

Assessment of the Distributive Impact of Trade Reforms in Brazil*

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* We thank Marcela Arnaiz for excellent research assistance. We also are grateful to Fabio Miessi to helping us analyzing the Brazilian expenditure survey.

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Non-Technical summary

Although trade integration has potential benefits for developing countries, it is disputed whether trade liberalization processes are, per se, sufficient for poverty reduction and inequality abatement. Abundant work has analyzed the link between tariff reduction, poverty levels and inequality in both developed and developing countries. Gains from trade are generally observed. Still, those benefits from integration are often unevenly distributed. So, one should be careful when comparing and generalizing results from different countries. The impact of trade integration on income levels should be analyzed on a case-by-case basis.

The link between trade integration, poverty and inequality is important for two main reasons. First, social scientist, policy makers and the general opinion are all concerned about equity and socio/political reasons, as growing inequality can lead to social and political tensions and eventually the reversal of reforms. Second, because increases in income inequality and poverty can be associated with lower growth (e.g., Aghion, Caroli and Penalosa, 1999, Azaridis and Stachursky, 2005). As this literature emphasizes, in the presence of poverty traps or market failures, inequality and poverty, increasing trade reforms can lead to lower growth if resources cannot be reallocated to more productive use and inefficiencies get exacerbated.

Brazil has been embarked in a clear trade liberalization process since the late eighties. As Brazil entered Mercosur in 1991, the country reaffirmed its commitment to openness and trade. Still, Mercosur's original ideals have suffered reversals since the beginnings. State members have proved to be more driven by national (and nationalistic) interests than by a commitment to reinforce the Trade Agreement. In the end, the integration process has resulted in a sinuous path. In any case, when put in perspective, evidence shows an unambiguous tariff reduction in Brazil in the last two decades.

We are aware that there is vast evidence that the Brazilian trade reforms have increased efficiency and growth. In our work we analyze the long-term poverty and income inequality effects of Brazil's trade policy for the 1990-2006 period. We follow a methodology suggested by Porto (2003) in order to study whether the trade liberalization process resulted in poverty and inequality reduction or not.

Results show that trade liberalization benefits more low income individuals. Additionally, we observe that poverty indicators decreased after trade liberalization (both for women and men). We obtained no significant inequality effects after trade reforms.

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I. Introduction

Trade liberalization and clear structural reforms have characterized Brazil's economic policy since the early nineties. It was in 1991, when Brazil initiated an ample programme of economic reform that has, over time, led to visibly more open trade and investment regimes. Thus, more neutral sector policies have been adopted and a more market-driven, decentralized environment has emerged through the deregulation of state monopolies and prices, investment liberalization, and privatization.

In 1991, the administration in place announced a series of tariff reductions to be phased in over the 1991-94 period. Additionally, although import licenses were not abolished, their approval became a relatively routine operation (most licenses were being issued within five working days). These were among the most far-reaching and significant reductions in Brazilian trade protection in several decades. The 1991 reforms implied, in many sectors, tariff reductions of about a third of their level in the early 1980s. Equally important, the reforms reduced the wide variability or dispersion of tariff rates that were once characteristic of Brazilian trade policy.

As Brazil entered Mercosur in the early nineties, the country embarked in a plan for tariff reduction at the regional and extra-zone levels. The coming years may imply further trade opening, particularly as the WTO Doha Development Agenda, the EU-Mercosur Association Agreement and other initiatives under negotiation will enter the implementation phase.

Brazil has continued to liberalize its economy and the overall trend in trade policy is clear. By the mid-1990s, Brazil had become a much more open economy. Even in the textbook case, traditional trade theory acknowledges that although the gains from trade might be positive for a country as a whole, they might not be distributed evenly across all the groups. There is nowadays an increasing concern throughout the region over the asymmetric distribution of costs and benefits of trade integration. One of the initial objectives of Doha was to ameliorate inequalities between rich and poor countries. In

this context, it is fundamental to determine whether trade integration can be regarded as poverty reduction policy or, on the contrary, if it may be associated with intensified poverty effects.

Regressive outcomes are more likely in the absence of complementary domestic reforms and policies that would help maximize gains from trade, protect the most vulnerable from transitional costs and ensure an equitable distribution of net gains. In order to design a domestic complementary agenda, it is therefore of the utmost importance to generate empirical evidence to determine the distributional impacts of trade liberalization.

Trade reforms cause direct changes in local relative prices which indirectly affect household's income, expenditure and welfare. On the expenditure side, net effects depend on product structure of the consumption basket and on whether individuals are net producers or net consumers. Changes in household's income are explained by the fact that the trade reforms imply a reallocation of resources between sectors, resulting in changes in factor prices, particularly wages. As we analyze both changes in prices and variations in income, we are able to determine the overall change in household welfare. Recently, promising trade economics literature is attempting to precisely measure the net effect of trade integration on income distribution and poverty, taking into consideration both income and expenditure effects (Giordano and Florez, 2007). In this context, this project seeks to expand the methodology used by Porto (2006) for the case of Argentina, and aims at completing the analysis for the other full members of the regional integration agreement. This research will contribute to the knowledge of the impact of trade liberalization on poverty and income inequality in the region.

By trade reforms we mean both national and foreign trade reforms. We consider that national trade reforms imply the removal of tariff protection on Brazilian imports. Foreign trade reforms refer to the possibility of local exports to access those markets in the developed countries (or elsewhere). When tariff reductions and import-quotas removals take place in third countries, the price of Brazilian exports to developed countries is positively affected. But trade liberalization plus enhanced market access does not necessarily equal poverty reduction. As a mean to measure the effect of trade liberalization on poverty, we plan to evaluate the impact of both national and foreign trade reforms on the head count ratio.

The objective of this technical research is to assess the linkages between trade, poverty and inequality by analyzing the impact of trade liberalization through two main transmission channels: prices and income. Following the methodology developed by Porto (2006), the study first assess the implications of a given trade shock, i.e. a national or a foreign trade reform, in relative domestic prices of traded goods (imports and exports). Secondly, the studies will analyze the response of labor income and consumption channels at the household level. This leads to the third step, which is the induced change in the head count poverty ratio. This methodology will allow us to identify the new income that individuals would earn as a result of a policy change, in order to determine to which extent trade liberalization contributes to poverty reduction. Detailed data at the household level will be used to assess how inequality and poverty have evolved over time, across regions (e.g. urban areas compared to the rest of the country) and across different household types (e.g. ranked according to the education level; etc.). Obtained results evidence that: (1) the decrease of tradable goods' prices benefited the lower-income segment of the Brazilian population; (2) the dynamics of the non-tradable goods' prices had an insubstantial impact and (3) trade liberalization had an almost-zero impact for both the highly paid and for those with the lower positions in the salary distribution.

II. Trade Reform in Brazil.

Brazil's economic history has been influenced remarkably by foreign trade trends and policies. Successive cycles of export booms in such commodities as sugar, gold and diamonds, rubber, and coffee played major roles in Brazilian development before World War II. Along the XX century, industrial development was fostered deliberately through restrictive trade policies, making Brazil a relatively closed economy by the mid-1960s. In Brazil, trade openness started at the end of the 1980s and was deepened at the beginning of the 1990s.

In 1991, Brazil entered Mercosur, a Trade Agreement signed between the Argentine Republic, the Republic of Paraguay and the Republic of Uruguay (Treaty of Asuncion). The regional agreement fostered two main objectives: to eliminate any duties, charges and other restrictions applied to members' reciprocal trade and to begin a programme of gradual, linear and automatic tariff reductions for imports from third countries (not members of Mercosur). Following the establishment of Mercosur, the average import tariff was further reduced to 12.6 per cent. The maximum tariff came down from 105 per cent, in 1990, to 32 per cent beginning on 1 January 1996 (excluding a few items).

