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Endogenous Protection in Mercosul: an Econometric Analysis

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(Very preliminary draft, just for supplying information to the discussant)

1. Introduction

The existence of pressure groups and their role in the setting of trade policy is now fully recognised within the formal context of trade theory. Lobbies, in a more or less organised way, are at the heart of many protection measures and usually play a major role in the final outcome of preferential trade agreements. In the formation of a customs union, they will be active in the discussions of the schedule and exceptions regarding the initial establishment of the free trade area, and, after, in the settling of the common external tariff (CET). Most non-tariff barriers prevailing during the ‘long and winding road’ towards full implementation of the union will be easily associated to them. Given the inevitable impacts of the FTA and, subsequently, the customs union, lobbies will also claim for special subsidies – or structural funds – and will again be an important group in the design of structural adjustment programmes.

Mercosul offers an interesting ground for research on the role of sectoral lobbies, From the notorious *automotive* and *sugar* exceptions in the FTA, to the 829 exceptions to the CET in the Ouro Preto Protocol¹, the power of lobbies spread among the four members is evident. The situation is also aggravated by the macroeconomic imbalances between the four economies, which lead – as in the recent episode involving Argentina – to further exceptions where legitimate national interests mix with sheer protectionist moves. These same forces will be present in the negotiation of the European Union (EU) – Mercosul Free Trade Agreement, and a deeper knowledge of them may help in the design of the negotiating strategy. Moreover, strengthening of Mercosul will sooner or later require a minimum common structural adjustment policy. For a conscious setting of such a policy, this knowledge is also mandatory.

This work tries to link insights from the endogenous protection approach in the case of Mercosul, to what one should anticipate as protectionist cores in the ongoing Mercosul negotiations. Initial considerations of which sectors, from this analysis, could qualify for a legitimate structural adjustment initiative are also made.

The paper is structured as follows. Section two presents some basic facts regarding the overall protection structure in Mercosul. Section three reviews the main ideas of endogenous protection models and discusses in more detail the one which will guide our considerations. Section four describes the key model results, while section five deals with their consequences. Section six concludes.

2. Protection in Mercosul: Basic Facts on Internal Trade Liberalization and the Common External Tariff

Article 5 of the Treaty of Asunción set out the agreed Trade Liberalization Programme for the FTA. Between June 1991 and December 31, 1994, barriers to trade among Mercosul partners covering close to 95 percent of intra-regional trade were eliminated. An adjustment regime, agreed in August 1994, led to a progressive phase out of the remaining tariffs on intra-regional trade. Sensitive items, contained in individual exceptions/adjustment lists, were supposed to be phased in between January 1, 1995 and December 31, 1998, for Argentina and Brazil, and between January 1, 1996 and December 31, 1999 for Paraguay and Uruguay. The main list of goods covered is

¹ Namely, 232 for Argentina, 175 for Brazil, 210 for Paraguay and 212 for Uruguay.

not extensive, though comprising (sensitive) agricultural as well as industrial products, and is estimated to cover 5 percent of intra trade. However, this does not include the exceptions made for sugar or automobiles, the latter being of particular importance in the Argentina-Brazil trade.

Mercosul's Common External Tariff (CET) has been in force since January 1995, covering 85 percent of the goods traded within the group. During a transitional period, sensitive sectors have also been excluded, there existing common and national lists of exceptions to the CET. The common list includes items such as capital goods, informatics and telecommunication products. The national lists allow Argentina, Brazil and Uruguay to have 300 (national) exceptions to the CET while Paraguay is entitled to 399 exceptions. Full implementation of the CET is to take place by 2006. However, already in December 1997, a temporary increase of the CET by 3 percent points on most tariff items was agreed on, in order to accommodate Brazil's external imbalance and allow Argentina to reduce the levels of its statistical tax. Since then, the normal schedule of the CET has received several 'shocks' of this kind, the most recent one being related to the March/April 2001 Argentinean crisis.

Besides their national lists of exemptions, each country has its own special *concessionary régimes*, where the rates may be reduced below the scheduled values. Examples are investment items and the temporary admission of goods to be re-exported. These régimes will be consolidated into a common Mercosul set of rules (see, for instance, Laird (1997)).

As regards non-tariff measures, safeguards were regulated in Annex IV of the Asunción Treaty, following the guidelines laid down in Article XIX of the GATT. Actions against third countries may be taken by Mercosul as a group or on behalf of a single member; safeguard actions by one member against another are forbidden. Concerning antidumping and countervailing measures, there is no agreement yet. Though supposed to remain in force until December 2000, these actions have not been eliminated yet. A set of common rules on the Defence of Internal Competition² – which, among other things will replace the commercial defense measures – will in principle be approved still this year. Berlinski et al. (2000) is a rather informative study on other non-tariff barriers still prevailing.

[to be continued ...]

3. Endogenous Protection: The Models

3.1 Basic ideas

Political economy explanations of trade policies are important in order to understand the structure of trade protection that arises not only in a particular country but also in international agreements. Not only the structure of Mercosul's CET committed to by its members may be explained from a political economy viewpoint. Deviations from it - as well as from free trade among members, though lasting for a transitional period - reflect a *protection* beyond that underlying the agreed structure, and should also be analysed from a political economy approach.

