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THE CASE OF MERCOSUR**

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ABSTRACT

Endogenous Tariff Formation: The Case of MERCOSUR*

This paper confronts the results of the endogenous tariff literature with MERCOSUR (*Mercado Comun del Sur*, literally, 'the Common Market of the Southern Cone') evidence. It is shown that MERCOSUR's common external tariff (CET), and member countries' deviations from the CET and from internal free trade can be explained by sector/industry lobbying as predicted by the endogenous tariff literature. If political economy viability is a key to success, then MERCOSUR is here to stay.

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NON-TECHNICAL SUMMARY

The theoretical literature on the endogenous formation of regional trade agreements (RTA) has significantly expanded in the last years. The understanding of the political economy forces behind regionalism may help explain the move towards RTA around the world and the different forms that these agreements have taken. When it comes to policy recommendations, the understanding of the political economy forces is crucial if one wants to avoid sacrificing political economy stability for over-ambitious economic objectives.

It is an established fact that RTA allow for more far-reaching trade liberalization than multilateral trade negotiations. For example, the degree of intra-bloc liberalization of the European Union (EU) would never have been achieved if member countries had relied on multilateral negotiations. Conversely, as argued by Hoekman and Leidy (1992), the same forces that block far-reaching liberalization in the multilateral context, were also present in the creation of the European enlarged market. The understanding and identification of these forces allow member countries to set objectives that are not only economically reasonable, but also politically feasible.

Given that member countries are still in a transition period, the Common Market of the Southern Cone (MERCOSUR) appears an interesting case-study to examine the political economy forces behind regionalism. The Treaty of Asunción, signed in March 1991, established a framework to achieve a common market among Argentina, Brazil, Paraguay and Uruguay, by January 1995. This goal turned out to be too ambitious and the Ouro Preto Protocol, and other agreements signed in December 1994, led to a hybrid solution, which some authors have referred to as an 'incomplete customs union'. A common external tariff (CET) was established, but countries are allowed to deviate (upwards and downwards) in some tariff lines until the beginning of the next century. Neither has intra-MERCOSUR free trade been achieved. Overall, out of a total of 9119 tariff lines, around 30% are subject, in at least one member country, to either external deviations from the CET or internal deviations from free-trade.

This paper confronts the results of the theoretical literature on endogenous RTA formation with evidence from MERCOSUR. Does MERCOSUR's CET reflect sector/industry lobbying? Are member-country deviations from the CET and from internal free-trade consistent with the literature's predictions?

To answer the above questions, we used industrial and trade data, disaggregated for the 27 sectors of the ISIC-3 digit classification in the four member countries. We run three different regressions that explain: first, the formation of the CET (assuming cooperative behaviour as in Cadot *et al.*, 1996); second, deviations from the CET; and third, deviations from internal free trade. Explanatory variables were suggested by the theoretical and empirical literature on endogenous formation of trade policies, i.e. industrial concentration indices, capital/labour ratios, import penetration, etc.

Results show not only that the traditional results of the endogenous tariff formation literature are to a significant extent reflected in MERCOSUR's tariff structure, but also that 'new' results concerning the endogenous formation of RTA can be identified with MERCOSUR data. Thus, as predicted by Grossman and Helpman (1995), *trade creating sectors tend to be exempted from internal free trade*. And, as argued by Cadot *et al.* (1996), the CET in sector *i* mainly reflects the preferences of the member country that has the largest level of production in sector *i*.

Our empirical section thus suggests a positive answer to the above question. This, in turn, offers a clue to the potential durability of the MERCOSUR agreements. Obviously, tariffs and trade agreements are dynamic, and as such, subject to changes. But if today's MERCOSUR structure of protection and its expected evolution to the CET (and internal free trade) reflect private sector and average voter interests, then there will be fewer political challenges to MERCOSUR. In sum, MERCOSUR is apparently here to stay.

1 Introduction

It has been often advanced that the main advantage of Regional Trade Agreements (RTA) over Multilateral Trade Agreements (MTA) is that the former allow for more far-reaching liberalisation, though in a regional context. It has been suggested that the degree of intra-bloc liberalisation of NAFTA or the EC would have never been achieved if member countries had relied on multilateral negotiations. The rationale is that it is easier to agree in smaller groups. Though this seems theoretically valid, Hoeckman and Leidy (1992) have challenged this view on empirical grounds. They argued that the same political forces that block far-reaching liberalisation in the multilateral context are also present in regional negotiations and that the outcomes are relatively similar.

MERCOSUR appears as an interesting case-study to analyze the determinants of exceptions ('holes' in Hoeckman and Leidy's terminology) in RTAs. MERCOSUR was intended to be a full customs union ('common market' as specified in the Treaty of Asunción) by January 1995. This goal turned out to be too ambitious, and the Ouro Preto Protocol and other agreements signed in December 1994 led to a hybrid solution. A common external tariff (CET) was established, but countries were allowed to deviate (upwards and downwards) in some tariff lines until the beginning of the next century. Neither has, intra-MERCOSUR free trade been achieved. Overall, out of a total of 9119 tariff lines, around 30 % are subject, in at least one member country, to either external deviations from the CET or internal deviations from free-trade. Thus, an important set of 'holes' remains under the existing agreement, leading some authors to consider MERCOSUR as an 'incomplete customs unions'.

The aim of this paper is to confront the results of the theoretical literature on endogenous tariff formation with evidence from MERCOSUR. *Does MERCOSUR's CET reflect sector/industry lobbying? Are member-country deviations from the CET and from internal free-trade consistent with the literature's predictions?* The answer to these questions may give a clue to the potential durability of the MERCOSUR agree-

ments. Obviously, tariffs and trade agreements are subject to changes, but if today's MERCOSUR structure of protection and its expected evolution to the CET (and internal free trade) reflect private sector and average voter interests, then there will be fewer political challenges to MERCOSUR and therefore it may be politically viable in the long run.

To our knowledge, this paper is the first attempt to 'explain' empirically deviations from the CET and from free-trade within an RTA, as well as the structure of the CET, in the light of the recent findings of the theoretical literature on the endogenous formation of trade policy. Special emphasis will be given to these 'new' theoretical results in the empirical sections.

The paper is organised as follows. Section 2 describes MERCOSUR's tariff structure and deviations from the final objectives of internal free-trade and a common external tariff. Section 3 discusses the theoretical literature's predictions. Section 4 sets the empirical model to be tested and Section 5 focusses on the empirical results. Section 6 contains some concluding remarks.

2 Mercosur: some facts

The Treaty of Asunción, signed in March 1991 established a framework to achieve a common market among Argentina, Brazil, Paraguay and Uruguay, known as MERCOSUR. The region represents 75% of South America¹ GDP, 60% of its population and 65% of its surface. This makes MERCOSUR the geographically largest customs union (CU) in the world.² Its GDP per capita in 1994 was around US\$ 3800.

The relatively small size of member countries' national markets (Paraguay's GDP is smaller than the GDP of the canton of Geneva) was obviously an important factor calling for regional integration. On the other hand, MERCOSUR's internal market remains relatively small (around half of France's GDP) and MERCOSUR's governments

¹Excluding Guyanas.

