

MERCOSUR: treatment of asymmetries and economic growth¹

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1. INTRODUCTION

The Southern Common Market (MERCOSUR) was created in 1991 with the objective of establishing a customs union. It is an integration agreement between four countries that differ considerably both in economic size and in level of development. Brazil, the main partner, accounts for more than 70 percent of the region's population, territory and GDP. By contrast, Paraguay and Uruguay's joint share in any of the three variables is less than 5 percent. Blyde (2005) argues that the asymmetries in countries and regions' relative size are significantly larger than those of other integration processes, and they have deepened during the decade of the 1990s. The author considers that, even though it is a long-term trend that was not originated by the integration process, there are potential conditions for MERCOSUR to contribute to increase them in the future.

Bouzas (2005) distinguishes between structural and policy asymmetries, stressing the importance of these last ones as they generate unequal competition conditions among partners. He argues that policy or regulatory asymmetries -macroeconomic policies, production and exports incentives or other regulations- have not been adequately addressed in MERCOSUR.

In the 1990s the MERCOSUR moved towards the formation of a customs union. During the first years the integration process seemed to progress successfully and the asymmetries did not constitute a significant obstacle for the following four reasons. First, the smallest countries did not put into effect tariff removal or the Common External Tariff (CET) for the most sensitive products. Second, progress was made on those issues less controversial about which there was consensus among bloc's members, while hardest decisions were deferred. Third, because regional integration was accompanied by unilateral liberalization policies, since integration and trade openness objectives were complementary and common to the four partners. Fourth, economic growth made the reallocation of resources lighter. Nevertheless, the MERCOSUR faced increasing obstacles to implement some of the most conflictive decisions that had been postponed. As examples can be mentioned the full enforcement of the CET, the elimination of special customs regimes (temporary admission, drawback, rules of origin and double charging), the free movement of goods, and the negotiation of agreements with other Latin American Integration Association (LAIA) members. From 1999 a severe regional crisis made it even more difficult to resolve conflicts and progress in the integration process. In recent years, in a context of recovery of the regional economies, it has not been possible to reach the agreements required to overcome the stagnation.

Several recent studies argue that asymmetries among MERCOSUR members is one of the main obstacles to the progress of the integration process, making it necessary to implement policies to address them (Giordano, Mesquita and Quevedo (2004); Giordano, Lanzafame and Meyer-Stame (2005); Bouzas (2005)). According to Bouzas

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(2005), that intervention would only be justified by the need to create better structural conditions in the small partners to take advantage of the benefits of the integration process, and when policy asymmetries generate negative externalities to members. These policies should aim to create favorable conditions for the small partners to accept a greater commitment with the integration process.

From the beginning the MERCOSUR was reluctant to confer differential treatment to the smaller members and demanded similar commitments on their part. The Asuncion Treaty established the equality of rights and obligations among the bloc's partners, although it accepted in some specific measures the principle of special and differential treatment for developing countries. It was admitted for the smaller partners the extension of periods and the adoption of a larger number of exceptions to intra-regional free trade and CET (Laens and Terra, 2000). In contrast, policy or regulatory asymmetries were present in the MERCOSUR agenda from the start of negotiations. In this sense, special spheres of negotiation were foreseen to harmonize policies and generate equal competition conditions in the regional market, but to date no significant progress has been made on these issues.

Since the economic crisis, the problem of asymmetries has emerged as an obstacle to the integration process. The small partners allege that the existing agreements do not contemplate differences in members' size and economic development, and that the benefits of integration are unequally distributed to the detriment of smaller countries. Paraguay and Uruguay have not obtained the benefits expected and find permanent obstacles to access largest markets. Consequently, they have been reluctant to progress toward the consolidation of a customs union.

Over the last years the issue entered into the MERCOSUR agenda. Nevertheless, the design of policies to address the problem is not easy. One of the obstacles is that smaller countries are not the poorest ones. In 2003 it was achieved the first agreement to create a fund aimed at correcting the asymmetries (the MERCOSUR Structural Convergence Fund, known as FOCEM), and since 2006 the bloc's agenda includes a program for addressing this problem.

The general aim of this work is to evaluate the possible impacts of MERCOSUR's integration process on economic growth, especially for smaller partners, and examine the effects of alternative policies aimed at compensating the existing asymmetries. In particular, it tries to estimate the possible growth and welfare effects of the following policies: current situation, deepen integration and those adopted by MERCOSUR to address the asymmetries problem and extend the benefits of integration to small partners. To accomplish this objective a set of scenarios was designed within the framework of a dynamic multicountry general equilibrium model in which each MERCOSUR member is considered separately.

The paper is organized as follows. Section 2 discusses the MERCOSUR asymmetries problem, section 3 presents the model and its calibration, section 4 describes the simulation scenarios, section 5 discusses the results, and the last section presents the conclusions.

2. ECONOMIC INTEGRATION AND ASYMMETRIES IN MERCOSUR

In the case of MERCOSUR, both structural and policy asymmetries are important. The first ones, for obvious reasons: it is an integration process among very different countries. The second ones derive from the MERCOSUR's weakness in macroeconomic and competition policies coordination, as well as from countries' inconsistency in the application of incentives to production, investment and exports.

The MERCOSUR presents marked asymmetries in size and level of development among its member countries and regions. On one extreme, Brazil accounts for more than 70 percent of regional territory and GDP, and almost 80 percent of total population (see Table 1). By contrast, Paraguay and Uruguay's share scarcely reaches about 4 percent of territory, 5 percent of population and 3.5 percent of GDP. These disparities are also evidenced by per capita GDP, although smaller countries are not precisely the poorest ones: Argentina has the highest per capita income, followed by Uruguay, Brazil and Paraguay. Differences in per capita income tended to increased between 1985 and 2004 since Argentina and Uruguay showed a more dynamic performance than Brazil and Paraguay (Cresta Arias, 2008).

