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## Would MERCOSUR's exports to the EU profit from trade liberalisation? Some general insights and a simulation study for Argentina

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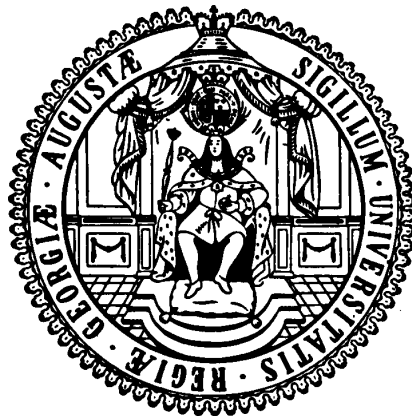
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**Felicitas Nowak-Lehmann D.  
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**May 2003**

# **Would MERCOSUR's Exports to the EU Profit from Trade Liberalisation? Some General Insights and a Simulation Study for Argentina**

by Felicitas Nowak-Lehmann D. and Inmaculada Martínez Zarzoso

## **Abstract:**

In this study, MERCOSUR's past exports to the EU under the protectionist environment of the period between 1988 and 1996 are examined and an attempt is made to determine MERCOSUR's exports' growth potential in a liberalised EU market. A sectoral study is considered indispensable since tariff and non-tariff trade barriers vary strongly among sectors. The influence of the macroeconomic environment on MERCOSUR's exports is examined in a dynamic panel analysis. A simulation study based on a quite comprehensive evaluation of EU trade barriers is performed for the Argentinean case in order to evaluate the impact of EU trade liberalisation.

JEL classification: F13 F14 C23

Key words: MERCOSUR-EU trade trade barriers sectoral study panel data

## 1. Introduction

In late 2001 trade talks between the EU and the MERCOSUR countries have become both more intensive and more substantive. The prospect of a possible free trade agreement (FTA) has been especially attractive for the MERCOSUR economies. However, their hope that these talks would proceed quickly has been dampened in 2002 due to the economic crises in Argentina, Paraguay and Uruguay. Resulting deviations from the common external tariff (CET) weakened MERCOSUR not only as a customs union (CU) but also as an economic bloc involved in trade negotiations.

In this study, past and future MERCOSUR-EU export flows will be considered. MERCOSUR's past exports to the EU in the period from 1988 to 1996 (when many trade restrictions were in place) will be examined and an attempt will be made to determine MERCOSUR's exports growth potential in a liberalised EU market. Five countries will be investigated, the four formal members of the MERCOSUR: Argentina (AR), Brazil (BR), Paraguay (PY) and Uruguay (UR), and Chile (CH), which became an associated MERCOSUR country in 1996. Bolivia, which signed an association agreement with MERCOSUR in 1995, was not sampled due to incomplete OECD data and due to its small economic size: Chile's contribution to MERCOSUR exports was 18.3% in 1996, whereas Bolivia's share was 1.3% in the same year.

The sampling period for which OECD export data are used runs from 1988 to 1996. The investigation is performed on a sectoral level (69 sectors, SITC Revision 2). The empirical investigation is based on a dynamic panel analysis. A sectoral study is considered indispensable since tariff and non-tariff trade barriers vary strongly among sectors. Besides, not all sectors are affected to a similar degree by changes of the exchange rate and international differentials in the inflation rate, the business cycle, and trade barriers .

A central theme in this investigation is the search for factors that impede MERCOSUR exports to the EU and that might be influenced by MERCOSUR action. Therefore, the empirical analysis consists of three parts: First, an analysis on the general real exchange rate elasticity of each single sector and the dependence on the European business cycle; Second, a rather qualitative evaluation of the extent of

tariff and non-tariff barriers imposed by the EU and Third, a simulation of the impact of a hypothetical EU trade liberalisation examining the Argentine case.

The paper is organised in the following way. In Section 2 recent developments in MERCOSUR-EU trade and of trade on a multilateral level are presented. Section 3 contains an empirical study on the reaction of MERCOSUR's exports with respect to changes in real exchange rate and EU's business cycle. The trade barriers imposed by the EU and their importance in the respective MERCOSUR countries are described in Section 4. In Section 5 the impact of EU trade liberalisation is simulated for Argentinean exports to the EU. Finally, Section 6 presents an outlook and the conclusions.

## **2. Recent developments in MERCOSUR-EU trade and WTO trade talks**

A very recent example of North-South integration is the MERCOSUR-EU trade agreement. Negotiations leading to this agreement started in 1995, with the signing of an Interregional Framework Agreement aimed at fostering economic co-operation and closer trade relations between the two regional blocs. A further objective was the creation of a Free Trade Agreement in 2005.

Until June 2001, the exchanges that developed in the agreement framework consisted in gathering information and in laying the grounds for future negotiations. Concrete negotiations only began in the second half of 2001, when questions related to tariffs and services started to be discussed.

Argentina, Brazil, Paraguay and Uruguay signed the MERCOSUR agreement in 1991 and it went into effect in 1995 becoming a Customs Union. Following the entry into force of the Common External Tariff (CET) on January 1, 1995, the MERCOSUR countries must maintain a common commercial policy. Bolivia and Chile are associated countries of MERCOSUR without full membership status. Bolivia and Chile signed the association agreements with MERCOSUR in 1995 and 1996, respectively. MERCOSUR has also been trying to promote Chile's<sup>1</sup> full membership

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<sup>1</sup> However, the MERCOSUR countries took offence at Chile's sudden disinterest in full membership at the end of 2000 and at her bilateral negotiations with the U.S.A. about a FTA. Cardoso, Brazil's president and MERCOSUR's chairman at that time, finally suspended further talks with Chile in December 2000.

and inclusion into the MERCOSUR-customs union in 2000. A point of concern for Chile was the fact that Chile's import tariffs were much lower than MERCOSUR's average external tariff. Chile's average import tariff is 9 per cent (to be lowered to 6 per cent in 2003) and MERCOSUR's common external tariff is 13% (Lateinamerika Jahrbuch 2001, 2001).

MERCOSUR is considered as an emerging market offering good investment opportunities, with a population over two hundred million people (it represents half of the population of Latin America and Caribbean). In 1998 the EU accounted for some 33% of MERCOSUR's imports and 39% of its exports. The EU currently imports five times more from MERCOSUR than the US, making it the group's main trading partner. Trade in goods between EU and MERCOSUR has risen considerably in recent years, with the total value of trade flows between the two blocs rising from € 18.8 billion in 1990 to € 42.5 billion in 1998, an increase of almost 125% (European Commission, 2002).