The creation of Mercosur marked the acceleration in the fall of import tariffs and the long-term commitment that Brazil would continue the liberalization process. From January 1995, Mercosur began to operate like an imperfect customs union. Soon, the integration process started to slow down. Specifically, Brazil played a major role blocking further regional integration. As an example, the proliferation of non-tariff barriers shows the low level of commitment to trade disciplines¹. At present there is a level of disenchantment with the integration process at Mercosur (mostly in Paraguay and Uruguay) since most of the disputes, exceptions and other difficulties for integration responding to specific interests from industrial lobbying groups from Brazil and Argentina (automobile sector, sugar, rice, etc)². The Ouro Preto Treaty was signed in December of 1994. The agreement established the institutional structure of Mercosur and defined a general procedure for complaints to the Mercosur Trade Commission, a body created to monitor the application of the common trade policy instruments. Although it was not originally intended, Ouro Preto also implied a change in the liberalization schedule within Mercosur and relaxed the speed of the liberalization process and changed the mechanism of convergence. Table 1 presents information about Intra-Mercosur trade flows. Table 2 shows 2000 Brazil's Trade Openness Coefficient. Trade, as a percentage of GDP, remains is still low, compared to industrialized countries. There have been no major changes in the composition of Brazilian merchandise trade, the share of primary products in total exports declining only slightly with a corresponding increase in manufactured exports. Brazil remains the world's largest exporter of several agricultural products including coffee, orange juice and sugar. The United States and MERCOSUR, especially Argentina, are Brazil's most important markets, followed by the European Union (EU). The main suppliers to Brazil are, in decreasing importance, the EU, the United States, and Argentina.

Export promotion has been one of the key elements of Brazil's trade policy, partly to offset domestic inefficiencies such as poor infrastructure, inefficient financial

¹ At the extra-zone level, after more than a decade, the degree of compliance of national trade policies with the regional agreement is low. This is clearly observed when looking at current levels of the common external tariff in each country. Another sign of Mercosur modest results at the extra-zone level is related to the low number of trade agreements signed with with third parties (countries or regions). In fact, it was only in 2007, that Mercosur (as a group) signed its first trade agreement with a extra-zone party (Israel).

² The Treaty of Asuncion allowed for a list of exceptions submitted by each of the States Parties. This list of exceptions should not be regarded as a minor detail since, in the end, it has represented a possibility to weaken the regional integration impulse. Since 1991, exceptions have created plentiful of disputes and negotiations among state parties, blocking further integration programs.

intermediation, a cascading tax system and, until 1999, an overvalued exchange rate. Several export financing programmes and export guarantee funds are available. Brazil also makes widespread use of regional support programmes in the form of fiscal incentives, including tax and duty exemptions for selective activities specially the automotive sector.

Brazil is one of the world's major producers and exporters of agricultural products. Government intervention in the sector has decreased. Assistance to agriculture appears modest, especially in the context of market distortions introduced by the support provided to agriculture in other countries, a problem that remains of major concern to Brazil and other countries in Mercosur.

The most remarkable event from 2000, has been the strong increase in exports of goods. Although the share of primary products increased by 2.5 percentage points (in the mining sector mainly), with a corresponding decline in the share of exports of manufactured goods, the latter remained the major export category, with a share of just above 50% of total exports, of which machinery and transport equipment is the main sub-group. Exports of automotive products were particularly dynamic over the period, with an average annual growth rate of 14%.

III. Inequality and Poverty in Brazil: the stylized facts

It is important to make clear that income inequality and poverty are different concepts. While income inequality refers to income distribution (a relative term), poverty refers to the relationship between (absolute) individual income and the poverty line. Poverty reduction may be associated to either higher income inequality or a more equal income distribution. It is broadly accepted that economic researchers and policy-makers should be concerned about both indicators of social welfare, when evaluating alternative policies.

Poverty in Brazil is substantial. Brazil has the fifth largest population (170 million) and the eighth largest gross national product (GNP) in the world. Living conditions for Brazil's 170 million people vary dramatically, and income disparities in Brazil are significant.

There is an extensive literature on the distribution of well-being in Brazil – describing levels and dynamics of poverty and inequality outcomes; scrutinizing regional and sectoral disparities; and so on. An important stylized fact that emerges from this body

of research is that, compared to other countries, Brazil is a clear outlier in terms of inequality and also accounts for a dominant share of the total number of poor in Latin America.

It has been –historically– documented that poverty indicators are clearly higher in rural areas than in urban areas. However, since only some 21% of Brazilians live in rural areas, the urban shares in the composition of poverty are higher: 52% of people living below the indigence line live in urban areas, as do 64% of those with incomes lower than the main poverty line.

Poverty in Brazil still varies rather dramatically by region. The Northeast is the poorest region (particularly in the rural areas), followed by the North, the Center-West, the South and the Southeast, in that order. Given the large differences in overall population shares, the composition of poverty is biased towards the more populous Southeast. Still, the Brazilian Northeast, with some 30% of the country's population, accounts for nearly half of the poor and for an even greater proportion (62%) of the indigent . Poverty in the metropolitan areas of the southeast is clearly lowest.

In addition, high levels of inequality have been remarkably stable in Brazil. This striking persistence is part of what some authors refer to as “the unacceptable stability” of Brazil's inequality. For example, Bourguignon, Ferreira and Leite (2002) indicate that, during the entire 1977–99 period, the Gini coefficient has never strayed outside the 0.58–0.62 range, except for an unexplained upward blip to 0.64 in 1989.

Brazil is not only unequal in terms of income and social indicators, but also unequal given its level of economic activity. Although most unequal societies tend to be countries with a lower level of development, Brazil's level of inequality appears more prominent when compared with other middle-income countries and indicates that such levels of inequality become even more prominent when Brazil's size is taken into account (World Bank, 2003).

Race seems to matter a great deal. The mean income in black-headed households is 42% of that in white-headed households, and only 24% of that for Asian-headed households. The ratios are very similar for indigenous-headed households. As a result, the headcount for black-headed households, at 63%, is roughly double that for whites, and four times that for Asians. Despite being a (large) minority, black-headed

households account for 62% of all poor people in Brazil (Ferreira, Lanjouw, and Neri (2003)).

IV. Methodology

A) Effects of National Trade Reform

From a theoretical perspective, the impact of trade on wage inequality could go in either direction. In a Heckscher-Ohlin model, workers should see wages increase relative to capital owners' rents (alternatively, unskilled wages should go up relative to skilled wages) in a developing country relatively well-endowed with labor (or unskilled labor). In that case, workers would benefit relative to capital owners (or more skilled workers) and income distribution would improve. Under a specific factors model, however, workers that are unable to relocate to labor-intensive industries would lose, and the distributional impact of trade liberalization is ambiguous. Moreover, empirical studies show that the wage gap between skilled and unskilled workers may increase after trade and investment reform. This could occur, for example, if foreign-owned firms that begin operating in a developing country bring with them technology that increases the demand for skilled workers. In that case, the distributional impact is adverse.

The project will study the link between trade, poverty and inequality by analyzing the impact of trade liberalization through two main transmission channels: prices and income. The first possibility is that price changes are explained by the new tariff levels that result from trade reforms. Price changes may affect individuals in different ways, for example, depending on the share of each good in their consumption basket, as suggested earlier, or if individuals are net producers (as in the case of farmers) or net consumers. A second possibility is changes in household income. This effect is explained by the fact that trade liberalization imply a reallocation of resources between sectors, resulting in changes in factor prices in the process.