Table 1. MERCOSUR's structural asymmetries

Country	Population		Area		Per capita real GDP	Real GDP
	Thousands of people	%	Thousands of Km ²	%	Current US dollars (PPP)	Share in MERCOSUR
	2004		2004		Average 2000-2003	
Argentina	39,114	16.8	2,767	23.4	11,126	23.5
Brazil	184,546	79.1	8,457	71.6	7,377	73.1
Paraguay	6,180	2.6	407	3.4	4,912	1.6
Uruguay	3,437	1.5	176	1.5	9,965	1.9

Source: Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 6.2, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, Sep. 2006

On the other hand, some policies affect specially competition conditions: exchange rate policies, investment incentives and special import regimes. Bouzas and da Motta Veiga (2008) stress the investment promotion regimes that generate discriminatory incentives and affect investment location decisions, the special import regimes (among them temporary admission and drawback) that affect productive complementarity processes, and the free-zone regimes that affect deep integration objectives.

According to traditional international trade theory the disparities in economic size among member countries are not a problem. However, since the work of Viner (1950), the literature on economic integration recognizes that the net benefits of an integration process are ambiguous and may be distributed in an unbalanced manner among partners. The new international trade theory stresses that differences in market size give rise to agglomeration processes around largest markets (Krugman, 1980). To ensure the political viability of an integration process it is necessary that it contribute to its members' economic growth or, at least, that it is not an obstacle.

The recognition of the need to promote special conditions for smaller and least developed economies has been present in the General Agreement on Tariff and Trade

(GATT), the World Trade Organization (WTO), the European Union (EU) and throughout the history of Latin American integration through the principle of special and differential treatment. However, by the time the MERCOSUR was created there was a skeptical view about the results of the policies applied in Latin America. Consequently, the Asuncion Treaty established the equality of rights and obligations among the bloc members, although specific differences in pace were accepted to progress towards the creation of the customs union.

The MERCOSUR has not had a sustained long-term vision about the treatment of asymmetries. At the beginning provisions were taken to correct policy asymmetries, with poor results; in the last years it has been given greater weight to structural asymmetries. The latter were initially contemplated by means of a few instruments under the principle of special and differential treatment: extended periods and a larger number of exceptions for convergence, first toward intra-regional free trade and later toward a customs union, were admitted for the smaller partners (Laens and Terra, 2000); and some sectors, like the automotive and sugar ones, were exempted and a timeframe for the negotiation of a special regime was established. Additionally, Paraguay and Uruguay were given longer periods for the elimination of the drawback and temporary admission regimes, although this benefit was extended to the larger partners and stopped being a discriminatory instrument in favor of smaller economies.

One of the problems faced by MERCOSUR was the selection of a CET (Laens and Terra, 2008). Since its creation, there were strong disagreements about the CET's level and structure. While Brazil, the largest country in terms of relative size, was interested in protecting capital goods, computing and telecommunications industries with relatively high tariffs, the smallest partners demanded low tariffs for these products and some inputs. The reason for this demand was that small countries, more specialized, depended on the importation of those goods. These countries argued that a high tariff on these products would not only generate high trade-deviation costs, but also slow down development discouraging investment.

The problem was overcome by the acceptance of a tariff very similar to that of Brazil (Olarreaga and Soloaga, 1998) but with slow paces of convergence. The small countries expected that during convergence period the bloc could sign preferential agreements with developed countries. Negotiations with third parties are viewed by small countries, especially by Uruguay, as a way to overcome the differences among MERCOSUR members.

From 2003 the policy of the MERCOSUR's governing bodies regarding asymmetries takes a new turn, when there is an explicit admission of their importance and it is taken the decision to formulate a strategy to attenuate them. In 2004 were carried out the studies required to implement the FOCEM, a fund aimed at increasing the competitiveness of smaller partners and less developed regions. The bloc's governing institutions also adopted provisions that contemplate smaller economies' claims³. In particular, they agree a differential treatment for Paraguay in negotiations with third parties, rules of origin, special import regimes (raw materials, drawback and temporary admission) and convergence to CET in capital goods and computer and telecommunication products. However, the FOCEM is the only novelty regarding the

³ Decisions 28, 29, 32, 33 and 34 of the Common Market Council (CMC).

treatment of asymmetries; the other decisions simply postpone and regulate exceptions to the customs union.

The fund was created in December 2004⁴. The next year, the CMC approved the normative framework related to the fund's implementation (Decisions 18/05 and 24/05). According to these norms, the FOCEM will be in force for ten years starting from the first member state's contribution (2006). The fund is aimed at financing programs to promote structural convergence (structural adjustment and development of trans-border infrastructure), enhance competitiveness (intra-MERCOSUR trade, production chains, productivity, technological development) and foster social cohesion (health, poverty and unemployment), particularly in smaller economies and less developed regions; as well as to support the institutional structure operation and the strengthening of the integration process.

The size of the fund was established in an annual sum of 100 million US dollars, which is collected in bi-annual contributions distributed among bloc members according to their average share in regional GDP (Argentina 27 percent, Brazil 70 percent, Paraguay 1 percent and Uruguay 2 percent). The funds will be allocated to projects presented by member states: Paraguay will receive 48 percent, Uruguay 32 percent, Argentina 10 percent and Brazil 10 percent. In July 2006 the first FOCEM's budget was approved and in January 2007 took place the approval of the first projects.

In 2006 a further step is taken. The MERCOSUR works on a plan to overcome the asymmetries (Decisions 34/06 and 33/07). The objectives of this plan had to be: promote actions for the development and integration of Paraguay, support the competitiveness of the smaller economies, propose actions for facilitating real access to regional and extraregional markets, and improve institutional aspects. According to what was established in the first decision, Paraguay and Uruguay submitted proposals regarding the plan's objectives and instruments to the V Extraordinary Meeting of the CMC. The CMG had to propose at the last 2007 meeting of the CMC short- and long-term objectives and instruments for the plan. However, to date the issue remains stagnant.

Uruguay has insisted on its proposals aimed at establishing discipline in the matter of incentives and granting more flexibility in the negotiations with third parties, while Paraguay has insisted on the fundament of the *Plan de Superación de Asimetrías* and on the extension of the FOCEM. Uruguay keeps considering the negotiation with third parties as a way to avoid the application of a CET that is opposed to its interests. Decision 27/07 establishes a faster mechanism for the elimination of non-tariff barriers that pose obstacles to intraregional trade.