²MERCOSUR's surface is almost 4 times larger than the European Union.

have often recognized the necessity of employing MERCOSUR's market as a tool to integrate member-country economies into the world economy and translated into an official commitment to further trade liberalization.³

Since the agreement was signed, intra-regional trade has increased at an average rate of 28.5 % per year which represents three times the rate of growth of the region total trade (and five times the rate of growth of world trade).⁴

Table 1 below gives the World Bank's rate of integration indicator for MERCOSUR. This indicator is calculated as the difference between the rate of growth of total trade and the rate of growth of GDP. It shows that MERCOSUR's member countries rate of integration to the world and to MERCOSUR was 10 times larger in the period 1991-1995 than in the previous decade, which tends to confirm that MERCOSUR has been a success from a volume-of-trade point of view.⁵ Note from the last column of table 1 that in absolute terms, the increase in the rate of regional integration has been twice as large as the increase in the rate of integration to the world. This may be explained by the fact that MERCOSUR members are 'natural trading partners'.⁶

TABLE 1 HERE

The Protocol of Ouro Preto and other agreements signed on December 1994 quantified objectives and completed procedures for establishing the customs-union aspects

³To illustrate this, note that MERCOSUR has signed free-trade agreements with Bolivia in December 1996 and Chile in October 1996. Bolivia cannot enter MERCOSUR as a full member since it has been a member of the Andean Pact (recently renamed Andean Community) since its beginnings. Chile which has an uniform tariff structure was not interested in adapting to MERCOSUR's non-uniform CET structure. In December 1995 a Framework Cooperation Agreement was also signed with the EC, which, among other things, is intended to lead towards reciprocal liberalisation of all mutual trade. Apparently, even China and Russia have approached MERCOSUR authorities to engage in bilateral trade agreements.

⁴Sources are from MERCOSUR secretariat (1996).

⁵The Treaty of Asunción established non-trade related objectives as macroeconomic and investment policies coordination, including free factor mobility. Cooperation in education and transport policies and consolidation of the democratic process in the region are also seen as important objectives. Moreover, as suggested by Schiff and Winters (1997), trade within MERCOSUR may also be seen as a tool to reduce regional tensions in the framework of the non-aggression pact signed by Argentina and Brazil.

⁶Natural in the geography sense; i.e., close neighbours. For an alternative explanation, based on internal/external tariff discrimination, see Yeats (1997).

of the proposed common market. A CET was negotiated for all products, but was implemented for only 75% of the total tariff lines in 1995. The remaining 25% includes mainly capital goods, computer products and telecommunication equipment, automobiles and sugar for which 'special regimes' have been negotiated. Linear convergence to the CET should be achieved at the latest by the year 2006 for telecommunication equipment; for sugar and automobiles there has been no agreement on final convergence dates. A list of other goods (maximum 300 tariff lines from a universe of 9119 (3.3%) for Argentina, Brazil and Uruguay and 399 (4.3%) for Paraguay) should also converge to the negotiated CET by the year 2000. Argentina's total deviations from the CET represent 16.9% of the tariff lines universe, 17.6% for Brazil, 23.0% for Paraguay and 21.0% for Uruguay. As the CET has been implemented for 75% of the tariff lines, it implies that most member country deviations from the CET occurred for the same items (essentially under the 'special regimes').

Deviations from the CET, however, go beyond the ones specified at Ouro Preto (i.e. 25% tariff lines). They include, just to name a few, dozens of special regimes allowing for tariff-free or tariff-reduced imports as part of several promotional schemes existing in the member countries. This is a result of preexisting preferences granted to other LAIA (Latin American Integration Association) members (except Chile and Bolivia, where recent agreements have regionalized concessions formerly granted by individual MERCOSUR countries), or the peculiar status of Manaus and Tierra del Fuego (tax-free areas) that has been preserved until 2013. To make things harder, there has been very little progress in applying a truly common external trade policy.⁷

⁷The textile sector illustrates the differences in this respect. In Argentina tariffs for over 600 textile tariff items are assessed employing "minimum specific duties" (resulting in specific duties for the lower price ranges and ad-valorem duties on the top of the price scales) which are under WTO examination, after the United States requested the establishment of a panel. In Uruguay, over 100 textile tariff items have their tariffs assessed using "precios mínimos de exportación" (resulting in a combination of variable levies, specific duties and ad-valorem tariffs, see Changanáqui and Messerlin, 1994 for an analysis of minimum export prices in Uruguay). Brazil, which had originally included a number of textile tariff items on a list of exceptions to the CET with duties up to 70%, has recently turned to the use of the special safeguard provision of the Textile Agreement (resulting in quotas for specific products from specific origins).

Moreover, a certain number of import quotas are still in place at the national level, in spite of the commitment taken in the Treaty of Asunción to eliminate quantitative barriers to trade⁸ or harmonise them when necessary as for example within the WTO Multi-Fiber Agreement. However, due to the lack of reliable data, this paper only analyses the Ouro Preto tariff agreements.

Internal tariffs (tariffs applied to imports from other member countries) preexist the Ouro Preto protocol under the list of exceptions of the Treaty of Asunción. Almost all other tariff lines outside the list of exceptions reached their Treaty of Asunción's target of free-trade on schedule at the beginning of 1995.⁹ The Ouro Preto protocol decided, under what has been renamed the 'adequation regime', that items in the list of exceptions should linearly converge to internal free-trade by the year 1999 for Argentina and Brazil and by the year 2000 for Paraguay and Uruguay. In 1996, Brazil's deviations from internal free-trade only corresponded to 0.2% of Brazil's total tariff lines, 2.5% for Argentina, 3.3% for Paraguay and 4.4% for Uruguay.

Table 2 reports average external and internal tariffs and the average CET for 1996 (simple averages of the whole and exempted universe and import-weighted averages). They tend to indicate that Argentina and Brazil are on average converging downwards to the CET whereas Paraguay and Uruguay are converging upwards to the CET. Paraguay and Uruguay simple average external tariff rates over their exempted universe are respectively 6.83% and 5.92%, whereas Brazil's reaches 21.39%.

TABLE 2 HERE

It seems important to note at this point the significant liberalisation effort that MERCOSUR's members have experienced in the last decade. In 1986, Brazil's average

⁸Article 5 of the Treaty of Asunción calls for "the elimination of non-tariff restrictions or equivalent measures". The elimination of quantitative barriers to trade is probably explained by the commitments taken during the Uruguay Round and not due to an endogenous political choice. However, for a discussion of the political choice of the means of protection see chapter 7 of Hillman (1989).

⁹See Laird (1997) for a discussion of tariff reductions between 1991-1995.

tariff was close to 80%, Argentina's 41%, Paraguay's 20 %, and Uruguay's 36%,¹⁰ whereas table 2 indicates levels between 8 and 14% for 1996. Internal tariffs are particularly low for Argentina and Brazil, when averages are calculated over the entire universe of more than 9000 tariff items. However, if one considers the averages over the exempted universe only, their level is close to 10% and reaches a high of 25% in Paraguay.¹¹

Figure 1 illustrates deviations from the negotiated CET in percentage points in Argentina, Brazil, Paraguay and Uruguay (which differ from the CET due to national exceptions) for the 27 sectors of the ISIC-3 digit codes.¹² Figure 1 shows that Argentina tends to deviate upwards for Wearing Apparel (322), Footwear (324), Furniture (332), Paper and products (341), Printing and Publishing (342), Plastic Products (356), Iron and Steel (371) whereas it is relatively close to the CET for the rest of the ISIC-3 digit classification. Brazil deviates upwards for Footwear (324), Plastic Products (356), Machinery (382), Electric Machinery (383) and Transport Equipment (384) and again remains close to the CET for the rest of the ISIC-3 digit classification. Paraguay deviates upwards for Wearing Apparel (322), Footwear (324) and Wood Products (331), and downwards for Machinery (382), Electric Machinery (383), Transport Equipment (384) and Professional and Scientific Equipment (385). Uruguay deviates upwards for Textiles (321), Wearing Apparel (322) and Non-metalic Mineral Products (369), whereas it deviates downwards for the same products as Paraguay.