In this study we restrict the analysis to four trade goods: food and beverages (FB), Clothing and footwear (CF), house equipment and electronics (HQ), other traded goods (OT) and four non traded goods: health and education (HE), transport and communications (TC), housing (HO) and other non traded goods (ON). In the Appendix A we describe each categories of goods.

To analyze the distributional impact of Mercosur on Brazilian households we use a model based on Dixit and Norman (1980). The variation in exogenous income (Y^0) need to compensate household i to keep the same utility after a change in the price of trade good k ($k=1, \dots, 4$) because of the trade reform can be approximated by the following equation:

$$\frac{dY_i^0}{d\ln\tau_k} \frac{1}{e_i} = S_{ik} \frac{d\ln P_k}{d\ln\tau_k} + \sum_{n \in NT} S_{in} \frac{\partial \ln P_n}{\partial \ln P_k} \frac{d\ln P_k}{d\ln\tau_k} - \varepsilon_{wiP_k} \theta_{wi} \frac{d\ln P_k}{d\ln\tau_k} \quad (1)$$

where Y_i^0 is the exogenous income of households i , τ_k is the tariff for traded good k , S_{ik} is the budget share spent on the good k by household i , P_k is the price of trade good k , P_n is the price of non traded good n , S_{in} is the budget share spent n by household i , ε_{wiP_k} is the wage price elasticity with respect to traded good k and θ_{wi} is the share of labor income in total household income.

The first term in equation (1) shows that for a given increase in the price of the trade good k , the higher the share the higher will be the income necessary to compensate the consumer. The budget share approximates the consumption effect. The second term of (1) shows the compensation generated by the change in the price of non trade good that is explained by the trade reform. Their importance is related also to the share spent on non traded goods. The first and second term in (1) approximate the consumption effect of the Mercosur. Finally, the last term is the labor effect. The trade reform, change the price of trade goods that change household wages. In order to assess the distributional effect to Mercosur we have to estimate the three terms of the previous equation.

i) Impact of tariffs on prices of traded goods

Initially, the project will estimate the impact of tariffs on prices. Following Deaton (1997) it is possible to approximate the change in consumption explained by the changes in prices using the expenditures shares of each of the goods. Therefore, it will be considering only the direct impact and not other indirect effects. In order to quantify the distributional effects of these price changes there are two possibilities. The first one consists in the estimation of price indices for each individual in the survey, based on pre-trade reform expenditures shares with both prices. In a second step, the effects on

individuals of the price change that is explained by the reforms will be quantified. The second approach following Deaton (1997) consists in a nonparametric estimation of expenditure shares across the entire distribution of consumption, and computing average market shares for different incomes. When using the second approach, results are highly dependant of a proper choice of the bandwidth.

In particular, the induced change in the price of trade good k after the trade reform is:

$$\Delta \text{Ln}P_k = 0.5 \sum_{l \in k} s_{lk} [\delta_{lm} \text{Ln}(1 + \tau_{km}) + \delta_{kw} \text{Ln}(1 + \tau_{krw}) - \text{Ln}(1 + \tau_l^0)] \quad (2)$$

where s_{lk} is the expenditure share of the sub category l in traded good k, δ_{lm} is the fraction of imports of good l coming from Mercosur and δ_{krw} is the fractions coming from the rest of the world. Equation (2) estimates the price change of traded goods from Mercosur.

ii) Impact of prices of traded goods on the price of non traded goods

In order to estimate the impact of the prices of traded goods on the prices of non traded goods we will estimate the following translog equation:

$$\text{Ln}P_{nt} = \alpha + \sum_{k \in T} \beta_k \text{Ln}P_{kt} + \sum_{k \in T} \gamma_k \text{Ln}P_{kt-1} + 0.5 \sum_{k \in T} \sum_{h \in T} \phi_{kh} \text{Ln}P_{kt} \text{Ln}P_{ht} + 0.5 \sum_{k \in T} \sum_{h \in T} \lambda_{kh} \text{Ln}P_{kt-1} \text{Ln}P_{ht-1} + u_t \quad (3)$$

We regress the prices on traded goods on monthly prices of the traded goods and their interactions. In order to avoid a spurious regression we check for cointegration between the variables included in equation (3).

iii) Impact of prices on income

Some of the papers in this literature focus only on distribution effects of price changes after the reforms, without considering some import effects on the factor markets. This proposal seeks to quantify the impact of openness on total income. In addition the wage-price elasticity will be estimated. In particular we will regress the log of the real wage earned by person i against completed years of schooling (s), exogenous variables (z) such as age, marital status, children at home, region, etc, and the log prices of traded goods interacted with schooling and region.

$$\ln(w_i) = \alpha + \sum_k \beta_k \ln(p_i^k) + \gamma_i + \delta_i + \sum_k \lambda_k \ln(p_i^k) s_i + \sum_k \phi_k \ln(p_k^i) \text{Region}_i + u_i \quad (4)$$

B) Effects of External Trade Reform

In order to analyze the impact of external trade reforms over the Brazilian economy, we focus a major exported good: broiler. The world main poultry producers are United States (USA), China, Brazil and the European Union (EU)³. Broiler is the main product in this sector and these countries are the principal producers too. Total poultry meat trade for 2007 is estimated approximately at 17,5 million tonnes. Broiler meat accounts for an 85% (volume base) of total poultry meat trade.

Although we only analyze how changes in the global market for beef affect specific variables of the local economy, we understand that these results could be generalized to other exportable-goods items. Specifically, we will quantify the impact of trade liberalization in the global broiler markets over labor income, employment and poverty levels in Brazil. First, we estimate how the change in global price impacts the price level in the local market. We follow a methodology similar to that developed by Porto (2003) in order to identify different effects across education levels and industries. Second, using results obtained in the first stage, we estimate the impact of alternative scenarios of trade liberalization over labor income, employment and poverty.

We study the link between trade, poverty and inequality by analyzing the impact of trade liberalization through two main transmission channels: prices and income. The first possibility is that price changes are explained by the new tariff levels that result from trade reforms. Price changes may affect individuals in different ways, for example, depending on the share of each good in their consumption basket, as suggested earlier, or if individuals are net producers (as in the case of farmers) or net consumers. A second possibility is changes in household income. This effect is explained by the fact that trade liberalization imply a reallocation of resources between sectors, resulting in changes in factor prices in the process

The impact of changes in international prices on domestic prices

³ These countries represents 90% of the total world exports (according to OECD data).

In this section, we aim to estimate the impact of variations in international prices on local price levels: what fraction of the change in global prices is transmitted to the local price levels? And, how long does the transmission process take? In this respect, we will test the long-term co-integration between international and domestic prices.

We work with an average national price. We estimate the following regression:

$$\ln(P_t) = \beta_0 + \beta_1 \ln(P_t^*) + u_t \quad (5)$$

Equation (5) allows us to identify the long-term relationship between local and international prices. β_1 allows us to determine the referred relationship. In order to estimate co-integration, we conduct the ADF test over equation (5) residuals. Also, we are interested in testing the short term price dynamics so that we can identify the duration of the transitions process. We do this by estimating the following model of error correction:

$$\ln(P_t) - \ln(P_{t-1}) = \alpha + (\ln(P_t^*) - \ln(P_{t-1}^*)) \delta + (\ln(P_{t-1}) - \beta_0 - \ln(P_{t-1}^*)) \gamma + u_t \quad (6)$$

Where local prices vary between $t-1$ y t due to changes in international prices for that period (response is indicated by δ) and due to the adjustment to the “long term equilibrium” level with a velocity of γ . In case, a co-integration relationship exists, equation (6) is valid since it deals only with stationary variables.

