Ecuador: Impacts of the Global Economic Crisis

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Abstract

This analysis presents the economic impacts of the world crisis on Ecuador, including the effects of the main policy responses of the Ecuadorian Government to face the crisis. The main hypothesis highlights the magnitude of two key channels of transmissions: trade (through a percentage change in oil export prices and fuel import prices, and the fall in the world price of some manufacturing export products) and remittances.

The study also presents the impacts and a summary of key policies adopted by the Ecuadorian Government to try to avoid negative impacts in the BOP and growth in the country: import restrictions. The vulnerability of the Ecuadorian economy may be particularly high given that this is a dollarized economy. The US dollar has been the currency of Ecuador since 2000; neither exchange rate (devaluation) nor monetary policies are policy options for Ecuador to fend off the world economic crisis.

The approach used in this analysis is general equilibrium. The study applies a single-country static computable general equilibrium model for Ecuador. Preliminary results suggest that, on a net balance, the import restriction policy adopted by the Government did not relieve the economy from the global economic crisis, but instead had more negative impacts on the economy. These results are subject to some caveats.

Keywords: global economic crisis, Ecuador, CGE, import restrictions.

JEL Codes: D58, J21, O24, O54.

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I. INTRODUCTION

The purpose of this study is to present the impacts of the global economic crisis on the Ecuadorian economy. This study is part of an IFPRI-PEP project that analyzes the impacts of the world economic crisis on developing countries. Key aims of this project are to highlight the main macroeconomic transmission channels of the world crisis in the developing countries under study and the policy responses of their governments.

The world financial and economic crisis started in the US, whose economy showed the first signs of trouble in the housing and financial markets in 2007, and developed into a fully-fledge crisis at the end of the third quarter of 2008 with the historic bankruptcy of Lehman Brothers. The US financial crisis quickly spread, first to the economies more exposed to the toxic financial instruments and troubled real estate markets, such as Europe, then to the rest of the world bringing with it the fall of financial institutions, a halt in credit and trade, lay-offs, and slower, or even negative, growth.

Developing countries have been affected in several ways, including a decrease in exports, sudden stops in capital inflows, reduced remittances, etc. Developing countries exports decrease as their foreign demand coming from developed markets slows down or stops. Capital inflows stop as international investors become very risk averse and take money home, away from foreign markets, and banks reduce leverage. According to Professor Blanchard (the Chief Economist of the IMF), net capital flows from most emerging markets turned negative (in the net) in the last quarter of 2008, which meant that countries found it more and more difficult to finance their balance of payment needs. To avoid a BOP crisis, developing countries recurred to devaluations, import restrictions, and/or higher indebtedness. Ecuador, a dollarized economy since 2000, could not adopt a policy of competitive devaluations and followed a policy that restricted imports.

The financial and economic world crisis has provoked many interesting developments and impacts on the financial side of the economy of several countries, but this study focuses on the real side of the economy. It also focuses on modelling distributional transmission mechanisms that arise through production, the labor market, location and regional impacts, and government responses.

In the case of Ecuador, the main hypothesis highlights the magnitude of two key channels of transmissions: trade (through a percentage fall in oil export prices and fuel import prices, and a percentage fall in some manufacturing export products prices) and remittances.

The study also presents a summary of a key policy adopted by the Ecuadorian government to try to avoid negative impacts in the balance of payment and growth in the country: import restrictions.

The approach used in this analysis is general equilibrium. The study applies a single-country static computable general equilibrium model for Ecuador.

The main results suggest that the sectors that bear the negative impacts of the crisis and policy reactions, in terms of the impacts on trade and value added, include a few export sectors such as flowers, fish, and oil, as well as import-competing sectors such as textiles and apparel, beverages, milling, transportation equipment, machinery and other

non-food manufactures. Only a few export-oriented sectors, such as bananas, experienced a growth in export. The impact of the crisis has been progressive, as it has reduced the income of the highest household income quintile. The import restriction policy seems to have added more negative effects to the income of households, reducing income growth or even making it fall. Similarly, the wages of skilled workers in both urban and rural areas, and the return to capital also fall.

An explanation with respect as to why the crisis has negatively affected the skilled wage labor and the income of households in the upper income quintile may lie in the economic activities that the crisis affected –export and import activities– and in the policy response adopted by the government –import restrictions. The results also suggest that crisis and import restriction policy also had a negative impact on employment, in particular in the skilled wage labor of urban sectors.

II. TRANSMISSION CHANNELS

Trade, remittances, foreign direct investment, and aid are the main transmission channels through which the global economic crisis is expected to have an impact on developing countries (Decaluwé et al 2009). Of these channels, we believe that –in the case of Ecuador– the main transmission channels are: trade flows and remittances. The vulnerability of the Ecuadorian economy may be particularly high given that this is a dollarized economy. The US dollar has been the currency of Ecuador since the year 2000.

Ecuadorian exports are concentrated on a few commodities and a few markets. Exports of oil (53%), bananas (10%), shrimp and fish (5%), and flowers (4%) represented approximately three quarters of total exports according to the annual average shares for the period 2004-2008 (see Table 1). Over 50 percent of total exports go to developed markets such as the USA and the EU, and around 18 percent of total exports go to developing country markets such as those in the fellow Andean countries and the Caribbean. The developed export markets of Ecuadorian products have been hit hard by the current global economic crisis.

The demand for Ecuadorian exports grew in the years 2007 and 2008 for most commodities, although for some commodities at a slower pace than in previous years (Table 1). Total Ecuadorian exports grew at an annual rate of 13 and 29 percent in the years 2007 and 2008, respectively. In 2008, the growth in exports of primary goods (oil, bananas, flowers, shrimp and fish) may explain most of the growth in exports. However, in 2009, as the global economic crisis unfolded and spread throughout the Ecuadorian export markets, the value of total exports fell by 26 percent. The bulk of the fall comes from the fall in oil export prices that decreased by almost 40% from 2008 to 2009 (Table 2). Other export commodities such as bananas (22%), and other primary products (20%), actually experienced an (almost normal) increase in their f.o.b. value of total exports (Table 1).

The presence of contractual arrangements may explain in certain cases why the exports did not fall for some products. Moreover, the export demand of certain agricultural products has been characterized by its resilience in previous world economic downturns. This is the case for bananas and other tropical fruits. According to a FAO report (FAO 2009), in the 1973-75 global economic crisis the demand for bananas in the USA did not experience a fall, although it did in the European markets (-9.7%). In those crisis

years, world exports of tropical fruits expanded by 13%. Similarly, in the crisis of the early 1980s, except for the exports of pineapple, the exports of tropical fruits did not decrease; and for bananas, as happened in the crisis of the 1970s, demand fell in the European countries, but not in the USA. Bananas and other tropical fruits can be deemed as products that are a "necessity", with a low income (and price) elasticity. In addition, the market share of tropical fruits has been in expansion since the 1970s (See FAO 2009, and reference therein cited).

The fall in oil prices had a negative impact on Government finances in 2009. Oil revenues represent around 30 percent of revenues for the Government (Table 3). Despite the fall in revenues, according to the Government, social programs (such as income transfers to the poorest) and infrastructure spending did not suffer cuts in 2009, nor did subsidies (such as the subsidies for the consumption of gas for domestic cooking and for diesel). Income transfers are an important income source for the poorest households in both urban and rural areas (Table 4).

At the same time the fall in oil prices meant a reduction in the world price of fuel imports. This is another trade channel that may have an impact on the Ecuadorian economy, as Ecuador imports fuels. A lower world import price of fuels means a reduction in the value of fuel imports for Ecuador (Table 5). As mentioned in the previous paragraph, there is a subsidy for the consumption of fuels in Ecuador that comes through a fixed domestic price for the consumption of certain fuels. When the world oil price is high the subsidy increases, and when the world oil price falls this subsidy decreases –alleviating the Government budget on the expenditure side (Tables 5 and 6). (See also data section below).

On the trade side, a fall (-22%) is also noticeable in the f.o.b. value of manufacturing exports. It is the first time, since the US dollar was adopted as the Ecuadorian currency in 2000, that the value of total export manufactures has fallen. Apparently, in most cases a key component of this fall in value is a fall in price (unit value). Most of the manufactured export products represent a small share in total exports, ranging from a 0.01% share in total value of exports (meat products, dairy products, milling, and beverages) to a 2.2% share (transport equipment) in 2008. One exception is fish products that made up almost 9% of the value of total exports in 2008. Its unit value fell by 11%, and its volume 1%, for a total fall in value of fish product exports of 12% in 2009. See Table 7.

Another transmission channel of the global crisis is remittances. According to data from the Central Bank of Ecuador, remittances fell by 9 percent in 2008 with respect to the previous year. In 2009, the fall in remittances during the first, second, and third quarter reached 27, 14, and 7 percent, respectively with respect to similar periods in 2008 (Table 8). Remittances represent around 6 percent of total GDP. The main sources of remittances for Ecuador are the USA, Spain, and Italy.

As shown in Table 4, remittances may be an important source of income for some low income households (thus, remittances represent 7% of total income for households in the lowest income quintile in urban areas), and –according to press news- they finance consumption (including housing). From the point of view of poverty, the fall in remittances may have a significant impact.

Ecuador has not been the recipient of great inflows of foreign direct investment. FDIs reached 3% of GDP in 2004, approximately 1% of GDP in the years 2005-2006, 0.4% of GDP in 2007, and 2% of GDP in 2008. Some exceptions are the oil and mining sector, and telecommunications. In 2005, FDIs represented 1.3 percent of GDP of which 40 percent went to the oil and mining sector (See Table 9, and see also the data section). Since 2004, the main countries of origin of FDIs for Ecuador have been Mexico, European countries, and Asian countries (such as China). (See Table 10).

Aid is not an important source of income for Ecuador. Ecuador is not a recipient of important aid flows.

The fall in economic activity in some export sectors and some import sectors has brought about an increase in unemployment. According to data from the Central Bank of Ecuador (see Table 11), unemployment rates have increased since the year 2007 (6.34 percent) and reached 7.9 percent in 2009 (measured at December of each year). Fewer jobs, in a country where unemployment insurance is not a common practice, may increase poverty and/or lead to more informal jobs (underemployment).

Given the SAM and model available it is possible to capture the main transmission mechanisms identified in this section: (i) trade flows and commodity prices, namely a fall in world oil and fuel prices, as well as a fall in the export price of key manufactures (fish products), and (ii) a decrease in remittances. Key export sectors are separate in the SAM. The oil is a separate sector, although this sector includes both oil and fuels. The SAM also presents fish products as a separate sector. Remittances are included in the SAM.

III. SCENARIOS

Following the suggestion of the common methodological framework of this project that analyzes the impacts of the world financial and economic crisis on developing countries, there are two main types of simulations. Simulation A includes only the expected shocks of the crisis on the Ecuadorian economy –as identified in the previous section. Simulation B includes both the expected shocks and policy responses of the Government to avert the crisis. In each type of simulation there are three different combinations of values for the shocks (as summarized below).

