

# Tariffs, TRQs and Import Composition: The Case of Beef Trade Between the EU and Mercosur

Jean-Christophe BUREAU, Maria Priscila RAMOS and Luca SALVATICI  
UMR Economie Publique, INRA-INAPG, Paris, France and  
University of Molise, Campobasso, Italy

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## **Abstract**

Specific tariffs and tariff-rate quotas (TRQ) affect the composition of imports. By altering price ratios between products of different quality, such provisions can create an Alchian-Allen "shipping the good apples out" effect. The quality upgrading affects consumer and producer welfare. Because the EU tariff structure includes a large number of composite or specific tariffs, especially in agriculture, and the EU offers a managed trade liberalization through a multiplicity of TRQ, this issue is of particular importance in the EU-Mercosur trade negotiations. We model consumer demands for traded goods of different quality in the presence of a TRQ, deriving comparative statics results for changes in each policy variable (in-quota and out-of-quota ad-valorem and specific tariffs, quota level). We use detailed data on EU's beef imports from Mercosur countries to test the theoretical results and assess the welfare effects of the quality upgrading component of tariffs and TRQs, based on actual negotiation proposals. As predicted by theory, TRQs have an impact on the average quality of exports.

**Keywords:** Mercosur, European Union, quality, international trade, TRQ.

**JEL Classification:** F13, F15, F17, Q17.

# 1 INTRODUCTION

EU agricultural tariffs are very uneven. Because they are defined at the 10 digit level of the statistical classification, they sometimes vary a lot within a particular category of goods, e.g. a chapter (2 digit level) of the Harmonized System of classification, or even within sections at the 4 digit or 6 digit levels. Analyzing the impact of a trade agreement, there is an important loss of information if we work at the aggregate level (Martin and Manole 2003, Anderson 1985). Models used in trade negotiations typically distinguish 20 to 30 agricultural and food products at best. They ignore changes in tariffs or other protection instruments that may lead to significant changes in the composition of imports within a product category, such as meat, or even beef, for example.

In addition to the tariff dispersion, other aspects of the EU tariff structures also contribute to the contrasting effects of trade liberalization across product varieties and qualities. For example, the EU makes extensive use of specific and composite tariffs (i.e. a combination of ad-valorem and specific components) in the agricultural sector. It is well known that such tariffs impose a proportionally higher protection on low unit value products, and have a quality upgrading effect on imports. A cut in these tariffs may therefore change the composition of imports towards more lower unit value products. The EU also opened large tariff rate quotas (TRQs) so as to fill the minimum access commitments of the Uruguay Round agreement on agriculture. Because the out-of quotas tariffs are often very high, these TRQs often act as a *de facto* quantitative barrier. Again, it is well-known that quantitative limits on the volume of imports results in a bias towards higher quality products (Boorstein and Feenstra 1991). Should tariffs decrease so that these TRQs become non binding, significant effects could result on the composition of imports. In addition, TRQs are sometimes restricted to particular qualities of products, which can therefore access the EU market with lower tariffs. Often, these are high quality products, such as the so-called “Hilton” beef, or particular varieties of maize (“Flint” corn)<sup>1</sup>. Consequently, it is likely that the same tariff change at the aggregate level may lead to different consequences in terms of the mix of product varieties and qualities imported.

These issues are of particular importance in the case of the ongoing negotiations between the EU and Mercosur countries. Agricultural products represent a large proportion of Mercosur exports to the EU. Some of these exports face zero or very low tariffs (coffee, soybean), while other products in which Mercosur countries have a considerable comparative advantage (sugar, beef, dairy products) are heavily protected by the EU, in particular by specific tariffs. Most of the trade in these products takes place under TRQs, some of them being opened only for high quality products. Within the framework of the negotiations for a free(er) trade area, the EU offered a greater access for Mercosur agricultural products under a larger set of TRQs.

From the Mercosur point of view, trade liberalization, either within a regional agreement or under a multilateral reduction of tariffs, will be affected by the changes in the EU trade policy. Different types of trade reform will benefit some particular categories of producers more than to others.

Changes in the composition of imports will also affect welfare in the importing country. Indeed, if quotas restrict imports for certain varieties this will result in a welfare loss if utility depends positively on the number of varieties available (horizontal differentiation framework). Assuming a vertical

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<sup>1</sup>The European Union allocated a TRQ to Argentina, Brazil, Uruguay, Paraguay, USA, Canada, Australia and New Zealand, for fresh and chilled beef, (“Hilton” beef which is considered high-quality). Flint corn is a special variety of maize, for which the EU is considering opening an important quota within the ongoing trade negotiations with the Mercosur.

differentiation framework, if a specific tariff results in exports of higher quality products only, some consumers with a willingness to pay such that they would have preferred lower quality and cheaper products will be constrained in their choice. At some point, if low quality products are not present on the market, there might be a concentration of consumption beyond a particular quality threshold “à la Shapiro”, which is not socially desirable, since the range of qualities available does not span the whole range of the distribution of willingness to pay (Shapiro 1983).

In this paper, we assess the consequences of trade liberalization scenarios on the composition of beef imports from Mercosur. We first provide a brief description of the literature, presenting the EU trade policy vis-à-vis the Mercosur about agricultural products. We then introduce a partial equilibrium model which helps us to explain the relationship between different trade barriers and imports’ quality.

## 2 Trade barriers and import composition changes

Trade composition is usually analyzed with models allowing for product differentiation. Characteristics of products are represented using either an *horizontal* or a *vertical* differentiation framework. When goods are vertically differentiated, all agents exhibit identical preferences based on quality attributes of the goods. Freer trade usually make products available at a lower price, and depending on their willingness to pay for quality, consumers will either buy cheaper or higher quality products. With horizontal differentiation, agents have heterogeneous preferences for different varieties of products. Often, trade liberalization results in a higher welfare through the combination of lower prices and increased product variety.

The discussion about the effects of trade policy instruments on import quality composition dates back to the 19th century with the famous case of *shipping good apples out*, which was later formalized by and known as the Alchian-Allen effect. This effect points out that fixed per unit transport costs result in a bias towards more expensive qualities or varieties of goods (Alchian and Allen 1983). The Alchian-Allen effect is intimately tied to microeconomic consumer theory<sup>2</sup>. Because per unit transport costs reduce the relative price of the most expensive variety, they shift the composition of imports raising the relative consumption of the higher quality variety. Specific tariffs have the same effects as per unit transport costs under perfect competition (Borcherding and Silberberg 1978).

Assuming the same hypotheses of Borcherding and Silberberg (1978), Falvey found that import composition will also shift with the introduction of quantitative restrictions (quotas). However, import composition remains unchanged when a country introduces ad-valorem tariffs or values restrictions, such as variations in the exchange rate. Identical conclusions are found by Falvey assuming a foreign export monopoly (Falvey 1979).

The Alchian-Allen conjecture has been recently revisited by Hummels and Skiba, modelling quality differentiation through CES demand functions and assuming perfect competition. Their results confirms that per unit transport costs do result in a demand shift in favor of higher quality imports, but they also show that, in the presence of more than one distortion, an ad-valorem tariff

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<sup>2</sup>The Alchian-Allen effect results from the semi-definiteness of the Hessian of the expenditure function, see (Silberberg and Suen 2001), page 335.

may reduce relative import demand for high-quality imports (Hummels and Skiba 2004). The effect of quantitative barriers to imports on quality was analyzed extensively by Anderson in a series of studies (Anderson 1985, Anderson 1991, Anderson 1988). The theoretical approach is similar to that of Hummels mentioned above, though both dimensions of trade differentiations (vertical and horizontal) are considered.

Another strand of the literature deals with the choice of quality by producers. In terms of trade policy, this literature considers the effects of minimum quality standards in addition to tariff barriers and quantitative restrictions. The introduction of a minimum standard of quality excludes some qualities of goods from the markets, so that high quality consumers will be better off, while consumers who prefer a lower quality than the minimum standard will be harmed (Shapiro 1983).

Feenstra shows that the number of characteristics (i.e., services per unit) of a good will increase when an exporting firm faces a quantitative constraint (such as Voluntary Export Restraint - VER) (Feenstra 2004). Rodriguez reaches similar conclusions by comparing the effects of a quota, an ad-valorem tariff and a quality control measure on trade creation, trade diversion and welfare (Rodriguez 1979). In both papers, the focus is on vertical differentiation. If the policy objective is to increase the volume of physical imports, a tariff is preferable, because a quota or a quality control measure introduces an additional welfare cost (on the production side). If the policy objective is to increase quality content in imports, the preferable instrument is quality control and then the quota, because an ad-valorem tariff has no effect on quality.

Krishna (1987) introduces some hypotheses which modify the results obtained by Rodriguez. His crucial assumption is that the foreign producer enjoys monopoly power in production, so that he is able to choose both the level of quality and the volume supplied. Krishna's general results are that *"quotas do not necessarily increase the quality of tradable goods and ad-valorem tariffs do not necessarily leave unchanged the quality level of the goods"* (Krishna 1987).

Several contributions (Anderson 1985, Anderson 1991, Aw and Roberts 1986, Feenstra 1987, Feenstra 1988, Boorstein and Feenstra 1991) focus on the ex-post measurement of the effect of particular trade measures (e.g. quotas, VER) on the composition of imports or on the quality of imports. In order to isolate the quality upgrading or downgrading effects, most of them rely on a decomposition based on index numbers (Feenstra 1988). Feenstra (1987, 1988) tests the quality upgrading due to the voluntary export restraint (VER) applied to US car imports from Japan. He uses an hedonic price approach, estimating the value of each characteristic which determines the quality of product. The main conclusion of this work is *"two-thirds of the import price rise following the VER is due to quality improvement, with the remaining one-third a de facto price increase"* (Feenstra 1987). Feenstra and Boorstein (1991) assess the welfare impact of the VER on steel imported in the US. They establish that additional welfare cost of quality change can be computed as the difference between the inverse of a Paasche price index minus the inverse of an exact price index. In the case of steel imports. This additional welfare cost turns out to be roughly equivalent to the conventional efficiency loss, while the value of quota rents could be considerably larger.

