51            | -2.03        |
| Machinery                     | -0.92         | -1.43        | 72.64            | -2.74        |
| <i>Heavy Manufactures</i>     | <i>-1.14</i>  | <i>-1.10</i> | <i>60.67</i>     | <i>-2.04</i> |
| <i>Services</i>               | <i>-1.23</i>  | <i>-1.10</i> | <i>-2.89</i>     | <i>-1.09</i> |
| <i>Total</i>                  | <i>-1.11</i>  | <i>-1.08</i> | <i>76.93</i>     | <i>-1.63</i> |

ANNEX TABLE 4 (Continued)

(2) Imports

| Sectors/ Macro-sectors        | United States | Mexico      | Andean Community | EU25        |
|-------------------------------|---------------|-------------|------------------|-------------|
| Wheat, Corn and Other Grains  | 10.48         |             | 136.54           | 9.46        |
| Vegetables and Fruits         | -2.37         | -2.38       | 83.05            | -2.43       |
| Oil seeds and Soybeans        | 3.37          | 3.61        | 170.06           | 2.58        |
| Sugar                         |               |             |                  |             |
| Coffee, Rice and Other Crops  | 1.66          | 1.56        | 114.01           | 1.49        |
| Animal products               | 2.98          | 3.01        | 146.95           | 2.88        |
| <i>Agriculture</i>            | <i>3.09</i>   | <i>2.47</i> | <i>119.97</i>    | <i>2.27</i> |
| Bovine Meat                   | 1.83          | 0.00        | 0.00             | 1.80        |
| Poultry Meat                  | 1.97          | 0.00        | 70.22            | 1.95        |
| Dairy Products                | 3.65          | 3.59        | 0.00             | 3.58        |
| Beverages and Tobaccos        | 1.52          | 1.53        | 182.32           | 1.48        |
| Vegetable Oils                | 3.30          | 3.38        | 204.06           | 2.87        |
| <i>Agribusiness</i>           | <i>2.29</i>   | <i>1.66</i> | <i>177.37</i>    | <i>1.98</i> |
| Minerals                      | 0.21          | 0.23        | 87.28            | 0.17        |
| Energy Products               | -0.46         |             | 21.15            | -0.55       |
| <i>Energy</i>                 | <i>-0.24</i>  | <i>0.23</i> | <i>29.07</i>     | <i>0.05</i> |
| Textiles and Apparel          | 1.73          | 1.74        | 180.89           | 1.70        |
| Leather, Wood and Paper       | 0.70          | 0.71        | 52.07            | 0.69        |
| Other Light Manufactures      | 1.92          | 1.94        | 299.15           | 1.89        |
| <i>Light Manufactures</i>     | <i>1.12</i>   | <i>1.47</i> | <i>124.48</i>    | <i>1.09</i> |
| Chemical and Plastic Products | 0.75          | 0.76        | 41.77            | 0.73        |
| Ferrous metals                | 1.45          | 1.48        | 69.24            | 1.43        |
| Non-ferrous Metals            | 0.61          | 0.62        | 65.25            | 0.60        |
| Motor Vehicles                | 0.31          | 0.34        | 304.48           | 0.29        |
| Other Transport Equipment     | 2.87          | 2.90        | 0.00             | 2.82        |
| Electric Equipment            | 0.66          | 0.66        | 34.76            | 0.66        |
| Machinery                     | 1.48          | 1.49        | 109.73           | 1.45        |
| <i>Heavy Manufactures</i>     | <i>1.20</i>   | <i>0.76</i> | <i>63.27</i>     | <i>1.05</i> |
| <i>Services</i>               | <i>1.38</i>   | <i>1.39</i> | <i>2.87</i>      | <i>1.36</i> |
| <i>Total</i>                  | <i>1.22</i>   | <i>0.92</i> | <i>52.39</i>     | <i>1.16</i> |

Source: Authors' estimation.