A. SHOCK HYPOTHESES

Both the fall in oil export prices (-39%, see Table 2) collected by the Government and the fall in the fuel import prices (-33%, see Table 6) purchased by the Government of Ecuador are definitely linked to the global financial and economic crisis. Given the trend in manufacturing exports and remittances, we can also attribute to the crisis the fall in manufacturing exports and the fall in remittances. From 2008 to 2009, manufacturing exports fell 22 percent (see Table 1), while in previous years these exports had an annual growth rate ranging from 15 to 30 percent. Within manufacturing sectors in particular, Table 7 shows an 11 percent fall in the unit value of exports of fish products from 2008 to 2009. Remittances fell 12 percent during the same period, and fell 9 percent from 2007 to 2008. It is the first time that remittances fall in Ecuador since dollarization started (Table 8).

According to the data presented and the trend observed –in growth and shares– in recent years, the hypotheses regarding the magnitude of the changes in those variables are:

-A fall of 30 percent in world (export) prices of crude oil

-A fall of 25 percent in world (import) prices of fuels

-A fall of 10 percent in remittances

-A fall of 10 percent in the world (export) price of fish products

Alternatively, this study sets up two other different scenarios with weaker values for the fall in those indicators (Table 12 summarizes the shock scenarios).

The fall in the price of crude oil, fuels, and fish products are modeled as reductions in the world price of those commodities. In the model, world prices are taken as given, as the economy is assumed to be small and open. In the case of crude oil and fish products, the price corresponds to the infinitely elastic world demand (world export price) for those products. Similarly, for the case of fuels, the price corresponds to the infinitely price-elastic supply function of imports. Remittances are modeled as a reduction in the transfers from foreign accounts (the USA, the EU, Rest of the World, and the Andean Community) to the (urban and rural) households in Ecuador. Rural and urban households are classified by income quintile.

B. POLICY RESPONSES

As stressed in a previous section, the crisis has affected the Ecuadorian economy through trade channels –rather than through a reversal of capital flows. A balance of payment crisis would mean deep troubles in the real sector with unimaginable economic and social consequences for Ecuador, in particular given that this is a dollarized economy. In fact, trade flows were also a key channel of transmission in other Latin American economies. Although, in addition to that, in Brazil, Chile, and Peru, some financial turmoil was also felt (ECLAC 2009a).

To fend off the crisis, a series of policy measures were adopted by countries worldwide, including devaluation, reduction in taxes, increase in subsidies, increase in government spending, increase in tariffs, labor policies, social policies, higher indebtedness, etc (See ECLAC 2009b for a summary of the policies adopted by Latin American countries). Of these policies, competitive devaluations and higher tariffs raised fears of a turn back to a protectionist era. Some Latin American economies recurred to devaluation (See Figure 1), but neither exchange rate policy nor monetary policy are policy options for Ecuador.

Countries where nominal devaluations clearly happened at the onset of the crisis (October 2008 until approximately March 2009) include Brazil, Chile, Colombia, Mexico and Uruguay (ECLAC 2009a). Some of the countries whose currencies devaluated, for example Colombia, are key trade partners of Ecuador.

Fiscal policy may be a policy option available for the Government of Ecuador. However, a study by the World Bank pointed out Ecuador as one of the countries with the highest index of constraints to implement counter-cyclical fiscal policies (Ecuador is just behind Venezuela in the ranking of this index that include other six Latin American countries; see de la Torre 2009). This study also shows Ecuador as one of the countries

with the highest aggregate index of lack of space for fiscal stimulus (again, Ecuador is just behind Venezuela in the ranking of this index that include other six Latin American countries; see Calderón and Fajnzylber 2009).

The Government of Ecuador vowed not to reduce expenditure on social and investment programs, nor was the Government willing to lay off public servants (amongst the Latin American countries analyzed in the World Bank study, Ecuador and Bolivia show the largest contribution of public wages to mandatory spending; see Calderon and Fajnzylber 2009, p. 104). Government expenditures were not reduced, and government revenues fell abruptly at the end of 2008 which showed up as a deficit in the consolidated (non-financial) public sector, for the first time since dollarization was adopted in Ecuador (Table 13. Complete annual data for 2009 on public finance is not available yet). A fiscal rule that kept government expenditures at bay was eliminated by the current Government. Similarly, as fate would have it, an oil fund that set aside the windfalls of the oil prices was closed and the funds used up (the last reserves of this oil fund are supposed to have helped the Government to navigate the economy through the crisis when it started).

On the tax side, the Government created a tax on outflows of capital (dollars that are paid or sent abroad have to pay a 2% tax of the total amount paid or wired), and has been proactive in collecting VAT and income taxes. The Government did not raise any existing tax rate. The income tax revenue, although it has been growing as a share in total revenues, is still not enough to make up for a fall in oil revenues of the magnitude felt in 2009.

Given these policy constraints, the main policy response adopted by the Government of Ecuador –to avoid the negative consequences of the world economic crisis– was to impose restrictions on imports.

After several weeks of announcements, and consultations with the private sector regarding the list of products to be included, the Government of Ecuador implemented in mid-January 2009 a series of import restrictions on 627 tariff lines. Of these 627 tariff lines, 73 were subject to an increase in ad-valorem tariffs (30%, and 35%), and 283 received specific tariffs. The rest, 271 tariff lines, were restricted with a quota which varied in value depending on the product. The total value allowed by the quota was US$ 2,125 million (see Table 14).

The goods with new ad-valorem tariffs comprise sugar products, beverages, other food products, wood and wooden products, chemicals, rubber and plastic, metallic and non-metallic products, and machinery and equipment and other manufactured goods. Specific tariffs were reserved only for textiles and apparel, leather products, and footwear, and some metallic and non-metallic products (ceramics). Quotas include a broader spectrum of products that range from agricultural food products to heavy manufactures (see Table 15).

The same day the Government published the list of products subject to higher ad-valorem tariffs, specific tariffs or quotas, the Government announced that the quotas were distributed to enterprises. The same publication with the tariffs and quotas included the distribution of the quota by HS line and firm, with a total value for each firm. In principle, each firm received a quarterly quota, but then the quota was made

more flexible, but still subject to the annual maximum value established by the Government for each firm (see Table 16).

To ward off against loss of competitiveness vis-à-vis Colombian products –given the nominal devaluation of the Colombian peso (as shown in Figure 1)– the Government announced in mid 2009 an additional list of tariff lines subject to import restrictions that applied to products coming from Colombia (1346 tariff lines). These trade restrictions were disputed by Colombia which sought to maintain its trade preferential partner status as an Andean Community member throughout the crisis. However, the WTO ruled in favour of Ecuador, allowing it to impose temporary import restrictions on Colombian products (an exchange rate safeguard). (See Table 17).

Whether the import restrictions were indeed effective is an issue that deserves careful examination, but that is beyond the scope of the present study. Import data shows that the value of (c.i.f.) imports fell by 19 percent in 2009, with similar rates of decrease in the value of consumption (-21%), inputs (-22%), and oil (-22%) products. Imports of capital goods decreased 14 percent in value in that year. However, the total quantity imported fell only by 1% (See Table 18). On the other hand, and according to press news, the Chamber of Commerce in Quito (the capital of Ecuador) stated that US$ 450 million in goods would have entered the country through smuggling.

To implement the scenarios with this policy response of import restrictions, tariff equivalents of the specific tariffs and the quotas were estimated.[1] Then a simple average of the tariff lines, summarized by the SAM product classification (so as to be able to apply the average in the CGE model simulations), was calculated. Table 19 summarizes both the applied tariffs in the baseline and the new applied tariff.

IV. MODEL AND DATA

This study implements a single-country Computable General Equilibrium model based on Lofgren et al (2002). This is a static model that assumes perfect competition, rational behaviour in households, and no money illusion (quantities are homogenous of

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[1] For the specific tariffs, an ad valorem tariff is calculated using the method outlined in Stawowy, W. (2001). For the quotas, the study uses the tariff equivalents published by the Government of Ecuador a few weeks later after the quotas were officially announced. At first, the study used the average nominal tariff rates by SAM sector in the CGE model, but the increments from the tariffs already in the baseline of the model to the average nominal tariffs were in most cases big (in some, pretty big), so the model did not solve.

Then, comparing the values of the tariffs in the baseline of the model, which are effective applied tariffs, with the values of the nominal tariffs obtained from mapping the HS tariff line information with the SAM sectors, the differences were considerable. That is, in the model the effective tariffs are lower than the average nominal tariffs (in the baseline). So, this study did not use the new average nominal tariff (implied by the policy response), but lower ones. The new tariffs applied in the model for the policy response correspond to an increment in the effective tariffs already calculated in the baseline. The increment used is the percentage increase between the average nominal tariff (from the HS –tariff schedule) and the average of the new tariff rates (calculated as explained in the first paragraph of this footnote). Table 19 shows the new applied tariffs.

degree zero with respect to prices). The main sections of the model include production and trade, income and institutions (agents), prices, and equilibrium. The model is programmed in GAMS.

The CGE model of Ecuador comprises 27 sectors: 8 primary (agriculture, fish, and forestry sectors), 16 extractive and manufacture sectors, and 3 service sectors.

At the top of the production module, technology is modeled alternatively by a CES or a Leontieff function of value added and aggregate intermediate input. Value added is a CES function of primary factors (labor, capital, and land) and the aggregate intermediate input is a Leontieff function of disaggregated intermediate inputs.

Domestic output may be sold in the market or consumed at home. Marketed outputs are imperfectly substitutable under a CES function. Activity-specific commodity prices clear the implicit market for each disaggregated commodity. Aggregated domestic output is allocated between domestic consumption and exports through a CET function.

Export demands and supplies are infinitely elastic. Using a CES function, aggregate imported commodities and domestic output are imperfect substitutes in demand (Armington assumption). World import prices are taken as given. Export and import imply the assumption of a small open economy that is a price taker in world markets. In the income and institutions module, the main agents include households, enterprises, the Government, and the rest of the world.

Households get income from factors and transfers from other institutions. Consumption income is the residual after paying taxes, savings, and transfers to other institutions. Households' disposable income is spent according to a Linear Expenditure (LES) demand functions derived from a Stone-Geary utility function. Commodities may be purchased from the market or consumed directly by the household-producer.

A representative producer in each industry (activity) maximizes profits, subject to technology and taking prices as given. They can also get transfers from other institutions. Their total income may be allocated between direct taxes, savings, and transfers to other institutions.

Total government revenue is the aggregate of tax income and transfers from the rest of the world. The Government spends this income on purchasing commodities, and transfers to other institutions. Government consumption is fixed in real terms while transfers to domestic institutions are CPI-indexed, and savings is a residual.

Foreign savings is the difference between foreign currency spending and receipts. Depending on the closure that is used, the trade balance may be fixed or flexible.

Household direct taxes are defined as fixed shares of household income. The rest of taxes are at fixed ad valorem rates. The treatment of taxes may vary according to the closure rule. Taxes may either be held at fixed rates or varied through two alternative mechanisms: uniformly increased by a certain, endogenous, amount of points for selected institutions or endogenously scaled for selected institutions.