- Figure 1 here. Deviations from CET

It is interesting to note the asymmetry between Brazil's deviations and Paraguay and Uruguay deviations for the last products of the ISIC-3 digit classification. Indeed,

¹⁰Source: Mendoza (1996).

¹¹Note that these internal tariffs may be subject to some discussion as suggested by an anonymous referee. Smuggling accounts for a large share of Paraguay's trade. Connolly et al. (1995) estimate that the unreported trade in Paraguay accounts for 58% of its total exports. However, the convergence to internal free-trade will reduce incentives in Paraguay for smuggling to its larger neighbours.

¹²A list of this classification can be found in appendix 3. Sources are discussed in the appendix 1.

Brazil is a relatively large producer of these products and deviates upwards from the CET whereas Paraguay and Uruguay are relatively small producers and deviate downwards from the CET. Not surprisingly, these products have been relatively sensitive in the MERCOSUR negotiations on the CET.¹³

Internal deviations from free-trade for the four member countries are illustrated in figure 2. Brazil's deviations are almost non-existent at this level of aggregation whereas Argentina, Paraguay and Uruguay have relatively high internal tariffs. Internal deviations seem to be more important for item 321 (Textiles) to item 341 (Paper Products) with a high of 9% for item 324 (Footwear) in Paraguay. Internal tariffs are also relatively high in items 371 (Iron and Steel) and 384 (Transport Equipment) in Argentina.

- Figure 2 here. Deviations from Internal Free Trade

In general, tariff levels may seem relatively low but note that these are simple average tariffs at a high level of aggregation (27 sectors). For example, using the 2-digit Harmonised system which includes 97 sectors, one obtains for Brazil an external tariff of 70% for Articles of Apparel and Clothing and 50% for Vehicles, Footwear and Preparation of Vegetables. Internal deviations from free-trade reach a high of 28 % for Vehicles in Argentina and for Articles of Apparel and Clothing in Argentina, Paraguay and Uruguay.

The remainder of the paper tries to "explain" member-country deviations from the CET and from internal free-trade, as well as the structure of the CET, in the light of the 'new' (and old) results of the theoretical political economy literature on endogenous tariff formation.

¹³This is illustrated by the fact that these industries mainly correspond to the sectors where 'special regimes' have been negotiated as automobiles, computer products, capital goods, etc... Uruguayan negotiating authorities apparently have put great effort in trying to lower the CET on capital goods given that Uruguay's external tariff was set at zero for most of these products before the Ouro Preto negotiations.

3 Predictions of the endogenous tariff literature

The theory of endogenous protection describes how a combination of agents' preferences over trade policy and the weight given to different groups' preferences on policy determination may translate into deviations from first-best trade policies. This literature is extremely rich and has followed different approaches.¹⁴ However, as recently suggested by Helpman (1995) within an unifying framework, they all tend to generate the same predictions. In this section, we summarise the main results of the theoretical literature, starting with the general results, then turning to the 'new' predictions of the theoretical literature on the endogenous formation of RTA. These predictions are then tested in the following sections.

3.1 General Results

Following is a list of predictions of the correlates of expected cross-sectoral variations in tariff protection. Other things equal, the level of *protection* received by an industry is higher¹⁵:

- *the higher the level of industry concentration*¹⁶ (see Rodrik, 1987 for a theoretical justification and Treffer, 1993 or Marvel and Ray, 1983 for empirical examples).

¹⁴For a recent review of the empirical and theoretical literature, see Rodrik (1995). For recent empirical literature applied to the region see Rama (1994). For alternative approaches to the theory of endogenous protection, based on 'social insurance' for example, see Hillman (1989).

¹⁵All these results are also well documented in the empirical literature on endogenous tariff formation, see Rodrik (1995). However, both the theoretical and empirical results are somewhat partial equilibrium, since they do not necessarily account for the simultaneity bias. For an empirical study that accounts for the simultaneity bias between imports and tariffs, see Treffer (1993). This aspect is neglected in the empirical section.

¹⁶Note however that there is both empirical and theoretical evidence that this need not be the case. On one hand, industry concentration allows to solve the free-riding problem. On the other hand, an increase in group size may result in higher group contributions (see Cornes and Sandler, 1996). Moreover, the theory is not well-founded in empirical measures of industry concentration as shown by Hillman (1991) and Long and Soubeyran (1996). For ambiguous evidence on the relation between protection and industry concentration see Baldwin (1984). For a review of the literature on seller concentration and protection, see Bilal (1995). However, there is a general presumption that industry concentration leads to higher levels of protection and this is confirmed in the empirical section.

This captures free-riding incentives à la Olson.

- *the lower the import penetration ratio* (see Grossman and Helpman, 1994 for a theoretical justification).¹⁷ The rationale for this is that the lower the import penetration ratio, the lower is the relative weight of consumers compared to producers in the government's objective function.¹⁸
- *the lower the share of sector production that is purchased by other sectors as intermediates* (see Cadot et al., 1997 for a theoretical justification and Ray, 1991 or Marvel and Ray, 1983 for empirical examples). Here we are capturing lobbying rivalry. If sector j purchases goods from sector i then sector j will counter-lobby any increase in sector i 's level of protection. Thus, the higher the share of sector i production that is purchased by other sectors the smaller the endogenous tariff. Therefore, as long as consumers are not organised, consumer goods receive *ceteris paribus* higher levels of protection than intermediate goods.
- *the higher the labour/capital ratio* (for empirical evidence, see e.g., Finger and Harrison, 1994 and Rodrik, 1995). To explain this, one may need to rely on Cadot et al. (1997) who show that tariffs are higher in sectors where the share of capital remuneration in value added is large, after introducing lobbying rivalry on the labour market. A higher labour/capital ratio *ceteris paribus* has two opposing effects on the share of capital remuneration in value added. On one hand, the direct effect tends to reduce it, as a higher labour/capital ratio obviously implies a smaller capital/labour ratio. On the other hand, a higher labour/capital ratio implies a higher marginal productivity of capital relatively to labour which in turn raises the share of capital remuneration in value added. Under suitably general conditions, it can then be shown that the latter effect

¹⁷This result has been generally challenged on empirical grounds, as discussed by Rodrik (1995). For empirical examples, see Anderson (1980) or Finger and Harrison (1994)

¹⁸To see this, note that $m/y = (c - y)/y = c/y - 1$ where m are imports (or net imports), c is consumption and y the level of production.

dominates the former if the elasticity of substitution between labour and capital is smaller than 1 (which is a generally accepted value in the empirical literature).¹⁹

- *the smaller the share of intra-industry trade* (for theoretical explanations see Cadot et al., 1997, Levy, 1997 and Marvel and Ray, 1987; for an empirical example, see Marvel and Ray, 1987). Cadot et al. (1997) argue that the larger the share of intra-industry trade in total trade, the larger the elasticity of import demand for goods produced in the domestic economy, and thus following Ramsey pricing rule, the lower the tariff (since the efficiency costs of a tariff is relatively large compared to the producers gain in that case). Marvel and Ray (1987) suggest an alternative explanation based on intermediate inputs counter-lobbying: they argue that intra-industry trade essentially arises among producers (purchase of intermediate goods), and as producers are more concentrated than consumers, they tend to be more efficient in combating protectionist pressures. Finally, Levy (1997) argues that an increase in intra-industry trade benefits all agents whereas an increase in inter-industry trade has the usual Stolper-Samuelson redistributive effects and therefore are subject to more conflict and higher lobbying pressures.

