

Título

**THE DETERMINANTS OF REGIONAL EXCHANGE IN MERCOSUR:
GEOGRAPHY AND TRADE LIBERALIZATION**

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1. INTRODUCTION.

Since the mid-eighties many Latin American countries have been involved in a process of trade liberalization¹. In some cases, the tariff reduction has been quite impressive (see table 1). The obvious consequence of this liberalization was a strong increase in international trade flows between these countries and the rest of the world. This raise in the overall level of international trade has also been accompanied by an even stronger increase in regional exchange of goods and services. For example, in the case of ALADI countries, the rate of change in regional trade between 1987 and 1992 surpasses that corresponding to total trade (see table 2). As a consequence, since 1987, these economies experienced an increase in their share of regional exports and imports on total exports and imports; it rose from 12% in 1987 to 16.5% in 1992.

What explains these upsurge in trade flows among Latin America countries? What role have played commercial policies in this phenomenon? In particular, have unilateral- non preferential--trade liberalization schemes anything to do with this phenomena?. What about the effect of sub-regional liberalizations schemes that became popular in the 1990s? How important is geography (distance) and "neighborhood" in explaining this increase in regional trade.

The purpose of this paper is to address these questions, concentrating our attention on the countries belonging to MERCOSUR. In particular, we provided some evidence supporting the fact that the important increase in trade flows among

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1 For a throughout analysis of trade reform in Latin America in the last decade see Edwards (1994).

Mercosur countries is driven by the exploitation of comparative advantages couple with geographical proximity. Both factors have been encouraged by the unilateral trade liberalization reforms pursued by each nation. The effect of preferential reduction in tariffs has also spurred trade among the four economies. Nevertheless, its contribution is far less important once appropriate control is taken for geography and unilateral liberalization policies.

The rest of the paper is organized as follows. Section 2 starts with a brief description of the commercial policies followed by Mercosur countries and the evolution of trade flows within the area. Section 3 presents an analytical framework that allows us to study the effects of unilateral trade policies on regional trade. Using a model originally developed by Krugman (1980) and later on modified by Stein and Frankel (1994), we show that in the presence of transport costs (interpreted in a broad sense), regional trade will be enhanced by a unilateral (non-discriminatory) trade liberalization. On top of that preferential arrangements have to be considered in order to evaluate the overall effect of commercial policy on regional trade. The model also serves to derive the effect of distance (geography) on trade flows. We show that geography is another factor that encourages the exchange of products among neighboring countries.

These hypothesis are empirically investigated in section 4. We estimate bilateral-trade gravity equations using data on trade flows for the four countries belonging to Mercosur: Argentina, Brazil, Paraguay and Uruguay. The results of the estimations show that distance is an important determinant of bilateral trade conducted by each of the countries considered. Interestingly, this effect is much stronger once appropriate control is taken for unilateral trade liberalization, confirming the intuition that this policy further encourages the effect of geography on regional exchange of goods. The empirical analysis also suggest that preferential trade arrangements like Mercosur have a positive effect on regional trade, though its relevance is reduced considerably once we account for geography and unilateral trade liberalization. Section 5 concludes with some summary remarks.

2. TRADE POLICIES AND THE BEHAVIOR OF REGIONAL TRADE IN MERCOSUR.

Mercosur was created by the Asuncion treaty signed by Argentina, Brazil, Paraguay and Uruguay in March of 1991. The treaty established the formation of a Trade Union among the four countries, starting in January 1995. Trade within the region is subject to zero tariff while imports from the rest of the world pay a common external tariff (CET) that varies from 0 to a maximum of 20%. The 100% preference for intraregional trade was obtained through a mechanism of automatic tariff cuts (applied at 6-months intervals) starting in March 1991 and ending in December 1994.

Also, the CET, negotiated in the second semester of 1994, was put into operation, as scheduled, at the beginning of 1995 (table 3 presents the structure of the CET)².

Though some exceptions to the CET and to the zero tariff for intraregional trade were established, their importance is of second order --they amount to 300 items out of the 8000 tariff positions that were negotiated--. In any case these exceptions are scheduled to disappear in a period of five to six years.