Factor returns may vary across activities to accommodate potential influences arising from exogenous causes. There can be three alternative closure rules for factor markets: one in which supplies are inelastic and returns clear the market (full employment), one

in which there is elastic supply and the employment level clears the market (unemployment), and one in which there are segmented markets and activities are forced to fully employ their specific factor. This study adopts the full employment and the unemployment cases (by segmented labor markets).

In the set up of the Ecuador model there are three factors of production: land, capital, and labor. Labor is further classified in six different labor market segments: urban-skilled wage labor, urban-unskilled wage labor, rural-skilled wage labor, rural-unskilled wage labor, urban self-employed workers, and rural self-employed workers.[2]

Closure rules

This study follows standard procedures for calibrating parameters and elasticities of a CGE model. To the extent that they are available, this study uses econometric estimates of elasticities for Ecuador (See tables A1 and A2 in Annex). The calibration procedures include checks such as tests for data replication, tests for parameter weights, Walras' Law, etc.

The following closures reflect both the relevant conditions in the Ecuadorian economy before the shocks and the expected mechanisms by which trade may have an impact on the economy.

Concerning the external balance, as the Ecuadorian economy uses the US dollar as its official currency, the nominal exchange rate is fixed. This study does not adopt the usual closure for the study of short-run impacts on the current account that assumes it fixed, so as to avoid the "free lunch" effect that arises (in a static model) if the foreign savings were allowed to adjust to fill the current account gap. Instead the study allows the current account to vary, as it is difficult to justify a fixed current account in an economic environment that implies adjustments in the main components of the current account (trade flows and remittances). According to the latest balance of payment data, the current account would turn from positive (in 2008) to negative (in 2009) (Table 19). The consumer price index is the numeraire.

For the Government closure, all the tax rates (for households and enterprises) are fixed and government savings vary. Government consumption is fixed in real terms (or as a share of total absorption).[3]

Regarding the savings-investment closure, this study assumes that it is a balanced investment one. In this closure, both nominal absorption *shares* of investment and government consumption are fixed at base levels (flexible quantities). The residual *share* for household consumption is also fixed at base levels (flexible quantities). There is a uniform marginal propensity to save (MPS) point change for selected institutions.[4]

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[2] Skilled wage labor are wage workers with more than primary education. Unskilled labor are wage workers that have primary, less than primary, or none education.

[3] "With regard to government consumption, the (single-period) model does not capture its direct and indirect welfare contributions; to avoid misleading results, it is also preferable in welfare analysis to keep this variable fixed." Lofgren et al (2002), p.16.

[4] Alternatively, the assumption for the change in MPS could be that this is done in a scaled (not point) change for selected institutions. This is just to highlight the point made by Lofgren et al (2002) in which the impacts may vary according to the way the MPS adjusts, either as a point change or in a scale fashion.

As per factors markets, this study assumes that land is not mobile to capture the notion that crops can only be cultivated in land with some agro-ecological requirements, unique for each type of crop (for instance, land that is used to cultivate bananas cannot be used to cultivate flowers). Capital is assumed sector specific.

The closure rules vary according to the two types of additional assumptions regarding factor markets: (i) full employment of all factors and factor returns adjust to clear the markets (the classical trade model closure), and (ii) unemployment in the unskilled salaried labor market segment, both rural and urban –a feature expected to be common in most of the Latin American economies (the classical development theory closure, pointed out by Winters 2000) – while the rest of factor markets clear through changes in returns.

Data

The Social Accounting Matrix available and currently calibrated in the Ecuador model is for the year 2004. The original SAM is from the Central Bank of Ecuador, but it was modified to account for the European Union as a separate region for trade, to show land as a separate factor of production (See Wong and Kulmer 2009), and to separate out the subsidy on fuels. The sectors and the trade data in the SAM are disaggregated sufficiently enough to capture the proposed shocks and simulations in key activities and products for the Ecuadorian economy.

There may be concerns as to the use of the year 2004 as the base year, given that the shocks have indeed happened at the end of the year 2008. The Ecuadorian economy in 2007-2008 is certainly not identical to the one in 2004. One key feature may be the difference in oil prices (and oil revenues for that matter), as already shown in Tables 2 and 3. However a comparison of the 2004 SAM data on exports, imports, remittances, and FDI against data for years 2005-2008 shows the following.

In 2004, for imports, and by sectors, most of the changes in imports stay below 20%, except for two sectors. These sectors are fuels (liquefied petroleum gas, gasoline, diesel; with an 11% share of total imports in 2004) and transport equipment (with a 9% share of total imports in 2004). Although Ecuador is an oil-exporting country, it imports almost all fuels consumed domestically. This sector shows over a 64% increase in imports of fuel from 2004 to 2007. This increase may be explained by the increase in prices rather than by (or more than by) an increase in quantities imported. However, the increase in fuel prices is not passed down to Ecuadorian consumers as an increase in domestic fuel prices. This is because the Ecuadorian government subsidizes the domestic fuel price (that is, Ecuadorians pay fix prices for diesel, gas for cooking, and, with some variability, for gasoline). The other sector that shows a considerable increase in imports from year 2004 to year 2005 is transport equipment, with a 42% annual increase in imports in that period. This may be explained in part by new credit plans for car purchases. With a stable dollarized economy, car import companies and banks started plans to give incentives for car buyers.

On the export side, export shares by commodity have not varied drastically since 2004 (as seen in Table 1), although the oil sector -that is, exports of crude oil- shows an

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This comparison could be interesting if there were changes in taxes, for instance, if the study would be focused on exploring the effects of a tax replacement policy.

important increase in exports, with a 40% annual increase from year 2004 to 2005. The share of oil exports in total exports in 2004 was 50% and in 2008 it reached 57%. Oil revenues, which all go to the Government, have accordingly increased. However, as a share of total government revenue, the oil revenue was 30% in 2004 and 34% in 2008. There are a few other sectors that show some important increases in exports (above 20%), but each of these sectors represents a small share in total exports. These other sectors are forestry (49% increase, and a 0.1% share), dairy products (57% increase, and a 0.004% share), milling (230% increase, and 0.1% share), minerals (44% increase, and 1.1% share), transport equipment (104% increase, and 0.9% share), and machinery (50% increase, and 1.4% share in total exports in 2004).

Regarding remittances, the SAM 2004 was actually constructed taking into account 2005 data for remittances. Totals for remittances are not far off from the real data reported for 2005. Remittances were 6% of total GDP in 2004 and reached 5% of total GDP in 2008. (See Table 8).

Ecuador has not been an important FDI recipient in the last five years. As mentioned in a previous section, as a percentage of GDP, FDIs reached 3% in 2004 and 2% in 2008. The main industry recipients of FDI have been in recent years the oil sector (including mining) and telecommunications. (See Table 9).

In summary, we expect that the choice of year 2004 as the base year not to create severe distortions in the results.

V. RESULTS

In contrast with the scenarios with only shocks, in the scenarios with shocks plus import restrictions as a policy response, both imports and fixed investment decrease. Total imports fall between -1.13 to -1.26%, total fixed investment falls between -0.20 to -0.35% (Tables 24A and 24B). As expected, the largest fall in imports happen in the most protected sectors (beverage -16% to -23%, textiles and apparel -13%, milling -7%) (Table 21). The magnitude of the reductions in real values of imports, in sectors with the highest new tariffs (beverages, textiles, and milling), are along the lines of what we observe in real data (compare Table 21 and Table A3 -in Annex).

In both (the scenarios with shocks, and with shocks plus policy response), total exports fall (between -0.80 to -2.05%, Tables 24A and 24B), although there are differences in performance by sectors: some key sectors grow (bananas), while others fall for the first time in years (flowers, fish). Table 22.[5]

Given that the model is static, with perfect competition, there are small changes in real GDP (in most of the scenarios it is negative –See Tables 24A and 24B). However, Table 23B shows that value added by sector increases more in manufactured sectors that receive protection through higher tariffs (beverages 2% versus 0.6%, other food products 1-62% versus 0.53%, and textiles and apparel 2.14% versus 0.73%), but, at the

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[5] In an scenario that seems comparable, Duran et al (2010) find also small negative effects of the restrictive trade policy measures (although they only include data for trade partners other than Latin American countries) on GDP (-0.90%), imports (-1.50%), exports (-1.50%), and investment (-0.50%). The fall in consumption these authors find (-0.90%) is somewhat larger than the fall we find in our results.

same time, its growth turns negative in some other protected sectors: transportation equipment (-0.31%), and machinery equipment and other manufactured goods (-0.68%).

In the scenarios that include shocks plus policy response, factor income seems to decrease more or increase less than in the scenarios where only the shocks take place. In either case (scenarios with shock, and scenarios with shock plus policy response), skilled wage labor (in both rural and urban areas) are hit negatively: their total income decreases (Tables 25A and 25B).

Similarly, in the scenarios that include the shocks plus the policy response, households' income seems to decrease more or increase less than in the scenarios where only the shocks take place. In either case (scenarios with shock, and scenarios with shock plus policy response), households in the upper quintile of income (in both rural and urban areas) are hit negatively: their income decreases, as shown in Tables 26A and 26B.

An explanation with respect as to why the crisis has negatively affected the skilled wage labor and the income of households in the upper income quintile may lie in the economic activities that the crisis affected (export and import activities), and in the policy response adopted by the government (import restrictions).

Among the economic activities of households that have a higher income level may be export activities and trade (import for domestic trading). In rural areas, farmers with higher income are usually the ones whose production is oriented to export markets, in particular those in the coastal areas (although in the highlands, flowers is a key export activity). In urban areas, coastal cities such as Guayaquil depend heavily on commerce activities. Higher tariffs and quotas adopted by the Government as a response to the crisis, led to a decline in commercial activities. Recent unemployment data shows that one of the hardest hit cities in terms of rise in unemployment rates in 2009 is Guayaquil.

Table 27 shows percentage changes in labor supply, for the scenarios with unemployment in the unskilled wage labor market. In urban areas, with the shock plus the policy response of import restrictions there is a fall in quantity labor supply (scenarios B2 and B3) or less growth (scenario B1) among the unskilled wage labor market. In contrast, the results with only the shocks show that the quantity of labor supply increases, and increases more (scenarios A1-A3).

It is worth mentioning that the simulations were also performed excluding the fall in remittances, and then including the fall in remittances. Comparing these two sets of results there is no noticeable impact from the fall in remittances –at least on an aggregate level. According to a recent study on the impacts of the world economic crisis on remittances to Latin America and the Caribbean (Orozco 2009), the Ecuadorian immigrants who sent remittances seem to be comparatively less affected than others in terms of the amount of remittance sending –at least in the period 2008 and 2009. Over 70 percent of remitters maintain their sending levels in that period.

VI. CONCLUSIONS

This study tries to measure differences in economic impact stemming from different scenarios, as a result of the world economic crisis. The study analyzes two key transmission channels of the crisis: trade and remittances. The scenarios with shocks include these transmission channels: a fall in the world price of oil, and a fall in the

world price of fish products –both are export products of Ecuador; and a fall in the import price of fuels, and fall in remittances. The scenarios with shocks plus policy response add to the shock scenarios higher tariffs. These different scenarios suggest that, in general, the shocks had some negative impacts on the economy: in real terms exports and value added fell, household incomes of the highest income quintile fell, and wages for the skilled wage workers fell. When the effect of import restrictions is added to the shock scenarios, not only do exports and value added fall, but also imports and fixed investment. The fall in the incomes of households in the highest income quintile and skilled wage labor is higher. When unemployment in the unskilled wage labor market segment is assumed, the results are not much different, but they highlight the fall in the quantity supply of labor amongst the urban unskilled wage workers.

