

This document identifies a series of indicators that provide an overview of the macroeconomic performance, as well as the productive, agricultural, trade, social and food security status of each country in the hemisphere, in order to monitor the situation of agriculture and the rural milieu in the countries of the Americas.

While some of the indicators selected were taken directly from the databases of COMTRADE (United Nations Commodity Trade Statistics Database), World Development Indicators (WDI, World Bank), CEPALSTAT (ECLAC), FAOSTAT (FAO) and the International Monetary Fund (IMF), other indicators were developed by the Inter-American Institute for Cooperation on Agriculture (IICA) based on primary data from these databases. This document offers a conceptual definition and describes the method used to calculate each of the selected indicators, all in United States dollars (US\$).

Macro and Socioeconomic Indicators

Gross Domestic Product (GDP) in millions of dollars at current and constant prices

GDP is the total monetary value of all the goods and services produced in a country during a specific period (in this case, annual). It does not include the output of citizens resident in other countries. GDP can be calculated on the basis of expenditure, income or supply (value added method). The source of this variable is the WDI database. The figures are based on official information from the countries.

National Income in millions of dollars, at current and constant prices (year 2000)

National income is the sum of the total real income received by a country's residents, regardless of where it is generated, over a specific period. This variable is taken from the Economic Commission for Latin America and the Caribbean (ECLAC) and is based on official information provided by the countries.

Agricultural Production

- **Agricultural Value Added (AVA) in millions of dollars (at current prices)**

This is an annual measure of the value of the income generated by a country's agricultural goods and services during a specific period. Although AVA only includes elements related to wages, profits and others, no figures are available for Gross Value of Agricultural Output (GVAO), and therefore AVA is used.

- **AVA share of GDP (in percentages)**

This is obtained by calculating the ratio between agricultural values added (AVA) and GDP, both in current dollars. The figures were taken from WDI.

$$\frac{AVA (US\$)}{GDP (US\$)} * 100$$

Annual Variation of the CPI (inflation)

The Consumer Price Index (CPI) measures the average cost of a basket of goods and services representative of consumption

in each country. It is generally based on the Laspeyres method. These figures are compiled by ECLAC for Latin America, but are based on official calculations provided by each country. If the data are taken from a base year other than 2000, the calculation is adjusted using arithmetical procedures.

Population

- **Total population (millions of people)**

This refers to the population physically present within the geographic boundaries of a country during the reference period. The figures were taken from WDI and represent the official figures of each country.

- **Share of Women in the Total Population (in percentages)**

This refers to the percentage of women in the total population, according to World Bank figures. The estimates come from several sources, such as census reports, reports by the United Nations Population Division, World Population Prospects, national statistics offices and household surveys carried out by national agencies and Macro International.

- **Rural Population**

This is defined as the difference between the total population and the urban population, calculated on the basis of rural population estimates from the United Nations World Urbanization Prospects database. The population figures are based on World Bank estimates.

- **Rural Population as a Percentage of the Total Population**

This variable measures the proportion of the total population living in rural areas. The concept differs from one country to another and is usually governed by local definitions established in local censuses and surveys. The figures are taken from ECLAC.

Rural Agricultural Employment (in percentages)

ECLAC defines rural agricultural employment as the total population (aged 15 years or older) employed in the agricultural sector, in line with the definition of the International Standard Industrial Classification of All Economic Activities (ISIC, Rev. 2.). This variable corresponds to a percentage of the total population employed in rural areas and data is available for Argentina, Bolivia, Brazil,

Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela.

Poverty and Extreme Poverty (total and rural)

The data on poverty and extreme poverty are generated by ECLAC, based on household surveys, and are estimated using a methodology that quantifies the cost of covering basic necessities. Under this methodology, "poverty" refers to the population whose median per capita income is below the poverty line; in other words, those living in households that do not have enough income to satisfy their basic needs. Extreme poverty (indigence) is defined as the condition in which this median income is below the extreme poverty line, in other words, those who do not have sufficient income to purchase a basic basket of food to satisfy their nutritional needs. The poverty variable is presented in terms of the country's total population (in percentages) and the extreme poverty variable is presented in relation to the total number of poor. For the purposes of ECLAC, the term poverty also includes those living in conditions of extreme poverty¹.