**ANNEX TABLE 5**  
**IMPACT OF FTAA ON MAJOR MARKETS: TOTAL TRADE FLOWS CHANGES**

| Sectors/ Macro-sectors        | Exports       |               |                  |              | Imports       |               |                  |               |
|-------------------------------|---------------|---------------|------------------|--------------|---------------|---------------|------------------|---------------|
|                               | United States | Mexico        | Andean Community | EU25         | United States | Mexico        | Andean Community | EU25          |
| Wheat, Corn and Other Grains  | 38.76         | 401.71        | 16.11            | -5.20        | 120.10        |               | 301.14           | 6.22          |
| Vegetables and Fruits         | 27.21         | 128.89        | 95.39            | 1.62         | 118.52        | 134.33        | 81.99            | -6.07         |
| Oil seeds and Soybeans        | 187.37        | 37.25         | 41.94            | -2.15        | 137.37        | 162.12        | 224.22           | 4.23          |
| Sugar                         | 101.94        |               | 220.63           | -4.09        |               |               |                  |               |
| Coffee, Rice and Other Crops  | 74.15         | 115.61        | 131.48           | -9.39        | 183.96        | 225.30        | 121.76           | 10.44         |
| Animal products               | 37.43         | 171.34        | 218.03           | -4.35        | 193.44        | 220.28        | 177.15           | 3.36          |
| <i>Agriculture</i>            | <i>52.85</i>  | <i>118.19</i> | <i>106.44</i>    | <i>-4.01</i> | <i>184.93</i> | <i>210.90</i> | <i>136.61</i>    | <i>3.46</i>   |
| Bovine Meat                   | 75.85         | 461.25        | 130.09           | -0.39        | 107.64        | 0.00          | 0.00             | 0.91          |
| Poultry Meat                  | 29.73         | 0.00          | 103.83           | 0.09         | 87.14         | 0.00          | 76.94            | -1.22         |
| Dairy Products                | 89.98         | 186.29        | 202.35           | -5.56        | 276.22        | 426.20        | 0.00             | 7.02          |
| Beverages and Tobaccos        | 114.22        | 277.37        | 112.92           | -1.06        | 195.97        | 220.68        | 197.72           | 0.14          |
| Vegetable Oils                | 45.76         | 167.57        | 61.66            | -1.71        | 251.80        | 308.65        | 275.00           | 2.90          |
| <i>Agribusiness</i>           | <i>56.67</i>  | <i>200.92</i> | <i>89.79</i>     | <i>-1.26</i> | <i>206.15</i> | <i>231.57</i> | <i>223.08</i>    | <i>1.29</i>   |
| Minerals                      | 36.64         | 114.03        | 102.58           | 2.34         | 109.75        | 115.74        | 87.37            | -4.55         |
| Energy Products               | 6.32          | 32.18         | 82.68            | -3.03        | 28.69         |               | 20.45            | 0.94          |
| <i>Energy</i>                 | <i>20.43</i>  | <i>112.50</i> | <i>94.40</i>     | <i>1.76</i>  | <i>55.50</i>  | <i>115.74</i> | <i>28.47</i>     | <i>-3.60</i>  |
| Textiles and Apparel          | 78.19         | 95.98         | 120.70           | 0.80         | 211.24        | 227.52        | 184.53           | -2.13         |
| Leather, Wood and Paper       | 47.37         | 185.85        | 40.55            | -3.47        | 64.87         | 71.60         | 57.16            | 0.36          |
| Other Light Manufactures      | 5.71          | 97.69         | 85.22            | 5.27         | 368.88        | 422.67        | 331.51           | -7.64         |
| <i>Light Manufactures</i>     | <i>49.01</i>  | <i>163.88</i> | <i>75.29</i>     | <i>-2.82</i> | <i>144.49</i> | <i>202.07</i> | <i>131.36</i>    | <i>-1.26</i>  |
| Chemical and Plastic Products | 41.66         | 99.62         | 34.22            | 4.81         | 40.51         | 43.48         | 38.08            | -6.01         |
| Ferrous metals                | 28.14         | 103.33        | 35.89            | -2.96        | 85.01         | 96.95         | 74.40            | 0.74          |
| Non-ferrous Metals            | 23.26         | 114.72        | 45.06            | 5.11         | 71.03         | 76.69         | 57.29            | -6.08         |
| Motor Vehicles                | 45.49         | 102.22        | 66.02            | 6.81         | 277.67        | 307.65        | 234.80           | -15.15        |
| Other Transport Equipment     | 32.40         | 361.28        | 98.09            | 2.30         | 90.43         | 245.32        | 0.00             | -20.18        |
| Electric Equipment            | 24.25         | 158.49        | 15.53            | 6.82         | 26.56         | 26.97         | 31.10            | -4.96         |
| Machinery                     | 18.08         | 169.35        | 37.84            | 13.05        | 83.12         | 91.66         | 105.97           | -16.67        |
| <i>Heavy Manufactures</i>     | <i>30.59</i>  | <i>116.40</i> | <i>43.01</i>     | <i>5.18</i>  | <i>65.35</i>  | <i>105.18</i> | <i>56.91</i>     | <i>-11.69</i> |
| <i>Services</i>               | <i>-0.89</i>  | <i>-1.07</i>  | <i>-5.28</i>     | <i>-1.36</i> | <i>1.15</i>   | <i>1.47</i>   | <i>5.12</i>      | <i>1.61</i>   |
| <i>Total</i>                  | <i>32.47</i>  | <i>118.11</i> | <i>60.14</i>     | <i>-0.70</i> | <i>57.86</i>  | <i>96.54</i>  | <i>52.76</i>     | <i>-6.70</i>  |