The results suggest that welfare impacts of shocks depend on the nature of the policy adopted in response. The results try to highlight differences depending on labor market assumptions (unemployment or not), and try to differentiate between urban and rural impacts, and among different segmented labor markets.

These results are subject to some caveats: a) the results depend on the closure adopted, b) it is hard to calculate a "right" applied tariff (when simulating the policy response of import restrictions), and c) the results come from a static CGE model.

An interesting further research would be to simulate the impacts of the world economic crisis on poverty in Ecuador. According to Acevedo et al (2009), Ecuador (along with Mexico) are the countries with the largest projected losses in per capita GDP for 2009 with the potentially negative impact that that may have on poverty indicators for this country.

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Table 1.- Ecuador: Exports by type of product

| Year | Total exports | Total primary | Commodities | | | | | Total manufactures |
			Oil	Banana	Shrimp & fish	Flowers	Other primary	
Thousand of FOB US$								
2004	7,752,892	6,024,637	3,898,508	1,023,610	363,994	354,817	383,707	1,728,254
2005	10,100,031	7,852,539	5,396,840	1,084,394	506,914	397,907	466,484	2,247,492
2006	12,728,243	9,829,484	6,934,010	1,213,489	649,889	435,842	596,254	2,898,759
2007	14,321,316	10,637,660	7,428,356	1,302,549	708,876	469,424	728,455	3,683,656
2008	18,510,598	14,262,180	10,568,327	1,639,400	787,553	565,662	701,239	4,248,418
2009	13,762,276	10,459,281	6,284,100	1,994,915	794,156	545,801	840,310	3,302,995
% share								
2004	100%	78%	50%	13%	5%	5%	5%	22%
2005	100%	78%	53%	11%	5%	4%	5%	22%
2006	100%	77%	54%	10%	5%	3%	5%	23%
2007	100%	74%	52%	9%	5%	3%	5%	26%
2008	100%	77%	57%	9%	4%	3%	4%	23%
2009	100%	76%	46%	14%	6%	4%	6%	24%
2004-08	100%	77%	53%	10%	5%	4%	5%	23%
growth rate								
2004	-	-	-	-	-	-	-	-
2005	30%	30%	38%	6%	39%	12%	22%	30%
2006	26%	25%	28%	12%	28%	10%	28%	29%
2007	13%	8%	7%	7%	9%	8%	22%	27%
2008	29%	34%	42%	26%	11%	21%	-4%	15%
2009	-26%	-27%	-41%	22%	1%	-4%	20%	-22%

Source: Central Bank of Ecuador and own calculations.

Table 2.- Ecuador: Oil export prices & quantities

| Year | Export Price | | Volume Exported | |
	US$	% change	Number of barrels	% change
2004	30.13	-	192,315	-
2005	41.01	36%	194,172	1%
2006	50.75	24%	195,523	1%
2007	59.86	18%	186,547	-5%
2008	82.95	39%	184,727	-1%
2009	50.94	-39%	177,408	-4%

Source: Central Bank of Ecuador and own calculations.

Table 3.- Oil revenues

| | Million of US$ | | |
Year	Total revenues	Oil revenues	% share
2004	5,179	1,558	30%
2005	6,052	1,567	26%
2006	6,895	1,719	25%
2007	8,490	1,764	21%
2008	13,799	4,642	34%
2004-08			27%
2008 (Jan - Mar)	2,867	976	34%
2008 (Apr - Jun)	3,607	1,593	44%
2009 (Jan - Mar)	2,107	281	13%
2009 (Apr - Jun)	2,847	443	16%

Source: Central Bank of Ecuador and own calculations.

Table 4.- Income shares by area and income quintile [1,2]

Total

Quintiles	Remittances	Transfers	Self-employment	Wages	Agricultural	Total
1	5%	11%	32%	30%	22%	100%
2	5%	6%	29%	45%	15%	100%
3	4%	4%	28%	52%	11%	100%
4	4%	3%	30%	56%	7%	100%
5	3%	2%	35%	53%	6%	100%

Urban

Quintiles	Remittances	Transfers	Self-employment	Wages	Agricultural	Total
1	7%	15%	34%	42%	2%	100%
2	6%	7%	32%	54%	2%	100%
3	5%	4%	31%	58%	1%	100%
4	4%	4%	31%	60%	1%	100%
5	3%	2%	37%	55%	4%	100%

Rural

Quintiles	Remittances	Transfers	Self-employment	Wages	Agricultural	Total
1	3%	10%	32%	22%	33%	100%
2	4%	4%	27%	37%	28%	100%
3	4%	3%	24%	46%	23%	100%
4	3%	3%	26%	48%	20%	100%
5	3%	1%	31%	41%	23%	100%

Source: Own construction using data from Ecuador's Household Survey 2005-2006.
Notes: 1.- Some households also obtain income from small businesses, but this income is not included due to measurement issues. **2.-** Quintile 5 is the highest income quintile.

Table 5.- Domestic Oil Fuel: Revenues (Subsidy), Prices and Import Volume [1]

	Total Oil Fuels					
Year	Volume of Imports (thousand of US$)	Average Import Price [2] (US$/barrel)	Import Cost (thousand of US$)	Average Domestic Sales Price (US$/barrel)	Revenue for Domestic Oil Fuel Sales (thousand of US$)	Difference (Subsidy): Domestic Revenues Sales - Import Cost (thousand of US$)
2004	17,348	47.77	828,727	31.92	553,715	-275,012
2005	22,173	66.50	1,474,438	33.59	744,747	-729,691
2006	25,933	75.26	1,951,688	33.84	877,685	-1,074,003
2007	29,329	83.02	2,434,862	34.38	1,008,472	-1,426,390
2008	27,859	103.30	2,877,952	35.43	987,011	-1,890,941
2009	32,179	69.58	2,239,053	35.85	1,153,694	-1,085,359

Source: Central Bank of Ecuador and own calculations.
Notes: 1.- Volumes of imported goods are registered when they arrive in the country. It considers only Gasoline, Diesel and Liquified Gas Petroleum.
2.- Excluding VAT value, operational costs, tax payments by product nationalization of customs, CORPEI payment value and insurance costs totaling approximately 14.5% of C&F.

Table 6.- Oil Fuel Prices and Import Shares, by type [1]

Year	Total Oil Fuels	Gasoline	Diesel	LGP
Percentage change in Average Import Price				
2005	39%	36%	50%	21%
2006	13%	14%	5%	21%
2007	10%	9%	9%	15%
2008	24%	18%	38%	10%
2009	-33%	-26%	-38%	-37%
Percentage change in Average Domestic Sales Price				
2005	5%	0%	1%	-1%
2006	1%	0%	-2%	1%
2007	2%	0%	1%	4%
2008	3%	0%	5%	11%
2009	1%	0%	-7%	-6%
Share in Import Volume				
2004	100%	27%	32%	41%
2005	100%	27%	37%	36%
2006	100%	24%	44%	33%
2007	100%	27%	40%	33%
2008	100%	27%	40%	33%
2009	100%	29%	42%	28%

Source: Central Bank of Ecuador and own calculations.
Note: 1.- Volumes of imported goods are registered when they arrive in the country. It considers only Gasoline, Diesel and Liquified Gas Petroleum.

Table 7.- Manufacturing Exports: growth in value and volume, and export shares

	SAM	Growth Rates 2008-2009			2008	2009
Product Number	Description	Volume	Total FOB Value	Unit Value	Share in Total Export Value	Share in Total Export Value
10	Meat, meat products and sub products	9%	-14%	-21%	0.01%	0.01%
11	Canned fish and other manufactured aquatic products	-1%	-12%	-11%	8%	10%
12	Oil and fats	12%	-15%	-24%	1%	2%
13	Dairy products	-55%	-55%	1%	0.01%	0.004%
14	Milling and bakery	-1%	11%	12%	0.1%	0.1%
15	Sugar products	-67%	-40%	80%	0.4%	0.3%
16	Alcoholic and non-alcoholic beverages	-4%	1%	5%	0.1%	0.2%
17	Other miscellaneous food products, chocolate and tobacco	4%	9%	5%	2%	2%
18	Textiles and apparel, leather, leather products and footwear	-11%	17%	31%	1%	2%
19	Wood and wooden products	-48%	-59%	-22%	0.2%	0.1%
20	Paper and paper products	8%	-24%	-30%	0.3%	0.3%
21	Chemicals, rubber and plastic	13%	-9%	-19%	1%	1%
22	Metallic and non-metallic mineral products	93%	-25%	-61%	2%	2%
23	Transportation equipment	-8%	-37%	-32%	2%	2%
24	Machinery and equipment, other non-food manufactured goods	-36%	-20%	25%	1%	1%

Source: Corporación de Promoción de las Exportaciones e Inversiones (CORPEI) and own calculations.

Table 8.- Remittances

Year	Millions of US$	% growth	Year	First quarter Millions of US$	First quarter %	Second quarter Millions of US$	Second quarter %	Third quarter Millions of US$	Third quarter %	Fourth quarter Millions of US$	Fourth quarter %	% GDP
2000	1,317	-	2000	290	-	316	-	342	-	369	-	8%
2001	1,415	7%	2001	360	24%	377	19%	350	2%	328	-11%	7%
2002	1,432	1%	2002	321	-11%	338	-10%	365	4%	408	24%	6%
2003	1,627	14%	2003	379	18%	385	14%	407	11%	458	12%	6%
2004	1,832	13%	2004	423	12%	440	14%	456	12%	513	12%	6%
2005	2,422	32%	2005	590	39%	599	36%	610	34%	624	22%	7%
2006	2,928	21%	2006	654	11%	711	19%	762	25%	801	28%	7%
2007	3,088	5%	2007	676	3%	771	9%	815	7%	826	3%	7%
2008	2,822	-9%	2008	760	12%	712	-8%	707	-13%	644	-22%	5%
2009	2,495	-12%	2009	555	-27%	610	-14%	656	-7%	675	5%	5%

Source: Central Bank of Ecuador and own calculations.

