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# AGRICULTURAL SUPPORT POLICIES IN LATIN AMERICA AND THE CARIBBEAN. 2018 REVIEW\*

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#### **ABSTRACT**

This document presents a review of the main agricultural policy support indicators available in the Agrimonitor database as of the end of 2016 and represents a synthesis of agricultural support policies in Latin America and the Caribbean. The contents of this document are updated bi-annually, taking into account updated information generated by the Agrimonitor initiative and the trends of agricultural policy support in the continent.

The authors express their gratitude to the Centro Internacional de Agricultura Tropical for the collaboration and technical inputs provided for the preparation of this document. Valuable comments were expressed during the review of the document by David Orden. Elena Sampedro, Yolanda Valle, Tomas Dutra, Darrel Perez Bolivar, and Emily Walz provided crucial editorial support for the publication of the document.

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#### ABBREVIATIONS AND ACRONYMS

вт	Buda	et Tr	ansfer
DI	Duuq	et II	ansiei

**CARICOM** | Caribbean Community and Common Market

**CBI** | Caribbean Basin Initiative

**CEPAL** | The Economic Commission for Latin America and the Caribbean

**CONADESUCA** | National Committee for the Sustainable Development of Sugarcane

**CSCT** | Consumer Single Commodity Transfer

**CSE** | Consumer Support Estimate

**DANE** | National Administrative Department of Statistics

**EMBRAPA** | Brazilian Agricultural Research Corporation

**EPC** | Effective Protection Coefficient

**ERP** | Effective Rate of Protection

**EU** | European Union

**FAO** | Food and Agriculture Organisation of the United Nations

FAS | Foreign Agricultural Service. Fund of Expropriated Sugar Sector Businesses

**GDP** | Gross Domestic Product

**GHG** | Greenhouse Gas

**GSSE** | General Services Support Estimate

**IDB** | Inter-American Development Bank

IMF | International Monetary Fund

**LAC** | Latin America and the Caribbean

**LAFTA** | Latin American Free Trade Association

MPS | Market Price Support

**NAFTA** | North American Free Trade Agreement

**NPC** | Nominal Protection Coefficient

**NRP** | Nominal Rate of Protection

**OECD** | Organization for Economic Cooperation and Development

**PNPB** | Brazil's National Biodiesel Production Program

**PSE** | Producer Support Estimate

PTPA | U.S.-Peru Trade Promotion Agreement

**SAC** | Colombian Agricultural Society

**SCT** | Single Commodity Transfer

**SFS** | Sanitary and Food Safety Requirements

**SNAP** | Supplemental Nutrition Assistance Program

TRQ | Tariff Rate Quotas

**TSE** | Total Support Estimate

**UN COMTRADE** | United Nations International Trade Statistics Database

**USDA** | United States Department of Agriculture

**WDI** | World Development Indicators

**WITS** | World Integrated Trade Solution

WTO | World Trade Organization

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## **EXECUTIVE SUMMARY**



This report reviews the agricultural support policies of 22 Latin American and Caribbean (LAC) countries, which together account for 85 percent of the region's agricultural value added (according to World Bank data for 2016).

Although agricultural policies and programs in LAC countries are structured in different ways, there are some clear trends and commonalities. This review measures agricultural support policies and programs using the OECD Producer Support Estimate (PSE) methodology.<sup>1</sup>

<sup>&</sup>lt;sup>1</sup> See: <u>www.oecd.org</u>

Collectively, in the last year for which data was measured,<sup>2</sup> support to farmers in the LAC countries covered in this review amounted to U\$\$23.8 billion (or 10 percent of agricultural GDP), and an additional U\$\$6.1 billion (or 2.6 percent of agricultural GDP) was spent on agricultural public goods and services (here called general services, measured by the General Services Support Estimate or GSSE). LAC countries (like other emerging economies) have gone from taxing their agricultural sectors in the 1990s to providing net levels of support. At the same time, the level of support in high-income (OECD) countries has been falling,<sup>3</sup> showing some convergence and an opportunity for the agricultural sectors of LAC countries to compete on a more level playing field.

On average, 3.29 percent of the gross agricultural receipts (agricultural income) for farmers in the LAC countries covered under this review (2009-2016) came from agricultural support policies and programs (PSE percent). However, the average PSE percent across LAC countries was higher (6.29 percent) when excluding Argentina (due to negative support during the period covered for that country, from 2012 to 2014, that subsequently changed with the removal of export taxes in 2016). However, this is still low compared to the 18 percent average across OECD countries (2014-2016). Although there has also been an important shift within LAC countries in moving from market price support (MPS), which distorts market prices for agricultural products, to direct farmer support (through fiscal support), 42 percent of producer support still comes from MPS (excluding Argentina).

A review of the four sub-regions within Latin America and the Caribbean (Central America, the Dominican Republic, and Mexico; the Caribbean; the Andean Region; and the Southern Cone) reveals significant differences in the share of support to agriculture from different policy measures. Diversity within each sub-region shows how some countries are moving to increasingly open their agricultural sectors to the competitive forces of world markets

LAC COUNTRIES (LIKE OTHER EMERGING ECONOMIES) HAVE GONE FROM TAXING THEIR AGRICULTURAL SECTORS IN THE 1990s TO PROVIDING NET LEVELS OF SUPPORT.

<sup>&</sup>lt;sup>2</sup> The last years for which data was measured includes: Argentina (2014), Bolivia (2009), Brazil (2016), Belize (2014), Chile (2016), Colombia (2016), Costa Rica (2016), Dominican Republic (2015), Ecuador (2012), Guatemala (2011), Guyana (2014), Honduras (2012), Haiti (2012), Jamaica (2014), Mexico (2016), Nicaragua (2010), El Salvador (2012), Paraguay (2013), Peru (2013), Suriname (2014), Trinidad and Tobago (2015), and Uruguay (2013). Countries included in the annual review for the first time are Guyana, Haiti, Suriname, and Trinidad and Tobago.

<sup>&</sup>lt;sup>3</sup> Note that there are two countries in LAC (Mexico and Chile) that are part of the OECD, and therefore are counted in both groups. We also present results for the United States, Canada, and the EU for comparative purposes.

while other countries continue to support agriculture primarily through border protection measures. These different uses of policy measures are relevant in terms of the LAC's ongoing efforts to achieve objectives such as participation in trade agreements, regional economic integration, and food security.

The discussion of agricultural policy for a single commodity examines the case of rice, a strategic product for the region due to its importance to regional food security and as a source of income and employment for an estimated one million producers. The focus on rice policy is relevant due to recent trade agreements and to the existence of parallel high and low technology production systems in the region. The findings suggest that a more diverse set of policy instruments could be beneficial in addressing technical change, and that management practices may be hampering improvements in productivity in the sector.

COUNTRIES ARE MOVING TO INCREASINGLY OPEN THEIR AGRICULTURAL SECTORS TO THE COMPETITIVE FORCES OF WORLD MARKETS WHILE OTHER COUNTRIES CONTINUE TO SUPPORT AGRICULTURE PRIMARILY THROUGH BORDER PROTECTION MEASURES.

# 1. ECONOMIC AND AGRICULTURAL MARKET DEVELOPMENTS IN LAC



Over the last two decades, LAC countries have shown positive trends in agricultural development, particularly in the growth of agricultural trade. In the last decade (2006-2016), total exports increased by almost 90 percent, from US\$107 billion to US\$195 billion, with the largest increases in vegetable products (US\$49 billion), food products (US\$25 billion), and animal products (US\$13 billion). By far, the largest exporter in the region as of 2016 was Brazil (US\$70 billion), followed by Argentina (US\$37 billion), Mexico (US\$29 billion), Chile (US\$16 billion), and Peru (US\$8 billion).

Data from the past decade (2006-2016) also reveals a significant change in the region's export trade flows. Of total LAC exports to the rest of the world, the share of exports to EU/Central Asia declined from 33 percent to 22 percent, the share to East Asia/South

Pacific increased from 14 percent to 26 percent, while the share to North America declined slightly from 26 percent to 23 percent (World Bank WITS database /UN COMTRADE database).

The region now accounts for 16 percent of total global food and agricultural exports, and has become the largest net exporter of food in the world, surpassing North America. This trend shows no sign of reversing. FAO estimates that by 2024, net food exports from LAC countries will reach US\$60 billion, three times their value in 2000.<sup>4</sup> The LAC region's share of world exports of commodities like bananas, sugar, and soybeans exceeds 50 percent, followed by lesser shares for coffee, beef, poultry, and corn, accounting for more than 25 percent of world exports of each commodity.