Olarreaga and Soloaga (1998) – and, later, Olarreaga et al. (1999) - provided empirical evidence about tariff formation in Mercosul, by focussing on seven predictions of the correlate of expected cross-sectoral variation in tariff formation. These predictions – in a partial equilibrium context, where protection is estimated by incorporating explanatory variables additively - were based not only on theoretical frameworks but also on empirical grounds.

Calfat et al. (2000), departing from the partial equilibrium analysis, considered alternative general equilibrium formulations, inspired in the series of models developed by Grossman and Helpman (1994, 1995a, 1995b, 1996) for analysing the settling on of trade policies in representative democracies (see also Helpman (1995)). Indeed, Grossman and Helpman (1994) built a general equilibrium model in which governments are concerned both with campaign contributions and with the welfare of the average voter, and there exists a set of organized special-interest groups that care only about the welfare of their members and exchange contributions for protection. The interaction between the government and the set of interest groups results in the structure of protection. Taking this approach as the basis of their specifications, Calfat et al. (2000) extended it in different ways in order to analyse the structure of protection in Mercosul. The idea of their work is summarized below.

3.2 A basic model

² See Rowat et al. (1997) for background information on competition policy in Mercosul.

Grossman and Helpman (1994) pursue a line opened by works like Hillman (1982)'s, and can be viewed as a two-stage non-cooperative game in which interest groups move in the first stage, offering political contribution schedules that depend on their policy stance, while the government chooses, in the second stage, a policy maximizing a political objective function that depends on contributions and the well-being of the average voter (see also Mayer (1984)). The model has the structure of a common agency problem: several principals, the special interest groups, attempt to induce a single agent, the government, to take an action that may be costly for him to perform.

The formal framework considers a small and competitive economy, integrated by individuals with identical, completely additive preferences on $n+1$ goods, the last one serving as numeraire. For each good i the sub-utility function is differentiable, increasing and strictly concave; and the derived demand is $x_i = d_i(p_i)$. The indirect utility at expenditure level E and a vector p of domestic prices takes the form $V(p, E) = E + s(p)$, where $s(p)$ is the consumer surplus.

The numeraire good is produced with a labour input-output coefficient equal to one, so that the wage rate is also one. Non-numeraire goods are produced from labour and sector-specific inputs. With constant returns to scale and the wage rate equal to one, the aggregate reward to sector's i specific factor, $\pi_i(p_i)$, depends only on p_i .

The government implements trade taxes and subsidies, introducing a wedge between domestic and world prices. If a domestic price p_i exceeds the world price p_i^* , an import tariff for a good that is imported or an export subsidy for one that is exported, is implemented. Conversely, domestic prices below world prices correspond to import subsidies or export taxes. Government revenue is distributed in a lump-sum fashion.

The government cares about total political contributions and aggregate welfare. The government's linear objective function is

$$G(p) = \sum_{i \in L} C_i(p) + aW(p) \quad a \geq 0 \quad (1)$$

where:

a is the government's sensitivity to the average voter's well-being relative to its taste for campaign contributions: it can be thought of as the *absolute* weight given to one peso (or real) of welfare against one peso of political contributions;

$C_i(p)$ is the political contribution of the (existing) lobby in sector i , given domestic prices p ;

and $W(p)$ is the aggregate welfare, equal to the sum of the indirect utilities of all individuals. Considering that aggregate income is the sum of labour income, rewards to the specific inputs and tariff revenue, it can be written as:

$$W(p) = l + \sum_{i=1}^n \pi_i(p_i) + N[r(p) + s(p)] \quad (2)$$

where $r(p)$ is the tariff revenue received by one voter/consumer, N being the number of consumers.

An existing lobby, in sector i for instance, tailors the schedule of contributions to maximise the total welfare of its members. The joint welfare is $V_i = W_i - C_i$, where W_i is their gross-of-contributions joint welfare, which is an immediate adaptation of (2) above:

$$W_i(p) = l_i + \pi_i(p_i) + \alpha_i N[r(p) + s(p)] \quad (3)$$

where l_i is the labour income and α_i the fraction of population who owns (some of) the specific input used in industry i .

Grossman and Helpman consider that the interaction between the government and lobbies has the structure of a menu-auction characterized by Bernheim and Whinston (1986).³ The equilibrium outcome for this structure is the same as that from maximizing the joint surplus

$$\Omega = aW + \sum_{i \in L} W_i = a \sum_{i \in L} W_i + (a+1) \sum_{i \in L} W_i \quad (4)$$

In equilibrium, *truthful contribution schedules* induce the government to behave as if it were maximizing a social-welfare function that weights differently the members of society. Lobby groups receive a weight of $1+a$ and individuals that are not organized receive a smaller weight of a . Instead of looking at a , it is sometimes preferable to make in (1)

$$a = \beta/(1-\beta), \quad 0 \leq \beta < 1 \quad (5)$$

³ See also, for modern extensions, Dixit et al. (1997).

so that β is now the relative weight given to consumers' welfare, while $1-\beta$ that given to the lobbies.