Based on equations (5) and (6) we obtain the local prices adjustment after a change in global prices (in an n -months time horizon). The interpretation is as follows: as world prices increase by 1%, local prices vary by δ %. In the second period, a term for error correction (γ), is considered. The time horizon for the adjustment of local prices alter a shock in the World prices can be estimated as follows:

$$\text{months}_n = \beta_1 - (\beta_1 - \delta)(1 + \gamma)^n \quad (7)$$

The impact of changes in domestic prices on labor income

Some of the papers in this literature focus only on distribution effects of price changes after the reforms, without considering some import effects on the factor markets. In our work, we seek to quantify the impact of openness on total income. In addition the wage-price elasticity will be estimated. In particular we will regress the log of the real

wage earned by person i against completed years of schooling, exogenous individual variables, specific variables indicating geographic location of the household (per State), and the log prices of traded goods interacted with a sub-group of independent variables.

We estimate the following model at the individual level:

$$w_i = \beta_0 + \ln(p_i) \beta + \sum_d D_{d,i} \beta_d + \sum_x X_{x,i} \beta_x + u_i \quad (8)$$

where w_i is the logarithm of real wage per hour, p indicate domestic broiler prices, D indicate geographic variables (per region) and X are idiosyncratic individual variables. We indicate whether the individual is the household head, education level, employment status (and industry), marital status, number of children in the household with age 6 or below, number of people in the household with age between 6 and 14.

Since the dependent variable, w_i , is a zero-censored variable the estimation of (4) should not be conducted using OLS. In that case, we would have obtained biased and inconsistent estimators of the impact of beef prices and of individual and geographic variables over labor income. Instead, we estimate the bias selection correction factor based on a Probit model in order to estimate labor market participation. Then incorporate the referred term into equation (8) but only for those wage levels that are strictly greater than zero.

V. Estimation

A) Estimation of the effects of National Trade Reform

i) Impact of Tariffs on Traded Goods

Table 3 shows the evolution of tariff levels in Brazil since 1985. By the mid-eighties, the tariff levels in Brazil ranged between 11% and 59%. In 1991, Mercosur imposed a sharp reduction in the intra-zone tariff and a slightly decrease in the non-Mercosur tariffs. In particular, Brazil set intra-zone tariff levels at 0% for almost all good categories by 1996. The most significant decrease in the intra-zone tariff rate was in OT category (from 38% in 1992 to 0% in 1996). There were only a few exemptions like the sugar sector. Mercosur was an effective regional trade agreement to rapidly eliminate almost all intra-zone tariffs.

The situation is different with respect to the extra-zone tariff (Common External Tariff), where the reduction was minor. In 1985, extra-zone tariffs ranged between 58% and 11%. By 1996, the extra-zone tariff levels still oscillated between 12% and 33%. Brazil -and the Mercosur, in fact – did not move towards extra-zone tariffs elimination. Moreover, in specific cases (like the OT category) tariff rates show a reversal from the trend toward integration to the world economy.

In table 4 we estimate the induced change in tradable prices after Mercosur for the four categories of traded goods considered. We estimate the price change for the 1992-1996 period. Mercosur causes a decrease in the price of the four traded goods considered. It is remarkable that the price reduction was very similar across goods. The highest decrease was for the other traded goods (5.7) and the lowest was for house equipment (3.4%).

Figure 1 shows the consumption effect for each of the traded good categories. Estimations are made as a Kernel regression. The effect is positive for all off the individuals. Additionally, we observe that for the case of poor individuals the consumption gain is higher than for richer individuals (see Figure 2). In particular, the consumption effect is clearly pro-poor for the FB and OT categories.

ii) Impact of Tariffs on Non Traded Goods

To avoid the spurious regression problem we apply the Engle-Granger cointegration test (based on residuals) to determine the long term equilibrium cointegrating relationship between each of the prices of nontraded good and the prices of the traded goods.

In the first step, we use the ADF unit root test to analyze the stationary of the prices. Table 5 indicates that all the price variables are non stationary with a unit root. Next, we proceed to estimate the equation (3) by OLS and check for stationarity of the residuals. The result of the Engle-Granger based on residual cointegration tests is shown in Table 6: prices of non-traded and prices of traded goods are cointegrated. In other words, there is a stable long run relationship ion between both prices.

Figure 3 shows that the consumption effect of non traded goods is almost zero. We measure the variation in income needed to compensate each household to keep the

same utility after a change in the price of non traded goods. In particular, the compensating variation of income (as percentage) is mildly negative. A negative change in the referred variable means that the household is worse off when compared to the pre-liberalization scenario. In the case of Brazil, this effect is almost insubstantial.

iii) Wage-Price Elasticities

Since it is likely that there is a large number of individuals who do not work (specially women) and therefore report zero wage it would not be appropriate to estimate equation (4), the wage equation, using OLS. Since the dependent variable is censored at zero, we only observe the wages of the employed individuals and estimation of the wage equation by OLS will simply yield inconsistent estimates. We allow the impact of the price of traded goods on wages to vary according to individual characteristics including schooling, age and geographical location of the household. This implies that the elasticities of wage and labor market participation with respect to prices vary from one individual to another, according to her age, schooling and geographic location. This is mandatory to estimate the impact of changes in prices on household wages at different points of the whole income distribution.

The Heckman selection model is estimated using maximum likelihood. All regressions include year and geographic location dummies. Estimates from this model allow us to calculate the impact of the price of trade goods on labor income and the impact of changes in prices of traded goods on the labor market participation of each individual in the sample. We also take into consideration the fact that men and women's labor market rewards may differ and we therefore separately estimate wage equations by gender. Our wage equations are limited to individuals aged 18 through 55.

Figure 4 shows that the labor effect of trade policy is small and close to zero.

iv) Estimation of Total Effect

Figure 5 presents the estimation of the consumption and labor income effects. Trade liberalization had a clear positive impact for both the highly paid and those with the lower positions in the salary distribution. This particular –positive– effect is pro-poor. We observe that the total effect is mostly determined by the effect of the decrease of traded-goods prices after liberalization.

v) Poverty and Inequality Effects

We use the wage price elasticities estimated above to quantify the change in the head count ratio and income inequality indicators after Mercosur. Table 7 indicates poverty reductions for both men and women. Poverty alleviation is more substantial in the case of rural-female population and urban-male populations. Table 8 shows no significant changes in income inequality after reform. It is interesting to note that we observe a decrease in poverty but income inequality remains constant.

B) Estimation of the Effects of External Trade Reform

First, we present results related to the price-transmission. Second, we show results related to the labor market participation and labor income.

B.1 Price Transmission

We aim to determine whether there is a permanent and long-term relationship between broiler domestic prices (paid to producers) and broiler global prices. We conducted a unit-root analysis, using the Augmented Dickey-Fuller test.

Table 9 presents the ADF results for variables expressed in levels and in differences. We analyzed both a model incorporating constant and trend and an alternative model without constant.

Results indicate that we cannot reject the null hypothesis about unit-root existence for the following series: the log of the price paid to the broiler producer; the log of the export price in Brazil; the log of the export price in USA and the log of the import price in Japan. So, we conducted ADF test for the growth rates of the prices levels. At this time, we were able to reject the null hypothesis at the 1% significance level. We conclude that series (in level) are integrated of order 1. This is to say that we are dealing with no stationary time series. So we proceeded to analyze the cointegration hypothesis between domestic and international prices.