Moreover, it is particularly interesting that the LAC region is a net exporter of basic grains, while other regions are net importers. This bodes well for the food security of the region (and the world), as agricultural production is, on average, more than sufficient to cover local food demand. The exceptions for the LAC region are wheat and rice, for which it is a net importer.

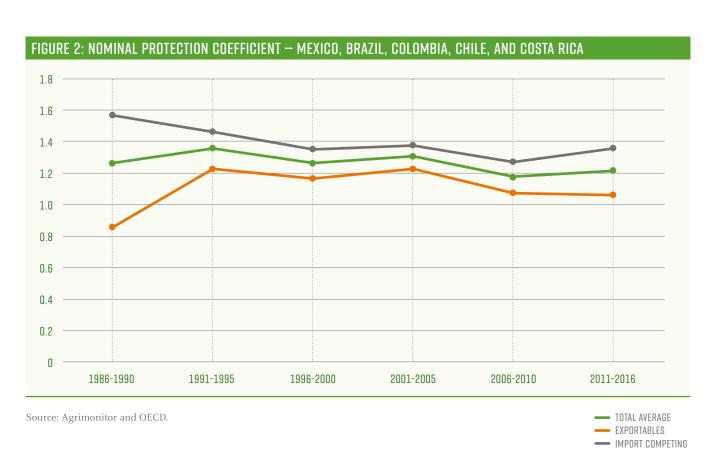


- PNRG. FUEL (ENERGY) INDEX, 2005 = 100, INCLUDES CRUDE OIL (PETROLEUM), NATURAL GAS, AND COAL PRICE INDICES (MONTHLY)

<sup>4</sup> See: www.fao.org/publications/soco/2015/es/

In 2016, some world commodity prices showed increases, reversing a downward trend that began in 2013 (Figure 1). Food prices increased 14 percent during the year, led by a rise in dairy prices in the latter half of the year. Sugar prices remained high due to sustained demand, as did beef prices. In contrast, cereals prices continued to decline in 2016, as world production reached a record level and the major exporting countries had bumper crops of wheat and maize. Prices for cereals were almost 40 percent below their 2012 peak (OECD, 2017).

The agricultural policies and programs of LAC countries are varied, as they seek to address the dual objectives of supporting exports and the production of import-competing products. Tracking the Nominal Protection Coefficient (NPC)<sup>5</sup> from 1986 to 2016 (Figure 2) for the five LAC countries included in the OECD and the Agrimonitor database (Brazil, Chile, Mexico, Colombia, and Costa Rica) illustrates that the NPC of import-competing products, although declining over time, has been consistently higher than the NPC for exports.



<sup>&</sup>lt;sup>5</sup> According to OECD (2016), the producer Nominal Protection Coefficient (NPC) is "the ratio between the average price received by producers at the farm gate (including payments per tonne of current output and excluding price levies per tonne of current output), and the border price, measured at the farm gate."

It is noteworthy that the average NPC for import-competing commodities decreased from 1986 until the 2006-2010 period but increased again modestly in the most recent period (2010-2016), a period that spanned the food price crisis of 2011. By comparison, the NPC for exportable commodities, which were taxed in the period 1986-1990, climbed to a peak that lasted through the 2001-2005 period, after which it declined to values close to one, where it has remained for the past decade. These findings are noteworthy, as despite the reduction in levels of export protection, current trends in LAC show a growing export sector. Also, despite the recent increase in levels of import protection, there has been increased trade (imports) in import-competing commodities that supplement domestic production of basic grains, oilseeds, and dairy products.

It should be noted that these averages conceal significant differences among countries, as the policies in effect today also reflect past and current trade agreements. Some countries, such as Chile, Mexico, and Brazil, display clear trends over time and have reduced the average NPC for both import-competing and exportable commodities. In contrast, Costa Rica and Colombia still had significant positive NPC levels for import-competing commodities during the 2011-2016 period. These trends suggest that major exporters such as Chile, Mexico, and Brazil have moved away from using border protection policies to support their agricultural sectors, while Costa Rica and Colombia continue to use border measures to promote increased production.

At present, the agricultural policies of the twenty-two countries in the Agrimonitor database can be categorized into five different approaches:

#### **MARKET PRICE SUPPORT (MPS)**

Through border measures: Most countries in the region continue to use border measures (such as tariffs, specific duties, and quotas) that raise domestic prices and result in support to farmers through the higher prices they receive, policies that are reflected in the MPS component of the PSE. The notable exceptions are Chile, Uruguay, and Mexico, which have low MPS levels.<sup>6</sup> In some countries, the MPS may even be negative due to export taxes that lower the profits farmers could potentially receive, as in the case of Argentina (during 2014, the last year with reported PSE results), and due to implicit taxes on portions of commercial agriculture.

<sup>&</sup>lt;sup>6</sup> Some specific distortions can be necessary in case of externalities or other market failures.

## REDUCING COSTS OF PURCHASED INPUTS AND CAPITAL

Subsidies to farm-purchased variable inputs, such as energy and fertilizers, are intended to improve access to inputs and improve productivity and are important in Brazil, Chile, and Mexico. Concessional credit schemes to stimulate agricultural investments are cornerstone policies in Brazil and Colombia.

# DIRECT PAYMENTS TO MITIGATE THE DOWNSIDE RISKS TO REVENUE AND INCOME

These policies result in direct payments to farmers that decouple income to farmers from changes in market prices or weather-related events are important in Brazil, Chile, Guyana, Mexico, Paraguay, Peru, and Trinidad and Tobago.

# EXPENDITURES ON AGRICULTURAL INFRASTRUCTURE AND PUBLIC GOODS

Chile, Peru, and Uruguay are the primary countries with support policies that focus on expenditures for public goods and infrastructure, such as irrigation and drainage, agricultural research, extension services, and plant and animal inspection services.

#### **CLIMATE SMART AGRICULTURE**

Concerns about climate change are beginning to have an impact on the approach LAC countries take towards agricultural support policies and programs. According to the OECD, agriculture contributes directly and indirectly approximately a quarter of global greenhouse gas (GHG) emissions (OECD, 2017), so climate change mitigation and adaptation are increasingly included in the agricultural policy agenda. However, with a few exceptions (Brazil, Uruguay, and Peru),<sup>7</sup> actual policy efforts are relatively limited but are likely to increase in the future as weather-related events affect crops and livestock through flooding or drought.

CONCERNS ABOUT CLIMATE CHANGE ARE BEGINNING TO HAVE AN IMPACT ON THE APPROACH LAC COUNTRIES TAKE TOWARDS AGRICULTURAL SUPPORT POLICIES AND PROGRAMS.

<sup>&</sup>lt;sup>7</sup> Brazil has a large climate smart agriculture (CSA) policy, promoting CSA technology adoption (Programa Agricultura de Baixo Carbono – ABC). See: <a href="http://www.agricultura.gov.br/assuntos/sustentabilidade/plano-abc/plano-abc-agricultura-de-baixa-emissao-de-carbono">http://www.agricultura.gov.br/assuntos/sustentabilidade/plano-abc/plano-abc-agricultura-de-baixa-emissao-de-carbono</a>

# 2. REVIEW OF AGRICULTURAL SUPPORT ESTIMATES

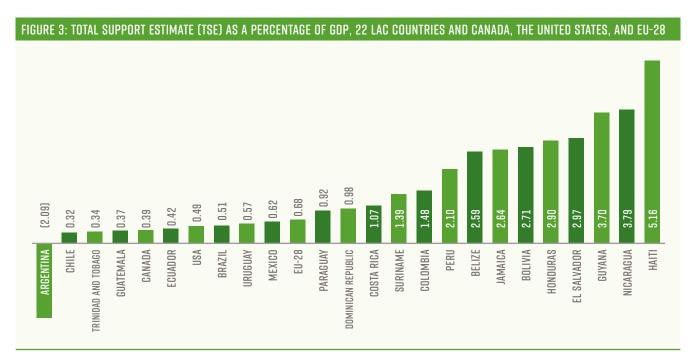


A review of agricultural support policies and programs in LAC countries illustrates the type of supports, their composition, and their evolution over the past few years. The twenty-two LAC countries reviewed here are the ones with data on agricultural support estimates published in the IDB Agrimonitor database.<sup>8</sup> The main indicators are summarized in Table 1. When looking at the average of OECD countries, it should be noted that Brazil, Mexico, and Chile are included in the OECD data.