Operating in equation (4), mathematical conditions eventually lead to the following final equation, where m'_i is the derivative of sector i 's import function $m_i = Nd_i(p_i) - y_i(p_i)$, and $y_i(p_i)$ stands for total output for good i , $1 \leq i \leq n$:

$$(p_i - p_i^*) = \frac{I_i - \alpha_L}{a + \alpha_L} \frac{y_i(p_i)}{-m'_i} \quad , \quad (6)$$

that gives the structure of protection.

Variable I_i is an indicator, taking value one when the group is organized and zero otherwise, $I_i = \begin{cases} 1 & \text{if } i \in L \\ 0 & \text{otherwise} \end{cases}$. The parameter $\alpha_L = \sum_{i \in L} \alpha_i$ characterizes the share of voters who own specific factors and manage to organize themselves in lobbies.

Formula (6), which is the point of departure of all econometric work, may be expressed in terms of the import elasticity e_i and the import penetration ratio z_i . Knowing that $p_i = p_i^*(1 + t_i)$, where t_i is the ad-valorem tariff rate, and given that the trade elasticity is $e_i = -\frac{m'_i}{m_i} p_i$ and $z_i = \frac{y_i(p_i)}{m_i(p_i)}$, it can be rewritten as

$$\frac{t_i}{1 + t_i} = \frac{I_i - \alpha_L}{a + \alpha_L} \frac{z_i}{e_i} \quad . \quad (7)$$

This equation represents the political equilibrium described in Grossman and Helpman (1994)'s Proposition 2. Industries that have high import demand or high import supply elasticities will have smaller ad valorem deviations from free trade. This may be explained by two reasons. First, if $a > 0$ the incumbent government may bear a political cost from creating deadweight loss. Second, even if $a = 0$, if $\alpha_L > 0$ the owners of specific inputs to industries other than i will bid more to avoid protection in sector i the greater the social cost of that protection is.

Proposition 2 also shows that all sectors that are organized are protected by either an import tariff or export subsidies. Conversely, sectors that are not represented

by lobbies are burdened with import subsidies or export taxes. The political power of a particular organized sector is reflected by the ratio of domestic output to imports. In sectors with large domestic output, the specific-factor owners may have much to lose from free trade. On the other hand, when the volume of imports is low, the economy has relatively little to lose from protection.

The smaller the weight the government places on aggregate welfare, the larger in absolute value all trade taxes and subsidies will be. If $a = 0$, an interior solution remains possible due to the fact that the interest groups themselves do not want too much distortion. As the share of voters who are members of one interest group or another grows, the equilibrium share of protection for organized sectors declines. When all voters belong to an interest group ($\alpha_L = 1$) and, consequently, all sectors are represented ($I_i=1$ for all i), free trade emerges in all markets as the various interest groups neutralise one another. If interest groups are a negligible fraction of the voting population ($\alpha_L \cong 0$), then no trade taxes or subsidies will be applied to goods not represented by lobbies. Indeed, when the potential political contributions are too few, they stand little to gain from free trade interventions in sectors other than their own.

The model above corresponds to the analysis of one country. In the case of Mercosul, it would be correct to use an approach where more than one country set trade policies cooperatively. Grossman and Helpman (1995a) have extended the influence-driven contribution approach to a situation in which two countries design trade policies cooperatively. The outcome is revealed in the ratio of domestic country tariff to foreign country tariff. The equation of the ratio tells that, relative to free trade, the negotiated trade agreement favours the interest group that has greater political clout between the two countries. Hence, the model explains deviations from common external tariffs and from free trade rather than the structure of common external tariffs. Moreover, the specification of such models with more than two countries turns out to be very difficult and complicated.

Finally, Grosman and Helpman (1995b) introduce the possibility of industry exclusions from free trade, when establishing a free trade area. This concept is extended here for the exclusion from the CET.

3.3 Model extensions

Equation (7) applies to the case of a small country, internally designing its trade policy. Mercosul negotiations involve – directly or indirectly – interactions of the lobbies in the four member countries, thus requiring further assumptions and extensions. We consider the two cases where the simultaneous interaction is relevant: the establishment of the common external tariff and the national deviations from the CET. Deviations from internal free trade within member countries – with the exception of certain temporary exceptions – are practically concentrated in the automotive and ‘sugar’ sectors (beyond taking place mostly under non-tariff barriers), and will not be tackled here as no additional information would come from the modelling effort. Our specifications will broadly consist in additive extensions of (7).

Following already standard practices, Goldberg and Maggi (1999), in equation (7) the error term is introduced additively; as it can be thought of as a composite of variables that potentially may affect protection and have been left out of the theoretical model, and also as an error in the measurement in the dependent variable. Besides, the import demand elasticity is brought beforehand to the left hand side (lhs).