On the side of the EU, incentives to engage in substantive negotiations with MERCOSUR will depend closely on the consolidation and progress of MERCOSUR as a Customs Union. Due to the crisis in Brazil which resulted in a devaluation of the real in 1999, Argentina, Paraguay and Uruguay sought exceptions from the common external tariff (MERCOSUR Report, 2001). This development not only weakened MERCOSUR as a Customs Union but will also have a negative effect on future negotiations. Especially the present crisis in Argentina<sup>2</sup>, which led to even more exceptions from the CET, has left doubts regarding the stability of MERCOSUR as a Customs Union and the solvency of Argentinean importers.

On the side of MERCOSUR, market access, trade expansion, international bargaining and credibility considerations are incentives playing a major role to engage in FTA negotiations with the EU. MERCOSUR has probably more to gain by joining the EU in a FTA rather than negotiating with North America, since MERCOSUR member countries already have relatively free access to the North American market. A FTA with the EU, in contrast, will improve access to that market and reduce its dependency on the U.S.A. (Panagariya, 1996). Since MERCOSUR's

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<sup>2</sup> The imminent crisis in Argentina in the period of 1999 to 2001 finally turned into an economic disaster at the end of 2001. Banks were first closed and then reopened, but a 'corralito' (bank withdrawal restriction of US\$ 400 per month) was imposed. A painful devaluation of the Argentinean peso accompanied these developments in 2002.

bargaining power and credibility might have diminished due to the latest developments in MERCOSUR countries, market access and trade expansion will be more difficult to obtain in the future. Bilateral negotiations might become an alternative strategy for economically sounder and stronger MERCOSUR countries, such as Chile. Chile seems to pursue this more 'bilateral' strategy. In 2002 it reached FTAs with the EU, South Korea and the U. S. A. It is now pushing for a bilateral trade agreement with Japan.

From a political point of view the main questions are First, whether the EU is still willing to negotiate with a rather unstable Customs Union and Second, whether the EU will make major concessions in agricultural trade. These issues are of utmost economic importance for the MERCOSUR countries since agriculture and fishery make up about 2/5 of MERCOSUR's total exports to the EU<sup>3</sup> (Nunnenkamp, 2001).

Tough negotiations are to be expected for agricultural products (sugar, cereals, milk, and meat), for textiles and for leather products, as well as for industrial products (steel, ferroalloys, aluminium and other metals, fertilisers, chemicals, potash, plastics, PVC and synthetic rubber).

Against this background there is concern on whether and how the EU implemented the Uruguay Round agreements since 1995 at the WTO level. The answer might be found in several articles of Finger (2001a,b,c,d), Finger and Nogués (2001), and Adhikari (2002), who take a close look at the outcome, of the Uruguay Round and in the latest available WTO Trade Policy Review of the EU (2000).

According to Finger and Nogués (2001), the Uruguay Round commitments created a considerable amount of slippage on the EU side due to the way they were formulated (some were legal commitments, others were not). This view is confirmed by WTO's Trade Policy Review on the EU of 2000, which admits that the EU was implementing the Uruguay Round commitments on schedule<sup>4</sup>, although the extent of actual trade liberalisation must be judged as modest. Today's external trade regime of the EU still contains many trade impediments especially in agriculture and textiles and clothing.

Against these quite meagre Uruguay Round achievements, LDCs asked for existing agreements (such as the Uruguay Round Agreements) with their promises for agricultural goods and textiles and clothing to be thoroughly reviewed, before any

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<sup>3</sup> The MERCOSUR countries have a dominant net export position as far as agricultural trade is concerned. They dominate temperate export products (Valdés, 2002).

<sup>4</sup> The implementation period runs from July 1995 to July 2000.

discussions are opened on any further issues in new trade rounds. There are provisions for reviews in many of the existing agreements but so far none have been carried out (Christian Aid, 2001).

### **3. MERCOSUR's exports and the macroeconomic environment**

Before turning to externally imposed trade barriers and their impact on MERCOSUR's exports, the importance of the macroeconomic environment for MERCOSUR's exports will be investigated. MERCOSUR'S exports demanded by the EU are analysed on a sectoral level. Emphasis is placed on the role played by relative prices (i.e. the influence of the exchange rate policy and the development of price levels in the MERCOSUR countries and the EU) and the business cycle in the EU. In this section changes in trade policy are treated as 'non-existent' since in the period under study there were no remarkable changes in that respect.<sup>5</sup> The potential impact of cuts in tariffs and subsidies, i.e. the impact of trade liberalisation, will be analysed in Section 5.

According to Figure 1 the MERCOSUR countries, with the exception of Brazil; experienced considerable appreciations<sup>6</sup> of their real exchange rates ( $er_{areu}$ ,  $er_{cheu}$ ,  $er_{pyeu}$ ,  $er_{ureu}$ ) in relation to the EU. The trend toward appreciation began in 1989 as far as Argentina is concerned and in 1990 as far as Chile, Paraguay and Uruguay are concerned.

The objective of the following country-regressions across sectors and across time is to investigate two relevant issues. First, whether this real appreciation harmed the exports of specific countries and sectors or whether a different exchange rate policy would have helped to promote MERCOSUR's exports. Second, how dependent MERCOSUR's exports were on EU's business cycle. Essential for this train of thought is the assumption that observed sectoral exports are an acceptable approximation of export demand and that observed or realised exports are adequate export indicators when determinants of the export trend are to be investigated.