<sup>8</sup> See: https://agrimonitor.iadb.org/

COUNTRY	YEAR Range	PSE AS % of gross receipts	MPS AS % OF PSE	GSSE %	TSE AS % OF GDP	TSE AS % OF AGRICULTURAL GDP	CSE %
ARGENTINA	2012-2014	-23.11	N/A	N/A	-2.09	-22.16	20.91
BELIZE	2012-2014	10.94	75.15	21.17	2.59	15.83	-18.63
BOLIVIA	2007-2009	13.61	85.47	16.89	2.71	16.66	-9.59
BRAZIL	2014-2016	3.77	24.04	26.35	0.51	6.28	-0.18
CHILE	2014-2016	3.01	3.01	50.78	0.32	6.30	-0.28
COLOMBIA	2014-2016	15.73	79.53	13.38	1.48	18.84	-15.35
COSTA RICA	2014-2016	10.03	96.73	12.58	1.07	11.51	-17.80
DOMINICAN REPUBLIC	2013-2015	14.20	76.82	14.89	0.98	17.11	-16.66
ECUADOR	2010-2012	5.03	79.90	10.53	0.42	5.66	-8.99
EL SALVADOR	2010-2012	26.70	88.87	6.45	2.97	33.59	-24.55
GUATEMALA	2010-2012	2.04	87.08	7.93	0.37	2.56	-16.47
GUYANA	2012-2014	13.91	62.45	24.84	3.70	19.88	-10.70
HAITI	2010-2012	21.01	95.45	3.15	5.16	21.84	-23.06
HONDURAS	2010-2012	13.53	91.86	13.59	2.90	17.86	-15.85
JAMAICA	2010-2012	34.90	85.12	8.19	2.64	44.63	-31.79
MEXICO	2014-2016	9.82	18.45	11.69	0.62	13.40	-0.63
NICARAGUA	2009-2010	12.43	90.45	27.68	3.79	17.30	-10.83
PERU	2011-2013	19.02	19.97	16.91	2.10	27.29	-4.91
PARAGUAY	2011-2013	2.23	0.00	37.45	0.92	3.68	0.00
SURINAME	2012-2014	12.22	83.41	50.40	1.39	27.88	-17.21
TRINIDAD AND TOBAGO	2013-2015	22.44	59.07	44.94	0.34	43.91	-18.70
URUGUAY	2011-2013	1.19	54.50	69.05	0.57	3.83	-2.22
LAC	3 MOST RECENT YEARS AVAILABLE	3.29	42.11	19.06	0.44	6.08	-0.25
CANADA	2014-2016	9.30	60.83	29.47	0.39	13.66	-10.04
EU-28	2014-2016	19.58	20.31	11.10	0.68	26.39	-4.65
UNITED STATES	2014-2016	9.44	26.72	9.99	0.49	23.43	11.94

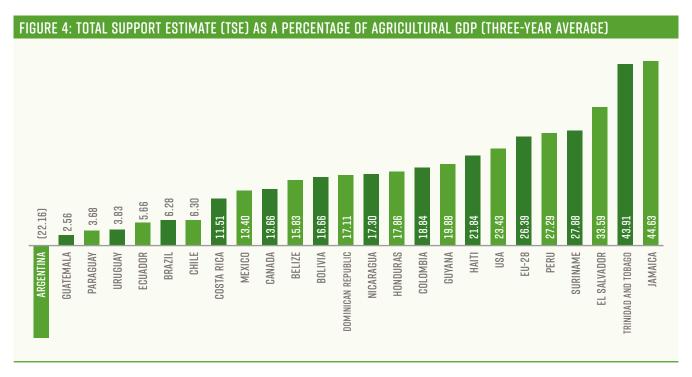
This section begins with a review of the Total Support Estimate (TSE), the Producer Support Estimate (PSE), and their relative importance across countries in the region. The section then focuses on the General Services Support Estimate (GSSE) (i.e., the support to agricultural public goods and services) and then on the Consumer Support Estimate (CSE).



Source: Agrimonitor and OECD. All Countries / three-year average (most recent years) for each country.

The TSE, expressed as a percentage of GDP, illustrates the importance that countries assign to support for their agricultural sectors. The TSE combines transfers to agricultural producers individually (measured by the PSE), policy expenditures that have primary agriculture as the main beneficiary but that do not go to individual farmers (measured by the GSSE), and budgetary support to consumers of agricultural commodities (the CSE, net of the market price element that is already accounted for in the PSE).

Figure 3 shows that the level of government support to the agricultural sector is high (more than 2.5 percent of GDP) in several countries with low GDP per capita and large rural populations (Haiti, Nicaragua, Guyana, Bolivia, and Honduras), or where agriculture, though a relatively small part of the economy, receives high levels of support with the objective of maintaining food security (El Salvador and Jamaica). At the other extreme are countries where agricultural support is less than 1 percent of GDP (Chile, Trinidad and Tobago, Guatemala, Canada, Ecuador, the United States, and Brazil).

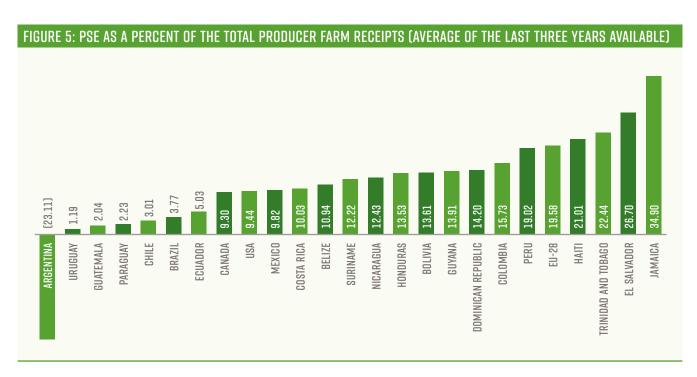


Source: Agrimonitor and OECD. All Countries / three-year average (most recent years) for each country.

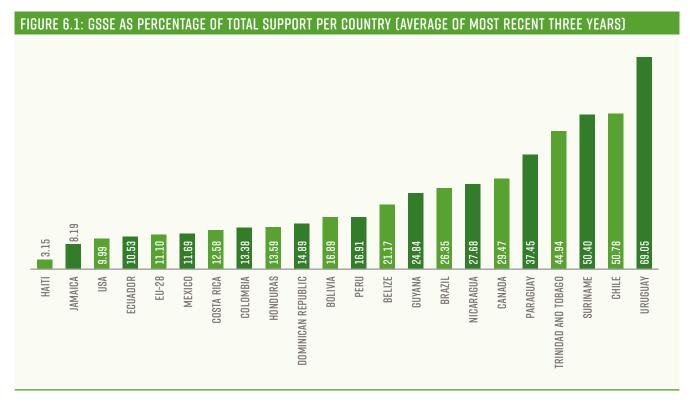
Figure 4 shows the TSE as a share of agricultural GDP. High levels of TSE support illustrate the importance of agricultural policy (either payments by taxpayers via government expenditure or consumers paying higher prices via market price support) and its contribution to the agricultural sector. In countries where the TSE as a share of agricultural GDP exceeds 30 percent, as in El Salvador, Trinidad and Tobago, and Jamaica, agricultural policy may be intended to achieve objectives such as national food security in key commodities or employment generation in the sector. Lower levels of support, though still in excess of 20 percent of agricultural GDP, are present in Haiti, the United States, the EU-28, Peru, and Suriname. On the other hand, countries where the TSE is less than 10 percent of agricultural GDP are Chile, Brazil, Ecuador, Uruguay, Paraguay, Guatemala and, most notably, Argentina, where the TSE is negative due to export taxes.