These variables are available both for the total population and for the rural population, but only for Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela.

GINI Coefficient

The Gini Coefficient is a standard measure of income distribution, corresponding to the area between the Lorenz curve and the equidistribution line (income is divided into equal parts for the total population). This variable is taken from ECLAC.

The Gini coefficient takes values between zero and one, where zero is absolute equality and one is absolute inequality. ECLAC calculates this coefficient based on data obtained from household surveys. It is calculated both for the country as a whole as well as for the rural areas of the following countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela.

1 For further information, see the technical paper ECLACSTAT, available at http://websie.eclac.cl/sisgen/SisGen_MuestraFicha.asp?indicador=182&id_estudio=7

Trade Indicators

Principal Agricultural Exports and Imports

“Agricultural products” are defined as the sum of Chapters 1 to 24 of the Tariff Code (Harmonized System, HS 1996), plus some specific sub-items².

Based on this definition of agricultural products, and taking the last year for which information is available, we determine the importance of each tariff item (to the HS 1996 four digit level) in relation to total agricultural exports. For this we calculate their relative weight in relation to the value of total agricultural exports in dollars:

$$\text{Share of total agr. exports(\%)} = \frac{\text{export of each item (US\$)}}{\text{Total agr. exports (US\$)}} * 100$$

Having determined the relative weight of each agricultural item exported in relation to the total flow of agricultural exports, the five items with the largest share of total agricultural exports are selected. This data is obtained from COMTRADE.

This same procedure is used to determine the country’s five principal agricultural imports, their relative share of total of agricultural imports (in percentages) and their value in dollars.

Revealed Comparative Advantage (RCA) of the Principal Agricultural Exports

The RCA indicator is used to measure those products in which the bilateral trade flows of goods (exports and imports) reveal an advantage in their export and import. To calculate this indicator, Vollrath’s Revealed Comparative Advantage (RCA) Index is used (1991):

$$RCA_a^i = RCE_a^i - RCI_a^i$$

Where:

RCE is the comparative advantage revealed by exports

$$RCE_a^i = In \frac{\left(\frac{X_a^i}{X_n^i}\right)}{\left(\frac{X_a^r}{X_n^r}\right)}$$

RCI is the comparative advantage revealed by imports

$$RCI_a^i = In \frac{\left(\frac{M_a^i}{M_n^i}\right)}{\left(\frac{M_a^r}{M_n^r}\right)}$$

In which:

X = value of exports

M = value of imports

I = country under analysis

r = the world minus the country under analysis (given that the indicator is calculated under the supposition of bilateral trade)

a = the value of the good analyzed

n = the value of total trade, less the value of good “a” analyzed

If the RCA is positive, the trade flows reveal an advantage in the export of good “a”. On the contrary, if the RCA is negative, this indicates that there is an advantage in the import of good “a”³.

The RCA indicator is calculated on the basis of COMTRADE data for the five principal agricultural products (considering HS 1996 tariff items to the 4-digit level) in the trade structure of the country analyzed (exports and imports). In order to follow the movement of the revealed comparative advantage or disadvantage over time, the RCA indicator is calculated from the year 2000 to the last year of available data for each country.

2 Specific additional tariff items included in the definition of “agricultural products”: 290543, 290544, 330111, 330112, 330113, 330114, 330119, 330121, 330122, 330123, 330124, 330125, 330126, 330129, 330130, 330190, 350110, 350190, 350211, 350219, 350220, 350290, 350300, 350400, 350510, 350520, 380910, 410110, 410121, 410122, 410129, 410130, 410140, 410210, 410221, 410229, 410310, 410320, 410390, 430110, 430120, 430130, 430140, 430150, 430160, 430170, 430180, 430190, 500100, 500200, 500310, 500390, 510111, 510119, 510121, 510129, 510130, 510210, 510220, 510310, 510320, 510330, 520100, 520210, 520291, 520299, 520300, 530110, 530121, 530129, 530130, 530210, 530290.

3 For further information on the RCA Index, see Arias and Segura 2004.

The higher the RCA value, the greater the level of comparative advantage of product “a” with respect to the total goods traded by the country “i”. Non-agricultural products are also included; in other words, this corresponds to the total trade in goods).