Aw and Roberts (1986) use index numbers to analyze the quality upgrading due to an ordinary market agreement (OMA) in the footwear sector between the U.S., Taiwan and South Korea. Results are consistent with Falvey's propositions (Falvey 1979).

Regarding the specific literature on the economic effects of the TRQs, contributions have mainly focused on the particularities of TRQs relative to the standard quotas, but the link with the quality of import composition has not been explicitly dealt with. Tariff quotas differ from regular quotas, in the sense that the exporter faces no absolute quantitative restriction, but has to pay the Most favored nation (MFN) tariff beyond a certain volume of exports. Clearly, if this tariff is prohibitive, TRQs are similar to regular quotas, but this is not always the case. Boughner et. al (2000) have provided detailed analyzes of the microeconomic effects of TRQs in a number of cases (quota binding, not binding, etc.) (Boughner and Sheldon 2000). Abbot and Paarlberg also analyzed the effect of TRQs on the supply side, while IATRC (2001) provides empirical elements regarding the role and place of TRQs in the agricultural and food sector (Abbott and Paarlberg 1998, De Gorter and Tangermann 2001).

### 3 EU trade policy vis-à-vis the MERCOSUR

Mercosur countries are considered as very efficient producers that may crowd out EU production in some key agricultural sectors, including sugar, beef, sheep and corn. The EU has long erected high tariff barriers for these products. Mercosur countries complain vehemently about EU tariff protection in these sectors even though they export large quantities of other products, such as soybean or coffee, which face no protection in the EU. In both regional and multilateral negotiations Mercosur countries demand a larger access to the EU market for these protected goods. Mercosur countries are considered as developing countries, and are eligible to the EU Generalized System of Preferences (GSP), but they only get limited benefits from preferential market access. The agricultural sectors mentioned above are excluded from the list of the products covered by the GSP. Moreover, Mercosur exports are often “graduated”, i.e. their exports are considered as too competitive to deserve a preferential treatment. Altogether, even if some restrictions regarding Argentinean exports were lifted during the 2002 economic crisis, Mercosur countries face much higher tariffs than ACP countries under the Cotonou Agreement, or Least developed countries, under the “Everything but arms” initiative (see Appendix).

For the products that are heavily protected in the EU, the only significant access available is under TRQs. Indeed, the EU opened a variety of TRQs so as to comply with the minimum access requirement of the Uruguay Round (“minimum access” TRQs), to protect pre-existing market access (“current access” TRQs), or to compensate Mercosur countries for the trade diversion resulting from EU enlargement (see Appendix).

The case of beef illustrates the complex effects of EU trade policy on the quality of Mercosur exports. In the following, we will focus on this sector, not only for its importance in trade negotiations, but also because it includes several interesting features regarding the policy instruments used by the EU. First, TRQs accessible to Mercosur countries were only opened for the high quality “Hilton” beef. The reasons for the opening of quotas for this particular range of products are both historical (demand from a particular industry) and economical. Demand of high quality parts is high in some EU countries, and there might be fewer protectionist pressure from local producers on this segment of the market. However, due to the low costs of production resulting from the combination of large structures, favorable climatic conditions, and cheap labor, Mercosur countries manage to export in excess to the quota, notwithstanding the presence of very high tariffs <sup>3</sup>.

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<sup>3</sup>IN 2004, for example, Argentina has exported 29300 tons of “Hilton” beef (28000 tonnes in-quota and 1300 tonnes

Negotiations on a free(er) trade area between the EU and Mercosur have been lasting for years. Agricultural products have been a considerable bone of contention, Mercosur countries insisting on a much larger access to the EU market in this area. In the most recent proposals, the EU offered concessions under several TRQs. The EU-Mercosur relationship is based on the EU-Mercosur Inter-regional Framework Co-operation Agreement signed on 15 December 1995 in Madrid. It entered into force in June 1999, with the signature of the agreement between the EU and the Mercosur+Chile in Rio de Janeiro. Since then, both economic blocks have been engaged in several rounds of negotiations, the most recent one (12th round) took place in 2004 (see Appendix). In the 9th round, agricultural products were regrouped in 5 categories (A,B,C,D and E). Category E includes the most sensitive products under negotiation (cereals, olive oils, bovine and pork meat, eggs, poultry meat, sugar, fruits and vegetables). Mercosur countries initially demanded larger concessions based on tariff cuts. Negotiations are presently suspended but EU and Mercosur recently committed to restart the negotiations before the WTO Round in Hong Kong in December 2005 (see Appendix).

Even if Mercosur countries have so far turned down the EU offer for a “managed trade” liberalization based on TRQs, it is worth examining the consequences of changes in the various instruments available: tariffs (specific and ad-valorem) in-quota and out-of-quota or quotas. We will show how effects can be different in terms of import composition. This has significant consequences on the political economy of negotiations, since Mercosur countries supply different types of beef products.

## 4 Conceptual issues

In this section, we present a simple model with two qualities of the same good. Rather than modelling demand for quality with a continuum of consumers and a distribution of willingness to pay for quality (a typical approach in vertical differentiation), we use a standard CES function, normally used in the literature dealing with horizontal differentiation. However, here we do not use the Krugman or Dixit-Stiglitz approach, which relies on monopolistic competition and where the own and cross price demand elasticities depend on the number of varieties. In our approach, parameters represent consumers’ relative preferences for the two qualities in imports (Hummels and Skiba 2004).

We assume that all exporters produce both qualities and markets are competitive. In order to provide a stylized representation of some particular aspects of the EU tariff structure, we introduce the following representation of the consumer behavior, subject to a budget constraint. We assume that a representative consumer maximizes utility, represented by a CES function of two imported goods (equation 1).

$$U(m_l, m_h) = (\lambda_h(m_h)^\rho + \lambda_l(m_l)^\rho)^{1/\rho} \quad (1)$$

where  $m_h$  is the high-quality import demand,  $m_l$  is the low-quality import demand. All parameters are positive. The quality parameters are such that  $\lambda_h > \lambda_l$  and  $\rho \leq 1$  shows the degree of substitution between qualities.

First, we present the utility maximization problem under a free trade situation. We then introduce a TRQ on high-quality imports and a mixed tariff on low-quality imports.

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out-of-quota) and 37900 tons of others fresh beef (SENASA Stats, Argentina).

## 4.1 Free trade

The optimization problem for consumers in the absence of trade policies, and assuming exogenous world prices is:

$$\begin{aligned} \text{Max} \quad & U(m_l, m_h) \\ \text{s.t.} \quad & R \geq p_l m_l + p_h m_h \\ \text{and} \quad & m_h, m_l \geq 0 \end{aligned}$$

The last constraints are non-negative conditions, which restrict the space of possible solutions.

The Lagrangian function for a maximization problem is:

$$\text{Max}_{(m_l, m_h, \mu)} \quad L = (\lambda_h (m_h)^\rho + \lambda_l (m_l)^\rho)^{\frac{1}{\rho}} + \mu (R - p_l m_l + p_h m_h)$$

The elasticity of substitutions is:  $\sigma = \frac{1}{1-\rho}$ . The greater is  $\rho$ , the greater is the substitution degree between both qualities.

The Kuhn-Tucker first-order conditions (FOC) <sup>4</sup> from this maximization problem are:

$$\frac{\partial L}{\partial m_h} = -\mu p_h + (m_h)^{\rho-1} \lambda_h ((m_h)^\rho \lambda_h + m_l^\rho \lambda_l)^{\frac{1}{\rho}-1} \leq 0; \quad m_h \geq 0 \quad \text{and} \quad m_h \frac{\partial L}{\partial m_h} = 0 \quad (2)$$

$$\frac{\partial L}{\partial m_l} = -\mu p_l + m_l^{\rho-1} \lambda_l ((m_h)^\rho \lambda_h + m_l^\rho \lambda_l)^{\frac{1}{\rho}-1} \leq 0; \quad m_l \geq 0 \quad \text{and} \quad m_l \frac{\partial L}{\partial m_l} = 0 \quad (3)$$

$$\frac{\partial L}{\partial \mu} = R - p_h m_h - p_l m_l \geq 0; \quad \mu \geq 0 \quad \text{and} \quad \mu \frac{\partial L}{\partial \mu} = 0 \quad (4)$$

Using the FOC:

$$\frac{m_h}{m_l} = \left( \frac{\lambda_h p_l}{\lambda_l p_h} \right)^\sigma$$

$$R - p_l m_l - p_h m_h = 0$$

and solving the system, we find the Marshallian demand functions for  $m_h$  and  $m_l$ .

$$m_h = \frac{\left( \frac{\lambda_h}{p_h} \right)^\sigma R}{(\lambda_l^\sigma p_l^{1-\sigma} + \lambda_h^\sigma p_h^{1-\sigma})} \quad (5)$$

$$m_l = \frac{\left( \frac{\lambda_l}{p_l} \right)^\sigma R}{(\lambda_l^\sigma p_l^{1-\sigma} + \lambda_h^\sigma p_h^{1-\sigma})} \quad (6)$$

Finally, from equations 5 and 6 we obtain the relative demand for the high-quality compared to the low-quality.

$$\frac{m_h}{m_l} = \left( \frac{\lambda_h p_l}{\lambda_l p_h} \right)^\sigma \quad (7)$$

This is the form we are going to use in order to test the variations in the quality composition of imports.

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<sup>4</sup>The Kuhn-Tucker conditions are essentially necessary, implying the fulfilling of partial derivatives signs, non-negative conditions and complementary-slackness conditions at the same time. Since a CES function is concave (or quasi-concave) and linear constraint functions are quasi-concave as well as quasi-convex in the non-negative orthant, the sufficient conditions are also satisfied by our solutions.

