

The Impact of Global and Domestic Trade Liberalization on Poverty and Inequality in Argentina.

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INTRODUCTION

This paper is part of a project that tries to shed light on the distributional, inequality, and poverty effects of trade policies, particularly those related to agriculture. Argentina offers an interesting case study because it is the only large agricultural exporter that since the early 2000s has consistently applied export taxes (and even at times export restrictions) to many agricultural products. This policy choice occurred even before the latest jump in world prices has led other agricultural exporters to also take trade measures to restrict exports and to reorient production in favor of domestic consumers.

These trade policies have been defended by the Argentine government on the grounds that they are needed for reasons related to poverty alleviation, fiscal consolidation, and inter- and intra-sectoral balance of production, among others. Critics have argued that they will tend to reduce production and even increase poverty (see for instance Nogués *et al.*, 2007, who utilize a combination of different partial equilibrium approaches to reach their conclusions).

This paper tries to present a more general policy evaluation of those measures, as well as other possible changes in world and domestic trade policies, focusing mostly on their poverty and inequality effects. It uses a combination of a global economy-wide CGE model, a national CGE model, and microsimulations. The global Linkage Model (explained in Chapter ??), using data from GTAP 7 with an amended protection database, is used to analyze the impact on the world economy of existing trade policy interventions. Variations in terms-of-trade and quantity demand faced by Argentina as a result of changes in rest-of-world policies, simulated in the global model, are passed down to a national CGE model of Argentina. We analyze and compare the effects of removing rest-of-world distortions and own-country tariff and export taxes on Argentina's agricultural products. Also scenarios of total liberalization (including both agricultural and non-agricultural products) are analyzed. The results from the combination of world and country CGE simulations are linked to a microsimulation model for Argentina, which

makes possible the analysis of the impact of these various changes on household poverty and inequality.

The rest of the paper is organized in four sections. The first briefly explains the economic context for the imposition of export taxes as a component of the policies implemented by Argentine authorities to emerge from the economic collapse of 2001-2002. A brief summary of the evolution of the economy in general and the agricultural sector in particular during this period is also included, as well as the behavior of poverty and inequality indicators. The second section presents the methodology and data for both the national CGE and microsimulation models. The third section discusses the simulations and results. A final section concludes.

BACKGROUND: ARGENTINA'S CRISIS AND RECOVERY

In 2001-2002, Argentina experienced one of the most severe crises in its history. Amid social unrest and street riots that led to more than 30 deaths and hundreds injured, the country plunged into a state of institutional disarray with 5 Presidents in just a few weeks between late 2001 and early 2002. Growth declined 10% in 2002 on top of the previous 3 consecutive years of decline that had an accumulated GDP loss of another 10%. Formal unemployment jumped to more than 25% and poverty reached almost 60%.

The collapse was the result of a combination of factors. First and foremost, there were the policy rigidities of the Convertibility Plan, implemented in 1991 during the Menem Administration, which had linked the peso to the dollar in a quasi currency board arrangement at the exchange rate of 1 peso = 1 dollar. This system led to a generalized dollarization of the banking system and forced Argentina to follow the US dollar appreciation since the mid-1990s, affecting production and employment. That government also privatized a significant portion of the Social Security system by the mid-1990s, which generated a substantial transitional fiscal deficit (estimated to last at least a couple of decades) that added to public indebtedness. With the new government of President De la Rúa in office, which was for the first time in many years the result of a

political coalition of parties, the economy suffered a combination of external shocks in late 1990s and early 2000s, including Brazil's devaluation and the decline of agricultural prices. The economy entered into recession in 1999, and the economic strains also led to the breakdown of the governing coalition which weakened further its capacity to manage the difficult economic situation. By the end of 2001, with confidence waning, and a double run against the peso and the banking system, the situation was untenable. The constraints imposed on banking withdrawals to stop the run on the banks (which had basically dollarized deposits and therefore could not be helped by the Argentine Central Bank) finally led to the riots that ended the De la Rúa government and opened the period of several presidents in a matter of days.

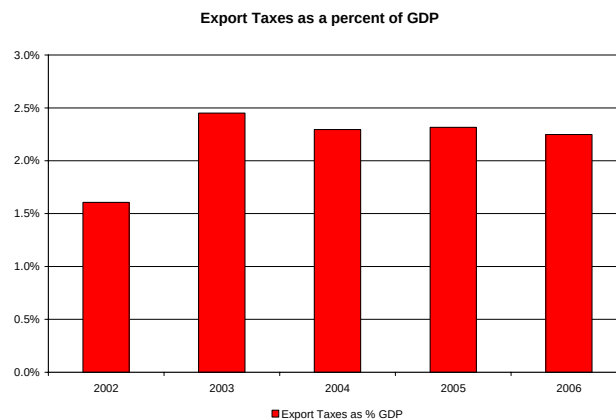
By late 2001 and early 2002 it was clear that there were two separate but related fiscal and external problems of insolvency: a high public debt and a non-financeable fiscal deficit; and high external debt (private and public) and a non-financeable current account deficit. The suspension of debt payments and the subsequent devaluation (abandoning the 1:1 peg to the US dollar) were desperate measures taken by the interim governments in early 2002 to try to cope with both problems. The exchange rate jumped to almost 4 pesos per 1 dollar (4:1) once it was allowed to float in the first half of 2002, later declined to about 2.5:1, and currently (early 2008) has been moving somewhat above the 3:1 exchange rate.