If one assumes that labour markets are segmented in the sense that labour is better conceived as being mobile across a particular group of industries rather than across the economy as a whole, then it can be shown that the level of *protection* received by an industry is *higher*:

¹⁹In a two factor sector, the share of capital remuneration in value added is given by: $\beta = rk/[w\ell + rk] = 1/[w\ell/(rk) + 1]$, where r is capital wage, k is the amount of capital, w is labour wage and ℓ is the amount of labour. Then $\partial\beta/\partial(\ell/k) = 1/[w\ell/(rk) + 1]^2 w/r(1 + \sigma)$ where σ is the elasticity of substitution between labour and capital. And the right hand side is larger than zero if $|\sigma| < 1$. Note that the empirical estimation of the elasticities of substitution between labour and capital generally yield values below one.

- *the lower the equilibrium wage in this sector* (see Cadot et al., 1997 for a theoretical justification and Anderson and Ray, 1987 and Ray, 1991 for empirical examples). Cadot et al. (1997) show that the optimal endogenous tariff of each sector is positively related to the share of specific capital in total sales. Then, the larger the wage in sector i (once we control for output and labour/capital ratios), the smaller the share of capital in total sales, and therefore the smaller the incentives to lobby in the political game.
- *the larger is the share of labour in this sector relative to total employment in the economy* (see Cadot et al, 1997 for a theoretical justification and de Melo and Tarr, 1994 for an empirical example). The idea behind this result is that if labour unions are organised, then the larger is the share of employment in this sector, the larger is the weight of this sector's labour union in the political game.²⁰

3.2 'New' results on endogenous formation of RTAs

The endogenous trade policy literature has recently shed some light on the endogenous formation of RTAs.²¹ The two results that are to be examined in the empirical section are listed below.

First, Grossman and Helpman (1995a) suggest that deviations from internal free-trade in RTAs are more likely to occur in sectors where trade creation is more likely. This is explained by two interrelated forces. First, and perhaps more importantly, from the importing country perspective, the political cost of trade diversion is higher than the political cost of trade creation. This is due to the fact trade-creation entails larger domestic price reductions in the importing country than trade diversion, *ceteris*

²⁰Alternatively, it may also be the case that votes may matter and a high labour/capital ratio indicates the presence of voters (see for example Potters, Sloof and van Winden, 1997).

²¹There are other new results in that literature not subjected to testing here (see e.g., Cadot *et al.*, 1996, Ethier, 1996, Hillman, Long and Moser, 1995 and Winters, 1996 for a review.

paribus.²² Second, and for the same reason, from the exporting country perspective, the political gains (producer gains) are higher in the case of trade diversion than under trade creation. Thus, when countries negotiate over which sectors to exclude from internal free-trade, they will prefer to create exceptions for trade-creating sectors which would result in higher costs for the importing country and lower gains for the exporting country.

To illustrate this, assume that the production of the exporting country in the RTA is sufficiently large in order to satisfy the whole importing country demand at world prices. Then it is clear that after the RTA is formed, domestic prices in the importing country drop to world levels, which implies that producer surplus in the import-competing industry is significantly reduced if this industry was protected before the RTA is formed. On the other hand, exporters in the RTA partner receive the same price as before. If industry contributions are directly linked to the price producers receive, it is clear that such a trade-creating RTA may have high political costs. This political cost would be smaller if the exporting country cannot satisfy its partner market at world prices, in which case producer prices in the RTA may be above world prices and some trade-diversion may exist. The idea is that trade-creation, unlike trade-diversion, offers no extra benefits to the exporting producer.²³

Thus, the first 'new' result to be verified is:

- *Trade-creating sectors tend to be exempted from internal free-trade.*

Second, Cadot et al. (1996) suggest that the negotiated CET will be a weighted sum of member countries' politically optimal tariff vectors. The endogenous weight given to country j in the determination of the CET in sector i equals the size of

²²Alternatively, one can argue that trade-creating sectors create the import competition that harms the domestic producers interest in a country and which are accordingly resisted by protectionist pressures if the endogenous deviations from internal free-trade are determined by producers interests.

²³This result has been somewhat indirectly tested by Ray (1987) for the U.S. preferential agreements. He showed that these have failed to offset the protectionist bias against competitive exports from developing countries in the U.S.

sector i in country j relative to its size in other members. The idea is that countries with a large output in one particular industry would lobby more aggressively to protect its large industry in the negotiations for a CET. Technically, this result comes from the fact that lobbies' contributions are determined such that the marginal gain from a tariff increase equals its marginal costs, and the marginal gain is given by the derivative of the profit function with respect to prices, which in a competitive environment, equals the level of production by Hotelling's lemma.

Thus, the second 'new' result to be tested below is:

- *The CET is determined by the production-weighted sum of member countries political economy variables. Thus, the CET in sector i mainly reflects the preferences of the member country that has the largest level of production in sector i .*

Variable construction and notation are discussed in appendix 2. The next section discusses the empirical specification, whereas section 5 focusses on the empirical results.

4 The Empirical Model

The first step of the empirical study consists in verifying that the structure of MERCOSUR's common external tariff (CET) can be explained by a set of MERCOSUR's political variables. The CET equation is then:

$$\log CET_i = \alpha_0 + \sum_{k=1}^n \alpha_k \log \sum_{j=A}^U \theta_i^j PV_{i,k}^j + \mu_i \quad (1)$$

where subscript i refers to the 27 industry aggregation of the ISIC 3 digit classification; CET_i is the common external tariff in sector i , α s are parameters, θ_i^j is the share of country $j = A, B, P, U$ in total production of good i in MERCOSUR,²⁴ $PV_{i,k}^j$ is

²⁴Note that to test the result of Cadot et al. (1996), one should not impose the weights given to the political variables of each country, but should estimate the weights empirically. However, given

the political economy variable k in sector i and in country j , μ_i is the error term. The political-economy variables were listed in subsection 3.1. The construction and expected signs of these variables are given in appendix 2.

The second step consists in verifying that member countries deviations from the CET can be explained by deviations of the political structure of each country from MERCOSUR's political structure (weighted averages). The equation to be estimated for each country is then:

$$\log \frac{ET_i^j}{CET_i} = \beta_0 + \sum_{k=1}^n \beta_k^j \log \frac{PV_{i,k}^j}{\sum_{j=A}^U \theta_i^j PV_{i,k}^j} + \epsilon_i^j \quad (2)$$

where ET_i^j is the external tariff in country j for sector i . There are four CET-deviation equations to be estimated, one for each member country.