In summary, in spite of the existence of strong asymmetries among its members, the MERCOSUR has been reluctant to accept a special treatment for those partners and regions that might be damaged by the progress of the integration process. During the first years this situation did not generate conflicts since member countries postponed the market liberalization and the adoption of the CET for sensitive products. At the same time, a favorable economic environment facilitated the economies' adjustment and the integration process seemed to progress successfully. At the end of the 1990s, the

⁴ Decision 45/04 of the Common Market Group (CMG).

process began to stagnate, the agreed-on commitments were not complied and there was no further progress toward the formation of a customs union. The macroeconomic crisis experienced by the region aggravated the situation and the bloc's countries resorted to unilateral actions to protect their domestic markets and negotiate with third parties. With the economic recovery the issue of asymmetries enters into the regional agenda, even though the achievements seem to be scarce to date.

3. THE MODEL

The analysis was carried out within the framework of a dynamic multicountry general equilibrium model. It is based on the model by Mercenier and Yeldan (1996) but, unlike these authors that assumed imperfect competition, I assumed perfect competition in all sectors. Also, small changes were introduced in the treatment of government. The main features of the basic model, the changes introduced for this work and the model calibration are presented in this section.

3.1. Model Description

The model considers a world compounded by seven countries or regions, twelve sectors (see Tables 2 and 3) and three production factors (capital, labor and natural resources). Each of the four MERCOSUR members is considered separately. In all regions, including the Rest of the World, the price system and, consequently, production, consumption and factors demand are endogenous. All sectors operate in perfect competition but, following the tradition in general equilibrium models, it was assumed product differentiation by geographic origin using an Armington specification, both for final and intermediate demands. In this way, the existence of segmented markets due to the presence of trade barriers not adequately modeled is taken into account. There are not perfect arbitrage among countries, so the prices of a homogeneous product may differ even if taxes and transportation costs are the same.

Table 2. Countries and regions in the model

Code	Country or region
NAFTA	United States, Canada and Mexico
E_U	European Union
ARG	Argentina
BR	Brazil
PRY	Paraguay
URY	Uruguay
RW	Rest of the World

Table 3. Sectors in the model

Code	Sector
CERVE	Rice, wheat and other grains, vegetables and fruits
OLEAG	Soy, oil seeds
SUCOF	Sugar, coffee and other crops
MEDA	Livestock and animal products, bovine meat, poultry meat, dairy products
OTFOO	Beverages and tobaccos, vegetable oils and other food products
MFALV	Textiles, leather, footwear and light manufactures
MINPE	Mining, petroleum and chemicals
METAL	Metals

VEHCL	Automobiles
MCHNY	Machinery and equipment
UTLTY	Electricity, water, gas and construction
SERVCL	Trade and services

It is assumed that there is only one type of representative household that maximizes an intertemporal utility function choosing between present and future consumption, subject to its intertemporal budget constraint. In the short-run, households can lend or receive loans in international markets. They own the production factors and offer their services in the market. Households' income is compounded by the factor payments plus the transfers received from the government. Each period, the household decides the allocation of its income between consumption and investment. Given the separability of the functions adopted, the decision of how much to consume and how much to invest each period is independent of what is consumed and what is invested. The optimal composition of investment is defined similarly as that of consumption.

It is assumed that firms are small and minimize costs taking market prices as given. A representative firm produces a homogeneous good combining intermediate inputs, capital, labor and land with a Cobb-Douglas production technology subject to constant returns to scale. Intermediate inputs are compounded by goods from different geographic origins, which are combined with an Armington function nested in the Cobb-Douglas function.

The government collects tariffs and taxes on production, exports and factors, and pays export subsidies and transfers to households, which are distributed as lump-sum. Government's transfers are equal to the sum of the taxes it collect each period less the subsidies paid on exports.

Each period a competitive general equilibrium is defined. In each country, factor markets are in equilibrium when supply is equal to demand. Equilibrium in goods markets is obtained when supply equals the sum of domestic sales and exports. The world demand of a good is equal to its supply and aggregate saving is zero.

3.2. Database and calibration

The calibration of the model parameter was done following Mercenier and Yeldan (1996), using a database provided by the Integration and Regional Programs Department of the Inter-American Development Bank (IDB-INT). The Social Accounting Matrices (SAMs) benchmarked at year 2000 are based on the Global Trade and Analysis Project (GTAP) v.5 (1997) dataset and updated by the IDB-INT using GDP and consumer price index (CPI). The main data sources are as follows. Trade data have been taken from the DATAINTAL, Free Trade Area of the Americas (FTAA) and United Nations Commodity Trade Statistics (UN-COMTRADE) databases. Protection data have been taken from the FTAA database, supplemented by the Foreign Trade Information System (SICE) of the Organization of American States (OAS) and information from MERCOSUR's official website. *Ad valorem* equivalents of specific and mixed tariffs and tariff rate quotas (TRQs) have been estimated by the IDB, using tariff information at the eight-digit level of the harmonized system (HS) and information provided by the United States International Trade Commission (USITC) and Jank (2004). Supplemental data sources include government finance statistics and the International Financial Statistics Yearbooks of the International Monetary Fund

(IMF). Additional data have been provided by the Central Banks of Paraguay and Uruguay.

The database includes data for 2000 on trade flows, production, consumption, investment, input-output, value added and taxes. The original data set contains information for ten regions or countries and twenty-two sectors. In order to reduce the model's size the data were aggregated into the seven countries or regions and the twelve sectors presented previously in Tables 2 and 3.

4. SCENARIOS DESIGN

The simulations were designed with the intention of analyzing to what extent the structural asymmetries present in MERCOSUR may be accentuated or reduced with different integration policies or with the policies currently under consideration to address them. Can we expect that structural asymmetries tend to reduce if integration policies and policies designed to tackle asymmetries do not change? To what extent new integration policies could affect the small countries' long-run growth rates? Putting it simply, the main integration policy options in question are the adoption of the CET and the consolidation of the customs union versus the acceptance of a free trade zone with freedom to sign agreements with third countries. What effect may have the policies aimed at addressing the MERCOSUR's asymmetries problem? Policy asymmetries were not taken into account even though they are considered a potential obstacle to the integration process, as or more important than structural asymmetries.

The aim of this analysis is to evaluate to what extent we can expect that the existing asymmetries may be reduced if:

- a) Policy conditions remain unchanged;
- b) A deeper integration process among MERCOSUR is implemented; or
- c) MERCOSUR adopt measures to address the problem.