In the middle of a deep recession, aggravated by the banking crises and the devaluation, and needing to shore up fiscal accounts, the government at that time imposed post-devaluation export taxes on agriculture and several other products. One of the objectives of those taxes was fiscal, in a moment when collection of more traditional income and value added taxes had dropped significantly due to the recession. Not only had tax receipts declined but the peso value of the public debt (most of it denominated in US dollars) had increased significantly with the devaluation. Under the 1:1 exchange rate, Argentina's GDP translated into almost 300 billion dollars in the late 1990s, while the public debt was about 150 billion dollars (a ratio of debt/GDP of 50%). After the devaluation, the GDP was valued at less than 100 billion dollars, but the debt before the

renegotiation remained the same, implying an unsustainable debt/GDP ratio of more than 150%. Through the imposition of export taxes part of the devaluation was recaptured for the public sector, thus partially compensating the sudden deterioration in public debt ratios.

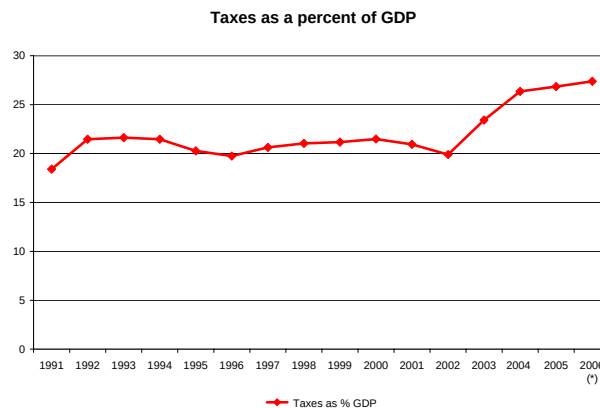
Export taxes helped increase fiscal receipts by about 1.5-2.5% of GDP, depending on the year (see Figure 1).

Figure 1



Export taxes, however, were only one component in a more general effort to consolidate fiscal accounts through better collection of all taxes. Figure 2 shows that overall tax receipts since 2002 increased by about 6-7% of GDP, when compared to the 1990s. This increase is clearly larger than what can be explained only by export taxes.

Figure 2



A separate and important objective of the government in imposing export taxes in the case of agricultural products (which are in many cases also food staples such as wheat, rice, beef, fruits and vegetables, and dairy products) was to moderate the upward impact of the devaluation on domestic food prices, with the negative impact on real wages and poverty. Very early in the development debate in Argentina it was argued that, given that Argentina's exports are mainly "wage goods" (in Ricardian terminology), a devaluation would put upward pressure on wages and affect the competitiveness of the local industry¹ (see for instance Díaz-Alejandro [1963] and Braun and Joy [1967]). Obviously, by increasing domestic food prices, devaluations would also affect the number of people that would come under the upwardly adjusted poverty line (which is based on the price of a basket of food items). Export taxes would compensate in part for the negative impact of the devaluation on those dimensions.

In addition, export taxes were imposed not only on agricultural products but on other important export products such as oil and gas, which also kept the domestic prices of energy lower. This has benefited different productive sectors in proportion to their use of energy inputs. It is important to take into account this effect for the analysis of agricultural production, which has an important component of use of energy (such as gasoil and fertilizers).

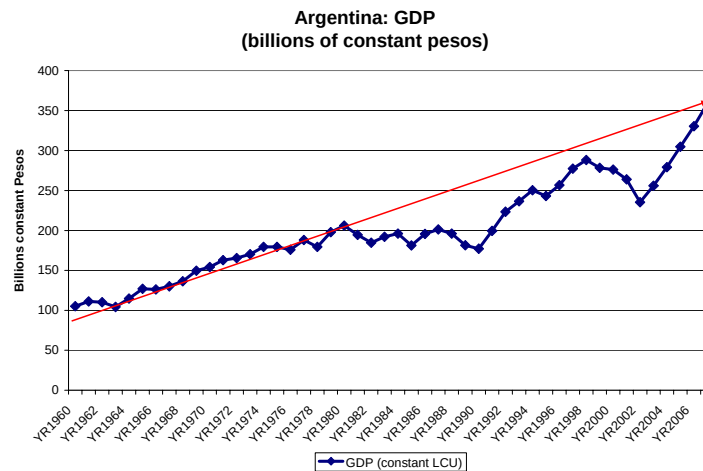
Since 2003, the country has experienced a strong and rapid recovery, growing at an average 8.8 percent between 2003 and 2007. Figure 3 shows the dramatic decline during the crisis and the ensuing recovery.