We estimated cointegration for three relationships: domestic prices and export prices in Brazil; domestic prices and export prices in USA; domestic prices and import prices in

Japan; In Tables 10 and 11 we present results for the cointegration test between (real) domestic prices in Brazil and the (real) international prices. We find that both prices are cointegrated at 1% significance level. We conclude that both international prices and domestic prices move together. Although the transmission is not perfect $-\beta_1$, from equation (1), is 0.76-, the relationship is statistically significant at 1% level.

We also analyzed the short-term price dynamics (Table 12). We find that adjustment to the long-term equilibrium price level takes 1 year¹. We note that after 3 months that the external shock has appeared, only a 43% of the total impact has occurred; the total impact takes place after one year from the shock. We conclude the price adjustment occurs, but definitely at a moderate speed.

B.2 Selection models estimation

We used Heckman models for estimating wages for both men and women (and for the entire sample). Obtained results have the expected signs and are statistically significant. Interestingly, results suggest that impact of global broiler prices over wage levels have the same signed for the cases of men and women.

B.3. Global price variations: Simulations

Table 13 presents the change in the probability of being employed under a 10% increase in the international price of broiler. For the case of men employed in the agricultural sector we see almost no impact for low educate males and a wage increase of 3% for medium and high educated males. For females in the agricultural sector we observe that variations are minor (less than 1%). This result is also observed for the case of women across a broad range of economics activities.

We analyze the impact on poverty and inequality of a 10% increase the broiler world price. In general terms, we find an increase in poverty of two points and no effect on income inequality. For example, the impact of broiler price changes over men and women are quantitative and quantitative similar. We observe a positive impact on poverty. The impact is higher for low educated individuals in non-agricultural areas.

We conducted simulations in order to evaluate the impact of variations in broiler prices over inequality levels. We conducted these analyses for the case of men and women,

at the disaggregated level. We found that a 10% increase in international broiler prices has no impact on inequality levels⁴ (Tables 15).

Conclusions and Policy Implications

Although it is commonly believed that trade liberalization results in higher GDP, little is known about its effect on poverty and inequality. As many developing countries embrace trade integration as the remedy for all diseases, it is fundamental that liberalization could be analyzed from a broad range of perspectives (GDP growth, employment, poverty, inequality, etc).

In our work we focus on the poverty and inequality effects of tariff reduction in Brazil for the 1990-2006 period. We measure the variation in income needed to compensate each household to keep the same utility after a change in the price of tradable goods. A positive change in the referred variable means that the household has improved when compared to the pre-liberalization scenario.

We analyze the impact of trade integration on households welfare through various transmission channels: (1) reduced tariffs affect the price of tradable goods; (2) reduced tariffs impact the prices of non-tradable goods and (3) reduced tariff cause a reallocation of productive resources and changes on labour income. As said, when interpreting results, it is important to bear in mind that while intra-zone tariffs were slashed after Mercosur was in place, extra-zone tariffs slightly decreased in the 1992-2006 period. Also, note that while tariffs for the “food and beverage” category were drastically reduced in the initial Mercosur years, tariffs affecting other industrial sectors experienced a more “gradual” reduction.

Obtained results evidence that: i) the consumption effect of tradeable goods is pro-poor, ii) the consumption effect of non tradeable goods is almost zero, iii) the labor impact is negative but small. In sum, the total effect is pro poor.

⁴ We calculated the poverty line by dividing the average income of the referred year by 2 (for each scenario).

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Tables and Figures

Table 1		
Intra and Extra MERCOSUR Trade Flows		
Thousand USD. Simple Average		
	1995-2000	2001-2006
Intra-MERCOSUR Trade	35,464,482	34,620,294
Extra-MERCOSUR Trade	148,903,829	202,954,670
Total MERCOSUR Trade	184,368,311	237,574,964
Intra-MERCOSUR Trade (%)	19%	15%

Source: ALADI

Table 2. Trade Openness Coefficient	
ln %	
1990-1994	13.41
1995-1999	13.40
2000-2004	21.02
2005-2007	21.52

Source: BCB data

Table 3
Tariff structure. Brazil

Simplified average					
	Food and Beverages	Clothing and foot	House Equipment and Electronics	Other Traded Goods	
Intrazone					
1985	58	31	39	11	
1992	16	25	26	38	
1996	0	0	0	0	
1999	0	0	0	0	
2004	0	0	0	0	
Extrazone					
1985	58	31	39	11	
1992	16	25	26	38	
1996	12	22	20	33	
1999	15	23	20	20	
2004	12	19	17	19	
Weighted average by expenditure shares					
Intrazone					
1985	59	22	29	11	
1992	18	27	27	32	
1996	0	0	0	0	
1999	0	0	0	0	
2004	0	0	0	0	
Extrazone					
1985	59	22	29	11	
1992	18	27	32	32	
1996	13	22	23	25	
1999	16	24	23	22	
2004	13	20	19	19	

Source: ALADI

Table 4
Prices change from MERCOSUR

Category	Tariff 1992	Consumption share (%)	Intrazone Tariff 1996	Extrazone Tariff 1996	Price Change from MERCOSUR
Food and Beverages	18	58	0	13	-4.95
Clothing and foot	27	19	0	22	-4.07
House Equipment and Electronics	27	16	0	23	-3.40
Other Traded Goods	32	7	0	25	-5.73

Note: the price change in the last column is computed using equation (2)

Table 5
Unit-root Test: Tradable and Non-Tradable Prices
 Lag Length on ADF chosen using Akaike Criterion

Level	Tradable Goods				Non-Tradable Goods			
	FB	CF	HQ	OT	HE	TC	H	ON
Constant and Trend	-1,49	-2,97	-0,26	-1,92	-1,22	-0,41	-1,12	-1,61
Constant	0,74	2,46	-0,54	-1,56	0,06	-3,06**	2,53	2,38
None	4,79	6,90	5,09	5,51	11,13	7,69	9,39	8,4
Log Difference								
Constant and Trend	-31,3***	-38,6***	-49,1***	-35,0***	-38,7***	-35,3***	-27,9***	-45,8***
Constant	-31,7***	-38,7***	-48,1***	-35,4***	-36,8***	-34,7***	-25,5***	-45,9***
None	-31,7***	-43,0***	-54,1***	-32,2***	-44,2***	-28,8***	-67,2***	-37,3***

* statistically different from 0 at the 10% level or better.
 ** statistically different from 0 at the 5% level or better.
 *** statistically different from 0 at the 1% level or better.

Table 6 – Prices Cointegration

Engle-Granger Cointegration Test
 Lag length on ADF chosen using Akaike Criterion

	Constant and Trend
Health and Education	-3,39*
Transport and Communications	8,83***
Housing	-6,27***
Other Non Tradable	-3,94**

* statistically different from 0 at the 1%
 ** statistically different from 0 at the 5%
 *** statistically different from 0 at the 1% level .

Table 7. Poverty: Before and After Trade Reform

Headcount Ratio (P0), Poverty Gap Index (P1) and Squared Poverty Gap Index (P2)			
	Change P0	Change P1	Change P2
1.- Men			
Total	-0.012 (**)	-0.008 (**)	-0.010 (**)
Education<=6 years	-0.010 (**)	-0.012 (**)	-0.002 (**)
Education 7-12 years	-0.019 (**)	-0.006 (**)	-0.006
Education >12 years	0.000 (**)	0.000 (**)	0.000
Rural	-0.014 (**)	-0.008	-0.005
Non-Rural	-0.005	-0.012	-0.012
Public	-0.008 (**)	-0.018 (**)	-0.006 (**)
Private	-0.032 (**)	-0.012 (**)	-0.005
Non-Agricultural Sector	-0.025 (**)	-0.014 (**)	-0.009 (**)
Agricultural Sector	-0.005 (**)	-0.020 (**)	-0.020 (**)

2.- Women			
Total	-0.016 (**)	-0.003 (**)	-0.003 (**)
Education<=6 years	-0.027 (**)	-0.011 (**)	-0.005 (**)
Education 7-12 years	-0.004 (**)	-0.001	0.000
Education >12 years	0.000	0.000	0.000
Rural	-0.013 (**)	-0.004 (**)	-0.001
Non-Rural	-0.032 (**)	-0.017	-0.009
Public	-0.019 (**)	-0.008 (**)	-0.001
Private	-0.012 (**)	-0.003	-0.009
Non-Agricultural Sector	-0.014 (***)	-0.003 (**)	-0.001 (**)
Agricultural Sector	-0.041	-0.022 (**)	-0.011 (**)

Source: Author's estimations.