In order to tackle these problems, I have to consider that the populations of each of the four MERCOSUR members grow at very different rates. GDP and per capita GDP growth rates depend on the population growth and the capital accumulation rate. The disparities in population growth rates result in changes in countries' economic size, measured by per capita GDP: the economic size converges if the population of the smaller partners grows faster (like the case of Paraguay), or diverges if it grows at lower rates (like the case of Uruguay). On the other hand, a rapid population growth not accompanied by a higher capital accumulation or technological change rate leads to an increase in per capita GDP disparities.

Consequently, in all the scenarios it was assumed that the population of each bloc's member grows exogenously according to the average rates projected by the World Bank for the period 2004-2025 (see Table 4). It is a conservative hypothesis with respect to historical rates.

Table 4. Average annual population growth rates

2004-2025		
NAFTA	NAFTA	0.82

European Union	E_U	-0.12
Argentina	ARG	0.92
Brazil	BR	0.83
Paraguay	PRY	1.51
Uruguay	URY	0.54
Rest of the World	RW	1.01

Source: base don data from the World Bank

Since the model was calibrated assuming that the population remains constant, the first scenario simulate the growth paths of the four MERCOSUR countries if the only change were in population size. The other scenarios introduce two types of policies that could help to reduce or accentuate the asymmetries: integration policies and policies to address asymmetries.

4.1. Integration policies

I compare the impact of two integration policies for MERCOSUR countries. First, MERCOSUR maintains the status quo, the customs union is not perfected and small partners make use of their freedom to sign agreements with third countries. Second, MERCOSUR becomes a customs union with free trade and full enforcement the CET. These scenarios allow us discussing to what extent trade openness with third partners (less integration) or a greater integration in MERCOSUR affect small partners' growth and welfare.

The first experiment consisted of considering that the MERCOSUR do not progress on the creation of a customs union; larger countries maintain the current levels of protection but they allow small partners to sign agreements on the creation of free trade zones with developed countries (in this model, European Union and NAFTA). This has been a claim of some sectors of the Uruguayan government in the last times. Technically, the experiment consisted of reducing to zero bilateral tariffs with those two regions without changing tariffs with third countries. Even though it does not seem feasible that Paraguay and Uruguay succeed in negotiating agreements to create free trade zones with NAFTA and the European Union that include the agricultural sector if they get quotas that exceed their supply, the experiment can be simplified by assuming free trade.

The second experiment simulated the consolidation of MERCOSUR as a customs union. This implies the elimination of tariffs within the region and the immediate adoption of the CET agreed in Ouro Preto.

4.2. Policies for addressing asymmetries

The instruments to address asymmetries considered in this work were exclusively those used to date in the region: special and differential treatment for smaller and less developed countries, and the creation of a convergence fund (the FOCEM).

Special and differential treatment implied the acceptance of longer periods for convergence to CET and intra-regional free trade. In this case, it was designed a scenario similar to the one considered in the previous section where the MERCOSUR

consolidates as a customs union with no exception to free trade and CET. But, while in that case changes were implemented immediately, here it was assumed that the MERCOSUR agrees to maintain the exceptions for smaller countries and implement a linear and automatic chronogram of convergence that would lead to a customs union in ten years.

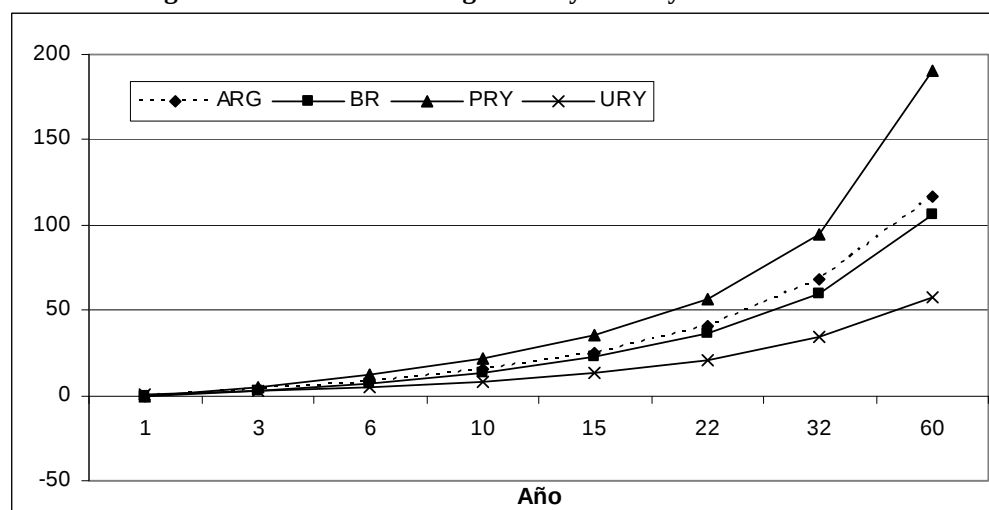
Another way of tackling the asymmetries problem undertaken by MERCOSUR is the creation of the FOCEM. The fund is formed with contributions from member countries, which are allocated to finance projects aimed at promoting structural convergence, fostering competitiveness and supporting the strengthening of MERCOSUR institutions. The projects should contribute to the development and structural adjustment of smaller economies, especially through the improvement of the trans-border infrastructure.

Two experiments were carried out. In the first one, in order to simplify the problem the policy was assimilated to an income transfer of 100 million US dollars from larger to smaller MERCOSUR partners, allocated to them according to the agreed distribution (48 percent to Paraguay, 32 percent to Uruguay, 10 percent to Argentina and 10 percent to Brazil). The second experiment assumed that the funds were assigned to the improvement of intra-MERCOSUR trans-border transportation infrastructure, resulting in a ten percent reduction in transportation costs.

5. RESULTS

In the first scenario (POPB) the only change with respect to the starting point is the growth of population. If the labor supply of the countries or regions considered grows in the long-run according to the population growth rates estimated by the World Bank for the period 2004-2025, Paraguay would be the member country with higher growth and Uruguay the one with lower growth. Figure 1 shows the evolution of GDP in the four countries. All of them exhibit a growing path, with a faster pace for Paraguay and a slower one for Uruguay, due to the differences in the population growth rates.

Figure 1. Cumulative GDP growth by country. Scenario POPB



The increase labor supply leads to a labor-intensive goods biased growth of all the countries and regions. As this happens, both wages and return on capital fall, although the latter falls less than wages. MERCOSUR countries are abundant in natural resources, so their terms of trade improve and their welfare increase, especially in the case of Uruguay and Paraguay, which are more openness economies. In the baseline year, the openness coefficient, calculated as the ratio between the sum of exports and imports and the GDP, reached 55 percent in Paraguay, 40 percent in Uruguay, 24 percent in Brazil and 21 percent in Argentina.