Source: Authors' estimation.

**ANNEX TABLE 6**  
**IMPACT OF FTAA: TOTAL TRADE CHANGES AND DIFFERENCES WITH SCENARIO A**

| Sectors/ Macro-sectors        | Exports      |                | Imports      |                |
|-------------------------------|--------------|----------------|--------------|----------------|
|                               | Scenario E   | Scenario E - A | Scenario E   | Scenario E - A |
| Wheat, Corn and Other Grains  | 3.27         | 2.18           | 117.80       | 51.06          |
| Vegetables and Fruits         | 9.49         | 5.78           | 60.05        | 54.36          |
| Oil seeds and Soybeans        | 0.23         | -0.16          | 87.97        | 53.94          |
| Sugar                         | 7.44         | 1.42           |              | 0.00           |
| Coffee, Rice and Other Crops  | 9.44         | 1.49           | 55.67        | 20.16          |
| Animal products               | 20.62        | 12.81          | 81.32        | 47.75          |
| <i>Agriculture</i>            | <i>8.74</i>  | <i>4.26</i>    | <i>75.35</i> | <i>45.41</i>   |
| Bovine Meat                   | 14.12        | 10.36          | 51.78        | 17.36          |
| Poultry Meat                  | 10.37        | 6.01           | 23.53        | 16.83          |
| Dairy Products                | 132.73       | 119.71         | 57.09        | 24.45          |
| Beverages and Tobaccos        | 45.45        | 19.74          | 37.90        | 27.23          |
| Vegetable Oils                | 2.22         | 1.53           | 23.48        | 9.87           |
| <i>Agribusiness</i>           | <i>9.36</i>  | <i>6.65</i>    | <i>36.71</i> | <i>22.61</i>   |
| Minerals                      | 10.56        | 4.67           | 40.72        | 27.85          |
| Energy Products               | 12.70        | 10.65          | 8.01         | 7.21           |
| <i>Energy</i>                 | <i>11.38</i> | <i>6.96</i>    | <i>15.90</i> | <i>12.17</i>   |
| Textiles and Apparel          | 44.86        | 19.77          | 27.59        | 13.15          |
| Leather, Wood and Paper       | 25.50        | 4.63           | 24.80        | 12.80          |
| Other Light Manufactures      | 20.50        | 14.29          | 56.40        | 14.38          |
| <i>Light Manufactures</i>     | <i>27.92</i> | <i>6.90</i>    | <i>30.77</i> | <i>13.18</i>   |
| Chemical and Plastic Products | 27.65        | 12.56          | 11.67        | 3.78           |
| Ferrous metals                | 17.76        | 4.24           | 13.69        | 6.06           |
| Non-ferrous Metals            | 16.84        | 4.01           | 22.41        | 13.03          |
| Motor Vehicles                | 51.98        | 32.87          | 37.03        | 14.76          |
| Other Transport Equipment     | 25.59        | -0.46          | 50.51        | 9.19           |
| Electric Equipment            | 28.02        | 7.28           | 7.60         | 1.99           |
| Machinery                     | 33.30        | 16.96          | 15.45        | 3.85           |
| <i>Heavy Manufactures</i>     | <i>30.26</i> | <i>12.73</i>   | <i>17.32</i> | <i>5.26</i>    |
| <i>Services</i>               | <i>-1.21</i> | <i>-2.18</i>   | <i>1.50</i>  | <i>2.60</i>    |
| <i>Total</i>                  | <i>16.18</i> | <i>6.68</i>    | <i>15.45</i> | <i>6.36</i>    |