Table 9.- Foreign Direct Investment by recipient activity

Recipient activity	2002	2003	2004	2005	2006	2007	2008	2009 [1]
Thousands of US$								
Mining and quarrying	487,458	148,549	385,374	198,345	-116,618	-124,266	243,164	168,070
Trade	70,441	78,144	103,151	72,464	32,303	92,185	116,445	61,169
Transport, storage and communications	23,091	439,097	73,696	17,503	83,324	-52,460	217,169	104,159
Business services, community, social and personal	112,790	72,616	42,055	91,804	118,855	101,259	152,306	7,631
Others	89,481	133,107	232,663	113,297	152,856	177,441	267,229	128,039
Total	**783,261**	**871,513**	**836,940**	**493,414**	**270,720**	**194,159**	**996,313**	**469,069**
GDP	24,899,481	28,635,909	32,642,225	37,186,942	41,763,230	45,789,374	54,685,881	
% share								
Mining and quarrying	62%	17%	46%	40%	-43%	-64%	24%	36%
Trade	9%	9%	12%	15%	12%	47%	12%	13%
Transport, storage and communications	3%	50%	9%	4%	31%	-27%	22%	22%
Business services, community, social and personal	14%	8%	5%	19%	44%	52%	15%	2%
Others	11%	15%	28%	23%	56%	91%	27%	27%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
% GDP	3%	3%	3%	1%	1%	0%	2%	
growth rate								
Mining and quarrying	-	-70%	159%	-49%	-159%	7%	-296%	6%
Trade	-	11%	32%	-30%	-55%	185%	26%	-40%
Transport, storage and communications	-	1802%	-83%	-76%	376%	-163%	-514%	-55%
Business services, community, social and personal	-	-36%	-42%	118%	29%	-15%	50%	-94%
Others	-	49%	75%	-51%	35%	16%	51%	-40%
Total	**-**	**11%**	**-4%**	**-41%**	**-45%**	**-28%**	**413%**	**-44%**
% GDP	-	15%	14%	14%	12%	10%	19%	

Source: Central Bank of Ecuador and own calculations.
Note: 1.- From first to third quarter.

Table 10.- Foreign Direct Investment by country of origin

% share

Origin	2002	2003	2004	2005	2006	2007	2008	2009 [1]
United States	56%	-5%	9%	-16%	-62%	26%	-2%	-7%
Andean Community [2]	3%	-1%	2%	3%	5%	20%	9%	3%
Rest of America [3]	21%	86%	73%	117%	113%	-113%	49%	75%
Europe [4]	16%	18%	13%	0%	33%	119%	40%	17%
Asia [5]	3%	3%	0%	-4%	11%	47%	5%	12%
Oceania [6]	0%	0%	2%	0%	0%	0%	0%	0%
Other countries	0%	0%	0%	0%	0%	1%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: Central Bank of Ecuador and own calculations.
Notes: 1.- From first to third quarter.
2.- Includes Colombia, Bolivia, Peru and Venezuela.
3.- Includes Dutch Antilles, Argentina, Bahamas, Bermudas, Brazil, Canada, Chile, Cayman Islands, Virgin Islands, Mexico, Panama, Uruguay and other countries.
4.- Includes Germany, Belgium and Luxembourg, Denmark, Spain, France, Netherlands, England, Italy, Romania, Sweden, Switzerland and other countries.
5.- Includes China, South Korea, Japan, Taiwan, Israel and other countries.
6.- Includes Australia and other countries.

Table 11.- Unemployment

Percentage change

Year	Annual average	December
2004	10.97	9.88
2005	10.71	9.30
2006	10.13	9.03
2007 [1]	8.78	6.34
2008	6.90	7.50
2009	8.48	7.90

Source: Central Bank of Ecuador and National Institute of Statistics and Census.
Note: 1.- Since September 2007 includes the cities of Machala and Ambato. There is a change in methodology in this year.

Table 12.- Scenarios A: Value of shock simulations

Simulation	A1	A2	A3
Oil world export price	fall 30%	fall 20%	fall 10%
Fuels world import price	fall 25%	fall 15%	fall 5%
Fish products world export price	fall 10%	fall 10%	fall 10%
Remittances	fall 10%	fall 5%	fall 5%

Source: The author.
Note: A sensitivity analysis with the CET not included yet.

Table 13.- Central Government and Non-financial Public Sector, Finance Position

Millions of US$

Year	Central Government Surplus/Deficit	Non-financial Public Sector Surplus/Deficit
2004	-319.21	683.38
2005	-180.44	266.19
2006	-87.69	1,363.35
2007	-63.77	970.13
2008	-614.91	-466.72
2008 - I	232.90	1,243.15
2008 - II	387.15	895.69
2008 - III	463.36	-49.17
2008 - IV	-1,698.31	-2,556.38
2009 - I	-596.11	-849.09
2009 - II	-538.34	-10.84
2009 - III	-477.50	31.96

Source: Central Bank of Ecuador and own calculations.

Table 14.- Ecuador: Import Restrictions 2009

Category	Number of HS [1] lines	Value
Ad Valorem	73	30%, 35%
Specific	283	US$ 10 - US$ 12 per pair US$ 0.10 per kilo US$ 12 per kilo
Quota	271	Depending on the HS line. Total Value permitted: US$ 2,125,439,679
Total	**627**	

Source: Official register from Government No. 512 (January 22, 2009), Resolution 466, and own calculations.
Note 1.- A local variation of the Harmonized System of tariff lines is applied in Ecuador, and it is called "NANDINA". Import restrictions are in addition to any existing tariffs.

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Table 15.- Mapping between the SAM classification and HS lines

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	SAM	Number of HS lines subject to Import Restrictions			
Product Number	Description	Ad Valorem	Specific	Quota	Total
1	Banana, coffee, and cocoa	-	-	-	-
2	Cereals	-	-	-	-
3	Flowers	-	-	-	-
4	Other agricultural products	-	-	8	8
5	Livestock	-	-	3	3
6	Forestry products	-	-	-	-
7	Shrimps	-	-	-	-
8	Raw fish	-	-	1	1
9	Crude oil, mineral products and fuel oils and other oil products	-	-	-	-
10	Meat, meat products and sub products	-	-	3	3
11	Canned fish and other manufactured aquatic products	-	-	-	-
12	Oil and fats	-	-	-	-
13	Dairy products	-	-	-	-
14	Milling and bakery	-	-	15	15
15	Sugar products	4	-	-	4
16	Alcoholic and non-alcoholic beverages	21	-	4	25
17	Other miscellaneous food products, chocolate and tobacco	5	-	14	19
18	Textiles and apparel, leather, leather products and footwear	-	281	27	308
19	Wood and wooden products	14	-	4	18
20	Paper and paper products	-	-	17	17
21	Chemicals, rubber and plastic	7	-	32	39
22	Metallic and non-metallic mineral products	5	2	31	38
23	Transportation equipment	-	-	43	43
24	Machinery and equipment, other non-food manufactured goods	17	-	69	86
25	Transportation services and storage	-	-	-	-
26	Telecommunication and mail services	-	-	-	-
27	Other services	-	-	-	-

Source: Official register from Government No. 512 (January 22, 2009), Resolution 466, and own calculations.

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Table 16.- Distribution of Quota

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	SAM	Number of HS lines subject to Quota	Number of firms with Quota permit	Value of Quota (US$)
Product Number	Description			
4	Other agricultural products	8	202	43,844,186
5	Livestock	3	162	423,551
8	Raw fish	1	4	1,219
10	Meat, meat products and sub products	3	66	7,768,674
14	Milling and bakery	15	365	48,046,626
16	Alcoholic and non-alcoholic beverages	4	114	21,586,908
17	Other miscellaneous food products, chocolate and tobacco	14	480	53,774,622
18	Textiles and apparel, leather, leather products and footwear	27	9,583	30,826,704
19	Wood and wooden products	6	2,962	12,419,111
20	Paper and paper products	17	7,628	81,560,513
21	Chemicals, rubber and plastic	32	11,605	267,336,572
22	Metallic and non-metallic mineral products	31	5,426	46,059,206
23	Transportation equipment	43	6,155	1,178,013,539
24	Machinery and equipment, other non-food manufactured goods	67	27,196	230,356,317

Source: Consejo de Comercio Exterior e Inversiones (COMEXI), Resolution 467.

Table 17.- Ecuador: Import Restrictions for Colombia

Category	Number of HS [1] lines	Value
Ad Valorem	60	30%, 35%
Specific	283	US$ 10 - US$ 12 per pair US$ 0.10 per kilo US$ 12 per kilo
Quota	181	Depending on the HS line. Total Value permitted: US$ 2,125,439,679
Ad Valorem (MFN)	*822*	*5% - 20%*
Total	**1346**	

Table 18.- Ecuador: Imports by economic use

Year	Total imports	Consumption goods	Oil products	Inputs	Capital goods
Thousands of CIF US$					
2004	8,226,264	2,191,384	1,138,417	2,839,523	2,055,475
2005	10,286,884	2,511,641	1,814,605	3,241,816	2,713,118
2006	12,113,560	2,763,979	2,541,334	3,804,389	3,002,127
2007	13,893,462	3,099,181	2,765,289	4,514,037	3,511,785
2008	18,685,546	4,113,632	3,391,624	6,397,490	4,767,665
2009	15,093,163	3,240,133	2,639,419	5,021,131	4,120,143
% share					
2004	100%	27%	14%	35%	25%
2005	100%	24%	18%	32%	26%
2006	100%	23%	21%	31%	25%
2007	100%	22%	20%	32%	25%
2008	100%	22%	18%	34%	26%
2009	100%	21%	17%	33%	27%
growth rate					
2004	-	-	-	-	-
2005	25%	15%	59%	14%	32%
2006	18%	10%	40%	17%	11%
2007	15%	12%	9%	19%	17%
2008	34%	33%	23%	42%	36%
2009	-19%	-21%	-22%	-22%	-14%

Thousands of kilos (volume)

total

2004	2005	2006	2007	2008	2009
6,965,799	8,449,373	10,073,930	10,843,704	11,355,414	11,260,069

growth rate

2004	2005	2006	2007	2008	2009
-	21%	19%	8%	5%	-1%

Table 19.- Applied Tariffs

SAM Sector	Product	Applied Tariffs (base)				New Applied Tariffs rate			
		Tariff USA (%)	Tariff EU (%)	Tariff Rest of the World (%)	Tariff Andean Community (%)	Tariff USA (%)	Tariff EU (%)	Tariff Rest of the World (%)	Tariff Andean Community (%)
1	Banana, coffee, and cocoa				0				
2	Cereals	5.0	15.0	6.0	0				
3	Flowers	0.8	0.4	2.4	0				
4	Other agricultural products	5.7	10.4	2.7	0	5.9	13.3	2.8	5.9
5	Livestock	2.2	8.7	0.3	0	2.2	9.7	0.3	2.2
6	Forestry products	7.6	14.0	1.4	0				
7	Shrimps				0				
8	Raw fish	1.9		6.5	0	2.6		6.5	2.6
9	Crude oil, mineral products and fuel oils and other oil products	0.8	0.8	0.3	0				
10	Meat, meat products and sub products	9.6	17.1	8.2	0	9.9	19.0	8.4	9.9
11	Canned fish and other manufactured aquatic products	2.3	19.0	2.5	0				
12	Oil and fats	2.2	16.9	1.8	0				
13	Dairy products	31.9	17.9	4.1	0				
14	Milling and bakery	19.5	11.1	0.4	0	21.5	12.1	0.4	21.5
15	Sugar products	1.0	0.5		0	1.4	0.7		1.4
16	Alcoholic and non-alcoholic beverages	27.2	19.8	8.6	0	42.8	42.9	19.3	43.0
17	Other miscellaneous food products, tobacco	20.1	15.0	4.9	0	21.9	18.6	5.6	21.9
18	Textiles and apparel, leather, leather products and footwear	21.3	1.8	18.7	0	34.9	34.8	34.9	35.0
19	Wood and wooden products	17.0	5.7	9.6	0	20.8	7.2	14.0	21.0
20	Paper and paper products	6.5	12.5	0.1	0	6.8	13.1	0.1	6.7
21	Chemicals, rubber and plastic	6.6	8.6	5.1	0			5.6	
22	Metallic and non-metallic mineral products	9.1	11.5	4.0	0			4.2	
23	Transportation equipment	17.5	13.1	15.0	0				
24	Machinery and equip., other non-food manufactured	5.9	9.5	9.4	0	6.2	10.1	10.0	6.2
25	Transportation services and storage				0				
26	Telecommunication and mail services				0				
27	Other services				0				

Source: For the baseline: Social Accounting Matrix 2004. For the policy response: Own estimations. CAN is applied at the same rate as in the USA.