The last step consists in verifying that member countries deviations from internal free-trade can also be explained by the political structure of each member country. The equation to be estimated for each country is then:

$$\log IT_i^j = \gamma_0 + \sum_{k=1}^n \gamma_k^j \log PV_{i,k}^j + \gamma_{n+1} \log TC_i^j + v_i^j \quad (3)$$

where TC_i^j is the expected level of trade-creation in the importing country j in sector i . Ideally, there are four internal tariff equations to be estimated, one for each country.

5 Results

There are nine equations to be estimated. There is one equation (1) to determine the CET, four equations (2) to determine member countries deviations from the CET and four equations (3) to determine member countries deviations from internal free-trade. As the error terms in these different equations turn out to be correlated we

the lack of industrial data at a high level of disaggregation (only 27 sectors), this was empirically infeasible. In the next section we discuss some alternative determinations of the CET.

use a SUR technique. The correlation between the error terms is probably due to omitted variables, like the influence that the World Bank, the IMF or the WTO may have over these countries' trade policy and other 'environmental' variables. However, given the lack of disaggregation in industrial data (only 27 sectors [observations] per member country), a panel estimate for external deviations from the CET and internal deviations from free-trade seems more appropriate (these panel regressions are estimated using a SUR technique). Obviously, as a panel estimation for the CET is not possible (given that, by definition, the CET is common to all member countries), equation (1) is estimated using a SUR technique including the external and internal deviation equations for each country. All equations are estimated over the whole tariff universe (i.e., the full range of tariff lines aggregated to the 27 sectors of the ISIC 3 digit classification).

The next section describes the econometric techniques that have been used and discusses the results. The endogenous variables in all equations reported below are import-weighted average tariffs.²⁵ Also note that the results exclude primary products and only correspond to industrial products. However, industrial imports accounts in the four member countries for no less than 80% of total imports. All regressions are run in a double-log form except for the net import penetration term (which can take negative values).

5.1 Determining MERCOSUR CET

We first explore alternative determinations of the CET to indirectly 'test' the Cadot et al. (1996) prediction that the relevant variables in the determination of the CET are the production-weighted political economy variables. Then we report the SUR estimation of the CET equation.

²⁵The explanatory power of the whole set of regressors was improved in all equations when using import-weighted tariffs rather than simple averages to translate the 8-digit Harmonised System tariff data into the 3-digit UNIDO classification system (see appendix 1 and 3 for details on data).

5.1.1 Alternative determinations of the CET

To examine alternative determinations of MERCOSUR's CET, we test whether the MERCOSUR political variables had a better explanatory power than any other combination of member countries' political variables. To this end, we use the Davidson and MacKinnon (1981) J non-nested test.²⁶

Table 3 gives results of the Davidson and MacKinnon test. The first row, for example, tests the hypothesis that Argentina's political economy variables taken alone are as appropriate a set of regressors as MERCOSUR's weighted average of political economy variables. Under the H0 column, we report the t-statistic coefficient obtained when it is assumed that Argentina's political economy variables are a better set of regressors than MERCOSUR's. Under H1, we report the t-statistic coefficient obtained when it is assumed that MERCOSUR's political economy variables are a better set of regressors than Argentina's. In the case of Argentina, the first hypothesis (H0) can be rejected, whereas the second one (H1) cannot be rejected with 99% confidence. This implies that MERCOSUR's set of regressors has a better explanatory power. When both t-statistics are statistically significant or insignificant then the test is obviously inconclusive. When only one of these tests is significant then a conclusion can be drawn and these are given in the last column which specifies which is the best set of regressor.

TABLE 3 HERE

The results of the Davidson and MacKinnon non-nested tests for the determination of the CET can be summarised as follows:

- MERCOSUR political variables (weighted averages) have a higher explanatory power than Argentina, Paraguay or Uruguay political variables taken one by

²⁶The unfortunate feature of this test is that in testing whether a set of regressors is more appropriate than the other, one can reject or accept both sets of regressors.

one. It has also a higher explanatory power than any combination of these three countries.

- One cannot reject that Brazil by itself, or any combination that includes Brazil, is as appropriate a set of regressors as MERCOSUR's political economy variables (weighted averages).

The conclusion to be drawn from the non-nested tests is that Brazil had an important role in the determination of MERCOSUR CET. As Brazil represents, in all sectors, at least 70% of MERCOSUR production, it is not surprising that the CET closely reflects Brazil interests.

This result may be seen as an indirect test of Cadot et al. (1996) proposition, that the CET should reflect a production-weighted average of member countries political variables. Therefore, in the remainder of this paper, we consider MERCOSUR as being the production-weighted average of member countries' political-economy variables.

5.1.2 Estimation of the CET

Results of the SUR *estimation of the* CET are reported in table 4.²⁷ The first column shows the results when the regression includes all the explanatory variables discussed in section 3, whereas the second column gives the results when only the significant and robust variables are included.

It appears that the most statistically significant variables in the determination of the CET were the labour/capital ratio (L/K), the wage level (W) and the index of industry concentration (IC). The share of production sold as inputs to other sectors turned out to be statistically insignificant (INP), as well as the import penetration ratio (NM/Y), the labour union proxy (LU) and the intra-industry trade variable (INT). All coefficients have the expected sign except for the import penetration ratio

²⁷The SUR estimates for internal and external deviations were relatively less efficient than the ones obtained with a panel technique and are not reported here. The results using a panel technique are reported in the next subsection.

and the intra-industry trade variable. Note also, that all the insignificant variables change signs when performing an outlier analysis over the 27 observations.

The explanatory power of the political variables is relatively high and accounts for 58% of the CET total variation in the first column and 51% when regressing only on the significant and robust variables.

INSERT TABLE 4

5.2 Deviations from the CET and from internal Free Trade

The deviation equations were estimated using a fixed-effect model and a SUR technique. Results are reported in table 5.

INSERT TABLE 5

The overall explanatory power of the political variables oscillates between 21% and 51% for external deviations, depending on whether industry and country dummies are included, and for internal deviations, the explanatory power is 49%. The relatively low explanatory power of the internal deviation regression is probably due to the fact that Brazil's (and to some extent Argentina's) internal deviations from free trade are relatively rare (Brazil deviates in only 3 of the 27 sectors). For the same reason we performed an outlier analysis following Belsley *et al.* (1981) to check for the robustness of results reported in table 5.

5.2.1 Internal deviations from free-trade

The first column in table 5 reports results when the internal deviations regression is run including country and industry dummies. The second column reports results without dummies given that neither country-specific nor industry-specific effects were significant at a 95% confidence level, according to F-tests.

The reason why industry-specific effects may be insignificant is that the adequation regime for internal deviations from free-trade has been inherited from the

Asunción Treaty where no 'special regimes' per sector existed and different member countries could deviate from internal free-trade in different products. Regarding country-specific effects, the reason may be that this term is correlated with the trade-creation variable given the difference in size of MERCOSUR members' domestic markets, as discussed below.

The trade-creation term (TC), the labour-union proxy (LU) and the index of industry concentration (IC) turned out as the significant political economy variables in the explanation of internal deviations from free-trade (all above the 95% level when dummies are not included).