Cuanto mayor sea el valor del VCR, mayor es el grado de ventaja comparativa que tiene dicho bien “a” con respecto al total de productos comercializados por el país “i”. Se incluyen los productos no agrícolas; es decir, corresponde al total del comercio de mercancías.

Principal Destinations of Agrifood Exports and Origin of Agrifood Imports

This indicator identifies the main destinations of exports and the origin of imports, as well as their relative weight in the total trade of the country analyzed. The destinations are defined as follows:

- **Own region.** The IICA Region to which the country analyzed belongs. The composition of these regions is as follows:
 - **Andean Region:** Bolivia, Colombia, Ecuador, Peru, Venezuela.
 - **Caribbean Region:** Antigua and Barbuda, Bahamas, Barbados, Dominica, Dominican Republic, Grenada, Guyana, Haiti, Jamaica, St. Kitts and Nevis, St. Vincent and the Grenadines, St. Lucia, Surinam, Trinidad and Tobago.
 - **Central Region:** Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama.
 - **Northern Region:** Canada, Mexico, United States.
 - **Southern Region:** Argentina, Brazil, Chile, Paraguay, Uruguay.
- **USA.** As one of the world's leading trading partners, the US is considered separately to determine its weight in the trade flows of each country analyzed.
- **Rest of America:** this refers to the rest of the IICA regions, except for the region to which the country analyzed belongs (own region) and the United States.
- **EU27:** Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.
- **China**

- **Rest of the world:** all the rest of the countries in the world that have not been mentioned previously.

Agricultural Trade Balance (in millions of dollars)

The agricultural trade balance is the difference between the value of a country's agricultural exports (X AGR) and the value its agricultural imports (M AGR). This indicator is calculated from the year 2000 up to the last year for which data is available.

$$\text{Agricultural trade balance} = X \text{ AGR} - M \text{ AGR}$$

A positive agricultural trade balance means that the country has a trade surplus; in other words, it exports more agricultural goods than it imports (it is a net exporter) in a given year. A negative trade balance means that the country imports more than it exports, and therefore it has a trade deficit. The figures are taken from COMTRADE.

Share of Agricultural Exports to Total Exports of Goods (in percentages)

This indicator enables us to determine the share of agricultural exports in a country's total exports (total goods or the heading *all commodities*). Its calculation is based on the value of agricultural exports and of total exports of goods, in US dollars, from 2000 until the last year available.

• Total Trade and Agricultural Openness Index

To gauge a country's degree of insertion in international markets, the total trade openness (total goods) index and the agricultural openness index (commodities) were developed.

• Total Trade Openness Index

$$\text{Trade openness index} = \frac{(X_{\text{total goods (US\$)}} + M_{\text{total goods (US\$)})}{GDP \text{ (US\$)}} * 100$$

The trade data used are from COMTRADE's figures on total trade in goods. Information on the value of GDP in dollars was taken from WDI.

• Agricultural Trade Openness Index

$$\text{Agricultural trade openness index} = \frac{(X_{\text{agricultural products (US\$)}} + M_{\text{agricultural products (US\$)})}{\text{Agricultural value added (US\$)}} * 100$$

The agricultural trade figures are taken from COMTRADE (data available in IICA's Statistics System). The figures on agricultural value added in US dollars were taken from WDI. This variable is used instead of Gross Value of Agricultural Output (GVAO), given the limited availability of this data for all the countries analyzed.

Production Indicators

Agricultural Area (km²)

This variable –defined as the area comprising arable land, permanent cropland, permanent meadows and pasture lands – is taken from the FAO database (FAOSTAT).

Agricultural Area per Capita (m²)

This refers to the agricultural area for every inhabitant in the country (total population). It is expressed in square meters (m²).

$$\frac{\text{Agricultural area}}{\text{Total population}}$$

Forests and Woodland (km²)

This refers to the area covered with natural or planted forests, including areas that have been cleared but that will be reforested in the foreseeable future. It excludes woodland or forests used solely for recreational purposes. The figures are taken from FAOSTAT.