Notes: (**) statistically different from 0 at the 5% level or better.
Poverty line=half of mean laboral income

Table 8. Income Inequality: Before and After Trade Reform

Changes in Gini Index and Theil Index		
	Gini change	Theil change
1.- Men		
Total	0.000	0.000
Education<=6 years	0.000	0.000
Education 7-12 years	0.000	0.000
Education >12 years	0.000	0.000

2.- Women		
Total	0.000	0.000
Education<=6 years	0.000	0.000
Education 7-12 years	0.000	0.000
Education >12 years	0.000	0.000

Source: Author's estimations.

Notes: (**) statistically different from 0 at the 5% level or better.
Poverty line=half of mean labor income

Source: Author's estimations.

Notes: (**) statistically different from 0 at the 5% level or better.
Poverty line=half of mean labor income

Table 9. Series Integration Order

Test Augmented Dickey Fuller: unit root test

Prices	Level (statistics)			First difference (statistics)		
	Trend & Intercept	Intercept	None	Trend & Intercept	Intercept	None
Brazil						
Domestic Producers	-2.4778	-2.532	-0.975	-6.463***	-6.462***	-6.251***
International Prices						
Brazil Exports	-2.78	-2.758*	-0.659	-6.021***	-5.978***	-5.994***
USA Exports	-1.687	-1.695	-3.016	-4.813***	-4.830***	-10.118***
Japan Imports	-2.519	-2.557	-1.084	-4.697***	-4.728***	-4.689***

References:

* signifies statistically different from 1 at the 10% level or better, ** signifies statistically different from 1 at the 5% level or better, *** signifies statistically different from 1 at the 1% level or better
Shaded cell refers to selected model through Akaike Criterion

Table 10. Engle and Granger Method. Broiler Market
Brazilian Domestic Producer Prices and International Prices

International Prices	Regression Equation		Residual Unit Root Test (ADF)		
	Coefficient	Std. Error	Trend & Intercept	Intercept	None
Brazil Exports	0.191**	0.082	-2.738	-4.042***	-4.018***
USA Exports	0.484***	0.054	-6.127***	-6.146***	-6.164***
Japan Imports	0.308***	0.048	-5.716***	-5.710***	-5.724***

References: ** signifies rejection of null hypothesis at the 10% level or better, ** signifies rejection of null hypothesis at the 5% level or better, *** signifies rejection of null hypothesis at the 1% level or better*
Null hypothesis in regression equation: coefficient = 0
Null Hypothesis in residual test: coefficient = 1
Shaded cell refers to selected model through Akaike Criterion

Table 11. Johansen Cointegration Tests. Broiler Market
Brazilian Domestic Producers Prices and International Prices

International Prices	Intercept & No Trend		Intercept & Linear Trend		Intercept & Quadratic Trend	
	Coefficient	Std. Error	Coefficient	Std. Error	Coefficient	Std. Error
Brazil Exports	1.35	0.40	1.35	0.41	1.36	0.42
USA Exports	0.618***	0.11	0.615***	0.11	0.613***	0.11
Japan Imports	0.7**	0.13	0.699**	0.13	0.699**	0.13

References: ** signifies statistically different from 0 at the 10% level or better, ** signifies statistically different from 0 at the 5% level or better, *** signifies statistically different from 0 at the 1% level or better*
Bold signifies rejection of null hypothesis (i.e. cointegration equation exists) at the 5% level
Shaded cell refers to selected model through Akaike Criterion

Table 12a: Error Correction Mechanism

	USA export prices		Japan import price	
	Coefficient	Std. Deviation	Coefficient	Std. Deviation
Short run impact changes	0.059	0.081	0.02	0.083
Adjustment rate to long run eq	-0.305***	0.049	-0.24***	0.046

References: ** signifies statistically different from 0 at the 10% level or better, ** signifies statistically different from 0 at the 5% level or better, *** signifies statistically different from 0 at the 1% level or better*

Table 12b: Speed of adjustment

1) Johansen USA			
$\beta_1 =$	0.618	1 month	0.229
$\delta =$	0.059	3 months	0.430
$\gamma =$	-0.305	6 months	0.555
		12 months	0.611
		24 months	0.618
2) Johansen Japan			
$\beta_1 =$	0.701	1 month	0.183
$\delta =$	0.02	3 months	0.402
$\gamma =$	-0.24	6 months	0.569
		12 months	0.675
		24 months	0.700

**Table 13: Changes in the Employment Probability after
a 10% Increases in Boiler International Prices
By Activity Sector and Educational Level**

	Education		
	Low	Medium	High
<i>Men</i>			
<i>Sector</i>			
Agricultural	0.0034	0.0307	0.037
Non Agricultural	-0.0038	0.0001	0.0032
<i>Women</i>			
<i>Sector</i>			
Agricultural	-0.003	0.0039	0.002
Non agricultural	-0.01845	-0.0039	-0.0059

Note: Based on the estimation of equation 8.

Table 14. Poverty: Before and After access to external markets (broiler)

Headcount Ratio (P0), Poverty Gap Index (P1) and Squared Poverty Gap Index (P2)			
	Change P0	Change P1	Change P2
1.- Men			
Total	+0.018 (**)	+0.007 (**)	+0.003 (**)
Education<=6 years	+0.032 (**)	+0.013 (**)	+0.006 (**)
Education 7-12 years	+0.005 (**)	+0.001	+0.000
Education >12 years	+0.000	-0.001	+0.000
Rural	+0.016 (**)	+0.005 (**)	+0.002 (**)
Non-Rural	+0.033 (**)	+0.021 (**)	+0.011 (**)
Public	+0.020 (**)	+0.008 (**)	+0.004 (**)
Private	+0.010 (**)	+0.002 (**)	+0.000
Non-Agricultural Sector	+0.029 (**)	+0.009 (**)	+0.003 (**)
Agricultural Sector	+0.057 (**)	+0.037 (**)	+0.020 (**)
No Broiler Producer (State level)	+0.020 (**)	+0.008 (**)	+0.004 (**)
Broiler Producer (State level)	+0.010 (**)	+0.002	+0.000
No Industry Transformation	+0.035 (**)	+0.013 (**)	+0.006 (**)
Industry Transformation	+0.018 (**)	+0.004	+0.002

2.- Women			
Total	+0.02 (**)	+0.005 (**)	+0.002
Education<=6 years	+0.037 (**)	+0.009 (**)	+0.003 (**)
Education 7-12 years	+0.001	0.000	-0.001
Education >12 years	0.000	0.000	0.000
Rural	+0.012 (**)	+0.002 (**)	+0.011 (**)
Non-Rural	+0.063 (**)	+0.017 (**)	+0.007 (**)
Public	+0.030 (**)	+0.007 (**)	-0.240 (**)

Private	+0.006 (**)	+0.001 (**)	-0.005
Non-Agricultural Sector	+0.011 (**)	+0.002 (**)	+0.001 (**)
Agricultural Sector	+0.080 (**)	+0.022 (**)	+0.008 (**)
No Broiler Producer (State level)	+0.023 (**)	+0.006 (**)	+0.002 (**)
Broiler Producer (State level)	+0.007 (**)	+0.001	+0.000
No Industry Transformation	+0.028 (**)	+0.007 (**)	+0.002 (**)
Industry Transformation	+0.003 (**)	+0.000	0.000

Source: Author's estimations.

