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AGRICULTURAL POLICIES IN THE CARIBBEAN. A REGIONAL ANALYSIS

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FOREWORD

If we must eat to survive, we must make agriculture sustainable. To make agriculture sustainable, we must consider the necessary strategic actions to understand the challenges in the sector, solve problems and innovate. That is why in July 2017, several Ministers and other senior representatives of the Ministries of Agriculture of Suriname, Guyana, Haiti, Dominican Republic, Jamaica, Belize, Barbados and The Bahamas participated in the Caribbean Agricultural Policy Forum organized by the Inter-American Development Bank (IDB).

The Forum analyzed the agricultural policy strategies of the different countries and their impact on the performance of the sector. It was an opportunity to discuss the challenges the Caribbean's agricultural sector faces, including: the vulnerability of small producers to price volatility in the global market and of course the impacts of climate change. The dialogue was based on agricultural public policy data collected for each Caribbean country within the framework of the IDB's Agrimonitor initiative.

The following publication gathers the main findings and summarizes how agricultural policies affect producers and consumers as well as how the limited funding for agricultural services, such as research and infrastructure, could limit the ability of Caribbean farmers to compete effectively in global markets. The analyses presented are therefore meant to contribute to the Caribbean's regional dialogue for the design of more effective agricultural policies, which we hope will strengthen the sector and improve the lives of people in the region.

Therese Turner-Jones
IDB Manager for the Caribbean

Pedro Martel
Rural Development, Environment
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Division Chief at the IDB

1. MEASURING SUPPORT FOR AGRICULTURE

By Tim Josling and Carmine Paolo De Salvo

1.1. WHY MEASURE SUPPORT FOR AGRICULTURE?

The agricultural sector is of strategic importance in most countries of the Caribbean region. The agricultural sector is under pressure to provide jobs, rural incomes, export earnings, and quality food to local consumers. On the other hand, it is constrained by the need to sustain the environment and to compete with other sectors for resources.

In this context, choosing the appropriate policies for the sector is a challenge. Government policy toward the agricultural sector can range from active intervention to benign neglect. Instruments

used include tariffs on imported foodstuffs, administered prices set through marketing agencies, subsidies on inputs, and capital grants. Services provided to the sector as a whole include agricultural research, extension, marketing assistance, and rural infrastructure improvements. The objectives and instruments of agricultural policy and related aspects of food policy differ among countries and can change over time.

Additionally, transparency is an important part of designing constructive policies that fulfil important objectives. Stakeholders and civil society have an interest in the impacts of public policy. Any evaluation of these impacts requires systematic monitoring. Such monitoring should also enable comparison among countries and over time.

Developing indicators is an important aspect of this monitoring. Agricultural policy is often very complex, with many different instruments and multiple commodity variations. Indicators, when chosen carefully, make sense of the complexity of a policy area. Although indicators are not in themselves an evaluation of the success of a policy (unless the objectives are defined with respect to those indicators), any evaluation needs a consistent baseline against which to measure progress.

The most widely-applied indicators for monitoring agricultural policy have been developed by the Paris-based OECD. **For the past 30 years, it has used the Producer Support Estimate (PSE) and related indicators as its main tool for monitoring member-country agricultural policy**. The original PSE was developed by FAO in the 1970s as an indicator of aggregate transfers to producers effected by a range of agricultural policy instruments. The measure was developed further by the OECD in the lead up to the Uruguay Round as a way of quantifying the trade effect of the farm policies of developed countries. The OECD started to collect data to calculate PSEs in the 1980s in response to a mandate from trade and agricultural ministers.[1] The Secretariat has maintained a database for each of its member countries that covers from 1987 to the present. Each year, a report is produced in the series "Monitoring and Evaluation of Agricultural Policies." The estimates found in the OECD PSE extend through the year 2016 (OECD, 2017).

TRANSPARENCY IS AN IMPORTANT PART OF DESIGNING CONSTRUCTIVE POLICIES THAT FULFIL IMPORTANT OBJECTIVES. STAKEHOLDERS AND CIVIL SOCIETY HAVE AN INTEREST IN THE IMPACTS OF PUBLIC POLICY.

1. The OECD Manual (2009) includes a short history of the adoption of the PSE by that institution.

Agricultural support is defined by the OECD as "the annual monetary value of gross transfers to agriculture from consumers and taxpayers, arising from governments' policies that support agriculture, regardless of their objectives and their economic impacts" (OECD, 2009). The **Total Support Estimate indicator (TSE)** measures the total of all policy transfers to the agricultural sector and to consumers through explicit food subsidies (net of payments of tariff revenue on imported foods), and is commonly expressed as a share of GDP. The **Producer Support Estimate (PSE)** represents policy transfers to agricultural producers, measured at the farm gate and often expressed as a share of gross farm receipts. The **Consumer Support Estimate (CSE)** includes, as a negative value, the transfer to producers as a result of higher market prices, offset by the value of direct food subsidies, net of payments of tariff revenue on imported foods. And the **General Services Support Estimate (GSSE)** measures transfers available generally to the farm sector (i.e. not commodity-specific or targeted at particular groups of producers). This includes transfers for infrastructure, training, and marketing assistance.[2]

Indicators themselves have retained their relevance as the issues facing agricultural policy have changed. The Uruguay Round of GATT negotiations made full use of indicators in establishing disciplines on domestic farm programs. These disciplines have led to extensive monitoring: the Uruguay Round Agreement on Agriculture (AoA) requires the notification of levels of domestic support on an annual basis to ensure compliance with the agreed disciplines. The main indicator is the **Aggregate Measurement of Support (AMS)**, a close relative of the market price support included in the PSE.[3] Developed countries have generally stayed well below their domestic support limits as they have moved away from price support in favor of direct payments and crop insurance schemes.

New issues that have arisen to broaden the focus of the AoA to include the growth of spending on agriculture by prominent developing countries, including the purchase of grains for food distribution schemes and the provision of energy and other services to rural areas at a reduced price.

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2. The original name of these indicators was the Producer Subsidy Equivalent and the Consumer Subsidy Equivalent. The names of the indicators were changed in 1999 by the OECD, though the acronyms were retained and the method of calculation did not change.

3. The main difference between the two indicators is that the AMS uses fixed "reference prices" to calculate market price support (Orden, et al, 2011). OECD countries use basically the same data when reporting to the WTO and when agreeing to the OECD PSEs (Josling and Mittenzwei, 2013).

The discussions in the WTO Doha Round have also challenged ongoing domestic agricultural support in the US and the EU that is seen as limiting developing country agriculture. The price spikes of 2007-2008 and 2010 have brought to the fore the role of the WTO in improving food security. The 2015 Paris agreement on reducing of greenhouse gas emissions has raised issues regarding agriculture's role in climate change mitigation. The international discussion on agricultural policy has grown more complex with the increasing importance of bilateral and regional trade agreements. These agreements are likely to include reductions in trade barriers to (many) agricultural goods but rarely impinge on domestic policy choices. In each of these areas, the need to monitor agricultural policies is evident.

THE INTERNATIONAL DISCUSSION ON AGRICULTURAL POLICY HAS GROWN MORE COMPLEX WITH THE INCREASING IMPORTANCE OF BILATERAL AND REGIONAL TRADE AGREEMENTS.

1.2. AGRICULTURAL POLICY CHALLENGES FOR THE CARIBBEAN COUNTRIES

Agriculture in the Caribbean region faces several challenges that require policy intervention. These challenges include the prevalence of relatively small and fragmented farms; rapidly changing marketing channels associated with globalization of the food industry; high transport costs that inhibit inter-island trade; significant risks from adverse weather events; the macroeconomic impacts of tourism, oil and other dominant sectors in the economy, and the relatively small size of most of their economies, meaning domestic markets for local producers are small. The region as a whole needs to develop more integrated agricultural markets in order to lower costs and lay the groundwork for scale economies. Policies to counter both short- and long-term weather and climate impacts need to be put in place, and infrastructural improvements are needed in many countries of the region to offset the historical emphasis on export sales of tropical commodities.

Caribbean agriculture has developed along two paths. **The first path is the commercially-important export sectors**, built on historical trade patterns and dominated by a handful products (mainly sugar, coffee, and bananas). Rice, citrus, cocoa, and tobacco are also important export crops in some of the countries in the region. These crops earn foreign exchange and have played an important (if controversial) role in economic development. But they are also vulnerable to economic and climatic events. By their nature, export crops compete in world markets and are impacted

by the policies of importing countries.[4]Hurricanes can devastate tree crops and destroy infrastructure. While dependence on revenue from export crops is declining along with production of the crops themselves, they still dominate the agricultural sectors of many Caribbean economies.

The second path is that of peasant farming, often done on hillsides with thin soils and low productivity. Farms are small, and often fragmented. Markets are usually local and informal, with an emphasis on vegetables (yams, okra, and potatoes) and fruits (mangoes, breadfruit, akee, and plantains). The problems in such areas include rural poverty, few employment alternatives, lack of training, and poor infrastructure. These farming areas are also vulnerable to climate extremes, such as drought, as well as to environmental problems such as soil erosion. Policies in this area include targeted infrastructure improvements, but often it is the non-agricultural interventions in areas such as education, health, and social safety nets that have the greatest potential impact.

Many of the strategic issues facing policy makers in these countries revolve around the different needs of these two faces of agriculture. This leads to conflicting views of the role of agriculture, and hence to divergent strategies on issues such as trade policy. An open trade policy is generally beneficial to export interests, although a weakening of bilateral trade agreements (as in the case of sugar exported to the EU) can pose problems. New export markets for non-traditional exports (yams, mangoes and peppers) have opened up and provided income to some small-farm areas. But the main impact of trade liberalization has been the reduction of the price of staples (cereals, dairy products and meats) for consumers. This has had a negative impact on the price of domestic supplies of these products or their close substitutes.

In many countries, a policy debate persists between those arguing that trade liberalization over the last 25 years in most countries in the region has had a positive impact on the economy by lowering consumer prices and removing a regressive tax (tariffs on foodstuffs), and those arguing that the policy of allowing a greater flow of low-priced imports has been catastrophic for rural producers. Thus, trade policy is an important aspect of agricultural policy, as it sets the price environment for both exportable and importable commodities.

TRADE POLICY IS AN IMPORTANT ASPECT OF AGRICULTURAL POLICY, AS IT SETS THE PRICE ENVIRONMENT FOR BOTH EXPORTABLE AND IMPORTABLE COMMODITIES.

4. In some cases the exports are granted favorable access into importing markets (as with sugar and bananas into the EU) but this emphasizes the dependence upon importer trade and domestic policies.

1.3. APPLICATION OF PSE MEASURES TO THE CARIBBEAN REGION

Though the PSE and related indicators were introduced for use in developed countries, the concepts hold for developing countries as well. **The starting point is the calculation of the basic indicators to show the amount of support given by government programs to the farm sector and related parts of the food sector.**

The OECD methodology breaks the Producer Support Estimate into three specific components: support from output market price measures (market price support, or MPS); support from input and capital market subsidies (IS); and support from direct payments to producers (DP). In addition to the PSE, support for producers includes the cost of providing general services that benefit the sector but are not paid to individual producers. This is termed the General Services Support Estimate (GSSE) and is often expressed as a percent of the Total Support Estimate (TSE). The TSE includes the PSE and the GSSE, along with a part of the CSE —namely, the expenditure by taxpayers in favor of consumers of food, net of the revenue from tariffs on imported items.[5]

The OECD calculations of the PSE and related indicators have been interpreted primarily in the context of farm support policies in developed countries. OECD countries have been "reforming" their policies over the past twenty years by reducing the role of governments in the management of markets and compensating their farmers with direct payments in place of guaranteed prices. Though the extent of this shift still ranges widely among countries, the trend has been pervasive. Many of the shifts in support as reflected in the balance between the above-mentioned categories have been as a result of this policy move toward more direct payments.

The application of the PSE methodology to the Caribbean countries suggests a relationship between the agricultural policy indicators and the above-mentioned challenges. These challenges include rural poverty and food security and weather and climate fluctuations, as well as which type of trade policy to adopt and how much agricultural productivity needs to be increased in the region.[6] With respect to rural incomes, the PSE indicators can

5. The CSE and the PSE both include the implicit subsidy/tax on domestic foods arising from the Market Price Support. Thus the TSE has to avoid double-counting of this transfer amount.

6. The FAO (2015) has provided an overview of the nature of the food security in the Latin American and Caribbean region.

shed a light on the distributional impacts of government transfers. Do benefits go to small farmers and those with limited resources? Or do the main transfers support large scale farming based on export commodities? The indicators also quantify the impact on consumers, and can readily be paired with data on consumer spending by income group to explore the extent to which policy is regressive. In some countries, the regional distribution of government transfers may be of interest, and again can be shown by linking PSE indicators with regional production patterns.

The challenge of adapting Caribbean agriculture to be sustainable, both in the present and the future, is of growing interest.[7] It has been given a boost by the Paris agreement on reducing greenhouse gas emissions, which involves individual countries committing to voluntary GHG emissions targets.[8] All Caribbean countries have provided INDCs and have indicated that agriculture emissions are to be included in the process of meeting the reduction obligations (IICA, 2016). Thus, as reduction commitments are applied to the agricultural sectors, it is useful to know the relationship between agricultural policy and climate change obligations. It is possible to establish which parts of the agricultural sector contribute the most to the economy at the least cost in terms of GHG emissions.[9]

The PSE indicators reveal much about the trade policy of individual Caribbean countries and the problems that exist for an increase in trade among the island economies. Different levels of MPS for particular commodities are an indication that an opening up of trade would improve the regional distribution of production. Though one would need to examine the implications for a more open food trade in the region there would a priori appear to be considerable consumer benefits, which will contribute to food security and reduce poverty.[10] Moreover, such open markets would be particularly appropriate as part of a strategy of increasing the size of markets for competitive local producers, though the issue of how to help less-competitive producers would remain.

THE CHALLENGE OF ADAPTING CARIBBEAN AGRICULTURE TO BE SUSTAINABLE, BOTH IN THE PRESENT AND THE FUTURE, IS OF GROWING INTEREST.

7. Ludena and Yoon (2015) develop indicators of vulnerability of agricultural systems to weather variability and climate change.

8. The Paris Climate Change Agreement of December 2015 (COP 21) called for "intended nationally determined contributions" (INDC) to be defined by signatories. The levels of INDC for the countries of the Caribbean are reported in a recent IICA study (IICA, 2016). All but one of the Caribbean countries have included agriculture as a relevant sector in terms of GHG emissions and potential for GHG reductions.

9. For a pilot study addressing this question see Josling et al, 2017.

10. See Shearer, et al. (2009) for a fuller discussion of the treatment of agriculture in regional agreements in the Latin America and Caribbean region.

With respect to productivity and better use of resources, the PSE indicators can yield crucial information.[11] The GSSE, in particular, shows government spending on a range of agricultural support activities. **The information on such spending says much about the priorities and concerns of governments**, and a cross-country comparison can be useful as a way of comparing priorities and programs.[12]

The PSE and related indicators reported in this book can also be compared across a wider range of countries. The IDB has assembled a database (Agrimonitor) to facilitate dialog and improve information on agricultural policies in the Latin America and Caribbean region. Because it is based on OECD concepts and methods, the database can also be used to make comparisons outside the region. The range of policy options available to developing regions such as LAC are similar to those available in Europe, the US, Canada, and Japan. But policies in most of the Caribbean have yet to shift toward direct payments to the same degree. Emphasis in this region thus remains on protection at the border (as captured by the MPS) and support to agriculture though the provision of general services (GSSE).

One lesson from the development of the OECD/PSE database is the importance of careful data collection and categorization. Databases are most useful if the data can be trusted to be the best available. But practical decisions have to be made as to what data is collected. The way in which difficult-to-observe data is collected is crucial to the credibility of the database, as is continuity over time and the comparability across countries in the region. The fact that the Agrimonitor database covers a number of years and is as up-to-date as feasible adds to its usefulness as it reflects policy trends and periods of reform. It also allows the analyst to observe policy reactions to exogenous events, such as world price fluctuations.[13]

The next section (Section 2) of the report discusses the agricultural support policies of nine countries in the Caribbean region. The calculation of the PSE and related indicators allows for some comparisons to be made and lessons drawn regarding the ways in which countries in the region have responded to the needs of the agricultural sector. The estimates for individual countries are compared in Section 3, which draws out some significant policy lessons for the region.

THE IDB HAS ASSEMBLED A DATABASE (AGRIMONITOR) TO FACILITATE DIALOG AND IMPROVE INFORMATION ON AGRICULTURAL POLICIES IN THE LATIN AMERICA AND CARIBBEAN REGION.

11. An analysis of agricultural productivity in the LAC region is found in Lachaud et al. (2015).

12. The IDB has been promoting the collection of information on agricultural research in the LAC region, through the Agricultural Science and Technology Indicators (ASTI) program.

13. For more detail on the Agrimonitor database see http://www.iadb.org/en/topics/agriculture/agrimonitor/agrimonitor-pse-agricultural-policy-monitoring-system,8025.html.

2. AGRICULTURAL SUPPORT IN NINE CARIBBEAN COUNTRIES

INTRODUCTION By Tim Josling

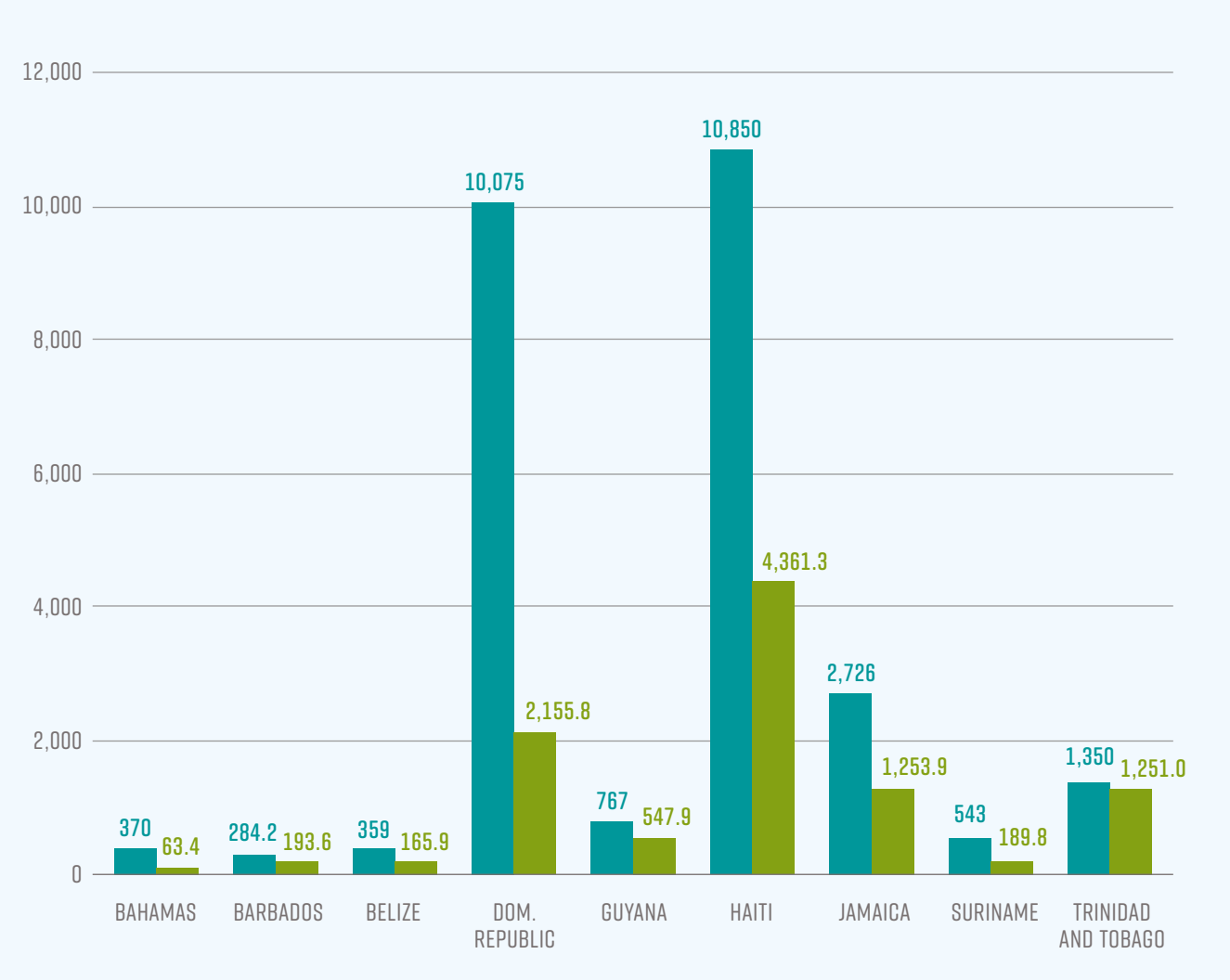
The Caribbean region comprises countries spanning a wide range of economic and demographic characteristics. This is reflected in the nine countries included in this report: **The Bahamas, Barbados, Belize, the Dominican Republic, Guyana, Haiti, Jamaica, Suriname, and Trinidad and Tobago.**

POPULATION AND LOCATION

Figure 2.1 shows the range of population size for these nine countries. Two countries stand out for their large populations: the Dominican Republic (10 million) and Haiti (close to 11 million

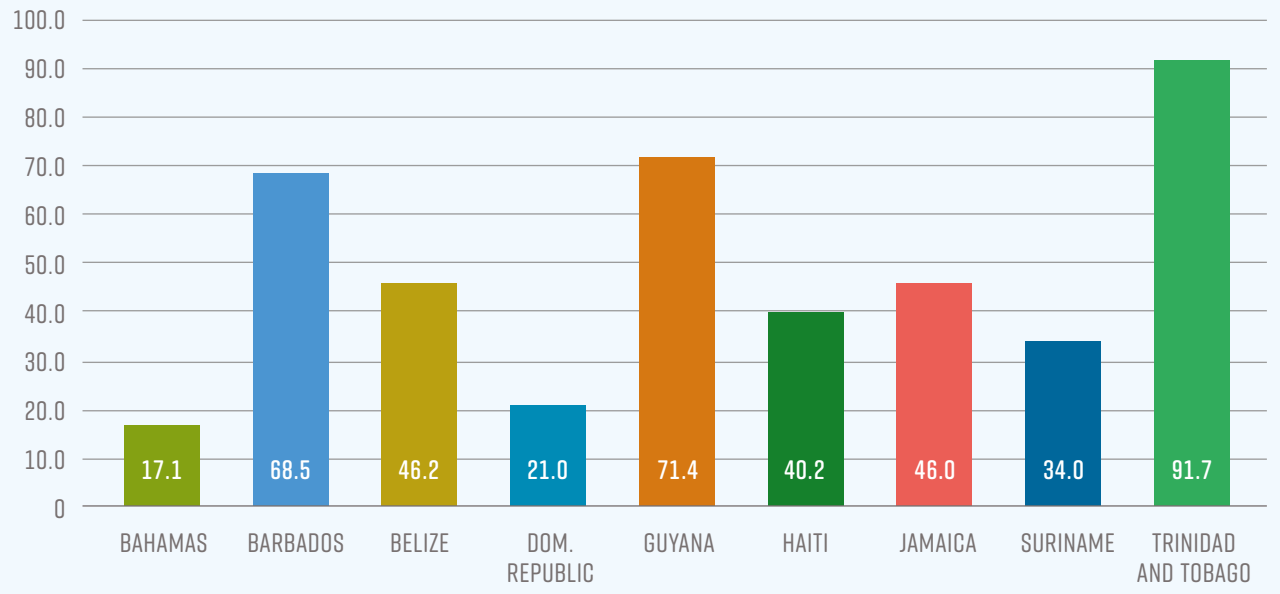
people). These two countries, sharing the biggest island in the region, present an interesting contrast, as discussed in section 3, below. The two countries also dominate the rural population in the region. But the proportion of the population that lives in rural areas in Haiti and the Dominican Republic is markedly different (Figure 2.2). Haiti has a much more rural population, a fact clearly manifest in its policy priorities and programs. Other countries have an even higher proportion of rural inhabitants, reflecting the degree of integration between urban and rural activities. More than 90% of Trinidad and Tobago's population is classified as "rural," though most of them participate in the urban labor force. Likewise, a large proportion of the populations of Barbados and Guyana is classified as rural, though it is not necessarily involved in commercial agriculture.

FIGURE 2.1: TOTAL AND RURAL POPULATION IN NINE CARIBBEAN COUNTRIES, THOUSANDS (2016 OR LATEST AVAILABLE YEAR)



Source: Compilation of numbers from country chapters.

FIGURE 2.2: RURAL POPULATION SHARE IN NINE CARIBBEAN COUNTRIES (2016 OR LATEST DATA)



Source: Compilation of numbers from country chapters.

Three of the nine countries in the study are coastal, with a significant inland area and limited transportation to neighboring countries. Belize, Guyana, and Suriname share some of the problems associated with agricultural development under these conditions, with the dense tropical forests typical of Central America restricting integration of local markets. At the same time, they also exhibit many of the features of island economies, with the traditional emphasis on exports of tropical foods and the high cost of imports. This dichotomy is evident in the agricultural sector policy priorities and choices these three countries face.

Two countries in the study are medium-sized island economies. Jamaica and Trinidad and Tobago share some of the same policy choices regarding development of their agricultural sectors, but in general have more established infrastructure in their rural areas. Indeed, Jamaica has a higher share of rural population than Haiti, reflecting distribution of the population in centers close to urban activities.

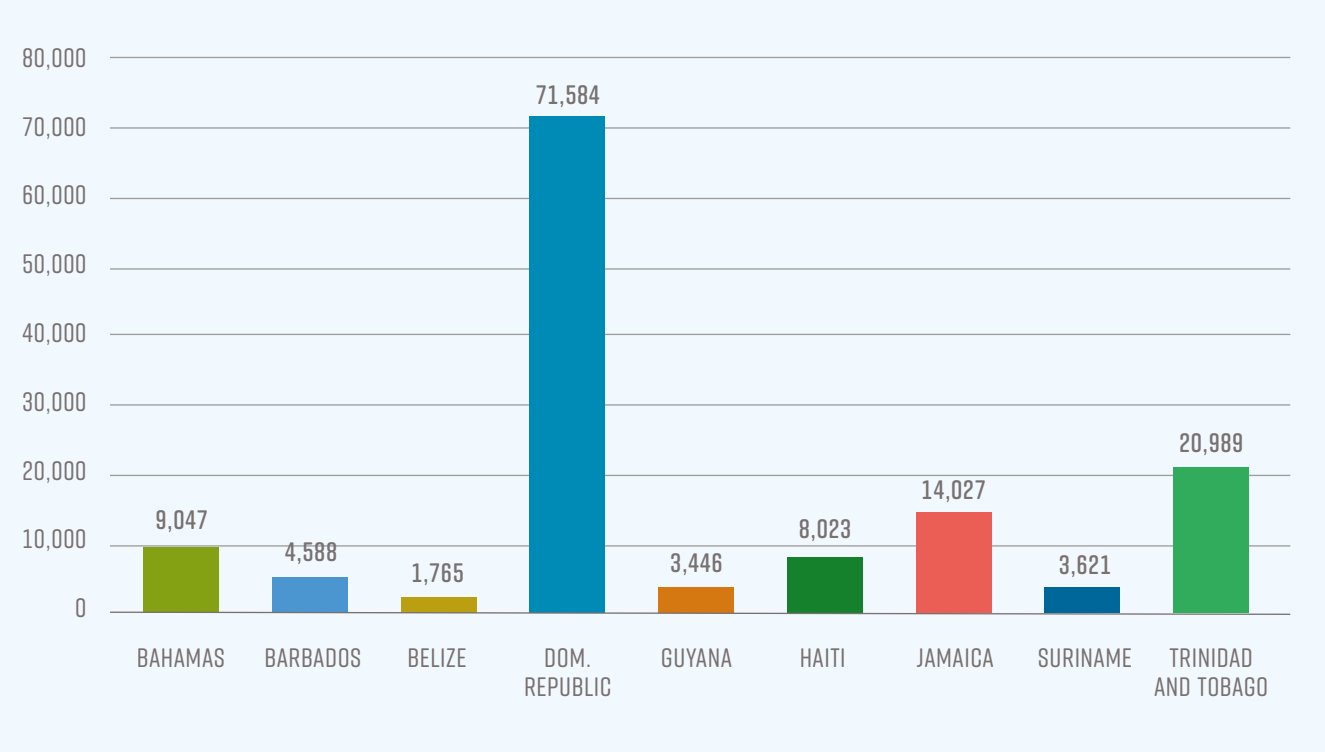
The remaining two countries in the study —Barbados and the Bahamas— also share some characteristics that influence agricultural policy. They are among the middle-income countries with strong service sectors and plentiful foreign investment. The Bahamas has an active fisheries sector that takes the place of

small-scale agriculture in the islands. Barbados has made strides in specializing its agriculture, building on a tradition of selling sugar-based spirits rather than sugar. This has enabled the sector to capture the value-added in the processing of the raw materials and reap the benefits of developing brand recognition.

INCOME LEVELS

Total GDP for the countries in this study reflects the dominance of the Dominican Republic (close to US$72 billion) in the region. By contrast, Belize, Suriname and Guyana are small economies relative to the other countries in the study. The Bahamas has a GDP similar to that of Haiti, though the *per capita* incomes are very different. Jamaica and Trinidad and Tobago are medium sized economies, representing significant markets for countries in the region (Figure 2.3).

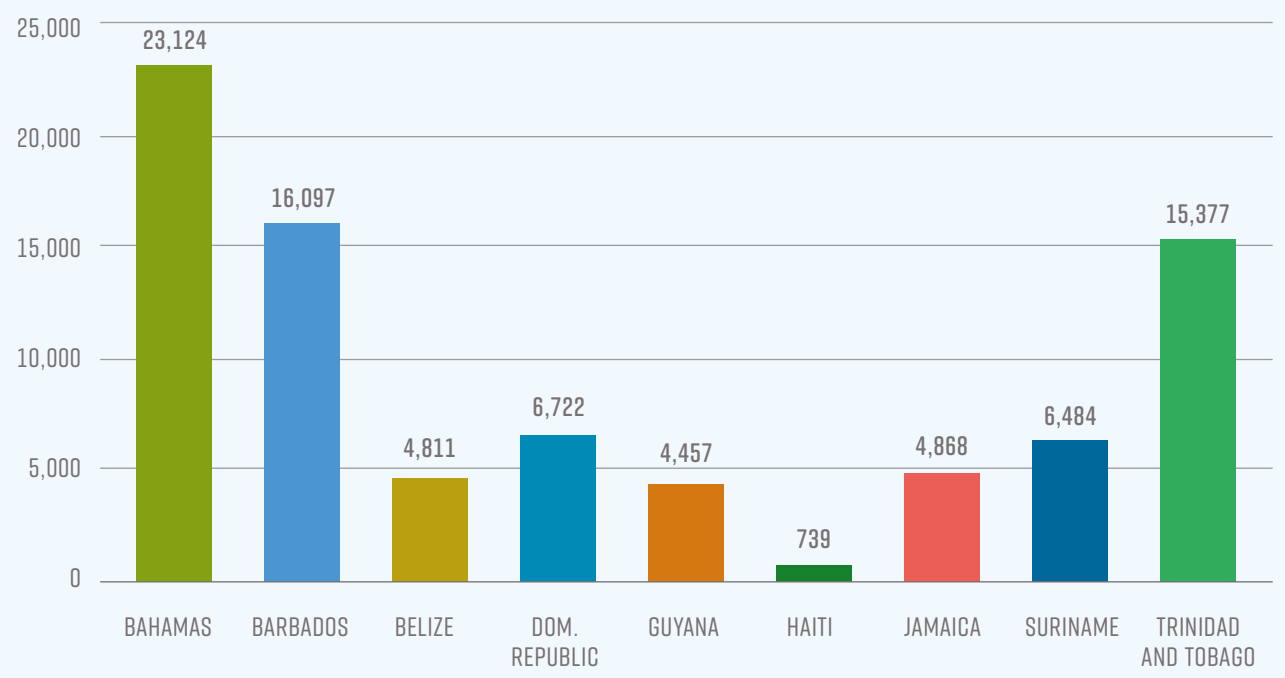
FIGURE 2.3: GDP OF NINE CARIBBEAN COUNTRIES, US$ MILLION (2016 OR LATEST DATA)



Source: Compilation of numbers from country chapters.

The relative prosperity of the regional economies is also widely dispersed. Haiti is a very low-income country (about US$740 *per capita*) whereas the Bahamas (US$23,124 *per capita*), Barbados (US$16,097) and Trinidad and Tobago (US$15,377 *per capita*) are among the countries with the highest *per capita* incomes in the region (Figure 2.4). Belize, The Dominican Republic, Jamaica, Guyana, and Suriname have modest *per capita* GDP levels. Income levels are a key determinant of economic policy and have a marked effect on the ability to support the agricultural sector. The richer countries have the financial ability to support the agricultural sector, but also the option of letting the sector sink or swim in competition with other parts of the economy.

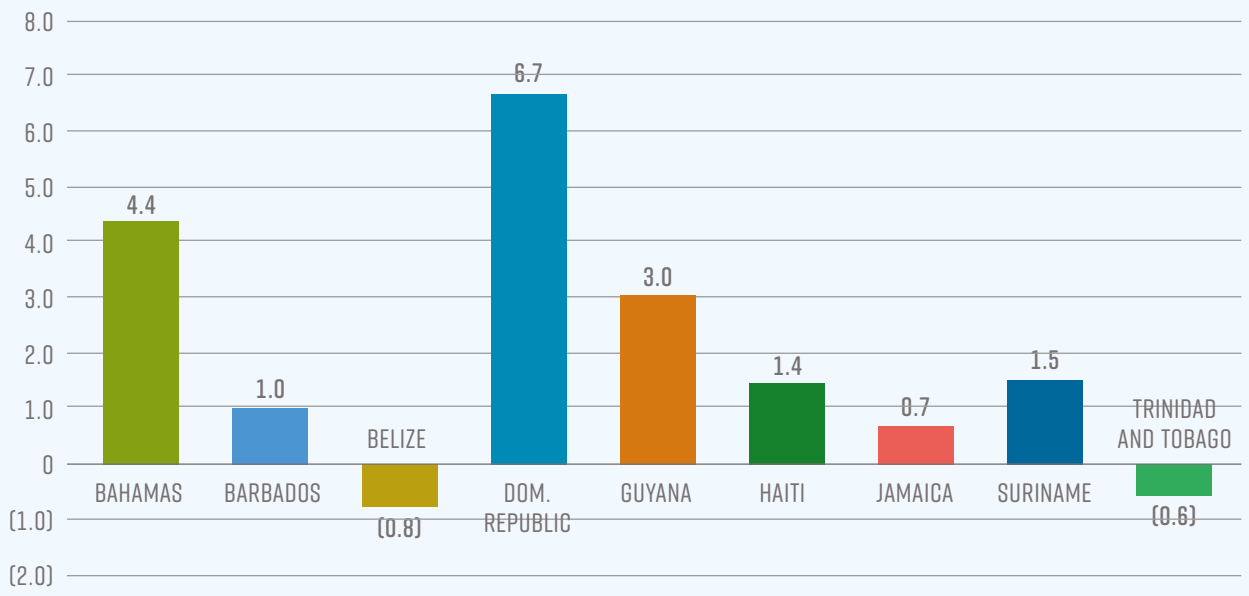
FIGURE 2.4: GDP PER CAPITA IN NINE CARIBBEAN COUNTRIES, US$ (2016 OR LATEST DATA)



Source: Compilation of numbers from country chapters.