Figure 5 shows government policy and expenditure to support individual farmers as measured by the PSE indicator. The PSE percent indicator shows the percentage of agricultural receipts that are due to agricultural policy support. Looking at the levels of PSE percent, the LAC region can be broken down into three groups: low, medium, and high producer support. Countries with low levels of PSE (5 percent or less) include Ecuador, Brazil, Chile, Paraguay, Guatemala, Uruguay, and finally Argentina, which shows a negative PSE. Most of these countries have important, export-oriented agricultural sectors, and consumers are in general not

paying higher domestic prices to support producers. The medium support group, with PSE above 5 percent and below 20 percent, includes 14 countries where policies provide significant support to producers through a variety of mechanisms, including trade policy measures, direct payments, and subsidized inputs, with consumers and taxpayers paying for these policies. Finally, the high support group includes Haiti, Trinidad and Tobago, El Salvador, and Jamaica, where more than 20 percent of support to farmers comes from some form of policy-driven transfers. In these countries, where farmers receive the most support from government policy as a share of their income, there are high fiscal costs to and prices for consumers, suggesting that other policies might be more efficient from an economic and social welfare standpoint.



Source: Agrimonitor and OECD.



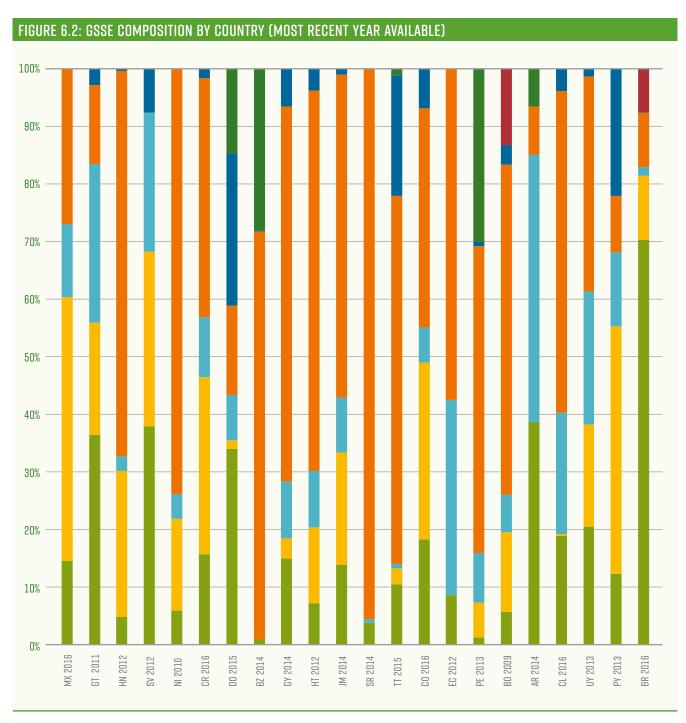
The levels and structure of GSSE can be observed in Figures 6.1 and 6.2, respectively.

Figure 6.1 shows the heterogeneity in the levels of GSSE as share of total support, contrasting countries like Chile and Uruguay, where general services are a substantial component of agricultural policies, with Haiti and Jamaica, where support through public goods and services is much lower. Low GSSE levels can be explained not only by budget constraints, but also by the importance of support through market interventions and direct transfers or subsidies in a given country.

One of the key lessons of the three decades of using the OECD's PSE methodology to track government support to agriculture is the importance of expenditure on public goods, including infrastructure, research, education, and plant and animal inspection systems, and its contribution to increased agricultural sector growth and productivity. In Latin America, studies suggest that a 10 percentage-point shift in the composition of agricultural support from private to public goods, without changing total spending, would lead to a 5 percent increase in agricultural value added per capita (Lopez and Galinato, 2010; Anriquez et al., 2016). Other studies have found that private subsidies have high opportunity costs when compared with investments in public goods (Hazell and Thorat, 1999 and 2000; Allcott, Lederman, and López, 2006).

Figure 6.2 illustrates the GSSE components of the TSE for each country included in the Agrimonitor database. Infrastructure figures heavily as a share of total GSSE expenditure in countries such as Suriname, Peru, and Honduras, and is the largest component of the GSSE overall. Agricultural knowledge generation is an important component in Brazil (where EMBRAPA plays a major role), Argentina, Guatemala, and El Salvador.





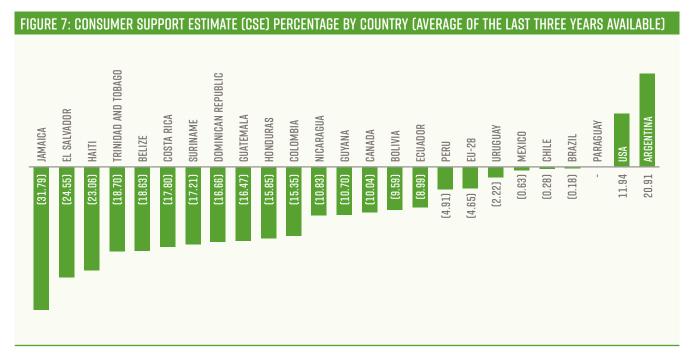


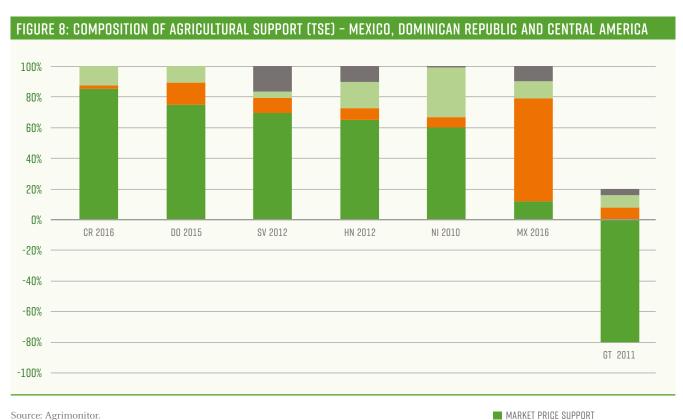
Figure 7 presents the CSE for the LAC region, Canada, the United States and the European Union. The policy instruments used in LAC countries might lead in many cases to a strong negative impact on food security due to their bias against consumers, who pay higher prices because of trade and price policies protecting domestic farmers. Of the 22 countries in the Agrimonitor database, 11 report CSE levels of -15 percent or more. The negative sign (-) indicates a transfer from consumers to producers through higher prices, either because of tariffs on imports or other domestic price support policies.

The concern from the perspective of a national food security policy is that in these cases of negative CSE levels, consumers are paying higher prices to support domestic farmers, a situation that may particularly affect low-income consumers, who spend a proportionally higher percentage of their income on food items.

In the United States and Argentina, the CSE is positive, as farmers receive prices that are lower than world prices (Argentina), or consumers benefit from programs financed by the general budget (taxpayers) that lower food prices (SNAP in the United States).

#### REGIONAL COMPOSITION OF TOTAL SUPPORT ESTIMATE (TSE)

Due to the diversity of countries in the LAC region, it is helpful to discuss the composition of agricultural policy and support by examining the various sub-regional groups (Mexico, Central America, and the Dominican Republic; the Caribbean; the Andean Region; and the Southern Cone) and the differences in the structure of support across the four sub-regions. These sub-regions tend to produce, consume, and export similar products and have historical trade relations dating back to the Latin American Free Trade Association (LAFTA), launched in 1960. Intra- and extra-regional trade and economic integration initiatives have played a major role in shaping the agricultural policy regimes in effect today, including twenty-three intra-regional Free Trade Agreements (Josling et al., 2015).



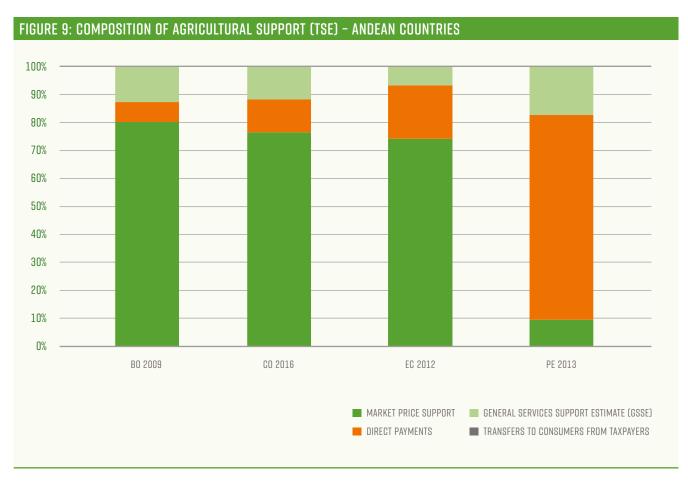
DIRECT PAYMENTS

■ GENERAL SERVICES SUPPORT ESTIMATE (GSSE) ■ TRANSFERS TO CONSUMERS FROM TAXPAYERS

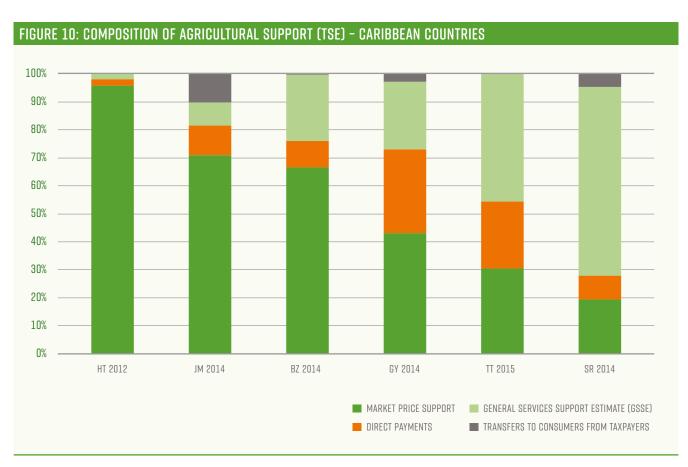
Source: Agrimonitor.