The model to estimate Mercosul’s common structure of protection supposes that four equations like (6) are “behind the negotiations”, one for each member. Supposing identical import elasticities (by country/member)⁴, final establishing of the CET implies that the lhs of the four equations will be the same. We shall write this term as if resulting from a weighted average of the four original equations, giving rise to the following aggregate CET equation (8):

$$\begin{aligned} \frac{t_i^{CET}}{1+t_i^{CET}} e_i &= \sum_{j=A}^U \theta_{ij} \frac{I_i^j - \alpha_L^j}{a^j + \alpha_L^j} z_i^j + \varepsilon_i \\ &= \sum_{j=A}^U \gamma^j \theta_{ij} z_i^j + \sum_{j=A}^U \delta^j \theta_{ij} I_i^j z_i^j + \varepsilon_i; \quad \gamma^j = \frac{-\alpha_L^j}{a^j + \alpha_L^j} \quad \text{and} \quad \delta^j = \frac{1}{a^j + \alpha_L^j} \end{aligned}$$

Equation (8) expresses the structure of protection for the union as whole, with each country entering additively in the formation of t_i^{CET} , the common external tariff

⁴ This assumption is not crucial and is neither the most debatable part of this extension. Moreover, in the empirical estimations, for lack of better data, the values of the elasticities were actually *the same* for all the four countries.

for good i . Two options are available for the weights θ_{ij} . The first is to consider that, in spite of the clear size differences, in the negotiating table, Mercosul – like the EU – gives the same importance to all its members, the CET being the result of reasonably balanced negotiations. This makes for setting all $\theta_{ij} = 1/4$. The other, as suggested by Cadot et al. (1997) and used by Olarreaga and Soloaga (1998), is to consider that size matters in the negotiations and weight the countries differently by setting the θ_{ij} equal to the ratio of the country's domestic output to total Mercosul output for sector i .

The political power of each country, in an organized sector, is reflected by the ratio of domestic output to imports; equation (8) shows that the domestic political environment constrains the actions that the governments can take regionally and that regional interdependence (additively) sets the final parameters. The weighted sum of the political variables of each country makes the CET dependent on the power of all lobbies in the integration and the structure of protection determined by their interaction.

Equation (7) implies that, for each country j ($j =$ Argentina, Brazil, Paraguay and Uruguay), $\gamma^j < 0$, $\delta^j > 0$ and $\gamma^j + \delta^j > 0$. These sign relationships should continue to be valid in the aggregate relationship (8). Moreover, knowledge of γ^j and δ^j allows to compute three key parameters of the model: the fraction of voters represented by lobbies,

$$\alpha_L^j = -\gamma^j / \delta^j \quad , \quad (9)$$

the (absolute) weight that the government gives to consumers' welfare,

$$a^j = (1 + \gamma^j) / \delta^j \quad , \quad (10)$$

and, from (5) and (10), the relative weight:

$$\beta^j = (1 + \gamma^j) / (1 + \gamma^j + \delta^j) \quad . \quad (11)$$

The z_i^j variables, representing the ratio of domestic output to imports by each member, are clearly endogenous. A reduced form specification

$$z_i^j = \frac{y_i^j}{m_i^j} = \xi Z_i^j + v_{ii}^j \quad ,$$

where the elements in vector Z_i^j are variables such as the number of employees, capital and industry concentration indexes (see Goldberg and Maggi (1999)), is needed.

When the deviation from the CET is examined, the quantity $p_i = p_i^* (1 + t_i)$ may be looked at as the “new world price”, so that, in a given country, the lobby in sector i would be fighting for an additional tariff revenue, per unit of import, equal to

$$p_i^*(1+t_i^{ET}) - p_i^*(1+t_i^{CET}) = p_i^*(t_i^{ET} - t_i^{CET}) \quad (12)$$

where t_i^{ET} is the deviant external tariff.

Moreover, we suppose that for setting rates different from the CET, domestic lobbies will have to face the interests of the other member's lobbies, not necessarily identical to theirs. In sectors where producers/owners are similarly organised in the four countries, obtaining the deviation will require an effort like in (9), but if the combined lobby structure of the other partners differs substantially from the domestic one, it might either be easier or more difficult to get the overprotection. The above considerations lead to modify (9), for each country j , into:

$$\frac{t_i^{ET} - t_i^{CET}}{1 + t_i^{CET}} e_i^j = \gamma^j z_i^j + \delta_1^j I_i^j z_i^j + \delta_2^j (I_i^j z_i^j - \sum_{j'} \theta^*_{ij'} I_i^{j'} z_i^{j'}) + \varepsilon_i \quad (13)$$

The correction in the lhs answers for the incremental character of the negotiation, and comes from (12). The term added to the rhs

$$w_i^j = I_i^j z_i^j - \sum_{j'} \theta^*_{ij'} I_i^{j'} z_i^{j'}$$

tries to account for the interaction with the other members' lobbies. If $w_i^j > 0$, the domestic lobby is supposed to be “more powerful (or aggressive)” than the combined others, this meaning that it will be more difficult to win the overprotection, as it will find less support for this in the other members. If $w_i^j < 0$, the reverse applies, and an extra support for its claims will come from the other members. Finally, $w_i^j = 0$ makes the negotiation identical to the situation in (7).