The statistically significant coefficient obtained for the trade-creation variable (TC) confirms Grossman and Helpman's (1995a) view that sectors where high levels of trade-creation may occur, tend to be exempted from internal-free trade. Note that the precision of the trade-creation term is reduced (though the coefficient is still significant at the 90% level) when dummies are introduced. This is probably due to the fact that the potential trade creation term is correlated with country dummies as Brazil faces much lower trade-creation than the other member countries given the size of its internal market. This is also confirmed by the fact that the only significant dummy is the one for Brazil which has a negative coefficient. This result seems reasonable since the effect of internal trade barriers should depend on the size of the domestic market in each member country. For instance, Brazilian producers can easily inundate Uruguay's domestic markets whereas the reverse is obviously not possible.

Both the import penetration ratio (NM/Y) and the labour/capital ratio (L/K) turned out to be insignificant. Regarding the latter, this is probably due to the fact that barriers to internal free-trade are mainly set by MERCOSUR's smaller members (Paraguay and Uruguay) and these countries tend to be relatively less capital abundant than the larger members (Brazil and Argentina). Thus, barriers exist in capital intensive sectors where smaller members tend to protect their markets from larger

members, and the labour/capital ratio may be capturing something different than what was expected in section 3.²⁸

5.2.2 Deviations from the CET

The third column in table 5 reports results when the external deviations regression is run with both industry and country dummies. The presence of both industry and country-specific effects could not be rejected at 95% confidence level.

The statistical significance of industry dummies may suggest that MERCOSUR members mainly deviates from the CET under the 'special regimes' per industry discussed in section 2,²⁹ On the other hand, the statistical significance of the country dummies suggests that different members tend to deviate differently, as discussed in section 2.

The labour/capital ratio (L/K), the index of concentration (IC), the labour-union proxy (LU) and the import-penetration ratio (NM/Y) turned out as the important political economy variables in the explanation of deviations from the CET. Note however that NM/Y does not have the expected sign, but this is a rather common empirical result, as discussed in section 3.³⁰

One should note the high explanatory power of the labour-union proxy (LU) in the determination of both deviations from internal free-trade and from the CET. As these were negotiated within the countries, labour-unions may have had a higher weight than in the determination of the CET than was negotiated at the regional level.³¹

²⁸Results are reported without including the three variables, which were insignificant at the 90% level in *all* the regressions we have run. These are the wage variable (W), the proxy for intra-industry trade (INT) and the proxy for input sales (INP).

²⁹It was not possible to introduce dummies for these regimes given the level of aggregation of industrial data.

³⁰We also introduced a variable (that corresponds to the trade-creation term in table 5, though it is differently defined than in the internal deviation equations) calculated as the share of extra-region imports on total imports. The idea is that one may observe high levels of extra-region protection in sectors where the share of imports from non-MERCOSUR countries is high. This term was statistically insignificant and therefore we decided to report results without including this variable.

³¹Alternatively, one may want to interpret the difference in the explanatory power of this variable as indicating that the relative size of the industry does not help explain the formation of the CET

All industry dummies had a positive coefficient. As the dummy for sector 385 (Scientific Equipment) of the ISIC classification was dropped from the regression, this implies that all other sectors have a relatively higher deviation from the CET than sector 385. Further, the coefficient was significantly different from zero at the 99% level in sectors 331 (Wood products), 342 (Printing and publishing), 353 (Petroleum refineries) and 384 (Transport Equipment). As these sectors do not necessarily reflect the comparative advantage of MERCOSUR countries, the (downwards) convergence to the CET tariff would probably tend to reduce trade diversion in the region, as preference margins reduced.

Note the downwards convergence to the CET is not necessarily true for Paraguay and Uruguay, as noted in section 2. However, these countries are relatively small trading partners compared to Argentina and Brazil and therefore, their influence on the overall picture can be minimised. The downwards convergence of MERCOSUR's small members to the CET is confirmed by the signs taken by the country-dummies in the external deviation equation. Indeed, the country-dummies for Paraguay and Uruguay had a negative coefficient whereas, Argentina and Brazil country-dummies had a positive coefficient. This confirms the fact that generally Brazil and Argentina are downward converging to the CET, the opposite is true for the small members of MERCOSUR.

A striking feature of table 5, is that estimated elasticities tend to be much higher in the internal deviations regressions than in the external deviations regression. The coefficient of *LU* (labour-union proxy), for example, is 20 times larger in the internal deviations regressions. One might explain this by suggesting that smaller members of MERCOSUR tend to deviate more often than larger members (internally and externally), and lobbies in smaller members are certainly more concerned by internal barriers rather than by external ones. In other words, it might be useless for Uruguayan producers, for example, to obtain a high external tariff, if Brazilian producers can

but only deviations from internal free-trade and from the CET within countries.

enter their market without facing any barrier. However, this result may be better explained by the statistical techniques employed and the data structure. Note that internal deviations are calculated in absolute terms as the optimal situation implies internal tariffs that are nil, whereas external deviations are calculated from an optimal situation where the CET is always positive and thus the endogenous variable in the external deviation regression is taken in relative (percentage) terms. The standard deviation of the endogenous variable in the internal deviation equation is 20 times larger than the standard deviation of the endogenous variable in the external deviation regression which in turn may partly explain the differences in size of the estimated coefficients.³²

To conclude this subsection, political variables seem to explain the deviations from the CET and from internal free-trade in MERCOSUR countries. Further, if the Ouro Preto convergence is achieved (i.e. internal free trade and convergence to the CET), then trade within the region would probably tend to be more trade-creating and the region a more open economy.

6 Conclusions

MERCOSUR has achieved in 5 years an important degree of integration not only within the region but also with the rest of the world. It is a success from a volume-of-trade perspective, as intra-regional trade has increased at an average of 28.5% per annum and total trade at an average of 9.3% compared with a 6% increase in world trade since 1991 when the Treaty of Asunción was signed.

One may argue that MERCOSUR 'enjoys' a relatively high level of protection against the rest of the world, if one compares its negotiated CET with OECD tariff levels

³²As some results may be driven by a small number of large deviations, we performed an outlier analysis following the procedures of Belsley, Kuk and Welsch (1980). The main results in all regressions are robust to the exclusion of potential outliers (results that are not robust are indicated with a dagger (†) in tables 4 and 5).

(around 2 times higher). However, MERCOSUR's average CET as established in Ouro Preto is only 0.1 percentage points higher than Chile's average tariff (this decade's Latin-american example) and 8 times lower than Brazil's average tariff in 1986. The larger members of MERCOSUR are adjusting downwards to the CET (in 1996 Argentina's [Brazil's] average external tariff was 0.8 [2.0] percentage points higher than Chile's), which signals not only a liberalising effort, but also that the region will tend, on average, to be more open, once the Ouro Preto objectives are reached.

The 'new' results of the literature on the endogenous formation of RTAs seem to be reflected in MERCOSUR's structure of protection. First, as would have been predicted from Cadot et al. (1996), Brazil has an important weight in MERCOSUR's tariff structure, given Brazil's significant share of MERCOSUR's production (and the inter-governmental aspect of the decision making process). Second, as predicted by Grossman and Helpman (1995a), internal barriers to free-trade tend to be higher in the potentially trade-creating sectors. Convergence to the Ouro Preto objective of internal free-trade will therefore lead to more trade creation. This may turn out to be a difficult process as deviations from internal free-trade reflect member countries' lobbying pressures. Thus, there is a need for serious political commitment to the Ouro Preto Objectives

However, insofar as MERCOSUR's tariff structure, and especially the CET, reflects member countries' political economy, the convergence may be easier to achieve. Tariffs are obviously 'living beings' and as such subject to changes, but if these are to respect political preferences in member countries, then the consolidation of the integrating effort would be facilitated.