## 4.2 Trade policy: TRQ and mixed tariff

We introduce now two trade policy instruments which will affect imports of both qualities. The first trade policy instrument is a TRQ. In this model, the TRQ is applied only on the high-quality good. It combines a quantitative restriction on imports ( $\bar{q}_h$ ), which introduces at the same time a difference in the import taxation. The TRQ results a in-quota tariff ( $t_h$ ) lower than the out-of-quota tariff. Here, we consider the case, frequent in the EU tariff structure, where the out-of-quota tariff includes an ad-valorem component ( $t$ ) and a specific component ( $T$ ). The low-quality product is not affected by a TRQ, however it is subject to a mixed tariff which equals the out-of-quota tariff for the high-quality good. We still assume that the consumer faces exogenous world prices.

The introduction of the tariffs doesn't explicitly change the non-linear maximization problem. However, the introduction of the quantitative restriction of the TRQ for high-quality introduces an extra restriction for the utility maximization. Using the convenient parametrization proposed by Anderson (1985: 139) we impose two restrictions for the TRQ problem. The first restriction ( $\bar{q}_h$ ) refers to in-quota imports. The second restriction ( $\bar{q}_+$ ) is imposed on the average amount by which imports exceed the critical level  $\bar{q}_h$  (out-of-quota imports). The ceiling  $\bar{q}_+$  is a fictitious bound on the out-of-quota which allows to express these imports as function of the Lagrange multiplier  $\theta$ . The new problem is:

$$\begin{aligned}
 & \text{Max} && U(m_l, m_h) \\
 & \text{s.t.} && \\
 & && R \geq p_l m_l + p_h m_h \\
 & && m_h \leq \bar{q}_h && (\varphi) \\
 & && (m_h - \bar{q}_h) \leq \bar{q}_+ && (\theta) \\
 & \text{and} && \\
 & && m_h, m_l \geq 0 && \bar{q}_h < \bar{q}_+
 \end{aligned}$$

where  $\bar{q}_h$  represents the quantitative restriction for high-quality.

Since the TRQ affects only high-quality the Lagrangian for the new non-linear maximization problem is:

$$\text{Max}_{(m_h, \varphi, \theta)} \quad L = (\lambda_h (m_h)^\rho + \lambda_l \left( \frac{R - p_h m_h}{p_l} \right)^\rho)^{\frac{1}{\rho}} + \varphi (\bar{q}_h - m_h) + \theta (\bar{q}_+ - (m_h - \bar{q}_h))$$

where  $\varphi$  and  $\theta$  are the Lagrange multiplier related to the TRQ. They are positive when we have a boundary solution and equal to zero the constraint is not binding.

Some of the Khun-Tucker conditions from the free-trade maximization problem are modified by the introduction of the TRQ constraint. However, the interpretations are similar. We have an "in-quota" solution, if the first TRQ constraint is not binding. In this case  $\varphi$  is equal to zero and the partial derivative is positive ( $m_h \geq 0$  and  $m_h < \bar{q}_h$ ), in order to satisfy the complementary slackness. Then, we have an "at-quota" solution if the partial derivative is null and  $\varphi$  is positive, so the complementary slackness is satisfied. Under this fulfilled condition  $m_h > 0$  and  $m_h = \bar{q}_h$ . Finally, we have an "out-of-quota" solution when the first TRQ condition is binding (at-quota solution) and when the second TRQ condition is satisfied too. If  $\theta$  is positive, the partial derivative is null ( $(m_h - \bar{q}_h) = \bar{q}_+$ ), in order to satisfy the complementary slackness. This is a boundary solution. However, since this is a fictitious quota, the relevant solution is out-of-quota. In such a case, the



partial derivative is positive and  $\theta = 0$ , and imports out-of quota are positive or null ( $(m_h - \bar{q}_h) \geq 0$  and  $(m_h - \bar{q}_h) < \bar{q}_+$ ), in order to satisfy the complementary slackness.

$$\frac{\partial L}{\partial m_h} = -\theta - \varphi + \frac{(m_h^\rho \lambda_h + (\frac{R - m_h p_h}{p_l})^\rho \lambda_l)^{\frac{1-\rho}{\rho}} (m_h^{\rho-1} \rho \lambda_h - \frac{p_h (\frac{R - p_h m_h}{p_l})^{\rho-1} \rho \lambda_l}{p_l}}{\rho} \leq 0; \quad m_h \geq 0 \quad \text{and} \quad m_{hi} \frac{\partial L}{\partial m_h} = 0 \quad (8)$$

$$\frac{\partial L}{\partial \varphi} = -m_h + \bar{q}_h \geq 0; \quad \varphi \geq 0 \quad \text{and} \quad \varphi \frac{\partial L}{\partial \varphi} = 0 \quad (9)$$

$$\frac{\partial L}{\partial \theta} = -m_h + \bar{q}_h + \bar{q}_+ \geq 0; \quad \theta \geq 0 \quad \text{and} \quad \theta \frac{\partial L}{\partial \theta} = 0 \quad (10)$$

The previous conditions introduces some changes in the high-quality demand function.

If both constraints are not binding, the high-quality demand is equal to equation 5. Under this situation, high-quality imports face the in-quota tariff ( $t_h$ ). If  $\varphi$  is positive, the first constraint is binding and imports are set at the quota level. In this situation the domestic price is endogenous and so there exists a positive quota rent. Finally, if conditions 9 and 10 are fulfilled, out-of-quota imports take place and the overall imports face a higher and mixed tariff. In this case the quota rent is at the maximum.

According to the EU tariff structure, the high-quality prices takes the following expression:

$$p_h = \begin{cases} p_{hw}(1 + t_h) & \text{if } m_h < \bar{q}_h \\ p_{hw}(1 + t_h) + D & \text{if } m_h = \bar{q}_h, D \text{ is endogenous} \\ p_{hw}(1 + t) + T & \text{if } m_h > \bar{q}_h \end{cases} \quad (11)$$

where  $p_{hw}$  is the CIF high-quality price and  $D$  is the premium over the in-quota price. The value of the quota rent ( $D$ ) must fulfill the following conditions:  $0 \leq D \leq ((p_{hw}(1+t) + T) - (p_{hw}(1+t_h)))$ .  $D$ , which is endogenous to the model, determines the domestic price for high-quality when the quota is just binding. This tariff structure is applied to equation 5 to obtain the EU high-quality demand.

The high-quality equilibrium imports are computed as follows:

$$m_h = \begin{cases} \frac{R(\frac{\lambda_h}{p_{hw}(1+t_h)})^\sigma}{(\lambda_l^\sigma p_l^{1-\sigma} + \lambda_h^\sigma (p_{hw}(1+t_h))^{1-\sigma})} & \text{if } m_h < \bar{q}_h \\ \bar{q}_h = \frac{R(\frac{\lambda_h}{p_{hw}(1+t_h)+D})^\sigma}{(\lambda_l^\sigma p_l^{1-\sigma} + \lambda_h^\sigma (p_{hw}(1+t_h)+D)^{1-\sigma})} & \text{if } m_h = \bar{q}_h, \text{ here } D \text{ is endogenous} \\ \frac{R(\frac{\lambda_h}{p_{hw}(1+t)+T})^\sigma}{(\lambda_l^\sigma p_l^{1-\sigma} + \lambda_h^\sigma (p_{hw}(1+t)+T)^{1-\sigma})} & \text{if } m_h > \bar{q}_h \end{cases} \quad (12)$$

The above schedule presents three possible equilibria. The first one, is an ‘‘in-quota equilibrium’’ where the in-quota price is exogenous ( $p_h = p_{hw}(1 + t_h)$ ) and the equilibrium quantity is determined endogenously. Under this first equilibrium, the quota rent ( $QR$ ) is equal to zero. The second is an ‘‘at-quota’’ equilibrium. Here the quantity is exogenous and equal to the quota level ( $\bar{q}_h$ ) and the endogenous variable is the premium ( $D$ ) which determines the high-quality domestic price. The  $QR$  is endogenous too, because it depends on the value of  $D$ . Finally, the third equilibrium situation is a ‘‘out-of-quota’’ equilibrium. The domestic price is exogenous again ( $p_{hw}(1 + t) + T$ ) and the equilibrium quantity is endogenous. The  $QR$  is maximal when we are over the quota level.

$$QR = \begin{cases} 0 & \text{if } m_h < \bar{q}_h \\ \bar{q}_h D & \text{if } m_h = \bar{q}_h \\ \bar{q}_h((p_{hw}(1+t) + T) - p_{hw}(1+t_h)) & \text{if } m_h > \bar{q}_h \end{cases} \quad (13)$$

Since qualities of the same product are substitutes, the TRQ introduces changes in relative prices and relative import volumes according to the different possible outcomes (“in”, “at” or “out-of-quota” for high-quality). Moreover, the introduction of a mixed tariff affects low-quality imports modifying the equilibrium variables. The mixed tariff changes the definition of the domestic low-quality price as follows:

$$p_l = p_{lw}(1+t) + T \quad (14)$$

where  $p_{lw}$  is the CIF price for low-quality. We assume that the CIF high-quality price excess the CIF low-quality price.

The TRQ leads to a nonlinear budget constraint where the inflexion point is given by the high-quality quota level ( $\bar{q}_h$ ).

[INSERT FIGURE 1]

Since we are interested in the quality upgrading (downgrading) effects of TRQ’s control variables (i.e., quota level, ad-valorem and specific tariffs), we will work with relative demand functions. The equilibrium of relative imports and prices is given by:

- **In-quota**

- The relative equilibrium price is:

$$\left(\frac{p_h}{p_l}\right)^* = \frac{p_{hw}(1+t_h)}{p_{lw}(1+t) + T}$$

- The ratio of imports at the equilibrium is:

$$\left(\frac{m_h}{m_l}\right)^* = \left(\frac{(p_{lw}(1+t) + T)\lambda_h}{p_{hw}(1+t_h)\lambda_l}\right)^\sigma$$

- There is no quota rent:  $QR = 0$ .

- **At the quota**

- The equation giving the optimum value for the premium is:

$$\bar{q}_h = \frac{\left(\frac{\lambda_h}{p_{hw}(1+t_h)+D}\right)^\sigma R}{(\lambda_h^\sigma(p_{hw}(1+t_h)+D)^{1-\sigma} + \lambda_l^\sigma(p_{lw}(1+t)+T)^{1-\sigma})} \rightarrow D^*$$

subject to the condition  $0 \leq D \leq ((p_{hw}(1+t) + T) - (p_{hw}(1+t_h)))$ .