Overall, governments – here, a common Mercosul authority - may consider the deviations from the CET, allowed during the so-called adjustment periods, as a way to make the agreement palatable to opposing interests. It seems reasonable to suppose that, in their decision making, they will judge each domestic claim against the situation

prevailing in the rest of Mercosul. The interaction between $I_i^j z_i^j$ and w_i^j tries to capture this.⁵

Weights θ_j^* are, now, the ratio between country j 's output in sector i and the total output, for the same sector, of the three "outside" countries. From the previous discussion, we expect that $\delta_2^j < 0$. We also expect that the other coefficients guard their usual signs, though there are really no theoretical grounds to sustain this. It seems more reasonable to claim that only δ_1^j should be positive.

There are four equations equal to (13) (and, of course, the four reduced forms for the z_i^j); together, they represent the '*over-protection*' by each country, i.e., the one beyond that already existing in the bloc against the rest of the world.

The fact that several goods were excluded from the elimination of internal tariffs within Mercosul shows that their sectors have political power in the determination of tariffs and could perhaps also be explained in the above lines. These interest groups receive protection not only with regard to the rest of the world through the CET but also within the bloc and, as mentioned above, the exclusion of sectors over long periods of adjustment may make an agreement politically viable.

4. Data and Econometrics

The data used refer to the four members: Argentina, Brazil, Paraguay and Uruguay. Though it is arguable whether Paraguay should be included, due to the lesser reliability of its trade statistics and the small magnitude of several observations, we decided to incorporate it in order to have a full picture of Mercosul.

The basic data file is the same used by Olarreaga and Soloaga (1998). They aggregated tariffs and trade data up to the eight-digit level of the harmonized system. These were then converted to UNIDO's three digit level, as industrial data for Mercosul countries came from UNIDO's three digit database. We shall now briefly discuss each of the variables in the model.

⁵ Of course, other kinds of interactions are possible, and further exploration of this is needed. It might also be argued that (economic) size matters in this case and we are not accounting for it. Indeed, exceptions were granted to Paraguay, for instance, under these grounds.

Protection measures

Tariffs are used to measure protection. Import-weighted or simple average tariffs were considered, covering the 27 sectors which make the three-digit aggregation level. It would have been more correct to include non-tariff measures as well, in the structure of protection. These are applied by Mercosul members, Argentina, for instance, having quite frequently used this instrument against Brazil.

The fact that non-tariff measures are not considered underestimates the structure of protection; however, given the problem in combining tariff and non-tariff barriers in a single index, this was left for a future improvement.

Elasticities

Though estimates of trade elasticities exist, in different aggregation levels and for varied periods and scenarios (see, as an example, Braga et al. (1988) and Zini (1988) for Brazil), we did not find a homogenous set, referring approximately to the same date. Following other authors, we took Shiells et al. (1986) estimates of US import demand elasticities at the industry level as proxies to the Mercosul countries's elasticities. As Goldberg and Maggi (1997) do, the import demand elasticity of good i , e_i , is brought to the left hand side of the estimating equation to consider a measure of error in the elasticities as a component of the measurement error of the dependent variable. Export supply elasticities are not considered in the analysis due to the impossibility to obtain reliable data on them.

Political organization dummies and the import penetration ratio: Where are the lobbies ?

All the analyses are deeply dependent on how the organized industries/lobbies are identified. This is a crucial feature of Grossman-Helpman inspired specifications that has also been highlighted in other studies (see ...).

In principle, one should be able to identify the lobbies by looking at the contribution level of the respective group. However, data on contributions are not available for Mercosul countries, as these practices in the Southern Cone differ substantially in form from their equivalent ones in the US⁶. Olarreaga and Soloaga (1998) used an industry concentration index to infer which sector is an organized group. This index is calculated as

⁶ The same applies to the EU countries, where also information on lobbies contribution is not available; such practice being even illegal in certain contexts.

(number of firms in the whole economy)/(number of firms in sector i) .

If concentration is high, the free riding incentives could be solved and firms might form a lobby. A political organization dummy can then be constructed somewhat arbitrarily, considering a value of 1 whenever the index is above a threshold of 50 – which represents 2 percent of the total number of firms in the economy -, and setting otherwise the dummy to zero. This leads to a few awkward results, partially due to the aggregation level used; the most conspicuous being a zero for the transport material sector. Also, for sectors such as beverages (ISIC 313); textiles (321); wearing apparel, except footwear (322); footwear, except rubber or plastic (324); furniture, except metal (332) and printing and publishing (342), which present a low index of concentration, there exists the suspicion that, in some of the four countries, they overcame the free riding incentives and bid for protection.

Combining the concentration index with other measures that might suggest the possibility of lobby formation to arrive at an alternative identification of the endogenously protected sectors - in which several sectors are not considered as pressure groups for the structure of the external tariff in Argentina (322, 332, 342), Brazil (321, 342), Paraguay (313, 321, 322, 332, 342) and Uruguay (321, 324, 332) - significantly improved one set of results. In the analysis considering this alternative specification of the lobby representation dummy, the Argentinian δ_i becomes significant at 10%, and the one for Paraguay changes to the “correct” sign, though remaining not significant⁷.