Economic growth rates will also impact agricultural policies. Figure 2.5 shows the wide range of growth rates among the nine countries included in the study. The Dominican Republic strands out as having a high growth rate in recent years. Tax revenue will tend to increase under such circumstances, allowing government programs to expand. Belize and Trinidad and Tobago suffered from negative growth in 2016, which puts pressure on the government to cut program spending. The Bahamas and Guyana have reasonable GDP growth, but recent growth rates in Barbados, Haiti, Jamaica, and Suriname suggest tight budgets and program-spending reductions.

FIGURE 2.5: GDP GROWTH RATES IN NINE CARIBBEAN COUNTRIES, PERCENT (2016 OR LATEST DATA)



Source: Compilation of numbers from country chapters.

2A. PUBLIC SUPPORT FOR THE AGRICULTURAL SECTOR: **THE BAHAMAS**

By Olga Shik, Rachel Boyce, Carmine Paolo De Salvo

ECONOMIC GROWTH IN THE BAHAMAS

The agricultural policy of the Bahamas is deeply integrated in the country's economic policy, as the government is trying to reverse the trend of economic slowdown that continued in 2016 for the fourth year in a row (real GDP decreased by 1.7% in 2015 and zero growth is projected for 2016), reflecting a decrease in construction and moderate growth in the tourism and financial services sectors (Table 2A.1).

The inflation rate remains moderate (the increase in the CPI was 1.9% in 2015), but the unemployment rate is in the double digits, with rates of 30% among young people under 25. The poverty rate is estimated at 9% for the country, but is higher in some rural areas.

The country's endowment of agricultural lands and marine resources makes the agriculture and fisheries subsector's development a viable option for the diversification of the economy, which currently relies mostly on tourism and financial services.

TABLE 2A.1: SELECTED MACROECONOMIC INDICATORS, THE BAHAMAS

INDICATOR	UNIT	1996	2010	2015
GDP GROWTH	%	4.37	1.50	(1.66)
GDP PER CAPITA (CONSTANT 2006 PRICES)	B$ MILLION	20,555	22,139	23,950
POPULATION	'000 PERSONS	280	361	370
% POPULATION IN RURAL AREAS	%	19.04	17.45	17.13
SHARE OF AGRICULTURE AND FISHING IN GDP	%	3.34	2.10	1.60
SHARE OF AGRICULTURE IN EMPLOYMENT	%	4.30	3.70	3.00

Source: WDI 2017, Department of Statistics of The Bahamas 2017.

THE ROLE OF AGRICULTURE IN THE ECONOMY

Agriculture and fisheries are not major contributors to the GDP of the Bahamas. Agriculture accounts for only 0.7% of GDP. When combined with fisheries, it accounts for 1.6% of GDP (2015).

Agriculture's share in total employment is moderate: 3% of the active population is employed in agriculture. A little over 17% of total population lives in rural areas, and in some rural areas, agriculture and fisheries are still the main areas of employment. Most of the food (92%) consumed in that country is imported.[14] However, the fisheries and vegetables subsectors are export-oriented.

Agricultural and food production in The Bahamas increased during the 2000s (Table 2A.2). Crops and livestock production, while remaining a small part of the economy, has been growing over the past 15 years. Crop farming mainly produces citrus fruit and vegetables (tomatoes and onions, produced mainly for local consumption, but with plans to expand into exports) and the livestock sector consists almost entirely of poultry production.

14. FAOSTAT, 2015.

TABLE 2A.2: PRODUCTION AND CONSUMPTION OF SELECTED COMMODITIES IN THE BAHAMAS (2010, 2014, AND 2015)

	VALUE OF PRODUCTION, B$ MILLION (CURRENT)			PRODUCTION, 000 TONS			CONSUMPTION, 000 TONS		
	2010	2014	2015	2010	2014	2015	2010	2014	2015
GRAPEFRUIT	15.59	14.71	11.00	20.40	20.93	23.25	20.46	21.04	23.35
ORANGES	3.38	3.39	3.40	3.66	3.66	3.67	4.05	4.11	4.10
BANANAS	7.07	8.91	9.78	8.02	9.51	10.44	8.61	9.97	11.91
MANGO	1.52	1.42	1.43	2.38	2.47	2.50	2.44	2.60	2.62
TOMATOES	10.66	12.91	10.81	5.08	5.87	4.91	5.13	5.98	5.02
ONIONS	0.50	0.54	0.47	0.82	0.87	0.89	0.87	0.98	1.00
AVOCADOS	0.98	1.03	1.81	1.20	1.27	1.30	1.25	1.38	1.41
POULTRY MEAT	9.97	10.48	10.16	3.73	3.74	3.62	9.35	9.46	10.86
CRAWFISH	69.30	47.89	54.99	3.23	2.03	2.21	1.08	0.16	0.49
CRAB	1.13	1.68	2.04	0.06	0.07	0.07	0.00	0.04	0.01
CONCH	4.19	5.18	3.84	0.70	0.76	0.56	0.45	0.51	0.31
SNAPPER	3.16	3.35	3.34	0.64	0.55	0.55	0.65	0.54	0.56
GROUPER	1.56	1.35	1.90	0.23	0.17	0.24	0.22	0.22	0.27

Source: Ministry of Agriculture and Marine Resources of The Bahamas, Department of Marine Resources of The Bahamas, UNCOMTRADE 2017, FAOSTAT 2017.

THE ROLE OF FISHERIES IN TRADE

Agri-food products account for 15% of total merchandise export earnings (slightly lower than the average of 23% in Latin American and Caribbean countries). Fish and crustaceans account for over 90% of agri-food exports and are exported to the EU, USA and Canada. However, the volume and value of fish exports have decreased in recent years (Table 2A.3). The Bahamas also exports shells and crafts made from them. Citrus, avocadoes, and papaya used to be a source of exports. However, these exports virtually ceased after pest incidents and extreme climate events.[15]

The Bahamas is a net importer of agri-food products: the country imports meat and dairy, fruit and vegetables, prepared food, and beverages. The agri-food import bill has been steadily increasing and reached US$623 million in 2015 (Table 2A.4)[16].

15. The citrus canker outbreak in 2005 nearly destroyed the citrus subsector; The Bahamas have been very vulnerable to hurricanes, and the country appears to be affected by major climate events approximately once every three years.

16. UN COMTRADE Database, 2017.

TABLE 2A.3: MAIN FOOD AND AGRICULTURAL EXPORTS IN THE BAHAMAS, 2011-2015 (US$ 000)						
COMMODITIES	2011	2012	2013	2014	2015	SHARE IN AGRI-FOOD EXPORTS (2015, %)
FISH AND CRUSTACEANS	75,273.4	82,212.4	91,676.6	69,706.2	62,141.2	93.3
BEVERAGES, SPIRITS, TOBACCO	1,411.1	879.3	1334.5	2350.6	1,939.0	2.9
CORALS, SHELLS OF MOLLUSKS, CRUSTACEANS	924.5	612.1	1215.7	520.6	1,245.3	1.9
OTHER ANIMAL PRODUCTS UNFIT FOR HUMAN CONSUMPTION	1,220.3	377.6	463.3	210.5	455.1	0.7
VEGETABLES, ROOTS, AND TUBERS	155.9	9.3	0.1	0.3	375.7	0.6
OILSEEDS	655.5	368.1	430.3	282.4	275.4	0.4
PRODUCTS OF THE MILLING INDUSTRY, MALT, STARCHES	0.0	0.1	0.1	2.2	64.0	0.1
MISC. FOOD PREPARATIONS	395.5	264.8	605.3	100.4	60.3	0.1
CEREALS	3.6	10.3	98.6	4.2	26.7	0.0
OTHER AGRI-FOOD	152.9	9.9	38.3	20.0	12.9	0.0
TOTAL ABOVE	**80,192.7**	**84,743.9**	**95,862.8**	**73,197.4**	**66,595.6**	**100.0**

Source: UN Comtrade, 2017.

AGRICULTURAL POLICIES IN THE BAHAMAS

Agriculture in The Bahamas is facing challenges that include:

- Unfavorable business environment: high costs and lengthy procedures for exports and imports.[17]
- High costs of transportation of agricultural goods between the islands.
- Lack of infrastructure: local roads, storage facilities, irrigation infrastructure.
- Imperfect availability of market information.
- Difficulties attracting labor, especially young people, to agriculture.
- Land property rights issues.
- Intensification of climate events.

17. World Bank, 2017.

TABLE 2A.4: MAIN FOOD AND AGRICULTURAL IMPORTS IN THE BAHAMAS, 2011-2015 (US$ 000)

COMMODITIES	2011	2012	2013	2014	2015	SHARE IN AGRI-FOOD EXPORTS (2015, %)
MISC. FOOD PREPARATIONS	148,479.7	138,237.6	133,626.1	138,715.8	150,945.6	24.22
BEVERAGES AND TOBACCO	68,062.2	84,226.3	74,301.9	86,305.5	94,089.5	15.10
DAIRY AND EGGS	42,014.4	45,212.5	42,111.2	49,446.2	47,450.3	7.61
VEGETABLES	37,724.1	42,839.8	43,760.2	47,761.1	47,027.1	7.55
POULTRY	32,002.8	32,707.5	36,900.6	45,532.1	42,334.6	6.79
PREPARATIONS OF MEAT OR FISH	33,680.3	38,825.0	38,202.4	38,818.3	37,743.6	6.06
FRUIT AND NUTS	29,625.8	33,514.3	34,410.4	36,393.9	34,885.9	5.60
OTHER MEAT	32,604.8	31,841.8	29,507.3	37,427.6	31,471.6	5.05
BEEF	27,452.6	28,746.7	27,089.7	30,134.7	29,942.2	4.80
OTHER	22,777.1	27,532.8	25,220.6	24,691.3	23,837.4	3.83
SUGAR	16,725.3	18,565.7	16,085.4	15,284.4	16,029.9	2.57
FISH & CRUSTACEANS	13,486.5	15,778.5	12,058.5	15,930.7	15,648.2	2.51
FATS AND OILS	14,170.1	16,770.0	15,122.5	15,387.1	13,042.0	2.09
PRODUCTS OF THE MILLING INDUSTRY, MALT	12,960.6	12,534.9	12,853.9	14,541.0	12,472.4	2.00
CEREALS	10,284.4	11,006.2	8,697.3	11,549.4	10,900.6	1.75
COFFEE, TEA, SPICES	7,299.7	9,008.0	7,575.1	8,767.2	9,577.4	1.54
COCOA	4,608.1	4,899.7	5,107.3	4,679.7	4,930.7	0.79
LIVE ANIMALS	638.5	764.9	1,174.1	683.4	856.1	0.14
TOTAL ABOVE	**554,597.0**	**593,012.2**	**563,804.5**	**622,049.4**	**623,185.1**	**100.00**

Source: UN Comtrade, 2017.

The main medium-term policy goals for agriculture during the period of study included:

- Creating jobs.
- Encouraging foreign and domestic investment.
- Attracting young people and women to the agricultural sector.

The new strategic long-term plan for the development of The Bahamas, called the National Development Plan, or Vision 2040, is currently under development. Its goals relevant to agricultural polices include food security and the diversification of the economy. The proposed medium-term actions cover all aspects of

agricultural sector development: new technologies and innovation, enhancing land policy, investing in agricultural storage facilities, expanding financing, improving logistics, human resources development, risk management measures, support for farming organizations, and incentives for local and foreign investors. However, those measures lack specific implementation details and budgeting projections.

Agricultural policy is implemented by the Ministry of Agriculture and Marine Resources (MAMR) and its subdivisions: Department of Agriculture and Department of Marine Resources. The Bahamas Agricultural and Industrial Corporation (BAIC) is a parastatal agency responsible for agricultural development and is involved in the production, marketing and processing of agricultural products. The Bahamas Agriculture and Marine Science Institute (BAMSI), established in 2013, is another state organization, providing tertiary education in agriculture and marine sciences and vocational training for farmers.

Domestic policy support is provided mainly through BAMSI, and while its main mission is to provide education and extension services, it also provides inputs to farmers and is directly involved in agricultural production and marketing. BAIC is also directly engaged in farming and agroprocessing.

Trade is liberalized for some of the commodities: most types of meat, fruits and vegetables, canned fish, and the majority of inputs for agriculture and fisheries are imported without any import duty. At the same time, poultry and fish are protected by relatively high duties, and the average import duty for agricultural commodities is 20.5%.

The programs and actions to provide public support to agriculture are summarized in Table 2A.5.

TABLE 2A.5: AGRICULTURAL PUBLIC SUPPORT PROGRAMS IN THE BAHAMAS, 2010-2017

POLICY	DESCRIPTION
VALUE CHAIN SUPPORT	• Produce Exchange and Packing Houses: guaranteed purchase of farm output (with an annual limit per farmer). • Packaging, sorting, and grading of the crops at the Produce Exchange. • BAMSI's Associated Farmer Program: BAMSI provides inputs and purchases output from farmers who fulfill the technology requirements.
INPUT SUPPLY	• The Fish and Farm Store: government-operated store provides inputs for purchase. • Store on Credit Program (farmers can get credit for inputs: 25% down payment is required, and the rest of the cost is deducted from the amount payable to the farmer by the Packing House when the production is delivered). • BAMSI provides inputs to associated farmers in its Associated Farmer Program. • Development of the Family Islands program: duty-free imports of inputs and machinery.
MARKETING	• Agribusiness Expos. • Farmers' market at Gladstone Road Agricultural Centre (GRAC).
TRAINING	• Capacity building program. • BAIC training programs. • BAMSI higher education, training programs, and commercial demonstration farm.
RESEARCH AND DEVELOPMENT	• Improved varieties of plants available for purchase from Gladstone Road Agricultural Centre (GRAC). • Hot pepper seed production (in cooperation with FAO). • Biotechnology Unit for plant propagation/production. • Embryo transfer program (since 2007). • Research at BAMSI and extension services for farmers.
INFRASTRUCTURE DEVELOPMENT	• Establishing slaughtering and processing facilities on North Andros, Eleuthera, and Long Island. • Local road construction and rehabilitation.
POVERTY REDUCTION	• Backyard Gardening Programme (since 2008): attempt to increase food production in urban households through training. • Food safety net programs for consumers. • Corn mills for rural communities.
TRADE POLICY	• Average import duty for agricultural commodities is 20.5%. • Negotiations for WTO accession are ongoing.
FISHERIES SUBSECTOR POLICY	• Sustainable resource use regulations (permits, restrictions). • Incentives (duty-free imports of inputs). • Research and development (BAMSI, Department of Marine Resources). • Education and training (BAMSI).

Source: Authors' compilation.

LEVEL AND STRUCTURE OF SUPPORT TO PRODUCERS

Price support is a dominating but decreasing form of support. Transfers to individual agricultural producers, as measured by the Producer Support Estimate (PSE), reached US$ 16.1 million in 2014 (Table 2A.6). This figure was lower in 2013-14 than at the beginning of the period of this study. Market Price Support decreased as budget transfers began playing an increasingly important role in the value of support.

Total Support Estimate (TSE), representing all transfers to the sector arising from national agricultural policy measures, is estimated at US$ 23.1 million in 2014 (Table 2A.6), or 44% higher than PSE transfers to individual producers.

Consumers on average pay higher prices for agricultural commodities as a result of agricultural policy. In The Bahamas, primary consumers pay, on average, higher prices for agricultural commodities (including imports), as demonstrated by the negative CSE of -US$25.5 million in 2014 Table 2A.6.

TABLE 2A.6: MAIN INDICATORS OF SUPPORT TO AGRICULTURE IN THE BAHAMAS, US$ MILLION

INDICATORS	2010	2011	2012	2013	2014
PSE	17.9	18.8	18.3	14.9	16.1
MPS	17.5	18.1	17.7	13.8	14.4
GSSE	3.0	3.8	4.4	10.9	7.0
CSE	-24.6	-25.5	-21.7	-20.9	-25.5
TSE	20.9	22.6	22.7	25.9	23.1

Source: Author's estimates.

General services occupy an important place in the structure of support. The value of GSSE increased significantly during the period of study and reached US$7 million in 2014, more than a twofold increase compared to the value of GSSE in 2010.

The majority (over 65%) of transfers in the GSSE before 2013 were transfers to collective marketing schemes (namely, the packing houses and product exchange program) followed by physical infrastructure development (about 20% of GSSE before 2013). A substantial increase in GSSE spending in 2013 reflects the BAIC's and BAMSI's budgets. Starting in 2013, agricultural knowledge

transfers became the largest type of GSSE transfers, about 50% of GSSE in 2013-2014, whereas physical infrastructure development was the second largest category.

Agricultural education and training for agriculture and fisheries are mainly provided by BAMSI. BAIC also provides training services to farmers. Agricultural research was not a priority in recent years' financing, as its share in total agricultural budget was on average 3.5% in 2010-2015. While pests and diseases remain a major challenge, the inspection services received limited funds.

COMMODITY-SPECIFIC SUPPORT[18]

Poultry, tomatoes, bananas, and avocadoes were the most supported agricultural commodities. Single Commodity Transfers (SCT) for grapefruit and oranges were the largest of all crops in 2010-2012, but dropped to zero in recent years. Support for tomatoes, bananas, and avocadoes increased, while mangoes and onions did not receive any price support or individual budget transfers. The poultry subsector received stable and substantial support. The MPS and SCT for selected subsectors are summarized in Table 2A.7.

The results of the SCT estimates for fisheries are in line with the import protection policy in place. The import tariff for most types of fish and crustaceans is 35%, and the SCT% for fisheries was in the same range. Crawfish received the highest price support due to the high value of production. The main instruments of commodity-specific agricultural support in The Bahamas are summarized in Table 2A.8.

18. The estimate of support to fisheries is not part of OECD PSE methodology, but in this section, the methodology was expanded to include the fisheries due to its importance for The Bahamas. Budget transfers to the fisheries were estimated following the OECD Fisheries Support Estimate (FSE) methodology (OECD FSE Manual, 2015). While price support (MPS) for fisheries is not calculated or reported by the OECD, its components can be found among the FSE categories. MPS for fisheries in The Bahamas was calculated by applying the PSE methodology principles in the same way they are used in agriculture. Total indicators (such as the TSE) presented here do not include fisheries, in order to ensure comparability with other countries.

TABLE 2A.7: COMMODITY-SPECIFIC SUPPORT IN THE BAHAMAS

	MPS, B$ MILLION			PRODUCER SCT, B$ MILLION			PRODUCER SCT%		
	2010	2013	2014	2010	2013	2014	2010	2013	2014
GRAPEFRUIT	3.0	1.3	0.0	3.0	1.3	0.0	19.1	8.7	0.0
ORANGES	1.2	0.0	0.0	1.2	0.0	0.0	36.1	1.4	0.0
BANANAS	2.0	2.0	2.2	2.0	2.0	2.2	26.4	23.0	22.7
MANGOS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOMATOES	1.5	2.3	2.2	1.5	2.3	2.2	14.5	18.0	20.7
ONIONS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AVOCADOS	0.2	0.0	0.8	0.2	0.0	0.8	15.8	0.0	42.0
POULTRY MEAT	2.6	2.7	2.9	3.0	3.2	3.3	29.1	23.0	25.0
CRAWFISH	20.6	10.2	12.2	20.6	10.2	12.2	29.8	21.2	22.1
CRAB	0.3	0.5	0.5	0.3	0.5	0.5	30.5	29.6	25.9
CONCH	1.8	2.5	1.9	1.8	2.5	1.9	42.5	47.5	49.4
SNAPPER	-1.3	0.2	0.4	-1.3	0.2	0.4	-40.3	7.4	11.1
GROUPER	0.6	0.6	0.7	0.6	0.6	0.7	35.7	42.2	38.4

Source: Author's estimates.

PERCENTAGE INDICATORS OF SUPPORT

In The Bahamas, agricultural policy transfers expressed as a share of total farm receipts has been high. The PSE -or value of the transfers the farmers receive as a result of agricultural support policy- was, on average, 18.8% of gross farm receipts in the latest 3 years covered by the study (2012-2014). The PSE is dominated by the MPS. Negative national Consumer Support Estimate (CSE) in the Bahamas (-18%) means that support to agricultural producers is mainly financed by transfers from consumers to producers of agricultural commodities.

However, a considerable amount of support was provided in the form of general services. The share of support to general services (GSSE) in total transfers to producers (TSE) was 30.6% in 2012-2014, (Table 2A.9) which is higher than that of the US and the EU.

The total transfers arising from policy measures that support agriculture (measured by TSE%) account for only a small share of GDP, 0.3% in 2010-2014, which to be expected given the small share of agriculture in GDP.

TABLE 2A.8: COMMODITY-SPECIFIC POLICY IN THE BAHAMAS

POLICY	COMMODITY-SPECIFIC SUPPORT
GRAPEFRUIT AND ORANGES SUBSECTORS	
• Packing houses and production exchange • Zero import tariff • Support for replanting citrus trees • Pest control support (extension)	SCT was very high in 2010-2012 but then decreased to by 2014 after domestic prices fell.
BANANA SUBSECTOR	
• Packing houses and production exchange • BAMSI provides extension services and planting materials	SCT shows high and stable support.
MANGO SUBSECTOR	
• Packing houses and production exchange • BAMSI provides research and extension	SCT shows low policy effect.
TOMATO SUBSECTOR	
• Packing houses • Fish and farm store and produce exchange system • 10% import tariff	Positive SCT at 19% of gross farm receipts (average 2012-14).
ONIONS SUBSECTOR	
• Packing houses • Fish and farm store and produce exchange system • No import protection	SCT shows neutral policy effect.
AVOCADO SUBSECTOR	
• Packing houses • Fish and farm store and produce exchange system • No import protection	SCT increased in 2014, may reflect non-policy measures.
POULTRY SUBSECTOR	
• Import tariff 30% • Duty-free imports of inputs	Positive SCT at 24% of gross farm receipts (average 2012-14).

Source: Authors' compilation.

TABLE 2A.9: PSE%, GSSE%, CSE%, TSE% IN THE BAHAMAS (2010-2014, %)					
INDICATORS	2010	2011	2012	2013	2014
PSE% (OF GROSS FARM RECEIPTS)	21.5	22.0	21.3	16.8	18.2
MPS% (AS A SHARE OF PSE)	97.6	96.6	96.5	92.7	89.5
CSE% (OF CONSUMPTION EXPENDITURE AT FARM-GATE)	-22.2	-22.7	-19.5	-16.4	-18.0
GSSE% (OF TSE)	14.4	16.9	19.4	42.3	30.2
TSE% (OF GDP)	0.3	0.3	0.3	0.3	0.3

Source: Author's estimates.

POLICY RELEVANCE OF RESULTS

The PSE and related indicators show that the level of support to the agricultural sector in The Bahamas was positive, and its share in gross farm receipts, measured by PSE%, was relatively high, but varied somewhat during the period of study.

Individual farmers were supported mainly through border protection, which was relatively high for poultry and crawfish. This border protection was the main reason behind high MPS values for those commodities and the main explanation of the relatively high total PSE% (18.8%) for the agriculture and fisheries sectors.

The most distorting type of support (the MPS) is the main source of assistance to the farm sector, but the share of support to general services is relatively high and increasing, especially support to agricultural knowledge transfer. However, the transfers to irrigation and post-harvest infrastructure, as well as to food safety and inspection services remain low. This reorientation of support to general services should be sustained in the medium term, and the investment plans should address infrastructure deficiencies.

As vulnerability to diseases is a major obstacle for the crop subsectors' development, the government's effort to provide inspection services as well as extension and education in best practices for pest and disease control needs to be intensified.

Government entities BAIC and BAMSI are directly involved in agricultural production. State involvement in production and trade may increase the volume of production in the short term, but is highly distorting and creates an obstacle to development

by crowding out private investment. The role of the government in production, processing, and marketing should be reduced, facilitating instead the establishment of a business environment conducive to private sector development.

Lack of production and price information, lack of information on market and climate risks, limited information on budget support programs, incentives, and participation criteria pose major limitations on development of the agricultural sector in The Bahamas. This could be addressed by the government, and such information should be made available to the farmers in order to improve production decisions, enhance risk management, and increase incomes.

2B. PUBLIC SUPPORT FOR THE AGRICULTURAL SECTOR: **BARBADOS**

By Olga Shik, Rachel Boyce, Carmine Paolo De Salvo

ECONOMIC GROWTH IN BARBADOS

Economic growth in Barbados has been accelerating in recent years, with GDP growth of 1% in 2015 (Table 2B.1) followed by a 1.6% growth rate in 2016. This rate mainly reflects growth in tourism, but also strength in the construction, renewable energy, and agriculture sectors. Inflation remains low, and the unemployment rate declined from 11.3% in 2015 to 9.9% in 2016. GDP *per capita* remains among the highest in Latin America and Caribbean. The diversification of the economy is one of the main policy goals for the Government of Barbados, as the country's economy experiences significant volatility due to its heavy dependence on tourism, while agriculture is seen by the government as a potential growth sector and a contributor to diversification.

TABLE 2B.1: SELECTED MACROECONOMIC INDICATORS, BARBADOS

INDICATOR	UNIT	1996	2010	2014	2015
GDP GROWTH	%	2.0	0.3	0.1	1.0
GDP PER CAPITA (CONSTANT 2010 PRICES)	US$	12,876.2	15,906.2	15,878.0	15,971.0
POPULATION	'000 PERSONS	265.0	280.0	283.0	284.2
% POPULATION IN RURAL AREAS	%	66.7	67.9	68.4	68.5
SHARE OF AGRICULTURE AND FISHING IN GDP	%	6.2	4.4	3.4	3.8
SHARE OF AGRICULTURE IN EMPLOYMENT	%	4.6	2.7	2.7	2.9
SUGAR PRODUCTION (CONSTANT 1974 PRICES)	BDS$ MILLION	25.4	11	6.7	4.5
NON-SUGAR AGRICULTURE & FISHING PRODUCTION (CONSTANT 1974 PRICES)	BDS$ MILLION	37.2	36.6	38.6	39.4

Source: WDI 2017, The Central Bank of Barbados.

THE ROLE OF AGRICULTURE IN THE ECONOMY

Agriculture was not a major contributor to GDP (3.8%) or employment (2.9%) in Barbados in 2015 (Table 2B.2). However, the sector is crucial for Barbados' sustainable social and economic development because it is a significant source of rural employment and provides inputs for the growing agro-processing industry. In the recent past, the sugar sector provided a stable source of export revenue under arrangements with the European Union based on the Lomé agreement. Rum exports have taken up some of the slack as sugar exports have declined.

While overall crop production has fallen considerably since the early 90s, mostly because of declining sugar output, it has recovered somewhat over the last five years. Non-sugar agriculture has been growing in recent years due mainly to the development of fruits and vegetables, root crops, and herbs and spices. Livestock production is now higher than it was 20 years ago, but milk and poultry production have stagnated over the past few years.

While the agri-food export's share of total commodity exports is about 33%, these exports consist mostly of spirits and processed food (Table 2B.3). Traditional rum is still the major export revenue earner. Exports of sugar have been steadily declining, and whereas the value of sugar exports is the largest among non-processed agricultural commodities, its share in total merchandise exports decreased from 6% in 2007 to 0.8% in 2016. Non-traditional agricultural exports are developing, with a focus on high value products like fruits, root crops, and vegetables. The cotton exports also grew slightly, and the outlook for further improvements is good.

TABLE 2B.2: PRODUCTION AND CONSUMPTION OF SELECTED COMMODITIES IN BARBADOS

	PRODUCTION VALUE, BDS$ MILLION			PRODUCTION, 000 TONS			CONSUMPTION, 000 TONS		
	2011	2013	2014	2011	2013	2014	2011	2013	2014
SUGAR CANE	13.73	13.32	12.01	285.0	203.0	179.7	11.00	14.00	9.50
BEANS (STRING)	2.35	1.03	0.93	0.27	0.11	0.11	0.28	0.12	0.12
SWEET POTATOES	1.35	4.77	5.85	0.51	1.22	1.23	0.51	1.23	1.25
YAM	1.18	4.25	3.54	0.24	0.75	0.57	0.27	0.80	0.62
TOMATOES	5.07	4.90	3.01	0.81	0.98	0.78	0.99	1.13	0.93
COTTON	0.15	0.51	0.68	0.01	0.05	0.06	0.00	0.00	0.05
MILK	14.24	10.37	12.91	5.81	3.99	4.97	8.66	6.44	7.37
POULTRY	64.83	60.30	64.76	14.41	13.40	14.39	15.29	14.48	15.73
CASSAVA	0.69	2.33	1.24	0.31	1.04	0.55	0.33	1.09	0.60
TOTAL ABOVE	**102.90**	**99.45**	**103.69**						

Source: UNCOMTRADE 2017, FAOSTAT 2017.

TABLE 2B.3: MAIN FOOD AND AGRICULTURAL EXPORTS IN BARBADOS, 2011-2015 (US$000)

COMMODITIES	2011	2012	2013	2014	2015	SHARE IN AGRI-FOOD EXPORTS (2015, %)
SPIRITS	42,415.3	63,413.7	49,094.3	45,849.1	45,338.2	48.63
MARGARINE	9,533.7	10,127.8	10,088.2	10,130.3	9,306.0	9.98
BREAD, BAKED GOODS	8,852.7	9,448.9	9,235.9	11,675.1	8,894.4	9.54
FRUIT JUICES	2,027.7	3,081.2	3,373.3	4,142.1	4,947.0	5.31
OTHER BEVERAGES AND TOBACCO	4,384.7	8,602.6	5,018.5	5,243.3	4,929.7	5.29
OTHER PREPARED FOOD	3,913.4	3,849.5	3,526.8	3,722.0	3,988.7	4.28
RAW SUGAR	10,599.7	11,166.2	7,975.1	8,872.7	3,638.5	3.90
WHEAT FLOUR	2,324.6	3,196.9	3,675.4	3,599.1	3,405.7	3.65
OTHER AGRI-FOOD	1,128.9	1,088.9	1,302.6	1,403.6	2,677.7	2.87
SOYBEAN OIL	3,155.1	3,222.7	2,540.4	2,158.4	2,148.2	2.30
COTTON	340.5	692.3	556.3	307.7	1,083.2	1.16
CEREAL MEAL AND PELLETS	468.6	643.3	735.6	672.5	732.1	0.79
LIVE ANIMALS	1,414.3	864.7	831.1	878.3	705.4	0.76
DAIRY AND EGGS	475.4	565.0	509.1	536.6	434.2	0.47
FISH AND CRUSTACEANS	362.3	508.1	325.2	314.7	421.9	0.45
FRUIT AND NUTS	362.7	328.3	376.0	273.6	361.8	0.39
MEAT	408.7	503.0	246.7	396.7	168.6	0.18
VEGETABLES	50.5	12.7	56.4	65.9	53.5	0.06
TOTAL ABOVE	**92,218.8**	**121,315.8**	**99,466.9**	**100,241.7**	**93,234.8**	**100.00**

Source: UN Comtrade, 2017.

At the same time, Barbados is a major agri-food importer, with an agri-food import bill reaching US$351 million in 2015. Barbados mostly imports meat, dairy, and prepared food, but also fresh fruits and vegetables (Table 2B.4). The United States, the EU, and Trinidad and Tobago are the main trade partners for Barbados.

TABLE 2B.4: MAIN FOOD AND AGRICULTURAL IMPORT COMMODITIES IN BARBADOS, US$ 000

COMMODITIES	2011	2012	2013	2014	2015	SHARE IN AGRI-FOOD IMPORTS (2015, %)
BEVERAGES, SPIRITS, AND TOBACCO	48,314.6	51,131.0	55,464.8	47,177.8	53,737.1	15.30
MISC. FOOD PREPARATIONS	29,335.9	31,945.5	33,098.9	32,990.3	35,464.7	10.10
DAIRY AND EGGS	30,648.3	28,579.3	31,304.1	36,537.1	30,630.0	8.72
PREPARATIONS OF CEREALS OR MILK; PASTRY	26,787.3	27,182.8	28,433.4	26,634.2	29,258.2	8.33
BEEF, PORK, AND SHEEP MEAT	22,033.1	21,212.2	22,444.2	25,084.4	25,738.4	7.33
PREPARATIONS OF VEGETABLES, FRUIT, NUTS	21,209.4	20,491.7	21,886.0	22,010.5	23,295.6	6.63
FRUIT AND NUTS	14,024.2	14,771.9	16,105.0	15,547.4	17,311.6	4.93
FISH & CRUSTACEANS	14,704.1	16,950.4	14,231.5	16,598.2	17,238.6	4.91
SUGAR	21,242.4	23,398.7	22,869.3	21,162.9	17,113.1	4.87
CEREALS	25,807.8	22,528.2	22,108.5	19,754.3	16,063.8	4.57
PREPARATIONS OF MEAT OR FISH	12,908.9	13,390.2	13,986.9	13,981.9	14,894.1	4.24
OIL SEEDS	15,722.5	13,450.2	14,011.2	13,552.9	13,836.7	3.94
VEGETABLES, ROOTS, AND TUBERS	13,630.1	12,676.6	14,252.1	13,080.5	13,612.6	3.88
OTHER	7,755.8	9,036.7	10,676.6	10,925.9	12,374.8	3.52
FATS AND OILS	12,195.9	13,656.1	10,266.4	11,539.5	10,028.7	2.86
PRODUCTS OF THE MILLING INDUSTRY, MALT	5,591.1	6,681.9	7,308.2	6,776.7	7,211.1	2.05
COCOA	5,273.7	5,704.5	5,835.2	6,276.9	6,543.3	1.86
COFFEE, TEA, SPICES	3,175.5	3,505.8	3,614.4	3,719.3	4,276.0	1.22
POULTRY MEAT	2,328.7	2,287.8	1,958.6	3,432.8	2,583.5	0.74
TOTAL ABOVE	**332,689.3**	**338,581.5**	**349,855.3**	**346,783.5**	**351,211.9**	**100.00**

Source: UN Comtrade, 2017.

AGRICULTURAL POLICIES IN BARBADOS

Scarce water resources, frequent droughts, lack of infrastructure and information, and low agricultural productivity, as well as high export/import costs and lengthy procedures slow down agricultural development in Barbados.

The most recent medium-term planning document, the "Barbados Medium-Term Growth and Development Strategy (MTGDS) 2013-2020," describes agriculture as one of the most important sectors of the Barbados economy. The actions to support agricultural growth and development proposed in the MTGDS are an attempt to tackle the challenges facing agriculture in Barbados. Still, the document fails to describe specific interventions, mechanisms of support, or budgets, and does not contain any measurable performance indicators. It suggests promoting best practices and new products, amending existing legislation, developing new legislation, and reorganizing the Ministry of Agriculture, Food, Fisheries, and Water Resources (MAFFW) and its subsidiaries.