The recovery has been based to a good degree on the reduction of macro vulnerability and high volatility, which has been the main reason for Argentina's dismal economic performance until recently. During the last half century the country had been in recession about 40% of the time, due to recurrent macroeconomic crises, linked to overvalued exchange rates, and fiscal and current account deficits that led to the accumulation of

¹ This is a clear difference with other countries in Latin America. For instance, in Colombia and Brazil agricultural exports were not "wage goods" and therefore the trade off between keeping a competitive exchange rate and industrialization did not occur.

public and external debts. Since 2003, the combination of a competitive exchange rate, fiscal consolidation (through increases in taxes and the debt renegotiation), and the accumulation of reserves in the Central Bank has reduced the main causes of macroeconomic vulnerability by sustaining twin surpluses in fiscal and current accounts.

Figure 3



The overall fiscal surplus for the consolidated public sector (central government and provinces) during 2003-2007 averaged 1.6 percent of GDP, compared to an average annual deficit of 4.2 percent of GDP during 1961-2002. The surplus of the current account of the balance-of-payments in 2007 was 2.8% of GDP, while from 1976-2002 the country experienced an average annual deficit of 1.7% of GDP. The trade surplus for 2007 was more than 4% of GDP, against 1.4% during 1976-2002. Exports in 2007 increased to about US\$56 billion, nearly triple the 1990s average, while imports jumped to around US\$43 billion (double the 1990s average). One of the consequences has been that Central Bank reserves already exceeded US\$50 billion by the end of first quarter 2008, or some 16% of GDP, also helping reduce macroeconomic vulnerability.

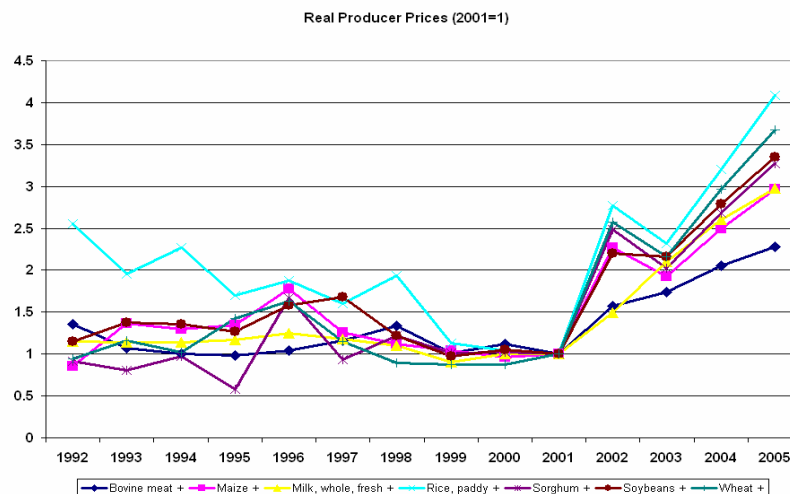
Beside faster overall economic growth (sustained by investment/GDP rates of 23% of the GDP in 2007), other variables such as employment, poverty and income distribution have also improved. The fourth-quarter 2007 unemployment rate of 7.5% was the lowest since the early 1990s, while during the 2001-2002 crisis it had topped 25 percent. During the last years, real wages, retirement and pension payments, and social program benefits have

also risen, while retirement benefits have been extended to 1.3 million previously ineligible people (an increase in coverage of 14 percentage points).

The increases in employment, real wages, and retirement payments and coverage, have led to significant reductions in the levels of poverty and extreme poverty: from 57.5% and 27.5%, respectively, in 2002, they declined to 23.4% and 8.2% by the end of 2007. Income distribution also improved: the top-decile to bottom-decile ratio declined from 32 at the beginning of 2004 to 26 in first quarter 2007.

Still it could be argued that those positive results have been achieved not because but in spite of using policy instruments considered distorting such as export taxes. This is a policy question that can only be analyzed in a general equilibrium setting. The overall impact of export taxes on poverty and inequality must be answered empirically. However, before going into that analysis it is also relevant to look at the evolution of agricultural prices and production in Argentina. Figure 4 shows that, even with export taxes, domestic producer prices in real terms for a variety of products have been clearly above the values of the 1990s since the devaluation.