An additional insight can in principle be gained by looking at the import penetration ratio. However, this is perhaps the worst measured variable in our model. The reason may be that the numerator and denominator come from different statistical sources, raising the suspicion that the different measurement errors may sometimes oddly combine in the ratio.

The “lobbies dummy” can be improved by using a probit model in which the estimated probit values are themselves used instead of the 0,1 values. For this ...

A few points on the econometrics

Model (8) is a one-equation system, while model (13) is a four-equations system. In both cases there are 27 observations and variables z_i^j - or $z_i^j *$ - are considered as endogenous, i.e. correlated with the shocks in the model. To solve this problem, a reduced form where the import penetration ratio is written as a function of exogenous

variables that may indirectly affect protection was estimated. Following previous empirical exercises like Goldberg and Maggi (1999), we started by considering as exogenous variables the number of employees, capital and the industry concentration index. With the exception of Brazil, the fits were not very good. A main reason for this is the fact that the output-import ratio, for all countries but Paraguay, has a very skewed distribution, with one or two values for each country standing as true outliers. We then expanded the set of “exogenous” and, in model (13), removed an “outlier sector” from the Argentinian data.

When estimating the systems, we took also into account the correlation between the shocks for the same sectors in different countries, what, taking into account the previous estimation of the output-import ratio, amounts to using the three-stage least squares technique. Moreover, heteroskedasticity corrections were also employed. Finally, all equations were estimated without a constant, so that care must be taken in the interpretation of the R^2 in all tables with the results.

Improved estimation results were obtained with the GMM estimator. In this case,

...

[to be continued]

5. The Key Results

Table 1 reports the coefficients of the trade protection equation (8), corresponding to the uniform weighting case, which proved superior to the proportional one. This might signal that, *for establishing the CET, the four members had a balanced influence.*

The signs and the t statistics of coefficients γ and δ for Brazil and Uruguay are significant and consistent with the model. But for Brazil's γ , all the other estimates are statistically significant at the 5% level. The other implication of the Grossman-Helpman model, $\gamma + \delta > 0$, is also statistically confirmed, at the 10% level, for the same two countries. Estimates for Paraguay present sensible signs, but are not statistically significant. The odd result concerns Argentina, with significant but reversed sign coefficients; their sum, however, is statistically accepted as positive at 10%.

⁷ Both parameters refer to Table 2 results.

For the countries with wholly significant results, the values of β and α_L were computed:

$$\alpha_L = 2/3 \quad \text{and} \quad \beta = 1.000 \quad \text{for Brazil}$$

$$\alpha_L = 0.86 \quad \text{and} \quad \beta = 0.999 \quad \text{for Uruguay} \quad .$$

These values indicate that lobbies are perhaps more present in Uruguay than in Brazil, though both governments give a negligible weight to them in setting trade policies. The first point seems reasonable: the small dimensions of the Uruguayan economy make it easier to get producers with similar interests together; as for the second, it might mean that, at the aggregation level we are working, strong lobbies – like the automotive sector – are diluted within the bigger industry.

Table 1: Estimation of the Common External Tariff model

	Coefficient	t-Statistic	Prob.
γ^A	23.5E-5	2.318	0.022
δ^A	-21.4E-5	-2.325	0.022
γ^B	-1.2E-5	-1.676	0.010
δ^B	1.8E-5	2.185	0.031
γ^P	-2.0E-5	-0.543	Ns
δ^P	3.1E-5	0.820	Ns
γ^U	-39.5E-5	-2.432	0.016
δ^U	45.9E-5	2.500	0.016
R-squared	0.56		

The findings broadly support the model predictions, with politically organized sectors clearly receiving more protection from Brazil and Uruguay. The structure of the CET is thus the combined result of the pressure of sensitive sectors that ask for protection in each of the member countries. When sector i is organized in all countries of the agreement, the power to obtain protection from the rest of the world is enforced and a high common external tariff may be imposed. Conversely, when organization differs within the Mercosul, the various interest groups are less able to bring together their power at the negotiating table.

Table 2 reports the results on the deviations from the CET. The signs of the δ_2 coefficients are all consistent and significant. The estimated γ 's are also all negative and, but for Paraguay, statistically significant. The estimated δ_i 's are positive for Argentina,

Brazil and Uruguay, but significant only for Brazil. These findings indicate a clear interaction between the domestic lobbies in the bidding for the exceptions to the CET; however, only in Brazil the expected structure of protection is wholly significant, the model finding a weaker support in Argentina and Uruguay and almost none in Paraguay. Though the signs of the coefficients in Argentina and Uruguay are as expected, the “domestic lobby coefficients” are not statistically significant. This raises the suspicion that a different structure of internal lobbies might bid for protection beyond that one obtained in the CET. In fact, some sectors may want to form a pressure group to influence the design of the CET but may not be interested in influencing the structure of deviations from it.⁸

This second specification of the external tariff model shows that the power of the interest groups to bid for protection was also present in the deviations case, at least in one of the four countries that make up Mercosul: Brazil. Organized interest groups having much to lose with the agreement obtained protection from the government of their respective country. Notwithstanding, this *over-protection* in some sensitive sectors happens during a transitional period, as all members must converge to a common external tariff.