- The optimum value for low-quality import is:

$$m_l^* = \frac{\left(\frac{\lambda_l}{p_{lw}(1+t)+T}\right)^\sigma R}{(\lambda_h^\sigma(p_{hw}(1+t_h)+D)^{1-\sigma} + \lambda_l^\sigma(p_{lw}(1+t)+T)^{1-\sigma})}$$

Knowing  $D^*$  and  $m_l^*$  values, the optimum values for the import ratio and relative price are:

$$\left(\frac{m_h}{m_l}\right)^* = \frac{\bar{q}_h}{m_l^*} \quad \text{and} \quad \left(\frac{p_h}{p_l}\right)^* = \frac{p_{hw}(1+t_h)+D^*}{p_{lw}(1+t)+T}$$

- The quota rent is:

$$QR^* = \bar{q}_h D^*$$

- **Out-of-quota**

- The relative equilibrium price is:

$$\left(\frac{p_h}{p_l}\right)^* = \frac{p_{hw}(1+t) + T}{p_{lw}(1+t) + T}$$

- The ratio of imports at the equilibrium is:

$$\left(\frac{m_h}{m_l}\right)^* = \left(\frac{(p_{lw}(1+t) + T)\lambda_h}{(p_{hw}(1+t) + T)\lambda_l}\right)^\sigma$$

- The quota rent is:

$$QR^* = \bar{q}_h((p_{hw}(1+t) + T) - (p_{hw}(1+t_h)))$$

### 4.3 Trade Quality effect

Comparative statics help testing the consequences of policy changes on imports composition.

- **If the specific tariff varies:**

First, we consider a change in the specific tariff  $T$ . When  $T$  increases, consumers demand relatively more of the high-quality product, which is the more expensive quality. This derives from the positive sign of the partial derivatives of the relative functions for in and out-of-quota demands. In line with the traditional Alchian-Allen conjecture, when  $T$  increases there is a quality upgrading effect.

When high-quality imports are less than the quota,  $T$  increases only the low-quality price, so there is an obvious incentive for quality upgrading.

$$\frac{\partial m_h/m_l}{\partial T} = \frac{\sigma \lambda_h \left(\frac{(p_{lw}(1+t)+T)\lambda_h}{(1+t_h)p_{hw}\lambda_l}\right)^{\sigma-1}}{(1+t_h)p_{hw}\lambda_l} > 0 \quad (15)$$

When high-quality imports are exactly at the quota,  $m_l$  decreases due to the increase of  $T$  while  $m_h = \bar{q}_h$  remains unchanged, so:

$$\frac{\partial m_h/m_l}{\partial T} > 0 \quad (16)$$

Accordingly, at the quota there is a quality upgrading effect too, if  $T$  increases.

When high-quality imports exceed the quota, there is a quality upgrading due to the typical Alchian-Allen effect.

$$\frac{\partial m_h/m_l}{\partial T} = \sigma \left( \left( \frac{\lambda_h}{(p_{hw}(1+t) + T)\lambda_l} - \frac{(p_{lw}(1+t) + T)\lambda_h}{(p_{hw}(1+t) + T)^2\lambda_l} \right) \left( \frac{(p_{lw}(1+t) + T)\lambda_h}{(p_{hw}(1+t) + T)\lambda_l} \right)^{\sigma-1} \right) > 0 \quad (17)$$

- **If the out-of-quota ad-valorem tariff varies:**

The second comparative static shows the variation in the relative demand when  $t$  (ad-valorem tariff) varies. This ad-valorem tariff  $t$  affects both qualities. The partial derivatives show opposite signs depending on the position of the relative demand (in/at the quota level or out of the quota level).

If high-quality imports are below the quota,  $t$  only affects low-quality. So if  $t$  increases  $m_l$  decreases and the ratio of imports increases (quality upgrading effect).

$$\frac{\partial m_h/m_l}{\partial t} = \frac{p_{lw}\sigma\lambda_h\left(\frac{(p_{lw}(1+t)+T)\lambda_h}{(1+t_h)p_{hw}\lambda_l}\right)^{\sigma-1}}{(1+t_h)p_{hw}\lambda_l} > 0 \quad (18)$$

When the high-quality quota is just binding,  $t$  affects only  $p_l$ . As in the previous case, if  $t$  increases,  $p_l$  increases too and so  $m_l$  falls. Since  $m_h = \bar{q}_h$  remains unchanged, the ratio of high-quality imports increases (quality upgrading effect).

$$\frac{\partial m_h/m_l}{\partial t} > 0 \quad (19)$$

When high-quality imports exceed the quota the sign of the partial derivatives is negative, since  $p_{hw}$  is greater than  $p_{lw}$ . The increase of an ad-valorem tariff lowers quality in imports, under our assumptions.

$$\frac{\partial m_h/m_l}{\partial t} = \sigma\left(\frac{p_{lw}\lambda_h}{(p_{hw}(1+t)+T)\lambda_l} - \frac{p_{hw}(p_{lw}(1+t)+T)\lambda_h}{(p_{hw}(1+t)+T)^2\lambda_l}\right)\left(\frac{(p_{lw}(1+t)+T)\lambda_h}{(p_{hw}(1+t)+T)\lambda_l}\right)^{\sigma-1} < 0 \quad (20)$$

This result seems at odds with Falvey (1979) and Feenstra and Boorstein (1991), who find that an ad-valorem tariff has no effect on the quality composition of trade. However, it is more in line with Hummels and Skiba (2004), who test the quality composition under a two-part trade cost. They point out that: “*In the presence of the per unit cost, however, the ad-valorem trade cost decreases the relative importance of the per unit trade cost in the final price of the good and therefore dampens its effect on the relative demand for the high quality good*”.

In conclusion, under our model’s assumption (TRQ policy with mixed tariffs), when  $t$  varies the consequence on import quality is ambiguous. This ambiguity depends on the position of the relative demand of imports. When high-quality imports are below and at the quota there is a quality upgrading effect but out of the quota, the opposite result prevails.

- **If the ad-valorem in-quota tariff varies:**

As far as the *ad-valorem* in-quota tariff is concerned,  $t_h$  appears only in the relative demand function when high-quality imports are below and at the quota level. When the quota is not binding, an increase of  $t_h$  has a negative impact on high-quality imports so that there is a quality downgrading effect.

$$\frac{\partial m_h/m_l}{\partial t_h} = -\frac{(p_{lw}(1+t)+T)\sigma\lambda_h\left(\frac{(p_{lw}(1+t)+T)\lambda_h}{(1+t_h)p_{hw}\lambda_l}\right)^{\sigma-1}}{(1+t_h)^2p_{hw}\lambda_l} < 0 \quad (21)$$

When the quota is binding (both when imports are at quota and exceed the quota), the only effect is the reduction of the quota rent since  $t_h$  increases and  $D$  decreases by the same amount. As a consequence,  $p_h$  and  $m_h = \bar{q}_h$  remain unchanged and a change in the ad-valorem in-quota tariff has no impact on product quality.

- **If the high-quality quota level varies:**

When the equilibrium is an in-quota solution, an increase in the high-quality quota level has no effect on the ratio of imports. Nevertheless, the quantitative component of the TRQ affects

the relative demand when the high-quality quota is just binding (i.e., imports are at the quota level):  $\frac{m_h}{m_l} = \frac{q_h}{m_l}$ . In this situation, if the quota level increases, the high-quality imports increase too. The augmentation in  $\bar{q}_h$  reduces  $D$  and so  $p_h$ . Since  $m_l$  and  $m_h$  are substitutes, a reduction of  $p_h$  implies a reduction of  $m_l$ . When  $\bar{q}_h$  increases, there is a quality upgrading effect.

$$\frac{\partial m_h/m_l}{\partial \bar{q}_h} > 0 \quad (22)$$

When high-quality imports exceed the quota we have two possible cases. If the increase in the quota level is such that the quota is still lower than the high-quality equilibrium value, it only changes the allocation of high-quality imports in and out of quota, but the import mix is not affected. If the new quota level is larger than the initial high-quality equilibrium, the new equilibrium will be either "at-quota" or "in-quota": in both cases  $m_h$  increases, while  $p_h$  and  $m_l$  decrease, so there is a quality upgrading effect. In brief, starting from an out-of-quota equilibrium, a quota increase can have two possible outcomes: no quality effect if the equilibrium remains out of quota, an upgrading effect if the new equilibrium is either at or in-quota.

## 5 Mercosur exports to the EU: Tariffs and TRQs

### 5.1 Data and Model Calibration

We consider detailed import quantities of EU imports of beef from Mercosur (in 100kg) and CIF values (in Euros). We use the Comext database at the NC8 digit level for 2003. We consider the different qualities of beef according to the conservation mode (fresh or chilled, normally associated to a higher quality than frozen beef) and the final use of the particular types of beef<sup>5</sup>. The CIF prices (Euros/100kg) are equal to division between CIF values and import quantities. The high-quality beef quota, the in and out-of-quota tariff for high-quality beef and the import tariff for low-quality beef are taken from the TARIC database. In table 1 we present the calibration data. These data corresponds to the situation for the EU beef import originating from Mercosur countries in 2003<sup>6</sup>.

[INSERT TABLE 1]

For the empirical application, it is convenient to express the theoretical model as a mixed complementary problem (MCP), so as to account for the regimes shifting effect of a TRQ. Equations 11 and a transformed version of equations 12 are written as a MCP problem. The variables  $w_1$ ,  $w_2$ ,  $w_3$ ,  $v_1$  and  $v_2$  are the shadow prices like  $\varphi$  and  $\theta$  in the nonlinear maximization problem presented in section 4.

In-quota situation:

$$m_{hin} = \lambda_h^\sigma R \left( \frac{PC}{p_{hin}} \right)^\sigma + w_1 - v_1$$

$$0 \leq m_{hin} \leq \bar{q}_h \quad w_1 \geq 0 \quad v_1 \geq 0$$

<sup>5</sup>The codes about beef we used for our quality differentiation are 02011000, 02012030 and 02013000 for high-quality beef and 02022090, 02023010, 02023050 and 02023090 for low-quality beef.