But, trade liberalization in the region was not only accomplished through "regionalism". Previously to the establishment of Mercosur there were important efforts in some countries to unilaterally reduce the barriers to trade (both tariffs and non-tariffs). In the case of Argentina, trade liberalization started in 1988 and were pushed forward by the new administration since 1989. The average tariff was reduced from a level of 45% in 1987 to 9% in 1994 (see table 4)³. Also most non-tariff barriers were eliminated. A similar process occurred in Brazil where tariffs on imports were reduced from 31% in 1990 to 13.6% in 1994 (see table 5).

This process of liberalization has implied an important increase in the foreign trade conducted by these countries. For example, in the case of Argentina, the total exchange of goods with the rest of the world rose more than three times between 1987 and 1994 (see table 6). A similar process is also observed in Brazil (see table 7). Nevertheless, this rise in external trade has not been uniform across all destinations: the exchange with neighbouring countries has received a strong impulse. As table 6 shows, in the case of Argentina, the trade share corresponding to Mercosur countries rose from 15% (it was just 11% in 1985) in 1987 to 26% in 1994. For the case of Brazil this share was 6% in 1987 and rises to 14% in 1994. Taking the four countries of Mercosur together, while in 1988 the share of regional trade on total trade was 7.2%, it rose to 23.5% in 1994 (see table 8). What explains this surge in regional trade within Mercosur countries? Of course, the implementation of tariff preferences within the area since 1991 was bound to have consequences on trade flows. As table 9 shows between 1990 and 1994, the exchange of goods in Mercosur grew almost three times. Nevertheless, the adoption of trade preferences within the region does not seem to be the only force at work. Chile, a country not belonging to Mercosur (as yet), also experienced an important increase in its exchange with its neighbors. Its trade share corresponding to Mercosur rose from 11% in 1985 to 15% in 1994 (if exports are only considered the share goes from 8% in 1985 to 12% in 1994, see table 10). But, if regional preferences are not enough to explain this phenomenon, what other forces may have been important in explaining the surge in regional trade? Geography is a factor that has been singled out as being an

2 For more details on the CET see Garriga and Sanguinetti (1995).

3 Nevertheless, the unilateral trade liberalization policy suffered a "temporary" set back in October of 1992 when a 10% tax ("tasa de estadística") was imposed on all imports. This tax was then reduced considerably at the beginning of 1995 with the implementation of the CET in Mercosur. For details about the recent evolution of the commercial policy in Argentina see Berlinsky (1994).

important determinant of trade flows. In the next section we present a model where unilateral trade liberalization policies couple with the existence of transports costs may imply a rise in regional trade. This hypothesis is then empirically investigated using econometrics techniques in section 4.

3. THE EFFECT OF UNILATERAL TRADE LIBERALIZATION ON REGIONAL TRADE IN THE PRESENCE OF TRANSPORTATION COSTS: A SIMPLE MODEL.

In this section we present a simple model that will help to study the effects of trade policy and of geography on trade flows. We based our analysis on a model developed by Stein and Frankel (1994) and Frankel et al (1993). These authors, in turn, extend a model, originally developed by Krugman (1980), to study the determinants of the bilateral volume of trade, and the world welfare implications of different trade agreements, specially the formation of trading blocks. The emphasis of our analysis will be somehow different. We depart from analyzing the optimality of trading blocks, and instead we concentrate our attention on the consequences for regional trade of unilateral trade liberalization in the presence of transportation costs.

In the tradition of the "new trade theory" (i.e. Krugman (1980), (1986) (1990)) the model assumes a non-competitive market structure with consumers that have preferences for variety. Formally, the utility of the representative consumer is given by,

$$U = \sum_i c_i^\theta ; 0 \leq \theta \leq 1 \quad (1)$$

where c_i is the consumption of the i variety and θ is a parameter that takes values between zero and one. As it is clear from (1) welfare is positively associated with the amount of potential varieties the individual can access to. The higher the value of the parameter θ the lower the preference for variety.⁴

On the production side we assume that labor is the only factor of production. Increasing returns are introduced assuming that there is a fixed cost and a constant marginal cost of producing each variety. The (inverse) production function common to all varieties is then⁵.