Notes: (**) statistically different from 0 at the 5% level or better.
Poverty line=half of mean laboral income

Table 15. Income Inequality: Before and After access to external markets (broiler)

Changes in Gini Index and Theil Index

	Gini change	Theil change
1.- Men		
Total		
Education<=6 years	0.001	-0.001
Education 7-12 years	-0.002	-0.004
Education >12 years	-0.003	-0.003
Rural	-0.002	-0.007
Non-Rural	-0.001	-0.005
Public	-0.003	-0.010
Private	-0.002	-0.002
Non-Agricultural Sector	-0.004	-0.006
Agricultural Sector	0.002	0.001
No Broiler Producer (State level)	-0.002	-0.008
Broiler Producer (State level)	0.003	-0.007
No Industry Transformation	-0.004	-0.006
Industry Transformation	-0.002	-0.002

1.- Women

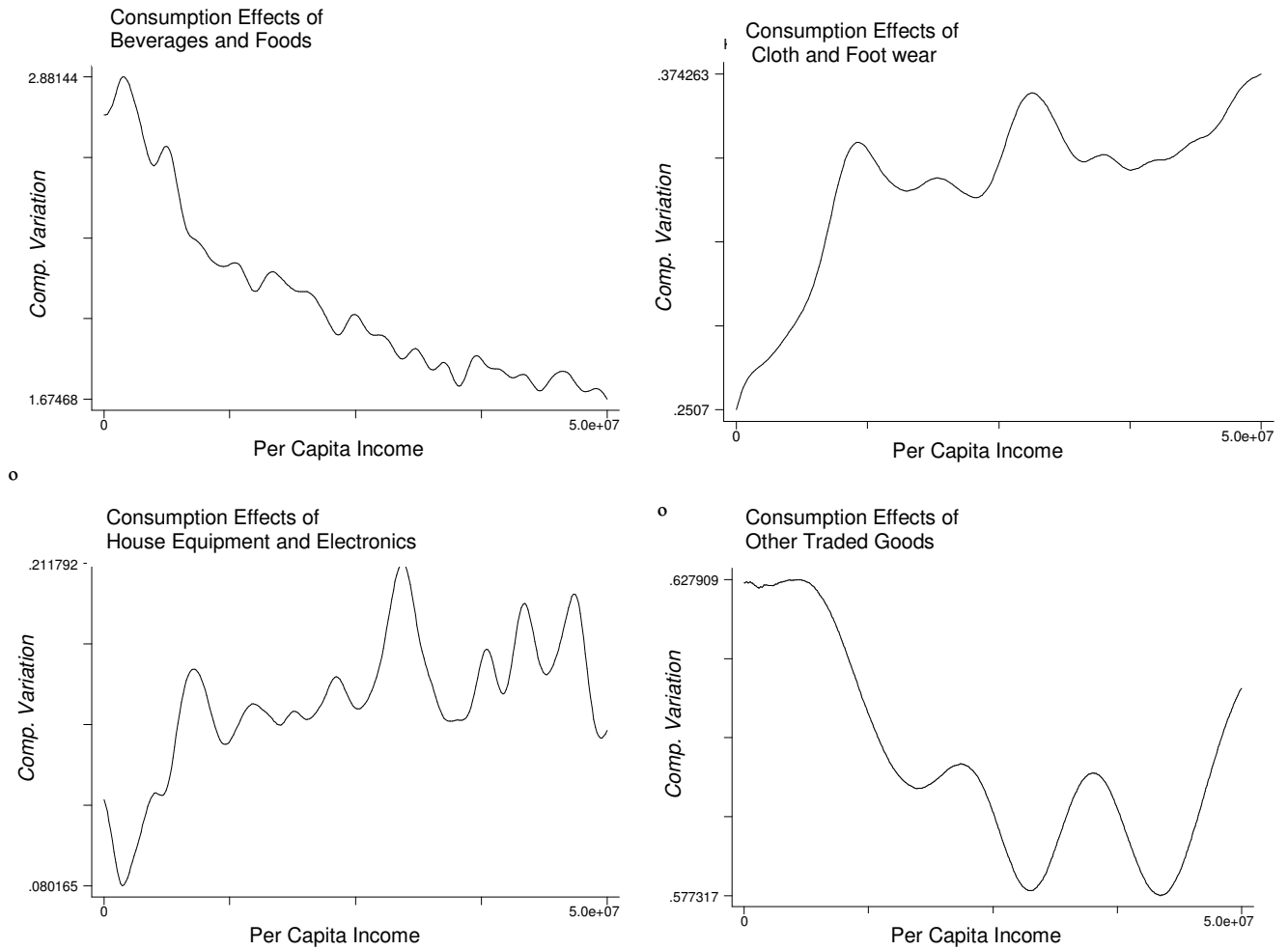
Total		
Education<=6 years	0.001	0.000
Education 7-12 years	-0.002	-0.003
Education >12 years	-0.003	-0.003
Rural	0.000	0.000
Non-Rural	0.003	0.003
Public	0.000	0.001

Private	0.003	0.003
Non-Agricultural Sector	0.000	-0.001
Agricultural Sector	0.001	0.002
No Broiler Producer (State level)	0.001	0.001
Broiler Producer (State level)	0.001	0.000
No Industry Transformation	0.001	0.001
Industry Transformation	0.002	0.003

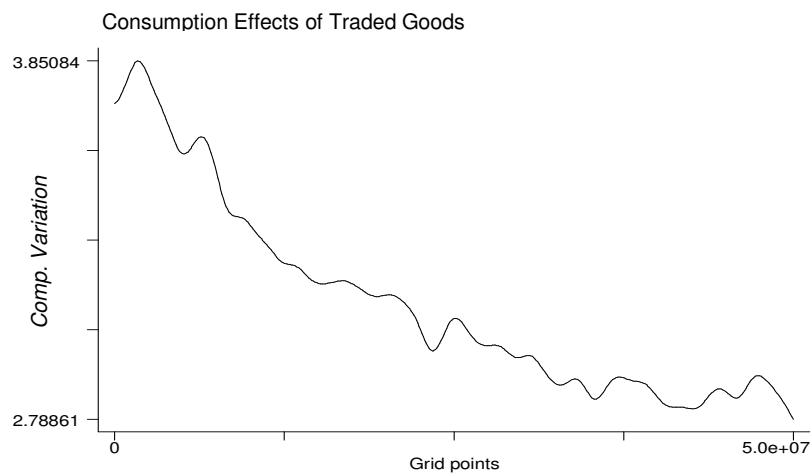
Source: Author's estimations.