Table 2: Estimation of the External Tariff Deviations model

	Coefficient	t-Statistic	Prob.
γ^A	-1.43E-6	-2.066	0.050
δ_{1A}	2.82E-6	0.681	Ns
δ_2	-1.31E-6	-3.600	0.000
R-squared	0.37		
γ^B	-2.20E-6	-1.931	0.069
δ_{1B}	2.57E-6	1.823	0.084
δ_2^B	-0.52E-6	-1.960	0.065
R-squared	0.28		
γ^P	-3.44E-6	-0.448	Ns
δ_{1P}	-0.27E-6	-0.491	Ns
δ_2^P	-0.65E-6	-2.090	0.044
R-squared	0.12		
γ^U	-0.26E-6	-1.712	0.010
δ_{1U}	1.91E-6	0.289	Ns
δ_2^U	-0.35E-6	-2.980	0.000
R-squared	0.49		

⁸ The cost of bidding for protection could then be greater than the benefit from it.

It is important to note that the deviations are not positive in all countries. Paraguay and Uruguay will converge upwards to the CET in several sectors. In these small and relatively more open economies, organized sectors may fail to obtain protection due to the fact that their ratios of domestic output to imports are low. As Grossman and Helpman (1994) explain, if the share of voters belonging to an interest group is high, the equilibrium share of protection for organized sectors is low: the various interest groups neutralize each another. Interest groups with a low ratio of domestic output to imports, which – in the model - represents their power, fail to obtain protection with a relatively high α_L . This seems to be the case of Uruguay, whose estimated α_L was equal to 0.86.

Summing up, Brazil stands out as the most consistent country, in terms of the uniformity of its lobbies in both situations analysed. Though the government attaches considerable weight to social welfare, protection arises in the external tariff structure of Mercosul. The multiplicity of lobby representations in the country is not so high as to neutralize the power of the interest groups that stand to lose. It is however telling the much lower value of its coefficients, signalling that the resultant protection is lower than in the other members – what is indeed true in the case at stake. In fact, all members deviate from free trade in only few sectors. Brazil deviates in 3 of the 27 (aggregate) sectors that are being considered; Paraguay and Uruguay deviate in a greater percent than Brazil and Argentina but the deviations represent less than 5 percent of the total tariff lines.⁹

The pattern of protection in Mercosul, through the CET and its deviations, is quite consistent with the basic predictions of the theory. Explanation of specific protection in Uruguay seems however different; though the degree of lobby representation and the relative weight of social welfare are high, protection exists. The reason must lie in the fact that there are important sectors that are not organized. The case of Argentina deserves further thoughts. A possible cause for the odd signs found for its coefficients might lie in the serious dismantling of the industrial structure during

⁹As Olarreaga and Soloaga (1998) indicate, in 1996 deviations from internal trade only corresponded to 0.2 percent of total lines for Brazil, 2.5 percent for Argentina, 3.3 percent for Paraguay and 4.4 percent for Uruguay.

the high inflation years and even beyond, after the 1991 stabilisation plan (see also WTO (1998)).

Results are much improved when use is made of the GMM technique in the lines described in the previous section. Tables 3 and 4 show ...

6. Impacts

6.1. The Mercosul Negotiations.

If agriculture is going to be a tough area for concessions from the EU and the US (in the FTAA), it is not clear that Mercosul – at least as regards dairy products – will present a clear free-trade stance in this same sector. Moreover, the inconclusive findings for Argentina, in the models tested above, signal that very likely there will be co-ordination problems in its side, due to a misalignment between the Argentinean interests in one side and the Brazilian and Uruguayan ones in the other. This possible *impasse* may be overcome by a co-operative attitude by the last two members as regards the special Argentinean interests in temperate agriculture exports, something that neither for Brazil (because, at least, a less competitive output in this sector) nor for Uruguay (mostly because of the sheer size of its exports) will be a crucial issue. It is somewhat worrying that, until now, no efforts to build up a coherent, joint position – given these conflicts – have been made.

At the same time, the results also signal to problems in the manufactures sectors, where Brazil stands as the one most likely to adopt a more protectionist attitude. Again, an understanding with Uruguay – given the more structured global pattern of its lobbies in this area – seems more feasible than with Argentina. A possible strategy here would be to fix common positions sector by sector. If the new automotive regime – not entering in its merits or mistakes – is a good start for a common foreign strategy in this sector, different problems may complicate the dynamics in other sectors. On one hand, traditional or labour intensive industrial sectors, like shoes or steel products, where the lobby dummy was one for the three main members may have a common market access interest that will help in building up a single negotiating strategy. This, on the other hand, may face opposition or delaying strategies from the other partners. In the case of the EU, given the need to grant full access to similar sectors in the Eastern European

economies and the accommodation problems this has been causing already¹⁰. Depending on the EU reaction in the negotiations, those original Mercosul coalitions may be weakened when forced to decide on the ‘less-than-ideal’ tariff levels. In the FTAA case, the US ...