4 In the limit if $\theta = 1$ there is perfect substitution among varieties which means, from the point of view of consumer taste, that all varieties are identical.

5 The total cost function is $TC = W\alpha + W\beta x_i$, where W denotes nominal wages.

$$l_i = \alpha + \beta x_i \quad \alpha, \beta \geq 0 \quad i = 1, \dots, n \quad (2)$$

where l_i is the quantity of labor used in producing the i variety and x_i is the quantity produced of that variety. We assume a non-competitive, monopolistic competition scenario where there are as many firms as varieties. Thus, each firm sets the price for its variety so as to maximize its benefits. Nevertheless, free access to the markets of goods (developing new varieties) will make benefits go to zero.

We are interested in the open economy version of this model where individuals can consume varieties produced elsewhere. For simplification we are going to assume a world economy composed of three countries: D ("domestic"), R ("regional") and NR ("non-regional"). We assume tastes and technologies, as described by equations (1) and (2), are the same in all economies as well as the size of their population L^6 . Thus, gains from trade arise only from increase in variety consumption⁷. With the purpose of introducing differences in transport costs, we assume that two of the three countries (D and R) are located nearby and the third (NR) is located far away. This hypothetical configuration helps to define --from the point of view of the countries that we put together-- two types of foreign goods. A first type, called regional good (variety), comes from the country located in the neighborhood. The second type of good (variety), called extra-regional, comes from the country located outside the region. The relevant thing here is that the transport cost is lower for the goods (varieties) coming from a country within the region compared to that corresponding to a good coming from the country out of the region.

Then, if the producer price for a good i coming from country R is P_{ri}^* and that corresponding to a variety coming from out of the region is P_{nri}^* , then the prices that a domestic consumer located in country D will have to pay for each type of foreign good are,

$$P_{ri} = P_{ri}^*(1+t+a) \quad ; \quad P_{nri} = P_{nri}^*(1+t+b) \quad ; \quad b > a \quad (3)$$

The letter t stands for the exogenous level of the import tariff which is assumed to be uniform across countries (no preferential arrangement among regional countries are assumed at this point), and a and b stand for transportation costs corresponding to regional and non-regional goods respectively. Notice two things: first we have chosen a simple way of capturing transport costs. They are introduced as a % increase in the producer (FOB) value. Here we made a slight departure from related literature (see Krugman (1980) and Stein and Frankel (1994)) where iceberg-type transport costs are

6 Later on we relax this assumption.

7 Thus we left aside factor endowments considerations as a source of trade between nations.

postulated⁸. Secondly, and perhaps more important, we assume tariffs are imposed on the FOB price (excluding transport and insurance costs) of the imported goods.⁹ This is a key assumption that will drive some of the results we derive below so some clarifications are needed. Transport cost are interpreted in a broad sense, encompassing not only physical transportation of goods, but also costs of communications and of general information regarding the other country institutions and habits. When transports costs are interpreted in this general way --we can renamed then as costs of doing international transaction-- it is clear that tariffs are not levied on this items. Alternatively, even if transport costs were understood as representing only physical costs, the common practice in international trade operations followed by some countries do not contradict the assumption that tariffs are charged on the FOB price¹⁰.

The consumer problem faced by the representative individual situated in country D in a context of an open economy (people can purchase domestic and foreign varieties) can then be expressed in the following way,

$$\begin{aligned} \max U = & \sum_{i=1}^{D+R+NR} c_i^{\theta} \quad (4) \\ \text{s.t.} & \\ & \sum_{i=1}^D c_i p_{di} + \sum_{i=D+1}^{D+R} c_i p_{ri} + \sum_{i=D+R+1}^{D+R+NR} c_i p_{nri} \leq W + T \end{aligned}$$

where domestic varieties are indexed between 1 and D, regional varieties between D+1 and R and non-regional goods are indexed between D+R+1 and D+R+NR. W stands for wages and T is the lump-sum transfer received by the consumer from the government. It , represents the way the authorities spend the revenues collected through tariffs.