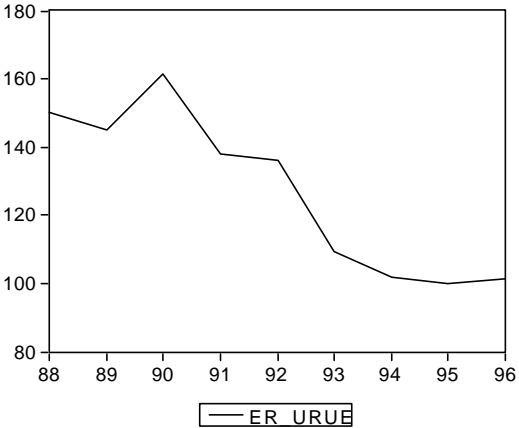
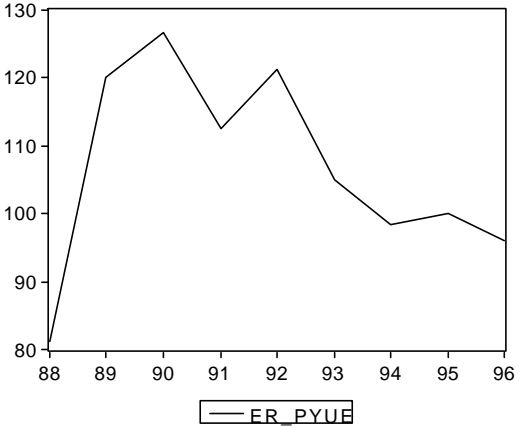
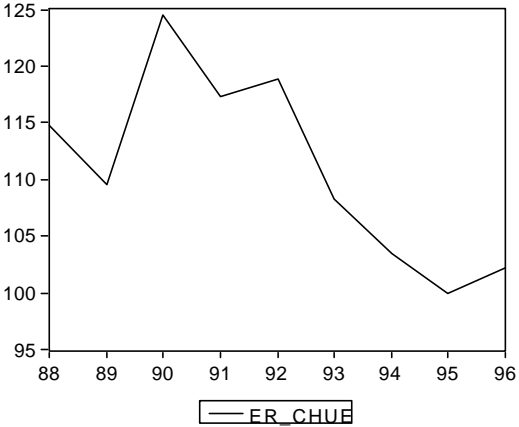
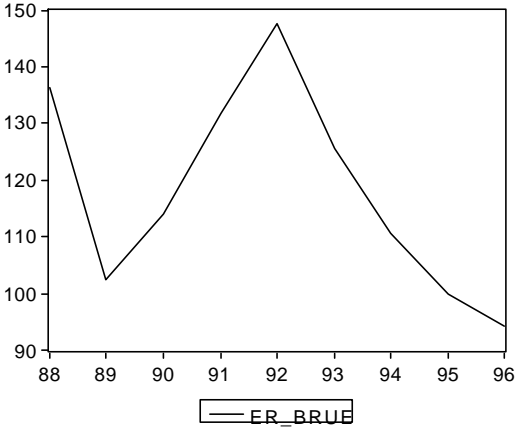
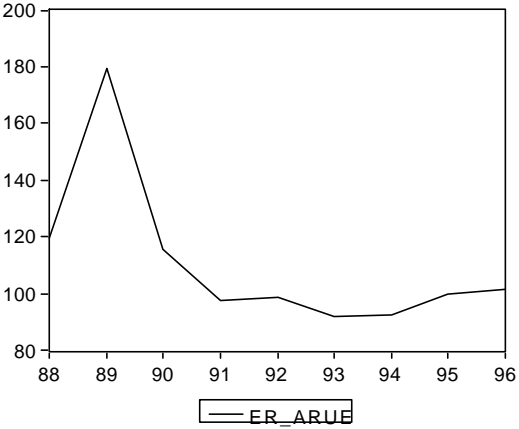
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<sup>5</sup> Stepwise cuts in tariffs and subsidies were decided from 1995 on. Transition phases of 6 years/10 years were granted for DCs' agricultural/textiles and clothing products. However, there were no legal obligations to enforce this agreement.

<sup>6</sup> The authors use the price notation of the exchange rate. A fall of the exchange rate stands for an appreciation.



**Figure 1: Real exchange rate development vis-à-vis the EU**



The model to evaluate the macroeconomic impact, i. e. the impact of the real exchange rate and the business cycle of the importing countries (EU) on export demand, is based on Goldstein and Khan (1978). It assumes imperfect substitution between domestic and foreign products (Francois and Reinert (1997). The model is first linearised by taking logarithms and then made dynamic by building in reaction lags, which are shaped as a geometric lag/Koyck lag with respect to the real exchange rate (Nowak-Lehmann D., 1997). This way, the impact of the real exchange rate in the more distant past is less than that of the real exchange rate in more recent years. As far as the series is concerned, we have a problem with the time series properties of our variables in this macroeconomic set-up. The variables are usually non-stationary (I(1)). However, if the variables are cointegrated, a model of the following form can be estimated<sup>7</sup>:

$$(1) \quad \ln x_{it} = \alpha + \beta_0 \lambda^0 \ln er_{it} + \beta_0 \lambda^1 \ln er_{i,t-1} + \dots + \beta_0 \lambda^k \ln er_{i,t-k} + \gamma \ln y_{meu_t} + u_{it}$$

with

$i$  = export sectors ( $i = 00, \dots, 97$ )<sup>8</sup>,  $t$  = time (annual data;  $t = 1988, \dots, 1996$ );  $\ln x$  = exports to the EU in logs<sup>9</sup>,  $\ln er$  = real exchange rate in logs<sup>10</sup>,  $\ln y_{meu}$  = real income of the EU (trade weighted)<sup>11</sup> and  $\beta_k = \beta_0 \lambda^k$  which attributes less importance to changes of the real exchange rate in the more distant past.  $\lambda^k$  stands for the weight of lag period  $k$  and decreases with increasing lag length and  $0 < \lambda < 1$ .  $u_{it}$  is the disturbance term which is  $IID \approx (0; \sigma_u^2)$ .

Estimation would be rather difficult in equation (1) given that (1) is not linear in the  $\beta_k$ 's. To make the model linear in its parameters we put the base equilibrium model (without geometric lags) in its partial adjustment version (see Greene, 2000). We obtain the following equations which are now intrinsically linear regarding their

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<sup>7</sup> The authors tested for non-stationarity of total exports and the other variables in the regression in the period of 1961 to 1996 given that the time span of our panel data (1988-1996) was too short to do reliable unit root tests. All variables turned out to be I(1), but cointegrated, i.e. in long-run equilibrium. This result was assumed to hold also for the panel data.

<sup>8</sup> A maximum of 67 sectors appeared as export sectors.

<sup>9</sup> Sectoral export deflators were not available.

<sup>10</sup> It is assumed for the period of 1988 to 1996 that tariffs and subsidies did not change and therefore changes in the real effective exchange rate are totally due to changes in the real exchange rate ( see WTO TRADE POLICY REVIEW of the EU, 1995).

<sup>11</sup> To keep the analysis simple this variable was assumed to be the same for each MERCOSUR country.

parameters. The partial adjustment model for the MERCOSUR countries (five panel analyses were performed) is of the following form

Argentina:

$$(2) \quad \text{I}x_{ar_{it}} = \alpha' + \beta' \text{ler}_{ar_{it}} + \gamma' \text{lyme}u_{it} + \lambda \text{I}x_{ar_{i,t-1}} + v_{it}$$

Brazil:

$$(3) \quad \text{I}x_{br_{it}} = \alpha' + \beta' \text{ler}_{br_{it}} + \gamma' \text{lyme}u_{it} + \lambda \text{I}x_{br_{i,t-1}} + v_{it}$$

Chile:

$$(4) \quad \text{I}x_{ch_{it}} = \alpha' + \beta' \text{ler}_{ch_{it}} + \gamma' \text{lyme}u_{it} + \lambda \text{I}x_{ch_{i,t-1}} + v_{it}$$

Paraguay:

$$(5) \quad \text{I}x_{py_{it}} = \alpha' + \beta' \text{ler}_{py_{it}} + \gamma' \text{lyme}u_{it} + \lambda \text{I}x_{py_{i,t-1}} + v_{it}$$

Uruguay:

$$(6) \quad \text{I}x_{ur_{it}} = \alpha' + \beta' \text{ler}_{ur_{it}} + \gamma' \text{lyme}u_{it} + \lambda \text{I}x_{ur_{i,t-1}} + v_{it}$$

with  $v_{it} = (1-\lambda)u_{it} = (1-\lambda)(\mu_i + v_{it})$ .  $\lambda$  is incorporated in  $\alpha'$ ,  $\beta'$  and  $\gamma'$ <sup>12</sup>.  $\mu_i$  denotes the unobservable individual effect and  $v_{it}$  denotes the remainder disturbance where  $\mu_i \approx \text{IID}(0; \sigma_\mu^2)$  and  $v_{it} \approx \text{IID}(0; \sigma_v^2)$  are independent of each other and among themselves.