Forest Cover in relation to Total Area (in percentages)

This measures the relative share of forest area in relation to the total area of a particular country. It includes the area occupied by inland waterways.

$$\frac{\text{Forest area}}{\text{Total area}} *100$$

Distribution of the Total Agricultural Area

- **Arable Land in the Total Agricultural Area (in percentages)**

According to FAO, arable land refers to land under temporary crops (double-cropped areas are counted only once) and includes temporary meadows, land under market and kitchen gardens and land that is temporarily fallow (for less than five years). Abandoned land resulting from migratory agriculture is not included in this category, nor does it show the amount of land that is potentially cultivable.

To measure its importance within the total agricultural area, the following calculation is used:

$$\frac{\text{Arable area}}{\text{Total agricultural area}} *100$$

- **Meadows and Pastures in the Total Agricultural Area (in percentages)**

According to FAO, this refers to land used for five or more years to grow herbaceous forage plants, either cultivated or wild (permanent). To determine the proportion of permanent meadows and pastures within the total agricultural area the following calculation is used:

$$\frac{\text{Meadows and pastures area}}{\text{Total area}} *100$$

- **Permanent Crops in the Total Agricultural Area (in percentages)**

According to FAO, permanent crops are those that are sown once, then occupy the land for some years and do not need to be replanted after each annual harvest. This category includes flowering shrubs, fruit trees, nut trees and vines, but excludes trees grown for wood or timber.

Its share within the total agricultural area is calculated as follows:

$$\frac{\text{Permanent crops area}}{\text{Total area}} *100$$

Principal Crops based on Hectares Planted

Based on FAOSTAT figures, we select the five products with the largest number of hectares harvested in the year 2000 and in the last available year. This is expressed by the number of hectares harvested as well as its share (in percentages) of the total of hectares harvested.

Agricultural Labor Productivity (AVA per worker)

This measures the value of the output of each worker in the agricultural sector. It is a measure of agricultural productivity calculated on the basis of data from WDI, and is expressed in constant dollars (of 2000).

Economic Yield per Hectare (in constant dollars)

This indicator shows the variations in yields resulting from the replacement of low-yielding crops with other higher-yielding ones. It is calculated as follows:

$$\text{Monetary yield per hectare} = \frac{\frac{\text{AVA (US\$ current)}}{\text{Deflator of GDP}} * 100}{\text{Hectares harvested}}$$

This indicator captures effects such as technological improvements, changes in crop structure and changes in relative prices. The AVA data (in current dollars) and GDP data (in current and constant dollars) are taken from WDI. The figures for total hectares harvested are from FAO.

Yield of Principal Crops based on Hectares Planted (tons per hectare)

This refers to the production obtained (tons) per unit of area harvested (hectares). For each product, the average yield for 1981-1985 is estimated and compared with the average yield for the last five years available. The source of these figures is FAOSTAT.

Variations in Production and Yield due to the Incorporation of Lands

Annual production of a commodity may vary from one period to another due to variations in land use (expansion or reduction of the area planted), in yields (for example, the use of a new technology) or due to random factors that are difficult to measure (e.g. natural disasters).

In this case, the indicator only measures the annual variation in production over the last 20 years, attributed to changes in the area planted and in yields of each of the five agricultural products with the largest share of hectares planted in each country (according to COMTRADE data). These variations are estimated by calculating the slope of the straight line of best adjustment, through minimum regular squares. Therefore, the annual variation is equal to:

$$e^{\text{line function } (\ln(Y_1, \dots, Y_n))} - 1$$

Agricultural Area under Irrigation in relation to the Total Agricultural Area

This indicator measures the relative proportion of irrigated area in relation to the total agricultural area of a given country.

$$\frac{\text{Irrigated area}}{\text{Total agricultural area}} * 100$$

The irrigated area refers to areas equipped with the necessary hydraulic infrastructure to provide water to crops. This variable is taken from ECLAC (ECLACSTAT) and includes areas equipped for full or partial control of water distribution, spate irrigation areas and lowlands or flood areas where the available water can be controlled.

This measure, in thousands of hectares, is available for Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, St. Vincent and Grenadines, St. Lucia, Suriname, Trinidad and Tobago, Uruguay and Venezuela.

Food Security Indicators

Prevalence of Undernourishment (percentage of the total population)

This refers to the prevalence of undernourishment in the total population. The proportion of population affected by undernourishment in relation to the total number of people in the country is an indicator estimated by FAO. It defines the undernourished population as those whose dietary energy consumption is continuously below the minimum required to maintain a healthy life.