<sup>6</sup>As we calibrate the model for 2003, we consider a high-quality quota of 50300 tons for the Mercosur. It includes the 10000 tons allocated to Argentina exceptionally for 2002 and 2003.

$$w_1(m_{hin} - 0) = 0 \quad v_1(\bar{q}_h - m_{hin}) = 0$$

At the quota situation:

$$p_{hat} = \left( \frac{\lambda_h^\sigma R PC}{\bar{q}_h} \right)^{1/\sigma} + w_2 - v_2$$

$$p_{hin} \leq p_{hat} \leq p_{hout} \quad w_2 \geq 0 \quad v_2 \geq 0$$

$$w_2(p_{hat} - p_{hin}) = 0 \quad v_2(p_{hout} - p_{hat}) = 0$$

Out-of-quota situation:

$$m_{hout} + m_{hin} = \lambda_h^\sigma R \left( \frac{PC}{p_{hout}} \right)^\sigma + w_3$$

$$0 \leq m_{hout} \leq \infty \quad w_2 \geq 0$$

$$w_2(m_{hout} - 0) = 0$$

Where the composite price  $PC$  is defined as:

$$PC^{1-\sigma} = (\lambda_i^\sigma p_i^{1-\sigma} + \lambda_h^\sigma (p_{hin}^{1-\sigma} + p_{hat}^{1-\sigma} + p_{hout}^{1-\sigma}))$$

For low-quality imports we use equations 14 and 6.

The situation of EU beef imports from Mercosur in 2003 is the initial situation. It is characterized by an “out-of-quota” equilibrium since there are imports beyond the TRQ quantities. We compare this situation with the scenarios presented in the next subsection.

## 5.2 Changes in trade barriers components

The bilateral negotiation between the EU and the Mercosur started in 2000, but negotiations stalled in October 2004. However, there is still a willingness to reach an agreement, and discussions are likely to resume in a near future. Since the regional negotiations interact with the ongoing WTO negotiations, some of the issues discussed bilaterally must take into account the possible reduction of MFN tariffs under the Doha Round.

We focus on scenarios that depict a range of possible outcome of the bilateral negotiations. They match the negotiation objectives of the main actors of the negotiations on the agricultural issues: Brazil, Argentina and the European Union.

The first scenario consists in eliminating in-quota tariffs for high-quality beef ( $t_h$ ). This would increase the quota rent of high-quality exporter while, according to the theoretical results presented in the previous section, there should not be any effects on trade flows. This scenario could be favored by some Mercosur producers, who have made it explicit that they find it more interesting to capture a larger share of the rent than to expand the volume of trade. Typically, this scenario could be of particular interest for Argentinean producers, who specialize in high unit value products exported under the “Hilton beef” quotas.

The second scenario includes the elimination of the ad-valorem component of the out-of-quota tariff ( $t$ ). This is not the main component of the tariff, as it appears from the data presented in Table 1. However, it is worth recalling that the change of the ad-valorem tariff is expected to have opposite effects to changing the specific component on the composition of trade. This scenario could be of

particular interest for Argentina, willing to gain a larger access to the EU market for high quality beef.

The third scenario considers the elimination of the out-of-quota tariff's specific component ( $T$ ). As it was mentioned, this is the highest barrier in EU-Mercosur beef trade and, according to the comparative static results, its reduction should have a quality downgrading effect. Both Brazil and Argentina would gain at this scenario, but because the present specific tariffs modifies the composition of EU imports towards high-quality products, Brazil would benefit more than Argentina.

Finally, the fourth scenario simulates the increase of the high-quality beef quota ( $\bar{q}_h$ ). Within the negotiation, Mercosur (scenario 4-B) asks for expanding the "Hilton" quota by a factor of eight (315.000 tonnes <sup>7</sup> rather than the present 40.300 tonnes<sup>8</sup>). However the EU (scenario 4-A) offered to expand the quota to 100.000 tons only. We will test the consequences on quality composition of trade and welfare of both proposals. Any increase in the quota level would benefit particularly Argentina.

The scenarios presented above will be analyzed in terms of domestic price effect and import quality composition (quality upgrading or downgrading). The imports ratio ( $\frac{m_h}{m_l}$ ) is the instrument to measure quality change in imports.

The EU's welfare includes the consumer's surplus and the tariff revenue, while the export revenue and the quota rent represent in this model the "Mercosur's welfare".

The consumer surplus (CS) with two imperfect substitutes is defined as:

$$CS = \sum_{i=h,l} \int m_i(p_i, p_j) dp_i \quad i \neq j$$

The EU tariff revenue (TR) is defined as:

$$TR = m_{hin}^* p_{hw} t_h + (m_{hout}^* p_{hw} + m_l^* p_{lw}) t + (m_{hout} + m_l^*) T$$

And the net welfare for the EU (WM) is represented by the next equation:

$$WM = CS - TR$$

In order to measure the export revenue (XR) we use the next expression:

$$XR = p_{hw} (m_{hin}^* + m_{hout}^*) + p_{lw} m_l^*$$

The quota rents (QR) for high-quality exporters, we use the equation 13.

And finally, the "welfare" for Mercosur (WX) is given by the next expression:

$$WX = XR + QR$$

The welfare results will be presented in terms of welfare changes (see table 3).

Moreover, following the index method suggested by Boorstein and Feenstra (1991), we calculate the additional welfare cost of quality changes due to the policy reforms implied by the simulation scenarios. The definition of the welfare cost of quality change is:

<sup>7</sup>The Mercosur ask for 315.000 tons because it represents 5% of EU beef consumption.

<sup>8</sup>For the years 2002 and 2003 an extra "Hilton" quota of 10.000 tons was allocated to Argentina exceptionally, EU.R.1524/2002)

$$W_d = \frac{1}{P_a} - \frac{1}{P_m}$$

where  $P_a$  is a Paasche index and  $P_m$  is a cumulative Divisia index treating countries as homogeneous<sup>9</sup>.

This definition of welfare cost of quality change is based on a (partial) Divisia “Tornqvist” index, which is used as an exact index.  $W_d$  is a measure of welfare cost and it is calculated for each scenario compared to the initial situation.  $W_d$  gives the excess cost of the TRQ due to quality upgrading in terms of percentage of import expenditure of each scenario. Table 3 shows it in million euros.

All scenarios’ results are compared to the initial situation depicted in table 1 (i.e., out-of-quota imports of high-quality beef) and the free trade situation is also taken as a reference for comparison. Results are presented in tables 2 and 3.

[INSERT TABLE 2]

[INSERT TABLE 3]

The elimination of the in-quota tariff for high-quality beef (scenario 1) has no effect in trade equilibrium. Since the quotas are filled, the change in the in-quota tariff only affects the quota rents. There is no change in the composition of imports (no quality change). All the welfare effects hinge on the distribution of the quota rent among the two sides of the Atlantic. For the EU, there is a decrease in the tariff revenue, which is equal to the quota rent gain for the transfers to Mercosur’s high-quality exporters. According to the present quota allocation between countries, it is likely that this option will be most profitable for Argentina than for Brazil.

After the elimination of the ad-valorem component of the out-of-quota tariff (Scenario 2), high-quality imports increase more than low-quality ones and this results in an import quality upgrading. Table 2 confirms that in the second scenario trade volumes move closer to the free trade ones, but the bias in the quality composition increases slightly (from 0.98 to 1.06). The welfare loss associated to the quality upgrading effect is equal to -14.4 million euros, but the gain in consumer surplus is larger (100.8 million euros). Here is noteworthy that the ad-valorem tariff is a distortion, but it helps to reduce the quality upgrading bias due to the specific tariff. Mercosur benefits from an increase export revenue (226 million euros), but registers a reduction in the quota rent (-29.3 euros). Brazil is likely to reap most of the benefits since it is more competitive on the low-quality segment and could get a chance to participate more into the high-quality trade that takes place out of the quota. Argentinean high-quality producers, on the other hand, would be hit by the quota rent reduction.

The elimination of the specific component of the out-of-quota tariff (Scenario 3) results in larger changes, due to the high level of protection provided by this tariff component. As it was predicted in the theoretical section, the elimination of an specific tariff involves an import quality downgrading (from 0.98 to 0.3): the welfare gain component due to the quality change is equal to 30.1 million euros. The comparison of these results with the free trade provides a confirmation of the proposition that an ad-valorem tariff, in the absence of per unit costs, has no effect on quality composition

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<sup>9</sup>Here we suppose only one partner, Mercosur, and two qualities of beef.



(Falvey 1979, Boorstein and Feenstra 1991). Moreover, it shows that within a TRQ, the policy instruments responsible for the quality upgrading is the specific tariff, not the quota. Eliminating this policy instrument, as a matter of fact, the import mix would be the same as under free trade. The elimination of the specific tariff increases low-quality imports in a larger proportion than high-quality imports due to the change in relative prices (substitution effect). The reduction in domestic prices is larger than in the previous scenarios because of the size of the protection granted by the specific component of the tariff. Accordingly, the EU consumers reap larger gains than under other scenarios. As in the previous scenario the EU tariff revenue increases (473.5 million euros) even if unit tariff decreases, due to larger imports. Export revenues show a drastic increase (7488.1 million euros) compared to export revenues in the initial situation, while the quota rent disappears because the out-of-quota tariff becomes lower than the in-quota one.

Regarding the scenarios with a quota increase, we have to take into account that the quota is actually binding for high-quality beef and the EU even imports out-of the quota. Two variants of the fourth scenario (an increase in the quota level) can be distinguished.

Scenario 4-A corresponds to a quota increase of 100.000 tons (EU's proposal) in the regional negotiation. In the new equilibrium, the quota would still be binding with out-of-quota imports. Since the initial situation is an out-of-quota equilibrium, such as a small quota increase has no effect in terms of trade creation and quality composition of imports. The only impact would be a reduction of the tariff revenue (-133.5 million euros) and the corresponding increase in the quota rent for high-quality exporters. This scenario improves the situation for high-quality exporters, (especially Argentina) if the quota increase leaves the relative distribution between Mercosur countries unchanged.