The MAFFW sets agricultural policy based on the mid-term plans and is responsible for policy implementation. Several government agencies are engaged in policy implementation and production, processing, and trade of agricultural products, and are financed by loans and grants from the agricultural budget. These agencies include:

- **The Barbados Agricultural Development and Marketing Corporation (BADMC)** – a state enterprise that is involved in regulating and conducting commercial activities; in trading poultry and onions, and in exporting cotton.
- **Barbados Agricultural Management Company (BAMC)** – engaged in cultivating sugarcane and other products for export.
- **Barbados Cane Industry Corporation (BCIC)** – oversees the restructuring of the sugar cane industry and development of a facility producing special sugars, ethanol, and electricity from molasses.

Domestic policy support is provided in the form of machinery and equipment cost compensation ("Incentive Program"), income tax and import duty (for inputs) concessions, subsidized loans, and information and extension services.

In addition to providing cost compensation and per hectare payments to farmers, the government uses the Incentive Program to encourage environmentally friendly, sustainable production and management practices; support export promotion, irrigation and

other on-farm infrastructure development; and support innovation, advanced technology adoption, and implementation of best practices in post-harvest management.

The programs and actions for public support to agriculture are summarized in Table 2B.5.

TABLE 2B.5: AGRICULTURAL PUBLIC SUPPORT PROGRAMS IN BARBADOS, 2011-2016

POLICY	DESCRIPTION
AGRICULTURAL INCENTIVE PROGRAM	Partial compensation of the costs of: • Spraying and weed control equipment (50% costs rebate). • Irrigation systems (50-75% costs compensation). • Pasture development (per hectare cost rebate). • Orchard development. • Organic Farming certification. • Agricultural and agro-processing machinery cost compensation. • Land cultivation (per hectare subsidies and cost rebates). • Resource protection subsidies. • Livestock development. • Post-harvest infrastructure support and cost compensation. • Farm security (50%).
AGRICULTURAL CONCESSIONS PROGRAM	• Duty-free import of agricultural inputs, including live animals, planting materials, fertilizers and other chemicals, and machinery and equipment.
EXPORT PROMOTION	• International transportation cost compensation for primary agricultural products (30%, max. Bds$10,000). • Compensation of 75% of the costs of feasibility studies, new market evaluations, and quality assurance scheme implementation.
TAX CONCESSIONS	Income tax deductions: • The amount equal to the following percentage of the capital expenditure on agricultural machinery (new or imported into Barbados for the first time) can be deducted from the taxable income: sugar cane harvesters - 10% or 15%; other machinery - 18%; sugar refining machinery - 40%.
SUBSIDIZED LOANS	• Subsidized loans through the Agricultural Development Fund (ADF) at preferential interest rates (6.5%, compared to the average commercial banks' prime loan rate of 8.2%).
IMPORT DUTIES	• Average applied tariff for agricultural goods is 33.9%. • Some commodities receive very high border protection: whole chicken 184%, sweet potatoes and cassava 160%, milk 141% (cheese 0%), beans 40%, cotton 5%.

Continued on the next page

TABLE 2B.5 (CONTINUED): AGRICULTURAL PUBLIC SUPPORT PROGRAMS IN BARBADOS, 2011-2016

POLICY	DESCRIPTION
AGRICULTURE HEALTH AND FOOD CONTROL PROGRAMME	Co-funded by IDB (US$28 million total costs) • Management reform. • Review of the existing food safety legislation. • Upgrade of the existing laboratory facilities.
INFRASTRUCTURE DEVELOPMENT	• Irrigation and water systems are operated by BADMC. • Investments in on-farm irrigation are subsidized. • Rural Development Commission provides loans and technical assistance for rural housing and small businesses.
MARKETING AND PROMOTION	• The BADMC Food Promotion Unit researches, develops, and organizes local produce processing and marketing to create value-added products from cassava, breadfruit, and sweet potato. • Farmers markets are operated by the MAFFW.
STATE PARTICIPATION IN TRADE	• The BADMC trades poultry and onions and exports cotton. • Farmers sell their output to the BAMC for further marketing.
LAND FOR THE LANDLESS PROGRAMME	• Land lease or license arrangements for farmers who otherwise would not be able to access land. • Technical support, infrastructure, extension services, and marketing assistance are provided.
SCOTLAND DISTRICT DEVELOPMENT	• Grants for agricultural projects in Scotland District. • 10-year tax holiday for investments in fruit production, processing, and marketing. • Orchard development subsidy (Bds$5 per tree for a maximum of 1,000 trees per farmer).
TRAINING	• 4-H Youth Program. • Promotes involvement of young people in agriculture.
SUGAR INDUSTRY SUPPORT	• Cane Replanting Incentive Scheme Program: Per acre subsidy for planted cane (Bds$550 per acre for force-back planting and Bds$450 per acre for conventional planting of sugar cane). • Sugar producer BAMC receives grants to compensate it for losses. • Cane industry restructuring: BCIC received financing for developing the sugar and energy producing facility.
DAIRY INDUSTRY INCENTIVES	Fixed costs rebate for dairy: • 25% for the components of diary housing, maximum of Bds$40,000. • 40% of the cost of components for a milking parlor, maximum Bds$60,000.
COTTON RESEARCH AND DEVELOPMENT FUND	• Grants to research institutions for cotton studies.
INVESTMENT IN NON-SUGAR CROP PRODUCTION	• US$10 million production grant incentive initiative (2014). • Tax holidays for investment in cotton.
FARM TO HOTEL INCENTIVE SCHEMES	• Tying in tourism incentives to increase use of local produce (starting in 2013-14).

Source: Authors' compilation.

LEVEL AND STRUCTURE OF SUPPORT TO PRODUCERS IN BARBADOS

Price support is the dominant but decreasing form of support to producers. The Total Support Estimate (TSE) includes all transfers made in the economy as part of national agricultural policy. It is estimated at US$41.8 million in 2014 (Table 2B.6). It declined considerably compared to the previous years, as market price support, budget transfers and support to general services all decreased.

Transfers to agricultural producers individually, as measured by the Producer Support Estimate (PSE), are estimated at US$22.2 million in 2014 (Table 2B.6). The value of market price support (MPS) has been decreasing steadily since 2011, and budget transfers to individual producers were volatile and consisted mostly of grants to sugar producers, which decreased sharply in 2014.

Consumers -on average- pay higher prices for domestically produced agricultural commodities as a result of agricultural policy, but the situation is improving. Negative national Consumer Support Estimate (CSE) in Barbados means that support to agricultural producers is mainly funded by transfers from consumers to producers of agricultural commodities. This is a burden for low-income urban populations, limits demand, and reduces international competitiveness. The CSE was -US$15.8 million in 2014, a substantial improvement compared to -US$23.5 million in 2011 (Table 2B.6).

Budget transfers to consumers take the form of a school meals program, at least 60% of the food for which must be sourced locally.

TABLE 2B.6: MAIN INDICATORS OF SUPPORT TO AGRICULTURE IN BARBADOS, 2011-2014 (US$ MILLION)

INDICATORS	2011	2012	2013	2014
PSE	29.6	29.2	30.2	22.2
MPS	23.1	22.0	18.7	17.5
GSSE	20.3	19.8	18.3	16.4
CSE	-23.5	-22.0	-18.4	-15.8
TSE	52.2	51.3	50.7	41.8

Source: Author's estimates.

GSSE is decreasing as infrastructure has become the main focus of general services support. The GSSE decreased during the period of study from US$ 20.3 million in 2011 to US$ 16.5 million in 2014. In accordance with the government's policy priorities, the majority of transfers in the GSSE category are for physical infrastructure development (on average, over 50% of support to general services during the period of study). However, investments in infrastructure have decreased slightly since 2011. Spending on infrastructure is followed by agricultural knowledge transfer support and agricultural knowledge generation (34% of general services support on average in 2011-14). Inspection services and food safety transfers amounted on average to 14% of the support.

Research and development support decreased, and the lack of R&D remains an issue for farmers. Research and development services are mostly provided by the MAFFW, which has separate programs for research, development, and extension for crops and for livestock. Cotton producers benefit from the Cotton Research and Development Fund, funded from a 1.0% cess on the cotton producers' income and the government grants.

While the government is pursuing export expansion, which requires compliance with international veterinary, phytosanitary, and food safety standards, the transfers to inspections and control in agriculture were significantly reduced.

Information services support also decreased. The information system is operated by BADMC and is an important source of production and price data for agricultural producers and traders. It also provides local and regional market reports and forecasts. However, due to budget limitations, some crucial pieces of information are not collected or provided, such as livestock prices, farm-gate prices, production costs, and historical data.

COMMODITY-SPECIFIC SUPPORT

Poultry, milk, and sugar were the most supported commodities. The MPS and producer SCT for selected subsectors are summarized in Table 2B.7. Poultry, milk, and sugar together received over 75% of total commodity-specific transfers. A summary of the commodity specific support programs is shown in Table 2B.8.

TABLE 2B.7: COMMODITY-SPECIFIC AGRICULTURAL SUPPORT IN BARBADOS, 2011-2014

	MPS, BDS$ MILLION				PRODUCER SCT, BDS$ MILLION				PRODUCER SCT%			
	2011	2012	2013	2014	2011	2012	2013	2014	2011	2012	2013	2014
SUGAR CANE	1.53	2.57	5.07	4.02	4.19	6.10	14.79	4.08	25.57	32.58	64.22	33.82
BEANS (STRING)	1.10	0.76	0.40	0.13	1.10	0.76	0.40	0.13	46.64	38.53	38.54	14.08
SWEET POTATOES	0.36	3.10	2.53	3.63	0.36	3.10	2.53	3.63	26.44	58.56	53.09	62.08
YAM	0.45	0.94	1.52	1.88	0.45	0.94	1.52	1.88	38.45	49.06	35.69	52.94
TOMATOES	2.85	3.13	2.37	0.39	2.85	3.13	2.37	0.39	56.35	57.37	48.34	13.08
COTTON	(0.05)	(0.04)	(0.11)	(0.28)	-0.05	-0.04	-0.11	-0.28	(31.09)	(31.64)	(22.06)	(40.85)
MILK	5.32	6.59	3.70	4.73	5.32	6.59	3.70	4.73	37.35	41.22	35.69	36.66
POULTRY	21.61	17.87	10.40	8.49	21.61	17.87	10.40	8.49	33.33	28.26	17.26	13.11
CASSAVA	(0.18)	(0.02)	(0.53)	(0.44)	-0.18	-0.02	-0.53	-0.44	(26.12)	(3.94)	(22.83)	(35.17)

Source: Author's estimates.

PERCENTAGE INDICATORS OF SUPPORT

In Barbados there is a high share of policy transfers in total farm receipts. The PSE or total value of the transfers, was, on average, 33.4% of gross farm receipts in the latest three years covered by the study (2012-2014). The PSE is dominated by the MPS (79% of PSE in 2014). MPS, which represents the most distorting payments in TSE, increased in 2014 reflecting the reduction of grants to sugar producers. Negative national Consumer Support Estimate (CSE) in Barbados (negative 18.6% in 2014) means that support to agricultural producers is mainly financed by transfers from consumers to producers of agricultural commodities.

Total transfers from policy measures that support agriculture (measured by TSE%) were 1.1% of the national GDP in Barbados in 2012-2014 (Table 2B.9). A considerable amount of this support was provided in the form of general services. The share of support to general services (GSSE) of total transfers to producers (TSE) —an estimate of the less distorting support— was 38% in 2012-2014, which is higher than in most LAC countries, in the EU and in the US.

TABLE 2B.8: SECTOR-SPECIFIC AGRICULTURAL POLICY MEASURES IN BARBADOS

POLICY	COMMODITY-SPECIFIC SUPPORT
SUGAR SUBSECTOR	
• The Cane Replanting Incentive Scheme: a per acre subsidy for planted cane (Bds$550 / Bds$450 per acre). • The Cane Industry Restructuring Project: production of specialty sugar, ethanol, molasses, and co-generation of electricity from bio-mass. • Grants to cover losses of BAMC, the main sugar producer. • Tax allowances. • Duty-free imports of inputs.	• The subsector suffers from high costs and low productivity; it operates at a loss and is supported by budget-funded grants. • Sugar producers are subsidized both by price support and direct transfers. • Budget transfers to sugar cane farmers and sugar producers are volatile and made on an ad hoc basis. • The level of support is moderate. SCT% fluctuated due to the volatility of budget transfers: 33.8% in 2014.
COTTON SUBSECTOR	
• Machinery, inputs, and services cost compensation. • Duty-free imports of inputs. • Per hectare payments for land brought under cultivation. • Technical assistance. • Guaranteed price of $4.80 per lb. for seed cotton. • The Cotton Research and Development Fund provides knowledge generation services. • Cotton is produced by BAMC and private growers. • Exclusive Cottons of the Caribbean (ECCI) is a vertically integrated company and the sole marketing channel for cotton.	• While export of the high-quality cotton lint attracts premium prices, they do not benefit the farmers. • The guaranteed government price for cotton is lower than the price producers could receive for their output in the absence of any public policy in this subsector. • Producer SCT was negative during the period of study (-40.1% in 2014).
CASSAVA SUBSECTOR	
• The transformation of cassava into a cash crop is among the declared policy goals. • FAO provides access to research and technology. • Barbados participates in FAO's Promotion and Marketing of Cassava Project: a regional initiative for value chain development. • Duty-free imports of inputs. • Cost compensation through the incentive program. • Import duty 40%.	• The prices received by producers were lower than reference prices —the prices they would receive in a non-policy situation. • Producer SCT was negative during the period of study (-35.2% in 2014). • Negative SCT is likely explained by the inefficiencies in the value chain caused by the state agencies' (BADMC, BAMC) participation in trade and various administrative barriers to export.
SWEET POTATOES AND YAMS SUBSECTORS	
• Duty-free imports of inputs. • Cost rebates. • Import duty 160%.	• The level of support to yam producers reached 53% of their farm receipts in 2014 and was financed by transfers from consumers. • Sweet potato producers also received public support, which amounted to up to 63% of their farm receipts, explained by high levels of border protection.

Continued on the next page

TABLE 2B.8 (CONTINUED): SECTOR-SPECIFIC AGRICULTURAL POLICY MEASURES IN BARBADOS

POLICY	COMMODITY-SPECIFIC SUPPORT
POULTRY SUBSECTOR	
• Product-specific input subsidies and preferential credit from ADF for poultry production facilities upgrades. • Tariff protection in the range of 20-184% in 2011-2014. • Parastatal organization BADMC plays a significant role in poultry sub-sector imports and trade.	• While border protection of the poultry subsector increased significantly in 2013, when a tariff of 184% on whole chickens was introduced, this had little effect on the prices at the farm-gate level: the level of support at farm-gate for the sector consequently decreased. • Increased import protection was partly absorbed along the value chain; this reflects changes in transaction costs and increased trader's (BADMC's) margins. The impact of the tariff was also reduced by the substitution by less protected types of imported poultry. • Producer SCT% for poultry was 13% of gross farm receipts in 2014, but the value of support measured by SCT remained high: Bds$10.4mn.
MILK SUBSECTOR	
• Tariffs are high (141%), but competition from imported skim milk powder is still strong. • At least 60% of milk for the school meals program and all other government institutions' needs must be sourced locally.	• Over 35% of gross farm receipts come from policy transfers. • Support to milk producers remains relatively high due to continued import protection measures.

Source: Authors' compilation.

TABLE 2B.9: PSE%, GSSE%, CSE%, TSE% IN BARBADOS (2011-2014, %)

INDICATORS	2011	2012	2013	2014
PSE% (OF GROSS FARM RECEIPTS)	37.5	38.5	35.7	25.9
MPS% (AS A SHARE OF PSE)	78.0	75.5	61.8	78.9
CSE% (OF CONSUMPTION EXPENDITURE AT FARM-GATE)	-31.9	-31.4	-23.1	-18.6
GSSE% (OF TSE)	38.8	38.6	36.1	39.4
TSE% (OF GDP)	1.2	1.2	1.2	1.0

Source: Author's estimates.

POLICY RELEVANCE OF RESULTS

In cooperation with international organizations, the government of Barbados developed a comprehensive system of incentives and concessions to the sector, which is contributing to the technological advancement and productivity growth in the targeted sub-sectors (e.g. cassava). The government also provides incentives for improving agriculture's environmental performance. However, as in many other countries in the Caribbean region, this support is provided largely at the expense of consumers.

Support to agriculture as measured by PSE is among the highest in the region. The high level of this support indicates poor integration in international markets. It is explained by border protections that are higher than the regional average, high border transaction costs (the highest costs of import procedures in the region), trade restrictions, and market distortions created by active participation of BADMC in trade.

The poultry and milk subsectors receive the largest absolute value of support, while yams and sweet potatoes receive the highest percent share of farm receipts from policy-related measures. High price support reduces incentives to improve competitiveness and harms consumers.

At the same time, producers of the commodities with high export potential —cotton and cassava— received prices that were lower than the international ones.

Support to the sugar subsector, provided mostly by loss-covering grants from the budget, is not sustainable in the long run. The government's attempts to restructure the industry should incorporate the measures for support to non-agricultural employment for former sugar farmers.

The support to general services is significant, but all categories of GSSE have decreased during the period of study. Infrastructure development support is diminishing. Veterinary and phytosanitary inspections do not get necessary support from the government, and the transfers are decreasing. The information system is limited in its scope due to budget constraints, and its funding further decreased during the period of study.

Replacing cost compensation and per hectare payments —highly distorting and inefficient types of support— with support for general services would benefit agricultural competitiveness and lay the groundwork for the sector's sustainable growth.

2C. PUBLIC SUPPORT FOR THE AGRICULTURAL SECTOR: **BELIZE**

By William Foster, Pedro Martel, Sybille Nuenninghoff

ECONOMIC INDICATORS IN BELIZE

Belize is a small, sparsely-populated country on the Caribbean coast between Guatemala to the south and west and Mexico to the north, with approximately 360,000 inhabitants and a relatively high population growth rate. Year-to-year economic growth in terms of GDP *per capita* has been volatile since the early 1990s, averaging around 1.5%, with alternating periods of very high growth, recession, and stagnation. As a former British colony (British Honduras), English is widely spoken, and the country is commercially oriented toward the United Kingdom, the Caribbean (member of the CARICOM Community, including its Single Market and Economy agreements), and the United States.

Belizean agriculture appears to be performing below its potential given the country's resources (Table 2C.1). Only about a quarter of potential farmland is in use, and there are no obvious natural resource constraints or urban expansion pressures to explain the relative underuse of land for raising crops and livestock. The barriers

or disincentives to investing in the agricultural sector are the result of limited and inadequate infrastructure (transportation, electricity, irrigation networks), the weakness of support agencies (e.g., sanitary and phytosanitary inspection services), expensive and restricted credit, and the costliness and inadequacies of port facilities.

TABLE 2C.1: KEY ECONOMIC AND AGRICULTURAL INDICATORS

INDICATOR	2007	2008	2009	2010	2011	2012	2013	2014
GDP PER CAPITA (CONSTANT PRICES 2000, BZ$)	7,318	7,306	7,119	7,574	7,536	7,618	7,477	7,585
AGRICULTURE AS % OF NATIONAL GDP	10.1	9.4	8.9	9.7	9.1	9.6	9.4	9.1
% REAL GROWTH OF AGRICULTURAL GDP	-1.3	-3.5	-5.5	13.2	-4.8	10.3	-1.3	1.1
% NATIONAL EMPLOYMENT IN AGRICULTURE *	–	–	–	16.0	–	–	–	18.6*
FOOD EXPORTS (% OF MERCHANDISE EXPORTS)	65.6	56.8	70.0	59.3	53.5	68.5	76.8	80.2
FOOD IMPORTS (% OF MERCHANDISE IMPORTS)	10.0	9.6	12.0	11.0	10.0	11.2	10.9	11.3
FOOD AS % OF HOUSEHOLD EXPENDITURES **	–	–	–	–	16.7	–	–	–
POPULATION (THOUSANDS)	312	322	333	324	332	341	350	359
% RURAL POPULATION	–	–	–	46.2	–	–	–	–

Source: Belize Statistical Institute.
* For 2014, national employment in primary sectors.
** Excludes beverages; for example, beer represents 6.2% of total food expenditures.

THE ROLE OF THE AGRICULTURE AND FOOD SECTOR

According to the Farmers' Registry, in 2002 the country had slightly fewer than 10,000 farms, a quarter of which were smaller than five acres and 57% of which had fewer than 20 acres. Fewer than 500 farms were larger than 100 acres. Largescale agriculture tends to be technically and commercially sophisticated and oriented toward both domestic and export markets to take advantage of economies of scale. While small-scale farms include subsistence farms as well as farms that produce for local markets, they also include many sugarcane and citrus producers (as well as, increasingly, producers of peppers and other non-traditional crops) that sell to processors and exporters. With respect to land tenure, 32% of farmland is held by farmers with title, 7 % is rented, and about 31% is under long-term lease by the government; the remainder of the land is used under informal and communal arrangements.

Primary agriculture (crops and horticulture, livestock, and forestry and logging, excluding fisheries and aquaculture) accounts for about 10% of national GDP, and the sector recently accounted

for over 60% (and rising) of merchandise export earnings. Belize's main crops are sugar, bananas, and citrus, with pasture taking up a significant proportion of farmland. Papaya, maize, and beans are also significant commercial crops. According to government statistics, the primary production sector (mainly agriculture) employs approximately 23,000 people (as of April 2013). Agricultural employment is concentrated in the main, traditional crops, although several thousand more workers are employed in downstream activities, such as processing. Although there is no data indicating how many families depend on farm income, the 2010 Census shows that of the 79,492 households surveyed, 29% were engaged in some form of farming activities. Over half of all households (40,330) live in areas officially designated as rural, but slightly less than half of rural households are engaged in some form of farming.

The amount of land allocated to the major crops (see Table 2C.2) appears fairly stable over time, except for growth of more than 40% in farmland for growing red kidney (RK) beans, production that began about a decade ago. Four products account for about 60% of the total value of agricultural production: oranges, poultry, sugarcane, and bananas, of which three are export products (see Table 2C.3). These traditional products also dominate exports (Table 2C.4). On the other hand, exports of non-traditional papaya have declined recently to under BZ$15 million.

Additionally, exports of red kidney beans, black-eyed peas and corn meal have increased considerably over the last decade, demonstrating that these commercial sectors have potential. But data on output and export shares by product underscore that traditional crop productivity and market access for exporting these commodities are still key to growth in revenue from agricultural

TABLE 2C.2: BELIZE LAND USE BY MAJOR CROPS, ACRES

PRODUCT	2007	2008	2009	2010	2011
ORANGES	39,361	39,361	37,786	37,378	39,330
SUGAR CANE	60,000	65,000	60,000	60,000	60,000
BANANAS	6,021	6,280	6,524	6,528	6,633
CORN	33,510	28,954	37,810	33,676	34,130
RICE	9,172	8,373	11,311	11,381	11,003
RK BEANS	8,806	9,977	9,564	17,446	12,700
POTATOES	6,800	11,555	12,037	8,151	9,853

Source: Ministry of Natural Resources and Agriculture, Statistical Institute of Belize.

TABLE 2C.3: VALUE (BZ$ MILLIONS, CURRENT) AND SHARE OF PRODUCTION AT FARM GATE

PRODUCT	2007		2008		2009		2010		2011	
ORANGES	71.2	19.1%	52.1	14.2%	52.8	13.1%	39.1	9.1%	50.4	11.4%
SUGARCANE	65.1	17.4%	54.1	14.7%	61.6	15.3%	51.4	11.9%	60.9	13.8%
POULTRY	52.2	14.0%	66.9	18.2%	62.9	15.6%	67.8	15.7%	70.3	15.9%
BANANAS	42.7	11.4%	67.1	18.3%	68.1	16.9%	78.2	18.2%	74.7	16.9%
CORN	26.2	7.0%	17.6	4.8%	26.8	6.7%	29.8	6.9%	32.8	7.4%
BEEF	8.9	2.4%	7.4	2.0%	7.2	1.8%	6.7	1.5%	8.0	1.8%
RICE	8.6	2.3%	6.5	1.8%	15.0	3.7%	14.9	3.5%	13.9	3.1%
EGG	7.9	2.1%	9.0	2.5%	9.4	2.3%	12.1	2.8%	10.6	2.4%
BEANS (RK)	5.9	1.6%	6.6	1.8%	8.7	2.2%	21.1	4.9%	11.8	2.7%
POTATO	0.9	0.2%	1.6	0.4%	2.0	0.5%	1.6	0.4%	2.1	0.5%
GRAPEFRUIT	8.7	2.3%	5.4	1.5%	5.7	1.4%	7.4	1.7%	3.7	0.8%
OTHER	74.8	20.0%	72.5	19.8%	82.1	20.4%	100.5	23.4%	102.2	23.1%
TOTAL	**373.1**	**100%**	**366.9**	**100%**	**402.4**	**100%**	**430.5**	**100%**	**441.4**	**100%**

Source: Ministry of Natural Resources and Agriculture, Statistical Institute of Belize.

exports. Export diversification is therefore only likely to alter the composition of export earnings and sector income slowly, as new products will be developing from a relatively small base.

Diversification into non-traditional crops that can be grown at a greater scale and using sophisticated operations (say, in Mennonite communities) is also feasible, as evidenced by the recent privately-backed growth of successful subsectors such as chickens, eggs, and hogs, as well as to some extent papaya. The possible benefits of promoting small-scale farming of innovative and perhaps niche products must be balanced against foregoing benefits that might have otherwise been had from promotion of larger-scale, successful, and already proven activities that currently lack public-good support (pest control, port facilities, etc.).

Very poor agricultural performance: Farming and livestock production employ approximately one-fifth of the employed labor force in Belize, and agricultural export earnings are significant for the sector itself, as well as for the economy as a whole. However, the sector appears to be underperforming. As is to be expected for a small country, especially one exposed to severe weather events (including hurricanes) and international price fluctuations of the handful of export products on which the country depends, net income from agriculture is highly volatile.

Official data indicate that in the long-term, the growth trend over the past decade has been relatively weak: The agricultural sector has been growing at an average rate slightly lower than the rest of the economy. After a rapid increase during 2002-2004, output has remained almost stagnant. Between 2005 and 2013, only two years show positive growth (at high rates); otherwise, the farm sector saw negative real growth rates.

Moreover, international commodity price spikes in 2008 and 2009 apparently did not translate into a significant increase in Belize agriculture's value added, as reflected in the national accounts data. Prices of purchased inputs (fuel, agrochemicals, equipment, almost all imports) have also increased. Increases in the sector's value added have been driven in large part by the notable increase in exports of the major, traditional crops. Finally, it should be noted that the sector's share in national income has declined slightly, as it has for most developing countries.

With respect to agricultural import dependence and food security, Belize imports approximately US$325 per person per year of agricultural products, food, and beverages (mainly alcoholic). Wheat imports represent about US$20 per person per year. With a recent *per capita* income in the range of US$4,500 to US$4,800, import dependence is not high. Compared with its neighbor Guatemala and with two CARICOM countries —Jamaica and Guyana— Belize has a moderate level of food import dependence as measured by its ratio of food import value to total merchandise exports.[19] This ratio, however, likely exaggerates Belize's food import dependence because it excludes tourism. In 2012, total merchandise exports from Belize amounted to about US$630 million —or about US$1,900 *per capita*— and total imports (all items, not only food) amounted to US$864 million —or about US$2,600 *per capita*. Earnings from tourism, however, amounted to US$1.3 billion and provide about 18% of national GDP.

19. The average of this ratio for the years for which FAOSTAT has comparable data (2008-2011) is 26% for Belize, 18% for both Guatemala and Guyana, and 47% for Jamaica.

TABLE 2C.4: AGRICULTURAL, MARINE, FORESTRY AND OTHER EXPORTS, 2003-2015 (BZ$ MILLION CURRENT)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
MARINE PRODUCTS	110.2	107.6	98.1	86.0	42.6	46.9	51.5	52.7	50.2	57.5	112.3	113.3	88.1
SUGAR	71.2	81.5	69.9	100.1	88.1	71.4	89.1	58.7	82.7	107.6	107.4	110.2	134.5
MOLASSES	2.5	1.8	2.8	4.2	5.5	2.9	3.3	6.2	3.2	3.9	7.8	5.9	6.5
ORANGE CONCENTRATE	67.0	57.6	88.4	86.2	101.2	92.9	73.5	63.7	92.5	129.9	95.1	82.6	81.9
GRAPEFRUIT CONCENTRATE	12.5	24.5	19.4	22.8	16.3	21.3	10.0	15.0	10.6	13.1	11.5	7.9	7.4
BANANA	52.6	52.4	49.9	50.6	41.5	58.3	57.5	71.3	67.8	92.6	97.0	100.4	96.5
GARMENTS	31.4	36.9	34.7	36.8	0.3	0.4	0.5	0.2	0.1	0.4	0.6	0.1	0.2
SAWN WOOD	3.4	2.6	2.3	1.2	2.6	3.4	1.8	6.9	7.8	9.8	5.7	5.7	7.4
PAPAYAS	16.8	22.8	26.9	31.0	26.3	22.5	20.3	25.3	26.2	15.5	20.7	13.3	13.0
CRUDE PETROLEUM	-	-	0.0	87.5	143.2	236.7	119.2	200.8	292.1	186.3	140.2	102.3	36.4
PEPPER SAUCE	0.6	1.1	1.3	1.6	1.7	1.7	1.9	1.2	2.3	2.0	2.5	2.8	2.6
ORANGE SQUASH	-	-	-	-	-	-	0.3	2.0	1.0	0.8	0.4	0.3	0.5
GRAPEFRUIT SQUASH	-	-	0.0	0.0	0.1	0.0	0.4	0.6	0.4	0.1	0.2	0.1	0.1
ORANGES	2.4	2.8	3.5	2.9	2.7	0.5	2.5	0.2	0.1	0.0	0.0	0.9	0.0
ORANGE OIL	0.6	2.0	2.8	2.8	2.3	3.0	3.1	3.2	5.8	9.8	2.8	5.9	8.2
GRAPEFRUIT OIL	0.0	1.6	6.1	2.9	0.7	1.0	1.5	1.0	0.7	0.6	1.3	0.9	2.5
RED KIDNEY BEANS	1.7	2.4	5.2	1.9	2.9	2.8	3.5	6.6	5.4	7.7	9.7	9.4	11.1
BLACK EYED PEAS	3.4	2.0	3.7	3.4	3.6	4.7	5.3	4.7	6.6	5.3	5.6	7.1	5.7
PULP CELLS	-	-	-	-	-	-	0.2	1.6	2.6	7.6	3.3	2.0	2.1
ANIMAL FEED	0.0	0.0	0.9	1.4	0.3	0.7	-	4.5	2.4	8.7	28.5	25.0	11.9
CORN MEAL	-	-	-	-	-	-	-	1.4	6.7	4.2	5.5	4.5	3.1
OTHER VVLUE	4.4	9.6	9.8	10.4	5.9	10.1	16.5	12.1	13.8	15.3	9.8	14.1	15.7
TOTAL VALUE OF EXPORTS	**380.6**	**409.1**	**425.6**	**533.6**	**487.7**	**581.0**	**461.8**	**540.0**	**680.9**	**678.6**	**668.0**	**614.4**	**535.3**

Source: Belize Statistical Institute.

Any potential limits on agricultural and food imports would therefore not be due to the shortages of foreign exchange but rather to ongoing and heavy external indebtedness. Table 2C.5 shows average import values of selected agricultural and food products (those averaging more than a million US dollars) for three periods since 2000. The products with the highest import values are not produced competitively in Belize, due to agronomic conditions and the very small size of the market, which prevents economies of scale in the production and distribution of processed foods such as pet foods and alcoholic beverages. Wheat stands out as a product that will clearly continue to be imported.

TABLE 2C.5: AVERAGE IMPORT VALUES FOR SELECTED AGRICULTURAL AND FOOD PRODUCTS, 2006-2013

PRODUCT	AVERAGE IMPORT VALUE (US$1000) 2000-2005	AVERAGE IMPORT VALUE (US$1000) 2006-2010	AVERAGE IMPORT VALUE (US$1000) 2011-2013	COEFFICIENT OF VARIATION OF IMPORT VALUE (2000-2013)
AGRICULTURAL PRODUCTS, TOTAL	69,805	97,074	120,758	0.26
FOOD PREPARATIONS N.E.S.	7,915	10,759	14,240	0.48
WHEAT	4,137	6,132	8,318	0.52
BEVERAGES, DISTILLED ALCOHOLIC	5,778	9,506	7,257	0.36
CAKE, SOYBEANS	1,219	3,499	6,508	0.72
CIGARETTES	663	6,304	6,328	0.47
FOOD WASTES	4,538	5,458	4,718	0.41
PASTRY	1,811	3,112	3,821	0.18
CHEESE, PROCESSED	1,711	2,399	3,268	0.23
FAT, N.E.S, PREPARED	744	1,785	2,909	1.08
MILK, SKIMMED DRIED	470	2,100	2,803	0.62
INFANT FOOD	919	1,622	2,800	0.68
COFFEE, EXTRACTS	741	1,584	2,484	0.28
BEEF, PORK SAUSAGES	913	1,496	2,265	0.46
WINE	848	1,180	2,186	0.62
BEER FROM BARLEY	1,289	2,080	2,178	0.61
CHEESE, WHOLE COW MILK	1,717	2,254	2,152	0.35
CEREALS, BREAKFAST	907	1,166	2,035	0.69
MAIZE	597	1,121	1,944	0.59
PET FOOD	1,278	1,909	1,807	0.25
MILK, WHOLE CONDENSED	926	1,601	1,760	0.70
BEEF, PORK, PREPARATIONS	1,207	1,094	1,733	0.44
MILK, WHOLE EVAPORATED	1,642	1,534	1,597	0.43
MARGARINE	572	1,538	1,505	0.20
MILK, WHOLE DRIED	3,283	2,357	1,490	0.34
MALT	882	1,101	1,416	0.25
CHOCOLATE PRODUCTS N.E.S	918	1,075	1,348	0.22
BEVERAGES, NON-ALCOHOLIC	1,127	1,638	1,194	0.38
VEGETABLES, PRESERVED N.E.S	915	1,107	972	0.53

Source: Prepared by the authors using FAOSTAT. Values are in current US$. A common measure of volatility, the coefficient of variation is defined as the ratio of the standard deviation to the mean. Low numbers indicate stability.

POLICIES RELEVANT TO THE AGRICULTURAL SECTOR

BORDER MEASURES

Three relevant taxes are applied to imports but not domestic products: (1) the import customs duty, either ad valorem or a specific tax, (2) the Revenue Replacement Duty (RRD), and (3) an environmental tax. Taken together, these measures effectively raise the price of imports and the domestically-produced goods that compete with imports, thereby both protecting domestic industry and serving as a revenue source. This latter purpose cannot be emphasized enough in the case of Belize: the Customs and Excise Department is the country's largest source of revenue. As of 2014, it was responsible for providing around 53% of total recurrent revenue.