Table 20.- Ecuador: Current Account Balance

Year	Million of US$
2000	920.50
2001	-549.80
2002	-1,177.80
2003	-424.34
2004	-564.47
2005	275.00
2006	1,617.50
2007	1,650.26
2008	1,120.44
2008 I	1,270.36
2008 II	1,327.29
2008 III	65.29
2008 IV	-1,542.62
2009 I	-884.03
2009 II	105.63
2009 III	351.30

Source: Central Bank of Ecuador and own calculations.

Table 21.- Quantity of imports / Selected sectors
Percentage change

Description	Base Millions of US$	Simulation A: Shocks due to the Crisis [1,2]					
		Scenario A1		Scenario A2		Scenario A3	
		Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
Other agricultural products	89.00	1.04	1.09	0.70	0.72	0.39	0.42
Livestock	11.60	1.88	1.98	1.26	1.31	0.75	0.80
Crude oil, mineral products and fuel oils and other oil products	1,055.34	-2.44	-2.31	-2.32	-2.26	-2.16	-2.13
Milling and bakery products	**36.74**	**1.65**	**1.70**	**1.15**	**1.17**	**0.71**	**0.73**
Alcoholic and non-alcoholic beverages	**60.55**	**1.34**	**1.42**	**0.91**	**0.96**	**0.57**	**0.62**
Other miscellaneous food products, chocolate and tobacco	188.42	0.81	0.84	0.53	0.54	0.29	0.30
Textiles and apparel, leather, leather products and footwear	**433.62**	**0.92**	**0.99**	**0.62**	**0.66**	**0.43**	**0.45**
Wood and wooden products	16.23	-0.22	-0.10	-0.40	-0.33	-0.75	-0.61
Paper and paper products	331.57	0.30	0.36	0.10	0.13	-0.01	0.00

Description	Base Millions of US$	Simulation B: Shocks + policy response due to the Crisis [1,2]					
		Scenario B1		Scenario B2		Scenario B3	
		Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
Other agricultural products	89.00	0.54	0.55	0.20	0.20	-0.10	0.02
Livestock	11.60	1.06	1.09	0.49	0.46	0.01	0.13
Crude oil, mineral products and fuel oils and other oil products	1,055.34	-1.99	-1.96	-1.87	-1.89	-1.71	-1.77
Milling and bakery products	**36.74**	**-6.66**	**-6.67**	**-7.12**	**-7.13**	**-7.51**	**-7.32**
Alcoholic and non-alcoholic beverages	**60.55**	**-22.53**	**-22.52**	**-22.83**	**-22.85**	**-23.09**	**-16.02**
Other miscellaneous food products, chocolate and tobacco	188.42	-3.85	-4.01	-4.26	-4.27	-4.48	-4.31
Textiles and apparel, leather, leather products and footwear	**433.62**	**-12.91**	**-12.89**	**-13.15**	**-13.16**	**-13.29**	**-12.80**
Wood and wooden products	16.23	-7.33	-7.28	-7.51	-7.49	-7.85	-6.69
Paper and paper products	331.57	-1.30	-1.28	-1.48	-1.49	-1.59	-1.54

Source: Own calculations.
Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile and two alternative scenarios: Full employment and unemployment in the unskilled wage worker labor market segment.
2.- Scenario A1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and 10% fall in remittances. Scenario A2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario A3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario B1: the same as scenario A1 plus higher tariffs. Scenario B2: the same as scenario A2 plus higher tariffs. Scenario B3: the same as scenario A3 plus higher tariffs. The new tariffs applied (higher than those in the baseline) are listed in Table 19.

Table 22.- Quantity of exports / Selected sectors
Percentage change

Description	Base Millions of US$	Simulation A: Shocks due to the Crisis [1,2]					
		Scenario A1		Scenario A2		Scenario A3	
		Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
Banana, coffee, and cocoa	1,144.73	0.41	0.58	0.29	0.42	0.10	0.25
Cereals	6.14	0.62	0.66	0.37	0.41	0.12	0.16
Flowers	356.41	-1.42	-1.20	-0.96	-0.82	-0.68	-0.55
Crude oil, mineral products and fuel oils and other oil products	4,406.41	-4.41	-4.42	-2.64	-2.66	-1.49	-1.50
Canned fish and other manufactured aquatic products	462.92	-7.19	-7.15	-7.39	-7.37	-7.57	-7.56
Milling and bakery products	5.38	0.18	0.22	0.00	0.02	-0.17	-0.15
Alcoholic and non-alcoholic beverages	11.95	-0.10	-0.11	-0.07	-0.08	-0.07	-0.08
Other miscellaneous food products, chocolate and tobacco	300.69	0.51	0.57	0.33	0.37	0.14	0.18
Textiles and apparel, leather, leather products and footwear	107.13	0.38	0.40	0.27	0.28	0.14	0.15
Wood and wooden products	81.74	0.44	0.44	0.37	0.36	0.38	0.35

Description	Base Millions of US$	Simulation B: Shocks + policy response due to the Crisis [1,2]					
		Scenario B1		Scenario B2		Scenario B3	
		Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
Banana, coffee, and cocoa	1,144.73	1.47	1.66	1.34	1.49	1.15	1.19
Cereals	6.14	0.62	0.67	0.37	0.42	0.12	0.19
Flowers	356.41	-1.33	-1.19	-0.91	-0.84	-0.66	-0.60
Crude oil, mineral products and fuel oils and other oil products	4,406.41	-4.32	-4.32	-2.66	-2.65	-1.57	-1.55
Canned fish and other manufactured aquatic products	462.92	-6.93	-6.92	-7.13	-7.14	-7.31	-7.35
Milling and bakery products	5.38	0.47	0.51	0.31	0.32	0.14	0.15
Alcoholic and non-alcoholic beverages	11.95	-0.47	-0.47	-0.45	-0.44	-0.45	-0.22
Other miscellaneous food products, chocolate and tobacco	300.69	0.76	0.80	0.57	0.61	0.38	0.34
Textiles and apparel, leather, leather products and footwear	107.13	0.56	0.57	0.44	0.45	0.32	0.31
Wood and wooden products	81.74	0.39	0.38	0.33	0.32	0.35	0.32

Source: Own calculations.
Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile and two alternative scenarios: Full employment and unemployment in the unskilled wage worker labor market segment.
2.- Scenario A1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and 10% fall in remittances. Scenario A2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario A3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario B1: the same as scenario A1 plus higher tariffs. Scenario B2: the same as scenario A2 plus higher tariffs. Scenario B3: the same as scenario A3 plus higher tariffs. The new tariffs applied (higher than those in the baseline) are listed in Table 19.

Table 23A.- Quantity of aggregate value added
Percentage change

Description	Base Millions of US$	Simulation A: Shocks due to the Crisis [1,2]					
		Scenario A1		Scenario A2		Scenario A3	
		Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
Banana, coffee, and cocoa production	523.77	0.57	0.77	0.39	0.55	0.14	0.32
Cereals crop	158.29	1.51	1.57	0.93	0.97	0.38	0.44
Flowers production	346.00	-1.25	-1.05	-0.84	-0.72	-0.58	-0.46
Other agricultural production	292.74	1.46	1.49	0.97	1.00	0.51	0.55
Livestock production	512.67	0.97	0.99	0.65	0.67	0.34	0.37
Forestry production	229.00	0.52	0.54	0.38	0.39	0.27	0.27
Shrimps farming	283.56	-0.09	-0.09	-0.04	-0.04	-0.02	-0.03
Raw fish farming	207.28	-1.48	-1.37	-2.19	-2.14	-2.78	-2.74
Crude oil, mineral products and fuel oils and other oil production	4,326.28	-2.34	-2.31	-1.19	-1.18	-0.44	-0.44
Meat, meat products and sub products	213.75	0.90	0.92	0.61	0.62	0.34	0.35
Canned fish and other manufactured aquatic products	265.13	-6.54	-6.49	-6.77	-6.75	-6.98	-6.96
Oil and fats	86.25	1.18	1.21	0.75	0.77	0.38	0.40
Dairy products	150.25	0.59	0.62	0.40	0.42	0.22	0.24
Milling and bakery	149.83	1.11	1.16	0.68	0.71	0.30	0.33
Sugar products	107.84	0.97	1.03	0.65	0.69	0.35	0.40
Alcoholic and non-alcoholic beverages	177.95	0.60	0.62	0.40	0.42	0.23	0.25
Other miscellaneous food products, chocolate and tobacco	171.97	0.53	0.59	0.36	0.41	0.18	0.23
Textiles and apparel, leather, leather products and footwear o	532.98	0.72	0.77	0.49	0.52	0.31	0.32
Wood and wooden production	340.63	0.40	0.42	0.30	0.31	0.25	0.24
Paper and paper production	194.77	0.60	0.64	0.30	0.32	0.07	0.07
Chemicals, rubber and plastic production	286.71	0.78	0.83	0.54	0.57	0.30	0.33
Metallic and non-metallic mineral products	246.13	1.59	1.74	1.13	1.21	0.86	0.91
Transportation equipment	100.30	0.06	0.09	0.05	0.07	0.08	0.07
Machinery and equipment, other non-food manufactured goods	85.42	0.10	0.23	0.09	0.16	0.10	0.14
Transportation services and storage	2,672.29	1.06	1.15	0.76	0.80	0.56	0.59
Telecommunication and mail services	1,073.51	0.11	0.11	0.07	0.07	0.05	0.05
Other services	17,271.40	0.17	0.19	0.12	0.13	0.08	0.09

Source: Own calculations.
Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile and two alternative scenarios: Full employment and unemployment in the unskilled wage worker labor market segment.
2.- Scenario A1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and 10% fall in remittances. Scenario A2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario A3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances.