Note: Scenario A: FTA with United States and scenario E: FTAA.

Source: Authors' estimation.

**ANNEX TABLE 7**  
**IMPACT OF MERCOSUR-CHINA FTA: TOTAL TRADE AND BILATERAL TRADE WITH CHINA**

| Sectors/ Macro-sectors        | Total Trade  |              | Bilateral Trade with China |               |
|-------------------------------|--------------|--------------|----------------------------|---------------|
|                               | Exports      | Imports      | Exports                    | Imports       |
| Wheat, Corn and Other Grains  | -0.46        | 0.63         | 10.46                      |               |
| Vegetables and Fruits         | -0.01        | 5.56         |                            | 154.81        |
| Oil seeds and Soybeans        | -0.05        | 1.73         | 0.40                       | 88.76         |
| Sugar                         | 3.23         |              | 427.89                     |               |
| Coffee, Rice and Other Crops  | 3.61         | 8.80         | 264.23                     | 140.81        |
| Animal products               | 2.29         | 6.09         | 308.42                     | 229.70        |
| <i>Agriculture</i>            | <i>1.48</i>  | <i>6.22</i>  | <i>31.20</i>               | <i>196.71</i> |
| Bovine Meat                   | -0.67        | 1.39         | 514.65                     | 0.00          |
| Poultry Meat                  | -0.94        | 1.41         | 122.58                     | 0.00          |
| Dairy Products                | -0.82        | 1.61         | 0.00                       | 0.00          |
| Beverages and Tobaccos        | -0.84        | 1.58         | 192.63                     | 339.17        |
| Vegetable Oils                | -0.18        | 0.91         | 95.92                      | 0.00          |
| <i>Agribusiness</i>           | <i>-0.42</i> | <i>1.43</i>  | <i>117.26</i>              | <i>339.17</i> |
| Minerals                      | 0.72         | 5.73         | 9.99                       | 130.07        |
| Energy Products               | -0.26        | 1.08         | 17.68                      | 7.91          |
| <i>Energy</i>                 | <i>0.35</i>  | <i>2.20</i>  | <i>10.29</i>               | <i>35.77</i>  |
| Textiles and Apparel          | 83.24        | 42.45        | 863.32                     | 281.98        |
| Leather, Wood and Paper       | 4.73         | 5.80         | 129.30                     | 72.66         |
| Other Light Manufactures      | 9.92         | 148.71       | 970.99                     | 419.25        |
| <i>Light Manufactures</i>     | <i>15.26</i> | <i>42.01</i> | <i>311.57</i>              | <i>286.55</i> |
| Chemical and Plastic Products | 2.20         | 2.00         | 158.52                     | 52.93         |
| Ferrous metals                | 1.10         | 3.94         | 87.85                      | 100.15        |
| Non-ferrous Metals            | 0.28         | 4.54         | 165.61                     | 95.67         |
| Motor Vehicles                | 43.81        | -3.47        | 1,551.86                   | 462.18        |
| Other Transport Equipment     | 3.05         | 12.58        | 110.77                     | 411.27        |
| Electric Equipment            | 3.27         | 1.62         | 233.41                     | 35.33         |
| Machinery                     | 6.19         | 4.50         | 218.07                     | 156.30        |
| <i>Heavy Manufactures</i>     | <i>10.62</i> | <i>3.07</i>  | <i>490.03</i>              | <i>103.92</i> |
| <i>Services</i>               | <i>-1.12</i> | <i>1.40</i>  | <i>-1.64</i>               | <i>1.62</i>   |
| <i>Total</i>                  | <i>5.04</i>  | <i>4.84</i>  | <i>133.09</i>              | <i>131.12</i> |