In the case of the Central American countries, the Dominican Republic, and Mexico, the sub-region has a history of initiatives intended to promote greater economic integration, extensive intra-regional trade, and supply chain integration in commodities such as beef, dairy, and horticultural products. The countries are also party to extra-regional trade agreements with the United States (NAFTA 1994, DR-CAFTA 2005). The sub-region is a slight

net exporter of agricultural and livestock products but imports significant quantities of grains, oilseeds, and dairy products. Figure 8 displays two components of the PSE (MPS and direct payments), GSSE, and transfers to consumers from taxpayers (here net of MPS to avoid double accounting). The figure shows that border trade measures result in high levels of MPS as an important part of support in Costa Rica, the Dominican Republic, El Salvador, Honduras, and Nicaragua, a finding perhaps related to these market integration efforts and the desire to protect certain sectors from imports from other countries in the region. In contrast, in Mexico, since the country joined NAFTA, the level of MPS has fallen and is currently much lower than before the implementation of the treaty. Guatemala reports a negative MPS, as some commodities (bananas, beef, coffee, and melons) are taxed. Shares of expenditure on public infrastructure and goods (GSSE) are highest in Nicaragua, Honduras, and Mexico, and notably lower in El Salvador. Four countries (El Salvador, Honduras, Guatemala, and Mexico) have policies that support food security through taxpayer-financed programs for consumers or restrictions on the export of basic food items.

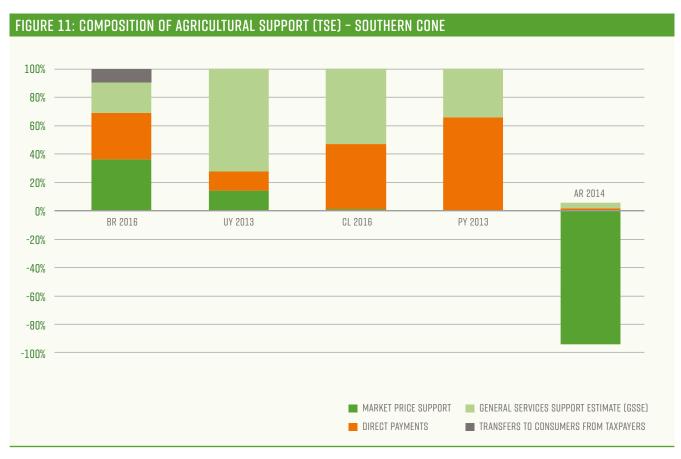


In the Andean Region, there have also been regional trade integration initiatives (a free trade agreement within the Andean Community in 1993) and more recent extra-regional bilateral trade agreements with the United States (Colombia 2012 and Peru 2009) and Mercosur (2004), resulting in the existence of many, sometimes conflicting agricultural policy measures. The region is a net exporter of agricultural products but also imports large quantities of food and feed grains. As illustrated in Figure 9, Bolivia, Colombia, and Ecuador have high levels of MPS, while Peru is at the other extreme, having reduced its use of border measures in recent years. Direct payments are high in Peru and much lower in Ecuador, Colombia, and Bolivia as a share of support. The highest share of support to public goods (GSSE) is found in Peru, followed by Bolivia and Colombia, while Ecuador has the lowest. The high share of infrastructure expenditure in Peru reflects investments in irrigation and drainage as part of the national strategy to adapt to climate change (USDA, 2017). Colombia has important public expenditures on agricultural research and infrastructure, whereas Bolivia spends heavily on rural roads. In this region, there were no reported programs creating transfers from taxpayers to consumers as a food security strategy.



In the case of the Caribbean, CARICOM and the Caribbean Basin Initiative (CBI) have attempted to use trade policy to achieve greater economic integration and increase regional trade. In 2011, CARICOM established the Community Agricultural Policy (CAP) to address rising input costs, volatile world food prices, and the impacts of climate change (Agritrade, 2012).

Figure 10 shows that MPS is an important policy instrument in the region, and that it is highest as a share of support in Haiti, Jamaica, and Belize, and less so in Guyana, Trinidad and Tobago, and Suriname. Expenditures on public goods (GSSE) are higher in Suriname and Trinidad and Tobago, lower in Belize and Guyana, and very low in Haiti and Jamaica. Three countries (Jamaica, Suriname, and Guyana) have programs that transfer resources from taxpayers to consumers, suggesting that food security is an important objective in the region.



Finally, in the Southern Cone, since the establishment of MER-COSUR in 1991, inter-regional trade has expanded, but unlike other LAC regions, there are no extra-regional trade agreements (Josling et al., 2015). The region is by far the greatest net exporter of agricultural products in the LAC region. As illustrated in Figure 11, the level of MPS is significantly lower than in the other regions as a share of support, with only Brazil and Uruguay reporting positive values. The Southern Cone has large shares of expenditure on public goods. Examples include Uruguay (agricultural research and rural infrastructure), Chile (rural infrastructure), Paraguay, and Brazil. Conversely, Argentina spends very little on infrastructure and general services, while also showing a negative MPS, indicating that government policy taxed producers.

These sub-regional figures mapping the composition of agricultural support reflect significant policy differences within each sub-region: for example, the low level of the MPS and high level of direct payments in Mexico and Peru compared to other countries in their sub-regions. The high levels of MPS in some countries and sub-regions suggest that there may be significant distortions affecting trade and investment decisions in these cases. With respect to the levels of GSSE, clearly there are countries that are making large investments in agricultural public goods (Uruguay, Chile, and Peru), either in infrastructure or services, and other countries that provide very little support to these kinds of activities. Finally, with regard to policies affecting consumers, the Caribbean and Central American countries, Mexico, and the Dominican Republic have programs that support consumers through government transfers. However, as illustrated in Figure 7 (CSE), many of these same countries have negative CSE levels, indicating that consumers pay higher than world prices for domestically produced agricultural products.

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# 3. 2016 AGRICULTURAL POLICY, PRODUCTION AND TRADE HIGHLIGHTS<sup>9</sup>



Recently, a number of significant events and emerging trends have affected agricultural policies in the LAC region, including:

- Trade policy decisions to respond to domestic production shortfalls and reduce upward pressure on prices (Brazil, Ecuador, and Mexico) or limit exports (Mexico), with corresponding impacts on MPS levels.
- Preferential bilateral trade agreements and their impact on increased levels of trade, which in turn created trading advantages for participating countries (Colombia, Peru, and Costa Rica).

<sup>&</sup>lt;sup>9</sup> This section includes information adapted and abridged from USDA Foreign Agricultural Service reports (2017).

- Use of non-tariff barriers such as phyto-sanitary certificates to limit trade in commodities to protect domestic producers or consumers (Colombia).
- Expenditure on infrastructure and services to promote agricultural development.
- Government policies to support expanding specific commodities or activities with growth potential (Brazil for biofuels and Colombia for cocoa).
- Divestiture of state-owned enterprises (sugar in Mexico).

Some of the **main policy decisions** are reported by country in the following paragraphs.

#### **ARGENTINA**

#### **EXPORT REBATES TO BOLSTER VALUE-ADDED PRODUCTS**

The government of Argentina adopted a trade policy measure (December 2016) that modified export rebates for a wide range of high value and value-added agricultural products to support regional rural economies and strengthen the competitiveness of these exports. The agro-export sector had sought differential treatment vis-à-vis raw commodities and to bolster a burgeoning sector of the agro-export complex: organic and geographically-specific production. This measure is estimated to cost the Argentine government more than USD \$160 million.

