



Transaction costs and trade liberalization: An empirical perspective from the MERCOSUR agreement



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ABSTRACT

Studies investigating the effect of trade liberalization policies on transaction costs in agricultural markets are scarce. The objective of our paper is to determine whether Brazil became more integrated with reduced transaction costs after the introduction of MERCOSUR with respect to its main agricultural trade partners, Argentina (a MERCOSUR member) and the United States (a non-MERCOSUR member).

Using a threshold vector error correction model (TVECM), we estimate the transaction cost, price transmission elasticity and half-life adjustments for the most traded agricultural products between Brazil/Argentina and Brazil/United States from January 1980 to December 2012. Our findings suggest a strong MERCOSUR effect, with lower transaction costs and higher price transmission elasticity when compared to a non-agreement scenario. Moreover, the variations of both parameters are highly heterogeneous across products, depending mainly on their degree of differentiation. From a policy perspective, elements such as the sources of comparative and competitive advantages together with investment policies, specific market regulations and agricultural subsidies, among others, are mainly what influence the extent of transaction cost and market integration. Our results show that Brazil has made progress but still has considerable room for improvement in reducing barriers to agricultural products and, as a consequence, to achieving the full benefits of the MERCOSUR agreement.

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Introduction

Although trade liberalization policies have historically promoted market integration of regions or countries, recent studies suggest that their effectiveness is negatively affected by the presence of transaction costs (TCs) (Listorti, 2009; Stephens et al., 2012). In fact, in order to maximize the benefits from trade liberalization policies, recent studies (Mitra and Josling, 2009; Martin and Anderson, 2011) argue that countries should take actions to identify and reduce sources of TCs between markets. A market integration analysis offers a way to estimate the level of TCs and, consequently, allows for an assessment of whether regional trade liberalization, under different levels of TCs, affects the price transmission degree between countries or regions (Balcombe et al., 2007).

While studies of market integration in a spatially separated contexts have received substantial attention in the literature (e.g.

Park et al. (2002) for China; Getnet et al. (2005) for Ethiopia; Cudjoe et al. (2010) for Ghana and Valdes et al. (2011) for Chile), only a few studies have explicitly examined the impact of trade agreements on TCs and their implications for the transmission of price signals between agricultural markets.

The drivers of price transmission include not only the level of trade but also the market determinants for each country (Koestler, 2001). The aim of this study is to explore which factors affect the degree of market integration, the routes of TC variations derived from the implementation of regional trade agreements and their effect on the price transmission level between agricultural markets.

In order to accomplish our objective we used as case study the variation on market integration parameters of the Brazilian agricultural market with respect to its major trade partners in both periods: the United States and Argentina, respectively. We used the implementation of the Common Market of the South (MERCOSUR) as a reference of structural break in trade. It is expected that after the agreement Brazilian trade will shift from the United States to Argentina. This study will estimate TCs, price transmission elasticity (PTE) and their implications for market integration on the top nine agricultural products traded from

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1980 to 2012 between Brazil and the USA (without any trade agreements) and Argentina and Brazil (existence of a trade agreement).

Previous theoretical studies (see [Baulch, 1997](#); [Blavy and Juvenal, 2009](#)) show that TCs generate a no-trade threshold band where prices in two locations fail to equalize. Outside this threshold band, arbitrage is profitable and trade is promoted, a dynamic that is captured successfully by a threshold vector error correction model (TVECM) ([Balke and Fomby, 1997](#)). The main advantage of this model is its ability to analyze the impact of TCs on market integration solely on the basis of price information. This model identifies a lower bound of the relative TCs associated with equilibrating price adjustment, e.g., through arbitrage and trade. To the best of our knowledge, this is the first attempt to relate the impact of regional trade agreements on TCs and price transmission parameters in agricultural markets.

MERCOSUR is a custom area implemented in 1995 with Brazil, Argentina, Uruguay and Paraguay as the original partners. Among these countries, Brazil and Argentina generate more than three-quarters of its agricultural production. Brazil is considered the most significant agricultural market in Latin America and one of the top 10 players in world agricultural trade ([GVF, 2013](#)). Before the implementation of MERCOSUR, Brazilian agricultural imports were mainly dominated by the USA, followed by Argentina and the EU ([FAOSTAT, 2013](#)). After the implementation of MERCOSUR, the situation changed and Argentina became the number one trade partner, followed by the United States, Venezuela and China ([CONAB, 2013](#)). Even though Brazil has fostered trade openness in order to meet a growing domestic demand for food, there are still signs of high TCs with its main trade partners ([Monteiro et al., 2012](#)). Therefore, there is still no clear evidence about the effect of trade agreements with respect to the variation of TCs.

Accordingly, this paper attempts to: first, to perform a comparative analysis to determine if after the implementation of MERCOSUR, TCs between Brazil–Argentina and Brazil–United States were reduced and if this effect implied a higher PTE; and second, to analyze whether the formation of TCs and PTE are product-specific and determined by each market structure.