Source: Authors' estimation.

**ANNEX TABLE 8**  
**IMPACT ON LABOR MARKET: PERCENTAGE CHANGE FROM BASE**

| Sectors/ Macro-sectors        | Base Labor*     | Scenarios/Partners |              |              |              |              |              |
|-------------------------------|-----------------|--------------------|--------------|--------------|--------------|--------------|--------------|
|                               |                 | A                  | B            | C            | D            | E            | F            |
|                               |                 | US                 | EU25         | Mexico       | Andean       | FTAA         | China        |
| Wheat, Corn and Other Grains  | 1,045.0         | 0.26               | 4.41         | 0.01         | 0.88         | 0.66         | -0.22        |
| Vegetables and Fruits         | 745.0           | 0.54               | 3.08         | -0.12        | -0.52        | -0.81        | -0.28        |
| Oil seeds and Soybeans        | 1,350.0         | 0.52               | 2.08         | -0.15        | 0.09         | 0.47         | -0.20        |
| Sugar                         | 695.1           | 3.33               | 3.66         | -0.40        | -0.32        | 3.97         | 1.51         |
| Coffee, Rice and Other Crops  | 1,228.2         | 1.13               | 5.51         | 0.03         | -0.04        | 1.02         | 0.49         |
| Animal products               | 5,788.4         | 0.19               | 4.51         | -0.03        | 0.21         | 0.44         | 0.05         |
| <i>Agriculture</i>            | <i>10,851.7</i> | <i>0.57</i>        | <i>4.16</i>  | <i>-0.06</i> | <i>0.15</i>  | <i>0.67</i>  | <i>0.12</i>  |
| Bovine Meat                   | 425.0           | 0.71               | 24.87        | 0.09         | -0.13        | 1.83         | -0.02        |
| Poultry Meat                  | 141.8           | 2.02               | 28.16        | -0.40        | -0.92        | 4.23         | -0.48        |
| Dairy Products                | 509.6           | 0.45               | -0.86        | 2.68         | 1.40         | 4.52         | 0.05         |
| Beverages and Tobaccos        | 506.0           | 0.43               | -4.39        | 0.13         | 0.05         | 0.13         | -0.04        |
| Vegetable Oils                | 323.1           | 0.69               | 24.14        | -0.59        | 1.26         | 1.87         | -0.35        |
| <i>Agribusiness</i>           | <i>1,905.5</i>  | <i>0.66</i>        | <i>10.34</i> | <i>0.64</i>  | <i>0.51</i>  | <i>2.28</i>  | <i>-0.10</i> |
| Minerals                      | 1,131.0         | 0.39               | 0.77         | -0.09        | -0.21        | -0.22        | -0.18        |
| Energy Products               | 366.0           | 0.56               | 0.10         | -0.36        | -1.03        | 1.05         | -0.46        |
| <i>Energy</i>                 | <i>1,497.0</i>  | <i>0.43</i>        | <i>0.60</i>  | <i>-0.16</i> | <i>-0.41</i> | <i>0.09</i>  | <i>-0.24</i> |
| Textiles and Apparel          | 965.0           | 1.16               | 0.04         | -0.26        | 0.75         | 1.51         | 2.78         |
| Leather, Wood and Paper       | 2,321.4         | 5.70               | 4.96         | 0.66         | -0.35        | 5.95         | 0.82         |
| Other Light Manufactures      | 791.0           | -3.21              | -4.82        | -0.06        | 0.12         | -3.50        | -11.84       |
| <i>Light Manufactures</i>     | <i>4,077.4</i>  | <i>2.90</i>        | <i>1.90</i>  | <i>0.30</i>  | <i>0.00</i>  | <i>3.07</i>  | <i>-1.17</i> |
| Chemical and Plastic Products | 1,885.0         | -2.46              | -4.22        | -0.20        | 0.31         | -2.33        | -0.21        |
| Ferrous metals                | 387.0           | 4.74               | -1.44        | 1.03         | 0.49         | 6.44         | 1.28         |
| Non-ferrous Metals            | 1,057.5         | -1.40              | -3.19        | 0.19         | -0.39        | -2.56        | -0.06        |
| Motor Vehicles                | 625.8           | 1.62               | -15.06       | 2.50         | 2.81         | 8.11         | 13.09        |
| Other Transport Equipment     | 645.8           | -3.89              | -13.83       | 0.01         | 0.20         | -4.27        | 2.70         |
| Electric Equipment            | 304.4           | 2.96               | 1.63         | 1.58         | 0.39         | 5.15         | 0.43         |
| Machinery                     | 1,354.1         | -8.76              | -10.12       | 0.78         | 1.17         | -6.99        | -1.79        |
| <i>Heavy Manufactures</i>     | <i>6,259.6</i>  | <i>-2.68</i>       | <i>-6.94</i> | <i>0.53</i>  | <i>0.63</i>  | <i>-1.63</i> | <i>1.23</i>  |
| Utilities and Construction    | 4,773.7         | -2.75              | -0.81        | 0.45         | 0.80         | -1.64        | 0.48         |
| Trade and Services            | 61,106.0        | 0.16               | -0.43        | -0.12        | -0.16        | -0.10        | -0.10        |
| <i>Services</i>               | <i>65,879.7</i> | <i>-0.05</i>       | <i>-0.46</i> | <i>-0.07</i> | <i>-0.09</i> | <i>-0.21</i> | <i>-0.05</i> |
| <i>Total</i>                  | <i>90,470.9</i> | <i>0.00</i>        | <i>0.00</i>  | <i>0.00</i>  | <i>0.00</i>  | <i>0.00</i>  | <i>0.00</i>  |