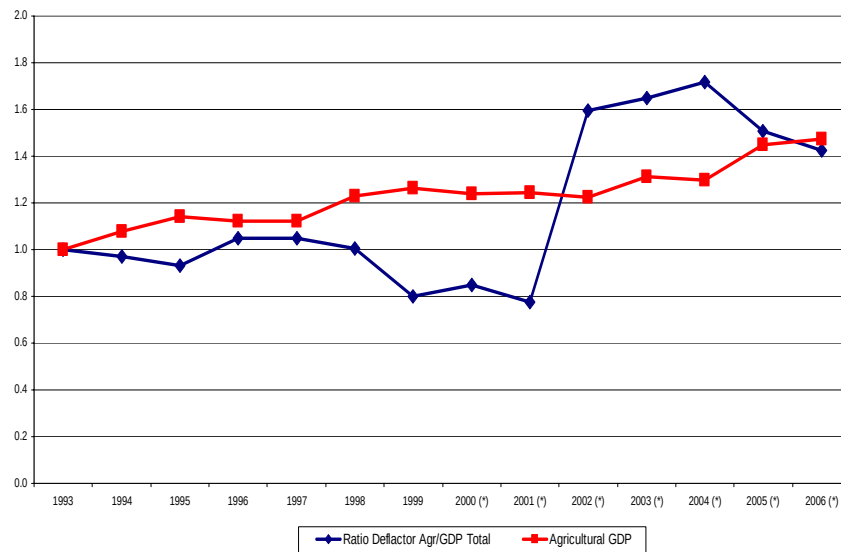
Figure 4



Another indicator of relative prices moving in favor of agriculture is the deflator of agricultural production over the total GDP deflator, which increased by more than 50%

since 2002 compared to the 1990s (see Figure 5). Considering the change in relative price incentives, it is not surprising that agricultural value added, which had increased about 20% in almost a decade during the 1990s and early 2000s, jumped 25% in just the four years after 2002.

Figure 5
Agricultural GDP and Ratio of Deflators



The increases in domestic prices for agricultural producers are explained basically by the devaluation, which was only partially compensated by the export taxes. World agricultural prices, which in the early 2000s recovered from their low values, have also played a role in the increase in producer prices in domestic currency, but at least until recently, they were of a smaller importance compared to the effect of the devaluation.

Therefore, at least in this brief review of the data, the negative impact of export taxes is not apparent from the performance of the agricultural sector, or it has been compensated by other policies. In what follows, this paper tries to disentangle the effects of the trade policies of interest from other policies, and analyzes the impacts of the trade policies on poverty and income distribution.

METHODOLOGY AND DATA

The simulations follow a “top-down” approach that combines a country CGE macro model (shocked under some scenarios with price and quantity changes from the Linkage world model) with a partly-econometric micro-simulation model. There are no feedback effects from the micro to the macro level, but the micro simulations are consistent with the aggregates generated by the CGE model.

At the macro-level, the CGE produces results for a given policy change, including new levels of employment in each economic sector, new wages, and new relative prices. At the household level, the microsimulation model receives the changes in the macro-level variables and determines new individual wages and employment; a new distribution of household per capita income; and new poverty rates and inequality measures.

a. Computable General Equilibrium (CGE) model

The CGE model follows Lofgren *et al.* (2002), McDonald (2005), and Lofgren and Diaz-Bonilla (2007). It is based on a 2005 Social Accounting Matrix (SAM) for Argentina with 24 activities and 26 commodities (see Table 1 for the accounts). The disaggregation tries to match as closely as possible that of the Linkage global model. The national CGE model includes three institutions: a representative household, government, and rest of the world. There are 8 factors, including six labor categories: unskilled, semi-skilled, and skilled men and women. Land and capital area considered partly sector specific and partly mobile across sectors. Land only moves within the agricultural sector. The model and database consider several tax instruments including export taxes, income, VAT, and others. The modeling of the value added tax incorporates rebates for intermediate inputs and investment purchases. With this treatment, there is no cascading effect on prices of taxes on intermediate goods.

The modeling of the labor market allows for endogenous unemployment. This is described by a complementary-slackness condition for unemployment and wages. As a

sector grows, if the factor market is below full employment then the unemployment rate is the clearing variable for the market; that is, unemployment decreases for the necessary labor types until a minimum unemployment rate is reached. At full employment (i.e., when the minimum unemployment rate is reached), the economywide wage variable adjusts to clear the market.

Table 1: Accounts in Argentina 2005 SAM

Sectors (26)	Sectors (26) -- (cont)	Institutions (3)
Primary	Other manufactures	Household
1 Cereals	18 Textiles and apparel	Government
2 Vegetable and fruits	19 Petroleum refinery	Rest of World
3 Oil seeds	20 Chemical products	
4 Other crops	21 Mineral products	Taxes (9)
5 Sugar cane and beet	22 Metal products	Value added tax
6 Livestock, milk and wool	23 Machinery and equipment	Fuel tax
7 Other non-agr primary	24 Vehicles	Financial services tax
8 Mining	25 Other manufacturing	Export taxes
9 Oil	26 Services	Tariffs
		Turnover tax
Processed food	Factors (8)	Taxes on products
10 Meat	Unskilled labor, male	Income tax
11 Oils and fats	Unskilled labor, female	Factor tax
12 Dairy products	Semi-skilled labor, male	
13 Sugar	Semi-skilled labor, female	Savings-Investment (1)
14 Flour, bakery and pasta	Skilled labor, male	Savings-Investment
15 Feed products	Skilled labor, female	
16 Other proc food	Capital, specific and mobile	
17 Beverages and tobacco	Land, specific and mobile	

Another modeling characteristic, resulting from the methodology of the project, is that the single country model determines export supply behavior, but takes the rest-of-the-world demand changes from the global Linkage model, using an export demand curve based on parameters and results coming from that model (see Horridge and Zhai, 2006). This is not trivial for the results, because, contrary to other single-country modeling exercises, it results in a “no small country” assumption for the particular country. The results shown below must be interpreted against this specification. On the imports side, however, the prices shocks are taken directly from the global model, assuming that world import supply functions for a small country are flat.