The scenario 4-B provides for a "Hilton" quota augmentation of 315.000 tons (Mercosur proposal). After such an increase, the quota becomes binding. As a consequence, the high-quality domestic price would fall (from 815.09 euros/100kg to 618.3 euros/100kg): high-quality imports increase significantly, while low-quality imports remain roughly unchanged. So a large quota increase results in a significant import quality upgrading (the quality ratio changes from 0.98 to 2.95) with an associated welfare loss of -189.6 million euros. Also in this case, as in the case of the second scenario, we get different signs for the conventional and the "quality induced" components of consumers' surplus. In the new equilibrium, trade volumes are closer to the free trade situation, and this explains the improvement signalled by the conventional component of the consumers' surplus (272.7 million euros), but the import basket is even more skewed in favor of the high-quality component than in the initial situation. EU tariff revenue slightly increases (46.9 million euros), as well as export revenue (959.5 million euros). High-quality producers, and mainly Argentina, are likely to be the main beneficiary of this scenario, also due to the increase in the quota rent (91.1 million euros).

In conclusion, the elimination of the specific tariff would have the larger effects, mainly because it is the component of the tariff that is the most trade restrictive. EU welfare would increase because of consumer gains. Low-quality exporters such as Brazil, would benefit most. A significant quota increase (scenario 4-B) would be the most preferred outcome for high-quality exporters such as Argentina. In terms of quota rent, the largest increase would be obtained through a small increase of the quota itself (scenario 4-A).

### 5.3 Trade Policy

Previous welfare results show winners and losers of each scenario. We now evaluate the previous scenarios according to the Pareto criterion: *‘the social state of a new scenario (S) is to be preferred to the actual situation (A) if there is at least an actor better off in S than in A and no one is worse off in S than in A. So the state S is Pareto-superior to the state A’.*

There exists a frontier for this Pareto-superior social states and all states at this frontier will be Pareto-optimal. For all Pareto-optimal social state, *it is not possible to increase the welfare of one of the actors without harming one of the others.*

We first determine the scenarios which are Pareto-superior compared to the actual situation and we then present the better suboptimal trade policy assuming that the free-trade situation is a Pareto-optimal social state.

Graph 2 shows the welfare’s variations (in million euros) for importers and exporters for each of the previous scenarios. In this graph we considered  $WM$ , which is the importer’s welfare (the sum of the changes in consumer surplus and tariff revenue) and  $WX$ , which represents the exporter’s welfare (the sum of changes in the quota rent and exports revenue). The actual situation is represented by the point (0,0). Then for each scenario (free trade situation included), welfare changes are calculated compared to the actual situation.

[INSERT FIGURE 2]

According to the Pareto criterion, scenarios  $S2$ ,  $S3$  and  $S4 - B$  make both parties, exporters and importers, better off. This also means that from an efficiency point of view the  $S1$  and  $S4 - A$  scenarios could be justified only allowing for compensation among winners and losers. The free-trade situation is a Pareto-optimum, since we cannot improve the welfare of one side without harming the other one.

Scenario  $S3$  is closer to the optimum, since in this case we remove the largest component of the tariff barrier (the specific one). Comparing the 2 scenarios stemming from actual proposals (4-A and 4-B), our simulation indicates that low-quality exporters seem to have no interest in the present negotiations as long as the only instrument to be reformed is the quota level. From the EU point of view, it is noteworthy that the own proposal shows a (hardly surprising) lack of interest for the consumers, and the existence of a willingness to pay in terms of tariff revenue foregone.

Using the welfare results in table 3 and the previous graph, we can infer that, among the simulated scenarios, there is a suboptimal combination of trade policies ( $S3$ ) which is preferable in Pareto terms. All actors win even though the quota rent is eliminated.

Although the scenario 3 is the best suboptimal combination of trade policies among all the scenarios simulated, we now take the initial situation in order to calculate equivalent policies to the actual TRQ for high-quality and mixed-tariff for low-quality. For that we consider the initial net welfare for the EU, knowing that the initial situation is an out-of-quota equilibrium. We then calculate first a uniform ad-valorem tariff equivalent and second a uniform specific tariff equivalent. Finally, we calculate the Mercosur’s “welfare” under this equivalent policies.

The uniform ad-valorem tariff equivalent to the actual trade policy for beef is equal to 94%. Firstly, this tariff is only applied out-of-quota so that the TRQ for high-quality beef is maintained. Under this situation we have a positive quota rent for high-quality exporters which is larger than under the initial situation (169.6 million euros). However the export revenue remains unchanged. This situation improves Mercosur's welfare, particularly for high-quality exporters due to the larger quota rent. After eliminating the TRQ for high-quality, there is not quota rent for high-quality exporters, so the Mercosur's welfare is only equal to export revenue. Mercosur is worse off compared to the initial situation.

The uniform specific tariff equivalent which leaves the net welfare for the EU unchanged is equal to 314.4 euros/100kg. Here too, it is applied on both beef qualities. First, if we keep the TRQ for high-quality beef, the high-quality exporters receive a positive quota rent (112.4 million euros) which is smaller than the initial quota rent. High-quality exporters are worse off compared to the initial situation. When we eliminate the TRQ for high-quality beef, the quota rent disappears and the Mercosur's welfare is equal to the export revenue.

[INSERT TABLE 4]

All previous trade policies leave unchanged the actual net welfare for the EU, so the EU should be (in principle) indifferent to these trade policies. However, Mercosur's countries are not indifferent to these policies. Under the constraint of leaving EU's welfare constant, the first choice for Mercosur would be a TRQ for high-quality with an ad-valorem out-of-quota tariff (94%), the second choice is the actual situation, and finally, the third choice is the high-quality TRQ with a specific out-of-quota tariff. All the situations with only a tariff (specific or ad-valorem) are detrimental to Mercosur's welfare due to the elimination of the quota rent.

## Conclusion

Many authors have studied the effect of trade barriers (tariffs, transport costs, quotas, VER, etc.) on the volume of trade and welfare. Fewer have investigated the effect on the composition of imports and the changes in quality. So far, little is known about the effect of tariff-rate quotas on the composition of imports. This paper presents a simple model which illustrates some known results (Hummels and Skiba 2004, Borchering and Silberberg 1978, Alchian and Allen 1983), etc. and which develops the analysis in terms of comparative statics. Changes in TRQ components lead to different consequences on import composition depending on the initial status-quo ("in", "at" or "out-of-quota").

We focus on the EU-Mercosur agricultural trade negotiations, and specially on bilateral beef trade. Results show that a specific tariff reduction (scenario 3) is the best scenario in terms of trade creation and welfare for the EU and for low-quality exporters (Brazil). However, the best scenario for high-quality exporters (Argentina) is a large quota augmentation (scenario 4-B). It also leads to the largest improvement in quality of imports. The quota rent is maximized under a small quota augmentation (scenario 4-A).

Since each simulation scenario changes the welfare situation of both parties, we look for a policy combination which leads to a Pareto-superior social state. Scenarios 2, 3 and 4-B are Pareto-superior

and among them the scenario 3 is the most preferable, even though the free-trade situation is a Pareto-optimal social state. Scenario 3 is the most equitable situation between exporters because there is no quota rent.

Although scenario 3 is preferred in terms of welfare, it is not the scenario which improves quality composition in imports. Scenario 4-B leads to the greatest quality upgrading in beef imports, clearly showing a trade-off between trade creation and welfare on one hand, and average import quality on the other.

Finally, we look for different policies combination which are equivalent to the actual one for a given level of EU welfare. Among the EU welfare-equivalent trade policies, the high-quality TRQ with an ad-valorem out-of-quota tariff would be preferred to the actual policies by Mercosur's countries. This is explained by the larger quota rent captured by the high-quality exporters.

The present EU trade policy leads to a quality differentiation, resulting in quality upgrading. This is due to the specific component in the out-of-quota tariff. The particular effect of the present policy instruments on quality of imports is such that changes in policies would affect the various Mercosur countries in a different way. The trade-offs between instruments (quota levels, in and out of quota tariff, specific and ad-valorem tariff) are such that there is scope for defining a policy mix that would allow the convergence of the interests of different parties.

## References

- Abbott, Philip C., and Philip L. Paarlberg (1998) 'Tariff rate quotas: Structural and stability impacts in growing markets.' *Agricultural Economics* 19(3), 257–267
- Alchian, Armen, and William R. Allen (1983) *Exchange and Production: Competition, Coordination and Control*, 3th edition ed. (Wadsworth)
- Anderson, James (1991) 'The coefficient of trade utilization: The cheese case.' In *Empirical Studies of Commercial Trade*, ed. Robert Baldwin (National Bureau of Economic Research) chapter 8, pp. 221–243
- Anderson, James E. (1985) 'The relative inefficiency of quotas: The cheese case.' *The American Economic Review* 75(1), 178–190
- Anderson, James E. (1988) *The Relative Inefficiency of Quota* (MIT press)
- Aw, Bee, and Mark Roberts (1986) 'Measuring quality change in quota-constrained import markets.' *Journal of International Economics* 21(1), 45–60
- Boorstein, Randi, and Robert C. Feenstra (1991) 'Quality upgrading and its welfare cost in u.s. steel imports, 1969-74.' *International trade and trade policy* pp. 167–186
- Borcherding, Thomas E., and Eugene Silberberg (1978) 'Shipping the good apples out: The alchian and allen theorem reconsidered.' *Journal of Political Economy* 86(1), 131–138
- Boughner, Devry S., de Gorter Harry, and Ian M. Sheldon (2000) 'The economics of two-tier tariff-rate import quota in agriculture.' *Agricultural and Resource Economics Review* 29(1), 58–69
- Bureau, J.C., Drogué S., and M.P. Ramos (2004) 'Concurrence et compétitivité des pays du mercosur et étude des effets des accords tarifaires sur diverses filières françaises.' Technical Report MAAPAR04G50101, ADEPRINA - UMR Economie Publique INRA-INAPG, October