In sum, whether MERCOSUR is a step in the right direction may remain an open question, but what this paper shows is that MERCOSUR is apparently here to stay.

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Appendix 1: Data

Common external tariff data was provided by MERCOSUR secretariat (official tariffs for 1996, announced in December 1995). External and Internal tariffs of member countries were obtained from official journal (Argentina, decree # 998/95 of 29/Dec/95 and resolutions # 649/96, 370/96 111/96 and 735/96. Brazil, decree # 1767 of 29/Dec/95. Paraguay, decree # 12056 of 29/Dec/95. Uruguay, decree # 466/95 of 29/Dec/95 and decrees # 242/996, 282/996 and 316/996.). Tariff data is disaggregated at the 8-digit level of the harmonised system (9119 items). Trade data sources are national accounts (COMTRADE). It is also disaggregated at the 8-digit level of the harmonised system (1994 data). The best (and more disaggregated) industrial data we obtained for MERCOSUR countries is UNIDO 3-digit (average from 1987 to 1993). It is disaggregated into 27 sectors. To convert data from the harmonised systems into UNIDO 3-digit we use a filter that has been provided by Jerzy Rozanski of the World Bank.

Appendix 2: Variable construction and notation

The construction of the variables used in the empirical section is discussed below. Notation to be employed is given in parenthesis and the expected signs of the exogenous variables is given in square brackets. The endogeneity problems can be important, as suggested in a study by Treffer (1993), as most of the exogenous variables may also be functions of tariffs. Due to data restrictions, the empirical section does not deal with endogeneity problems. All of MERCOSUR's political economy variables are constructed as the sector-production-weighted sum of member countries' political variables as discussed in subsection 3.2. Alternative specifications for MERCOSUR have been tested and are discussed in section 5.

- *tariffs*, the endogenous variable corresponds in all equations to the import-weighted averages from HS-8 digit to UNIDO-3 digit. (*CET* for the common external tariff, *IT* for internal tariffs and *ET* for external tariffs).
- *concentration index* was calculated as: (number of firms in the whole economy)/(number of firms in sector i). (noted *IC*) [+].
- *import penetration ratio* was calculated as: (imports - exports)/(gross output). (noted *NM/Y*) [-]. When estimating external tariffs equations we used extra-MERCOSUR trade to calculate this variable, whereas when dealing with internal deviations from free-trade, intra-MERCOSUR trade was employed. Note that for this variable we could not take the log.
- *share of production sold to other producers as intermediates* was calculated as: (value added)/(total output) in sector i divided by the economywide average (value added)/(total output). (noted *INP*) [-]. The idea is that if the share of value added on total output is relatively high in sector i (with respect to the economywide average), this indicates that sector i purchases a relatively small amount of intermediate goods, which tends to suggest that on average,

the rest of the economy purchases a relatively high amount of good i as an intermediate. One should be conscious that this is not a good proxy but due to data restrictions, it was impossible to construct a better one. This may explain why the variable does not perform well in the estimation.

- *labour/capital ratios* were calculated as: $(\text{number of employees})/(\text{value added} - \text{labour costs})$. (noted L/K).
- *intra-industry trade* was calculated as: $[(\text{imports} - \text{exports})^2 / (\text{imports} + \text{exports})^2]^{1/2}$. Again, intra and extra-MERCOSUR data was used when necessary. (noted INT) [+].
- *wages per sector* were calculated as: $(\text{labour cost})/(\text{number of employees})$. (noted W).
- *labour-union proxy* was calculated as: $(\text{number of employees in sector } i)/(\text{total number of employees})$. (noted LU) [+].
- *trade-creation term* was calculated as: $(\text{intra-MERCOSUR imports})/(\text{total output})$. (noted TC) [+].

Appendix 3: ISIC codes

- 311 Food Products
- 313 Beverages
- 314 Tobacco
- 321 Textiles
- 322 Wearing Apparel, except Footwear
- 323 Leather Products
- 324 Footwear, except Rubber or Plastic
- 331 Wood Products, except Furniture
- 332 Furniture, except Metal
- 341 Paper and Products
- 342 Printing and Publishing
- 351 Industrial Chemicals
- 352 Other Chemicals
- 353 Petroleum Refineries
- 354 Misc. Petroleum and Coal Products
- 355 Rubber Products
- 356 Plastic Products
- 361 Pottery, China, Earthenware
- 362 Glass and Products
- 369 Other Non-Metallic Mineral Prod.
- 371 Iron and Steel
- 372 Non-Ferrous Metals
- 381 Fabricated Metal Products
- 382 Machinery, except Electrical
- 383 Machinery Electric
- 384 Transport Equipment
- 385 Professional & Scientific Equipment

Table 1
MERCOSUR Rate of Integration^a

	80/90	91/95	Δ^b
World Integration	1.1	13.1	12.0
MERCOSUR Integration	2.4	24.7	22.3
Rest of the world Integration	0.9	11.0	10.1

^aThe rate of integration is estimated as the difference between total trade and GDP growth. MERCOSUR's GDP average rate of growth in the 1980's was of 1 % whereas from 1991 to 1995 the average rate of growth was 3.8 %. Sources are MERCOSUR secretariat (1996) and CIU (1996).

^bIncrease in the rate of integration between the two periods periods.

Table 2
MERCOSUR Average Tariffs^a

	ET^b	IT^c	$w - ET^d$	$w - IT^c$	$e-ET^f$	$e-IT^g$
Argentina	11.78	0.36	13.37	0.86	14.33	11.69
Brazil	13.14	0.02	15.44	0.02	21.39	10.20
Paraguay	8.79	0.80	5.18	0.37	6.83	24.91
Uruguay	10.78	0.88	11.01	1.77	5.92	19.73
MERCOSUR	11.15	0.00	11.09	0.00	—	—

^aSources: see the data appendix. Recall that import-weighted tariffs tend to be downwards biased, since sectors with high tariffs tend to import less.

^bExternal Tariffs, and for MERCOSUR, the CET to be achieved once the Ouro Preto objectives are reached.

^cInternal Tariffs, and for MERCOSUR, the objective established in Ouro Preto, i.e., free-trade.

^dImport-weighted external tariffs, and for MERCOSUR, the CET Ouro Preto objective.

^eImport-weighted internal tariffs, and for MERCOSUR, the zero-internal tariff Ouro Preto objective.

^fUnweighed average calculated over the exempted universe for each country: Argentina, 1540 tariff lines (16.9% of total tariff universe), Brazil, 1605 (17.6%), Paraguay, 2101 (23.0%), Uruguay 1961 (21.5%).

^gUnweighed average calculated over the exempted universe for each country, Argentina 231 tariff lines (2.5% of total tariff universe), Brazil 17 (0.2%), Paraguay 293 (3.2%) and Uruguay 407 (4.4%).