Attention should also be given to the fact that, for other sectors, only one member will have real interests; something that, though more frequent for Brazilian manufactures, will also happen for specific goods from Argentina and, to a less extent, Uruguay as well. The aggregation level of the econometric studies allows to identify broad groups of such specificities, a more detailed analysis being needed for a negotiating strategy.

6.2. Implications for a Structural Adjustment Policy.

The need to start a serious structural adjustment policy in Mercosul encounters a serious obstacle in the diversity of protection structures revealed above. Leaving aside long-standing Paraguayan claims for a structural funds initiative, similar to the EU one, co-ordination of the four structures – where different government stances are also implicitly present – will be a major challenge. Moreover, any policy design will need to combine endogenous protection information as the one produced here with country studies of the changes in the economic performance of firms due to trade opening measures. Beyond scarce, these studies are not very conclusive for the Southern Cone. In a work in progress with Uruguayan data, Calfat et al. (2001) show, among other things, that: a) there was no (statistical) evidence that trade liberalisation brought gains in scale economies; b) there is a positive, significant effect of changes in the nominal rate of protection on output growth; c) the (linear) models tested showed that technological and market structure variables were more important than trade variables in explaining productivity growth¹¹. These evidences so far raise three important issues: the need for further studies on Uruguay, the need of similar studies for at least Argentina and Brazil, and, last but far from least, the dangers in basing a structural adjustment policy solely on the claims of the organised protection structure.

¹⁰ With less developed EU economies, like Portugal in the case of shoes, for instance.

¹¹ In spite of the fact that these two sets of variables interact with each other.

The previous remarks may suggest that the best option for starting something soon would be to adopt a sectoral approach. However, this runs the risk of quickly becoming a classical, subjective and narrow-minded industrial policy strategy, with so many distorting effects in the recent past of the four economies. Instead, beyond further intelligence on the two sides discussed, Mercosul needs to identify common sectors where either serious imbalances are present, or a common production/trade strategy would bring joint rewards for the region. Measures adequate for the former will be different from those for the latter, posing a further degree of complexity. At the present stage of this work, we favour that the former be treated in a national basis, leaving the latter as a *candidate* for a regional initiative. This seems further justified by the already mentioned lack of co-ordination still present in all the aspects of the problem.

7. Concluding Remarks

We considered in the formal analysis which is the background of this paper two of the three variables that explain protection: the political organization dummy and the ratio of domestic output to imports. Trade (import) elasticities were incorporated in a particular, less precise manner, and export elasticities were not used due to the absence of reliable estimates. Therefore, term-of-trade effects did not enter in the argument.

The estimations confirm that some sectors receive protection both through the CET and its deviations. The common external tariff model gives evidence on organised protection in Brazil and Uruguay. Furthermore, the deviations-from-the-external-tariff model supports protection to sensitive groups in Brazil.

Though in Brazil there is a relatively high degree of lobby representation, it is not so high as to neutralize the power of interest groups. Uruguay presents a different picture. With a higher degree of lobby representation, protection may be due to the fact that all sectors are not represented and the output/import ratio is very high for some of them.

An important empirical result has also been achieved: distinct patterns of protection arise, depending on whether or not a given sector is considered organised (in the model). In other words, the Grossman-Helpman approach is extremely sensitive to the definition of the “lobby sectors”. We also confirmed that the positive correlation between protection and the import penetration ratio (the inverse of the domestic output

to imports ratio), usually a key element in partial equilibrium analyses, applies only to the non-organized sectors; within organized sectors the correlation is negative.

The inconclusive findings for Argentina, in the models tested, signal to coordination problems in the agricultural negotiations involving Mercosul, due to a misalignment between the Argentinean interests and the Brazilian-Uruguayan ones. The results also signal to problems in the manufactures sectors, where Brazil stands as most likely to adopt a more protectionist attitude. Again, an understanding with Uruguay – given the more structured global pattern of its lobbies in this area – seems more feasible than with Argentina. Depending on the negotiations dynamics regarding traditional or labour intensive key Mercosul sectors, initially feasible coalitions may be weakened when forced to decide on the ‘less-than-ideal’ tariff levels. Attention should also be given sectors where only one member will have real interests.

The diversity of protection structures revealed raises also obstacles to settling a serious structural adjustment policy in Mercosul. Moreover, any policy design will need to combine endogenous protection information with country studies of the changes in the economic performance of firms due to trade opening measures. Beyond scarce, these studies are not very conclusive for the Southern Cone. The evidences so far call attention to the dangers in basing a structural adjustment policy solely on the claims of the organised protection structure. On the other hand, adoption of a sectoral approach runs the risk of quickly becoming a classical, subjective and narrow-minded industrial policy strategy, with so many distorting effects in the recent past of the four economies. At the present stage of this work, we favour that only sectors identified as strategic at the Mercosul level stand as *candidates* for a regional initiative.

[to be continued ...]

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