In a pure time analysis framework the parameters of this model (eq. (2)-(6)) can be estimated consistently and efficiently by standard techniques (OLS) according to Greene (2000).

In a panel analysis framework GMM estimation is recommended since things around the error term get more complicated (Baltagi, 2002; Verbeek, 2000). This is because the lagged dependent variable is correlated with  $\mu_i$  and therefore correlated with  $v_{it}$  (this effect, however, will cancel out in a fixed effect model.<sup>13</sup>), and because the lagged dependent variable is correlated with  $\bar{v}_i$  through  $v_{i,t-1}$ . With few observations over time this correlation may create an estimation bias. We do not apply GMM, but OLS instead for the following reasons: First, time-invariant disturbances quite often play the role of 'catch all' variables. If they really are of economic relevance, then clearly separate regressions will have to be run for each important time-invariant characteristic (subgroup). Concerning, the correlation with  $\bar{v}_i$ , it has to be kept in

<sup>12</sup>  $\alpha' = \alpha(1-\lambda)$ ,  $\beta' = \beta_0(1-\lambda)$  and  $\gamma' = \gamma(1-2)$ .

<sup>13</sup> Compare Baltagi (2002, p. 13).

mind that the correlation bias also depends on  $\lambda$ , and if  $\lambda$  is small, the bias gets smaller. Third, GMM estimators in our case were not able to deal with cross-section invariant variables such as  $lymeu$ .<sup>14</sup> Fourthly, GMM estimators carry also a bias/efficiency trade-off depending on the number of moment conditions used (Baltagi, 2002).

The basic model (eq. (2) to (5)) with a common intercept and a common coefficient of the adjustment lag was estimated in two versions: version 1 with a common coefficient on the Mercosur-EU real exchange rate and a sector-specific coefficient on EU's business cycle and version 2, with a common coefficient on EU's real income and a sector-specific coefficient of the real exchange rate. The common coefficients on the above-mentioned variables are supposed to reflect the average business cycle and real exchange rate elasticity.

Table 1, which summarises the results of the pooled analysis regressions for each country, reveals that the assumption of adjustment lags was important for four countries (with the exception of Paraguay). The adjustment coefficients carried the expected right sign and were significant at  $\alpha = 1\%$  for Argentina, Brazil, Uruguay and significant at  $\alpha = 5\%$  for Chile. The model has good explanatory power for all countries under study.  $R^2$  adjusted was between 81.1 and 94.1. The number of sectors investigated varies in each country, since some countries, especially the smaller countries, do not export in all categories.<sup>15</sup>

Table 1 shows also that four countries (with exception of Brazil) dispose of a significant positive real exchange rate elasticity (taking the average of 56 to 68 sectors). The majority of sectors in Argentina, Paraguay and Uruguay and about half of the sectors in Chile display a significantly positive reaction with respect to changes in the real exchange rate. This means that in these countries appreciations of the real exchange rate hurt the export sectors and depreciations of the real exchange rate could improve the export performance. Therefore, one can conclude that exchange rate policy in these countries could contribute to a better export performance.

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<sup>14</sup> According to own estimates GMM estimators seem to be more sensitive to less variability in the data than Pooled Least Squares estimators.

<sup>15</sup> The detailed regression output is available from the authors upon request.

**Table 1: Real exchange rate and business cycle elasticities in the MERCOSUR<sup>1</sup>**

Country	Number of sectors	Average real exchange rate elasticity (version 1)	Sectoral significance (**) of EU's business cycle (version 1)	Average business cycle elasticity (version 2)	Sectoral significance (**) of real exchange rate (version 2)	Adj. ment coefficient (**), both versions	Adj. R <sup>2</sup> (R1 <sup>2</sup> in version 1 and R2 <sup>2</sup> in version 2)
AR	67	0.48*** (t=2.63)	All 67 sectors are business cycle elastic	2.66** (t=39)	47 out of 67 sectors are real exchange rate elastic	Signif.	R1 <sup>2</sup> =91.8 R2 <sup>2</sup> =91.6
BR	68	-0.04 (t=-0.21)	None of the sectors is business cycle elastic	0.14 (t=0.15)	14 out of 68 sectors are real exchange rate elastic	Signif.	R1 <sup>2</sup> =94.1 R2 <sup>2</sup> =94.1
CH	65	1.51** (t=1.95)	All 65 sectors are business cycle elastic	5.76*** (t=3.39)	29 out of 65 sectors are real exchange rate elastic	Signif.	R1 <sup>2</sup> =89.0 R2 <sup>2</sup> =89.0
PY	56	3.32*** (t=3.05)	None of the 56 sectors is business cycle elastic	3.81 (t=01.21)	55 out of 56 sectors are real exchange rate elastic	Insignif.	R1 <sup>2</sup> =85.3 R2 <sup>2</sup> =85.3
UR	61	1.37** (t=2.40)	All 61 sectors are business cycle elastic	5.26* (t=1.76)	42 out of 61 sectors are real exchange rate elastic	Signif.	R1 <sup>2</sup> =81.2 R2 <sup>2</sup> =81.1

<sup>f</sup> \*\*\* = confidence level of 99%; \*\* = confidence level of 95%; \* = confidence level of 90%

As far as reactions of the business cycle are concerned, only three out of five countries seem to be dependent on the economic business cycle in the EU. This might be due to the high proportion of agricultural products in MERCOSUR exports. Agricultural or agriculture-based exports are known to be income inelastic.

To sum up, the performance of MERCOSUR exports is dependent on a competitive real exchange rate. A shift towards an increased processing of agricultural goods and towards the production of manufactured goods<sup>16</sup> could strengthen the overall income-elasticity of MERCOSUR exports and allow profiting from growth in the industrial countries.

This leads to the issue of whether other factors, i.e. external conditions, such as EU's trade policy, impede the growth of MERCOSUR exports and whether improvement of market access to the EU countries should be given a high priority in MERCOSUR-EU trade negotiations.

#### **4. Extent and importance of trade barriers imposed on MERCOSUR exports**

According to Supper (2001) the EU provides export subsidies and support on a large scale to its agricultural and livestock producers, as well as its food industry. Export refunds amounted to US\$ 5.5 billion in 1997. The main beneficiary is the livestock and dairy sector with 80 per cent of the total. Considerable export subsidies are also granted to cereals (US\$ 620 million) and food industry products (US\$ 650 million).