In 2012, the average implicit tariff across imported agriculture and food-related product lines was 34%. This number accounts for tariffs on goods from all destinations, including CARICOM, to which lower tariffs are generally applied. The import-shared-weighted border-measure Nominal Rate of Protection (NRP) was 14%, mainly due to low tariffs on wheat and other major food imports, as well as tariff exemptions on some basic goods not produced in Belize, such as coffee, tea, and cooking oils. For these latter products, the Most Favored Nation rate and other taxes are set to zero regardless of origin.

There is significant tariff escalation in the Belize schedule: highly processed goods tend to pay higher border taxes. Most of the food goods with the highest NRPs, however, are items like tobacco, alcohol, and mineral water, which are less likely to affect the agricultural sector’s productivity. Dairy products have low protection, whereas meats are significantly protected. Over 35% of tariff lines are imported paying 10% or less in applied border taxes (excluding the GST, General Sales Tax). On the high-taxed side, however, approximately 15% of tariff lines are subject to an applied tariff of over 50%, and about 10% of lines pay over 90% in duties.

Finally, it should be noted that in addition to tariffs and import permits for sanitary and phytosanitary purposes, import licenses are needed for a broad range of agricultural and food products, including rice, beans, eggs, flour, various vegetables, some meat preparations, milk, poultry, and jams. All these measures increase the de facto protection enjoyed by the agricultural sector in Belize, though the exact impact varies by product and according to the license allocation process.

OTHER POLICIES

Government expenditures related to the farm sector in Belize are relatively small in absolute terms, although EU programs to "aid the restructuring" of the sugar and banana sectors have been significant in value. The tax exemption on fuel for sugar cane farmers has likely been an implicit significant transfer from taxpayers, although its impact has not been calculated. While this policy is not an explicit outlay, it nonetheless constitutes foregone revenue and therefore implicit support for cane farmers.

MEASURES OF SUPPORT TO AGRICULTURE

The Producer Support Estimate (PSE) gives an estimate of the amount producers would need to be paid to replace the array of actual farm policies employed in a particular country while leaving farm income unchanged. The PSE is made up of three components: transfers from consumers as a result of higher prices (due to border measures and price fixing); subsidies on inputs used in production; and any direct payments received by producers tied or not to production.

The PSE component derived from the price effect of government policies is known as Market Price Support (MPS). The PSE also includes transfers to farmers through input subsidies, such as credit and fertilizer (the methodology, as mentioned above does not include the impacts of border protection on input prices.) Note that the PSE includes some payments that are not based on the production of individual commodities. Specifically, the PSE includes direct payments to farmers, though these are largely absent in Belize.

The PSE over the four years covered in the study ranged between US$44 million in 2013 and $US 14.8 million in 2014. The PSE level varies in part with the MPS, reflecting movements of prices on world markets. Poultry is heavily protected, both by import licenses and by border taxes. Onions and rice, which supposedly enjoy the protection from the BMDC, have low (onions) and even negative (rice) MPS estimates. The case of rice, as mentioned earlier, is particularly interesting due to the evidently low price transmission from international to domestic markets. The rice case is also complicated by food aid imports, quality differences, and BMDC involvement in production, harvesting, and marketing of rice in *milpa* farming areas.

In addition to the PSE, the OECD methodology includes general support from government programs that benefit producers

in general (the General Services Support Estimate, GSSE). The overall consumer impact of farm policies is captured in the Consumer Support Estimate (CSE) which is often negative. The Total Support Estimate (TSE) aggregates the PSE, the GSSE, and any payments that are made to consumers related to purchases of food net of the tariffs paid by consumers on imported foods.

With respect to general services, the GSSE is also listed in Table 2C.6. It averaged US$5.7 million between 2011 and 2014, with significant expenditure on items such as infrastructure. Relative to the gross output value of the selected crops in this technical note, the GSSE averages about 3%., although it should be noted that the total value of all agricultural production is likely to be somewhat higher, and thus the GSSE average somewhat lower. On average, the GSSE accounts for about one fifth (2011-2014) of the TSE.

The consumer food basket is mainly composed of imports and import-competing products, with export products having much less weight. The effect of farm policies on consumers is therefore an increase in the cost of the food basket (estimated to be US$15million in 2014). This increases the cost of living, especially for poorer households for whom food has a greater weight in the consumption basket. On average, consumers' total cost of living index —or its equivalent, the household's real income loss— is approximately 6.8% higher due to a combination of tariffs, the revenue replacement duty, and the environmental tax on imported goods.

The TSE estimates and their components are given in Table 2C.6. The calculations include the estimated MPS for the products covered by the NRP estimations (plus eggs, beef, and pork), as well as non-commodity-specific government expenditures on agricultural programs. The products covered in the TSE calculations are those considered the most important commercial crops in Belize. For the years in question, the TSE and the PSE were positive, mainly due to the significant poultry MPS. Indeed, if not for poultry, the MPS would be much smaller every year, if not negative. For example, the MPS calculated without poultry would have been negative for 2012 and 2014, due mainly to negative protection on some crops, particularly rice.

The magnitude of these policy transfers can be seen in the derivative indicators shown in table 2C.7. The average PSE over the period 2011-2014 was 10.8% of farm receipts. The MPS dominates the PSE over this period, confirming that most protection is from border measures. On average, consumers' total cost of living index —or its equivalent, the household's real income loss— is approximately 6.8% higher due to a combination of tariffs, the

revenue replacement duty, and the environmental tax on imported goods. The general services support is about 20% of total support, and appears to be increasing in recent years. Total support is a small fraction of total GDP, about 2%, indicating that farm programs are not a major part of the country's economic activity.

TABLE 2C.6: MAIN INDICATORS OF SUPPORT TO AGRICULTURE IN BELIZE, 2011-2014

INDICATOR	2011	2012	2013	2014
PSE	31.8	23.7	44.7	14.8
MPS	28.2	16.2	29.2	12.7
GSSE	6.0	7.5	14.0	5.7
CSE	-32.3	-22.7	-31.6	-15.1
TSE	44.0	29.0	62.6	27.4

Million US$. Source: Authors' calculations.

TABLE 2C.7: DERIVED INDICATORS OF SUPPORT TO AGRICULTURE IN BELIZE, 2011-2014

INDICATOR	2011	2012	2013	2014
PSE% (OF GROSS FARM RECEIPTS)	13.6	8.3	15.7	5.6
MPS% (AS A SHARE OF PSE)	88.7	68.4	65.3	85.8
CSE% (OF CONSUMPTION EXPENDITURE AT FARM-GATE)	-27.2	-18.6	-20.2	-10.4
GSSE% (OF TSE)	13.7	25.8	22.4	20.7
TSE% (OF GDP)	2.9	1.8	3.8	1.6

Percentages. Source: Authors' calculations.

POLICY IMPLICATIONS

These results have significant policy implications. The PSE is generally low (and often negative for certain products), indicating the absence of extensive support for commercial agriculture, although certainly not for poultry and maize. The findings reported suggest that, contrary to the policies' objectives, producers of most export products are not strongly protected; in fact, if anything, the overall effect is to discourage investment and production, as farmers are receiving prices at the farm gate that are close to or lower than the farm-gate equivalent price at the border. Only two products —poultry and maize— both of which are mainly import-competing, rather than export-generating, can be said to be significantly protected, and of these, poultry enjoys the strongest protection.

As noted, at the aggregate level, food import dependence in Belize is not high. Food imports account for only about 5% of total foreign exchange earnings (merchandise exports and tourism) and are therefore not a significant burden on financial resources, allowing the country to cover a temporary increase in food import costs, if necessary. Belize is a net exporter of food by a wide margin, mainly due to its resource endowments. Furthermore, given the size of the population and availability of land and water, Belize's agricultural sector has potential for expansion, especially given its relatively low yields that could be increased with investment.

These results show that in Belize, imports competing with domestic agriculture face high applied tariffs. These tariffs contribute to government revenues and protect domestic farm producers, but at a cost to domestic consumers, who suffer a real income loss as result of higher food prices. Significant protection for import-competing activities is an implicit tax on exports: by raising the costs of inputs (both imported and domestically-produced), they reduce the margins on -and therefore relative incentives for- the production of exports. In the long run, this trade strategy could reduce investment and innovations in the export-oriented part of Belize's agriculture sector, which is relatively large and whose growth potential is otherwise promising.

Although not a focus here, Belize's trade protection system is also burdened by a significant degree of discretion, with its tariffs and para-tariffs having wide ranges. Also, small domestic producers and potential exporters often face bottlenecks when trying to import raw materials.

Other important policies that represent disincentives for agricultural producers in Belize are the use of price controls and import

licenses and the activities of the Belize Marketing and Development Corporation. The country is one of only a few in Latin America and the OECD that maintain price controls on goods (most of which are tradable) despite their distortive effect on markets. Import licensing is another anachronism that imposes a burden on the economy, particularly on small-scale manufacturers.

In addition to all these distortive policy measures, the government appears to be underinvesting in public services for the agricultural, forestry, and fisheries sector. Given fiscal constraints in the short and medium terms, the relatively low level of government expenditures relative to agricultural value added is unlikely to increase significantly. Available resources should be focused on a limited number of activities with significant social benefits: Infrastructure and support services for sanitary and phytosanitary protection should be the priority.

The reforms to tariffs, licenses, and price controls would, of course, present a challenge in political terms: They would reduce tax revenue, raise the prices of some goods, and have short-term redistributive effects for certain producers. Nevertheless, the analysis highlights the benefits that would be gained in terms of living standards —and economic dynamism— in the longer term. An advantage of a low, uniform tariff rate on imports (i.e., without exemptions and quantitative restrictions, licensing, etc.) is that it would reduce the uncertainty of the cost of key imports and elevate returns. This would boost business activity in general, but more specifically it could help small export manufacturers grow and encourage other activities whose cost structures are biased towards imported goods.

2D. PUBLIC SUPPORT FOR THE AGRICULTURAL SECTOR: **DOMINICAN REPUBLIC**

By Jesús de los Santos, Gonzalo Muñoz

ECONOMIC GROWTH IN THE DOMINICAN REPUBLIC

The Dominican Republic has enjoyed one of the strongest growth rates in Latin America and the Caribbean over the past 25 years. Growth remained high from 1992-2015, at an average rate of 5.48%, placing the Dominican economy among the fastest-growing countries in the region (Central Bank, 2017). Long-term growth in the Dominican Republic has been driven by integration with the global economy and changes in its export basket. During this period, the country shifted from exporting primarily agricultural products to exporting products with higher value added (footwear, surgical equipment), and services, especially tourism (World Bank, 2014 "How to sustain export dynamism by reducing duality in the Dominican Republic").

TABLE 2D.1: SELECTED MACROECONOMIC INDICATORS, DOMINICAN REPUBLIC

INDICATOR	UNIT	1995	2010	2015	2016
GDP (CONSTANT 2007 PRICES)	RD$ MILLION	406,465	1,756,438	2,126,253	2,143,410
GDP GROWTH	%	5.69	8.32	7.04	6.65
GDP PER CAPITA	US$	2,070.46	5,681.88	6,832.07	7,112.03
POPULATION	'000 PERSONS	7,634.10	9,874.00	9,980.00	10,075.05
% POPULATION IN RURAL AREAS	%	42%	26%	21%	21%

Source: DR. Central Bank. Exchange rate in 2016 was 46.08RD$/US$.

THE ROLE OF AGRICULTURE IN THE DOMINICAN ECONOMY

The agricultural sector is strategically important for the Dominican Republic's economic and social development. Its production is essential for the supply of food to urban and rural households, and raw materials for agribusiness. Agricultural exports represent more than 25% of total exports. The sector also remains the leading economic activity for several provinces in the country and generates a 12.81% of total jobs among the economically active population (Central Bank, 2016).

For 2001-2015, the average annual agricultural GDP growth rate reached 5.46%. Rice is the main staple food in the Dominican diet, and it is being supplied mainly by local production. Rice was the leading crop in 2013-2015, accounting for 8.71% of the total value of agricultural production. Much of the government support has been directed toward rice production. In 2000-2015, annual rice production growth was modest, at just 1.33%. This modest growth is explained by slow growth in productivity (0.45% per year) and the area under production (0.93% per year).

Red beans are another important food crop in for the Dominican diet, although their share of the Gross Value of Production has been declining and stood at less than 2% in 2016. Beans are produced mainly by small producers on fragile, low-quality lands. Low levels of profitability (as a result mainly of low productivity) have reduced producer interest who shifted production to other more profitable crops. During 2000-2015, bean production dropped to 21,618 tons (a reduction of 14%).

Production of roots and tubers remained stable during 2000-2015, and these products contributed around 5.11% of the total value of production during the period 2013-2015. Fruits and vegetables performed well during 2000-2015, helped mainly by export-oriented products like bananas, avocados, tomatoes, and peppers. Banana production has seen significant growth stimulated by preferential

access to the EU export market under the Lomé agreement. Production is carried out by small and medium-sized producers certified in organic agriculture and good agricultural practices. Production has doubled, reaching 1.13 million tons in 2015. Avocado production has progressed similarly, although to a lesser extent, with the growing area expanding by 3.4 times since 2002. Private investment in plantations with the Hass variety have increased avocado exports to both the United States and European markets.

The livestock sector has shown great dynamism, increasing its participation in the total value of agricultural production. While at the beginning of the century, livestock activities accounted for 38% of the Gross Agricultural Value, for 2015 it had increased to 42%, fueled by increases in swine and poultry production.

Agricultural activity in the Dominican Republic employed about 552,000 people as of 2015 according to the national work force survey (ENFT) and accounts for 12.81% of total jobs among the economically active population of the country. Agricultural production represents more than 50% of the employment in the rural sector, but many of the jobs generated are informal and require limited skills as reported by the central bank (Dominican Republic Central Bank, 2017).

TABLE 2D.2: PRODUCTION AND CONSUMPTION OF SELECTED COMMODITIES IN DOMINICAN REPUBLIC

	VALUE OF PRODUCTION, RD$ MILLION			PRODUCTION, 000 TONS			CONSUMPTION, 000 TONS		
	2006	2010	2015	2006	2010	2015	2006	2010	2015
AVOCADOS	2,569.59	4,648.52	6,915.53	64.93	82.66	140.40	52.98	70.51	125.12
BANANAS	1,281.06	3,250.66	7,660.88	557.6	825.80	1,132.4	392.47	658.50	1,148.2
COCOA, BEANS	1,432.32	5,440.36	8,947.02	47.02	58.33	69.63	20.81	49.99	69.08
COFFEE, GREEN	3,517.21	2,670.31	1,659.36	53.69	32.59	13.08	39.71	26.64	29.41
EGGS, HEN, IN SHELL	3,140.47	5,511.33	6,745.93	87.01	105.73	92.93	99.91	108.54	92.91
MEAT, CATTLE	16,373.4	17,737.3	25,035.0	84.25	112.95	98.78	86.51	116.74	102.74
MEAT, CHICKEN	13,685.3	14,786.21	19,856.61	136.2	133.82	145.31	139.81	154.27	171.67
MEAT, PIG	7,363.88	5,416.93	9,056.08	101.4	89.47	83.32	78.08	81.05	113.72
MILK WHOLE FRESH COW*	7,044.55	10,147.56	11,174.29	512.4	701.20	655.76	510.24	518.75	621.10
PINEAPPLES	453.04	1,389.34	4,342.62	70.62	157.42	436.30	113.97	162.37	491.22
PLANTAINS	4,626.81	6,948.98	14,082.76	829.6	703.55	897.21	501.24	600.71	680.01
RICE, PADDY	9,821.16	14,028.76	13,859.79	713.8	850.23	823.90	471.35	583.33	536.41
SUGAR CANE	4,713.12	7,172.11	7,627.65	4,713.	4,577.1	5,033.6	4,545.0	4,307.9	4,890.1
TOMATOES	1,787.86	5,314.49	5,893.81	254.3	240.25	160.15	251.71	237.08	153.71
TOTAL ABOVE	**77,809.8**	**104,462.9**	**142,857.3**						

Note: * Liters. Source: Central Bank, Ministry of Agriculture.

Exports of agricultural goods in the Dominican Republic have been increasing over the last 15 years. In 2015, food exports represented 28% of national merchandise exports, significant since the share of food exports was only 12.26% of total merchandise exports in 2005. Food exports went from US$753.4 million in 2005 to US$ 2,647.76 in 2015. This growth in food exports over the past decade is the largest among CAFTA-DR countries.

Exports of fruits and vegetables have seen strong growth over the last decade. These products have significantly increased their participation in agricultural exports and partially offset the drop in traditional export crops (especially sugar and coffee). Banana exports have benefited from preferential access to the European market and the niche organic market. In 2015, the country exported 361,724 tons of bananas with a value of US$223.7 million.

Exports of fruits and vegetables have been directed mostly to the United States, the country's main trading partner. The largest increase has been in exports of avocados, mangoes, and pineapples. Vegetables produced in controlled environment have experienced significant growth since 2005, following a national program to promote the installation and operation of greenhouses.. Tomatoes, cucumbers, and peppers are the major crops being exported to the U.S. market.

TABLE 2D.3: MAIN FOOD AND AGRICULTURAL EXPORT COMMODITIES IN DOMINICAN REPUBLIC (US$ 000)

COMMODITIES	2012	2013	2014	2015
TOBACCO AND TOBACCO SUBSTITUTES MANUFACTURED	513,317.32	594,765.07	637,582.84	717,215.86
COCOA AND COCOA PREPARATIONS	168,105.63	171,478.34	227,072.33	264,186.50
SUGAR AND CONFECTIONERY	197,087.52	69,152.36	154,824.14	133,390.94
BANANAS	138,150.52	166,680.17	219,902.78	223,709.13
CHILIES AND PEPPERS, GREEN	17,744.27	24,072.60	22,046.54	8,923.22
AVOCADOS	19,624.76	22,809.48	22,528.25	16,585.53
COFFEE, GREEN AND ROASTED	10,617.94	16,482.51	11,461.42	8,826.42
MANGOES, MANGOSTEENS, GUAVAS	9,277.88	14,155.41	17,511.63	15,686.54
VEGETABLES, FRESH N.E.S	17,665.07	23,936.82	30,462.20	29,663.67
TOMATOES	6,549.32	6,537.80	8,273.89	8,161.53
LIVE ROOSTERS AND HENS	-	5,398.74	8,333.74	7,586.74
MILK AND DERIVATIVES	-	7,500.26	8,266.61	9,239.09
FISH AND CRUSTACEANS	-	12,075.16	9,516.51	13,994.55
TOTAL ABOVE	**1,098,140.23**	**1,135,044.72**	**1,377,782.88**	**1,457,169.72**

Source: Ministry of Agriculture and Dominican Customs.

Tobacco and its manufactures represent the largest export item ($717 million), of which cigars are a major component. However, the local tobacco content in the cigar is low as result of some imports of cigar leaves. Exports of cocoa and its derivatives (a traditional export product) have been growing because of better international prices. As of 2015, the value of cocoa exports and its derivatives totaled $264.2 million.

TABLE 2D.4: MAIN FOOD AND AGRICULTURAL IMPORT COMMODITIES IN THE DOMINICAN REPUBLIC (US$ 000)

COMMODITIES	2012	2013	2014	2015	SHARE IN TOTAL IMPORTS (2015, %)
CEREALS	486,971	438,898	411,483	362,779	2.1%
TOBACCO AND MANUFACTURED TOBACCO	201,419	233,046	242,506	276,700	1.6%
BEVERAGES, ALCOHOLIC LIQUIDS AND VINEGAR	137,357	146,416	170,089	199,683	1.2%
ANIMAL OR VEGETABLE FATS AND OILS	285,719	239,963	211,639	192,889	1.1%
PREPARATIONS OF CEREALS, FLOUR, STARCH OR MILK	148,024	159,120	177,771	177,580	1.0%
MILK AND DAIRY PRODUCTS	172,753	189,011	196,953	177,417	1.0%
MISCELLANEOUS FOOD PREPARATIONS	149,387	154,735	167,225	169,892	1.0%
MEAT AND EDIBLE MEAT OFFAL	96,109	113,319	132,302	157,215	0.9%
RESIDUES AND WASTE FROM THE FOOD INDUSTRIES	179,262	152,181	175,975	146,648	0.8%
PREPARATIONS OF VEGETABLES, FRUIT, NUTS	91,851	96,799	114,303	123,714	0.7%
OIL SEEDS AND OLEAGINOUS FRUITS; SEEDS AND FRUITS	79,293	95,976	110,622	101,863	0.6%
SUGARS AND SUGAR CONFECTIONERY	80,793	52,402	68,208	96,743	0.6%
FISH AND CRUSTACEANS, MOLLUSKS	111,154	93,709	108,769	107,488	0.6%
COFFEE, TEA, YERBA MATE AND SPICES	25,356	23,800	35,450	79,348	0.5%
PREPARATIONS OF MEAT, FISH OF CRUSTACEANS	63,595	49,628	54,593	63,732	0.4%
VEGETABLES, PLANTS, ROOTS AND TUBERS	54,277	52,809	39,756	64,788	0.4%
EDIBLE FRUIT AND NUTS	47,113	41,387	51,012	56,825	0.3%
MILLING PRODUCTS; MALT; STARCH; WHEAT GLUTEN	43,211	32,437	36,105	34,163	0.2%
COCOA AND ITS PREPARATIONS	18,526	18,282	20,801	24,284	0.1%
LIVE PLANTS AND FLORICULTURAL PRODUCTS	4,852	7,188	7,514	6,645	0.0%
LIVE ANIMALS	2,716	3,115	2,751	3,203	0.0%
TOTAL ABOVE	**2,479,738**	**2,394,221**	**2,535,827**	**2,623,599**	**15.1%**

Source: Dominican Customs.

The value of imports of food and agriculture goods has been increasing steadily since 2005. Manufactured and semi-finished products account for the bulk of the increase in this category of imports. Milk, rice, and sugar are among the main agricultural items imported. These three products have been classified as "sensitive products" within the country's trade negotiations. In addition, local livestock production uses large amounts of grains and vegetable fats for livestock feed. Poultry and swine production require corn, soybeans, and vegetable oils as major elements in the feed mixture. The local food industry, especially the sector specialized in the manufacture of pastry products, accounted for a large proportion of wheat imports.

AGRICULTURAL POLICIES IN DOMINICAN REPUBLIC

The Ministry of agriculture has set the sector's priorities through the Sectorial Agricultural Development Strategic Plan 2010-2020. The plan sets out four strategic focuses related to the National Development Strategy; a) Reform and modernization of the agricultural sector, b) productivity and competitiveness of the agricultural sector; c) strengthening production of agricultural commodities for domestic consumption and domestic marketing mechanisms; and, d) development of rural infrastructure and services as a catalyst for poverty reduction, with a territorial approach and emphasis on food security and safety-net activities.

TABLE 2D.5: POLICY MEASURES TO SUPPORT AGRICULTURE IN DOMINICAN REPUBLIC

POLICY	DESCRIPTION
SUBSIDIZED LOANS	Financing is provided by the state Banco Agrícola (40%) and by full-service banks (52%) for production, cultivation, marketing, and purchase of machinery and equipment. Another important participant is the Reserve Bank of the Dominican Republic (State owned), which allocates resources for financing the National Rice Pledging Program. Both government financial entities account for 70% of agricultural loans (the Reserve Bank is considered a state-owned, full-service bank). Most of the loans from the state banks go to finance rice, beef, pork, and poultry. The interest rate offered by the agricultural bank is lower than that of commercial banks, although it is based on market trends and sector policies. Credit for the agricultural sector increased at an annual average rate of 10.7% between 2010 and 2016. In 2016, financing to agricultural activities amounted to DR$34.15 billion (US$ 741.18 million).
BUDGET TRANSFERS (GRANTS) FOR INPUTS	The State supports agricultural production by distributing seeds (red/black beans, plantain/banana, and cassava among small/subsistence farmers), providing mechanized soil preparation services (mainly for red bean, corn, and cassava) and maintaining irrigation systems (mainly in rice production areas).
MARKETING AND VALUE CHAIN DEVELOPMENT	About 2/3 of domestic support is devoted to marketing services: specifically, to programs to support production of rice and other agricultural crops and increase productivity. The National Rice Pledging Program, established in 2005, remains active. Its purpose is to guarantee the stability of the rice market and achieve acceptable rates of return for participants in the rice subsector. The pledge consists of temporarily withdrawing any excess rice from the market to prevent an oversupply that could depress selling prices. The state pays part of (i) the interest on loans negotiated by the millers with financial institutions, (ii) the millers' storage costs, and (iii) the cost of insuring the stocks stored.
TAX CONCESSIONS	Since 2007, the agricultural sector has been favored by tax exemption measures emanating from the Directorate General of internal revenue. Norma General No. 01-08 agricultural benefit from establishes: (a) exemption from advance income tax payment for enterprises in the agricultural sector; b) exemption from tax on assets for companies in the agricultural sector, and, c) exemption from tax withholding on the income of 5% of agricultural goods.
HIGH IMPORT DUTIES	The Dominican Republic places tariff quotas on imports of chicken meat, maize (corn), dried beans, garlic, onions, powdered milk, rice, and sugar. The MFN tariffs applied to the products subject to tariff quotas range between 40% and 99% (out-of-quota) and between 0% and 25% (in-quota). The average tariff applied to agriculture is higher than the average for the manufacturing sector. In 2014, the average MFN tariff for agricultural products (WTO classification) was 14.2%, while the average for manufactured products stood at 6%. Under DR-CAFTA all tariffs on US trade will be eliminated by 2024.
AGRICULTURAL DEVELOPMENT SUPPORT	Agricultural sector support programs are aimed at improving the sector's productivity and competitiveness and the quality and safety of agricultural produce. To this end, the Government continued to invest in programs to promote crop and livestock production, assistance and technology transfer, and animal and plant health.
EXTENSION SERVICES, MARKETING AND INFORMATION	Extension services are provided by the Ministry of Agriculture. Marketing information is provided by the Ministry for a few crops. IDIAF is the main public agricultural research institution. CONIAF is responsible for the formulation of agricultural research policy. It provides financing for developing scientific and technological capacity in public and private institutions. Between 2009 and 2015 the annual average public expenditure on agricultural research amounted to DR$276.5 million (some US$6.13 million), or less than 1% of gross agricultural production.

Source: Authors' compilation.

LEVEL AND STRUCTURE OF SUPPORT TO PRODUCERS IN DOMINICAN REPUBLIC

Support to producers is high and dominated by price support. During 2006-2015, agricultural support decreased in the Dominican Republic. Transfers to individual agricultural producers, determined by agricultural policy and measured by the Producer Support Estimate (PSE), reached DR$33.33 billion in 2015 (Table 2D.6). Market Price Support (MPS) is the main component of the PSE (DR$29.16 billion in 2015). Total Support Estimate (TSE) represents all transfers in the economy that arise from national agricultural policy; it amounted to DR$36.97 million in 2015.

The most significant reduction occurred in market price support. In 2006, at the inception of DR-CAFTA, price supports accounted for more than 90% of total agricultural support, and although support dropped significantly during the period, reliance on price supports has not changed. The reduction in support can be attributed to the obligations the country assumed under trade agreements requiring that price support measures be reduced or eliminated (applicable to tariffs and import quotas). This support has plummeted significantly for products whose domestic markets were opened, such as rice, pork, and beef. Domestic prices have become more aligned with border prices. In 2015, market price support increased, mainly due to increases in poultry and rice support.

Direct support to producers doubled from 2006-2015. Among production-based payments, the National Rice Pledging Program and the support to dairy farmers through the National Council for the regulation and development of the dairy industry have taken a prominent role. Payments based on the use of inputs mostly took the form of on-the-farm services provided by the Ministry of Agriculture. The irrigation subsidy provided by the National Institute of Hydraulic Resources was also an important transfer.

TABLE 2D.6: MAIN INDICATORS OF SUPPORT TO AGRICULTURE IN THE DOMINICAN REPUBLIC, 2006-2015 (DR$ MILLION)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
PSE	53,784.65	44,177.53	46,094.67	49,630.70	47,181.80	35,649.01	18,356.03	16,507.02	22,340.05	33,327.02
MPS	50,810.30	40,098.17	40,791.07	45,556.89	43,651.43	32,001.28	13,290.62	10,926.62	18,561.19	29,164.41
GSSE	1,989.32	2,179.54	3,182.18	2,817.07	2,647.09	2,474.38	3,290.90	4,692.03	3,358.58	3,639.08
CSE	(56,471.07)	(45,321.31)	(43,970.59)	(51,635.84)	(53,080.38)	(38,536.90)	(25,535.24)	(19,444.00)	(28,386.00)	(41,354.13)
TSE	55,773.97	46,357.07	49,276.85	52,447.77	49,828.89	38,123.39	21,646.93	21,199.05	25,698.63	36,966.10

Source: Authors' estimates.

From 2006-2015, direct spending on general services increased but still remained very low, at 2% of the Value of Agricultural Production in 2015. A major portion of transfers in the General Services Support Estimate (GSSE) category took the form of support for agricultural knowledge transfer (education, training and agricultural knowledge generation), account for 35.36% of GSSE in 2015. Next came marketing and promotion (26.42%) and infrastructure development and maintenance (15.50%). Inspection services and food safety transfers amounted to 7.87% of GSSE in 2015.

A negative Consumer Support Estimate (CSE) of -DR$35.29 billion in the Dominican Republic in 2015 indicates that support for agricultural producers is mainly financed by transfers from consumers to producers of agricultural commodities. Consumers pay higher prices for local output as well as for imported foods as a result of government policy.

COMMODITY-SPECIFIC SUPPORT

The overall level of support to producers in the Dominican Republic reflects a combination of measures intended to provide significant protection to the poultry, milk, and rice subsectors: transfers to producers under agricultural policy expressed as a percentage

TABLE 2D.7: COMMODITY-SPECIFIC SUPPORT IN THE DOMINICAN REPUBLIC, 2016-2013

	MPS, DR$ MILLION				PSCT, DR$ MILLION				PSCT%			
	2006	2013	2014	2015	2006	2013	2014	2015	2006	2013	2014	2015
RICE	5.543,14	3.531,09	2.653,50	3.049,65	5.843,14	3.937,94	3.112,10	3.452,60	57,73	26,72	21,79	24,21
RED BEANS	817,51	1.880,41	1.232,91	1.222,99	817,51	1.880,41	1.232,91	1.222,99	66,21	78,48	58,96	63,43
SUGAR CANE	378,78	(2.367,24)	(42,82)	130,32	378,78	(2.367,24)	(42,82)	130,32	8,04	-33,64	-0,58	1,71
BANANAS	(761,67)	(6.174,81)	(8.575,40)	(8.536,66)	(761,67)	(6.174,81)	(8.575,40)	(8.536,66)	-59,46	-105,35	-142,48	-111,43
PLANTAINS	(3.262,19)	195,10	1.834,84	4.176,65	(3.262,19)	195,10	1.834,84	4.176,65	70,51	1,98	16,08	29,66
COFFEE	916,82	1.068,85	116,00	(562,62)	1.173,19	1.295,98	395,55	(279,65)	31,09	43,09	16,97	-14,40
AVOCADO	1.790,60	1.187,08	3.218,95	4.270,90	1.790,60	1.187,08	3.218,95	4.270,90	69,68	25,57	58,47	61,76
MILK	4.201,73	1.730,97	4.622,65	5.983,14	4.321,73	1.850,97	4.742,65	6.103,14	60,32	19,65	48,19	54,04
BEEF	13.715,10	(5.485,38)	(4.879,40)	(7.242,11)	13.715,10	(5.485,38)	(4.878,40)	(7.241,11)	83,76	-25,40	-19,60	-28,92
PORK	4.603,93	1.546,81	18,80	2.617,35	4.603,93	1.546,81	18,80	2.617,35	62,52	18,49	0,22	28,90
POULTRY	12.078,05	10.406,24	13.002,71	14.777,92	12.078,05	10.406,24	13.002,71	14.777,92	88,26	62,19	65,33	74,42

Source: Author's estimates.

share of farm receipts measured by the Single Commodity Transfer (SCT%) is quite significant for poultry (74.4%) and red beans (63.4%), as well as for milk (54.4%) and avocadoes (61.8%). However, this support does not extend to all products. Banana, beef, and coffee producers received the least support (Table 2D.7), and were in fact taxed by the mix of policies.

TABLE 2D.8: COMMODITY-SPECIFIC POLICY IN DOMINICAN REPUBLIC

POLICY	COMMODITY-SPECIFIC SUPPORT
RICE SUBSECTOR	
• Program for promoting production and marketing • Irrigation subsidy • Loan program • Research and extension • Price regulation, quality standard • Border protection	• National Rice Pledging Program, established in 2005. The purpose of the program is to guarantee rice market stability and achieve acceptable rates of return for participants in the rice subsector. The state pays part of (i) the interest on loans negotiated by the millers with financial institutions, (ii) the miller's storage costs, and (iii) the cost of insuring the stocks stored. • The National Rice Commission sets the price at which rice is purchased from the producer. • Rice production benefits from government-subsidized irrigation water. All rice areas are irrigated. • Tariff quota applied under DR-CAFTA • High duty on imports, out-quota tariff of 99% • Most of the loans from the Banco Agrícola go to finance rice production.
BANANA SUBSECTOR	
• Strengthening value chains • Ensuring compliance with international standards • Promoting access to niche export markets (organic, fair trade) • Managing pest risks	• Early alert system for black Sigatoka. • Marketing support through the National Banana Commission.
COFFEE SUBSECTOR	
• Production promotion • Disaster support (diseases) • Extension services • Market and price information support	• Coffee tree distribution • Early alert system for coffee rust and coffee borer. • Daily information service on market price. • The Dominican Coffee Council provides quality control, licensing, and advisory services, and issues export authorization.

Continued on the next page

TABLE 2D.8 (CONTINUED): COMMODITY-SPECIFIC POLICY IN DOMINICAN REPUBLIC

POLICY	COMMODITY-SPECIFIC SUPPORT
SUGAR SUBSECTOR	
• Price regulations, quality standards • Border protection and domestic market regulation	• INAZUCAR sets the price caps for various kinds of sugar intended to be sold on the domestic market for direct consumption or industrial use. • Import permit for sugar requires the submission of an additional permit issued by INAZUCAR. • In-quota tariff rate is applied to authorized sugar imports. • Permits required for the export of sugar.
COCOA SUBSECTOR	
• Strengthening value chains • Ensuring compliance with international standards and promoting best practices and certifications • Promoting access to niche export markets (organic, fair trade) • Increase quality through adoption of new varieties and post-harvest practices	• Cocoa tree distribution. • Daily information service on market price. • The National Cocoa Commission Dominican provides quality control, licensing, and advisory services, and issues export authorization.
NON-TRADITIONAL EXPORT SUBSECTORS	
• Production promotion • Market support • Extension services	• National program to install and operate greenhouses to grow vegetables for export. • National program of nurseries to provide planting materials of tropical fruits to farmers. Implemented by the Ministry of Agriculture. • Sanitary and Phytosanitary programs for vegetables. • The Ministry of Agriculture's Oriental Vegetables, Fresh Fruit and Related Products for Export Program (PROVOFEX) provides technical assistance.
LIVESTOCK SUBSECTOR	
• Border protection	• Duty-free imports of feed. • Import protection for the poultry subsector, out-quota tariff at 99%.
DAIRY SUBSECTOR	
• Production promotion • Border protection • Extension services	• Embryo import program. • Milk producers are supported by market price support and budget transfer. • The Dominican Dairy Development Board ensures quality, regulates trade, and distributes information. • Loan facility for working capital.