The first order conditions gives raise to the following inverse demand equations,

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- 8 Our specification is simpler and it does not imply that the CIF price of the imported good rises more than proportionally with distance. The iceberg-type transport cost specification have the following form: $p = p/(1-a)$ or $p = p + p a /(1-a)$ where the last term in the second expression indicates the transport cost that have to be incurred when importing a good of value equal to p. It is easy to see that $\partial^2(pa/(1-a)) / \partial a^2 > 0$.
- 9 Stein and Frankel (1994) also make this assumption. An alternative case is presented in Frankel et al. (1993).
- 10 USA and Mexico, for example, follow this convention. On the other hand, in Argentina tariffs are charged on the CIF price of the imported good.

$$p_{di} = \frac{\theta c_{di}^{\theta-1}}{\lambda} ; p_{ri} = \frac{\theta c_{ri}^{\theta-1}}{\lambda} ; p_{nri} = \frac{\theta c_{nri}^{\theta-1}}{\lambda} \quad (5)$$

Using (5) it is easy to show that the elasticity of demand for each type of good (domestic, regional and non regional) is the same,

$$\varepsilon_{ji} = \frac{\partial c_{ji}}{\partial p_{ji}} \frac{p_{ji}}{c_{ji}} = \frac{1}{1-\theta} \quad j = d, r, nr \quad (6)$$

In each country, a firm producing the variety i chooses the level of production so as to maximize profits,

$$\Pi_i = p_i x_i - (\alpha + \beta x_i) W \quad (7)$$

Now market clearing for each variety implies,

$$x_i = (c_{di} + c_{ri} + c_{nri}) L \quad (8)$$

where here we make use of the assumption that all countries are equal in size. Using (7) and (8), the first order condition for profits maximization yields,

$$(c_{di} + c_{ri} + c_{nri}) + p_i \left(\frac{\partial c_{di}}{\partial p_i} + \frac{\partial c_{ri}}{\partial p_i} + \frac{\partial c_{nri}}{\partial p_i} \right) - \beta W \left(\frac{\partial c_{di}}{\partial p_i} + \frac{\partial c_{ri}}{\partial p_i} + \frac{\partial c_{nri}}{\partial p_i} \right) = 0 \quad (9)$$

Replacing (6) in (9) we arrive at the profit maximization price of variety i ,

$$p_i = \frac{\beta W}{\theta} \quad (10)$$

or, assuming the nominal wage is the numeraire of the economy, we have,

$$\hat{p}_i = \frac{p_i}{W} = \frac{\beta}{\theta} \quad (10')$$

condition (10') assures that producer prices, in terms of wages, will be equal for all varieties, independently where the good is produced. In other words, FOB prices will be equal across countries ($P_{di} = P_{ri}^* = P_{nri}^* \forall i$). Assuming free entry so that profit are

zero, it is found that the quantity of each variety is also the same whether the variety is produced locally or abroad,

$$x_i = \frac{\alpha\theta}{\beta(1-\theta)} \quad (11)$$

Moreover, assuming full employment of the labor force ($L=\sum l_i$) and using (11) the number of varieties produced in each country depends upon the size of its labor force: $n=L(1-\theta)/\alpha$. As we assumed countries are of equal size, then the number of varieties produced in each country will also be the same¹¹.

From the first order condition corresponding to the consumer problem we can derive the relative demands (we eliminate subindices i for simplification),

$$\gamma_{r,d} = \frac{c_r}{c_d} = \frac{1}{(1+t+a)^{\frac{1}{1-\theta}}} ; \gamma_{nr,d} = \frac{c_{nr}}{c_d} = \frac{1}{(1+t+b)^{\frac{1}{1-\theta}}} ; \gamma_{nr,r} = \frac{c_{nr}}{c_r} = \frac{(1+t+a)^{\frac{1}{1-\theta}}}{(1+t+b)^{\frac{1}{1-\theta}}} \quad (12)$$