Even though the WTO Agreement on Subsidies and Countervailing Measures in principle prohibits industrial export subsidies, which are contingent on export performance, similar programmes intended to promote exports continue to play a significant role in developed countries. According to OECD estimates, its member states spend US\$ 7.3 billion on such programmes (Supper, 2001).

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<sup>16</sup> Martínez-Zarzoso and Nowak-Lehmann D. (2002) report some progress on this process. Linder products increased their importance to the detriment of Heckscher-Ohlin products in the period of 1988 to 1996.

#### 4.1 EU most protected sectors

Not all sectors are affected by EU protection in the same way. In general, protection against agricultural products is much more pronounced than protection against manufactured goods. Table 2 lists the sectors or products which face very high or high non-tariff protection (column 3) and considerable tariff protection (column 4) from the side of EU.<sup>17</sup>

**Table 2: EU most protected sectors**

CI	Sectors affected by protection	Degree of non-tariff protection	Degree of tariff protection (t=tariff) <sup>f</sup>
00	Live animals chiefly for food	Very high	t=18%
01	Meat and meat preparations	Very high	t=51%
02	Dairy products	Very high	t=52%
03	Fish, crustaceans, molluscs, preparations thereof	High	t=12%
04	Cereals and cereal preparations	Very high	t=62%
05	Vegetables and fruit	Very high	Price dependent seasonal tariffs On average t=12%
06	Sugar, sugar preparations and honey	Very high	t=31%
07	Coffee, tea, cocoa, spices	High	t=7%
08	Feeding stuff for animals	High	t=37%
09	Miscellaneous edible products and preparations	Very high	t=25%
11	Beverages, fruit juices	High	Price dependent tariffs; Average t=25%
12	Tobacco and tobacco manufactures	Low	t=46%
22	Oil seeds and oleaginous fruit	High	t=3%
25	Pulp and waste paper	High	
26	Textile fibres and their waste	Very high	t=12%
32	Coal, coke and briquettes	High	
42	Vegetable oils and fats	High	t=25%
51	Organic chemicals	High	

<sup>17</sup> The sectors not mentioned show only low or no protection.

<sup>f</sup> An empty cell does not necessarily imply that tariffs are zero. A blank stands for very low tariffs. According to WTO's Trade Policy Review of the EU (2000) EU's average tariff for non-agricultural goods stood at 4.2% in 1999.

56	Fertilisers, manufactured	High	
59	Chemical materials and products	High	
61	Leather, leather manufactures	High	
63	Cork and wood manufactures (excluding furniture)	High	
65	Textile yarn, fabrics, made-up articles, related products	Very high	t=11%
67	Iron and steel	High	
68	Non-ferrous metals	High	
69	Manufactures of metal	High	
75	Office machines&automatic data...	High	
76	Telecommunications&sound	High	
78	Road vehicles	High	
83	Travel goods, handbags	High	
84	Articles of apparel, clothing acc.	High	
85	Footwear	High	

Determination of the degree of protection is fact-based, but must contain subjective elements. This is so because protection is not only achieved by the imposition of import tariffs<sup>18</sup>, but to a very large extent also by non-tariff measures (NTBs)<sup>19</sup>. Due to the existence and sometimes dominance of a multitude of non-tariff barriers, a weighting scheme based on UNCTAD-information on NTBs (Supper, 2001) had to be created. The information on tariffs comes from two sources. One is the UNCTAD report written by Supper (2001); the other is WTO's Trade Policy Review of the EU of 1995, 1997 and 2000.

#### **4.2 MERCOSUR's export sectors and EU trade protectionism**

After having identified the sectors most affected by EU protectionism, it must be clarified whether these sectors are of relevance in MERCOSUR's export trade and

<sup>18</sup> Import tariffs could be ranked easily.

<sup>19</sup> NTBs cannot be quantified in a satisfying way because of a lack of information on their US\$ or Euro amount concerning total trade and even sparser information on NTBs affecting MERCOSUR trade.



for MERCOSUR's economic development. We consider export sectors important if they are large (i.e. if they dispose of a high export share) and/or if they are characterised by high annual growth rates. Export shares and growth rates in Tables 3, 4 and 5 follow our own calculations. In order to avoid swings that distort the picture, averages were computed for the period of 1988/89 to 1996. The following two Tables contain an overview of the eight most dynamic or fastest growing sectors (Table 3) and the eight biggest export sectors (Table 4) in the MERCOSUR countries<sup>20</sup>.

However, these figures should be viewed with caution: A sector with a high export share could be of relatively high national importance and relative competitive strength. This strength might be the result of favourable resource endowment and might therefore be an indicator of comparative advantage (in the absence of policy). However, strength might well follow from the rational build-up of competitive strength by means of a whole set of policies (devaluation policy, industrial and technology policy, regional policy etc.). Interpretations of dynamic growth must be carefully done for similar reasons. Sector-specific industrial and technological policies might be the cause of above-average growth. But, a very low starting level might be another cause of above-average growth rates.

**Table 3 : MERCOSUR's fastest growing exporting sectors and their contribution to total exports (1988/9-96)**

Cl.	Product category	Average annual growth (1989-96)	Export share (1988-96)	EU protection
32	Coal, coke and briquettes	97.06%	0.01%	high
81	Sanitary, plumbing,...	61.94%	0.01%	low
33	Petroleum, petroleum products	60.44%	0.46%	low
23	Crude rubber	53.47%	0.07%	low
73	Metal working machinery	44.38%	0.13%	low
82	Furniture and parts thereof	40.07%	0.47%	low
57	Explosives and pyrotechnic prod.	38.16%	0.00%	low
11	Beverages	35.94%	0.28%	high

<sup>20</sup> Argentina, Brazil, Chile, Paraguay and Uruguay.

Table 3 shows that the most dynamic sectors have very low export shares, all of them lying between 0 and 1 per cent. It also indicates that low protection from the side of the EU accelerates the growth of exports. The fastest growing sectors are in general those involving agricultural products.

Table 4 lists MERCOSUR sectors with the highest export shares. The majority of large sectors is to be found in the categories 'agriculture, forestry, fishery', 'textiles' and 'metals' that are subject to high or even very high protection from the side of the EU. They belong to the category of Heckscher-Ohlin products the trade of which is explained by differentials in the resource endowment (labour, capital, human capital, natural resources). Traditional trade theory would assume a comparative advantage for the products in Table 4. Strategic trade policy or exchange rate management, in contrast, do not seem to be the causal factors of the observed export strength.