Notes: (**) statistically different from 0 at the 5% level or better.
Poverty line=half of mean laboral income

**Figure 1. Compensating Variation as % of Income by Income Distribution (\$U)
by Traded Good**

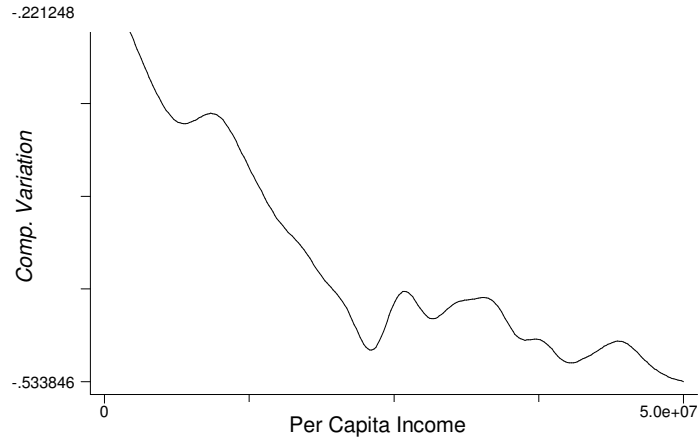


**Figure 2. Compensating Variation as % of Income by Income Distribution
Traded Good**

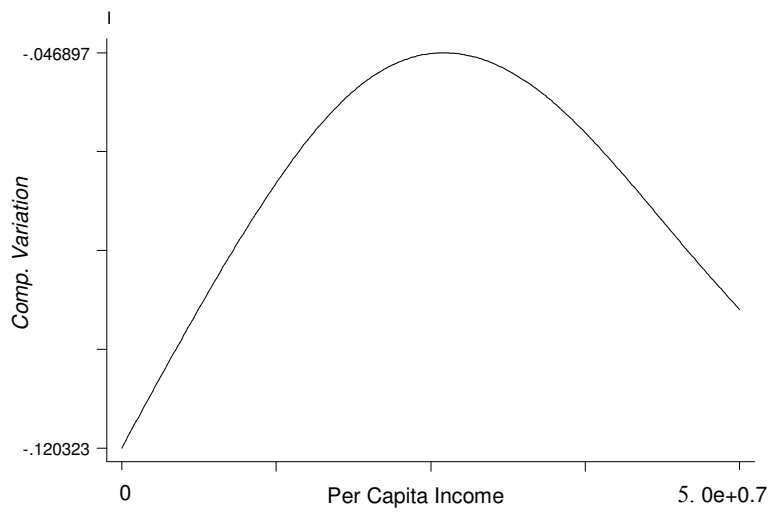


Per Capita Income

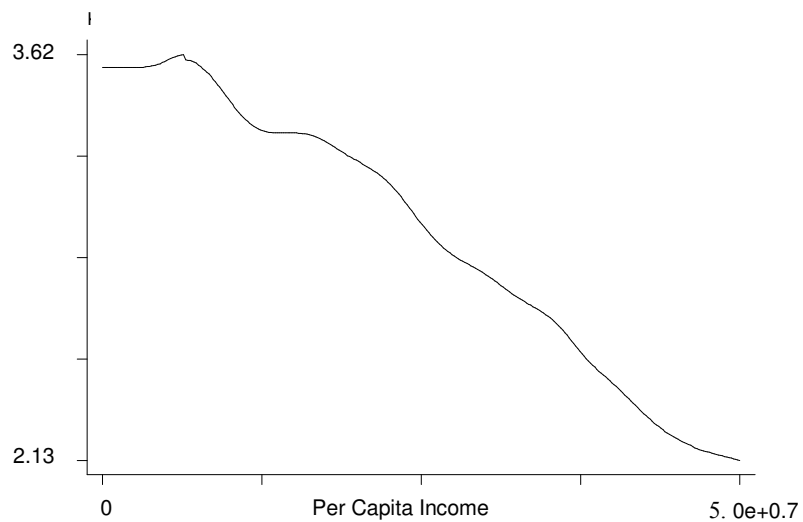
**Figure 3. Compensating Variation as % of Income by Income Distribution
Non Tradeable Goods Effect**



**Figure 4. Compensating Variation as % of Income by Income Distribution
Labor Income Effect**



**Figure 5.
Compensating Variation as % of Income by Income Distribution
Total Effect**



Appendix

A: Data

To undertake this study we use the annual Brazilian national household survey, Pesquisa Nacional por Amostra de Domicílios (PNAD), conducted by the Instituto Brasileiro de Geografia y Estadística (IBGE). Each survey wave contains approximately 350,000 persons from about 90,000 households. The PNAD is administered yearly with the purpose of generating an accurate picture of the urban and rural Brazilian employment situation along with the socio-economic characteristics of the population. We use PNAD data for estimating the price-wage elasticity for the 1995-2000 period.

We also use data from the Pesquisa de Orçamentos Familiares (POF), the national household expenditure and income survey (we use the 1996 wave). This survey identifies the consumption structure of an average family in Brazil. The survey is conducted every 10 years approximately and targets both rural and urban households. We use this data in order to estimate the consumption share of each of the relevant consumption categories for our study (food and beverage, clothes and footwear, furniture and electronics, other traded goods, health and education, transport and telecommunications, housing and other non-traded goods). POF also contains socio-economic information about Brazilian households. This fact is crucial for us, because it allows us to identify the consumption structure of households of the same socioeconomic group. We use this information in order to assess the impact of change in prices on changes in the value of the consumed basket of each household.

Asociación Latinoamericana de Integración (ALADI) provided historical information about the Mercosur common external tariffs for the period between 1986 and 2006. Secretaría del Mercosur (SM) provided data about intra-zone tariff levels (for the same time horizon). Both ALADI and SM provided raw data at a per-item desegregation level. Our work consisted in identifying relevant expenditure categories and unifying disaggregated items into one of the four tradable goods categories so that we could process data from both tariffs and consumer price levels⁵. Additionally, ALADI and The Central Bank of Brazil (BCB) sourced our information about trade flows for the four-

⁵ For information about the composition of each product category see appendix B.

product categories with Mercosur and the rest of the world. We use this information in order to determine the impact of change in tariffs on prices of tradable and non-tradable goods. Information about price levels comes from the Consumer Price Index, constructed by IBGE.

Statistical Information		
Series	Period	Source
Trade Flows	1985-2004	ALADI
Tariffs	1985	ALADI
	1992-2004	SM
Expenditure Structure	1995-96	IBGE
Income		
CPI	1995-2006	IBGE

Appendix B: Tradable goods' categories

(%)	Tariff 1992	Consumption Share 1997	MERCOSUR Import Share 1996	Intrazone Tariff 1996	Extrazone Tariff 1996
Food and Beverages					
Bread, cookies and other bakers wares	25	12	50	0	17
Flour, rice and cereals	11	8	68	0	10
Pasta	36	1	40	0	16
Bovine and ovine meat	10	11	95	0	10
Fish and shellfish	14	1	36	0	11
Pork meat	10	1	1	0	10
Poultry meat	10	5	64	0	10
Preparations of meat	19	4	6	0	12
Dairy products	21	15	61	0	18
Eggs	20	1	34	0	7
Vegetable oils	10	1	-	0	11
Fats	10	0	80	0	12
Fresh vegetables, legumes and tubers	9	5	48	0	9
Fresh fruits	11	6	50	0	10
Sugar	20	5	39	3	17
Coffee	21	2	2	0	13
Alcoholic, non alcoholic beverages, juices and infusions	20	8	17	0	15
Elaborated or semi-elaborated food	31	11	40	0	17
Others (salt, seasoning products, etc)	11	3	3	0	10
Clothing and footwear					
Knitted and not knitted textiles	22	4	20	0	18
Clothes	30	68	18	0	20
Footwear	22	29	24	0	29
Housing equipment					
Furniture	25	42	20	0	19
Electrical appliances	28	49	19	0	29
Non-durable products	25	9	6	0	11
Other tradable goods					
Personal care products	20	49	66	0	17
Tobacco	40	36	6	0	20
Entertainment products	53	15	2	0	63

Source: ALADI and SM