Source: Authors' compilation.

PERCENTAGE SUPPORT INDICATORS

Transfers account for a relatively high share of total farm receipts in the Dominican Republic. The PSE% (support to producers as a percentage of gross farm receipts) declined significantly during the period of study, mostly due to a reduction in Market Price Support, and stood at 13.88% in 2013-2015. The CSE% was been negative (-16.66% in 2013-2015 period), indicating that the consumers in Dominican Republic are penalized by agricultural policies.

The TSE% indicates that all transfers to producers and consumers arising from agricultural policy and related food policy declined over the 2006-2015 period. While in 2006, TSE represented 5.35% of GDP, in 2015 it amounted to 1.12% of the national GDP (Table 2D.9). The share of GSSE in total transfers to producers and consumers (TSE) was at 15.1% in 2013-2015.

TABLE 2D.9: PSE%, GSSE%, CSE%, TSE% IN DOMINICAN REPUBLIC (2006-2015, %)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
PSE% (OF GROSS FARM RECEIPTS)	56.81	44.81	41.29	43.39	36.20	25.60	13.14	10.64	13.96	18.67
MPS% (OF PSE)	78.77	77.95	77.12	72.13	69.69	70.49	74.43	68.81	71.13	68.19
CSE% (OF CONSUMPTION EXPENDITURE AT FARM-GATE)	-66.45	-50.56	-40.79	-48.39	-40.83	-27.20	-16.97	-13.04	-16.84	-20.10
GSSE% (OF TSE)	3.57	4.70	6.46	5.37	5.31	6.49	15.20	22.13	13.07	9.84
TSE% (OF GDP)	4.69	3.40	3.13	3.12	2.62	1.80	0.93	0.84	0.92	1.22

Source: Authors' estimates.

POLICY RELEVANCE OF RESULTS

The PSE and related indicators give a snapshot of the current agricultural policies in the Dominican Republic. Most of support to producers is provided in the form of price support, and the role of general services has been secondary. Price supports, such as tariffs on imports mean high costs for consumers. It should be noted that the reduction in Market Price Support due to regional trade liberalization after the DR-CAFTA has led to consumer gains with no additional budget costs.

The size of budget outlays and quality of public expenditure on agriculture are crucial for increasing the sector's competitiveness,

sustainability, and inclusiveness. The reduction in Market Price Support is pushing the country to identify and implement a mix of support measures to boost production and increase competitiveness and sustainability.

Investment in agricultural public goods is a significant challenge facing Dominican agriculture. Support needs to be increased for the adoption of technological innovations and the establishment of the sanitary/phytosanitary systems necessary for a competitive and sustainable agriculture in the new environment. Spending on research and development has been very limited and represents a very small proportion in relation to the agricultural GDP.

Likewise, weakness in the sanitary and phytosanitary systems have been the major obstacle to improving access to the higher quality segments of agricultural export markets. For example, an outbreak of the Mediterranean Fruit Fly led to a ban on vegetable exports to the United States for almost a year in 2014.

Opening markets puts the producers of sensitive products (rice, milk, pork, and poultry) in a very vulnerable position. They may not have access to the technological innovations or financial resources needed to shift to other crops or to make adjustments in their enterprises that would allow them to survive in an environment of increased competition.

This is exacerbated by the increasing impact of climate change hazards. Droughts that have adversely affected the country's agricultural production over the last five years (affecting production of milk and rice in the northwest region) have drawn producers' attention to the need to invest in improved irrigation systems, new water storage and distribution infrastructure for irrigation, and use of varieties more resistant to climate change.

2E. PUBLIC SUPPORT FOR THE AGRICULTURAL SECTOR: GUYANA

By Christian Derlagen, Rachel Boyce, Carmine Paolo De Salvo

ECONOMIC GROWTH IN GUYANA

Guyana is a low-income country with about 800,000 inhabitants and a GDP *per capita* of US$4,053 (2014).[20] Approximately 90% of its population lives in the coastal plains, while the remaining 10% consists largely of indigenous populations living in the country's extensive tropical rainforests.

As a result of high export commodity prices, between 2005 and 2013, the country experienced an extended period of relatively strong annual economic growth, averaging 4.7%. This was followed by a drop in GDP growth to 3% in 2015 (Table 2E.1), with GDP growth for 2016 estimated at 3.5%.

20. World Bank, Country Overview Guyana. http://www.worldbank.org/en/country/guyana/overview

TABLE 2E.1: SELECTED MACROECONOMIC INDICATORS, THE BAHAMAS

INDICATOR	UNIT	1996	2010	2015
GDP (CONSTANT LCU)	GYD BN	234.37	343.6	427.38
GDP GROWTH	%	14.99	4.37	3.01
GDP PER CAPITA (CONSTANT 2010 US$)	US$	2,121	2,999	3,663
POPULATION	'000 PERSONS	727	753	767
% POPULATION IN RURAL AREAS	%	70.86	71.76	71.44

Source: WDI. Exchange rate (2017) is 207.6 GYD per US$.

THE ROLE OF AGRICULTURE IN THE ECONOMY

The agriculture and natural resource sectors play a key role in the country's economy, accounting for a combined 28% of GDP in 2015. Main commodities include bauxite, sugar, rice, gold, and timber, which together made up 83%of exports. Over the last five years, the agricultural sector has accounted for between 18% and 19% of GDP.

Sugar, rice, and poultry are the most important agricultural commodities in terms of both volume and value (Table 2E.2). Sugar and rice alone account for over 70% of the value of the country's total agricultural production. Other important crops produced are coconuts, green beans, tropical fruits, and plantains. The main livestock products include poultry meat, beef, milk, and eggs. Between 2010 and 2013, Guyana's rice production showed a strong increase of 48%. More recently, however, Guyana has lost access to the high-priced rice market in Venezuela, and producers have been adversely affected by droughts as a result of the El Niño phenomenon. Rice production has thus stabilized at around 600,000 tons. Production in other sub-sectors remained mostly stable (e.g. beef) or declined (e.g. sugar).

Although the relative importance of agriculture in the economy has decreased, agricultural exports have trended mostly upward since 2010. This is primarily the case for rice, with an increase of 63% during the period. Other important exports include sugar, fish and seafood products, and coconuts (Table 2E.3).

Guyana's main agricultural imports consist of milk and dairy products, wheat, and prepared foodstuffs, as can be seen in the following pages (Table 2E.4).

TABLE 2E.2: PRODUCTION AND CONSUMPTION OF SELECTED COMMODITIES IN GUYANA (000 TONS)

	VALUE OF PRODUCTION, GYD BN (CURRENT)		PRODUCTION, 000 TONS		CONSUMPTION, 000 TONS	
	2010	2014	2010	2014	2010	2014
RICE	28.5	49.6	361.5	635.2	219.9	476.1
COCONUT	5.0	4.6	92.5	78.8	84.2	59.8
SUGAR	18.5	19.5	221.0	216.4	28.2	33.1
BEANS	1.8	N/A	11.9	N/A	11.8	N/A
TOMATOES	0.3	N/A	6.9	N/A	6.6	N/A
MILK	N/A	N/A	26.8	52.3	N/A	N/A
BEEF	1.5	2.0	2.3	2.7	2.3	2.7
POULTRY	11.3	14.6	25.0	28.4	25.0	29.0
EGGS	0.4	0.7	14.1	23.1	2.3	3.1
TOTAL ABOVE	**67.3**	**91.0**				

Source: FAOSTAT and Guyana Bureau of Statistics.

TABLE 2E.3: MAIN FOOD AND AGRICULTURAL EXPORT COMMODITIES IN GUYANA (US$ 000)

COMMODITIES	2010	2011	2012	2013	2014
RICE	152,166.0	173,842.2	196,588.8	238,989.9	247,442.8
CANE OR BEET SUGAR	101,248.8	123,809.3	73,689.2	114,187.1	87,751.2
CRUSTACEANS	29,414.9	24,958.5	48,574.2	53,339.6	33,153.2
FISH FILLETS AND OTHER FISH MEET	9,703.8	13,244.6	16,152.5	16,385.6	10,853.0
FISH, FRESH OR CHILLED	7,032.0	9,145.8	7,970.8	13,100.8	14,786.1
COCONUTS	2,364.9	4,538.8	3,413.4	2,648.8	5,541.4
MOLASSES	10,140.9	N/A	7,869.7	1,962.0	4,975.8
FRUITS, NUTS	3,314.3	2,502.4	2,369.5	2,433.7	2,591.2
TOTAL ABOVE	**315,385.6**	**352,041.6**	**356,628.1**	**443,047.5**	**407,094.7**

Source: UN COMTRADE.

TABLE 2E.4: MAIN FOOD AND AGRICULTURAL IMPORT COMMODITIES IN GUYANA (US$ 000)

COMMODITIES	2010	2011	2012	2013	2014
DAIRY PRODUCE, EGGS	40,610.6	38,926.4	49,431.2	52,848.4	42,645.1
CEREALS	35,922.5	35,843.3	37,394.3	31,681.7	35,555.3
BEVERAGES, SPIRITS, AND VINEGAR	24,810.1	34,897.5	35,823.6	36,779.7	33,466.0
MILK AND CREAM, CONCENTRATED	22,675.7	23,799.5	34,405.0	33,841.1	24,421.8
WHEAT	58,127.5	43,897.8	46,114.6	42,683.9	38,800.4
PREPARATIONS OF CEREALS, FLOUR	18,948.5	22,342.4	25,045.8	27,771.8	27,176.1
MILK IN POWDER	16,442.6	15,633.9	23,006.7	20,107.5	14,593.4
MISCELLANEOUS EDIBLE PREPARATIONS	13,667.1	15,678.1	18,095.5	18,413.5	19,018.8
ANIMAL AND VEGETABLE FATS AND OILS	8,324.5	12,138.6	13,202.2	13,962.7	14,377.0
EDIBLE VEGETABLES	14,563.7	15,417.0	13,198.9	13,962.7	13,219.0
TOTAL ABOVE	**254,092.8**	**258,574.5**	**295,717.8**	**292,053.0**	**263,272.9**

Source: UN COMTRADE.

AGRICULTURAL POLICIES IN GUYANA

Guyana's main agricultural policy document is the "Vision for Agriculture 2020: A National Strategy for Agriculture in Guyana 2013-2020". The strategy is primarily based on the notion that agriculture is not only meant to provide subsistence livelihood but is also a wealth generator and an entrepreneurial sector, which produces food and non-food commodities to meet local and export demand.[21]

The strategy also sets out the main goals that Guyana wishes to achieve for its food and agricultural sector. These goals include:

- Ensuring the reduction of imports of food (corn, soya, potatoes).
- Increasing the exports of rice and sugar, both as bulk and value-added commodities.
- Increasing the export of non-traditional crop products.
- Meeting local demand for milk and dairy products through local production.
- Reaching export-level production for meats.
- Increasing agro-processing for the local and export markets.

21. Ministry of Agriculture (2013).

In his budget speech in December 2016, the Minister of Agriculture reiterated the government's focus on diversified inland agricultural development as a core element of the development agenda. In terms of concrete measures, this includes expanding agriculture stations at Ebini and Pirara, primarily focusing on promoting cassava, peanut, orchard, and cattle products. The government also emphasizes further development of the coconut and cassava subsector. The latter is expected to benefit from the opening of a cassava chips and flour processing facility in Parika. Finally, the minister projected construction of a milk processing plant to produce milk, butter, cheese, and other dairy products.

The Ministry of Agriculture of Guyana is the primary institution tasked with ensuring the formulation and implementation of policies and programs to facilitate the development of agriculture and fisheries in Guyana. Much of the technical work supporting the agricultural sector is carried out by 10 different agencies for which the Ministry of Agriculture has reporting obligations to Parliament. The directors of the boards of these agencies report to the Minister of Agriculture. However, the agencies have their own budget and are semi-autonomously managed by Chief Executive Officers (CEOs). They include:

- The Guyana Rice Development Board (GRDB).
- The Guyana Sugar Company (GuySuCo).
- The Guyana Livestock Development Authority (GLDA).
- The National Agricultural Research and Extension Institute (NAREI).
- The New Guyana Marketing Corporation (New GMC).

The total budget of the Ministry of Agriculture has increased significantly during the years under review, from GYD 3.25 billion in 2010 to GYD 15.46 billion in 2014, in a period of low inflation. In 2010, this budget represented 2.2% of the total government budget, while by 2014, expenditure had grown to 7.2% of the total government budget. For 2015, the Ministry's budget amounted to GYD 20.89 billion, or 10.8% of total government budget. This growth is primarily the result of strong increases in the Ministry's recurring expenditures of the Ministry, not only in nominal terms but also as a share of the Ministry's total budget. The increases are the result of growth in nonwage recurring expenditures ("other charges") of the institution, and are primarily caused by the subsidies that are provided by the Ministry to cover increasing losses at the Guyana Sugar Company.[22]

22. The quantity and price of sugar exports to the EU has been determined in the context of the Lomé agreement and the EU Common Agricultural Policy.

The main policy projects and programs implemented by the Ministry of Agriculture and other agencies in 2010-2014 are listed in the following table.

TABLE 2E.5: POLICY MEASURES TO SUPPORT AGRICULTURE IN GUYANA (2006-2014)

POLICY	DESCRIPTION
IMPORT DUTIES	The overall MFN rate for agricultural products is significantly higher than for non-agricultural products. It averages 22.7% against 10% for other products. Domestic poultry producers are protected through a 100% tariff on poultry imports.
EXPORT DUTY FOR SUGAR	An export duty of GYD 1.00/ton is applied to raw cane sugar. For molasses, the export duty amounts to GYD 1.00/100 liters.
VAT EXEMPTION FOR DOMESTIC PRODUCTION	VAT is applied equally to domestically-produced goods and services and imports, at a general rate of 16%. For certain products, however, the domestic production is exempted while the imports are not. This applies to: • fresh chilled or frozen pork • beef • shrimp • fish and salted fish • peanuts and cashew nuts
CUSTOMS DUTY EXEMPTION	Under the Customs Act, the following exemptions of duties are applied in support of the agricultural sector: • waivers of duty on a wide range of machinery and equipment for land preparation and cultivation, including agricultural hand tools and spares for agricultural machines; • exemption of duty for vehicles for use on the farm or to transport agricultural products; • duty waivers on a wide range of agro-processing equipment; • duty-free importation of fertilizer and agro-chemicals, such as insecticides and herbicides.
OTHER TAX CONCESSIONS	Under the VAT Act, zero-rates apply to various food items, including baby formula, flour, milk and milk powder, fresh fruits and vegetables, sugar, eggs, and chicken. In addition, various agricultural inputs are also zero-rated. These include fertilizer, pesticides, fungicide, herbicide and weedicide, seeds, machinery, and equipment. In addition, prepared animal feeds, hatching eggs, and veterinary medication also fall in this group.
RICE LEVY	A direct levy applies to both export and the domestic market. The fee amounts to USD 8 per ton of rice and USD 4 per ton of paddy. All activities and services of the GRDB are funded by the levy.
FOOD SUBSIDIES	A national school food program is in place.

Source: Authors' compilation.

LEVEL AND STRUCTURE OF SUPPORT TO PRODUCERS IN GUYANA

Support to producers is high and dominated by price support. The Total Support Estimate (TSE), which represents all transfers in the economy that arise from national agricultural policy amounted to US$ 107.46 million in 2014. Transfers to individual agricultural producers determined by agricultural policy, as measured by the Producer Support Estimate (PSE), reached US$78.98 million in 2014 (Table 2E.6). In Guyana, as in most developing countries, market price support (MPS) is the main component of the PSE. During 2010-2014, on average, MPS represented 72.6% of total national PSE.

TABLE 2E.6: MAIN INDICATORS OF SUPPORT TO AGRICULTURE IN GUYANA

	2010	2011	2012	2013	2014
PSE	60.68	60.40	100.62	61.94	78.98
MPS	54.47	51.82	75.74	32.95	46.51
GSSE	14.25	26.61	24.96	27.87	25.44
CSE	-41.91	-40.66	-66.56	-39.39	-38.02
TSE	76.30	88.38	126.95	92.85	107.46

US$ million. Source: Authors' estimates.

Market Price Support, which measures the effect of policies on producer prices, has a relatively strong influence on production decisions made by farmers and therefore distorts agricultural markets. The main driver of Market Price Support in Guyana is the import tariff in place to protect domestic producers of poultry meat. This measure allows producers to obtain higher prices for their chicken. However, this also means that consumers pay higher prices for chicken, the single most important source of animal protein in the Guyanese diet. Thus, between 2010 and 2014, the Consumer Support Estimate (%) ranged between -8% and -16% of consumption expenditure.

However, the shares of budget transfers in total support to agricultural producers have increased significantly in more recent years. In 2014, budget transfers amounted to 41.1% of total PSE. This increase in budget transfers as a share of producer support clearly reflects the government's increasing transfers to GuySuCo to support the sugar sub-sector.

COMMODITY-SPECIFIC SUPPORT

Poultry, sugar, rice and coconut sub-sectors receive most of the commodity-specific transfers. The overall level of support to producers in Guyana primarily reflects the combination of support to these sub-sectors (Table 2E.7). Poultry enjoys the highest levels of support because of the 100% import tariff protecting domestic producers from foreign competitors. Transfers to producers of specific commodities arising from agricultural policy as a percentage of farm receipts are measured by the Single Commodity Transfer (SCT%). These transfers have increased primarily for sugar. Although the sugar sub-sector is not supported by price policies, budget transfers represented 24% of total farm receipts for sugar in 2014.

Given the significant socio-economic importance of the sugar sub-sector, which is dominated by state-owned GuySuCo, several specific policy measures are in place to support it. GuySuCo holds an exclusive license to import and export non-refined sugar, and with a payroll of 17,000 workers, it is the largest non-government employer in the country. The company suffers from low yields and high production cost; thus, sugar production is declining.

TABLE 2E.7: COMMODITY-SPECIFIC SUPPORT IN GUYANA

	MPS, GYD MILLION			PSCT, GYD MILLION			PSCT%		
	2010	2012	2014	2010	2012	2014	2010	2012	2014
SUGAR	0	0	0	326	4,326	6,326	2	19	24
RICE	3,003	2,942	(604)	3,258	3,147	(568)	11	7	(1)
COCONUT	1,389	279	1,356	1,389	279	1,356	28	27	30
BEANS	1,024	773	N/A	1,024	773	N/A	57	67	N/A
TOMATOES	(128)	32	N/A	(128)	32	N/A	(50)	10	N/A
BEEF	(2,066)	(656)	(899)	(2,066)	(656)	(899)	(138)	(55)	(45)
POULTRY	5,627	8,009	7,620	5,627	8,009	7,620	50	51	52

Source: Authors' estimates.

TABLE 2E.8: POLICY IN SUPPORT OF THE SUGAR SUBSSECTOR IN GUYANA

POLICY	DESCRIPTION
STATE OWNERSHIP	GuySuCo is a 100% state-owned corporation under the responsibility of the Ministry of Agriculture of Guyana.
EXCLUSIVE TRADE LICENSE	Raw sugar imports and exports are exclusively licensed to GuySuCo.
EXPORT DUTIES	Export duties are levied under the Customs Act and under the Sugar Special Funds Act.
DIRECT BUDGETARY TRANSFERS	The Government of Guyana has provided direct budgetary transfers to GuySuCo to compensate for net losses.
AD-HOC EXEMPTION OF CORPORATE & PROPERTY TAXES	Due to the operating losses and liabilities, the Corporation has not paid any corporate or property taxes in recent years.
VAT TAX EXEMPTION	Sugar is a zero rated product and is not subject to VAT. VAT paid by GuySuCo is refunded to the company by the Guyana Revenue Authority (GYD 474 million in 2015).
WAIVING OF LOAN REPAYMENT OBLIGATIONS	Since 2009, the government of Guyana has waived repayment of an US$8 million loan for the 2009 Skeldon sugar processing plant modernization.

Source: Prepared by the authors based on information provided by GuySuCo.

PERCENTAGE INDICATORS OF SUPPORT

The share of budget transfers in PSE is increasing. The PSE% (support to individual producers as a percentage of gross farm receipts) was relatively stable throughout the period under review, ranging between 10.5% (2013) and 18% (2012). The main driver of support to agriculture is Market Price Support. However, the share of MPS in the PSE is decreasing, from 90% in 2010 to 59% in 2014, as budget transfers in support of the sugar sub-sector have expanded significantly. The CSE% was negative throughout the entire period under review, indicating that overall, consumers in Guyana are generally penalized by agricultural policies.

The TSE% provides an insight on the total level of transfers to producers and consumers in comparison to the size of the economy as a whole. Between 2012 and 2014, average support as a share of total GDP was 3.68%. From an international perspective, this is the second highest level of sector support in the LAC region, similar to the support levels of Nicaragua (3.69%), El Salvador (2.92%) and Honduras (2.90).* The role of general services in total support is relatively low. In the 2012-2014 period, an average of 25% of that total support consisted of budget support to general services (GSSE).

* Nicaragua, 2008-2010; El Salvador and Honduras, 2010-2012. The high ratio of support in Honduras reflects a relatively low GDP.

TABLE 2E.9: COMMODITY-SPECIFIC POLICY IN OTHER AGRICULTURAL SUB-SECTORS IN GUYANA

POLICY	COMMODITY-SPECIFIC SUPPORT
RICE SUBSECTOR	
• Government-brokered export contracts under the Petro Caribe arrangement (ended in 2015). • Research, extension and technical assistance through GRDB. • GRDB support is funded through a rice levy. • Investment in irrigation and drainage.	• Overall support to rice farmers is decreasing; bumper harvests seem to have increased bargaining power of millers. • However, price transmission remains high: the producer prices and international prices follow the same pattern, and the market is largely undistorted.
HORTICULTURE SUBSECTOR	
• Investment in processing and packaging facilities operated by the New GMC. • Information on prices and export markets made available through the New GMC. • Signature of protocols for export of fruits and vegetables to Caribbean, e.g. Barbados.	• Overall, beans, tomatoes and coconuts are mostly supported. • Budget transfers to horticultural crops are limited, as government funding is largely focused on the sugar sub-sector. • Diversification requires greater investments in horticultural value chains.
POULTRY SUBSECTOR	
• High tariff of 100% for imported chicken. • Construction of new Veterinary Diagnostics Laboratory to increase animal health and food safety.	• High Market Price Support. • Imports are very low, meeting than 8% of total demand.
LIVESTOCK SUBSECTOR - OTHER	
• Import licensing requirements apply to imports of animals, animal parts, and animal products; • VAT exemption for domestically produced beef and pork.	• Beef has negative MPS, primarily due to underdeveloped value chains such as low abattoir quality and capacity and deficiencies in the infrastructure connecting producing areas with coastal regions; • Analysis of milk sector not possible due to absence of reliable price and cost data.

Source: Authors' compilation.

TABLE 2E.10: PSE%, GSSE%, CSE%, TSE% IN GUYANA, 2006-2014 (%)

COMMODITIES	2010	2011	2012	2013	2014
PSE% (OF GROSS FARM RECEIPTS)	14.45	12.37	18.04	10.49	13.19
MPS% (OF PSE)	90	86	75	53	59
CSE% (OF CONSUMPTION EXPENDITURE AT FARM-GATE)	-13.51	-11.10	-15.42	-8.35	-8.34
GSSE% (OF TSE)	19	30	20	30	24
TSE% (OF GDP)	3.38	3.43	4.45	3.11	3.47

Source: Author's estimates.

POLICY RELEVANCE OF RESULTS

Guyana's agricultural policy is characterized by two different dynamics: on one hand, the country wishes to pursue an ambitious diversification strategy that would reduce its dependence on traditional exports, create more added value, and reduce the sector's vulnerability to price or climate shocks. This strategy seeks to promote agro-processing and boost the livestock sector through investments in beef and dairy value chains. On the other hand, however, the government has chosen to spend most of its agricultural budget on the sugar sector, to prevent GuySuCo from collapsing.

This situation is probably unsustainable; draining the agricultural budget to support the sugar sector is jeopardizing ambitions for a more diversified agricultural sector. It also increases the government's dependence on funding from international donors to finance capital investments in agriculture, given that its agricultural budget is primarily used to cover recurring costs and sugar sector contributions. Reductions of support to the sugar sector would allow the government to invest in diversifying agricultural exports, value addition, and general services. This should also provide employment opportunities for sugar workers in new agricultural sub-sectors —primarily in fruits and vegetables— with higher productivity.

The following actions are among those that would enhance Guyana's agricultural policy framework:

- The government should aim to limit policy measures that generate market price support, such as trade policy measures, in order to allow farmers to better respond to price signals coming from the international market.

- Although poultry farmers are strongly protected through trade policy, these measures increase the price of chicken meat —the primary source of animal protein in Guyana— for consumers. Therefore, it is recommended that the government develop a strategy to increase the efficiency of the poultry sector and reduce the import tariff in the medium-term. This will allow Guyanese poultry producers to better compete with imports while also lowering prices for consumers.
- Reductions in Market Price Support levels may also be achieved through public investment that could induce market development and reduce value chain inefficiencies, such as investments in physical and soft infrastructure, including access to credit or to better processing facilities to reduce post-harvest losses.
- Further investments in general services such as in research and infrastructure can bring overall cost of production down and have a long-term impact on competitiveness.
- At the institutional level, the government should invest in better collection and processing of agricultural statistics. The decentralized structure of the Ministry of Agriculture has resulted in limited, inconsistent, and highly dispersed production, price, and cost data. In particular, the Ministry of Agriculture should once again take on a coordinating role in the consolidation of agricultural statistics from the semi-autonomous agencies and increase their availability online.

2F. PUBLIC SUPPORT FOR THE AGRICULTURAL SECTOR: HAITI

By Budry Bayard, Cleeford Pavilus, Sebastien Gachot, Carmine Paolo De Salvo

ECONOMIC GROWTH IN HAITI

With a GDP *per capita* of US$810 in 2015 and US$762 in 2016,[23] Haiti has one of the lowest *per capita* incomes in the region. According to IMF, the population of Haiti was 10.71 million in 2015 and 10.85 million in 2016. That makes the country an important market in the region. In fact, imports for consumption and investment were equal to 54% of the GDP in 2014 and 50.59% in 2015 (World Bank). Haiti is an open economy with important commercial partners including the Dominican Republic and the United States. The tertiary sector (services and remittances) is dominant in the national economy. According to the preliminary data released by the Central Bank of Haiti (BRH), the tertiary sector contributed 51.8% in 2014 and 52.6% in 2015.

23. IMF: World Economic Outlook (WEO) Database, April 2017.

TABLE 2F.1: SELECTED MACROECONOMIC INDICATORS, HAITI

INDICATOR	UNIT	2014	2015	2016
GDP PER CAPITA	USD $	829.91	809.67	761.5
GDP GROWTH	%	2.80	1.21	1.44
BALANCE OF PAYMENT – CURRENT ACCOUNT	USD $ (MILLION)	-0.75	-0.27	-0.07

Source: IMF, "World Economic Outlook (WEO) Database", April 2017.

AGRICULTURE IN THE ECONOMY

The Haitian economy has a large agricultural sector with low productivity. The preliminary data for 2016 suggest that the agricultural sector contributed to 20.5% of Haiti's GDP while the estimated contribution of the agricultural sector to GDP in 2015 was 20.2%, and in 2014, 21% (BRH, 2017).[24] Despite its relatively low contribution to GDP, the sector provided jobs to 50.43% of the total population in 2014. During that year, agricultural land in Haiti was reported to represent 66.8% of total land area, or 18,400 square kilometers (World Bank, reported by Trading Economics).[25] However, irrigation is a significant challenge for the Haitian farmers. Indeed, irrigated agricultural land accounts for only 4.35 % of the total.

The sector faces many challenges. Natural disasters are a major challenge for the agricultural sector. Earthquakes, droughts, and hurricanes have been impacting the sector for the last 50 years. In October 2016, Hurricane Matthew devastated the southern part of the country, leaving hundreds of thousands of people homeless. In a post-hurricane report released in October 2016 to assess the damages, the Ministry of Agriculture stated that Hurricane Matthew caused damages estimated at 7% of GDP for 2015, or USD $583.23 million. According to the same report, damage to agricultural production accounted for 25.43% of the total damage caused by the Hurricane.

24. BRH : Banque de la République d'Haïti (Central Bank of Haiti: link visited on June 26th 2017.

25. Trading Economics, visited online on June 26th 2017.

Besides the challenges mentioned above, other problems abound. First, the agricultural sector in Haiti suffers from a lack of infrastructure. Second, land tenure administration is weak in Haiti. The country is well known for land tenure insecurity, and cases of land grabs are common in a context of high fragmentation of land owernship. Last but not least is the challenge of the lack of investment and credit availability for the sector. Less than 5% of the credit portfolio of private microfinance institutions goes to the agricultural sector, while for commercial banks, this figure drops to less than 1% of their credit portfolios,[26] in a context in which, according to the "Plan Triennal de Relance Agricole 2013-16," only 5.3% of the total national budget was allocated to the agricultural sector in 2011.

The top agricultural product in Haiti in 2014 was mango, accounting for 34% of total agricultural production (MARNDR, 2014). According to FAO (reported by Cochrane N., et al, 2016), Haiti has a high level of rice consumption, exceeding 48 kilograms per person in 2011. In 2015, 80% to 90% of rice consumption in Haiti was supplied by the U.S. rice industry (Cochrane N. et al., 2016). This mismatch between domestic rice supply and demand in Haiti is not an isolated fact. Indeed, production of sugar cane, one of the most important crops in the country's history, has decreased dramatically over the last two decades. According to the FAO[27] (2016), sugar cane production went from 3 million metric tons in 1982 to 595 thousand metric tons in 2002. According to ANACAPH[28] (2008) this decrease is due to the closure of the sugar industries in Haiti, urbanization of the great plains, and the import of industrial alcohol from the United States. However, the situation began to change when the sugar cane production went from 1 million metric tons in 2006 to 1.5 million metric tons in 2014. In a study of the chain value, ANACAPH argued that the reopening of the sugar factory in Darbonne in 2000 has revitalized the sugar cane value chain.

26. "KNFP" stands for «Conseil national de financement populaire».

27. The Ministry of Agriculture of Haiti provides the same data.

28. ANACAPH (Association Nationale des Caisses Populaires Haïtiennes) has studied the value chains for coffee, sugar cane, and fruits.

AGRICULTURAL POLICIES IN HAITI

In Haiti, agricultural public policies can be placed in four main categories:

- **Access to agricultural inputs.** The GOH facilitates access to fertilizers and seeds for agricultural producers. Government support for input supply is provided through the fertilizer subsidy program and the seed program, while other projects are supported by international donors.
- **Development and rehabilitation of agricultural infrastructure.** MARNDR's main intervention in this area is the rehabilitation of irrigation infrastructure.
- **The provision of basic agricultural services**, including knowledge generation and transfer, agricultural health services, and land administration.
- **Agricultural trade policy**. Since 1995, Haiti has become one of the most open countries in the region by liberalizing its market through a significant reduction in customs barriers, which now range between 0% and 15%.

The main documents summarizing agricultural policies in the country are the following:

- **Politique de développement Agricole (2010-2025).**
- **Plan National d'Investissement Agricole 2010-2016.**
- **Programme Triennal de Relance 2013-2016.**

PERCENTAGE INDICATORS OF SUPPORT

Indicators on agricultural policy support are available for 2006-2012. This section analyzes those results, and an update of the indicators is currently underway (2017). The TSE% of the GDP is high for 2006-2012 and reached a maximum of 6.41% in 2012. The Consumers Support Estimate (CSE%, which indicated the impact on consumption expenditure measured at the farm gate) is negative, and reached 28.76% in 2012, meaning agricultural policies during the period have penalized Haitian consumers.

The Producer Support Estimate (PSE% of gross farm receipts) reached 26.73% in 2012 despite relatively open policies at the border. This indicator trended upward during the three first years, but started decreasing in 2009 and reached a low point in 2010. The earthquake in January 2010 may have been one of

the reasons for the decrease in support to producers. A revision and update of the estimates is currently underway, as some indicators of support might need to be further analyzed. Current policies, indeed, do not explain all the support captured by the indicators for Haiti, and whereas some non-policy factors (infrastructure limitations, non-tariff barriers, and others) might be playing a role in determining them, data quality constraints could be causing some possible bias that will need to be addressed.

TABLE 2F.2: MAIN FOOD AND AGRICULTURAL EXPORT COMMODITIES IN GUYANA (US$ 000)

COMMODITIES	2006	2007	2008	2009	2010	2011	2012
PSE% (OF GROSS FARM RECEIPTS)	26.17	28.98	28.74	22.63	16.02	20.27	26.73
MPS% (AS A SHARE OF PSE)	76.99	78.30	77.58	76.76	76.95	77.62	76.61
CSE% (OF CONSUMPTION EXPENDITURE AT FARM-GATE)	(30.53)	(33.98)	(28.05)	(21.69)	(16.66)	(23.77)	(28.76)
GSSE% (OF TSE)	3.83	3.24	2.43	3.37	3.05	4.56	1.84
TSE% (OF GDP)	4.83	5.79	5.81	5.13	3.97	5.11	6.41

Source: Budry Bayard, December 2015.[29]

29. Report submitted by Budry Bayard to the IDB.

2G. PUBLIC SUPPORT FOR THE AGRICULTURAL SECTOR: JAMAICA

By Olga Shik, Rachel Boyce, Carmine Paolo De Salvo

ECONOMIC GROWTH IN JAMAICA

Agricultural policy can be seen as a reflection of problems that exist both within and beyond the farm and food sector. One of these problems has been slow economic growth. For decades, Jamaica has struggled with slow growth, high public debt, and a series of external shocks that further weakened the economy. Over the last 30 years, real per capita GDP increased at an average of just 1% per year, making Jamaica one of the slowest growing developing countries in the world (World Bank). A reform package was introduced by the GOJ in 2013 with the help of loans from the World Bank and the IDB. The reform program is beginning to bear fruit: institutional reforms and measures to improve the investment climate have started to restore confidence in the Jamaican economy. During the past three years, economic growth rates have risen steadily, although they remain below what is needed to eradicate poverty. The World Bank estimates that GDP grew by 1.7% during the 2016 calendar year and forecasts it will accelerate to around 2% in 2017 (World Bank).