It is easy to see that relative demands of foreign goods (regional and non regional) will negatively depend on transportation costs and tariffs. What is perhaps less obvious is that relative demand of non regional goods in term of regional goods will be positively associated with the level of tariffs,

$$\frac{\partial \gamma_{nr,r}}{\partial t} = \frac{1}{1-\theta} \left(\frac{1+t+a}{1+t+b} \right)^{\frac{\theta}{1-\theta}} \frac{b-a}{(1+t+b)^2} \geq 0 \quad (13)$$

Then (13) establishes that a reduction in the tariff rate will reduce demand for extra-regional goods relative to regional ones. The intuition of this result is clear. A lower tariff raises the importance of the transportation costs differential (between regional and non regional goods) relative to the final price of the imported goods, thus increasing the relative price of goods coming from far away countries. Using (13), and recalling we are dealing with a world of three countries, we can find an expression for the share of regional imports on total imports,

$$S_r = [1 + \gamma_{nr,r}]^{-1} \quad (14)$$

11 Thus the introduction of increasing returns have no effect on prices but on the amount of varieties produced in equilibrium by each country. If we identify variety with quality,

and it is easy to show that,

$$\frac{\partial S_r}{\partial t} = -[1 + \gamma_{nr,r}]^{-2} \frac{\partial \gamma_{nr,r}}{\partial t} \leq 0 \quad (15)$$

Unilateral trade liberalization will then increase the share of regional imports on total imports. In other words, under the stated assumptions about transportation costs, non discriminatory trade policies will also have consequences on regional trade.

The effect of trade policies on regional trade can also be studied by analyzing the determinants of bilateral trade between pairs of countries. Given the assumption of symmetry, the bilateral volume of trade (BVT) will be twice the flow of goods in one direction. Thus, given our three country world configuration, we will have two (distinct) bilateral trade equations,

$$BTV_{d,r} = 2 \left(\frac{\gamma_{r,d}}{1 + \gamma_{r,d} + \gamma_{nr,d}} \right) GDP \quad (16a)$$

$$BTV_{d,nr} = 2 \left(\frac{\gamma_{nr,d}}{1 + \gamma_{r,d} + \gamma_{nr,d}} \right) GDP \quad (16b)$$

where $BVT_{d,r}$ correspond to bilateral trade between countries belonging to the same region and $BVT_{d,nr}$ does the same but for countries that do not belong to the same area. Plugging (12) in (16a) and (16b) it is easy to show that¹²,

the increasing return assumption implies that larger countries can produce better quality product at the same price.

- 12 An alternative exercise is to evaluate the effect on bilateral exchange of a preferential trade arrangement, i.e. the implementation of a regional trade liberalization. For example, let assume countries R and D decides to reduce their tariff on a bilateral basis while the tariff level with the NR country stays constant. In this case we can still use equation (16) to evaluate the response of trade if we assume that relative price effects (i.e. term of trade effect) are absent (see Stein (1994) for the more general case were relative prices change). This will be the case if, for example, we assume that the third country is very large compare to the two regional countries (the NR country is the "world economy"). Then the reduction in tariff between the two regional countries will imply only a small increase in the quantity demanded of D and NR goods relative to total demand (trade diversion will be small). As a consequence, FOB prices will also change very little. Under the stated assumptions is then easy to show that regional (bilateral) liberalization will of course increase trade between the two regional countries and that this raise in the exchange will be greater than the one obtained through a unilateral trade liberalization. Formally, $|\partial BVT_{r,d}/\partial t_{unil}| \leq |\partial BVT_{r,d}/\partial t_{bil}|$.

$$\frac{\partial BVT_{d,r}}{\partial t} \leq 0 ; \frac{\partial BVT_{d,r}}{\partial a} \leq 0 ; \frac{\partial BVT_{d,nr}}{\partial t} \leq 0 ; \frac{\partial BVT_{d,nr}}{\partial b} \leq 0 \quad (17)$$

In other words, the increase in the barriers to trade, either policy induced or of natural type (distance), will obviously have negative effects on bilateral trade flows between any pair of countries. What is perhaps less obvious, and constitutes an interesting implication of the model, is the sign of the cross derivatives,

$$\frac{\partial BVT_{d,r}}{\partial a \partial t} \geq 0 ; \frac{\partial BVT_{d,nr}}{\partial b \partial t} \geq 0 ; \quad (18)$$

Both expressions have positive signs implying that the negative effect of transport cost on trade will be less important the higher is the tariff level. Thus, in the presence of very protectionist policies, geography will not be an important determinant of trade flows.