The closures for the model are as follows. In the case of the government, it is assumed that both government consumption and savings are fixed. All taxes are fixed, except for direct taxes, which equilibrates the fiscal account. For the rest of the world, foreign

savings is held fixed while the exchange rate adjusts. For the savings-investment balance, investment is driven by savings as in the global model. Since both public and foreign savings are fixed, investment comes from changes in the savings behavior of households (where the marginal propensity to save/consume adjusts).

b. Microsimulation model

In order to provide results in terms of poverty and inequality at the micro level, we link the CGE model with a microsimulation model. The two methodologies are used in a sequential “top-down” fashion. The CGE communicates with the microsimulation model by generating a vector of prices, wages, and aggregate employment variables such as labor demand by sector and the unemployment rate. The functioning of the labor market thus plays an important role.

We introduce the labor market results from the CGE model into the microsimulations in order to produce a counterfactual labor income for each individual in the household survey. We then recalculate household per capita income, and compute the new poverty and income distribution results. The microsimulation approach has some similarities with Ganuza *et al.* (2002).

The labor market variables that link the CGE model with the microsimulations are the following:

- U is the unemployment rate. This effect is simulated by changing the labor status of the active population. In the case of a decrease in the unemployment rate, we simulate a counterfactual income for the individuals that become employed based on their characteristics (e.g., educational level) by using the coefficients of a Mincer equation estimated for those individuals employed in the base year. In the case of an increase in unemployment, the counterfactual income for those new unemployed is zero.
- S is the sectoral structure of employment. This effect is simulated by changing the sectoral composition of employment. For those individuals that move from one sector

to another, we simulate a counterfactual labor income based on their characteristics and on their new sector of employment.

- W1 is the change in relative wages. The individual labor incomes are changed keeping the aggregate average wage constant.
- W2 is the change in the aggregate average wage. This effect is simulated by changing all labor incomes in the same proportion.
- PL is the change in the poverty line. A counterfactual value for the official extreme poverty line is calculated by considering the change in the prices of the commodities used to compute the official extreme poverty line (i.e., we link the goods identified in the CGE model to the commodities used to compute the official extreme poverty line that only includes food products). The counterfactual value for the official moderate poverty line is computed by assuming that the Engel coefficient stays fixed at the base year values.

In building the microsimulation model we used the Encuesta Permanente de Hogares (EPH), the main household survey in Argentina. The EPH is carried out by the Instituto Nacional de Estadística y Censos (INDEC). It now covers 31 urban areas (all the urban areas with more than 100,000 inhabitants) which are home to 71% of the Argentine urban population. Since the share of urban areas in Argentina is 87.1%, the EPH sample represents around 62% of the total population of the country. The EPH gathers information on individual socio-demographic characteristics, employment status, hours of work, wages, incomes, type of job, education, and migration status. There is no alternative to the use of the (urban) EPH. No attempt was made to reconcile the household survey data with the national accounts. Instead, the results from the CGE are transmitted to the microsimulation model as percentage deviations from base values.

INDEC also creates the basic food basket and the total basic basket that determine the indigence line and the poverty line, respectively. Each CGE simulation results in a new level of economy-wide prices for commodities, which lead to changes in the cost of both baskets and therefore both poverty lines. These changes (captured in the PL variable above) result in the new estimated poverty and indigence (extreme poverty) rates.

SIMULATIONS AND RESULTS

In this section we describe the main simulations and present the results. Unless otherwise stated (for specific simulations), the closure rules for the government, rest of world, and savings-investment balance are the same across all simulations.

The trade structure for the baseline can be seen in Table 2.

Table 2: Trade Structure

Sector	Exports%	Imports%	EX intensity	IM intensity
	(ii)	(iv)	(i)	(iii)
Primary				
Cereals	6.5	0.1	57.2	1.1
Vegetable and fruits	2.3	0.4	28.1	5.6
Oil seeds	5.5	0.6	34.1	4.8
Other crops	0.8	0.5	9.5	5.7
Sugar cane and beet	n/a	n/a	n/a	n/a
Livestock, milk and wool	0.5	0.1	1.8	0.3
Other non-agr primary	0.2	0.2	8.4	11.0
Mining	3.2	3.0	26.8	24.7
Oil	6.0	0.8	25.4	4.2
Processed food				
Meat	3.8	0.2	17.6	1.3
Oils and fats	17.0	0.2	86.3	5.5
Dairy products	1.5	0.1	13.7	1.1
Sugar	0.3	n/a	18.3	n/a
Flour, bakery and pasta	0.7	0.2	4.0	0.9
Feed products	0.2	0.1	8.3	5.1
Other proc food	4.5	1.2	29.8	9.7
Beverages and tobacco	1.2	0.2	7.3	1.3
Other manufactures				
Textiles and apparel	3.6	4.3	17.4	19.3
Petroleum refinery	8.3	2.7	36.1	15.2
Chemical products	8.8	18.7	24.8	40.2
Mineral products	0.5	1.0	5.8	10.8
Metal products	6.8	7.1	19.9	19.8
Machinery and equipment	4.2	33.2	18.5	63.4
Vehicles	8.0	16.0	41.2	57.2
Other manufacturing	5.6	9.2	13.1	19.1
Total	100.0	100.0	11.5	10.4