This indicator is obtained by multiplying the estimates of the proportion of undernourished people in each country by the estimates of total population.

Net Food Exports (in millions of dollars)

“Food” is defined as the sum of Chapters 02, 03 04, 07, 08, 09, 10, 11, 12 (except 12.11), 15, 16, 17, 18, 19, 20, 21, 22 (figures taken from COMTRADE). Based on this definition, total food exports (X) and imports (M), both expressed in US dollars, are estimated (for each country and for the period 2000 – up to the last year for which information is available). Based on these figures, net food exports can be determined:

$$XN \text{ food} = (X \text{ food} - M \text{ food})$$

This indicator is used to determine whether a country is a net exporter or a net importer of food.

Consumer Price Index (CPI) and Food CPI (base year 2000 = 100)

- **CPI of Food and of Basic Basket**

The food CPI is a section of the CPI that measures the cost, relative to a base year, of a basket composed only of food. It does not include other goods and services.

Domestic Food Supply per Capita (kg per year)

FAO's Food Balance Sheets have identified certain food groups that supply a greater caloric intake to the diet and,

based on these a food basket was defined. The groups are: vegetable oils, meat, cereals, fruits, dairy, roots and tubers, and vegetables, based on FAO food groupings.

However, given that trade and production figures are required, efforts were made to equalize the codes. For example, canary seed in FAOSTAT is classified as 1008.90ab, but in COMTRADE (HS1996) it is 100830. In other cases, it was necessary to add trade headings; for example, the production figures for maize are found under code 1005_a, but maize is traded for planting (100510) and there is also maize for other uses (100590).

It was also necessary to make conversions. For example, milk is produced by cows (0401.20_a FAOSTAT), goats (0401.20_b) and sheep (0401.20_c), but the trade classification makes no distinction regarding the origin of the milk (for which reason all milk production is added together). However, since part of the milk produced will be sold as liquid milk and another part as powdered milk, the following conversion is used: one kilo of powdered milk generates 8.5L of liquid milk.

For each of the groups (x) domestic supply per capita was calculated:

$$\text{Domestic supply per capita}_x = \frac{\text{production}_x + \text{imports}_x - \text{exports}_x}{\text{population}}$$

This calculation requires information on imports, exports and production for each food group (amounts in kilograms). The trade figures are taken from COMTRADE; the production figures from FAOSTAT; and the country's total population from WDI.

Share of Imports in the Domestic Food Supply (in percentages)

This indicator estimates the weight of imports in the domestic supply of each food group, and shows the dependence of each food group on external markets:

$$\text{Dependence (\%)} = \frac{M_x}{\text{Domestic supply}_x}$$

Share of Imports in the Domestic Caloric Supply (in percentages)

Having selected the food groups that contribute most to the national diet, it is important to determine the degree of each country's dependence on imports for its total domestic supply of calories (definition based on the aforementioned seven food groups).

From the FAO food balance sheets, we obtain the composition of the food basket for the year 2003 (last year available):

- Foods (kg)/ per capita/per year
- Calories/ per capita/per day

With this information we calculate the calories provided by each kilogram of each food group included in the heading. It is assumed that this data is constant for the period in question; in other words, the caloric contribution of one kilogram of each food group does not vary over time. Let us call this value W_x . Next, the figures for the amounts exported, imported and produced by each food group (measured in kilograms) are converted into calories, after multiplying the amounts in kilograms by the number of calories generated by one kilogram of each food group.

Therefore, the dependence of the domestic caloric supply on food imports is determined by:

$$\text{Caloric dependence (\%)} = \frac{M_{\text{cereals}} * W_{\text{cereals}} + M_{\text{meat}} * W_{\text{meat}} + \dots}{\text{Of Dom}_{\text{cereals}} * W_{\text{cereals}} + \text{Of Dom}_{\text{meat}} * W_{\text{meat}} + \dots} * 100$$

Domestic supply being equal to production plus imports minus exports (amounts expressed in kilograms).