**Table 4: MERCOSUR's biggest sectors and their dynamics (1988/9-1996)**

Cl.	Product category	Export share (1988-96)	Growth dynamics (1989-96)	EU protection
08	feeding stuff for animals	14.40%	1.17%	high
05	vegetables and fruit	8.98%	4.47%	very high
28	metalliferrous ores ...	8.96%	9.67%	low
68	non-ferrous metals	8.08%	1.13%	high
22	oil seeds and oleaginous fruit	7.63%	-0.87%	high
02	dairy products	5.99%	0.94%	very high
61	leather, leather manufactures	2.71%	8.34%	high
03	fish, crustaceans, molluscs	2.56%	4.79	high

However, it is quite difficult to evaluate the growth performance of these sectors. From Table 5 it is clear that the average annual growth rates are significantly different in the categories: 'very high', 'high' and 'low' EU-protection. The average growth rate of the low protection sectors amounts to 17.09 per cent, whereas the growth rates of high and very high protection sectors are at 7.10 and 2.65 per cent, respectively. It should be borne in mind that these figures are not weighted by export shares, but they still shed light on the broad picture.

**Table 5: MERCOSUR's export growth rates in different categories of protection**

'Very high protection' sectors (9 sectors)		growth rate: 2.65 (unweighted)
00	Live animals chiefly for food	-0.85
01	Meat and meat preparations	2.63
02	Dairy products and birds' eggs	0.94
04	Cereals and cereal preparations	2.06
05	Vegetables and fruit	4.47
06	Sugar, sugar preparations and honey	1.27
09	Miscellaneous edible products	19.31
26	Textile fibres and their wastes	-0.58
65	Textile yarn, fabrics, made-up articles	-5.37
'High protection' sectors (23 sectors)		growth rate: 7.10 (unweighted)
03	Fish, crustaceans, molluscs, preparations	4.79
07	thereof	-3.19
08	Coffee, tea, cocoa, spices	1.17
11	Feeding stuff for animals	35.94
22	Beverages	-0.87
25	Oil seeds and oleaginous fruit	13.38
32	Pulp and waste paper	97.06
42	Coal, coke and briquettes	-1.80
51	Fixed vegetable oils and fats	1.72
56	Organic chemicals	18.66
59	Fertilisers, manufactured	-5.50
61	Chemical materials and products	8.34
63	Leather, leather manufactures	9.71
64	Cork and wood manufactures (excluding	0.06
67	furniture)	3.16
68	Paper, paperboard, articles of paper	1.13
69	Iron and steel	10.21
75	Non-ferrous metals	-3.21
76	Manufactures of metal	-16.95
78	Office machines&automatic data processing	-0.42

83	Telecommunications&sound recording apparatus	-2.88
84	Road vehicles	-3.24
85	Travel goods, handbags and similar containers	-3.91
	Articles of apparel and clothing accessories	
	Footwear	
'Low protection' sectors (34 sectors)		growth rate: 17.09 (unweighted)
12	Tobacco and tobacco manufactures	4.34
21	Hides, skins and furskins	14.23
23	Crude rubber	53.47
24	Cork and wood	6.07
27	Crude fertilisers and crude materials	7.02
28	Metalliferrous ores and metal scrap	9.67
29	Crude animal and vegetable materials	6.02
33	Petroleum, petroleum products	60.44
41	Animal oils and fats	10.78
43	Animal-vegetable oils-fats, processed...	9.76
52	Inorganic chemicals	10.93
53	Dyeing, tanning and colouring materials	10.70
54	Medicinal and pharmaceutical products	6.98
55	Essential oils&perfume materials	5.98
57	Explosives and pyrotechnic products	38.16
58	Artificial resins, plastic materials	14.14
62	Rubber manufactures	9.10
66	Non-metallic mineral manufactures	7.87
71	Power generating machinery and equipment	12.39
72	Machinery specialised for particular industries	7.04
73	Metalworking machinery	44.38
74	General industrial machinery&equipment	17.68
77	Electrical machinery, apparatus&appliances	8.81
79	Other transport equipment	27.16
81	Sanitary, plumbing, heating+lighting fixtures	61.94
82	Furniture and parts thereof	40.07
87	Professional, scientific&controlling instruments	14.09

88	Photographic apparatus, optical goods, ...	13.50
89	Miscellaneous manufactured articles	2.23
91	Postal packages not classified accord. to kind	7.14
93	Special transactions not classified accord. to ..	1.19
94	Animals, live, zoo animals, dogs, cats	2.97
95	Arms of war and ammunition therefore	15.37
97	Non-monetary gold	19.43

Tables 5 and 4 suggest that MERCOSUR's largest export sectors suffer most in terms of growth from EU protection. In the following section, the quantitative impact of EU protection on MERCOSUR exports shall be analysed.

## 5. The impact of trade liberalisation on MERCOSUR's exports

The impact of trade liberalisation (from the side of the EU)<sup>21</sup> on MERCOSUR's exports will be quantified via a simulation study. Emphasis is laid on simulating the effects of protection (in terms of forgone exports) on MERCOSUR's 'most highly' and 'highly' affected sectors since only these product categories might significantly profit from free trade with the EU.

### 5.1 Assumptions underlying the simulation study

- In this study it is assumed that changes in EU's trade policy can be totally captured in the relative prices between the MERCOSUR and the EU. According to this assumption EU's trade liberalisation would be reflected in an improvement of MERCOSUR's price competitiveness. Competitiveness in product quality is not considered in this study.<sup>22</sup>

<sup>21</sup> During the 5<sup>th</sup> Round of negotiations between the MERCOSUR and the EU (held in Montevideo from 2-6 July 2001) the European Union unilaterally presented to MERCOSUR the Tariff Offer and negotiation texts for goods, services and government procurement.

<sup>22</sup> Price competitiveness has priority for MERCOSUR's rather homogeneous export products that face very high or high EU protection.

- Furthermore, liberalisation is assumed to be perfect and comprehensive: Thus, tariff liberalisation brings EU's tariffs down to zero (stage 1 of trade liberalisation, scenario 1) and additional abolition of non-tariff barriers brings EU's subsidies down to zero (stage 2 of trade liberalisation, scenario 2).
- In the simulation that will be run, the actual price effect of non-tariff barriers is assumed to correspond to a subsidy of 20 per cent in 'very high protection' sectors and of 10 per cent in 'high protection' sectors.
- In the simulation study, price competitiveness is represented by the real effective exchange rate between MERCOSUR and the EU. The real effective exchange rate is determined by the nominal exchange rate ( $e$ ), the price level in the EU as measured by the GDP deflator ( $P_{EU}$ ), and the price level in the MERCOSUR countries, also measured by the GDP deflator ( $P_{MERCOSUR}$ ). Also, subsidies in per cent ( $s$ ) and the degree of tariff protection in per cent ( $t$ ) imposed by the EU enter the formula of the real effective exchange rate. The term is computed on a trade weighted basis, (i.e. the export trade weights of the MERCOSUR countries stand for the importance of trade links with the respective EU countries). Increases in  $e$ ,  $P_{EU}$  and decreases in  $s$ ,  $t$  and  $P_{MERCOSUR}$  are reflected in MERCOSUR's improved price competitiveness (see formulas in section 5.2.1).