References:

Exports% = share of each sector in total exports

Imports% = share of each sector in total imports

EX intensity = share of exports in production

IM intensity = share of imports in consumption

Source: Argentina SAM 2005.

Under the BASE scenario, no global nor domestic liberalization is imposed. The remaining ten simulations analyze the effect of several types of unilateral and global liberalization scenarios. There are three simulations that focus on unilateral cuts in a specific category (or combination of categories) of trade taxes: (i) import tariffs (mtax), (ii) export taxes (etax), or (iii) both tariffs and export taxes (emtax). The next three simulations apply the same three policy changes, but the liberalization is only applied to agricultural products (etax-ag, mtax-ag, and emtax-ag). In the next two simulations, the liberalization of exports and imports occurs only in the rest of the world but not in Argentina, and it is run both for all products (rowlib) and only for agriculture (rowlib-ag). Finally, the last two scenarios simulate an elimination of tariffs and export taxes in both Argentina and the rest of the world, and these simulations are again run for all goods (emtax-rowlib) and just for agricultural products (emtax-rowlib-ag).

To understand the poverty and income distribution results it is first necessary to take a look at the main macroeconomic aggregates. The results show that GDP increases when total import taxes are eliminated, and also, but less strongly, when the rest of the world liberalizes. In the GTAP database used in the global model (and applied to the Argentina model), agricultural import tariffs for Argentina are negligible, which is why the results for the mtax-ag simulation are also negligible. When export taxes are eliminated, however, there are strong negative results.

Table 3: Real GDP by simulation	
Simulation	% change from base
mtax	1.3
mtax-ag	0.0
etax	-1.7
etax-ag	-0.9
emtax	-0.4
emtax-ag	-0.9
rowlib	0.3
rowlib-ag	0.2
emtax-rowlib	-0.2
emtax-rowlib-ag	-0.8

To understand these strong negative results, one needs to look at the sectoral composition of export taxes and the supply side response. In terms of sectoral composition, the largest

export taxes are on grains and oilseeds, and on oil. The elimination of these taxes increases the supply of two primary sectors that are less labor intensive than other activities, are inputs to other productions, and whose outward orientation of their sales increases without export taxes. The consequences of the three factors are less employment in general, through different and cumulative channels.

Without a full employment specification, the first characteristic leads to declines in employment directly. In the case of agriculture particularly, land is shifted from the sectors for livestock, dairy, and industrial crops, which tend to be more labor intensive, to the sectors for grains and oilseeds that are not as labor intensive. This negative employment effect at the primary level is reinforced by the fact that, since the commodities from these sectors are inputs into other production activities, the increase in prices also affects those other activities, which tend to shrink in production and employment because of higher prices of inputs. Primary products that before were transformed locally are now exported as raw materials and the domestic industry declines. Oil in particular, once processed, is an input to most other activities, which are negatively affected by higher prices. Finally, the outward orientation of the expanding activities appreciates the real exchange rate, generating a mild form of “Dutch disease” for the rest of the tradables (see Table 4). The result is that unemployment increases in most of the simulations that include the elimination of export taxes (see Table 5).

Table 4: Real Exchange Rate by Simulation	
Simulation	% change from base
Base	1
Mtax	1.024
mtax-ag	1
Etax	0.943
etax-ag	0.963
Emtax	0.968
emtax-ag	0.963
Rowlib	0.979
rowlib-ag	0.970
emtax-rowlib	0.948
emtax-rowlib-ag	0.934

Table 5: Unemployment Rate by Labor Type and Simulation							
Simulation	Unskilled females	Semi-skilled females	Skilled females	Unskilled males	Semi-skilled males	Skilled males	total
base	0.294	0.188	0.051	0.143	0.094	0.041	0.123
mtax	0.275	0.166	0.025	0.119	0.069	0.025	0.101
mtax-ag	0.294	0.188	0.051	0.143	0.094	0.041	0.123
etax	0.313	0.212	0.075	0.168	0.121	0.061	0.147
etax-ag	0.303	0.199	0.061	0.154	0.106	0.05	0.134
emtax	0.295	0.191	0.05	0.145	0.098	0.034	0.124
emtax-ag	0.303	0.199	0.061	0.154	0.106	0.05	0.134
rowlib	0.288	0.184	0.047	0.135	0.089	0.036	0.117
rowlib-ag	0.291	0.186	0.049	0.137	0.09	0.037	0.119
emtax--rowlib	0.29	0.188	0.047	0.139	0.094	0.03	0.119
emtax-rowlib-ag	0.301	0.198	0.061	0.149	0.103	0.046	0.131

On the other hand, the elimination of import taxes leads to more imports, but by the assumption of fixed foreign savings, this requires more exports. Therefore, the real exchange rate devalues, which increases the production of tradables and expands employment.