Table 23B.- Quantity of aggregate value added
Percentage change

Description	Base Millions of US$	Simulation B: Shocks + policy response due to the Crisis [1,2]					
		Scenario B1		Scenario B2		Scenario B3	
		Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
Banana, coffee, and cocoa production	523.77	1.84	2.06	1.65	1.83	1.39	1.44
Cereals crop	158.29	1.54	1.59	0.97	1.00	0.43	0.52
Flowers production	346.00	-1.24	-1.13	-0.87	-0.81	-0.64	-0.58
Other agricultural production	292.74	1.18	1.21	0.71	0.73	0.25	0.33
Livestock production	512.67	0.50	0.50	0.18	0.18	-0.13	-0.07
Forestry production	229.00	0.78	0.78	0.64	0.64	0.54	0.49
Shrimps farming	283.56	0.18	0.19	0.22	0.23	0.23	0.19
Raw fish farming	207.28	-1.29	-1.27	-1.99	-2.01	-2.56	-2.59
Crude oil, mineral products and fuel oils and other oil production	4,326.28	-2.11	-2.11	-1.04	-1.05	-0.34	-0.35
Meat, meat products and sub products	213.75	0.47	0.48	0.18	0.18	-0.09	-0.04
Canned fish and other manufactured aquatic products	265.13	-6.31	-6.30	-6.53	-6.55	-6.74	-6.78
Oil and fats	86.25	1.30	1.31	0.88	0.88	0.52	0.52
Dairy products	150.25	0.21	0.22	0.02	0.02	-0.16	-0.11
Milling and bakery	149.83	1.11	1.13	0.70	0.70	0.32	0.37
Sugar products	107.84	1.06	1.08	0.75	0.75	0.46	0.45
Alcoholic and non-alcoholic beverages	177.95	2.00	2.00	1.81	1.81	1.64	1.16
Other miscellaneous food products, chocolate and tobacco	171.97	1.60	1.68	1.45	1.49	1.27	1.20
Textiles and apparel, leather, leather products and footwear	532.98	2.14	2.15	1.91	1.91	1.73	1.69
Wood and wooden production	340.63	0.64	0.64	0.54	0.53	0.50	0.44
Paper and paper production	194.77	0.88	0.88	0.58	0.57	0.36	0.33
Chemicals, rubber and plastic production	286.71	0.88	0.91	0.63	0.64	0.40	0.40
Metallic mineral products and non-metallic production	246.13	2.19	2.22	1.76	1.73	1.51	1.42
Transportation equipment	100.30	-0.31	-0.29	-0.32	-0.32	-0.29	-0.29
Machinery and equipment, other non-food manufactured goods	85.42	-0.68	-0.64	-0.69	-0.71	-0.69	-0.64
Transportation services and storage	2,672.29	1.30	1.33	1.01	1.00	0.83	0.80
Telecommunication and mail services	1,073.51	0.05	0.06	0.02	0.02	0.00	0.00
Other services	17,271.40	0.01	0.01	-0.04	-0.04	-0.08	-0.06

Source: Own calculations.
Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile and two alternative scenarios: Full employment and unemployment in the unskilled wage worker labor market segment.
2.- Scenario B1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and 10% fall in remittances. Scenario B2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario B3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Each of these scenarios also includes higher tariffs for selected commodities, as shown in Table 19.

Table 24A.- Real GDP
Percentage change

	Simulation A: Shocks due to the Crisis [1,2]					
	Scenario A1		Scenario A2		Scenario A3	
Variable	Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
Absorption	0.56	0.59	0.38	0.40	0.26	0.27
Private consumption	**0.76**	**0.82**	**0.52**	**0.55**	**0.36**	**0.38**
Fixed investment	**0.25**	**0.27**	**0.17**	**0.18**	**0.10**	**0.11**
Exports	-2.36	-2.32	-1.56	-1.53	-1.06	-1.03
Imports	**0.06**	**0.11**	**-0.02**	**0.01**	**-0.07**	**-0.05**
GDP (value added)	-0.10	-0.06	-0.03	-0.01	-0.01	0.01
GDP (factor cost)	-0.10	-0.06	-0.03	-0.01	-0.01	0.01

Source: Own calculations.
Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile and two alternative scenarios: Full employment and unemployment in the unskilled wage worker labor market segment.
2.- Scenario A1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and 10% fall in remittances. Scenario A2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario A3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances.

Table 24B.- Real GDP
Percentage change

	Simulation B: Shocks + policy response due to the Crisis [1,2]					
	Scenario B1		Scenario B2		Scenario B3	
Variable	Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
Absorption	0.09	0.10	-0.07	-0.08	-0.19	-0.15
Private consumption	**0.21**	**0.22**	**-0.02**	**-0.03**	**-0.17**	**-0.13**
Fixed investment	**-0.21**	**-0.20**	**-0.29**	**-0.29**	**-0.35**	**-0.32**
Exports	-2.05	-2.02	-1.30	-1.28	-0.84	-0.84
Imports	**-1.14**	**-1.13**	**-1.22**	**-1.22**	**-1.26**	**-1.16**
GDP (value added)	-0.13	-0.12	-0.07	-0.07	-0.05	-0.04
GDP (factor cost)	-0.08	-0.07	-0.03	-0.02	-0.01	0.00

Source: Own calculations.
Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile and two alternative scenarios: Full employment and unemployment in the unskilled wage worker labor market segment.
2.- Scenario B1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and 10% fall in remittances. Scenario B2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario B3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Each of these scenarios also includes higher tariffs for selected commodities, as shown in Table 19.

Table 25A.- Factor Income
Percentage change

| | | Simulation A: Shocks due to the Crisis [1,2] | | | | | |
| | | Scenario A1 | | Scenario A2 | | Scenario A3 | |
Labor market	Factor type	Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
LABOR							
	Urban						
	Unskilled wage labor	0.31	0.38	0.15	0.19	0.12	0.14
	Skilled wage labor	-0.56	-0.44	-0.29	-0.22	0.05	0.09
	Self-employment	0.70	0.82	0.47	0.53	0.40	0.44
	Rural						
	Unskilled wage labor	0.21	0.29	0.19	0.22	0.22	0.24
	Skilled wage labor	-0.40	-0.27	-0.15	-0.08	0.15	0.20
	Self-employment	1.01	1.14	0.63	0.70	0.41	0.46
CAPITAL		-20.85	-20.61	-13.84	-13.71	-6.31	-6.25
LAND		1.62	1.79	1.08	1.19	0.60	0.71

Source: Own calculations.
Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile and two alternative scenarios: Full employment and unemployment in the unskilled wage worker labor market segment.
2.- Scenario A1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and 10% fall in remittances. Scenario A2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario A3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances.

Table 25B.- Factor Income
Percentage change

| | | Simulation B: Shocks + policy response due to the Crisis [1,2] | | | | | |
| | | Scenario B1 | | Scenario B2 | | Scenario B3 | |
Labor market	Factor type	Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
LABOR							
	Urban						
	Unskilled wage labor	0.04	0.07	-0.09	-0.09	-0.11	-0.08
	Skilled wage labor	-0.93	-0.90	-0.64	-0.66	-0.29	-0.27
	Self-employment	0.30	0.33	0.11	0.08	0.06	0.08
	Rural						
	Unskilled wage labor	0.29	0.28	0.28	0.23	0.33	0.27
	Skilled wage labor	-0.69	-0.66	-0.43	-0.45	-0.12	-0.10
	Self-employment	0.68	0.71	0.34	0.32	0.14	0.17
CAPITAL		-20.01	-19.96	-12.89	-12.95	-5.28	-5.45
LAND		1.77	1.87	1.25	1.29	0.78	0.81

Source: Own calculations.
Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile and two alternative scenarios: Full employment and unemployment in the unskilled wage worker labor market segment.
2.- Scenario B1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and 10% fall in remittances. Scenario B2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario B3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Each of these scenarios also includes higher tariffs for selected commodities, as shown in Table 19.

Table 26A.- Household Income
Percentage change

| | Base | Simulation A: Shocks due to the Crisis [1,2] | | | | | |
| | Millions | Scenario A1 | | Scenario A2 | | Scenario A3 | |
Description	of US$	Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
Urban							
Quintil 1	1,400.18	3.68	3.74	2.34	2.37	1.43	1.30
Quintil 2	1,820.25	3.40	3.45	2.18	2.21	1.27	1.19
Quintil 3	2,477.64	2.07	2.12	1.36	1.39	0.71	0.75
Quintil 4	3,567.43	1.02	1.07	0.71	0.74	0.35	0.43
Quintil 5	7,036.24	-1.13	-1.07	-0.71	-0.69	0.08	-0.07
Rural							
Quintil 1	485.99	3.17	3.24	2.01	2.05	1.15	1.10
Quintil 2	631.79	2.54	2.61	1.65	1.68	0.85	0.88
Quintil 3	859.96	2.58	2.63	1.71	1.74	0.71	0.84
Quintil 4	1,238.22	2.34	2.38	1.65	1.67	0.24	0.66
Quintil 5	2,442.21	-1.43	-1.36	-0.81	-0.77	-0.75	-0.41

Source: Own calculations.
Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile and two alternative scenarios: Full employment and unemployment in the unskilled wage worker labor market segment.
2.- Scenario A1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and 10% fall in remittances. Scenario A2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario A3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances.

Table 26B.- Household Income
Percentage change

| | Base | Simulation B: Shocks + policy response due to the Crisis [1,2] | | | | | |
| | Millions | Scenario B1 | | Scenario B2 | | Scenario B3 | |
Description	of US$	Full employment	Unemployment	Full employment	Unemployment	Full employment	Unemployment
Urban							
Quintil 1	1,400.18	2.98	3.00	1.66	1.66	0.77	0.69
Quintil 2	1,820.25	2.70	2.71	1.50	1.49	0.61	0.58
Quintil 3	2,477.64	1.43	1.44	0.74	0.74	0.11	0.19
Quintil 4	3,567.43	0.43	0.44	0.13	0.12	-0.22	-0.10
Quintil 5	7,036.24	-1.79	-1.78	-1.37	-1.38	-0.57	-0.68
Rural							
Quintil 1	485.99	2.67	2.69	1.54	1.53	0.70	0.66
Quintil 2	631.79	2.10	2.11	1.22	1.20	0.44	0.48
Quintil 3	859.96	2.13	2.14	1.28	1.27	0.29	0.44
Quintil 4	1,238.22	1.87	1.87	1.19	1.18	-0.20	0.23
Quintil 5	2,442.21	-1.75	-1.73	-1.11	-1.12	-1.04	-0.70

Source: Own calculations.
Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile and two alternative scenarios: Full employment and unemployment in the unskilled wage worker labor market segment.
2.- Scenario B1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and 10% fall in remittances. Scenario B2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Scenario B3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and 5% fall in remittances. Each of these scenarios also includes higher tariffs for selected commodities, as shown in Table 19.

Table 27.- Percentage change in Factor Supply

Labor market	Factor type	Simulation A: Shocks due to the Crisis [1,2]		
		Assuming Unemployment in the unskilled wage labor market		
		Scenario A1	Scenario A2	Scenario A3
LABOR				
	Urban Unskilled wage labor	0.38	0.19	0.15
	Rural Unskilled wage labor	0.29	0.22	0.24

| Labor market | Factor type | Simulation B: Shocks + policy response due to the Crisis [1,2] | | |
		Assuming Unemployment in the unskilled wage labor market		
		Scenario B1	Scenario B2	Scenario B3
LABOR				
	Urban Unskilled wage labor	0.07	-0.09	-0.08
	Rural Unskilled wage labor	0.28	0.23	0.27

Source: Own calculations.