#### **BRAZIL**

#### **CORN TRADE POLICY**

The Brazilian government used trade policy to play an instrumental role in reducing barriers to imports and to address domestic issues related to corn supply. In 2016, Brazilian corn imports were expected to reach 1.5 million metric tons (mmt), five times more than total imports in 2015. This dramatic increase coincided with a decrease in domestic corn supply that originated with an unexpected start to the dry season and a favorable export environment. This dynamic significantly affected poultry and pork producers, as corn is a major component of production. Poultry and pork prices mirrored corn prices, with increasing costs and producers who continued to favor exports. Internal prices increased relative to world prices in 2015 and as a result, the MPS for corn, wheat, rice, and milk all increased.

#### **BIOFUELS**

Brazil's National Biodiesel Production Program (PNPB) was created in 2004 to promote domestic biodiesel production, reduce petroleum import dependency, and lower pollutant emissions and health-related costs. In a policy measure intended to generate jobs and income and alleviate regional economic disparities by passing benefits on to family farmers, especially those in north and northeast Brazil, legislation was signed into law in 2016 to increase Brazil's biodiesel-use mandate from the current 7 percent to 10 percent by 2019. The legislation also requires testing over the next 36 months to check the feasibility of an increase to 15 percent.

#### **COLOMBIA**

#### **AGRICULTURAL SECTOR ADJUSTMENT**

In a policy measure to support rural areas in the post-conflict era and farmers as the country allows increased access to its agricultural markets through free trade agreements, the government announced Plan Colombia Siembra in October 2015. The program has the stated objective of supporting an increase of 1.0 million hectares of land in production during the 2016-2018 period, with an investment of 1.6 billion pesos (approximately US\$530 million) including expenditures in cacao, forestry, fruit, corn, rubber, oil palm, rice, barley, and improved pastures. In addition to agricultural credit for producers, the program supports expenditures for technical assistance, irrigation, infrastructure, farm machinery modernization, and agricultural research and extension. The national statistics agency (DANE) reported a 6.1 percent increase in agricultural production in the first semester of 2017, with strong gains of 15 percent or more in oilseeds, potatoes, and grains. However, the president of the Colombian Agricultural Society (SAC) stated that producers were having difficulty finding markets for these products as they were not competitive with imported commodities, and the increased levels of production had depressed prices.<sup>10</sup>

#### **CACAO PRODUCTION INTENSIFICATION PROGRAM**

Colombia only produces 50,000 metric tons (mt) of cacao annually, one-fifth of the production in neighboring Ecuador, but the country has the potential to become one of the largest

<sup>10</sup> See:

cacao producers in the world. Rural violence and lawlessness have negatively impacted investments and growth in the cacao sector. As a response, in 2016, the Colombian government began implementing a new program titled "Cacao for Peace," part of the Plan Colombia Siembra. The program aims to strengthen Colombia's key cacao public and private institutions in four areas: 1) extension; 2) education; 3) research, and 4) technical assistance. Achieving this goal would create a productive alternative for Colombian farmers, supplanting the cultivation of illicit crops, and would provide the multi-billion-dollar chocolate industry new and reliable suppliers of cacao outside of West Africa. The project would also provide a boost to the rural economy of Colombia, benefit the environment, and help the peace process.

### TRADE AGREEMENTS AND NON-TARIFF BARRIERS (SANITARY AND FOOD SAFETY REQUIREMENTS / SFS)

Colombia has recently signed trade agreements with the United States (2012), the European Union (2013), and Canada (2009), while also seeking accession to the Organization of Economic Cooperation and Development. These economic and trade agreements are motivating Colombia to adjust and improve food safety regulations. According to the USDA's Foreign Agricultural Service (FAS), a policy of increasing support for SFS training would help provide Colombian regulators with tools and knowledge for a harmonized, science-based risk analysis methodology.<sup>11</sup>

#### **COSTA RICA**

#### **BEEF: EXPANDING TRADE INTEGRATION UNDER DR-CAFTA**

Due to increased market access resulting from trade liberalization under DR-CAFTA, U.S. exports of beef and beef products to Costa Rica reached a record US\$15.1 million in 2016 – significantly higher than the US\$1.7 million exported in 2009, the year DR-CAFTA entered into effect in Costa Rica. U.S. beef export volumes have grown 238 percent from 657 mt in 2010 to 2,222 mt in 2016. Regional trade and economic integration have also benefited, as estimates suggest that 56 percent of the beef import volume between January and November 2016 came from Nicaragua, followed by 23 percent from the United States and another 21 percent from Chile. Beef imports from Nicaragua and Chile enjoy duty-free access as a result of the Central American Common Market and the Costa Rica-Chile Free Trade Agreement, respectively.

<sup>&</sup>lt;sup>11</sup> The low level of support for sanitary services for Colombia is confirmed in Figure 6 (GSSE Composition).

#### **MEXICO**

#### **BEEF AND RICE: UNILATERAL TARIFF RATE QUOTAS**

During 2016 and 2017, the government of Mexico established the specific trade policy provisions governing the new unilateral tariff rate quotas (TRQs), which will allow 200,000 mt of beef and 150,000 mt of rice of any origin to enter Mexico duty-free. The TRQ was established in order to have available mechanisms to address situations that could affect availability and access to these products in order to guarantee supply and protect the income of Mexican families, contributing to the stability of the national market for the benefit of consumers. In the case of beef, consumer beef prices increased by 55 percent in the period from December 2011 to December 2016, mainly due to a reduction in domestic availability, the growth of Mexico's beef exports to the United States, and a decline in the level of imports. In the case of rice, between 2012 and 2016, the average annual growth rate of rice production was 8.58 percent. However, this increase in domestic rice production was insufficient, as imports still accounted for 83 percent of domestic consumption.

## SUGAR: REFERENCE PRICES, EXPORT QUOTAS, AND SUGAR MILL DIVESTITURE

The National Committee for the Sustainable Development of Sugarcane (CONADESUCA) established a 2016-2017 reference price of US\$591 per metric ton and a restriction on exports based on the total quota of sugar that was exported to the United States in the 2015-2016 sugar cycle. The adjusted quota is 1,178,116 mt raw value, an increase of 19.8 percent over the December 24, 2015 export limit of 983,248 mt. The government also published a public tender inviting bidding from private companies to take over operations of the last two state-owned sugar mills managed by the Fund of Expropriated Sugar Sector Businesses (FEESA), which was created to administer government-expropriated sugar mills.

#### **PERU**

#### **NEW GOVERNMENT PLAN**

Elected in 2016, President Pedro Pablo Kuczynski unveiled a Government Plan that includes measures to support agriculture. The plan proposes the development of two institutions: Serviagro and Sierra Azul. The first is a technical assistance program to disseminate new technology and best practices to small farmers with an annual budget of 200 million nuevos soles (approximately US\$60 million at the current exchange rate). The second, Sierra Azul, will update and install adequate irrigation infrastructure

in the mountainous Andes region of Peru with a budget of 400 million nuevos soles annually (approximately US\$122 million). The plan also proposes to increase the capacity of the national agricultural lending and finance institution (AgroBanco) to lend to small farmers, to improve the quality of seed stock (with a particular focus on yellow corn and potatoes), and to formally title lands belonging to small and indigenous farmers. The focus is entirely on small farmers and alleviating rural poverty within the domestic market.

## TRADE POLICY, STRONG GROWTH AND POVERTY REDUCTION

Peru's pursuit of an open trade agenda for more than two decades has facilitated economic growth and diversification of its production base. The agricultural sector grew an average of 3.2 percent per year from 2011 to 2016, with production doubling between 2006 and 2015. Growth has been propelled by increased cultivation of non-traditional products such as asparagus, avocados, quinoa, and grapes; these now account for 85 percent of Peru's agro-exports. The Ministry of Agriculture expects agricultural exports to surpass US\$10 billion by 2021. At the same time, expanded agricultural production has lowered rural poverty by nearly 16 percent. Average monthly income from agricultural activity nearly doubled from 2006 to 2014, with rural poverty decreasing from 63 percent to 47 percent. Since the U.S.-Peru Trade Promotion Agreement (PTPA) entered into force in 2009, two-way agricultural trade has doubled, growing from US\$1.46 billion in 2009 to US\$3.31 billion in 2016.