The main results in terms of poverty and income distribution are shown in Table 6-11. Tables 6 and 7 present the results under the World Bank standard poverty lines of US\$1 PPP and US\$2 PPP, respectively. On the other hand, the poverty results shown in Tables 8 and 9 are based on the official (national) extreme poverty and moderate poverty lines, respectively. The US\$2 PPP poverty line is slightly *below* the official extreme poverty line, which implies that poverty in Argentina is lower under the World Bank measures than as calculated using national poverty lines. Lastly, Tables 10 and 11 present the results of the Gini coefficient for household per capita income and labor income. Each of the simulation results show the observed base-year poverty (or inequality) results in the first row, followed by the poverty and/or inequality results under each of the steps explained in the microsimulation section. Therefore the second-to-last row shows the cumulative effect of all of the changes (U, S, W1, W2, and in the case of poverty, PL) on the poverty and inequality simulated results. The last row shows the results in percent change from the observed base-year value.

Table 6: Headcount Poverty Results -- 1 USD Poverty Line										
Effect	etax	etax-ag	mtax	mtax-ag	emtax	emtax-ag	rowlib	rowlib-ag	emtax-rowlib	emtax-rowlib-ag
Observed	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19
U	4.97	4.51	3.90	4.19	4.22	4.53	4.12	4.16	4.15	4.44
U + S	4.96	4.51	3.90	4.19	4.21	4.53	4.12	4.15	4.13	4.43
U + S + W1	4.96	4.51	3.97	4.19	4.21	4.53	4.12	4.14	4.13	4.43
U + S + W1 + W2	4.96	4.51	3.97	4.19	4.21	4.53	4.12	4.14	4.13	4.43
U + S + W1 + W2 + PL	5.06	4.62	3.97	4.19	4.32	4.64	4.14	4.16	4.26	4.57
	21%	10%	-5%	0%	3%	11%	-1%	-1%	2%	9%

Table 7: Headcount Poverty Rate -- 2 USD Poverty Line										
Effect	etax	etax-ag	mtax	mtax-ag	emtax	emtax-ag	rowlib	rowlib-ag	emtax-rowlib	emtax-rowlib-ag
Observed	12.46	12.46	12.46	12.46	12.46	12.46	12.46	12.46	12.46	12.46
U	13.49	12.90	11.74	12.46	12.46	12.88	12.30	12.37	12.39	12.78
U + S	13.50	12.91	11.74	12.46	12.46	12.88	12.30	12.37	12.37	12.78
U + S + W1	13.50	12.91	11.79	12.46	12.46	12.88	12.25	12.37	12.39	12.78
U + S + W1 + W2	13.50	12.91	11.79	12.46	12.46	12.88	12.25	12.37	12.39	12.78
U + S + W1 + W2 + PL	13.99	13.53	11.82	12.46	13.12	13.53	12.37	12.48	13.14	13.51
	12%	9%	-5%	0%	5%	9%	-1%	0%	6%	8%

Table 8: Headcount Poverty Rate -- Official Extreme Poverty Line										
Effect	etax	etax-ag	mtax	mtax-ag	emtax	emtax-ag	rowlib	rowlib-ag	Emtax-rowlib	emtax-rowlib-ag
Observed	12.65	12.65	12.65	12.65	12.65	12.65	12.65	12.65	12.65	12.65
U	13.69	13.09	11.92	12.65	12.67	13.08	12.49	12.57	12.59	12.99
U + S	13.71	13.10	11.92	12.65	12.65	13.10	12.49	12.58	12.57	13.00
U + S + W1	13.71	13.10	11.98	12.65	12.65	13.10	12.44	12.56	12.59	13.00
U + S + W1 + W2	13.71	13.10	11.96	12.65	12.65	13.10	12.44	12.56	12.59	13.00
U + S + W1 + W2 + PL	14.39	14.02	12.07	12.65	13.56	14.00	12.65	12.77	13.74	14.13
	14%	11%	-5%	0%	7%	11%	0%	1%	9%	12%

Table 9: Headcount Poverty Rate -- Official Moderate Poverty Line										
Effect	etax	etax-ag	mtax	mtax-ag	emtax	emtax-ag	rowlib	rowlib-ag	Emtax-rowlib	emtax-rowlib-ag
Observed	34.21	34.21	34.21	34.21	34.21	34.21	34.21	34.21	34.21	34.21
U	35.45	34.77	33.17	34.21	34.23	34.82	33.94	34.08	34.06	34.64
U + S	35.45	34.82	33.16	34.21	34.21	34.86	33.96	34.08	34.12	34.67
U + S + W1	35.45	34.82	33.21	34.21	34.21	34.86	33.98	34.06	34.12	34.67
U + S + W1 + W2	35.45	34.82	33.15	34.21	34.21	34.86	33.98	34.06	34.12	34.67
U + S + W1 + W2 + PL	36.96	36.71	33.38	34.21	36.12	36.74	34.49	34.49	36.49	37.03
	8%	7%	-2%	0%	6%	7%	1%	1%	7%	8%