Note: (\*) in 1,000 workers.

Source: MERCOSUR database and Authors' estimation.

**ANNEX TABLE 9**  
**IMPACT ON PRODUCTION: PERCENTAGE CHANGE FROM BASE**

| Sectors/ Macro-sectors        | Base Values*   | Scenarios/Partners |              |              |              |              |              |
|-------------------------------|----------------|--------------------|--------------|--------------|--------------|--------------|--------------|
|                               |                | A                  | B            | C            | D            | E            | F            |
|                               |                | US                 | EU25         | Mexico       | Andean       | FTAA         | China        |
| Wheat, Corn and Other Grains  | 7.9            | 0.11               | 2.50         | 0.01         | 0.57         | 0.34         | -0.13        |
| Vegetables and Fruits         | 5.3            | 0.28               | 1.65         | -0.08        | -0.31        | -0.60        | -0.17        |
| Oil seeds and Soybeans        | 12.5           | 0.24               | 0.90         | -0.08        | 0.06         | 0.18         | -0.10        |
| Sugar                         | 9.6            | 1.54               | 1.28         | -0.20        | -0.13        | 1.79         | 0.78         |
| Coffee, Rice and Other Crops  | 12.4           | 0.47               | 2.19         | 0.02         | -0.01        | 0.40         | 0.23         |
| Animal products               | 63.6           | 0.08               | 2.12         | -0.01        | 0.11         | 0.20         | 0.03         |
| <i>Agriculture</i>            | <i>111.4</i>   | <i>0.28</i>        | <i>1.92</i>  | <i>-0.03</i> | <i>0.09</i>  | <i>0.33</i>  | <i>0.08</i>  |
| Bovine Meat                   | 16.8           | 0.61               | 20.63        | 0.08         | -0.11        | 1.54         | -0.01        |
| Poultry Meat                  | 7.0            | 1.67               | 23.06        | -0.32        | -0.77        | 3.48         | -0.39        |
| Dairy Products                | 16.3           | 0.10               | -0.88        | 1.28         | 0.70         | 1.97         | 0.04         |
| Beverages and Tobaccos        | 13.0           | 0.37               | -4.28        | 0.11         | 0.04         | 0.04         | -0.04        |
| Vegetable Oils                | 15.1           | 0.26               | 8.56         | -0.22        | 0.47         | 0.70         | -0.13        |
| <i>Agribusiness</i>           | <i>68.2</i>    | <i>0.47</i>        | <i>8.31</i>  | <i>0.26</i>  | <i>0.17</i>  | <i>1.37</i>  | <i>-0.07</i> |
| Minerals                      | 25.8           | 0.21               | 0.39         | -0.05        | -0.12        | -0.15        | -0.10        |