Besides transport costs and trade policies, income is another important determinant of bilateral trade given that this variable determines total demand of goods in each country. For the symmetric case equations (16) indicate that the BVT is positively associated with (twice) the level of total income. If we now assume that countries can be different in size (different L s) we arrive at the following expressions for the BVTs¹³,

$$BVT_{d,r} = GDP_r GDP_d \left[\left(\frac{\gamma_{r,d}}{L_d + L_r \gamma_{r,d} + L_{nr} \gamma_{nr,d}} \right) + \left(\frac{\gamma_{r,d}}{L_r + L_d \gamma_{r,d} + L_{nr} \gamma_{nr,d}} \right) \right] \quad (19a)$$

$$BVT_{d,nr} = GDP_d GDP_{nr} \left[\left(\frac{\gamma_{nr,d}}{L_d + L_r \gamma_{r,d} + L_{nr} \gamma_{nr,d}} \right) + \left(\frac{\gamma_{nr,d}}{L_{nr} + L_d \gamma_{nr,d} + L_r \gamma_{r,nr}} \right) \right] \quad (19b)$$

Thus, in the more general case of countries of different size, the volume of bilateral trade depends positively on the product of the countries' GDP, besides tariffs and transport costs¹⁴.

13 As the emphasis of the analysis is on the effect of nondiscriminatory trade policy, we don't have to worry about the effect of changes in relative prices (terms of trade effects) when we allow for differences in size.

14 It is easy to see that when tariffs are zero and there is no transportation costs the bilateral trade equations (19a) and (19b) are transformed into,

In the next section we investigate the empirical relevance of equations (19) using the gravitational model.

$$BVT_{d,r} = \frac{2 GDP_d GDP_r}{GDP_w}$$

principal. $BVT_{d,nr} = \frac{2 GDP_d GDP_{nr}}{GDP_w}$

Where GDP_w indicates the GDP of the world. This expression is similar to the one found in Stein (1994).

4. EXPLAINING BILATERAL TRADE IN MERCOSUR: THE GRAVITATIONAL EQUATION.

In this section we want to empirically study the determinants of bilateral trade for the case of countries belonging to Mercosur. In particular, we would try to identify the contribution of trade policies--both regional and unilateral-- and of geography in the behavior of trade flows.

The gravitational model is an empirical construction which has been used extensively to study the determinants of bilateral trade. Similar to the formula used in physics to describe the attraction between two objects, the basic gravitational model postulates that trade flows between two countries is associated positively with the product of the countries' GDPs and inversely with the distance between them. Though the model has been relatively successful in explaining bilateral trade flows, it has been criticized for its lack of microeconomic foundations. Some authors have tried to tackle this problem. For example, Andersen (1979), Bergstrand (1985), Leamer (1992) and Losada (1994) have provided theoretical models where the gravitational equation is derived within a context of perfect competition and constant return to scale production functions. On the other hand, the model presented in the last section, which follows closely the work of Stein and Frankel (1994) and Frankel et al (1993), offers an alternative microfoundation of the gravity equation postulating a world economy subject to increasing returns and imperfect competition.

In any case the gravity equation represents an easy way of capturing the effects of geography on trade flows. It can also be extended, as we did in the last section, to incorporate the effects of trade policies.