- De Gorter, Harry, Philip Abbot Richard Barichello Devry S. Boughner Jean-Christophe Bureau Jung-Sup Choi Jonathan R. Coleman Roland Herrmann Marc Kramb Ian Sheldon Peter Liapis Donald MacLaren Christina Moennich Adair Morse David W. Skully Dan Sumner, and Stefan Tangermann (2001) 'Issues in reforming tariff-rate import quotas in the agreement on agriculture in the wto.' Technical Report Commissioned Paper 13, International Agricultural Trade Research Consortium
- Falvey, Rodney E. (1979) 'The composition of trade within import-restricted product categories.' *Journal of Political Economy* 87(5), 1105–1114
- Feenstra, Robert C. (1987) 'Voluntary export restraint in u.s. autos, 1980-81: Quality, employment, and welfare effects.' *International trade: Selected readings* pp. 203–230
- (2004) *Advanced International Trade - Theory and Evidence*, 1st. edition ed. (Princeton University Press)
- Feenstra, RobertC. (1988) 'Quality change under trade restraints in japanese autos.' *Quarterly Journal of Economics* 103(1), 131–146
- Hummels, David, and Alexandre Skiba (2004) 'Shipping the good apples out? an empirical confirmation of the alchian-allen conjecture.' *Journal of Political Economy* 112(6), 1384–1402
- Krishna, Kala (1987) 'Tariffs versus quotas with endogenous quality.' *Journal of International Economics* 23(1), 97–112
- Martin, Will, Dominique van der Mensbrugghe, and Vlad Manole (2003) 'Is the devil in the details?: Assesing the welfare implications of agricultural and non agricultural trade reforms.' Technical Report, World Bank, May
- Rodriguez, Carlos Alfredo (1979) 'The quality of imports and the differential welfare effects of tariffs, quotas, and quality controls as protective devices.' *Canadian Journal of Economics* 12(3), 439–449
- Shapiro, Carl (1983) 'Premiums for high quality products as returns to reputations.' *Quarterly Journal of Economics* 98(4), 659–679
- Silberberg, E., and W.C. Suen (2001) *The structure of economics: a mathematical analysis* (Boston, Mass., McGraw-Hill)

## Figures and Tables

Figure 1: *Nonlinear Budget Constraint.*

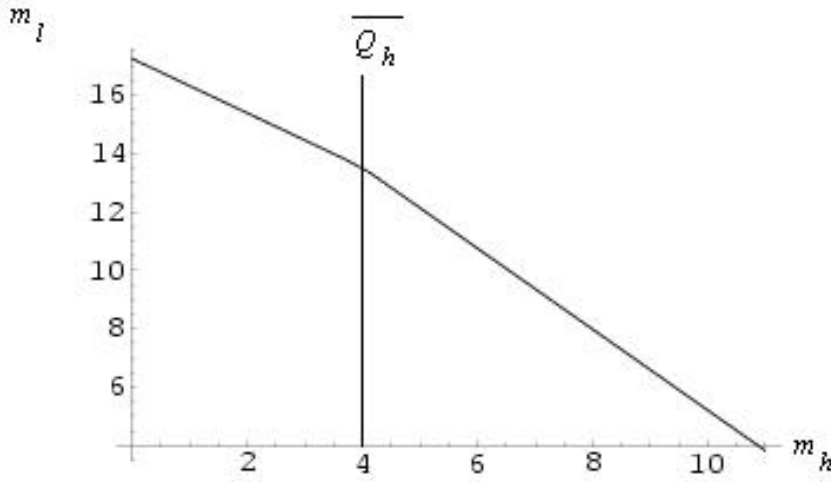


Table 1: *Calibration Data: COMEXT and TARIC 2003*

Variables and Parameters	Initialization Values
$m_h$	1042989 (100kg)
$m_l$	1069106 (100kg)
$p_{hw}$	455.4 (euros)
$p_{lw}$	236.4 (euros)
$t$	12.8% (ad-valorem)
$t_h$	20% (ad-valorem)
$T$	303.1 (euros/100kg)
$\bar{q}_h$	503000 (100kg)
$p_h$	equation 11
$p_l$	$p_{hw}(1+t) + T$ (euros)
$PC$	530 (euros)
$\sigma$	4
$\lambda_h^\sigma$	$(\frac{m_h}{R})(\frac{PC}{p_h})^\sigma$
$\lambda_l^\sigma$	$(\frac{m_l}{R})(\frac{PC}{p_l})^\sigma$

Table 2: *Import Quality Composition and Domestic Prices results*

Variables	Initial Situation	Free Trade	Scenario 1	Scenario 2	Scenario 3	Scenario 4-A	Scenario 4-B
Equilibrium	out-of-quota		out-of-quota	out-of-quota	out-of-quota	out-of-quota	at quota
$\frac{m_h^*}{m_l^*}$	0.98	0.30	0.98	1.06	0.30	0.98	2.95
$m_h^*$	1042989	10703660	1042989	1403395	6611440	1042989	3150000
$m_l^*$	1069106	35645550	1069106	1330797	22017540	1069106	1069107
$p_h^*$	815.1	455.4	815.1	756.8	513.7	815.1	618.3
$p_l^*$	568.1	236.4	568.1	537.8	266.7	568.1	568.1

Table 3: *Welfare changes relative to the initial situation (in million euros)*

Variables	Initial Situation	Free Trade	Scenario 1	Scenario 2	Scenario 3	Scenario 4-A	Scenario 4-B
$VarCS$		1542.7	0	100.8	1233.5	0	272.7
$VarTR$		-594.6	-45.8	123.7	473.5	-133.5	46.9
$VarQR$		-135.1	45.8%	-29.3	-135.1	133.5	91.1
$VarXR$		12573.3	0	226	7488.1	23.8	959.5
$WCofQ$		30.1	0	-14.4	30.1	0	-189.6

where,

$VarCS$  : EU consumer surplus change.

$VarTR$  : EU beef Tariff Revenue change.

$VarQR$  : High-quality beef exporters Quota Rent change.

$VarXR$  : Mercosur beef export Revenue change.

$WCofQ$  : Welfare Impact of Quality change in imports using a (partial) Divisia "Tornqvist" Index.

Figure 2: *Welfare change and Scenarios of EU-Mercosur trade liberalization (in million euros).*

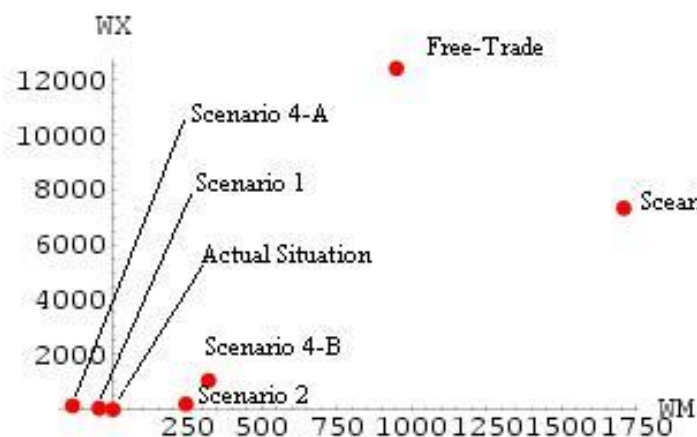


Table 4: *Mercosur's welfare for indifferent trade policies for the EU's welfare (in million euros)*

Policies	Mercosur's welfare
$\bar{q}_h=503000$ 100kg	QR=135.1
$t_h=0.2$	XR=727.7
$t=0.128 + T= 301.4$ euros/100kg	WX=862.8
$\bar{q}_h=503000$ 100kg	QR=169.6
$t_h=0.2$	XR=727.7
$t=0.94$	WX=897.3
$\bar{q}_h=503000$ 100kg	QR=112.4
$t_h=0.2$	XR=727.7
$T=314.4$	WX=840.1
$t=0.94$	QR=0
	XR=WX=727.7
$T=314.4$	QR=0
	XR=WX=727.7

## Appendix

### EU-Mercosur bilateral trade relationship

The EU and Mercosur are important trade partners which is explained by cultural and trade complementary reasons. However, there exists some asymmetries concerning the volumes and the structure of their trade. The EU's exports to Mercosur represent 25% of its total exports but the Mercosur's exports to the EU only reach 1% of its total exports in US dollars. The trade structure are different, Mercosur mostly exports agricultural product and the EU exports industrialized product and services. More over the trade relationship between the two economic blocks has been function of their macroeconomic situations, specially in Mercosur's countries (in 1991 Convertibility Plan in Argentina, in 1999 Brazilian monetary crisis and devaluation, 2001-2002 Argentinean financial crisis and currency devaluation)(Bureau and Ramos 2004).

The EU Generalized System of Preferences (GSP) leads to a preferential access to the Mercosur's countries in the European market since its implementation in 1971. However, the preferences are applied only for some agricultural product and they can't profit from null tariffs because they aren't consider in the least developed countries (LDC) groups as the ACP's countries.

Argentina is the country which benefits the most from the GSP. 17% of their export to the EU enter in the GSP regime. For Brazil only 6% of his export to the EU enter in the GSP and the export's participation of Paraguay and Uruguay in the GSP is marginal.

All "sensible" products <sup>10</sup> aren't included in the GSP and the Mercosur's export to the EU in the GSP are composed by sea foods, plants, fruits and vegetables, tea, coffee and mate, oilseeds, oil and fats, fruits juices and tobacco.

<sup>10</sup>The sensitive products are beef, chicken and poultry meat, pork meat, wheat, corn, dairy products and eggs products.



According with the WTO requirements, the EU conceded to the Mercosur some TRQ which improve the market access for some agricultural products. There are quotas of current access, related to historical trade, and quotas of minimum access. For the current access Argentina and Uruguay profit from 23000 t and 5800 t of sheep and goat meat respectively. And for the minimum access these countries benefit each other from 17000 t and 2300 t of beef (fresh, chilled and frozen) and Brazil profits from 15500 t of chicken and poultry meat. Concerning frozen beef, the EU has opened a quota of 66000 t, but it isn't allocated to Mercosur countries. However Brazil is the country which profit the most of this quota.