Table 5 presents the effects of this shock on the macroeconomic variables for Paraguay and Uruguay. The population increase is the main factor that fosters the growth of these economies. Wages fall, leading to a significative reduction in production costs and prices with respect to the rest of the world. Land and capital real payments increase. In the case of Uruguay, the growth of population is lower, so wages and prices are less affected than in Paraguay. Production and consumption increase. However, the rise of consumption is lower than that of population, so that it may be expected that a growth in population, with no other policy, leads to a fall in per capita consumption. This effect is greater in the Uruguayan economy. There are not significative changes in trade.

**Table 5. Dynamic general equilibrium effects derived from population growth
(percentage variation relative to the baseline scenario)**

Years	1	3	6	10	15	22	32	60
Paraguay (welfare, VE=12.3)								
Consumption	0.8	1.5	3.1	5.8	10.0	16.5	30.4	37.6
Investment	-3.5	5.1	11.3	18.0	23.9	30.1	6.9	-4.1
Capital	0.0	-0.6	0.4	3.0	7.4	14.3	23.7	-4.1
Labor	0.0	4.6	9.4	16.2	25.2	39.1	61.5	145.8
Real payments								
Capital	0.0	2.3	3.7	4.9	5.8	7.0	9.0	47.4
Land	0.0	1.2	3.3	6.8	12.2	20.4	35.9	48.7
Labor	0.0	-2.8	-4.8	-6.9	-9.2	-12.2	-16.9	-42.6
Price index								
Consumption	-7.2	-7.8	-9.3	-11.6	-15.0	-19.7	-28.3	-32.0
Investment	-7.2	-8.0	-9.5	-12.0	-15.5	-20.4	-29.2	-33.9
Terms of trade	1.0	1.2	1.3	1.5	1.8	2.1	2.9	3.2
Uruguay (welfare, VE=11.7)								
Consumption	1.3	1.5	2.0	3.1	5.1	8.5	16.0	18.0
Investment	-15.6	-14.3	-9.4	-4.9	-1.8	-2.2	-14.8	-9.7
Capital	0.0	-1.0	-1.8	-2.5	-2.7	-2.6	-2.5	-9.7
Labor	0.0	1.6	3.3	5.5	8.4	12.6	18.8	38.1
Real payments								
Capital	-0.2	0.7	1.7	2.8	4.1	5.5	7.8	16.3
Land	1.1	0.9	0.8	1.0	1.9	3.9	7.9	9.1
Labor	0.1	-1.6	-3.2	-5.0	-6.8	-8.9	-11.7	-24.3
Price index								
Consumption	-7.7	-7.9	-8.4	-9.4	-11.1	-13.8	-19.4	-20.8
Investment	-7.7	-7.9	-8.4	-9.4	-11.1	-13.9	-19.6	-20.9
Terms of trade	0.4	0.5	0.7	1.0	1.3	1.6	2.3	2.7

In the case of the Uruguayan economy, investment performance is worse-off; the capital stock falls permanently, endangering long-term growth. This is explained by the slow growth of population that leads to a lower pressure on capital demand, so the relative

returns on capital increase less than in other countries. By contrast, in Paraguay capital becomes scarcer as a result of the rapid population growth, so that returns increase significantly. In this country the capital stock increases but less than population, leading to a fall in its capital/labor ratio.

Consequently, if current policies were maintained, it may be expected that the asymmetries present in MERCOSUR tend to accentuate. Given the little growth of its population, the Uruguayan economy would lose relative weight with respect to its neighbors. This would reinforce the negative externalities associated with the market size, in case that the MERCOSUR do not attain a deep integration. Paraguay would grow more than its partners, increasing the relative size of its economy, but it is the MERCOSUR country with the lowest per capita GDP and this distance would be accentuated.

5.1. Economic integration, asymmetries and growth

In this section the results of maintaining an imperfect customs union are contrasted with two policy options: the consolidation of MERCOSUR as a customs union versus the possibility that small partners sign agreements to form a free trade zone with third countries. Consolidating the MERCOSUR implies deepening the integration process, while in the other scenario the preferences granted by Paraguay and Uruguay to the larger MERCOSUR countries become diluted.

Bilateral agreements between Paraguay and/or Uruguay with NAFTA and European Union countries leads to a considerable openness of their economies. The average tariff falls from 4.5 percent to 3.2 percent in Paraguay and from 4.6 percent to 2.1 percent in Uruguay. In contrast, the convergence toward the MERCOSUR customs union generates minor changes in the average protection level for Paraguay and a fall of 1.2 percentage points in Uruguay's average tariff. In both cases, the effects of trade policies on economic growth are small. This can be explained by the fact that in both countries tariff fall in sectors that have a small share of total expenditure. Two sectors (Other services and Electricity, water, gas and construction) not affected by tariff reduction represent more than 50 percent of consumption and investment in both countries. In the case of Uruguay, 67 percent of investment and 63 percent of consumption are compounded by goods from those sectors.

In both experiments the returns on land and capital increase and wages fall. This is explained by the change in the relative factor supply. Labor supply rises more than capital supply, and land supply is constant.

A free trade zone with the developed countries generates a significant increase in imports, especially in Uruguay, and consequently a fall in domestic prices and production costs. During the first years of convergence to the free trade zones, consumption and welfare fall in Paraguay and Uruguay. Relative to the baseline scenario, where population grows and everything else remains unchanged, Paraguay loses welfare throughout the period; in contrast, Uruguay increases its welfare since the year 22. This is explained by the better performance of investment and consumption. In Uruguay the capital stock falls quite less than in the baseline scenario, while in Paraguay it increases. The better performance of investment can be explained by the fall in capital goods prices. Imports of capital goods increase significantly.

As a result of the reduction in the tariffs applied to the northern partners, consumption and capital goods prices fall, especially the latter since import penetration index is higher than in the case of consumption. In effect, food products, beverages and tobaccos, with a low import penetration index, have a high share in consumption; while automobiles, machinery and equipment and metals, with import penetration indexes significantly higher, have a high share in investment (see Table 7).