The basic gravity equation model has the following form,

$$T_{ij} = \beta_0 \frac{(GDP_i GDP_j)^{\beta_1}}{Dist_{ij}^{\beta_2}} \quad (20)$$

where T_{ij} measures bilateral trade between countries i and j and $Dist_{ij}$ stands for distance between the two countries. Taking logs we arrive at,

$$\ln T_{ij} = \ln \beta_0 + \beta_1 \ln(GDP_i GDP_j) - \beta_2 \ln Dist \quad (21)$$

Equation (21) constitutes the basic gravity equation. Table 11 presents the results of the regression analysis. The estimation of equation (21) is presented in column R1. R2 adds a dummy variable to control for adjacency (takes a value of 1 in the case of

countries with common borders) which, together with distant, helps to fully characterize the relative proximity between pairs of countries. The R3 regression incorporates, as another explanatory variable, the product of the countries' trade share in GDP. The aim is to capture the unilateral trade policies followed by the involved nations. Finally in R4 we add a Mercosur Dummy to evaluate the effect of the preferential tariff reductions implemented since 1991. We run the regressions for two selected years: 1987 and 1992. The dependent variables is bilateral trade flows between each Mercosur country and the rest of the world. All variables are in natural logs.

Starting with the results corresponding to 1992 (the last year for which we have information) we see that geography (distance) was an important determinant of bilateral trade for the Mercosur countries. Both distance and the dummy variable adjacency have the expected sign and are significant at 1% level. A similar result is obtained for the openness variable. The estimated coefficient for of this variable is, as expected, positive and significant. This is, of course, not surprising since if two countries' trade with the rest of the world raises, it is also probably that they will trade more with each other. What is less obvious is that the introduction of this variable in the regression raises the significance and the elasticity (response) of bilateral trade with respect to distance. That is, as we conjecture in the theoretical analysis of the last section, geography becomes a stronger determinant of (bilateral) trade once appropriate control is taken of the degree of unilateral openness of the economy.

The Mercosur dummy has the expected sign and it is significant. It is interesting to note that this happens even though this variable is closely correlated with Adjacency¹⁵. We conclude then that tariff preferences within Mercosur has had an independent and positive effect on regional trade. Nevertheless it is also clear that once geography and unilateral trade policies are taken into account, the effect of tariff preferences on bilateral trade is greatly moderated. These tariff preferences mean, on average, an increase in bilateral trade of only half percent point compare to the case were no control is taken for the existence of Mercosur.

We re-estimate all the regressions using data corresponding to 1987. The purpose of this exercise is to compare the results with those found for 1992. We chose 1987 because there are important aspects regarding trade policy that are different with respect to the trade policy present in 1992. First, Mercosur was not in place in 1987¹⁶. Second, unilateral trade liberalization --at least for the cases of Argentina and Brazil-- were not yet fully implemented in the region. The regressions results show that distance is still an important factor behind bilateral trade, though its relative importance seem to be somehow reduced compare to 1992: the adjacency variable is

15 Actually out of 19 observations corresponding to adjacency, 10 are in common with the Mercosur variable.

16 Nevertheless some timid trade negotiations were being negotiated with Brazil on a sectoral basis.

not significant in 1987. This result is consistent with the theoretical model presented in section 3 where higher tariffs reduced the importance of geography as a determinant of bilateral trade. In addition, the Mercosur dummy has no significant effect on trade in 1987, further confirming that at that time geography was not an important determinant of trade flows as it was in 1992.

5. CONCLUDING REMARKS.

Latin America experience with trade liberalization since mid-eighties has been accompanied by a strong increase in regional exchange of goods and services. This phenomenon was particularly important for the countries belonging to Mercosur. Throughout the paper we have tried to identify the reasons behind this phenomenon; both the theoretical analysis and the empirical evidence suggest that unilateral trade liberalization couple with geography has been an important factor at work. Mercosur itself -with its tariff preferences- was also an element that contributed to raise trade within the area; nevertheless its quantitative importance is reduced once we control for the other variables.

The above findings are consistent with the idea that Mercosur constitutes a "Natural Block" (see Krugman (1991)(1992))¹⁷. Common borders, same cultural heritage, similar languages, etc., makes the cost of doing transactions among these countries low compare to extra-regional exchanges, and this will stimulate intra-regional trade. This evidence in favor of a "natural" association among Mercosur economies has a direct implication regarding the potential gains and costs of pursuing a trade integration scheme. In particular, under this scenario, tariff preferences would imply lower costs in terms of trade diversion.

17 For an application of the concept of Natural Block to the case of Mercosur see Garriga and Sanguinetti (1994).

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