TABLE 2G.1: SELECTED MACROECONOMIC INDICATORS, JAMAICA

INDICATOR	UNIT	1995	2010	2015
GDP (CONSTANT 2007 PRICES)	J$ BN	787.9	828.0	855.6
GDP GROWTH	%	2.35	- 1.50	0.7
GDP PER CAPITA (CONSTANT 2010 US$)	US$	5042.3	4,721.9	4,888.8
POPULATION	'000 PERSONS	2,480.0	2,695.5	2,725.9
% POPULATION IN RURAL AREAS	%	49	48	46

Source: WDI. The exchange rate in 2015 was 125,1 J$ per US$.

THE ROLE OF AGRICULTURE IN THE ECONOMY

The contribution of agriculture to Jamaica's GDP has been moderate and stable over the last five years, accounting for 6.6% of GDP in 2015. Agriculture is an important source of income for the rural population, accounting for a little under 20% of total employment, which is higher than the regional (Latin America and Caribbean) average.

Total agricultural production reached US$815 million in 2014. Three commodities (poultry, yams, and sugarcane) together accounted for an average of 45.9% of the total value of production in 2012-2014. The government's efforts to support non-traditional crops resulted in production growth in those subsectors: yams and sweet potato production increased recently. The recent growth trend in the livestock sub-sector mostly reflects growing poultry production, which increased by 9% in 2014 (Table 2G.2).

Agri-food products represent 16% of total merchandise export earnings, and 21% of the total merchandise import bill. Traditional agricultural exports, especially sugar and citrus, are in decline, and the government has made efforts to promote non-traditional export commodities,[30] such as yams, papayas, sweet potatoes, and marine products. Jamaica is a net importer of livestock commodities, primarily dairy and meat products as well as of cereals.

30. GOJ provides training in international business practices to farmers, organizes promotional fairs and trade missions, strengthens value chains through agro-park development, and provides assistance on compliance with international standards.

TABLE 2G.2: PRODUCTION AND CONSUMPTION OF SELECTED COMMODITIES IN JAMAICA

	VALUE OF PRODUCTION, J$ MILLION (CURRENT)			PRODUCTION, 000 TONS			CONSUMPTION, 000 TONS		
	2016	2010	2014	2016	2010	2014	2016	2010	2014
COFFEE	1,553.1	802.0	896.3	13.7	7.2	5.3	0.6	0.9	0.7
CACAO	38.1	199.7	230.8	0.6	1.4	1.2	0.2	1.0	0.7
SUGAR CANE	3,595.3	4,207.8	11,458.9	142.4	117.2	143.2	67.9	109.8	111.6
ORANGES	1,002.6	845.1	1,068.7	106.9	108.4	67.3	105.7	101.7	64.7
BANANAS	1,777.4	2,360.6	2,842.9	64.0	53.6	51.6	32.0	53.7	51.8
PINEAPPLES	1,097.3	1,969.8	1,882.2	20.5	19.7	18.4	23.4	21.6	19.9
TOMATOES	1,436.2	3,030.0	2,994.7	23.1	19.0	25.2	23.5	22.1	27.2
SWEET POTATOES	1,769.8	2,926.3	3,949.5	27.5	34.5	39.4	26.2	33.5	38.1
YAMS	6,054.7	8,538.3	13,272.0	78.6	89.9	95.7	71.0	79.4	86.6
MILK	339.5	607.0	841.3	15.0	12.5	11.9	95.9	123.0	108.2
BEEF	1,716.9	1,968.7	2,479.5	6.0	5.3	5.2	8.2	7.6	7.3
PIGMEAT	767.2	1,683.9	2,781.2	7.4	8.0	6.8	8.8	8.6	7.7
POULTRY	10,888.3	14,470.6	22,196.2	104.0	100.6	110.5	125.5	155.5	143.6
EGGS	1,962.5	1,589.6	2,471.9	6.3	4.4	4.9	10.6	8.2	7.9
TOTAL ABOVE	**33,998.9**	**45,199.4**	**69,366.1**						

Source: MICAF, Coffee - CIB, Sugar: SIA.

TABLE 2G.3: MAIN FOOD AND AGRICULTURAL EXPORT COMMODITIES, JAMAICA (US$ 000)

COMMODITIES	2010	2011	2012	2013	2014	2015	SHARE IN TOTAL EXPORTS (2015, %)
BANANAS	1	63	121	62	179	242	0.0
CITRUS (FRESH)	1,831	2,180	1,882	3,322	1,732	1,276	0.1
COFFEE	19,191	18,326	13,779	16,327	13,479	25,197	2.1
COCOA	1,021	1,108	1,936	504	1,028	403	0.0
PIMENTO	2,866	1,835	2,303	1,912	2,329	1,358	0.1
SUGAR	44,243	62,164	94,138	53,158	55,784	53,813	4.4
RUM	47,197	48,706	55,653	48,178	44,859	34,988	2.9
PUMPKINS	434	555	531	708	461	391	0.0
SWEET POTATOES	3,106	2,553	2,838	3,565	2,621	2,576	0.2
YAMS	18,833	19,931	19,610	22,221	22,141	19,406	1.6
PAPAYAS	2,828	2,481	4,471	3,365	3,777	3,843	0.3
AKEE	12,755	12,382	13,873	15,543	11,925	13,971	1.2
MEAT & MEAT PREPARATIONS	2,563	3,607	3,862	4,964	4,705	4,776	0.4
DAIRY PRODUCTS & BIRD'S EGGS	5,991	7,399	6,900	6,237	5,928	5,805	0.5
FISH, CRUSTACEANS, & MOLLUSKS	7,974	7,986	8,928	10,998	12,359	10,596	0.9
SAUCES	12,353	12,528	14,572	15,042	15,470	12,743	1.1
TOTAL ABOVE	**183,187**	**203,804**	**245,397**	**206,106**	**198,777**	**191,384**	**15.8**

Source: STATIN.

TABLE 2G.4: MAIN FOOD AND AGRICULTURAL IMPORT COMMODITIES IN JAMAICA (US$ 000)

COMMODITIES	2010	2011	2012	2013	2014	2015	SHARE IN TOTAL IMPORTS (2015, %)
LIVE ANIMALS	1,372.4	1,102.2	1,402.5	957.6	1,467.9	1,001.4	0.0
MEAT	72,028.8	78,905.6	77,252.6	70,797.5	73,423.1	72,087.4	1.4
FISH & CRUSTACEANS	61,908.7	66,398.4	68,937.8	63,698.3	63,178.9	60,138.7	1.2
DAIRY AND EGGS	65,619.0	68,526.8	63,927.4	66,000.2	66,354.3	65,211.0	1.3
VEGETABLES, ROOTS, AND TUBERS	25,058.5	24,507.9	22,729.3	25,165.2	23,367.7	22,006.2	0.4
FRUIT	7,487.8	7,806.6	6,814.3	7,189.8	8,495.5	7,782.2	0.2
COFFEE, TEA, MATE, AND SPICES	6,274.2	9,307.8	8,714.4	8,324.2	9,631.1	10,170.7	0.2
CEREALS	158,523.5	211,242.9	206,445.8	213,012.4	189,252.8	148,327.2	3.0
MALT, STARCHES	19,628.0	24,944.2	24,823.0	27,495.0	25,482.1	24,596.4	0.5
ANIMAL/VEG FATS & OILS	42,604.6	70,150.7	62,071.4	53,391.3	49,780.6	42,872.8	0.9
PREPARATION OF MEAT & FISH	44,426.0	61,446.5	66,047.3	62,095.6	62,162.7	60,622.9	1.2
SUGARS AND SUGAR CONFECTIONERY	77,034.8	87,054.2	90,704.8	72,268.1	54,140.9	49,108.3	1.0
COCOA AND COCOA PREPARATIONS	10,005.5	12,600.0	13,109.1	13,269.8	11,295.9	10,036.8	0.2
PREPARATION OF CEREAL, FLOUR	73,214.8	71,405.8	71,679.6	76,974.3	72,737.4	73,996.7	1.5
PREP. OF VEGETABLE, FRUIT, NUTS	51,723.9	64,308.4	65,412.3	74,378.8	66,726.2	73,995.7	1.5
OTHER FOOD PREP.	75,502.4	83,324.6	96,930.5	104,001.9	101,535.6	101,926.7	2.0
BEVERAGES & TOBACCO	251,651.0	417,980.1	465,273.3	309,099.8	155,648.5	148,492.3	3.0
OTHER	60,189.8	60,620.0	67,393.6	73,579.5	87,721.2	58,870.3	1.2
TOTAL ABOVE	**1,104,254**	**1,421,633**	**1,479,669**	**1,321,699**	**1,122,402**	**1,031,244**	**20.7**

Source: UN Comtrade.

AGRICULTURAL POLICIES IN JAMAICA

The challenges agriculture in Jamaica is facing include low competitiveness, extreme climate events (hurricanes and droughts), and vulnerability to input price shocks. Low international competitiveness is a function of the low yields of most agricultural commodities and high costs of exporting farm products.[31]

The Government of Jamaica recognizes agriculture as one of its priorities. The policy goals for agriculture are set in the long-term (Vision 2030 Jamaica-National Development Plan) and mid-term (4-year Socio-Economic Policy Framework) development policy documents.

The mid-term goals of the Ministry of Industry, Commerce, Agriculture, and Fisheries (MICAF)[32] are the following:

- **Promotion of sustainable agriculture and adaptation to climate change.**
- **Development of a modern and internationally competitive sector.**
- **Promotion of food security and safety** (use of best practices, international standards).

MICAF is directly responsible for administering public sector programs and projects for the Jamaican agricultural sector. Several commodity boards, agencies, and statutory bodies operate under MICAF, and are funded through its budget. The Rural Agricultural Development Authority (RADA) is a statutory body which plays a key role in implementing agricultural policy by providing technical advice, information, and training services to farmers, and disbursing significant budget funds for projects in rural areas.

The main policy projects and programs implemented by MICAF and other authorities in 2006 2014 are listed in the following table. In accordance with the policy priorities, those programs include measures for increased productivity and competitiveness, privatization (coffee and cocoa restructuring), and subsector-specific support measures (banana, sugar, and dairy producers). Measures of support for the non-traditional subsectors

31. The World Bank. 2016. Doing Business 2016 Measuring Regulatory Quality and Efficiency. Washington, DC. http://doi.org/10.1596/978-1-4648-0667-4

32. In 2016, Ministry of Agriculture and Fisheries (MOAF) was merged with Ministry of Industry and Commerce and renamed Ministry of Industry, Commerce, Agriculture and Fisheries (MICAF).

include training in international business practices, promotional fairs and trade missions, value chain strengthening, and assistance in complying with international standards.

TABLE 2G.5: POLICY MEASURES TO SUPPORT AGRICULTURE IN JAMAICA (2006-2014)

POLICY	DESCRIPTION
SUBSIDIZED LOANS	• The state-owned Development Bank of Jamaica (DBJ) provides financing at reduced interest rates, mostly to the agro-processing and poultry subsector.
BUDGET TRANSFERS (GRANTS) FOR INPUTS	• Several projects (Small Farmers Input Supply Project in 2010-2012, Production Incentives Project, Sugar Transformation Unit) include distribution of inputs (seeds and fertilizers, machinery, and irrigation equipment) to farmers. There are also several commodity-specific projects (described in a table below).
MARKETING AND VALUE CHAIN DEVELOPMENT	• Agro Park Development Programme (co-financed by IDB). Agro Parks are areas dedicated to intensive agricultural production with complete value chain from pre-production to production, post harvesting, and marketing.
TAX CONCESSIONS	• Until 2013, farmers were able to apply for a number of tax concessions, such as the Approved Farmer Status policy, but this was eliminated during the 2013 tax reform. Those previously granted this concession can continue to receive it. • Imported farming inputs, such as fertilizers, pesticides, and some types of animal feed, are exempted from the General Consumption Tax. • Imports of raw materials for agriculture are exempted from the Common External Tariff (CET) and the Additional Stamp Duty.
HIGH IMPORT DUTIES	• Average tariff protection for agricultural products remains substantially higher than for non-agricultural products, at 19.3% vs. 6.7%, respectively (as of 2014). http://stat.wto.org/CountryProfile/WSDBCountryPFView.aspx?Language=E&Country=JM • Additional import taxes are applied on most agricultural commodities, making real protection levels much higher, as high as 260% for poultry and tomatoes.
AGRICULTURAL DEVELOPMENT SUPPORT	• RADA is responsible for rural development. Actions for rural development are included in various sector-specific programs (sugar, bananas). The poor state of roads affects the transaction costs for agricultural producers and reduces competitiveness. Public investments in infrastructure development increase every year, but the problem persists.
EXTENSION SERVICES, MARKETING AND INFORMATION	• Extension services are provided by RADA officers. RADA negotiates marketing arrangements for farmers to sell fresh produce to hotels, supermarkets, and agro processors. Insufficient staff as well as the number of additional tasks, such as input distribution, are among the limitations for RADA extension activities. • Marketing information is provided by RADA.

Source: Authors' compilation.

LEVEL AND STRUCTURE OF SUPPORT FOR PRODUCERS IN JAMAICA

Support for producers is high and dominated by price support. Transfers to individual agricultural producers as a result of agricultural policy, as measured by the Producer Support Estimate (PSE), reached US$278.2 million in 2014 (Table 2G.6). In Jamaica, as in most developing countries, Market Price Support (MPS) is the main component of the PSE (US$242.6 million). The Total Support Estimate (TSE) represents all transfers in the economy arising from national agricultural policy; it amounted to US$341.34 million in 2014.

Budget transfers made to producers individually mainly took the form of input support, such as variable input subsidies of electricity for irrigation pumps, followed by support for the banana and the sugar sub-sectors. Fixed capital formation transfers took the form of grants to the Sugar Transformation Unit, as well as support for irrigation. Support to on-farm services was provided through RADA's extension services.

Transfers to farmers through general services support are directed mostly to infrastructure. A major portion of transfers in the General Services Support Estimate (GSSE) category are for physical infrastructure development (43% in 2014), and this type of transfer has almost quintupled since 2011. Next come agricultural knowledge transfer support (education and training, 19%) and agricultural knowledge generation.

TABLE 2G.6: MAIN INDICATORS OF SUPPORT TO AGRICULTURE IN JAMAICA (US$ MILLION)

	2006	2007	2008	2009	2010	2011	2012	2013	2014
PSE	286.54	293.67	267.55	228.55	327.47	318.86	342.72	312.64	278.22
MPS	260.92	263.42	227.19	184.03	278.85	265.83	282.46	268.17	242.55
GSSE	21.97	28.67	28.83	22.61	25.50	27.64	31.54	32.54	28.36
CSE	-294.85	-314.70	-277.49	-237.59	-394.52	-301.35	-336.06	-305.76	-279.30
TSE	322.13	337.39	319.20	279.01	388.56	380.48	409.57	379.41	341.34

Source: Authors' estimates.

Inspection services and food safety transfers accounted for 10% of the general services support in 2014. Infrastructure development transfers are granted mainly through the Sugar Transformation Unit. Support to irrigation development decreased recently to 5% of GSSE.

Funding for research decreased during the period of study (the share of agricultural knowledge generation in GSSE decreased from 31% in 2011 to under 15% in 2014).

A negative Consumer Support Estimate (CSE) of -US$279.3 million in Jamaica in 2014 indicates that support for agricultural producers is mainly financed by transfers from consumers to producers of agricultural commodities. Consumers pay higher prices for local output as a result of government policy, which is damaging for low-income populations and limits the quantities demanded. Transfers to consumers (school meals program and support to the agro-processing industry) are not sufficient to compensate for such effects.

COMMODITY-SPECIFIC SUPPORT

The poultry sub-sector receives most of the commodity-specific transfers. The overall level of support to producers in Jamaica reflects a combination of high protection to the poultry subsector and implicit taxation to the coffee subsector (Table 2G.7). Support to the poultry sub-sector dominates Jamaica's MPS, followed by sugar, while producers of other crops, beef, milk, and pork were implicitly taxed or not supported at all.

Transfers to producers arising from agricultural policy measured as a percentage share of farm receipts by the Single Commodity Transfer (SCT%), varied from -91% (coffee) to 64% (poultry) in 2014.

TABLE 2G.7: COMMODITY-SPECIFIC SUPPORT IN JAMAICA

	MPS, J$ MILLION			PSCT, J$ MILLION			PSCT%		
	2006	2013	2014	2006	2013	2014	2006	2013	2014
COFFEE	(636)	(914)	(835)	(589)	(896)	(825)	(37)	(103)	(91)
COCOA	(50)	72	(96)	(49)	79	(88)	(124)	38	(37)
SUGAR	618	3,959	1,896	693	5,282	3,099	19	51	24
ORANGES	0	0	0	58	41	39	5	4	4
BANANAS	540	139	0	711	306	193	37	14	6
PINEAPPLES	224	0	0	227	5	4	21	0	0
TOMATOES	0	178	684	4	188	693	0	6	23
SWEET POTATOES	0	0	0	5	13	12	0	0	0
YAMS (YELLOW)	495	0	0	518	51	51	9	0	0
MILK	6	0	0	49	0	0	13	0	0
BEEF	58	0	0	71	46	39	4	2	2
PIGMEAT	0	0	0	16	85	74	2	3	3
POULTRY	9,249	16,147	18,994	9,479	16,398	19,369	64	64	64
EGGS	450	496	0	564	614	65	27	21	3

Source: Authors' estimates.

TABLE 2G.8: COMMODITY-SPECIFIC POLICY IN JAMAICA

POLICY	COMMODITY-SPECIFIC SUPPORT
BANANAS SUBSECTOR	
• Social development of banana-growing areas • Strengthening value chains • Ensuring compliance with international standards • Managing pest risks • Establishing a disaster relief fund	Neutral policy effect: • Price transmission is fairly high. • Lower than international prices contribute to export competitiveness. • Budget transfers to individual producers reduced.
COFFEE SUBSECTOR	
• Input distribution: Competitive Coffee Enterprises Programme; ad hoc disaster support • Extension services • Prices regulated by Coffee Industry Board (CIB) • CIB provides quality control, licensing, and advisory services, issues export authorization	• MPS and SCT are negative and implicit taxation is increasing. • Negative MPS reflects a formal cess payable to the CIB, administrative costs of export procedures (including licensing), inefficient market organization, and infrastructure deficiencies.
SUGAR SUBSECTOR	
• Ethanol and rum production support; assistance for rural development • Agro Parks: social, economic and infrastructure projects • Concessionary loans and grants • Research and extension • Price regulations, quality standards • Licenses for exports, high duties on imports	• SCT is high, reflecting both price and budget support. • Farm-gate prices on average 65% higher than reference prices in the past three years. • Sugar cane farmers rely on high budget transfers to remain profitable, and this situation is non-sustainable in the long-run.
COCOA SUBSECTOR	
• The Cocoa Industry Board provides technical support, purchases wet beans, performs processing, and acts as a sole marketing agency of dry cocoa beans • The Jamaica Cocoa Farmers' Association (JCFA) negotiates prices for farmers	• The net effect of public policy, measured by SCT, is negative. • The price regulations by the Cocoa Industry Board disrupt price transmission to the farm-gate level.
ORANGES SUBSECTOR	
• Information distribution and certification • Efforts to fight Citrus Greening	• The farm-gate prices were considerably lower than international reference prices, but since no policy affecting prices was discovered, the MPS was set to zero.

Continued on the next page

TABLE 2G.8 (CONTINUED): COMMODITY-SPECIFIC POLICY IN JAMAICA

POLICY	COMMODITY-SPECIFIC SUPPORT
NON-TRADITIONAL EXPORT SUBSECTORS	
• High import protection • Marketing support	• Yams: good price transmission from world to domestic markets, an indication of strong value chains with good market integration. • Sweet potatoes: farm gate prices were significantly lower than international. • Tomatoes: slightly positive support. • Pineapples: negative price gap not attributable to policy reasons.
LIVESTOCK SUBSECTOR	
• Duty-free imports of feed • Unprecedented import protection for the poultry subsector, with total tariff at the level of 260%	• Poultry and egg producers are supported by Market Price Support and budget transfers. • High support to poultry benefits two major vertically integrated private companies; the subsector lacks incentives to improve competitiveness. • The effect of price policy on the pigmeat subsector is neutral.
DAIRY SUBSECTOR	
• The Jamaica Dairy Development Board ensures quality, regulates trade and distributes information • Loan facility for working capital • Investment fund for public participation in vertically integrated enterprises • Importation of embryos • Training fund (with RADA)	• Policy effect on milk producers is neutral. • Milk producers were supported until 2012, and since then the price gap became negative. • No budget transfers to individual producers.

Source: Authors' compilation.

PERCENTAGE INDICATORS OF SUPPORT

The PSE% (support to producers as a percentage of gross farm receipts) was volatile during the period of study, mostly due to volatility of Market Price Support, and stood at 34.9% in 2012-2014. This, however, is a combination of high levels of support for poultry producers and negative support for coffee and cocoa growers. The CSE% has been negative (-31.8% in 2012-2014), indicating that the consumers in Jamaica are penalized by agricultural policies; the CSE accounted for (negative) 1.5% of GDP.

The TSE% indicates that all transfers to producers and consumers that arose from agricultural policy and related food policy amounted to between 2.3% and 2.9% of the national GDP in 2006-2014 (see table 2G.9).

The share of GSSE in total transfers to producers and consumers (TSE) was at 8.2% in 2012-2014, which is just slightly lower than that of the US and the EU.

TABLE 2G.9: PSE%, GSSE%, CSE%, TSE% IN JAMAICA (2006-2014, %)

	2006	2007	2008	2009	2010	2011	2012	2013	2014
PSE% (OF GROSS FARM RECEIPTS)	34.3	35.3	28.4	24.4	34.2	36.4	37.3	34.7	32.7
MPS% (OF PSE)	91.1	89.7	84.9	80.5	85.2	83.4	82.4	85.8	87.2
CSE% (OF CONSUMPTION EXPENDITURE AT FARM-GATE)	-34.6	-35.7	-27.4	-24.1	-33.9	-32.3	-34.0	-31.3	-30.1
GSSE% (OF TSE)	6.8	8.5	9.0	8.1	6.6	7.3	7.7	8.6	8.3
TSE% (OF GDP)	2.7	2.6	2.3	2.3	2.9	2.6	2.8	2.7	2.5

Source: Authors' estimates.

POLICY RELEVANCE OF RESULTS

The PSE and related indicators give a snapshot of current agricultural policies in Jamaica. The majority of support to producers takes the form of price support, and the role of general services has been secondary. Price supports, such as tariffs on imports, imply high costs for consumers. At the moment, Jamaican consumers are the most penalized by agricultural policies in the LAC region, though much of this is a function of poultry import tariffs. Reducing this tariff is the most direct way to correct this situation. If doing so is not possible, then the introduction of direct consumer support programs should be considered in order to compensate for the adverse effects of support for domestic producers. support. It should also be noted that reducing Market Price Support through trade liberalization would benefit consumers without incurring additional budget costs.

Strengthening non-distorting support to general services should be a priority for the immediate future and be sustained in the medium term.

Several sectors, particularly those with export markets, are currently hampered by policy instruments. Export licensing and other restrictions on exports lead to market concentration and the implicit taxation of producers of exported goods. Developing the export sub-sectors and enhancing their capacity to generate foreign currency will require reducing the use of export licensing and other administrative obstacles for exporters.

The Cocoa and Coffee Commodity Boards that were intended to protect farmers from external price drops now appear to prevent transmission of high international prices to the farm-gate level. The ongoing process of reducing their role in price setting and trade should be continued. Other services provided by these Boards could continue. This would assist in transforming the Boards into institutions that can promote the provision of general services to their respective subsectors and facilitate market integration and opportunities that will benefit farmers and promote growth.

2H. PUBLIC SUPPORT FOR THE AGRICULTURAL SECTOR: **SURINAME**

By Christian Derlagen, Rachel Boyce, Carmine Paolo De Salvo

ECONOMIC GROWTH IN SURINAME

The Republic of Suriname is a middle-income country well-endowed with natural resources. Following a period of highly volatile growth and near hyper-inflation in the 1990s, the country's economy stabilized in the 2000s. As a result of the high commodity prices of Suriname's main natural resource exports (oil, bauxite, and gold), its economy saw steady annual growth rates averaging 4.1% between 2006 and 2012 (Table 2H.1).

Following the drop in commodity prices and the cessation of operations of the country's alumina refinery during 2015, Suriname was faced with significant fiscal and trade deficits. In 2015, the fiscal deficit reached 8.8% of GDP. In March 2016, consumer

inflation reached 37% as a result of pass-through from the fall in currency value and higher utility costs from the increase in electricity and water tariffs. At the same time, export revenue per capita decreased by 25.4%between 2010 and 2015. The sustained low commodity prices and closure of the alumina company in late 2015 pushed the economy into a recession, leading to a contraction of GDP by 10.5%in 2016. The government embarked on an economic adjustment program through a 2-year IMF Stand-by Arrangement (SBA).

Under the SBA, the IMF would provide Suriname with US$478 million in Balance of Payments assistance over a 24-month period. The agreed-upon program aimed to restore Suriname's macroeconomic stability and confidence, and pave the way to economic recovery. A first tranche of US$80 million was disbursed to Suriname in June 2016. However, in May 2017, the Government of Suriname announced that it would cancel the SBA arrangement and would not seek release of the remaining segments.

TABLE 2H.1: SELECTED MACROECONOMIC INDICATORS, SURINAME

INDICATOR	UNIT	1995	2010	2015
GDP (CONSTANT 2007 PRICES)	SRD BN	5.190	9.006	10.488
GDP GROWTH	%	1.1	4.14	1.5
GDP PER CAPITA (CONSTANT 2005 US$)	US$	2,892	4,262	4,663
POPULATION	'000 PERSONS	435	525	543
% POPULATION IN RURAL AREAS	%	37.5	30.7	33.9

Source: WDI.

THE ROLE OF AGRICULTURE IN THE ECONOMY

Against the backdrop of a challenging macro-economic situation entailing high levels of economic uncertainty, the overall prospects for the country's agricultural sector are mixed. During recent decades, the share of agriculture in the economy fell significantly from around 15% of GDP in the mid-1990s to 7% in 2014. Still, Suriname remains a country with strong potential for agricultural development. Of the country's total 1.5 million ha that are considered suitable for agricultural production, it is estimated that only 120,000 ha are currently used for crop cultivation and pastures.[33]

33. World Trade Organization (2013).

The total value of agricultural production reached US$242 million in 2014. The sector is heavily dominated by rice, bananas, and poultry (see Table 2H.2). Together, these three commodities accounted for 73.4% of the total value of production on average in 2008-14.

TABLE 2H.2: PRODUCTION AND CONSUMPTION OF SELECTED COMMODITIES IN SURINAME

	VALUE OF PRODUCTION, SRD MILLION			PRODUCTION, 000 TONS			CONSUMPTION, 000 TONS		
	2016	2010	2014	2016	2010	2014	2016	2010	2014
RICE	62.1	145.1	195.89	182.7	226.6	275.9	113.9	82.3	172.1
CASSAVA	7.0	6.3	8.7	4.1	4.2	7.1	4.1	4.2	7.1
BANANAS	54.2	91.4	85.5	64.6	94.3	77.0	17.6	24.0	1.8
ORANGES	27.9	31.8	45.1	13.6	15.1	14.6	13.6	15.0	14.6
MILK	10.3	9.9	10.2	6.1	5.4	4.2	10.1	7.8	7.0
BEEF	16.1	23.1	34.9	1.6	1.9	1.7	2.7	3.0	3.5
PORK	11.1	17.0	22.9	1.7	1.9	2.3	2.1	2.5	3.0
POULTRY	55.2	117.4	99.3	8.0	12.0	8.9	22.0	41.7	27.6
EGGS	13.9	23.4	42.4	2.0	2.7	3.1	2.0	2.7	3.1
TOTAL ABOVE	**257.8**	**465.4**	**544.9**						

Source: LVV. Exchange rate in 2015 was 6,23 SRD to 1 USD.

TABLE 2H.3: MAIN FOOD AND AGRICULTURAL EXPORT COMMODITIES, SURINAME (2009-14, US$ 000)

COMMODITIES	2009	2010	2011	2012	2013	2014	SHARE IN TOTAL EXPORTS (2014, %)
RICE PRODUCTS	21,205.0	37,846.4	30,665.8	31,259.1	40,034.5	54,489.1	43.37%
BANANAS	26,477.7	24,455.8	34,149.5	27,003.0	33,557.6	33,165.5	26.40%
VEGETABLES	1,508.3	1,902.5	1,593.5	1,109.4	1,249.4	1,438.2	1.14%
FRUIT (EXCL. BANANAS)	78.1	445.3	466.8	232.7	196.7	153.0	0.12%
PROCESSED VEGETABLES, FRUITS AND PLANT PARTS	210.8	255.8	519.7	823.3	509.4	212.7	0.17%
FLOWERS/ORNAMENTALS	133.8	145.3	239.4	136.7	204.5	121.5	0.10%
FISH PRODUCTS	16,780.9	15,976.3	17,808.9	15,782.4	21,145.5	24,290.0	19.33%
CRUSTACEANS	12,691.7	15,092.4	16,405.8	13,681.2	16,425.8	11,773.9	9.37%
TOTAL ABOVE	**79,086.3**	**96,119.8**	**101,849.4**	**90,027.8**	**113,323.4**	**125,643.9**	**100%**

Source: Ministry of Agriculture, Livestock and Fisheries.

Although the relative importance of agriculture in the economy has decreased, agricultural exports have trended mostly upward over the period since 2007. As shown in Table 2H.3, total agricultural exports increased to US$125 million in 2013. However, Suriname remains a net agricultural importer. Total imports reached US$239 million in 2014 (Table 2H.4).

TABLE 2H.4: MAIN FOOD AND AGRICULTURAL IMPORT COMMODITIES IN SURINAME (US$ 000)

COMMODITIES	2009	2010	2011	2012	2013	2014	SHARE IN TOTAL IMPORTS (2014, %)
VEGETABLES AND TUBERS	6,634.9	9,960.4	9,985.2	5,511.2	10,993.3	10,393.3	4.35%
VEGETABLE FATS AND OILS	13,712.9	15,760.8	20,288.0	13,565.5	29,218.2	18,063.9	7.55%
PREPARATION OF VEGETABLES, FRUITS, AND OTHER PLANT PARTS	9,915.5	11,381.7	13,322.5	10,733.3	20,194.8	16,700.3	6.98%
COFFEE, TEA, MATÉ AND SPICES	1,141.0	1,364.0	2,128.3	1,358.5	2,623.0	2,565.8	1.07%
CACAO AND CACAO PRODUCTS	2,408.6	1,824.1	2,213.5	1,680.6	4,081.5	2,234.2	0.93%
SUGAR AND SUGAR PRODUCTS	12,754.3	17,467.6	22,142.2	14,576.1	19,326.7	18,687.0	7.81%
ESSENCES, SAUCES ETC.	24,077.3	9,135.3	28,593.8	23,829.7	32,648.2	29,215.2	12.22%
CEREALS	5,483.1	9,897.5	14,701.2	10,615.8	12,207.6	13,938.2	5.83%
FLOUR, STARCH, WHEAT	1,2434.9	9,097.8	7,261.8	5,140.3	8,546.7	6,467.0	2.70%
OLEAGINOUS SEEDS AND FRUITS	900.7	869.1	972.3	866.4	2,291.2	1,619.7	0.68%
PREPARATION OF GRAINS, FLOUR, STARCH	8,482.4	4,897.5	11,641.8	10,057.3	20,719.4	17,303.9	7.24%
DRINKS, ALCOHOLIC LIQUIDS AND VINEGAR	18,754.0	18,334.9	N.A.	16,406.1	86,827.9	38,184.8	15.97%
FLORICULTURE	671.9	238.1	40.8	342.1	422.7	756.1	0.32%
DAIRY PRODUCTS, EGGS, HONEY	12,140.3	12,812.2	15,917.5	11,648.8	20,022.7	19,051.5	7.97%
PREPARATION OF MEAT, FISH, CRUSTACEANS AND MOLLUSKS	8,546.0	8,745.3	7,305.2	5,928.8	12,030.0	9,224.2	3.86%
FRUITS	2,483.8	2,324.5	2,605.5	2,486.4	3,359.4	5,128.2	2.14%
MEAT AND EDIBLE OFFALS	20,232.0	21,941.4	26,893.8	19,369.1	29,397.0	29,631.8	12.39%
TOTAL	**160,773.6**	**156,052.2**	**186,013.4**	**154,116.0**	**314,910.3**	**239,165.1**	**100%**

Source: Ministry of Agriculture, Livestock and Fisheries.

AGRICULTURAL POLICIES IN SURINAME

In its 2010-2015 government statement "Crossroads – Together toward better times," the Government of Suriname announced that increasing food production was among the key priorities of its policy agenda, and that the agricultural sector should focus food production for both local consumption and international markets (regional markets in particular).[34] The general government policy for the agricultural sector is laid down in the Policy Note ("Beleidsnota") LVV 2010-2015, which sets out seven key objectives:

1. Guarantee food security for Suriname.
2. Secure agricultural health and food safety.
3. Develop a sustainable agricultural sector.
4. Transform the agricultural sector into a food producer and supplier for the Caribbean region.
5. Increase the agricultural sector's contribution to the national economy.
6. Create the spatial conditions for the sustainable development of the agricultural sector.
7. Manage the preconditions and risks facing agricultural policy implementation.

A new medium-term strategic policy plan for the agricultural sector through 2020 is currently being prepared by the Ministry of Agriculture, Livestock and Fisheries, and will be based on the National Master Plan for Agricultural Development in Suriname, which was prepared in December 2015.

The Master Plan includes a wide range of objectives and activities to accelerate Suriname's transition to a modern and knowledge-intensive agricultural system and increase the agricultural sector's contributions to GDP, the trade balance, employment, and food security.

The Ministry of Agriculture, Animal Husbandry and Fisheries (LVV) is the main institution responsible for administering the public sector programs and projects of Suriname's agriculture, fisheries, and livestock sectors. The Ministry is politically directed by the Minister of Agriculture, while the civil service is headed by a Permanent Secretary. The ministry consists of five departments: (i) crops, (ii) livestock, (iii) fisheries, (iv) research, marketing and

34. Government of Suriname (2010).

processing and (v) administrative services. The directors of these departments, together with the Permanent Secretary, make up the ministry's management team.

The total budget of the Ministry of Agriculture, Animal Husbandry and Fisheries showed significant fluctuations. The total budget in 2014 amounted to SRD 271.56 million, of which 15% (SRD 40.38 million) was listed as administrative costs, while the remaining 85% (SRD 231.18 million) was budgeted for (non-administrative) program costs. The main policy projects and programs implemented by LVV and other authorities in 2006-2014 are listed in Table 2H.5, below.