Notes: 1.- For all scenarios the closures include: (i) External Account: Flexible current account. Fixed real exchange rate. (ii) Government: Flexible savings, flexible income, fixed expenditure. (iii) Savings Investment Balance: balanced investment point share adjustment. (iv) Factor markets: land and capital sector specific. Labor mobile.

2.- Scenario B1: 30% fall in oil world price; 25% fall in fuels world import price; 10% fall in fish products world export price; and, a 10% fall in remittances. Scenario B2: 20% fall in oil world price; 15% fall in fuels world import price; 10% fall in fish products world export price; and, a 5% fall in remittances. Scenario B3: 10% fall in oil world price; 5% fall in fuels world import price; 10% fall in fish products world export price; and, a 5% fall in remittances. Each of these scenarios also includes higher tariffs (than in the baseline) for selected commodities, as shown in Table 19.

Figure 1.- Nominal Exchange Rate 2008-2009
Selected Countries
Base Index July 2008=100
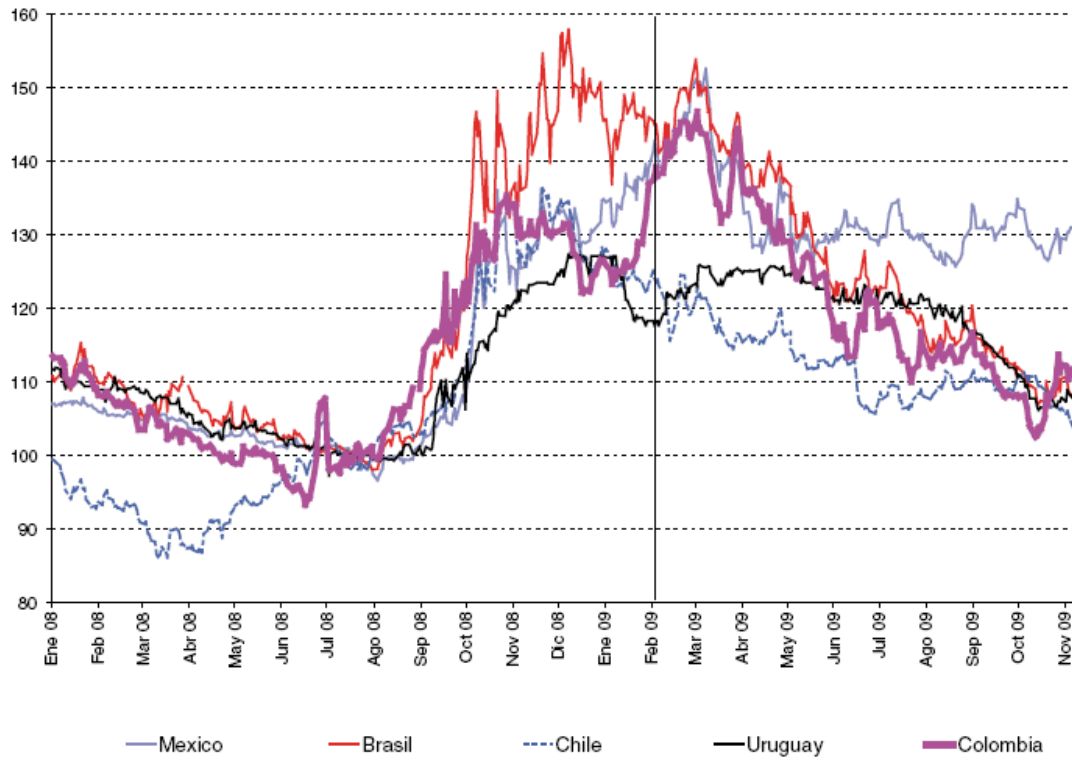
Source: ECLAC 2009, p. 60.

Annex.- Elasticities used in the CGE model

Table A1.- Ecuador: CET, CES, and Production Elasticities

No.	Product	Export Supply Elasticities - CET [1,2]	Armington Elasticities - CES [3,4,5,6]	Production Elasticities [7,8]
1	Banana, coffee, and cocoa	0.4	0.8	0.6
2	Cereals	0.6	0.99	0.8
3	Flowers	0.8	0.8	0.8
4	Other agricultural products	0.6	0.317	0.8
5	Livestock	1	1.349	0.8
6	Forestry products	0.6	0.8	0.8
7	Shrimps	1.5	1.2	0.8
8	Raw fish	0.2	1.001	0.8
9	Crude oil, mineral products and fuel oils and other oil products	1.3	0.8	0.2
10	Meat, meat products and sub products	0.6	1.001	0.8
11	Canned fish and other manufactured aquatic products	0.2	1.001	0.8
12	Oil and fats	1.3	0.8	0.8
13	Dairy products	0.9	0.782	0.8
14	Milling and bakery	0.9	0.99	0.8
15	Sugar products	0.9	0.782	0.8
16	Alcoholic and non-alcoholic beverages	0.9	1.319	0.8
17	Other miscellaneous food products, chocolate and tobacco	0.9	0.782	0.9
18	Textiles and apparel, leather, leather products and footwear	0.5	0.93	0.9
19	Wood and wooden products	0.5	2.383	0.8
20	Paper and paper products	0.5	0.763	0.8
21	Chemicals, rubber and plastic	0.5	0.371	0.8
22	Metallic and non-metallic mineral products	0.5	0.612	0.8
23	Transportation equipment	0.5	0.482	0.8
24	Machinery and equipment, other non-food manufactured goods	0.6	0.482	0.6
25	Transportation services and storage	1	0.534	0.9
26	Telecommunication and mail services	1	0.825	0.95
27	Other services	0.2	0.2	0.9

Source: Cho, S, and J. Díaz (2006) "Trade Liberalization in Latin America and Eastern Europe: The Cases of Ecuador and Slovenia". Table 4.5, p. 13. Vos, R., and N. DeJong (2003), "Trade Liberalization and Poverty in Ecuador: a CGE Macro-Microsimulation Analysis". Economic Systems Research, Vol. 15, No. 2, June 2003. Table A.1, p. 230. Wong, S., and M. González (2005) "Elasticidades de Substitución de Importaciones para Ecuador". Revista Tecnológica ESPOL, Vol 18, No. 1, October 2005. Table No. A3, p. 180.
Notes: 1.-Data for products number 1, 3, 7, 10, 17, 24-27 from Vos and DeJong (2003). 2.-Data for the rest of products are assumptions for Ecuador using reference data from other countries. 3.-Data for products number 1, 3, 6, 9 and 18 from Cho and Díaz (2006). 4.- Data for products number 7 and 27 from Vos and DeJong (2003). 5.-Data for product number 12 is an assumption for Ecuador using reference data for other countries. 6.-Data for the rest of the products from Wong and González (2005). 7.-Data for products number 1, 3, 7, 9, 10, 17, 24-27 from Vos and DeJong (2003). 8.-Data for the rest of products are assumptions for Ecuador using reference data from other countries.

Table A2.- Ecuador: Household Consumption Elasticities [1,2,3]

No.	Product	Rural		Urban		
		Agriculture	Non-agriculture	High education	Medium level education	Low education
1	Banana, coffee, and cocoa	0.87	0.84	0.81	0.83	0.88
2	Cereals	0.87	0.84	0.81	0.83	0.88
3	Flowers	1.5	1.5	1.2	1.2	1.2
4	Other agricultural products	0.87	0.84	0.81	0.83	0.88
5	Livestock	0.87	0.84	0.81	0.83	0.88
6	Forestry products	1.5	1.5	1.2	1.2	1.2
7	Shrimps	0.87	0.84	0.81	0.83	0.88
8	Raw fish	0.87	0.84	0.81	0.83	0.88
9	Crude oil, mineral products and fuel oils and other oil products	1.02	0.98	0.72	0.74	0.78
10	Meat, meat products and sub products	0.87	0.84	0.71	0.73	0.77
11	Canned fish and other manufactured aquatic products	0.87	0.84	0.71	0.73	0.77
12	Oil and fats	0.87	0.84	0.71	0.73	0.77
13	Dairy products	0.87	0.84	0.71	0.73	0.77
14	Milling and bakery	0.87	0.84	0.71	0.73	0.77
15	Sugar products	0.87	0.84	0.71	0.73	0.77
16	Alcoholic and non-alcoholic beverages	0.87	0.84	0.71	0.73	0.77
17	Other miscellaneous food products, chocolate and tobacco	0.85	0.81	0.66	0.74	0.78
18	Textiles and apparel, leather, leather products and footwear	1.27	1.22	1.12	1.15	1.22
19	Wood and wooden products	1.27	1.22	1.12	1.15	1.22
20	Paper and paper products	1.27	1.22	1.12	1.15	1.22
21	Chemicals, rubber and plastic	1.27	1.22	1.12	1.15	1.22
22	Metallic and non-metallic mineral products	1.27	1.22	1.12	1.15	1.22
23	Transportation equipment	1.27	1.22	1.12	1.15	1.22
24	Machinery and equipment, other non-food manufactured goods	1.27	1.22	1.12	1.15	1.22
25	Transportation services and storage	1.02	0.98	0.72	0.74	0.78
26	Telecommunication and mail services	1.11	1.07	1.13	1.17	1.23
27	Other services	1.02	0.98	0.72	0.74	0.78

Source: Vos, R., and De Jong, N., (2003), "Trade Liberalization and Poverty in Ecuador: a CGE Macro-Microsimulation Analysis". Economic Systems Research, Vol. 15, No. 2, June 2003. Table A.1, p. 230.
Notes: 1.-Data for products number 1, 3, 7, 9, 10, 17, 24-27 from Vos and DeJong (2003). 2.-Data for the rest of products are assumptions for Ecuador using reference data from other countries. 3.-In the Ecuador CGE model rural and urban households are each divided by income quintile. For rural household the elasticities for agriculture are applied to households in the last four income quintile categories, and elasticities for non-agriculture are applied to households in the highest income quintile. For urban households, the elasticities for low education are applied to households in the last two income quintile categories, the elasticities for medium level education are applied to the third and fourth income quintile categories, and the elasticities for high education are applied to the households in the highest income quintile.

Table A3.- Imports of manufactured products

SAM Sector	Description	Growth rates 2008-2009 (percentage)		
		Quantity (Kgs)	Value (CIF)	Value (CIF) / Quantity (Kg)
14	**Milling and bakery products**	**-10.15**	**-20.17**	**-11.16**
16	**Alcoholic and non-alcoholic beverages**	**-25.36**	**-35.83**	**-14.03**
17	Other miscellaneous food products, chocolate and tobacco	-1.32	-5.81	-4.56
18	**Textiles and apparel, leather, leather products and footwear**	**-27.90**	**-32.98**	**-7.05**
19	Wood and wooden products	-23.38	-24.31	-1.22
20	Paper and paper products	-5.57	-16.62	-11.70
	Total	**-0.98**	**-19.25**	**-11.51**

Source: Own calculations based on data from Central Bank.