In terms of poverty, the elimination of import taxes in Argentina and liberalization in the rest of the world (both total and only for agricultural goods) appear to have mostly positive (but small) or neutral effects on the reduction of the poverty headcount. The positive effect operates through a reduction in unemployment, although the increase of the poverty line acts as a counter to that effect. The reasons for the increase in the poverty line are different: in the case of a reduction of import taxes, the real exchange rate depreciates, increasing the prices of goods (see below); in the case of liberalization in the rest of the world, it is mostly the increase in world prices.

All other simulations that include elimination of export taxes, total or only for agriculture, show more visible and negative effects on poverty. Particularly negative for the poverty headcount is the unilateral elimination of export taxes. The largest negative impact comes from the unemployment effect and secondly from the poverty line. As indicated before, the negative employment effect results from a combination of moving from the production of greater value added goods to raw materials with little employment impact, and a form of “Dutch Disease.” However, particularly in the case of agricultural items, the negative additional effect of an increase in the poverty line must be factored in (see the line titled $U + S + W1 + W2 + PL$ in all poverty simulations).

The next tables show the results on income distribution. Again, unilateral elimination of import taxes and liberalization in the rest of the world produce small but positive effects on the reduction of inequality. Other simulations involving the elimination of export taxes result in small increases in inequality, but now with the exception of full liberalization both in Argentina and the rest of the world, which show very small declines in inequality. Land seems to receive important increments in factor incomes (not shown here) in all simulations involving the elimination of export taxes, which accounts for the largest increases in inequality in household per capita incomes.

Table 10: Gini Coefficient -- Household Per Capita Income

Effect	base	etax	etax-ag	mtax	mtax-ag	emtax	emtax-ag	rowlib	rowlib-ag	emtax-rowlib	emtax-rowlib-ag
Observed	0.499	0.499	0.499	0.499	0.499	0.499	0.499	0.499	0.499	0.499	0.499
U	0.499	0.502	0.500	0.496	0.499	0.499	0.500	0.498	0.498	0.498	0.500
U + S	0.499	0.502	0.500	0.496	0.499	0.500	0.500	0.498	0.498	0.499	0.500
U + S + W1	0.499	0.502	0.500	0.495	0.499	0.499	0.500	0.498	0.498	0.499	0.500
U + S + W1 + W2	0.499	0.502	0.500	0.495	0.499	0.499	0.500	0.498	0.498	0.499	0.500
	0.6%	0.3%	-0.7%	0.0%	0.1%	0.2%	-0.2%	-0.1%	-0.1%	0.1%	

Table 11: Gini Coefficient -- Labor Income

Effect	base	etax	etax-ag	mtax	mtax-ag	emtax	emtax-ag	rowlib	rowlib-ag	emtax-rowlib	emtax-rowlib-ag
Observed	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472	0.472
U	0.472	0.473	0.472	0.471	0.472	0.472	0.472	0.472	0.472	0.472	0.472
U + S	0.472	0.474	0.472	0.471	0.472	0.473	0.472	0.472	0.472	0.472	0.472
U + S + W1	0.472	0.474	0.472	0.470	0.472	0.472	0.472	0.471	0.472	0.472	0.472
U + S + W1 + W2	0.472	0.474	0.472	0.470	0.472	0.472	0.472	0.471	0.472	0.472	0.472
	0.3%	0.1%	-0.3%	0.0%	0.1%	0.0%	-0.1%	-0.1%	-0.1%	0.0%	

CONCLUSIONS

At least within the context of a static framework, the simulation results appear to validate the claim by the Argentine authorities that export taxes help to reduce poverty and inequality, generate additional employment opportunities that the production and exports of raw materials would not provide, and help support a more competitive exchange rate. It remains to be seen what the medium-term dynamic effects on production and technological innovation may be.

The model was run with a balanced budget, with increases in direct taxes rates compensating for the lost revenues. A separate simulation may be to look at the fiscal implications of eliminating export taxes without the assumption of specific changes in other tax rates. Nogués *et al.* (2007) calculate that a non-trivial portion of those revenues can be recovered maintaining the rates of other taxes at their baseline levels. However, they estimate a net loss of fiscal revenues. In the context of still high debt/GDP ratios and

public debt payments, the negative macroeconomic effects of those lost revenues must also be considered. Another fiscal simulation option to be explored is the possible reduction of VAT taxes to compensate the poor for higher food prices. However, this would entail even larger revenue losses.

Lastly, further work needs to be done on the impact of the large country assumption for Argentina, which may be forcing a more extreme specialization than under other specifications.

Whatever the caveats, though, export taxes seem here to stay in Argentina.

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