# 4. SPECIAL TOPIC: RICE POLICY IN LAC, A CASE OF COMMODITY POLICY ANALYSIS



Agricultural policy support for rice in LAC is a topic of special interest because of its importance as a strategic commodity both in terms of production and consumption.

This section discusses several issues relevant to the region including: differences in polices among countries and their impact on high and low technology farmers, the potential to introduce support measures that might be less distorting than market price support, how regional trade agreements may affect rice producers in various countries (some positively; others facing more competition), and the need for additional research on how expenditures to improve public infrastructure could contribute to enhancing rice competitiveness and production.

Approximately one million farmers in the LAC region depend on rice as their main source of energy, employment, and income, illustrating the importance of rice production to the region. Of these, about 800,000 are resource-poor smallholders, planting less than 3 hectares. They cultivate rice manually, producing only 6 percent of the total rice output in LAC. The other 200,000 rice growers produce 94 percent of the rice on larger (15-50 hectares on average) mechanized farms.

In the 2016-2017 crop year, 3.6 percent of the world's rice production took place in LAC countries, which produced 5 percent of rice exports. Production in South America was 16,558 thousand metric tons (tmt), compared to consumption of 14,990 tmt, indicating that the region, particularly Uruguay, Brazil, and Argentina, produced export surpluses. In contrast, in the Caribbean, production was 884 tmt, while imports were 1,881 tmt, reflecting the region's need to import rice and its importance for food security (USDA-FAS World Grain Markets and Trade, December 2017).

Rice was a leading pioneer crop for area expansion and colonization until the 1980s, when the trend in agriculture reverted to more intensive practices as a result of more open trade policies and the need to increase efficiency and competitiveness. Looking to the future, the LAC region has the potential to increase its importance in the production of rice and its participation in the global rice trade as a result of the ample availability of land and water and the productivity increases that technical change makes possible. Higher yields are possible in the future as a result of the shift to irrigation as well as the continuous release of improved varieties and more efficient agronomic practices. An increased role for LAC in the world rice trade would help stabilize global price volatility and ensure greater food security, as unlike other grains (corn and wheat), only 9 percent of global rice production is traded on world markets.

On the consumption side, after sugar, rice is the leading source of calorie intake for the LAC population, and in tropical areas, the most important source of protein for the lowest 20 percent of the population by income. Rice also makes up to 15 percent of budget expenditures for the population in the lowest 20 percent of the income distribution in the region. A new round of post-NAFTA

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 $<sup>^{12}</sup>$  In 17 of the 22 countries in the Agrimonitor database, rice is part of the basic commodities "basket," making up 70 percent of the agricultural GDP that is used in the OECD's methodology to calculate the Producer Support Estimate.

trade agreements are now in effect (DR-CAFTA, U.S.-Colombia, and U.S.-Peru) and present a challenge and opportunity for policy reforms affecting producers and consumers of this important commodity. A review of agricultural policy and its application to rice as a commodity of strategic importance in production, trade, and consumption in the LAC region is therefore warranted.

## KEY TECHNICAL AND AGRONOMIC ISSUES FOR RICE PRODUCTION

The policy framework for rice can be examined from the perspective of contributing to, or alternatively, retarding progress in addressing the key technical and agronomic challenges that rice production faces in the region.<sup>13</sup> These issues can be summarized as follows:

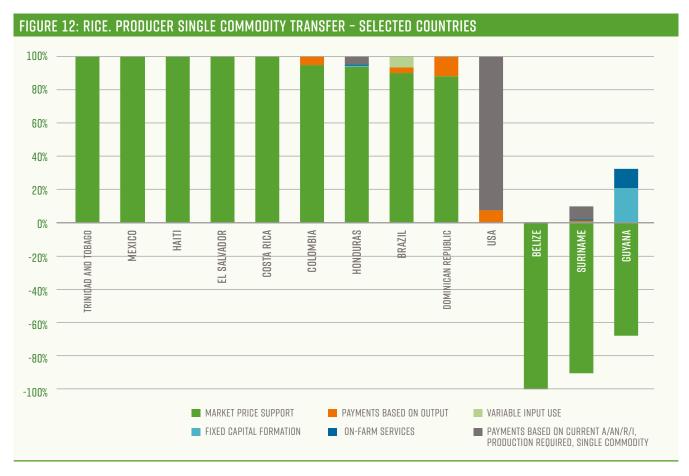
- Adoption of more efficient agronomic practices for rice farmers producing on irrigated land, in addition to the adoption of high-yield rice varieties, which more than 70 percent of farmers already use.
- 2) Maximize production in irrigated rice areas where production of two crops per year is possible.
- 3) Adequate management of the crop cycle, including timing of planting, which is critical for luminosity, water management and fertilizer application.

#### RICE POLICY FRAMEWORK

As illustrated in Figure 12, despite the importance of rice in the agricultural sector of the region, in terms of the "policy mix," the range of policy instruments used to support rice is quite limited. An analysis of the Producer Single Commodity Transfer (producer SCT) component of the PSE for rice reveals that MPS was the most prevalent policy tool (i.e., border protection) in twelve of the countries. There are a few examples of other policies in use (e.g., payments based on outputs, on farm services, payments based on input use, fixed capital use, and payments based on acreage).

<sup>&</sup>lt;sup>13</sup> Based on personal communications with Dr. L. Sanint, former CIAT Rice Economist, and Ricardo Labarta, CIAT, Cali, Colombia.

<sup>&</sup>lt;sup>14</sup> Producer Single Commodity Transfers (producer SCT): The annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farm gate level, arising from policy measures directly linked to the production of a single commodity such that the producer must produce the designated commodity in order to receive the transfer.



There are five countries reporting MPS as the only form of support (Costa Rica, El Salvador, Haiti, Trinidad and Tobago, and Mexico). Of the remaining eight countries, MPS is still the primary form of support for four, but these countries also employ complementary programs to support rice using other policy instruments mentioned above (Colombia, Brazil, Honduras, and the Dominican Republic). The United States does not report the use of MPS as a policy instrument at all, instead applying other instruments such as payments based on acreage. In three countries (Guyana, Belize and Suriname), the MPS was on average negative, indicating that production is in effect directly or indirectly taxed. Finally, in two countries (Argentina and Uruguay), no policy support for rice is implemented, although both are important rice exporters in the region.

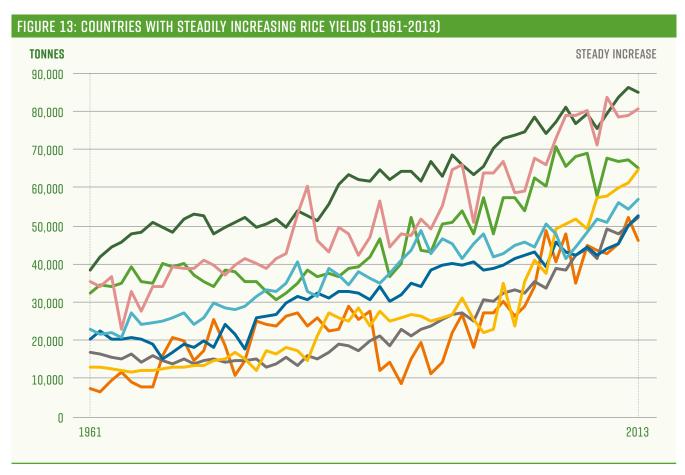
In summary, the review of rice policy in the LAC region reveals that most countries have supported rice production with high border tariffs or support prices. The result of these policies is an environment in which domestic prices are significantly higher than international prices, which may allow inefficient farmers to continue production while more efficient farmers may benefit from higher profits due to the use of these price support mechanisms.

#### HISTORICAL TRENDS IN RICE YIELDS

To consider the structure of agricultural support for rice and its potential implications for price production and productivity, historical changes in yields based on FAO data from 1961 to 2014 for 13 countries are reported in Figure 13.

Yields have increased steadily over the period in Uruguay, Argentina, Brazil, Belize, Guyana, Honduras, Mexico, and the United States. These are all countries that report other forms of support to rice farmers, either in addition to MPS or, in the case of the United States, Uruguay, and Argentina, without MPS. These results suggest that high MPS by itself does not result in productivity growth, as higher prices may not be as effective in increasing productivity as targeted support measures linked to technical changes in management practices. It is also important to consider investment in public infrastructure (GSSE), which is not discussed in this section. These are preliminary findings for discussion that could be substantiated with a more in-depth analysis of data on rice production and policy measures.