## 5.2 The simulation procedure

The simulation study relies on a partial equilibrium analysis (Francois and Hall, 1997). This has several reasons: First, general equilibrium analyses are very hard to perform when many sectors are involved. EU protection concerns 32 sectors out of 67 sectors (in the case of Argentina). Second, the majority of these sectors have only weak forward and backward linkages. An exception could be the food and the furniture industry.

The simulation study proceeds in three steps.

Step 1: A dynamic model is built which explains actual sectoral exports given existing EU trade barriers. The estimation results thereof are presented in section 5.2.1 (Table 6a and 6b).

Step 2: Real effective exchange rates under the scenario of trade reform 'stage 1' (scenario 1) and the scenario of trade reform 'stage 2' (scenario 2) enter the

simulation based on the 'step 1' results. Forecast (=simulated) exports are computed for each year (1988 to 1996).

Step 3: Average export values are computed for observed and simulated exports for the period of 1988 to 1996. The impact of trade liberalisation is calculated in per cent. The simulation results can be found in tables 7a and 7b.

### 5.2.1 Determinants of actual export demand and estimation of actual coefficients

Actual export demand in step 1 (LX) is determined by the business cycle (real income) of the EU (LYMEU) and the actual sector-specific real effective exchange rate (LEERVH and LEERH). It is further assumed that adjustments to changes in real income and real effective exchange rates are imperfect and slow, thus suggesting a partial adjustment model (in analogy to the partial adjustment model in section 3). Only the Argentinean case is presented and OECD trade data for the period of 1988 to 1996 are used.

**Table 6a: The impact of the actual real effective exchange rate in 'very high' protection sectors<sup>23</sup>**

Method: Pooled Least Squares			
Sample(adjusted): 1989 1996			
Included observations: 8 after adjusting endpoints			
Number of cross-sections used: 9			
Total panel (balanced) observations: 72			
Variable	Coefficient	t-Statistic	Prob.
C	-83.69215	-1.574228	0.1207
LYMEU	3.688820	1.618725	0.1108
LXAREU?(-1)	0.594611	5.447924	0.0000
LEERVHAR_00	0.661516	1.782765	0.0797
LEERVHAR_01	1.220853	3.063758	0.0033

<sup>23</sup> In Argentina 9 out of 67 sectors are affected by 'very high' EU protection. A dynamic panel analysis is run where emphasis is put on the sector-specific impact of the real effective exchange 'LEERVHAR'. In the 'very high' non-tariff protection sectors the real effective exchange rate is computed as:  $REERVH = [e * P_{EU} * (1-0.2)] / [P_{MERCOSUR} * (1+t)]$  allowing for a sector-specific tariff (see table 2, last column).

LEERVHAR_02	0.425881	1.031865	0.3063
LEERVHAR_04	1.068050	2.680888	0.0095
LEERVHAR_05	1.106135	2.995864	0.0040
LEERVHAR_06	0.897497	2.382470	0.0204
LEERVHAR_09	0.486454	1.255407	0.2142
LEERVHAR_26	1.001246	2.737581	0.0081
LEERVHAR_65	0.83919	2.315707	0.0240
R-squared	0.970924	Prob(F-stat.)	0.00000
Adjusted R-squared	0.965593	Durbin-Watson	1.9004514

**Table 6b: The impact of the actual real effective exchange rate in 'high' protection sectors<sup>24</sup>**

Method: Pooled Least Squares			
Sample(adjusted): 1989 1996			
Included observations: 8 after adjusting endpoints			
Number of cross-sections used: 23			
Total panel (balanced) observations: 176			
Variable	Coefficient	t-Statistic	Prob.
C	-54.75399	-1.444719	0.1506
LYMEU	2.489429	1.531781	0.1277
LXAREU?(-1)	0.512568	7.354068	0.0000
LEERHAR_03	0.921338	3.336206	0.0011
LEERHAR_07	0.521989	1.891243	0.0605
LEERHAR_08	1.110387	3.818660	0.0002
LEERHAR_11	0.637481	2.227859	0.0274
LEERHAR_22	0.964187	3.546959	0.0005
LEERHAR_25	0.673410	2.492548	0.0138
LEERHAR_32	0.307833	1.099847	0.2732
LEERHAR_42	0.789777	2.790355	0.0059
LEERHAR_51	0.677295	2.510671	0.0131
LEERHAR_56	0.047565	0.155572	0.8766
LEERHAR_59	0.500757	1.838732	0.0679
LEERHAR_61	0.849807	3.157346	0.0019
LEERHAR_63	0.298198	1.063242	0.2894
LEERHAR_64	0.428687	1.557544	0.1214
LEERHAR_67	0.690943	2.559599	0.0115
LEERHAR_68	0.659800	2.444727	0.0157
LEERHAR_69	0.634844	2.342285	0.0205

<sup>24</sup> High EU protection affects 23 out of 67 Argentinean sectors. The sector-specific impact of the real effective exchange rate 'LEERHAR' is estimated by means of a dynamic panel analysis. In the 'high' protection sectors the real effective exchange rate is:  $REERH = [e * P_{EU} * (1-0.1)] / [P_{MERCOSUR} * (1+t)]$ , also allowing for a sector-specific tariff (see table 2, last column).



LEERHAR_75	0.496043	1.824453	0.0701
LEERHAR_76	0.369010	1.330614	0.1853
LEERHAR_78	0.679081	2.515059	0.0130
LEERHAR_83	0.377693	1.360230	0.1758
LEERHAR_84	0.588224	2.171953	0.0314
LEERHAR_85	0.374600	1.357891	0.1765
R-squared	0.932914	Prob(F-stat.)	0.00000
Adjusted R-squared	0.921733	Durbin-Watson	2.02850

Table 6 a and b show the impact of the actual real effective exchange rate and the business cycle on Argentinean exports. Both, in the 9 'very high' and the 23 'high' protection sectors, the actual real effective exchange rate carries the expected positive sign and is generally significant ( $\alpha = 5\%$ ). The business cycle, in contrast, is not significant for  $\alpha = 5\%$ , but significant for  $\alpha = 11\%$  ('very high' protection sectors), respectively  $\alpha = 13\%$  ('high' protection sectors). The adjustment coefficient carries the expected positive sign and is significant, even for  $\alpha = 0\%$ .

To sum up: Since the actual real effective exchange rate is significant and positive, a simulation study on the impact of improved price competitiveness (achieved through trade liberalisation) seems indicated for Argentina.<sup>25</sup> All sectors that are characterised by a significant and positive price reaction can benefit from EU trade liberalisation.