TABLE 2H.5: POLICY MEASURES TO SUPPORT AGRICULTURE IN SURINAME (2006-2014)

POLICY	DESCRIPTION
SUBSIDIZED LOANS	• The state-owned agricultural bank, Landbouwbank, provides financing at reduced interest rates, mostly to the rice and agro-processing subsectors. The interest rate for all loans is 6.75%, against a current market rate of 11-13%. The average grace period is 6 months. In July 2013, the portfolio of the AKF consisted of 191 loans for a total amount of SRD 19.4 million. Loans to the rice subsector account for SRD 7.2 million, or 37% of the total portfolio.
BUDGET TRANSFERS (SUBSIDIES)	• In 2013, the government paid rice farmers a subsidy (usually referred to as an "incentive") of SRD 2.13 per 79-kilogram bag of wet paddy rice to compensate rice producers for the increased tax on fuel that was introduced by the new government in 2011. • In 2014, small and medium-sized farmers with 1 to 200 hectares in production received an area payment of SRD 480 per hectare. For this payment, no differentiation was made between farmers based on productivity. • In 2015, the government agreed with the subsector on an area payment consisting of US$60 (SRD 230) per hectare, a bag of NPK, and a bag of Urea. However, the government later withdrew the area payment due to budget constraints.
STATE OWNERSHIP	• The main cassava processing factory for flour, Innovative Agro Processing Industries NV (IAP), is 100% state-owned. The plant, which opened in December 2012, has a processing capacity of 30 tons of raw cassava per day. • Between 2002 and 2013, the banana sector was fully state-owned. Banana plantations were owned and operated by the Stichting Bananenbehoud Suriname (SBBS), a parastatal under the control of the LVV.
PRICE POLICIES	• The price of milk, both at retail and farm gate levels, is set by the Ministry of Agriculture and the Ministry of Trade and Industry. The farm gate price is largely based on the production cost of milk. This cost price is in turn determined by a committee which has the above-mentioned ministries, as well as the Union of Dairy Cattle Farmers and the Association of Surinamese Dairy Farmers (VSMB), as its members. The official minimum price for farmers has been increased to SRD 2.75 in April 2016, after being set at SRD 2.5 per liter for several years including the entire 2011-2014 period.

Continued on the next page

TABLE 2H.5 (CONTINUED): POLICY MEASURES TO SUPPORT AGRICULTURE IN SURINAME (2006-2014)

POLICY	DESCRIPTION
TAX CONCESSIONS	• Companies in the agriculture, livestock, and fisheries sectors are eligible for a partial exemption of import duties (90%) for import of capital assets with a minimum value of US$1,000. In addition to the import duty exemption, eligible goods are also exempt from turnover tax and partially exempt from the statistical fee of 0.5% over the CIF value of imports.
IMPORT DUTIES	• A tariff of 20% applies to agricultural imports from non-CARICOM countries for nearly all products, including meat products such as poultry.
FOOD SUBSIDIES	• A baby food subsidy was in place during the period 2006-2014 to reduce the cost of baby food for consumers. The subsidy covers approximately 50% of the commercial retail price. In 2011, cans of subsidized baby food were priced at SRD 4.75. It was eliminated in September 2015.
PRICE CONTROL FRAMEWORK	• A price control framework is in place for 44 products of basic necessity. This framework allows the Ministry of Trade and Industry to intervene and set the prices of any good on the list that rises by more than 15%. During the food crisis in 2008, the government negotiated with the private sector to restrict profit margins for both importers and retailers to 7%. During the period analyzed for this study, no case of price setting by the government was detected.
EXPORT TAX FOR RICE	• Rice exports are subject to an implicit export tax in the form of an inspection fee. This tax amounts to SRD 10 per ton for the entire period under review. Of this amount, SRD 6 is used to fund the Anne van Dijk Rice Research Centre in Nickerie.

Source: Authors' compilation.

LEVEL AND STRUCTURE OF SUPPORT TO PRODUCERS IN SURINAME

Support to producers is high and dominated by price support. Transfers to individual agricultural producers as a result of agricultural policy, as measured by the Producer Support Estimate (PSE), reached US$18.2 million in 2014 (Table 2H.6). In Suriname, as in most developing countries, market price support (MPS) is the main component of the PSE. The General Services Support Estimate (GSSE) has been significant in Suriname, reaching US$44 million in 2014. The Total Support Estimate (TSE) that represents all transfers in the economy that arise from national agricultural policy amounted to US$ 65.18 million in 2014.

Due to its significant role in the value of agricultural production and in Suriname's agricultural sector in general, changes in support for rice have a relatively strong effect on national PSE levels. Negative support in 2011 is largely the result of the wider price gap between domestic farm-gate prices and reference prices for rice in that year, reflecting world market conditions.

TABLE 2H.6: MAIN INDICATORS OF SUPPORT TO AGRICULTURE IN SURINAME (US$ MILLION)

	2006	2007	2008	2009	2010	2011	2012	2013	2014
PSE	23,62	26,26	7,03	39,00	46,45	-7,10	28,63	39,99	18,20
MPS	23,62	26,26	7,03	37,24	45,86	-7,65	27,23	34,41	12,57
GSSE	N/A	N/A	N/A	42,95	25,39	21,85	25,25	29,13	43,95
CSE	-14,13	-43,55	-37,24	-67,39	-72,03	-16,64	-36,54	-59,95	-47,60
TSE	23,62	26,26	7,03	84,14	74,11	18,62	57,37	73,26	65,18

Source: Authors' estimates.

When rice is omitted from the indicators, support to the agricultural sector is positive in all years and Producer Support Estimates are higher, both in terms of value and as a percentage of gross farm receipts (up to nearly 25% of gross farm receipts in 2013). This highlights the significance of the negative support to the rice sector in most years. Historical data of paddy prices and FOB prices also confirm that the gap between the producer price and the international price is widening.

Budget transfers to individual producers mostly consist of transfers for fixed capital formation, such as financing state companies' capital, rice farmers' machinery park replacement, supply of planting materials for vegetables and fruits, and investment in breeding centers, greenhouses, and nurseries. Transfers for on-farm services include veterinary inspection services, training, and extension.

The share of support that is provided to agriculture in the form of general services is over 40% of total transfers to agriculture (including Market Price Support), which is higher than in most Latin American countries. The transfers to producers through support of general services are directed mostly to infrastructure, and up to 95% (in 2014) of those expenditures are used to fund investments in irrigation and drainage.

Support to agricultural producers is mainly financed by transfers from consumers. A negative Consumer Support Estimate (CSE) of -US$47.6 million in Suriname in 2014 shows the extent of this support from consumers to producers of agricultural commodities. Transfers to consumers (school meals program and support to the agro-processing industry) are not sufficient to compensate for such effects. In Suriname, transfers from consumers to producers are prominent for all the livestock commodities. The negative Consumer Single Commodity Transfer indicators for all these products mean that support to farmers in these sectors came primarily from transfers from consumers who pay higher prices for their products.

COMMODITY-SPECIFIC SUPPORT

The overall level of support to producers in Suriname reflects a combination of protection to the oranges, beef, pork, and poultry sectors, as well as implicit taxation of the rice subsector (Table 2H.7). Transfers to producers arising from agricultural policy measured as a percentage share of farm receipts by the Single Commodity Transfer (SCT%) indicator range from -41% for rice to 74% for oranges (in 2014).

TABLE 2H.7: COMMODITY-SPECIFIC SUPPORT IN SURINAME

	MPS, SRD MILLION			PSCT, SRD MILLION			PSCT%		
	2009	2012	2014	2009	2012	2014	2009	2012	2014
RICE	(14.60)	(44.91)	(81.50)	(14)	(45)	(80)	(11)	(23)	(41)
CASSAVA	2.60	8.33	1.81	3	8	2	40	70	21
BANANAS	10.29	-	-	10	0	0	10	0	0
ORANGES	18.07	40.14	33.48	18	40	33	60	75	4
MILK	4.65	6.87	3.40	5	7	3	50		
BEEF	8.45	18.58	20.87	8	19	21	43	50	60
PORK	10.47	12.51	8.21	10	13	8	67	64	6
POULTRY	30.12	(0.05)	14.04	30	0	14	28	0	14
EGGS	12.03	29.09	27.97	12	29	28	57	66	66

Source: Authors' estimates.

TABLE 2H.8: COMMODITY-SPECIFIC POLICY IN CORE AGRICULTURAL SUBSECTORS IN SURINAME

POLICY	COMMODITY-SPECIFIC SUPPORT
RICE SUBSECTOR	
• Subsidy payments • Agricultural research through ADRON • Investment in irrigation and drainage • Revitalization of water boards • Subsidized credit through the Landbouwbank	• Despite support measures, rice farmers are implicitly taxed; the gap between international prices and producer prices is widening as a result of changes in the exchange rate. • Low producer prices that are supposed to enhance competitiveness in international market. • Budget transfers to individual producers have been reduced as a result of budget constraints.

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TABLE 2H.8 (CONTINUED): COMMODITY-SPECIFIC POLICY IN CORE AGRICULTURAL SUBSECTORS IN SURINAME

POLICY	COMMODITY-SPECIFIC SUPPORT
BANANAS SUBSECTOR	
• State-ownership for a limited duration of time to save the banana subsector • EU-funded banana accompanying measures to improve social and environmental conditions on farms and enhance infrastructure	• MPS for bananas is neutral; there is only one producing company and the value chain is integrated; no producer price exists. • Support to the sector was provided through EU-funded banana accompanying measures, which have now ended. • The sector is threatened by diseases, low productivity, high labor costs, and changes in the exchange rate. • Investments in the Port of Nickerie can reduce the high cost of road transport.
CASSAVA SUBSECTOR	
• Investment in new processing plant for cassava flour • Technical assistance to farmers • Research program for cassava breeding implemented by research institute CELOS	• High MPS. • The forecast for the sector depends on the future operations of state-owned cassava processor IAP. • Relatively high farm-gate prices may not be sustainable in the long run.
MILK SUBSECTOR	
• Prices set by government • State owns the milk processing plant	• The government's price policies keep unproductive and unprofitable farms in operation and depress incentives for investment in productivity-enhancing technology. • The sector is over-regulated and unproductive. Its main problems include: – The quality of the milk varies due to difficulties in guaranteeing the cold-chain during transport. – Feed standards are insufficient. – The genetic quality of cattle stock is relatively low.
ORANGES SUBSECTOR	
• Production concentrated on state-owned production estate ALLIANCE • Investment in orange tree material at state farm	• Orange production is protected and farm-gate prices are relatively high.
LIVESTOCK SUBSECTOR	
• Import protection for poultry through 20% tariff	• Poultry production continues to depend on imported feed. Feed price increases have driven up the cost of domestic production. • As a result, the share of domestic production in total consumption continues to drop.

Source: Authors' compilation.

PERCENTAGE INDICATORS OF SUPPORT

Among the countries studied, Suriname has one of the highest shares of transfers in terms of total farm receipts. However, the PSE% (support to producers as a percentage of gross farm receipts) showed large swings during the period of analysis, from 21.9% in 2010 to -3.1% in 2011. This was largely the result of changes in Market Price Support. The CSE% has been negative throughout the entire period under review, indicating that consumers in Suriname are generally penalized by agricultural policies. Since no budget data was available for the period 2006-2008, certain indicators could only be calculated for the 2009-2014 period.

The TSE% provides insight into the total level of transfers to producers and consumers in comparison to the economy as a whole. Over the last three years, support arising from agricultural policy and related food policy hovered at between 1.26 and 1.56% of GDP. The role of general services in total support is relatively high. Over the 2012-2014 period, an average of approximately 50% consisted of budget support to general services (GSSE).

TABLE 2H.9: PSE%, GSSE%, CSE%, TSE% IN SURINAME (2006-2014, %)

	2006	2007	2008	2009	2010	2011	2012	2013	2014
PSE% (OF GROSS FARM RECEIPTS)	N/A	N/A	N/A	19.2	21.9	(3.1)	12.3	17.2	7.3
MPS% (OF PSE)	N/A	N/A	N/A	96	99	108	95	86	69
CSE% (OF CONSUMPTION EXPENDITURE AT FARM-GATE)	(9.4)	(23.3)	(16.2)	(25.8)	(25.7)	(5.6)	(14.5)	(20.6)	(16.5)
GSSE% (OF TSE)	N/A	N/A	N/A	51	34	117	44	40	67
TSE% (OF GDP)	0.99	0.98	0.22	2.39	1.85	0.46	1.26	1.56	1.36

Source: Authors' estimates.

POLICY RELEVANCE OF RESULTS

During the last decade, Suriname saw a period of robust economic growth and rising government revenues. Although agricultural development remained a stated policy objective throughout that period, public investment in product diversification and competitiveness of the agricultural sector remained modest and primarily focused on the rice sector.

Now that the government is faced with GDP and revenue contractions, it is reevaluating the agricultural sector as part of the solution to the challenge of widening Suriname's narrow economic base. The government's Stabilization and Growth Plan thus seeks to strengthen the rice sector, further develop citrus production, enhance livestock production systems, and establish coco and cocoa production. In addition, the government has also committed itself to improving the overall business environment and reducing bureaucracy.

During the period under review, the Government of Suriname used a variety of policy instruments that affected the country's agricultural sector. The instruments applied include traditional trade policy measures, such as import tariffs, but also area payments for rice producers, state ownership, tax exemptions for inputs, subsidized credit, price policies, and government support for rural infrastructure, irrigation, research, and training.

To enhance the coherence of Suriname's agricultural policies, we recommend the government take the following actions:

- **Reduce the rice sector's dependence on subsidies.** If subsidies are provided, they should be clearly marked in the LVV budget and not included under other budget lines such as "export promotion".
- **Develop a medium-term plan for the rice sector that focuses on better collaboration between stakeholders**, more efficient allocation of production and processing equipment, increased access to credit for small and medium-sized rice farmers and increased research capacity.
- **Make improvements toward ensuring animal and plant health** in order to increase productivity.
- **Improve the enabling environment for the banana sector,** which faces agronomic, economic, and market constraints, such as crop diseases, low labor productivity, high rates of sick leave, and low prices.
- **Avoid increasing the import tariff on poultry**, as it had previously announced. Instead, we advise the government to pursue innovations to promote the emergence of local feed production to reduce dependence on (increasingly expensive) imports —for example, by using cassava for animal feed.
- **Develop a strategy for the milk sector**, working toward a more flexible milk price.
- **Invest in diversification** to reduce the sector's over-dependence on rice and bananas for agricultural exports.

21. PUBLIC SUPPORT FOR THE AGRICULTURAL SECTOR: **TRINIDAD AND TOBAGO**

By Olga Shik, Rachel Boyce, Carmine Paolo De Salvo

ECONOMIC GROWTH IN TRINIDAD AND TOBAGO

The macroeconomic context is particularly important for agricultural policy in Trinidad and Tobago. Trinidad and Tobago is a small high-income country,[35] with an open economy in which trade plays a very important role (imports plus exports amount to the equivalent of 70% of GDP in 2014). While economic growth was impressive before 2007 (with growth averaging 8% between 2000 and 2007), the country's economy has recently run into trouble due to the slowdown in the petroleum subsector, which

35. According to the World Bank classification. Most economic activity is on Trinidad, while the smaller island of Tobago relies on tourism and some agriculture.

is the main driver of the economy (accounting for about 37% of GDP). This decline intensified to a 2.8% GDP contraction in 2016 (World Bank). The difficulties that the economy is facing highlight the urgency of improving the investment climate, undertaking fiscal reforms, and increasing efficiency of public expenditure.

TABLE 21.1: SELECTED MACROECONOMIC INDICATORS, TRINIDAD AND TOBAGO

INDICATOR	UNIT	1996	2010	2015
GDP (CONSTANT 2000 PRICES)	TT$ MILLION	37,974.02	91,794.10	94,008.20
GDP GROWTH	%	2.90	3.30	-0.6
GNI PER CAPITA (CONSTANT 2010 US$)		6510.7	5871.2	16061.1
POPULATION	'000 PERSONS	1,258.37	1,310.11	1,349.67

Source: WDI, 2016; Central Bank of Trinidad and Tobago, 2016.
Exchange rate in 2016 was 6.66 TT$ to 1 US$.

THE ROLE OF AGRICULTURE IN THE ECONOMY

Although the agricultural sector contributes only 0.5% to Trinidad and Tobago's GDP, it accounts for over 4% of employment and is important for the diversification of the economy. Agricultural production is very volatile due to structural changes (e.g. the closure of the sugar industry during 2003-2008), as well as climate events (including a widespread drought in 2010).[36] Other traditional commodities like rice, coconut, coffee, and cocoa production fell victim to pests, diseases, and inefficient technology. Praedial larceny (the theft of plants or animals from a farm) also contributed to the decline in traditional crops production. However, agricultural production recently appears to be on a recovery path: citrus fruit production, tomatoes, root crops, pumpkin, pineapple, and hot peppers have seen promising growth rates in recent years. Livestock production is growing slowly, but steadily. Poultry production continues to dominate the value of domestic agriculture.

36. The state-owned sugar cane factory Caroni (1975) Ltd was closed in 2003. In 2007, after losing the preferential access to the EU markets, Trinidad and Tobago decided to abandon sugar production. The refining company, Sugar Manufacturing Company Limited, was closed in April 2010.

TABLE 21.2: PRODUCTION AND CONSUMPTION OF SELECTED COMMODITIES IN TRINIDAD AND TOBAGO

	VALUE OF PRODUCTION, TT$ MILLION			PRODUCTION, 000 TONS			CONSUMPTION, 000 TONS		
	2010	2014	2015	2010	2014	2015	2010	2014	2015
RICE	6.30	8.71	8.99	2.26	2.91	3.07	30.25	34.36	26.01
SWEET POTATOES	8.73	16.43	18.16	1.27	1.91	2.50	6.15	2.51	2.85
CASSAVA	7.78	13.86	10.79	2.31	3.20	2.33	2.31	3.21	2.34
COCOA	9.27	6.23	9.00	0.52	0.33	0.45	0.51	0.67	0.78
MILK	9.22	9.50	9.20	4.29	3.94	3.82	64.70	72.97	57.81
POULTRY	622.54	543.45	533.55	69.17	60.38	59.28	105.40	77.49	74.13
HOT PEPPERS	18.42	5.53	6.27	0.70	0.32	0.40	0.42	0.08	0.00
PUMPKIN	7.65	5.40	10.49	1.83	2.13	3.36	0.54	1.39	3.13
PAPAYA	8.89	8.62	7.68	1.88	1.80	1.36	1.72	1.64	1.24
SHEEP	10.23	6.27	8.69	0.24	0.10	0.12	1.87	2.11	1.20
CHRISTOPHENE	2.88	4.48	5.51	0.22	0.44	0.52	0.16	0.40	0.52
PINEAPPLE	3.83	10.67	10.99	0.73	1.43	1.37	0.46	1.28	1.36
HONEY	14.70	15.31	21.00	0.16	0.13	0.16	0.16	0.13	0.16
TOTAL ABOVE	730.44	654.46	660.32						

Source: The Central Statistical Office of Trinidad and Tobago.

The country's inflation rate is driven in part by food prices,[37] and therefore one of the goals of agricultural policy is the reduction of the food inflation rate. Exchange rates also impact agriculture, and high oil prices can put a strain on other sectors of the economy (an effect known as Dutch Disease).

The agro-processing industry is well developed in Trinidad and Tobago. It is the largest manufacturing subsector, contributing 4.5% to GDP in 2015, and is growing. While the agro-processing sector currently relies mostly on imported raw materials, its development opens opportunities for agriculture by expanding demand for the farming sector. Thus, the hot pepper and tomato processing industries are developing links with the farming sector and increasing demand for locally grown vegetables.

37. The contribution of the different components to the country's inflation rate was analyzed in the IMF's 2013 staff report. Core inflation, which excludes food prices, fluctuated between 2% and 6% in 2006-2012 (IMF, 2013).

Nestlé is contributing these connections between farmers and processing facilities by signing contracts with milk producers. Citrus and cocoa processors are also strengthening the links with local farmers, and local cassava is used for animal feed production. The move towards more value-added food products also helps shield the agricultural sector from some of the macroeconomic instability mentioned before.

The high food import bill is a constant concern for the government. Trinidad and Tobago is a net exporter of beverages and tobacco, and a government-owned food and feed producer National Flour Mills Limited exports wheat-based products to the region and even to Canada and the USA. But the country imports most (85%) of the agricultural and food items consumed (Tables 21.3 and 21.4), including raw materials for agro-processing (wheat, milk powder). Agri-food exports went through considerable structural changes during the 2000s, when exports of traditional commodities like cocoa, coffee, and sugar declined. Milk and poultry imports have risen over the same period.

TABLE 21.3: MAIN FOOD AND AGRICULTURAL EXPORT COMMODITIES IN TRINIDAD AND TOBAGO (US$ 000)

COMMODITIES	2010	2011	2012	2013	2014	2015	SHARE IN AGRO-FOOD EXPORTS (2015, %)
BEVERAGES AND TOBACCO	116,018.6	195,826.4	198,542.3	179,927.4	184,034.0	138,108.4	34.5
MEALS AND FLOUR	48,935.8	70,042.5	68,548.1	72,920.9	71,341.6	55,240.2	13.8
OTHER PREPARED FOODS	17,723.5	25,147.4	25,548.2	26,588.6	26,838.9	21,622.6	5.4
FRUIT, PRESERVED	9,097.0	12,511.5	12,914.0	13,395.2	12,810.9	10,333.0	2.6
FISH & CRUSTACEANS	9,693.1	12,558.2	15,866.6	12,852.0	10,173.8	8,247.6	2.1
VEGETABLES	9,410.7	10,737.5	8,500.5	9,483.7	8,800.7	7,918.3	2.0
ANIMAL FEED	3,654.5	824.8	1,196.6	310.4	2,761.9	7,071.6	1.8
FRUIT JUICES	16,923.6	19,934.3	19,736.1	17,989.6	10,407.9	7,040.3	1.8
CHOCOLATE	8,046.2	9,694.8	9,945.8	10,182.2	9,627.7	7,008.9	1.8
DIARY	4,611.3	7,796.3	7,428.2	7,667.7	8,722.7	6,852.1	1.7
SUGAR MOLASSES, HONEY	4,595.6	6,209.1	8,065.4	9,701.1	9,253.2	6,663.9	1.7
OTHER	16,484.5	21,008.1	20,668.5	19,945.4	21,611.6	16,071.9	4.0
MEAT	4,940.6	6,567.0	7,863.4	7,543.5	7,895.6	5,613.4	1.4
OILS AND FATS	1,897.8	2,536.5	3,139.1	3,026.7	3,651.3	2,916.5	0.7
COCOA	2,274.3	1,649.5	1,693.9	1,754.0	1,872.5	1,568.0	0.4
SPICES	1,192.0	1,369.4	1,445.2	1,707.4	1,732.0	1,505.3	0.4
CEREALS	2,258.6	3,532.5	2,641.8	1,241.7	1,029.9	1,270.1	0.3
FRUIT	1,097.9	1,509.5	1,367.5	1,272.8	1,076.7	1,003.5	0.3
OILSEEDS	1,741.0	2,178.6	1,367.5	2,110.9	2,793.1	987.8	0.2
TEA	690.1	855.9	730.4	791.6	1,107.9	768.3	0.2
COFFEE	266.6	684.7	279.7	310.4	265.3	235.2	0.1
EGGS	62.7	62.2	93.2	139.7	140.4	156.8	0.0
LIVE ANIMALS	62.7	77.8	31.1	46.6	31.2	31.4	0.0
TOTAL ABOVE	**281,678.7**	**413,314.5**	**417,613.1**	**400,909.5**	**397,980.8**	**308,235.1**	**77.2**

Source: The Central Statistical Office of Trinidad and Tobago, 2016.

TABLE 21.4: MAIN FOOD AND AGRICULTURAL IMPORT COMMODITIES IN TRINIDAD AND TOBAGO (US$ 000)

COMMODITIES	2010	2011	2012	2013	2014	2015	SHARE IN AGRO-FOOD IMPORTS (2015, %)
MEAT	62,669.2	75,329.0	77,979.6	78,971.8	96,972.1	93,133.7	8.5%
FISH & CRUSTACEANS	17,674.0	24,372.4	28,502.1	28,880.7	33,122.7	33,011.0	2.4%
DAIRY AND EGGS	84,220.8	103,245.5	108,802.7	122,310.1	134,942.5	117,949.9	11.5%
VEGETABLES, ROOTS, AND TUBERS	42,120.2	47,916.4	49,027.0	50,625.2	51,348.7	52,429.9	5.7%
FRUIT	21,118.8	26,582.3	30,682.3	28,219.4	37,347.1	39,638.5	2.9%
COFFEE, TEA, MATE, AND SPICES	6,842.7	8,507.7	8,550.2	-	9,909.3	11,126.8	0.9%
CEREALS	73,161.7	70,652.2	103,991.2	96,121.4	93,207.3	75,620.9	9.9%
MALT, STARCHES	14,595.2	17,849.8	23,287.7	22,269.5	23,188.4	22,803.9	2.0%
OIL SEED	13,440.5	13,194.5	22,460.3	19,621.0	18,914.1	20,828.2	1.8%
ANIMAL/VEG FATS & OILS	42,467.2	60,420.9	65,441.1	52,215.3	59,410.8	50,864.4	5.8%
PREPARATION OF MEAT, FISH	24,276.4	30,077.2	37,474.8	41,947.4	44,055.2	45,609.3	3.3%
SUGARS AND SUGAR CONFECTIONERY	58,636.9	75,039.9	74,012.4	70,600.0	62,666.9	56,689.2	8.0%
COCOA AND COCOA PREPARATIONS	10,815.0	13,048.0	14,544.1	13,437.2	15,783.5	16,448.6	1.5%
PREP. OF CEREAL, FLOUR	48,062.5	60,233.3	60,935.4	64,219.6	75,639.7	75,303.8	6.5%
PREP. OF VEGETABLE, FRUIT, NUTS	49,218.0	59,158.8	72,005.1	73,181.8	77,922.2	77,734.0	6.7%
OTHER FOOD PREPARATIONS	62,498.5	70,209.7	75,201.2	81,373.0	85,217.5	96,812.3	8.5%
BEVERAGES AND TOBACCO	59,954.2	112,642.1	92,760.2	98,796.7	107,906.8	124,734.7	8.2%
OTHER	43,702.7	56,136.2	70,042.0	66,066.4	71,918.5	67,344.8	5.9%
TOTAL ABOVE	**735,475**	**924,616**	**1,015,699**	**1,008,857**	**1,099,473**	**1,078,084**	**100%**

Source: UN Comtrade, 2017.

AGRICULTURAL POLICIES IN TRINIDAD AND TOBAGO

Agriculture in Trinidad and Tobago is facing challenges including the high cost of doing business in an oil-rich economy, with costly import and export procedures; low productivity; inadequate and weak transportation, irrigation, and post-harvest infrastructure; land rights uncertainty; and praedial larceny, with this last problem having been cited by farmers in the 2004 Agricultural Census as their greatest challenge.

The major medium-term agricultural policy goals during the period of study focused on production rather than productivity and profitability. They included:

- Food bill reduction.
- Food inflation control.
- Increase in agricultural production.
- Increase in agricultural employment.

The Ministry of Agriculture, Land and Fisheries (MALF) is responsible for agricultural policy and suggests actions and budgets aimed at attaining agricultural policy goals. Parastatals play an important role: The Cocoa and Coffee Industry Board (replaced by the Cocoa Development Company in 2014), the Agricultural Society of Trinidad and Tobago, and the National Agricultural Marketing and Development Corporation (NAMDEVCO) have their own budgets, financed mainly by transfers from the MALF's recurrent budget. The Livestock and Livestock Products Board is a department of the MALF.

The Government of Trinidad and Tobago supports agriculture with a combination of incentives to agricultural producers, support for research and infrastructure and border protection measures (Table 21.5).

TABLE 21.5: DOMESTIC SUPPORT PROGRAMS IN TRINIDAD AND TOBAGO (2010-2015)

POLICY	DESCRIPTION
AGRICULTURAL INCENTIVE PROGRAM	• Capital grants to compensate for the costs of investments in land preparation and breeding stock, as well as for establishing and rehabilitating citrus, coffee, cocoa, and coconut farms. • Minimum guaranteed prices.
LARGE COMMERCIAL FARMS PROGRAM	• Public-private partnership for participating in agricultural activities. • Performs agricultural production at 15 large (100-300 acres) commercial farms.
EMPLOYMENT ENCOURAGEMENT PROGRAMS	Encourage youth participation in the agricultural sector: • Youth Apprenticeship Program in Agriculture (YAPA). • Farm visits for schools. • Agriculture Professional Development Program (APDP) for graduates. • Unemployment Relief Program (URP) training in agriculture for the unemployed.
SUPPORT RELATED TO THE SUSPENSION OF SUGAR PRODUCTION	• National Adaptation Strategy: measures to help former sugar farmers' adapt and reorient themselves, infrastructure development measures, water management, strengthening policy-making capacity, and incentive program reform. • EU assistance: direct transfers to former sugar cane farmers.
STRENGTHENING OF VALUE CHAINS	• Establishes and operates packing houses. • Establishes and operates wholesale markets for agricultural commodities. • Information support and marketing provided by the National Agricultural Marketing and Development Company (NAMDEVCO).
SUBSIDIZED LOANS	• Agricultural Development Bank (ADB) offers short- and long-term agricultural loans with flexible requirements and terms. • Agricultural producers have access to loans at annual interest rates of 3%-5% , while the market rate is 7.5%. • The ADB received grants from the public budget funds, and the amount of those grants was not tied to any performance analysis or the amount of loans issued.
RESEARCH AND DEVELOPMENT	• International and local organizations (Caribbean Agricultural Research & Development Institute (CARDI), The University of the West Indies (UWI), The University of Trinidad and Tobago (UTT)) provide research and extension services to agricultural producers.
INFRASTRUCTURE DEVELOPMENT	• Agricultural access roads, rehabilitation, and irrigation infrastructure development are part of the annual investment programs. • The MALF selected about 90 "food baskets" —land areas dedicated to crop production farmed by single or multiple farmers— and provided them with additional support, mainly road infrastructure. • The Irrigation and Water Management Flood Control Program invested in the construction of on-farm irrigation ponds to harvest and provide water for individual farmers. However, investment in irrigation infrastructure decreased during the period of study.
TRADE PROTECTION	• Agriculture in Trinidad and Tobago receives more trade protection than the rest of economy. The simple average applied import tariff on agricultural goods was 19.4% in 2013, higher than for non-agricultural goods (9.4%). Most agricultural commodities, including those selected for this study, are imported at a 40% tariff. Some commodities attract surcharges (taxes) in addition to import duties. In 2013, a 15% surcharge on poultry meat was introduced. • The sanitary and phytosanitary (SPS) measures play a more important role for Trinidad and Tobago's international trade than import tariffs. Strengthening and enforcing domestic SPS requirements to a level acceptable by the EU and the US is one of the goals of the trade policy.
DUTY-FREE IMPORTS OF INPUTS	• Starting January 1, 2016, agricultural inputs, including approved vehicles, approved fishing vessels and equipment, approved chemicals, and pest control were exempted from all duties and taxes.

Source: WTO, 2012 (http://www.agriculture.gov.tt/s)

LEVEL AND STRUCTURE OF SUPPORT TO PRODUCERS IN TRINIDAD AND TOBAGO

Price support is the dominant form of support for Trinidadian producers. Transfers to agricultural producers individually, as measured by the Producer Support Estimate (PSE), reached US$47.7 million in 2015 (Table 21.6). While the changes in PSE are driven by the changes in market price support (MPS), there was an increase in budget transfers (BT) to agricultural producers. Budget transfers play an increasingly important role in the value of support.

The Total Support Estimate (TSE) represents all transfers in the economy arising from national agricultural policy; it is estimated at TT$560 million (US$88 million) in 2015 (Table 21.6), significantly higher than the PSE transfers to individual producers. The TSE has fluctuated, with a high of $117 million in 2010 and $74 million in 2013.

As a result of agricultural policy in Trinidad and Tobago, primary consumers on average pay higher prices for agricultural commodities, as demonstrated by a negative CSE of -US$56.1 million in 2015 (Table 21.6), although it has declined in recent years. Without an adequate social policy, this negative support can adversely affect the low-income population. Price support to producers at the expense of consumers also limits demand for agricultural output and reduces the incentive to improve international competitiveness.

TABLE 21.6: MAIN INDICATORS OF SUPPORT FOR AGRICULTURE IN TRINIDAD AND TOBAGO (US$ MILLION)

	2010	2011	2012	2013	2014	2015
PSE	93.1	62.3	52.0	34.3	68.1	47.7
MPS	78.2	48.8	35.0	18.0	46.9	26.6
GSSE	23.7	29.3	35.3	40.0	37.4	39.9
CSE	-132.7	-99.5	-65.3	-60.0	-85.8	-56.1
TSE	117.0	91.6	87.3	74.3	105.6	87.7

Source: Authors' estimates.

General services occupy an important place in the support structure. The value of GSSE increased during the period under study and reached US$40 million in 2015. The majority of transfers to general services support went to the support of infrastructure development, which focused on the major constraints on agricultural competitiveness: roads and post-harvest packing and storage infrastructure. However, irrigation infrastructure attracted less attention, and financing decreased over time. At the same time, inspection services and food safety transfers amounted on average to only 2.2% of general services support.

Support for marketing and promoting agricultural commodities by NAMDEVCO was also substantial, representing about 20% of support to general services. These transfers, however, decreased slightly over time. Research and development support's share in total agricultural expenditures declined from 4.3% in 2012 to 2.6% in 2015. The majority of the transfers to research and development went to the Sugar Cane Feeds Center, a research and development center for the livestock subsector.

COMMODITY-SPECIFIC SUPPORT

The poultry subsector receives the highest amount of transfers, but SCT% is higher for other subsectors. Market price support in Trinidad in Tobago is concentrated on the poultry subsector due to its overwhelming contribution to the gross value of agricultural output. At the same time, support to poultry is moderate if considered as a percent share of farm receipts; other commodities receive greater support as a share of their gross receipts (as shown by the single commodity transfer, SCT%). While it still accounted for the majority of transfers to producers, support for poultry, decreased considerably during the study period, while support for other livestock commodities such as sheep meat and honey increased.

Commodity-specific support was mostly provided in the form of price support. Budget transfers to individual producers were provided for groups of commodities or all agricultural commodities and therefor are not reflected in individual commodities' SCT values. Subsector-specific budget transfers played an important role only in support for the cocoa subsector, and to some extent in support for hot peppers and cassava.