The article proceeds as follows: [Section 2](#) reviews the Brazilian agricultural market and MERCOSUR's characteristics. [Section 3](#) gives a glance at the relevant literature on TCs and market integration. [Section 4](#) describes the methodology and data sources. [Sections 5 and 6](#) present the results and discussion, respectively. Finally, [Section 7](#) concludes.

Literature review

Brazil in the MERCOSUR context

MERCOSUR is an economic and political treaty, whose members are Brazil, Argentina, Uruguay, Paraguay and since 2011 Venezuela, while Bolivia and Chile are associate members.¹ This custom area consists in a gradual process of tariff harmonization between these countries with the goal of establishing a common external tariff (CET), which was finally achieved in early 1995 ([Bas, 2012](#)). Today, duty-free access is provided to all goods produced within the zone with the exception of automobiles and sugar. Along with the establishment of a CET, the agreement allowed for the free movement of goods, services and production factors, the abolition of restrictions over reciprocal trade, adoption of common trade policies towards

countries that do not belong to MERCOSUR and the coordination of macroeconomic and sectorial policies.

In 2012, agriculture accounted for 32% of total member exports, 9% of which corresponding to trade among MERCOSUR countries ([FAOSTAT, 2013](#)). According to [Korinek and Melatos \(2009\)](#), this situation could be due to MERCOSUR's limited effect on developing comparative advantages among its members and the fact that when the CET was established its member economies were engaging trade liberalizations agreements with other markets simultaneously. As a result, trade with non-member countries was not affected and in some cases it even grew.

At a regional level, MERCOSUR's agricultural market size is largely determined by Brazil ([Prottil et al., 2010](#)). In terms of Brazilian imports, before the implementation of MERCOSUR the principal provider was the United States (18%), followed by Argentina (17%), the EU (14%), Uruguay (8%) and Paraguay (6%). At the time, the main Brazilian imports were wheat (17%), malt (8%), cotton (6%), potatoes (6%) and agro-industry inputs (4%) ([FAOSTAT, 2013](#)). In contrast, after the implementation of MERCOSUR, Argentina has become the biggest exporter of agricultural products to Brazil (24%), followed by the United States (18%), Venezuela (14%) and China (17%) ([CONAB, 2013](#)). Currently, Brazil's imports have continued to be dominated by wheat and its derivatives (19%) along with barley (11%), fresh fish (6%), beans (7%) and fresh pears (7%) ([FAOSTAT, 2013](#)).

Main agricultural trade policies of the United States and Argentina

Since the United States is one of the biggest players in the global agricultural market, its main trade policies (namely, market development, export subsidies and market access programs) may have an important effect on price behavior and arbitrage activities in major agricultural markets around the world ([Mitra and Josling, 2009](#)). This situation is reinforced by the country's ample internal logistic network, which allows it to transport agricultural products to international markets cheaply and efficiently ([Korinek and Melatos, 2009](#)), allowing the United States to have competitive advantages in access and product shipping, that in turn should result in lower TCs.

Brazil and the United States have a long history in terms of agricultural trade. Before the implementation of MERCOSUR, the United States was the main exporter of agricultural products to Brazil, as mentioned above. In 2010, both countries signed an agreement for trade and economic cooperation, a joint effort to promote mutual trade and investment ([Coelho, 2009](#)). As a result, in 2012, Brazil became the seventh largest goods export market for the United States, totaling \$1.9 billion ([BCS, 2012](#)). Current leading categories include: wheat (US\$1.2 billion), dairy products (US\$83 million), prepared food (US\$67 million), and feeds and fodders (US\$51 million) ([CONAB, 2013](#)).

On the other hand, Argentina is the eighth largest producer and the twelfth exporter of agricultural commodities in the world. In 2012 it produced 8.4% of global agricultural output and its products represent, on average, 2.9% of world agricultural trade during the last decade ([FAOSTAT, 2013](#)). Nevertheless, when compared to the United States, its transportation and marketing costs for bulk agricultural product exports have historically been much higher ([Brum and Kettenhuber, 2008](#)). This is largely due to an inefficient or underdeveloped barge and railroad transportation system and a heavy reliance on more expensive truck hauling that reduces the country's competitive advantage.

Argentina's trade policy has historically been one of protectionism, emphasizing import substitution ([Bas, 2012](#)). Due to the hyperinflations of 1989 and 1990, the Argentinean government was forced to shift towards market-oriented policies and launched an ample unilateral trade-liberalization process to promote

¹ On June 28, 2012, Paraguay was barred from participating in MERCOSUR decisions until it held democratic elections. On July 30, 2012 in Brasilia, the other countries and full members of MERCOSUR approved the final incorporation of Venezuela as a full member, which became effective on August 12, 2012.

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