Table 6. Dynamic general equilibrium effects derived from bilateral free trade agreements with NAFTA and European Union
(percentage variation relative to the baseline scenario)

Years	1	6	10	22	32	60
Paraguay (welfare, VE=17.3)						
Consumption	0.4	2.7	5.6	16.4	29.9	37.0
Investment	-4.7	13.6	20.9	32.2	9.1	-2.3
Capital		0.3	3.5	16.0	25.8	-2.3
Labor		9.4	16.2	39.1	61.5	145.8
Real payments						
Capital	-0.1	4.0	5.0	6.4	8.2	46.1
Land	0.0	3.4	7.3	21.2	36.6	49.9
Labor	-0.2	-4.5	-6.3	-11.3	-16.1	-42.0
Price index						
Consumption	-7.3	-9.4	-11.9	-20.0	-28.3	-32.1
Investment	-7.2	-9.9	-12.6	-21.1	-29.6	-34.2
Terms of trade	1.0	1.3	1.4	2.0	2.8	3.1
Exports	0.5	5.0	11.8	35.8	62.9	82.1
Imports	-1.1	5.9	9.1	14.2	15.7	17.5
Uruguay (welfare, VE=14.6)						
Consumption	0.5	1.1	2.4	8.6	16.4	18.6
Investment	-22.7	-4.3	3.9	1.3	-13.9	-8.2
Capital		-2.3	-2.5	-1.0	-0.5	-8.2
Labor		3.3	5.5	12.6	18.8	38.1
Real payments						
Capital	-0.5	2.2	3.4	5.3	7.4	15.9
Land	1.7	0.9	1.5	5.7	10.0	11.3
Labor	0.1	-3.3	-4.7	-7.6	-10.2	-23.1
Price index						
Consumption	-8.1	-8.6	-9.8	-15.0	-20.7	-22.1
Investment	-8.1	-9.1	-10.6	-15.7	-21.5	-22.8
Terms of trade	0.1	0.4	0.6	1.1	1.7	2.0
Exports	4.9	3.9	4.4	4.0	0.9	-5.6
Imports	-5.9	-7.4	15.3	24.9	36.7	47.6

**Table 7. Protection and specialization of Paraguay and Uruguay in baseline year
(in percentage)**

Sector	Tariffs				Imports penetration index	
	Paraguay		Uruguay		Paraguay	Uruguay
	EU	NAFTA	EU	NAFTA		
Rice, wheat and other grains, vegetables and fruits	11.1	11.1	7.8	10.8	6.3	10.9
Soy, oil seeds	0.0	0.0	0.0	6.0	1.6	1.7
Sugar, coffee and other crops	9.5	9.5	9.6	9.6	3.7	14.1
Livestock and animal products, bovine meat, poultry meat, dairy products	17.9	12.7	11.4	11.2	1.7	1.6
Beverages and tobaccos, vegetable oils and other food products	19.1	19.1	17.0	15.2	32.9	9.7
Textiles, leather, footwear and light manufactures	14.9	17.1	17.3	16.9	37.8	28.8
Mining, petroleum and chemicals	9.7	9.7	10.1	10.0	69.9	46.3
Metals	13.6	13.6	14.6	14.6	55.4	21.6
Automobiles	10.0	10.0	11.9	11.9	96.3	45.4
Machinery and equipment	9.2	9.2	9.8	9.8	96.8	65.3
Electricity, water, gas and construction	0.0	0.0	0.0	0.0	0.0	0.0
Trade and services	0.0	0.0	0.0	0.0	11.5	6.8

Source: based on data from IDB-INT

Trade liberalization increases the relative prices of agricultural goods and food products, and reduces those of machinery and equipment and automobiles. Consequently, real return on land rises more than in the baseline experiment and wages fall less, in both Paraguay and Uruguay. Likewise, after the first years the return on capital falls relative to the baseline scenario.

Finally, it must be stressed that the small results in terms of growth from trade liberalization should be considered carefully since the model used does not take into account imperfect competition and the spillover effects related to international trade. The latter can have an important role in the growth of developing countries. In the case of Uruguay, several empirical works show that during the nineties trade openness was accompanied by a significative increase of total factor productivity (Gandelman, Casacuberta and Fachola, 2004).

In the scenario where MERCOSUR becomes a customs union, with intraregional free trade and full adoption of the CET, average tariff is practically not affected, although tariff structure changes. Trade flows, especially imports, rise significantly relative to the baseline scenario, but their increase is smaller than in the previous scenario. The effects on consumption and investment are smaller (see Table 8).

Table 8. Dynamic general equilibrium effects derived from the consolidation of the MERCOSUR as a customs union
(percentage variation relative to the baseline scenario)

Years	1	6	10	22	32	60
Paraguay (welfare, VE=17.3)						
Consumption	0.9	3.2	5.9	16.5	30.1	37.2
Investment	-4.2	11.1	17.9	30.1	7.4	-3.9
Capital		0.2	2.9	14.3	23.8	-3.9
Labor		9.4	16.2	39.1	61.5	145.8
Real payments						
Capital	0.1	3.9	5.1	7.0	8.9	47.2
Land	-0.1	3.1	6.6	20.0	35.3	48.3
Labor	0.1	-4.7	-6.8	-12.1	-16.8	-42.5
Price index						
Consumption	-7.8	-9.8	-12.1	-20.1	-28.4	-32.2
Investment	-7.5	-9.9	-12.3	-20.7	-29.3	-33.9
Terms of trade	1.0	1.4	1.6	2.2	2.9	3.2
Uruguay (welfare, VE=14.6)						
Consumption	1.1	1.9	3.0	8.5	16.2	18.2
Investment	-19.2	-11.3	-5.9	-2.9	-16.3	-10.6
Capital		-2.2	-2.9	-3.1	-3.1	-10.6
Labor		3.3	5.5	12.6	18.8	38.1
Real payments						
Capital	-0.2	1.9	3.1	5.9	8.2	17.0
Land	1.4	0.8	0.9	3.7	7.6	8.8
Labor	0.2	-3.3	-5.2	-9.1	-11.9	-24.6
Price index						
Consumption	-8.4	-9.0	-10.0	-14.6	-20.2	-21.6

In the case of Uruguay, the increase in protection on capital goods has a negative impact on investment. Capital accumulation falls throughout the period, especially in the last years. Consumption increases in detriment of investment. Consequently, during the first years there is a rise in consumption but in the long-run the fall of investment reduces growth and consumption possibilities. The supply of capital per worker falls.