### 5.2.2 The impact of trade liberalisation on Argentinean exports

After having estimated the above coefficients, exports are simulated under two scenarios. In the following tables (Tables 7a and 7b) the impact of zero tariffs (scenario 1: trade liberalisation, 'stage 1', column 3) and zero tariff +zero subsidies (scenario 2: trade liberalisation 'stage 2', column 4) is presented. The mean annual increase of exports in per cent is calculated for each sector. It is expected that complete liberalisation with zero tariffs and zero subsidies (scenario 2) promotes exports more than a 'simple' abolition of tariffs (scenario 1).

<sup>25</sup> The real effective exchange rate was not sufficiently significant for many 'very high' and 'high' protection sectors in Brazil, Chile, Paraguay and Uruguay.

**Table 7a: The impact of trade liberalisation on exports in 'very high' protection sectors**

		Impact of abolition of tariffs (scenario 1) (in terms of higher level of sectoral exports in per cent per annum)	Impact of abolition of tariffs & subsidies (scenario 2) (in terms of higher level of sectoral exports in per cent per annum)
Cl.	Sector		
00	Live animals	1.39%	3.19%
01	Meat&meat preparations	3.74%	5.79%
[02	Dairy products&birds' eggs	3.73%	5.48%]
04	Cereals&cereal preparations	4.36%	6.42%
05	Vegetables&fruit	0.91%	2.82%
06	Sugar, sugar preparations, honey	2.22%	4.15%
[09	Miscellaneous edible products	1.91%	3.69%]
26	Textile fibres	0.91%	2.79%
65	Textile yarn, fabrics	0.88%	2.69%
	Unweighted average	2.06%	3.98%
[...]	not significant real effective exchange rate coefficients for $\alpha = 10\%$		

In the 'very high' protection sectors the percentage increase of exports is around 2.06 per cent when tariffs are reduced to zero ('stage 1' trade liberalisation, column 3) and about 3.98 per cent when both tariffs and subsidies are abolished (column 4). Complete liberalisation has a larger impact on exports than pure tariff-liberalisation, as expected. However, the simulation results also make clear that trade liberalisation on the EU side has a noticeable impact on Argentinean exports. Given a real effective exchange rate elasticity of 0.97 (computed from table 6a, significant coefficients only), the impact of 'stage 1' trade liberalisation corresponds to a real depreciation of 2.12 per cent per annum and that of a 'stage 2' trade liberalisation is equivalent to a real depreciation of 4.10 per cent per annum.

**Table 7b: The impact of trade liberalisation on exports in 'high' protection sectors**

		Impact of abolition of tariffs (scenario 1) (in terms of higher level of sectoral exports in per cent per annum)	Impact of abolition of tariffs & subsidies (scenario 2) (in terms of higher level of sectoral exports in per cent per annum)
Cl.	Sector		
03	Fish, crustaceans, molluscs, preparations thereof	0.76%	1.53%
07	Coffee, tea, cocoa, spices, manufactures thereof	0.41%	1.01%
08	Feeding stuff for animals	2.44%	3.28%
11	Beverages	1.49%	2.21%
22	Oil seeds and oleaginous fruit	0.05%	0.82%
25	Pulp and waste paper	-0.08%	0.60%
[32	Coal, coke and briquettes	0.45%	0.90%]
42	Fixed vegetable oils and fats	1.56%	2.30%
51	Organic chemicals	0.06%	0.74%
[56	Fertilisers, manufactured	0.00%	0.21%]
59	Chemical materials and products	0.11%	0.70%
61	Leather, leather manufactures	-0.06%	0.68%
[63	Cork and wood manufactures	0.09%	0.56%]
[64	Paper, paperboard, articles of paper	0.22%	0.78%]
67	Iron and steel	0.12%	0.81%
68	Non-ferrous metals	0.01%	0.67%
69	Manufactures of metal	-0.05%	0.63%
75	Office machines, automatic data processing equipment	-0.08%	0.48%
[76	Telecommunications & sound recording apparatus	-0.29%	0.22%]
78	Road vehicles	-0.02%	0.67%
[83	Travel goods, handbags	0.03%	0.57%]
84	Articles of apparel & clothing accessories	0.02%	0.65%
[85	Footwear	0.17%	0.68%]
	Unweighted average	0.42%	1.11%
[...]	not significant real effective exchange rate coefficients for $\alpha = 10\%$		

In the 'high' protection sectors the impact of trade liberalisation is much less perceptible. 'Stage 1' trade liberalisation only increases the export volume by 0.42 per cent. 'Stage 2' trade liberalisation has a slightly larger impact. It enlarges exports

by 1.11 per cent. The impact of a 'stage 1' trade liberalisation is comparable to a real depreciation of 0.59 per cent per annum and that of a 'stage 2' trade liberalisation is equivalent to a 1.57 per cent real depreciation per annum when the real effective exchange rate elasticity is 0.71 (computed from table 6b, significant coefficients only).

In sum: Argentinian 'very high' protection sectors would perceptibly profit from trade liberalisation. It should be added that no simulations were performed for Brazil, Chile, Paraguay and Uruguay where simulation results would have been unreliable due to the fact that the coefficients of real effective exchange rate were not highly significant ( $\alpha = 1\%$ ) in many 'very high' protection sectors.

## **6. Outlook and conclusions**

The analyses for the period of 1988 to 1996 revealed four things: First, a more competitive real exchange rate could improve MERCOSUR's export performance. Second, EU protection has had in general a very negative impact on MERCOSUR export growth rates. The most dynamic sectors were on average characterised by low EU-protection. 'Low protection sectors' grew much faster than 'high protection sectors', and 'very high protection sectors' grew the slowest. Third, EU trade protection also had a large impact on the export level in the 'very high protection' sectors as revealed by a simulation study for the Argentinean economy. Fourthly, EU protection strongly affected MERCOSUR sectors with the highest export shares. These sectors are not only crucial for GDP growth, but are also the main suppliers of foreign exchange.

To conclude, the following proposals can be made against the background of actual outcomes of the Uruguay Round and from some of the findings revealed by the authors' econometric investigation:

- Some kind of exchange rate management seems to be advisable for the MERCOSUR countries. Permanent appreciation of the real exchange rate should be avoided. This would help export growth to some extent, depending on the specific exchange rate elasticities.
- The old Uruguay Round agreements of 1994 which contained several improvements for LDCs in general and the MERCOSUR countries ( as exporters of

agricultural products and textiles/clothing), should be reviewed with rigour and placed again on the 'after Doha' agenda.

- Trade talks between the MERCOSUR and the EU should be pursued but seen from a realistic perspective. A Free Trade Agreement between the EU and MERCOSUR that also includes sensitive goods (such as agriculture and textiles/clothing) will be difficult to reach given the experience of the last 9 years. EU concessions will depend on new regulations for services and intellectual property rights from the side of MERCOSUR. These concessions might be very costly<sup>26</sup> for these countries.

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<sup>26</sup> See remarks of Finger and Nogués, 2001e.

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