Source: FAOSTAT.

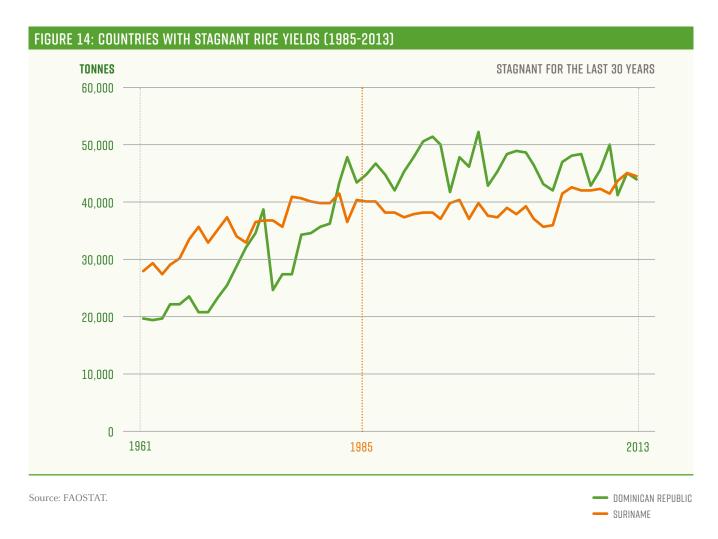
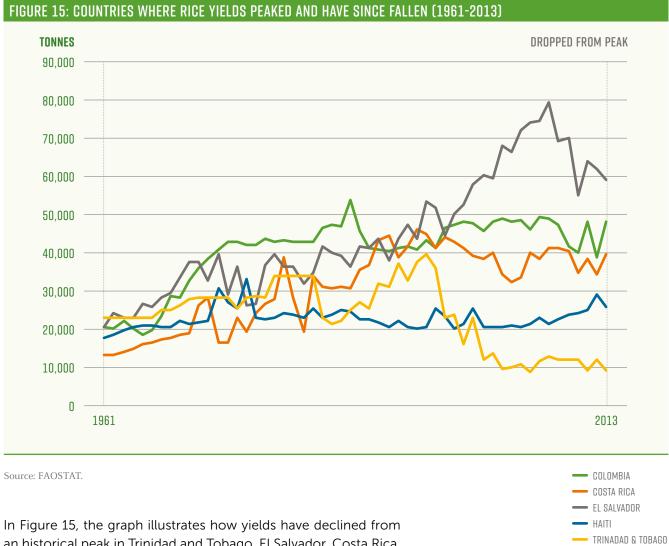


Figure 14 shows that in the Dominican Republic and Suriname, yields increased initially from the early 1960s to the mid-1980s due to the adoption of high-yield varieties, but they have since stagnated at the same level, with minor variations that may be due to weather effects. In both cases, these are countries that have supported rice farmers with payments based on output and variable input use.



In Figure 15, the graph illustrates how yields have declined from an historical peak in Trinidad and Tobago, El Salvador, Costa Rica, Haiti, and Colombia. It is noteworthy that these are the same five countries that report MPS as the only or principal form of government support to rice farmers; the lack of complementary support measures to address technical change and management practices may be hampering improvements in productivity in the sector.

Although these are only preliminary findings for discussion, this description of agricultural support policies for rice in LAC countries and historical trends in yields suggest that the five countries that support rice farmers only through the MPS policies without additional complementary policy measures may find it beneficial to consider policy reforms to support improvements in yields.

## IMPLICATIONS OF TRADE LIBERALIZATION FOR RICE IN LAC COUNTRIES

Where countries have negotiated trade liberalization agreements affecting rice, such as between Central American countries and the Dominican Republic in DR-CAFTA and in the Colombia and Peru free trade agreements with the United States, the expectation is that levels of border protection will come down over time. Research on factors limiting rice yields and the limited support for extension services and other inputs suggests that governments should seek to increase the productivity of rice farmers by providing direct payments linked to technical support to improve production practices that can increase yields.

However, it is necessary to also address other structural constraints the sector faces, including public infrastructure (roads, irrigation, and drainage). These policy actions are expected to improve rice production practices resulting in increased yields and greater competitiveness. A parallel reduction in border measures would lower domestic prices, increasing access for low-income consumers to this strategic commodity.

<sup>&</sup>lt;sup>15</sup> The IDB has financed projects and conducted ex-post evaluations of programs designed to directly support technological change and adoption. For a discussion of the results of these programs, see: Comparative Project Evaluation of Direct Support to Producers: Annex 2 (Valdes Conroy, H., Schijman, A. and Molina, A., June 2015).

# 5. CONCLUSIONS AND PROPOSED FUTURE AGENDA FOR AGRICULTURAL POLICY REFORM



Collectively, the LAC countries covered in this report (excluding Argentina) transferred annually an average of US\$23.8 billion to agricultural producers in the years 2009-2016 (compared to US\$601 billion in the OECD countries) and spent an additional US\$6.1 billion (compared to US\$135 billion in the OECD countries) on general services that support the functioning of the sector.

The structure of support to agriculture in the LAC region therefore is heavily oriented towards price support in most countries and acts as a burden particularly on consumers. Consideration should be given to shifting support away from transfers to private producers of specific commodities and towards public goods to improve the effectiveness and efficiency of policies.

A re-orientation of policy approaches to address future challenges and opportunities for agriculture in the LAC region requires a clear vision of the end-point of policy reforms at national and international levels. In the short term, an agricultural public policy dialogue needs to be undertaken in LAC countries in the following areas:

## MARKET PRICE SUPPORT REDUCTION AND REPLACEMENT WITH NON-DISTORTIVE DIRECT SUPPORT AND/OR AGRICULTURAL PUBLIC GOODS AND SERVICES

LAC consumers pay the bill for high levels of MPS, especially low-income households, and MPS also is highly distortive for production and trade. However, fiscal space must be available to carry out such reforms (direct support payments), and therefore, external financing could support this transition. Mexico (post-NAFTA) can serve as a good example for such a transition.

### TRANSITION FROM INPUT SUBSIDIES TO DECOUPLED PAYMENTS

Input subsidies are often inefficient in assisting farmers, as evidence from impact evaluations suggests (López et al., 2017, on the case of Paraguay). In various cases, they increase the risk of overuse or misuse of farm inputs such as fertilizers, which can be environmentally harmful. Concessional credit schemes can impose a big burden on government budgets, as is the case in Brazil. Variable input support has also been shown to be particularly distortive for production and trade. Decoupled subsidies (as in Mexico and Paraguay) could be an interesting choice for the short-term policy dialogue.

#### **DIRECT PAYMENTS**

As a means for accomplishing specific policy objectives such as achieving environmental benefits and supporting farm incomes, as was done by PROCAMPO in Mexico, in Paraguay through the reform of support for cotton producers, and through the PATCA program to support technology transfer in the Dominican Republic. However, these payments must be linked to clear objectives and targets, be well-tailored to the problem at hand and, when necessary, be complemented by programs addressing

other structural problems facing producers (e.g., lack of infrastructure, land tenure insecurity, and market constraints). Direct payments can therefore play an important transitory role in the process of reforming agricultural policies in LAC countries.<sup>16</sup>

### INVESTMENTS IN AGRICULTURAL PUBLIC GOODS AND SERVICES

Government support for agriculture in LAC should move away from direct farm support to increase investment in knowledge, education, and strategic infrastructure that can help improve the long-term productivity, sustainability, and profitability of the sector. Increased investment in these public goods has been shown to reap larger economic returns than direct income support to farmers. The OECD countries spend an average of 13 percent of their TSE on GSSE. This can be used as a benchmark for those LAC countries that have allocated less than 13 percent of TSE to GSSE.

# WITHIN AGRICULTURAL PUBLIC GOODS AND SERVICES, INVESTMENTS IN AGRICULTURAL KNOWLEDGE AND INNOVATION

In the LAC region, countries invest less in agricultural knowledge and innovation than OECD countries, which invest 32 percent of GSSE in these areas; institutions and policies responsible for the generation of knowledge and innovation in the region need to improve their strategic orientation on long-term issues.

<sup>&</sup>lt;sup>16</sup> Examples of these programs include emergency funds that support farmers after natural disasters or price drops.

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