With the consolidation of the customs union, the returns on capital increase while the returns on land and wages fall in both countries. A raise in the tariff applied to third countries leads to an increase in the return on the scarce factor and a fall in the return on the abundant factors, although the economies do not close. This responds to investment and capital stock performances.

From the comparison of both policy scenarios it is concluded that, in the short-run, deepening the customs union is a superior option in terms of welfare. However, in the long-run, the increase in capital goods prices impairs investment and, especially in the case of the Uruguayan economy, the consumption possibilities. A Free Trade Agreement with developed countries seems to be a policy option that favors growth and capital accumulation in Uruguay. In the whole period, the creation of a free trade zone without adopting the CET and reaching agreements with third parties is a superior option for Uruguay in terms of welfare. In contrast, for Paraguay both the concretion of a customs union and the maintenance of the current situation result superior.

5.2. Policies to tackle asymmetries: slow convergence to the customs union and structural funds

In this section are contrasted the main results derived from the three experiments that gather, to some extent, the policy strategies adopted by MERCOSUR to address the problem of asymmetries. The results are presented in Tables 9 to 11. In the three scenarios the welfare of smaller countries increases but the increase is relatively small.

The first option is the one adopted from the beginning by MERCOSUR to address the interests of smaller partners: granting of longer periods for convergence toward a customs union. The experiment is similar to the one presented in the previous section but in this case Argentina and Brazil immediately adopt the CET and eliminate tariffs for intraregional trade, while give a period of ten years for the convergence of Paraguay and Uruguay. In general, exceptions to the CET aim to minimize trade deviation applying lower tariffs on intermediate inputs and capital goods. They can defer openness for sensitive products while improving their access to regional markets. This policy is superior in terms of welfare for smaller partners than immediate convergence to the customs union. Welfare gains for Paraguay are larger in the last years, and for Uruguay throughout the period. However, the impact on long-term growth is not significative (see Table 9).

Consequently, if this policy is not accompanied by other active policies that facilitate transition and improve competition conditions in the extended market, its impact would be smaller. Many of these exceptions have other adverse effects on integration process. The existence of exceptions to the CET forces to maintain rules of origin and other customs controls that limit the free movement of goods inside the region, and a limited integration can reinforce agglomeration effects, damaging the smaller partners. By contrast, a full integration, not considered in these scenarios, can attenuate those effects. Finally, postpone of commitments reinforce the action of interest groups interested in maintaining those obstacles.

Table 9. Dynamic general equilibrium effects derived from policies of exceptions for smaller economies for convergence to a customs union (percentage variation relative to the baseline scenario)

Years	1	6	10	22	32	60
Paraguay (welfare, VE=17.5)						
Consumption	0.8	3.1	5.8	16.7	30.8	39.0
Investment	-3.9	10.8	17.5	29.5	5.4	-6.9
Capital		0.3	2.8	14.0	23.3	-6.9
Labor		9.4	16.2	39.1	61.5	145.8
Real payments						
Capital	0.1	3.9	5.1	7.3	9.4	51.4
Land	-0.1	3.1	6.6	20.4	36.2	50.3
Labor	0.1	-4.8	-6.9	-12.0	-16.7	-16.7
Price index						
Consumption	-7.8	-9.8	-12.2	-20.4	-28.9	-33.1
Investment	-7.5	-9.9	-12.4	-20.8	-29.5	-34.4
Terms of trade	1.0	1.4	1.6	2.1	2.9	3.0
Uruguay (welfare, VE=14.7)						
Consumption	1.2	1.8	3.1	8.9	17.1	19.8
Investment	-18.8	-12.5	-7.2	-4.8	-22.2	-14.3
Capital		-2.2	-3.0	-3.5	-3.8	-14.3

Labor		3.3	5.5	12.6	18.8	38.1
Real payments						
Capital	-0.2	1.9	3.2	6.3	8.9	20.6
Land	1.4	0.7	0.9	4.0	8.6	9.5
Labor	0.2	-3.4	-5.2	-9.2	-11.9	-25.6
Price index						
Consumption	-8.4	-9.0	-10.0	-14.9	-20.8	-22.6
Investment	-8.2	-8.8	-9.8	-14.6	-20.6	-22.2
Terms of trade	0.1	0.5	0.7	1.3	1.8	2.1

The second scenario, the transfer of lump-sum funds from larger partners to smaller ones, is a simplification. The FOCEM regulations establish that those transfers are to be made through projects that tackle development problems. Funds transfers are relatively small so that, although they have a positive effect on welfare, in the case of Uruguay this effect is quite limited (see Table 10). In contrast, for Paraguay they imply an increase in welfare of almost two percentage points throughout the period. It constitutes the best scenario for both smaller partners, even though the paths of consumption, investment and relative prices are not very different from the initial path. Paraguay benefits more from this policy than Uruguay, probably because it receives larger transfers.

**Table 10. Dynamic general equilibrium effects derived from structural funds policies
(percentage variation relative to the baseline scenario)**

Years	1	6	10	22	32	60
Paraguay (welfare, VE=19.4)						
Consumption	1.4	3.8	6.5	17.2	30.8	38.0
Investment	-3.7	11.4	18.1	30.3	7.5	-3.8
Capital		0.4	3.0	14.5	24.0	-3.8
Labor		9.4	16.2	39.1	61.5	145.8
Real payments						
Capital	0.2	3.9	5.1	7.0	8.9	47.1
Land	0.0	3.3	6.8	20.2	35.5	48.5
Labor	0.2	-4.6	-6.7	-12.0	-16.7	-42.5
Price index						
Consumption	-7.5	-9.7	-12.0	-20.0	-28.3	-32.0
Investment	-7.3	-9.7	-12.2	-20.5	-29.2	-33.8
Terms of trade	1.1	1.4	1.6	2.2	3.0	3.2
Uruguay (welfare, VE=15.0)						
Consumption	1.3	2.0	3.1	8.7	16.3	18.4
Investment	-18.9	-11.1	-5.8	-2.8	-16.2	-10.6
Capital		-2.1	-2.9	-3.0	-3.0	-10.6
Labor		3.3	5.5	12.6	18.8	38.1
Real payments						
Capital	-0.2	1.9	3.1	5.9	8.2	17.0
Land	1.3	0.7	0.9	3.7	7.7	8.8
Labor	0.2	-3.3	-5.1	-9.1	-11.8	-24.6
Price index						
Consumption	-8.3	-9.0	-10.0	-14.6	-20.2	-21.6
Investment	-8.1	-8.8	-9.8	-14.4	-20.2	-21.6
Terms of trade	0.1	0.5	0.7	1.3	1.9	2.2