| Energy Products               | 35.5           | -0.03              | -1.60        | -0.22        | -0.55        | 0.07         | -0.23        |
| <i>Energy</i>                 | <i>61.3</i>    | <i>0.07</i>        | <i>-0.76</i> | <i>-0.15</i> | <i>-0.37</i> | <i>-0.02</i> | <i>-0.17</i> |
| Textiles and Apparel          | 26.2           | 0.64               | 0.02         | -0.14        | 0.41         | 0.82         | 1.52         |
| Leather, Wood and Paper       | 45.2           | 3.81               | 3.31         | 0.44         | -0.24        | 3.97         | 0.55         |
| Other Light Manufactures      | 15.8           | -1.80              | -2.71        | -0.03        | 0.07         | -1.96        | -6.74        |
| <i>Light Manufactures</i>     | <i>87.2</i>    | <i>1.84</i>        | <i>1.23</i>  | <i>0.18</i>  | <i>0.01</i>  | <i>1.95</i>  | <i>-0.48</i> |
| Chemical and Plastic Products | 60.0           | -1.14              | -1.96        | -0.09        | 0.14         | -1.08        | -0.10        |
| Ferrous metals                | 20.8           | 2.32               | -0.71        | 0.51         | 0.24         | 3.15         | 0.63         |
| Non-ferrous Metals            | 27.0           | -0.92              | -2.11        | 0.12         | -0.25        | -1.68        | -0.04        |
| Motor Vehicles                | 23.6           | 0.60               | -16.34       | 1.59         | 2.37         | 5.62         | 11.14        |
| Other Transport Equipment     | 15.7           | -4.37              | -13.81       | 0.01         | 0.19         | -4.77        | 2.58         |
| Electric Equipment            | 13.6           | 1.08               | 0.60         | 0.58         | 0.14         | 1.87         | 0.16         |
| Machinery                     | 31.0           | -4.56              | -5.28        | 0.40         | 0.60         | -3.63        | -0.92        |
| <i>Heavy Manufactures</i>     | <i>191.8</i>   | <i>-1.18</i>       | <i>-4.95</i> | <i>0.35</i>  | <i>0.45</i>  | <i>-0.39</i> | <i>1.48</i>  |
| Utilities and Construction    | 124.2          | -0.85              | -0.25        | 0.14         | 0.24         | -0.51        | 0.15         |
| Trade and Services            | 641.9          | 0.10               | -0.27        | -0.07        | -0.10        | -0.06        | -0.06        |
| <i>Services</i>               | <i>766.2</i>   | <i>-0.05</i>       | <i>-0.26</i> | <i>0.00</i>  | <i>0.03</i>  | <i>-0.14</i> | <i>-0.03</i> |
| <b>Total</b>                  | <b>1,286.0</b> | <b>-0.03</b>       | <b>-0.21</b> | <b>0.15</b>  | <b>0.15</b>  | <b>0.09</b>  | <b>0.17</b>  |

Note: (\*) in US\$ billion.

Source: MERCOSUR database and Authors' estimation.

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