International Monetary Reserves Measured in Months of Food Imports

To generate this indicator, the following data were used:

- International monetary reserves (IMR) in dollars for the period 2000 until the last year available (figures taken from the IMF for each country).
- Food imports in dollars for the same period, figures taken from COMTRADE and defined previously.

The final value of IMR in months of food imports is obtained by dividing the IMR in dollars by the value of one month of food imports.

$$\text{IMR in months of food imports} = \frac{\text{IMR (US\$)}}{\left(\frac{\text{Food imports US\$}}{12}\right)}$$

Using this indicator, we can estimate the country's ability to withstand external shocks, under the supposition that the totality of the IMR would be used to purchase food.

Intersectoral Terms of Trade for Agriculture

This indicator estimates the effect on farmers' purchasing power of changes in the relative prices of agriculture in relation to all prices in the national economy. First we calculate the implicit deflators, based on national accounts statistics taken from WDI. Having calculated the GDP and agricultural deflators, we then calculate the ratio between these, in other words:

$$\frac{\text{Agricultural deflator}}{\text{GDP deflator}} * 100$$

This provides a ratio of the prices of a basket of agricultural products to the prices of the total basket of goods and services produced in the country (includes agricultural products) at a given moment.

- **Agricultural Deflator**

This element is obtained based on the ratio between the AVA in current and constant dollars for the period analyzed. With this indicator we obtain a measure of the price index for a basket of agricultural goods and services produced in a country during a given period.

- **GDP Deflator**

This indicator is obtained with GDP figures in current and constant dollars, taken from WDI for each country; in other words, the ratio between GDP expressed at current prices and GDP expressed at constant prices.

$$\text{GDP deflator} = \frac{\text{GDP (US\$ current prices)}}{\text{GDP (US\$ constant prices)}} * 100$$

This indicator provides a measure of the price index of a basket of all the goods and services produced by the economy during a given period.

AVA Deflator Adjusted by GDP Deflator (in millions of dollars)

The AVA in current dollars is deflated by the GDP deflator. This calculation provides an estimate of the purchasing power of AVA, comprising workers' wages and earned surplus (profits, interest, income, wages of self-employed workers, among others), in terms of all the goods and services included in national production.

$$\frac{\text{AVA (current US\$)}}{\text{GDP deflator}} * 100$$

External Terms of Trade for Agriculture

This indicator shows the change in the prices of a basket of agricultural exports in relation to the prices of a basket of agricultural imports for a given country. This is obtained by calculating the indices of export prices and the indices of import prices, out of a trade basket of 40 HS items.

External Terms of Trade

The external terms of trade refer to the movement in the prices of products exported by a country in relation to the prices of the products it imports. This indicator reflects the country's international trade situation and is one of the factors that influence its capacity to purchase foodstuffs abroad. This index is obtained from ECLAC and is the ratio of prices for the trade of goods and services. It is based on the official figures of each country that are subsequently standardized using the same base (Index 2000 = 100). It is available for Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay and Venezuela.

References

Arias Segura, J; Segura Ruiz, O. 2004. Índice de ventaja comparativa revelada: un indicador del desempeño y de la competitividad productivo-comercial de un país (en línea). Disponible en http://www.agronet.gov.co/www/docs_agronet/2005112116568_VentajaComparativaRevelada.pdf

World Bank. WDI (World Development Indicators). Database on development data (online). Consulted December 15, 2008. Available at <http://publications.worldbank.org/WDI/>

ECLAC (Economic Commission for Latin America and the Caribbean). 2008. ECLACSTAT, Databases and statistical publications (online) Consulted 15 Dec. 2008. Available en <http://www.eclac.org/estadisticas/>

FAO (United Nations Food and Agriculture Organization). 2008. FAOSTAT, FAO Agriculture Statistics (online). Consulted Dec. 15, 2008. Available en <http://faostat.fao.org/>

IMF (International Monetary Fund). International Financial Statistics (online). Consulted Dec. 15, 2008. Available at <http://www.imf.org/external/data.htm>

United Nations. COMTRADE. Commodity Trade Statistics Database (online). Consulted 15 Dec. 2008. Available en <http://comtrade.un.org/db/>

Vollrath, T. 1991. A theoretical evaluation of alternative trade intensity measures of revealed comparative advantage. *Weltwirtschaftliches Archiv*. p. 264-280.