When Spain and Portugal were included in the EU a quota of 2500000 t of corn was opened. Argentina and Brazil has benefited from this opportunity exporting 1.8 millions t and 370000 t respectively in 2003. Then, a quota of sugar was opened to Brazil. It was an existent quota between Brazil and Finland, and when Finland was included in the EU this quota of 82000 t was converted in a EU's TRQ.

Moreover with the entrance of the 10 countries of the East Europe, the EU has opened two annual tariff quota for beef in 2004, always following the WTO schedule. The first TRQ concerns 53000 t of frozen beef<sup>11</sup> (CN codes 0202 and 0206 29 91) and the second one consist to a tariff quota of 50700 t of frozen beef intended for processing (CN.0202 20 30, 0202 30 10, 0202 30 50, 0202 30 90 or 0206 29 91). This quotas are not allocated to Mercosur countries but they may profit from them since July 2004 until June 2005, which is the date of end of these TRQs.

The EU has allocated an important "Hilton" beef quota to Mercosur. Argentina has a quota of 28000 t of high-quality beef<sup>12</sup> (CN codes 0201 30 and 0206 10 95) , Uruguay benefits from a quota of 6300 t of high-quality beef<sup>13</sup> (CN codes 0201 30, 0202 30 90, 0206 10 95, 0206 29 91) , Brazil profits only from 5000 t of this kind of beef<sup>14</sup> (CN codes 0201 30, 0202 30 90, 0206 10 95, 0206 29 91) and Paraguay has a quota of 1000 t of high-quality beef(CN codes 0201 30 00 and 0202 30 90) since 2002<sup>15</sup>.

Each Mercosur's countries administrates licenses of "Hilton" quotas. For example in Argentina's case, the Secretary of Agriculture (SAGPyA) allocates the "Hilton" beef quota between exporters. In order to access to a part of "Hilton" quota, exporters firstly need the authorization to export to the EU which is delivered by the Commission of the EU. Moreover they have to fulfill all the tributary

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<sup>11</sup>Commission Regulation (CE) No.1203/2004).

<sup>12</sup>"Special or good-quality beef cuts obtained from exclusively pasture-grazed animals aged between 22 and 24 months, having two permanent incisors and presenting a slaughter liveweight not exceeding 460 kilograms, referred to as "special boxed beef", cuts of which may bear the letters "sc" (special cuts)".Commission Regulation (EC) No.936/97.

<sup>13</sup>"Special or good-quality beef cuts obtained from exclusively pasture-grazed animals presenting a slaughter liveweight not exceeding 460 kilograms, referred to as "special boxed beef". These cuts may bear the letters "sc" (special cuts)".Commission Regulation (EC) No.936/97.

<sup>14</sup>Beef cuts obtained from steers (novilhos) or heifers (novilhas) aged between 20 and 24 months, which have been exclusively pasture-grazed, have lost their central temporary incisors but do not have more than four permanent incisor teeth, which are of good maturity and which meet the following beef-carcase classification requirements: meat from B or R class carcasses of rounded to straight conformation and a fat-cover class of 2 or 3; the cuts, bearing the letters "sc" (special cuts) or an "sc" label as a sign of their high quality are to be boxed in cartons bearing the words "high quality beef". Commission Regulation (EC) No.936/97.

<sup>15</sup>fillet (lomito), striploin and/or Cube roll (lomo), rump (rabadilla), topside (carnaza negra) obtained from selected crossbred animals with less than 50% of breeds of the zebu type and having been exclusively fed with pasture grass or hay. The slaughter animals shall be steers or heifers falling under category V of VACUNO carcase-grading system producing carcasses not exceeding 260 kg". Commission Regulation (EC) No.1524/2002

and sanitary obligations of their country. Then the participation in the “Hilton” quota are allocated considering their total beef export (except “Hilton” beef) of the last two years (FOB values) and prove them with customs certifications. The new producers, who fulfill all sanitary conditions and have the EU authorization, benefit from 300 tons for the first year and 200 tons for the second year. Every year each exporter has to demand to the SAGPyA the attribution of a “Hilton” quota-part because it isn’t automatically renewable (SAGPyA Resolutions 914/2001 and 186/2002).

Nevertheless, during the period of Argentinean financial crisis (2002 and 2003), this country has exceptionally profited from a extra quota of 10000 t of “Hilton” beef <sup>16</sup>.

For all these TRQ the tariff in-quota is an ad-valorem tariff of 20% and the out-of-quota tariff is normally a combination of an ad-valorem tariff (12.8%) and a specific tariff (from 141.4 euros per 100kg to 304.1 euros per 100kg) which change for each CN codes.

## EU-Mercosur trade negotiation

After the signature of the EU-Mercosur Interregional Framework Co-operation Agreement on December 1995 in Madrid, which entered into force the 1st July 1999, the two regions start the negotiations on November 1999.

In **the first round** of negotiations (April 2000 in Buenos Aires), they established all general principles <sup>17</sup> and they create the technical groups <sup>18</sup>for trade and subgroups for co-operations areas. They also established a working program until 2001 about the exchange of information, objectives, modalities on non-tariff measures, methodology and the schedule for progressive tariff in goods and services.

During **the second** (June 2000 in Brussels) **and third** (November 2000 in Brasilia) **rounds** of negotiations, they continue to exchange information and drafts about trade, non-tariff obstacles and trade, political and co-operation objectives for a future agreement.

In **the fourth round** (March 2001 in Brussels) the parties presented for the first time their proposals and working documents about non-tariff issues and “Business Facilities”, like e-commerce, have been introduced as a new subject in the negotiations.

**The fifth round** (July 2001 in Montevideo) is the “takeoff” on tariff and service negotiations. Moreover, the EU presented to Mercosur the tariff and negotiation texts for goods, services and government procurement. The objective of this offer is the progressive and reciprocal liberalization of almost all the exchanges, without excluding any sector and during a 10 years period.

In **the sixth round** (October 2001 in Madrid) the Mercosur presented its tariff offer as well as negotiation texts on services and public markets. The point of difference with the EU proposal was the reduction of 33% for EU import tariff during a 10 years period. During this round and

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<sup>16</sup>Commission Regulation (CE) No.1524/2002)

<sup>17</sup>General principle: free trade, no exclusion of any sector, conformity with WTO rules, single undertaking principle, conclusion at the earliest possible time, intentions to aim at comprehensive negotiations and balances results, and the reinforcement of consultations on WTO matters

<sup>18</sup>Subgroups of Technical groups:liberalization trade in goods and services, government procurement, investment, intellectual property rights, competition policies, trade defence instruments and dispute settlement mechanism

**the seventh round** (April 2002 in Buenos Aires) they made substantial progress in political and co-operation chapters (Science, Telecommunications, Energy, Transport) and they were virtually finished. Moreover, the parties agreed about a Trade Facilitation Measures Packages, discussed in Madrid and finally adopted.

**The eighth round** (November 2002 in Brasilia) was focused on the discussion of consolidated texts for market access for goods, services, TBT, competition, rules of origin, IPR, customs and dispute settlement. Moreover they started the discussion about wine and spirits.

In **the ninth round** of negotiations (March 2003 in Brussels) the discussion was related to the reciprocal tariffs proposals. Concerning the agricultural tariff offers, they first differentiated the products by categories (A, B, C, D, E) which are included in the agenda of tariff elimination. The EU presented ad-valorem tariff offers for all categories, except for category E<sup>19</sup> which doesn't have yet a definition about the methods of tariff reduction. However, the EU planned to propose TRQs for E category products and not tariff elimination. The Mercosur's proposal included the tariff elimination (over 10 years) of 8042 tariff headings which account for 83,5% of the imports coming from the EU. For Mercosur the majority of the meats (poultry, bovine, pork), fish and sugar are in the category C, the alive animals in the categories A, B, C, the vegetables and the fruits are in the category C, D, as well as cereals, the oilseeds and oils. Moreover, the Mercosur does not apply quantitative limitations, entrance fees, specific or mixed tariffs, it applies only ad-valorem tariffs.

In **the tenth round** (June 2003 in Asuncion) they always covered the agricultural subject. Regarding to the market access, the Mercosur awaited one reforms CAP which could profit with the agricultural trade from its products. The EU was worried about by the proposal for an accelerated tariff reduction for the agricultural products. In this round the Mercosur received the proposal of the EU on the tariffs of the category E, which had not been defined in the preceding round. The great discussion was founded on the SPS agreement, specially on animal welfare and on wine and spirits. Furthermore, they discussed about the creation of a Mercosur Regional Parliament in order to enforce the civil society participation.

**The eleventh round** (December 2003 in Brussels) showed some progress on technical trade issues related to market access in goods, government procurement and investment, wines and spirits, business facilitation, intellectual property rights. Moreover, they agreed in the work-programme for the rounds in 2004 as well as the two Ministerial Meetings in order to conclude the EU-Mercosur association agreement.

**The twelfth round** (March 2004 in Buenos Aires) was a very productive meeting. They progressed on trade aspects for goods and they finalized the chapters about TBT, competition and customs. Furthermore the parties committed to improve offers for the next meeting.

In **the thirteenth round** (May 2004 in Brussels) the discussion about political, co-operation and trade aspects went on but not important conclusion was reached.

After this last Bi-regional Negotiations Committee, the parties continued with the exchanges of proposals and with informal discussions. The last proposals were exchanged in September 2004 with

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<sup>19</sup>The products of E category are: cereals, rice, olives, oils, bovine and pork meat, eggs, poultry meat, sugar and fruit and vegetables

the hope to attend an agreement at the end of October 2004. Unfortunately, no EU-Mercosur trade agreement was signed because they didn't agree about some subject like agricultural trade liberalization and on government procurement and investment. Nevertheless, they have recently committed about a new beginning of bilateral trade negotiations before the WTO round on December 2005 in Hong Kong.

For further information about the EU-Mercosur negotiations see:  
*[http : //europa.eu.int](http://europa.eu.int)*