The third experiment assumes that funds transfers result in a ten percent reduction of transportation costs in intraregional trade. This experiment has an exploratory character since there is not information available about the possible impacts on transportation costs of an increase in infrastructure investment. Even though transportation costs with MERCOSUR partners reduce, results do not improve relative to the previous scenario (see Table 11). The reduction of transportation costs generates a more fluent intraregional trade, but it does not improve the welfare of smaller partners. The results of these two experiments tend to confirm the opinion of Bouzas and da Motta Veiga (2008) about the insufficiency of the funds approved for the FOCEM to address MERCOSUR asymmetries.

**Table 11. Dynamic general equilibrium effects derived from policies of reduction of transportation costs
(percentage variation relative to the baseline scenario)**

Years	1	6	10	22	32	60
Paraguay (welfare, VE=17.3)						
Consumption	0.8	3.2	5.8	16.4	29.9	37.1
Investment	-3.2	11.5	18.2	30.4	7.7	-3.6
Capital		0.5	3.2	14.6	24.1	-3.6
Labor		9.4	16.2	39.1	61.5	145.8
Real payments						
Capital	0.1	3.7	4.9	6.8	8.7	46.7
Land	0.3	3.7	7.3	20.7	36.1	49.4
Labor	0.0	-4.6	-6.8	-12.0	-16.8	-42.5
Price index						
Consumption	-7.0	-9.1	-11.4	-19.5	-27.9	-31.6
Investment	-7.0	-9.4	-11.8	-20.2	-28.9	-33.5
Terms of trade	1.1	1.4	1.6	2.2	3.0	3.2
Uruguay (welfare, VE=14.5)						
Consumption	1.1	1.9	3.0	8.5	16.1	18.2
Investment	-17.8	-10.8	-5.7	-2.8	-16.0	-10.4
Capital		-2.0	-2.7	-2.9	-2.9	-10.4
Labor		3.3	5.5	12.6	18.8	38.1
Real payments						
Capital	-0.2	1.8	3.0	5.7	8.1	16.7
Land	1.2	0.8	1.0	3.7	7.6	8.8
Labor	0.2	-3.3	-5.1	-9.1	-11.8	-24.5
Price index						
Consumption	-7.7	-8.4	-9.4	-14.0	-19.6	-21.1
Investment	-7.7	-8.4	-9.4	-14.0	-19.8	-21.1
Terms of trade	0.2	0.5	0.8	1.4	2.0	2.3

6. CONCLUSIONS

Although MERCOSUR is an integration agreement between countries that show strong policy and structural asymmetries, only recently this issue has been recognized as an obstacle to the achievement of a balanced distribution of costs and benefits of the integration process. Asymmetries are one of the most serious impediments to moving towards deeper integration because if the smallest partners do not expect that the integration process will contribute with their economic growth, the process will lose political support. Decisions taken by the MERCOSUR have been oriented to provide

the small economies with more time for the adjustment to the programmed levels of CET. The decision to create funds to help development and competitiveness in the small economies (FOCEM) was clearly aimed at reducing structural asymmetries.

The aim of this paper was to evaluate the effects of integration policies and some policies oriented to address asymmetries on the economic growth of small MERCOSUR partners. Although there are many works that stress the policy and structural asymmetries present in this region, this is the first attempt to make a quantitative evaluation of the long-term impacts of the policies adopted by the bloc members to address this problem. The study focused on analyzing the structural asymmetries problem, leaving aside policy asymmetries. This option does not imply deny the importance of the later.

Using a dynamic multicountry general equilibrium model with perfect competition, this work discusses a set of policy options. The assumption of perfect competition is a limitation of this study because it ignores one source of growth and agglomeration: the economies of scale. Additionally, it cannot estimate the impact of spillover effects associated with the increase in international trade.

The paper concludes that the single increase of population leads to a fast growth of Paraguay and a slow growth of Uruguay. GDP per capita goes down in the two countries, especially in Paraguay, which is the MERCOSUR country with lowest per capita income. Then, if there are no changes in policies or other exogenous shocks, it can be expected that the asymmetries in MERCOSUR will tend to increase. Compared to its partners, Uruguay would lose size since its population grows at a very slow rate. This point is important because if there is not a deeper integration, it could increase negative externalities due to size differences. Paraguay's economy would grow more than their partners, increasing its relative size. However, it is the poorest MERCOSUR country and the difference in GDP per capita would increase.

Additionally, neither a deeper integration nor the signing of agreements with developed countries would change these trends. A Free Trade Zone with developed countries could be a better policy for Uruguay if Argentina and Brazil do not take further actions in retaliation, such as breaking the MERCOSUR. A deeper integration within MERCOSUR is a more favorable policy for Paraguay. These conclusions are consistent with the position of the Uruguayan government, which has been claiming that MERCOSUR should address asymmetries by giving freedom to small partners to negotiate with third countries. However, they should be taken carefully since, in practice, the benefits from a deeper integration could be much higher than the estimated, because in this work's simulations it is not considered the elimination of non-tariff barriers nor the free movement of goods within the region. Smith and Venables (1988) show that in the European Union case the benefits of these policies could be much higher than those derived from the elimination of tariffs.

Finally, the policies adopted by MERCOSUR to tackle asymmetries have a slight positive impact on small partners. This is the first attempt to measure ex-ante the dynamic impact of policies aimed at addressing structural asymmetries. The paper shows that the policies adopted by MERCOSUR would not be enough to attenuate the problem. However, Paraguay receives significant benefits from FOCEM policies.

This is a first exercise that should be complemented in the future. Especially, changes in the model to consider imperfect competition and spillovers from international trade should be introduced. Additionally, it is necessary to collect more information to simulate the impact of free movement of goods within the region or the elimination of non-tariff barriers. Finally, the scenarios of implementation of the FOCEM should be improved through a more realistic assumption about the destination of these funds.

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