Table 3
DAVIDSON-MACKINNON *J* NON-NESTED TESTS^a

	<i>H0</i>	<i>H1</i>	<i>Result</i>
Arg	0.69	3.47**	MERCOSUR
Bra	0.91	1.06	inconclusive
Par	1.44	3.85 **	MERCOSUR
Uru	0.37	3.46**	MERCOSUR
Arg+Bra	1.13	1.47	inconclusive
Arg+Par+Uru	0.33	2.49*	MERCOSUR

^a* is for statistical significance at the 95% level and ** at the 99% level.

Table 4

MERCOSUR CET^a

Dependent Variable ^b : $\log(CET)$		
Constant	2.47 (6.26) ^{***}	2.49 (6.57) ^{***}
$\log L/K^c$.67 (3.42) ^{***}	.58 (3.74) ^{***}
$\log W^d$	-.40 (-2.02) ^{**}	-.41 (-1.77) [*]
$\log IC^e$.21 (2.37) ^{**}	0.14 (2.02) [*]
NM/Y^f	.43† (1.23)	
$\log INP^g$	-.33† (-.84)	
$\log LU^h$.06† (.57)	
$\log INT^i$.03† (.42)	
jR^2	.58	.51
F test of SUR	222 ^{***}	224 ^{***}
# observations	27	27

^aEstimated using a SUR technique . Standard Errors are White-robust.

^bFigures in parenthesis are t-statistics; * is for significance at the 90% level, ** at the 95% level and *** at the 99% level; † indicates that the coefficient changes sign when performing an outlier analysis over the 27 observations.

^c L/K is for labour capital ratio.

^d W is for wage.

^e IC is for industry concentration index.

^f NM/Y is for net imports penetration ratio.

^g INP is for the share of production sold to other sectors as intermediates.

^h LU is the labour union proxy.

ⁱ INT is proxy for intra-industry trade.

^jEstimated using the covariance matrix of the residuals.

Table 5
 DEVIATIONS FROM MERCOSUR OBJECTIVES^a
 Dependent Variable^b: $\log(IT)$ and $\log(ET/CET)$

	Deviations from internal F-T		Deviations from the CET
	ind&ctry-dum	no-dum	ind&ctry-dum
Constant	0.14 (0.03)	3.45 (1.37)	-.27 (-1.76)*
$\log L/K$	-0.87 (-1.07)	-0.41 (0.54)	.15 (2.85)***
$\log LU$	2.35 (3.25)***	2.04 (3.29)***	.09 (2.42)**
NM/Y	-.01 (-0.56)	-.02 (-2.10)**	.0001† (2.09)**
$\log IC$	1.43 (1.71)*	0.08† (0.12)	.11 (2.13)**
$\log TC^c$	0.85 (1.72)*	1.18 (4.75)***	
⁴ R ²	.51	0.21	.49
F test of SUR	216***	216***	216***
# observations	108	108	108
F on ctry-dum	1.86		2.99**
F on ind-dum	1.12		1.69**
F on all-dum	1.49		1.78**

^aEstimated using a fixed-effects model and a SUR technique. Standard Errors are White-robust.

^bFigures in parenthesis are t-statistics; * is for significance at the 90% level, ** at the 95% level and *** at the 99% level; † indicates that the coefficient changes sign when performing an outlier analysis over 12 potential outliers identified following Belsley, Kuk and Welsch (1980).

^cTC is for trade-creation.

^dEstimated using the covariance matrix of the residuals.

Figure 1. Deviations from CET

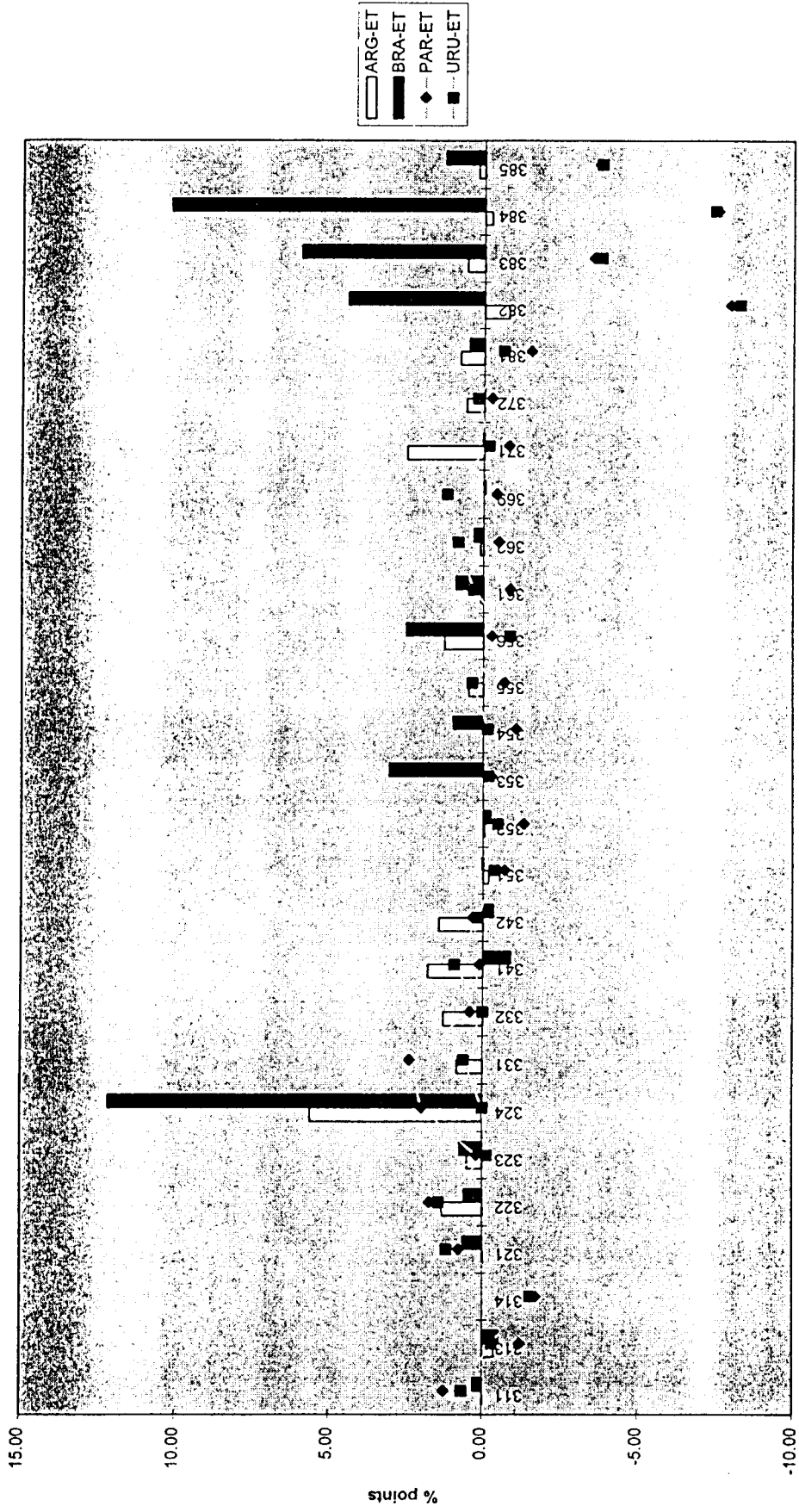


Figure 2. Deviations from internal free-trade