TABLE 21.7: COMMODITY-SPECIFIC SUPPORT IN TRINIDAD AND TOBAGO

	MPS, TT$ MILLION			PRODUCER SCT, TT$ MILLION			PRODUCER SCT%		
	2010	2013	2014	2010	2013	2014	2010	2013	2014
RICE	2.4	2.7	4.1	2.4	2.7	4.1	37.3	31.2	45.7
SWEET POTATOES	2.4	10.4	10.2	2.4	10.4	10.2	27.7	63.4	56.1
CASSAVA	0.1	0.0	0.0	0.3	0.2	0.2	6.2	1.4	1.8
COCOA	1.2	0.3	0.4	4.7	4.3	2.4	36.8	41.7	22.1
MILK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
POULTRY (CHICKEN)	252.7	117.8	54.7	252.7	117.8	54.7	40.6	21.7	10.3
HOT PEPPERS	-0.8	-1.3	-3.4	-0.6	-1.2	-3.4	-3.3	-20.5	-54.3
PUMPKIN	4.3	-3.4	-1.6	4.3	-3.4	-1.6	56.1	-62.0	-15.7
PAPAYA	2.3	2.3	0.0	2.3	2.3	0.0	26.4	26.7	-0.5
SHEEP	4.2	3.0	5.5	4.2	3.0	5.5	41.1	47.2	63.0
CHRISTOPHENE	2.2	2.9	2.0	2.2	2.9	2.0	75.6	65.1	37.0
PINEAPPLE	1.1	5.7	3.0	1.1	5.7	3.0	27.7	53.2	27.1
HONEY	7.7	10.7	13.5	7.7	10.8	13.7	52.1	70.2	64.5

Source: Authors' estimates.

TABLE 21.8: COMMODITY-SPECIFIC POLICY IN TRINIDAD AND TOBAGO

POLICY	COMMODITY-SPECIFIC SUPPORT
RICE SUBSECTOR	
• Guaranteed prices set above the international levels, benefitting rice producers. • Subsidized fixed inputs. • General services.	• MPS is positive during the whole period of study. • Guaranteed prices are on average 50% higher than they would be without policy intervention. • No product-specific budget support. • Rice farmers were supported at the expense of consumers.
ROOT CROPS SUBSECTOR	
• Demand stimulated by through adding cassava to the school menu. • Support for research and development. • Promotion measures encourage substituting imported grains with local cassava.	• The policy effect is positive for sweet potato farmers: prices are about two times higher than in a non-policy intervention situation. • The policy effect is nearly neutral for cassava farmers: no price support or budget transfers in the framework of the Tobago program for cassava industry development.

Continued on the next page

TABLE 21.8 (CONTINUED): COMMODITY-SPECIFIC POLICY IN TRINIDAD AND TOBAGO

POLICY	COMMODITY-SPECIFIC SUPPORT
COCOA SUBSECTOR	
• The minimum guaranteed prices are set at levels close to international prices. • Investment grants provided for100% of the cost of cocoa establishment or rehabilitation and 10% of the cost of establishing cocoa fermentation facilities. • Marketing by the state company, purchasing cocoa from farmers for marketing and exports. • Research and development services.	• Neutral price support (price transmission is efficient). • Positive budget transfers. • Total level of support amounts to 35% of gross farm receipts on average in 2012-2015.
HOT PEPPER SUBSECTOR	
• Subsidized loans from the ADB. • Investment grants: subsidized machinery and investments in on-farm irrigation. • Public-private partnerships for production: state-owned Caroni Green Limited is a major producer and exporter. • Research and development services. • 40% import tariff on fresh peppers and a 20% tariff on pepper sauce.	• Hot pepper SCT was negative, indicating implicit taxation. • There are obstacles to price transmission along the value chain.
PUMPKIN SUBSECTOR	
• Subsidized inputs: machinery, technical assistance. • General services: infrastructure (roads, water supply). • Duty-free imports of inputs since 2016. • Support to the value chain: packing houses which collect and store commodities, marketing infrastructure (wholesale markets).	• Pumpkin SCT was negative in most years, indicating implicit taxation; • The policy's negative effect on export crop farmers is caused by the direct involvement of the government in the production and marketing of those crops: government-owned companies are slow to react to market signals, and increased output drives prices down. • At the same time, low prices contribute to international competitiveness.
OTHER EXPORT CROPS	
• Incentives to producers for pest management, support to post-harvest infrastructure development. • Investments in infrastructure. • Research and development support for improvement of productivity and sustainability of production.	• Pineapple and christophene producers were supported by agricultural policy. • Part of the large price gap may indicate infrastructure underdevelopment. • Support was provided at the expense of domestic consumers.

Continued on the next page

TABLE 21.8 (CONTINUED): COMMODITY-SPECIFIC POLICY IN TRINIDAD AND TOBAGO

POLICY	COMMODITY-SPECIFIC SUPPORT
DAIRY SUBSECTOR	
• Guaranteed prices: farmers supply milk to Nestlé Trinidad and Tobago Ltd, under contractual arrangements at prices set by the government. • Research and development services. • Same-day loans for milk farmers from ADB in cooperation with Nestlé Trinidad and Tobago. • An import tariff of 40% for fresh milk imports, the tariff on milk powder imports is only 5%.	• Minimum prices for milk were lower than the actual farm-gate prices received by producers. • Negative price gap for milk was set to zero as it was considered to reflect non-policy effects along the value chain. • There were no budget transfers specific to milk producers during the period of study.
LIVESTOCK SUBSECTOR	
• The livestock subsector is a major beneficiary of knowledge generation and transfer services. • The government invests in forage farms and breeding centers. • Imported poultry receives an import tariff of 40%, in addition to which a 15% surcharge was levied in 2013.	• Poultry and small ruminants' producers were supported by policy. • Price support to poultry producers was the single most important component of national MPS. • Average prices received by poultry producers were stable despite international price volatility. • The level of protection was moderate as a percent share of gross farm receipts (the highest share was 41% in 2010, and in 2013 it was only 5%), but substantial in absolute terms. • The level of support to sheep producers, provided both in the forms of price support (MPS) and budget transfers reached on average of 62% of total farm receipts in 2013-2015.
APICULTURE SUBSECTOR	
• Investment subsidies. • Subsidized loans. • Services to farmers: training in new technologies and marketing assistance. • Tariff on imports (40%).	• Honey SCT was high (63% of gross farm receipts in 2013-15).

Source: Authors' compilation.

PERCENTAGE INDICATORS OF SUPPORT

While the size of the agricultural sector is relatively small in Trinidad and Tobago, budget and price support to producers individually amounts to a relatively high share of gross farm receipts: The PSE% stood at 21.7% in 2015. The role of MPS in support to producers was less important than in most Latin American and Caribbean countries, but still accounted for more than half of the PSE (Table 21.9). The CSE% has been negative over the period (-17.4% in 2015), indicating that consumers are penalized by agricultural policies.

Total transfers arising from policy measures that support agriculture (measured by TSE%) account for only a small share of GDP (0.34%), which is an expected result, given the small share of agriculture in GDP.

In Trinidad and Tobago, 45.5% of total transfers arising from agricultural policy in 2015 were directed to supporting general services. This is one of the highest levels in the region, and only a few countries in Latin America and the Caribbean have a GSSE reaching over 40% of the TSE (Chile, Suriname, Uruguay, and Barbados).

TABLE 21.9: PSE%, GSSE%, CSE%, TSE% IN TRINIDAD AND TOBAGO (2010-2015, %)

	2010	2011	2012	2013	2014	2015
PSE% (OF GROSS FARM RECEIPTS)	42.5	29.0	23.6	15.3	30.4	21.7
MPS% (AS A SHARE OF PSE)	83.9	78.2	67.4	52.6	68.9	55.7
CSE% (OF CONSUMPTION EXPENDITURE AT FARM-GATE)	-35.1	-24.6	-18.4	-15.6	-23.1	-17.4
GSSE% (OF TSE)	20.3	31.9	40.4	53.8	35.4	45.5
TSE% (OF GDP)	0.5	0.4	0.3	0.3	0.4	0.3

Source: Authors' estimates.

POLICY RELEVANCE OF RESULTS

The PSE and related indicators give a snapshot of current agricultural policies in Trinidad and Tobago. While the majority of support is provided in the form of price support, the share of this type of support decreased during the period of study and the role of support to general services increased. The effect of public policy, as demonstrated by SCTs, ranges from positive for import-competing products to negative for some of the export

crops. The effect is neutral for cassava and (by assumption) zero for milk. The poultry subsector is well protected by price support and also receives budget transfers. The level of support for other livestock subsectors, sheep meat, and honey has increased in recent years.

Several subsectors —specifically, hot peppers and pumpkins— are currently hampered by policy instruments. Export licensing and other restrictions on exports lead to market concentration and the implicit taxation of producers of exported goods. At the same time, profitability and productivity in these subsectors is relatively high. Removal of administrative barriers to trade would help them realize their potential international competitiveness.

Distorting policy measures like subsidies and guaranteed prices are combined with direct government involvement in agricultural production. Expanding agricultural production is one of the government's policy goals, and it seeks to achieve it by acquiring agricultural holdings and engaging in production directly or through public-private partnerships. Direct participation by publicly owned entities in agricultural production distorts markets and may create excessive supply, which puts pressure on prices and slows the reaction to market signals.

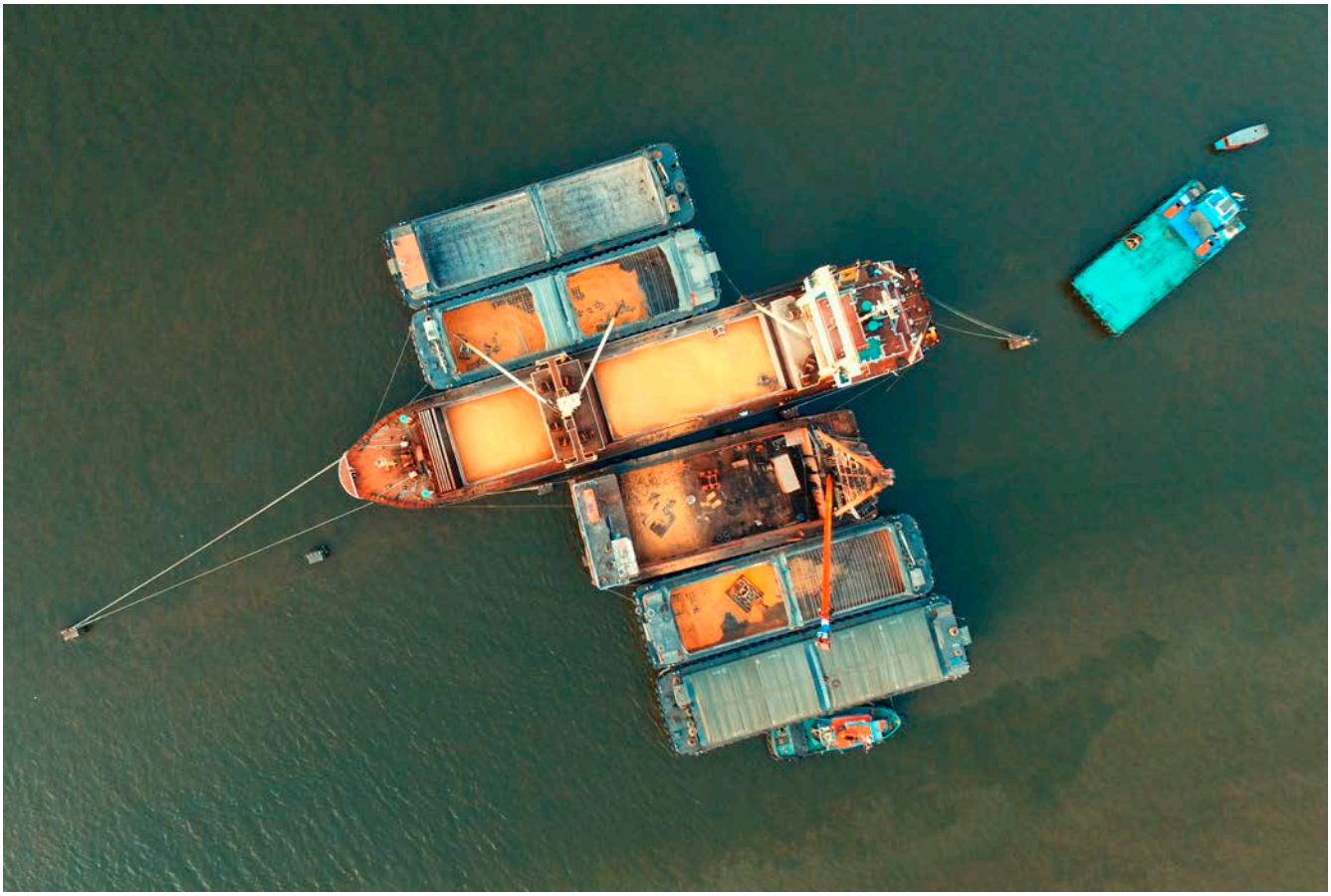
Some issues the sector is facing —such as agriculture's diminishing contribution to GDP and even more quickly diminishing contribution to employment— are the result of structural changes in the country's economy (and are not necessarily negative) and cannot be easily corrected by agricultural policy. Instead, policy goals focused on the sector's profitability and productivity(such as enhanced research, development and extension support, creation of efficient post-harvest value chains, and pest, disease, and quality management systems) will help create a possibly small but efficient agricultural sector and exploit some specific competitive advantages.

Support for general services plays an important role in agricultural policy, and its share in PSE is among the highest in the region. Infrastructure development gets adequate attention, as do marketing and promotion measures, but public assistance to irrigation and drainage, as well as to food safety and inspection services, are relatively low.

Since structural changes to the economy inevitably lead to decreased agricultural activity, we suggest redirecting policy goals from increasing employment in agriculture to increasing employment in rural areas, with a focus on non-agricultural rural employment.

3. COMPARISON OF AGRICULTURAL SUPPORT POLICIES: SIMILAR PROBLEMS AND DIVERSE SOLUTIONS

By Tim Josling



The Caribbean region faces many common challenges as its countries pursue strategies for their agricultural sectors. The challenges include the uncertainties posed by extreme weather events that can devastate individual crops; the vulnerability of the agricultural sectors to sharp changes in world prices for export crops and for imported staples; the dilemma of trade orientation —towards Europe, the US, or Latin America?— and the historical legacy of post-colonial trade agreements; and the appropriate internal balance between the sectors (tourism, services, energy, agriculture.) In terms of production and marketing, the countries of the region have a number of parastatal bodies that dominate their agricultural sectors and appear often to dull responsiveness

to market conditions. Climate change presents a further common threat to the region and could exacerbate weather-related events.

Despite the similar vulnerabilities and challenges, **the region's countries are very different in terms of size and economic performance** (see section 2, above). This section aims to explore both the similarities and differences in the context of public support for the agricultural sector. In some cases, the different support levels and their composition reflect different conditions, while in others they illustrate different approaches to similar problems. Either way, support estimate comparisons can help countries evaluate their own policies. Also, comparing support estimates enables broad assessment of the state of market integration in the region, which in turn can have implications for regional trade policy as expressed in the aims of the CARICOM Single Market and Economy (CSME) and the political intentions of the regions governments.[38]

ROLE OF AGRICULTURE IN THE ECONOMY

The role of agriculture in the economy varies widely among the nine countries. In terms of the ratio of agricultural value-added to GDP, Guyana and Haiti have the largest agricultural sectors, accounting for about 20% of economic activity (Figure 3.1). By contrast, agriculture is a minor contributor to GDP (less than 5%) in Trinidad and Tobago, Barbados, and the Bahamas. For Belize, the Dominican Republic, Jamaica, and Suriname agriculture accounts for less than 10% of national GDP. Thus, most of the countries being studied have agricultural sectors that are small but not insignificant. Agriculture's share of GDP is clearly a factor in the scope of and need for farm policies: food policies will tend to dominate those intended to help the farm sector. However, the political influence of the farm lobby (and the large companies involved in food processing) will be enough to offset the small absolute size of the sector.

Another facet of agriculture's role in the economy is the share of employment provided by the sector. By this measure, Haiti stands alone, with half of the labor force engaged in agricultural activities (Figure 3.1). In Belize, Guyana, and Jamaica about one fifth of the national labor force is in agriculture. Barbados, the Bahamas, Suriname, and Trinidad and Tobago have less than 5%

AGRICULTURE'S SHARE OF GDP IS CLEARLY A FACTOR IN THE SCOPE OF AND NEED FOR FARM POLICIES: FOOD POLICIES WILL TEND TO DOMINATE THOSE INTENDED TO HELP THE FARM SECTOR. HOWEVER, THE POLITICAL INFLUENCE OF THE FARM LOBBY (AND THE LARGE COMPANIES INVOLVED IN FOOD PROCESSING) WILL BE ENOUGH TO OFFSET THE SMALL ABSOLUTE SIZE OF THE SECTOR.

38. The CSME is the key component of CARICOM, stressing increased integration coupled with cooperation on a regional level and the development of common institutions. It should be noted that the Dominican Republic is not a CARICOM member. It has a free-trade agreement with the US (The CAFTA-DR FTA).

of their workforce employed in agriculture, with the Dominican Republic somewhere in between these groups at 12%. To the extent that the size of the agricultural labor force shapes farm policy objectives, one would expect Haiti to favor measures that raise rural standards of living.

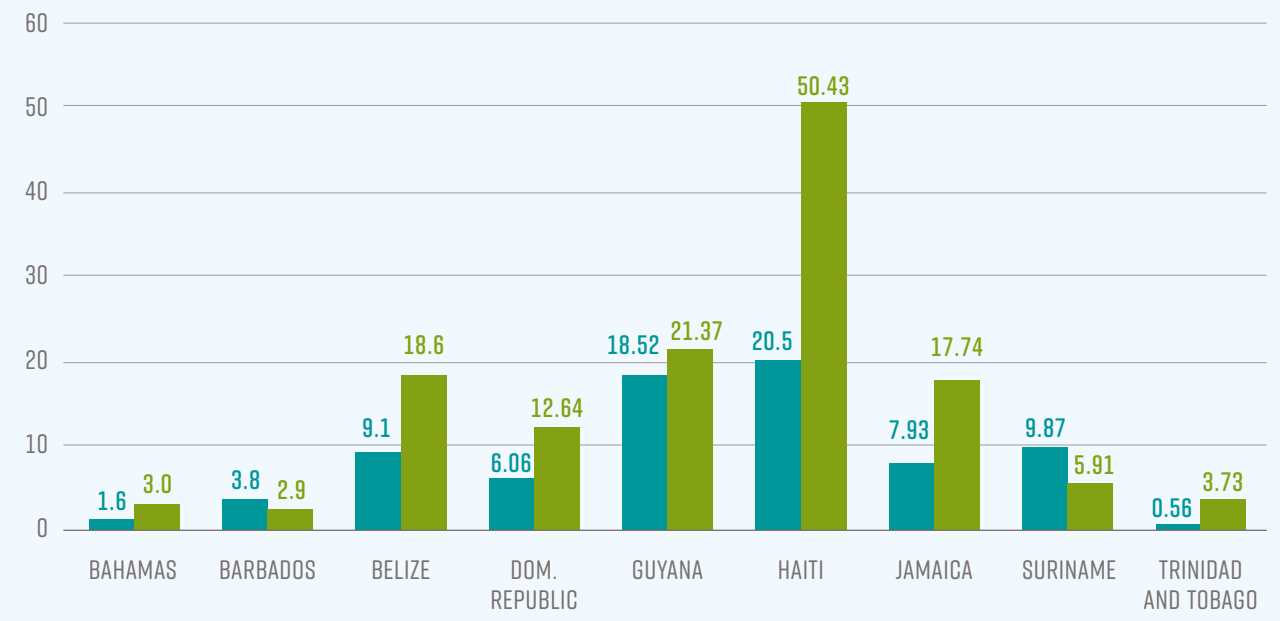
Agriculture's share of GDP is an indication of the sector's overall economic significance, while its share of employment reflects its impact on the labor market. The ratio between the two indicates the sector's relative productivity. The economy as a whole will have a ratio of about one, as total GDP represents the contribution of the total workforce. A larger ratio would suggest that agricultural labor is more productive than other sectors. This indeed appears to be the case in Suriname, where the agricultural sector's share of GDP 1.6 times its share of the workforce share (Figure 3.2). Barbados also has a productive farm sector with a favorable productivity ratio (1.31), while Guyana shows signs of a well-integrated workforce with no significant productivity gap: Labor can move among sectors in response to economic incentives. More typical of developing countries is the low ratio found in the Bahamas, Belize, the Dominican Republic, Jamaica, and Haiti, where the contribution to GDP lags far behind the share of the work force. This indicates a sector imbalance reflecting either an agricultural sector with low productivity per unit of labor or an agricultural workforce that produces agricultural products for household consumption that are not included in GDP figures (as may be the case in Haiti).[39]

Improving agricultural productivity is a common aim of all countries in the region. On this score, there is ample evidence that agricultural productivity in the Latin America and Caribbean region has been quite robust as a result of policy shifts and solid commodity prices in the period up to 2015 (Nin-Pratt, 2015). However, the extent to which agricultural support is geared toward increasing productivity varies among countries. An analysis of the level and composition of support for the sector illustrates this.

THE EXTENT TO WHICH AGRICULTURAL SUPPORT IS GEARED TOWARD INCREASING PRODUCTIVITY VARIES AMONG COUNTRIES.

39. Figures on agriculture's share of GDP and of the workforce are from the World Development Indicators. The variability among countries is surprising and may reflect differences in definitions.

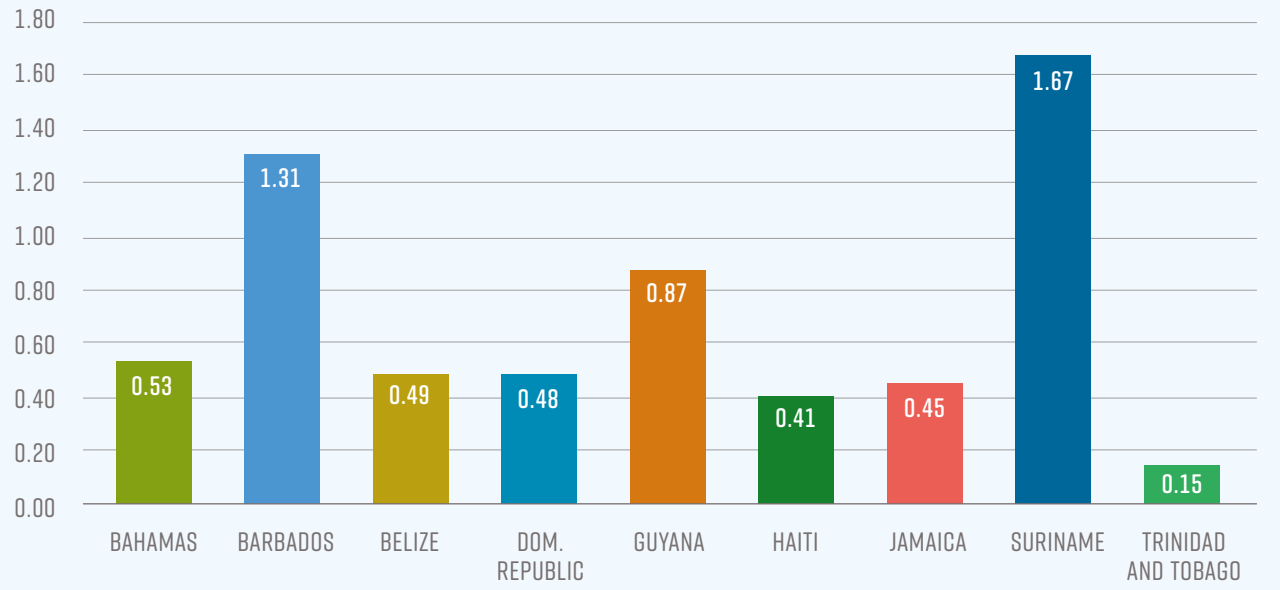
FIGURE 3.1: PLACE OF AGRICULTURE IN THE ECONOMIES OF NINE CARIBBEAN COUNTRIES (%, 2016 OR LATEST DATA)



Source: Compilation of numbers from preceding chapters.

■ SHARE OF AGRICULTURE IN GDP
■ SHARE OF AGRICULTURE IN EMPLOYMENT

FIGURE 3.2: AGRICULTURAL SECTOR PRODUCTIVITY (RATIO OF GDP SHARE TO WORKFORCE SHARE, 2016)



Source: Compilation of numbers from preceding chapters.

SUPPORT LEVELS

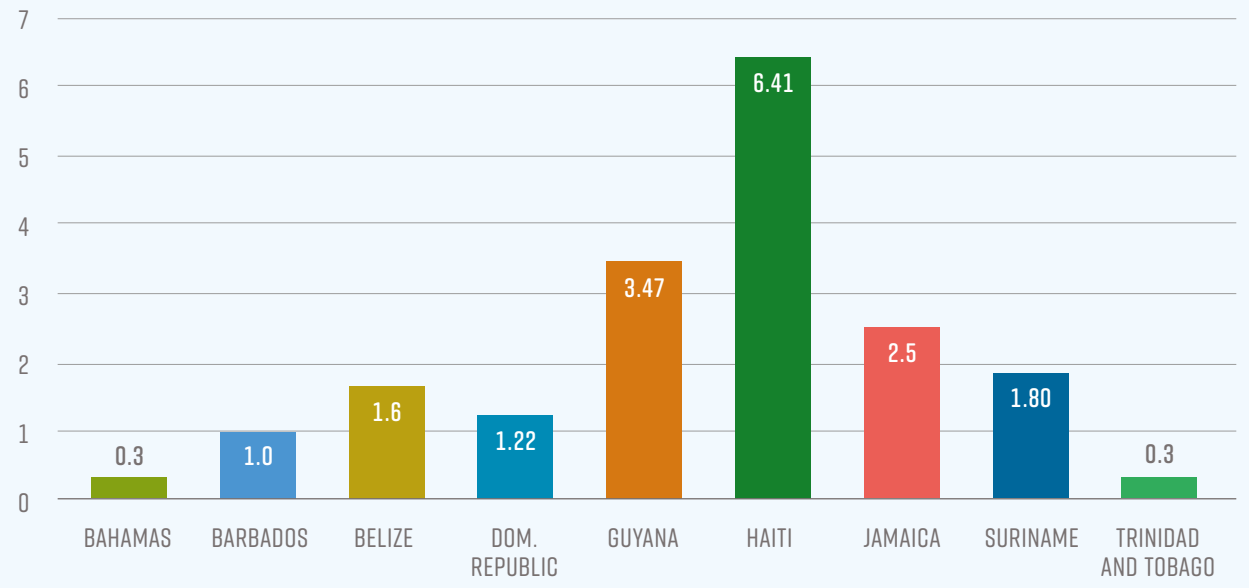
The differences discussed above help explain the range of agricultural support levels found in the nine countries. **The most comprehensive indicator showing total transfers to the farm sector from agricultural policies, together with expenditure to support food consumption, is the Total Support Estimate (TSE)**. The ratio of this indicator to GDP shows the extent of such transfers as a portion of overall national economic policy.

In Haiti, transfers to the agricultural sector relative to GDP in Haiti are significant (Figure 3.3). More than 6% of GDP is apparently transferred to producers through agricultural and food programs.[40] This may seem appropriate given the low incomes in Haiti and its high proportion of rural inhabitants. But, as discussed above, Haitian agricultural productivity remains low, and it is urban consumers that bear the burden of the transfers. A significant problem facing the country is thus how to allocate the support that is needed in a way that encourages productivity. In Guyana and Jamaica the TSE accounts for more than 2% of the national income, a significant allocation of resources to the agricultural and food sectors. Again though, the transfers are not necessarily related to agricultural productivity: In Guyana, the productivity gap appears to be small, whereas in Jamaica, significant productivity increases appear to be necessary to put agriculture on a par with other sectors in terms of contribution to GDP.

As might be expected, transfers to the agricultural sector are less significant in countries where other sectors dominate. For Barbados, the Dominican Republic, and Suriname the TSE is about 1% of GDP, suggesting that support for the agricultural sector plays a minor role in economic policy due to either limited need for it or relative neglect where need does exists. For the Bahamas and Trinidad and Tobago, the low TSE-to-GDP ratio is not surprising: other sectors dominate the economy (tourism in the case of the Bahamas and oil in the case of Trinidad and Tobago) leaving support to agriculture a minor part of government policy. But even in these cases, policy transfers still account for about one fifth of producer receipts.

40. The TSE includes the MPS, derived from the comparison of domestic prices with the prices that would obtain in the absence of policy. However, market imperfections and data issues may overstate the MPS in this case. GSSE spending is relatively low in Haiti.

FIGURE 3.3: TOTAL SUPPORT ESTIMATE (TSE) AS A PERCENT OF GDP IN NINE CARIBBEAN COUNTRIES (2016)



Source: Compilation of numbers from preceding chapters.

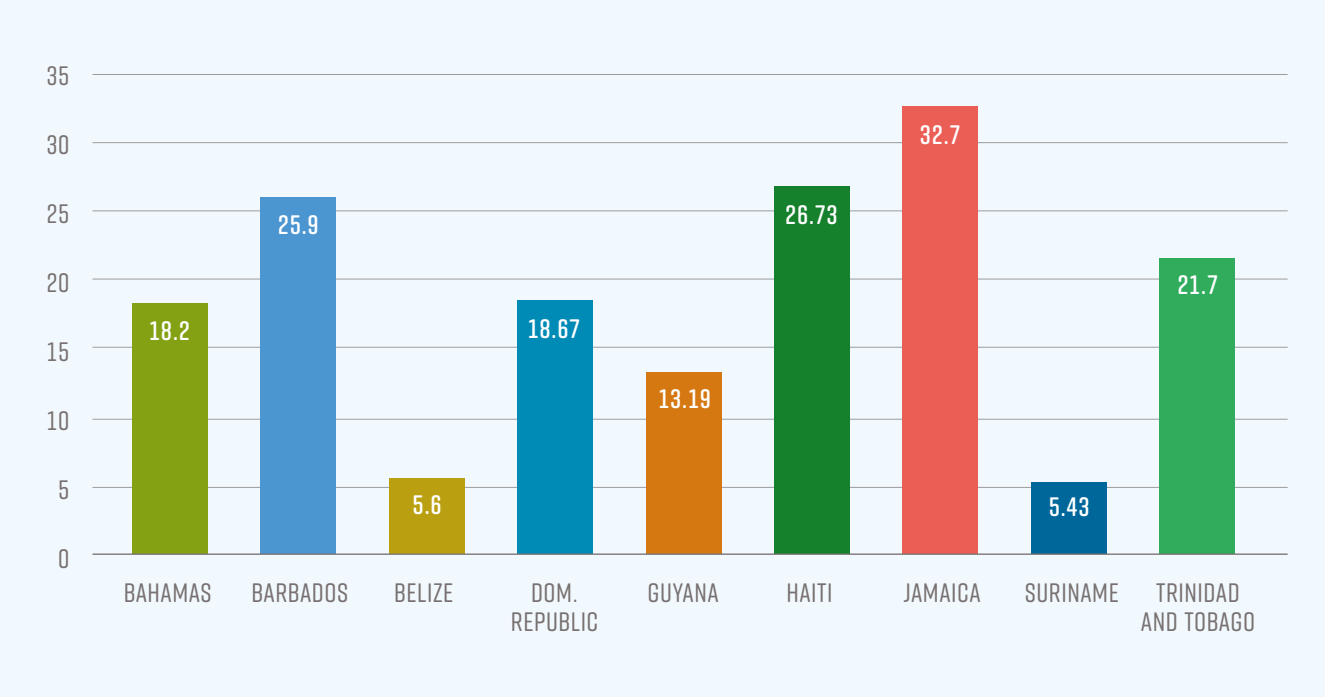
Direct support for agriculture (price supports, input subsidies, and direct payments) is illustrated through the ratio of the Producer Support Estimate (PSE) to farm level receipts. A high PSE ratio suggests the significant role of farm policies play in boosting agricultural sector incomes. Jamaica, Haiti, and Barbados each have ratios of support to farm incomes above 25%(Figure 3.4). Of these countries, Jamaica's farm programs provide significant support to farm incomes (32.7%), although the support varies markedly across the different parts of the agricultural sector. Haiti appears to have a high PSE% (26.7%), suggesting that even lower incomes would exist in the absence of government transfers. However, as noted above, the high PSE may also reflect market structure and imperfect data. Barbados also has programs that provide significant support as a portion of farm receipts (25.9%), even though the sector itself appears reasonably integrated with the economy.

Three countries have support levels between 15% and 25%. The Bahamas appears to have a high PSE as result of extensive policies aimed at supporting fishing (not included in the agricultural sector of other countries); Trinidad and Tobago and the Dominican Republic also have a PSE as a percentage of farm receipts of about 20%; and Guyana, Suriname, and Belize (the coastal countries) show a

support estimate of below 15%of farm receipts. In these countries, agricultural sector support is is in line with that of countries outside the region, although this by itself does is not an indication that they are appropriate.

A high PSE-to-farm-income ratio has significant implications for the real (social) value of the agricultural sector. If the PSE% is higher than the value added as a share of total receipts, then it must be asked whether the sector is making any contribution to the national economy.[41]

FIGURE 3.4: PRODUCER SUPPORT ESTIMATE AS % OF GROSS FARM RECEIPTS IN NINE CARIBBEAN COUNTRIES (2016)



Source: Compilation of numbers from preceding chapters.

41. If the value added in the farm sector is 20%of the value of production and the level of commodity-specific support is higher than 20%, the value added would appear to have only been possible because of the support. In other words, without support the sector could not have paid for the inputs and therefore is in the range of "negative value added" at non-policy prices. Income for the country as a whole is reduced as a result.

As in many developing countries, the largest portion of direct support is provided in the form of artificially high market prices, known as **Market Price Support (MPS)**. This is commonly the result of tariffs and other import restrictions. The ratio of MPS to the PSE is a strong indication of the extent to which tariffs and other border restrictions are used to bolster domestic prices. Other components of PSE are also prevalent in the region: Input subsidies are present in some countries (e.g. the fertilizer subsidy in Haiti) but few countries use direct payments as a prominent part of their agricultural policy mixes.

AS IN MANY DEVELOPING COUNTRIES, THE LARGEST PORTION OF DIRECT SUPPORT IS PROVIDED IN THE FORM OF ARTIFICIALLY HIGH MARKET PRICES, KNOWN AS MARKET PRICE SUPPORT (MPS).

For the Bahamas, Belize, the Dominican Republic, Haiti, and Jamaica this ratio is above 80%, implying a strong reliance on border policies to provide support (Figure 3.5). Such support has three main drawbacks: it puts the burden of support on consumers, particularly the poor, who have to spend a large portion of their income on food; and it is difficult to target, so it helps large farmers as well as small ones. Barbados has an MPS-to-PSE ratio of between 70% and 80%. Suriname, Guyana, and Trinidad and Tobago have an MPS/PSE ratio of 60%-70%, indicating they are using nonprice support policies as well as tariff protection. These estimates alone demonstrate the incomplete nature of the regional market for agricultural products. If trade barriers account for most of the farm support, reducing that support as part of the regional integration process will present major problems.

The MPS is partly a reflection of the burden that agricultural policy places on consumers. A more complete measure of this is provided by the **Consumer Support Estimate (CSE)**. The CSE can be positive if consumer programs such as food subsidies are significant. In general, however, the CSE will be negative, reflecting the higher cost of food when local prices are kept high by tariffs and domestic marketing controls. **In the case of the nine Caribbean countries included in this report, consumer support was indeed negative.**

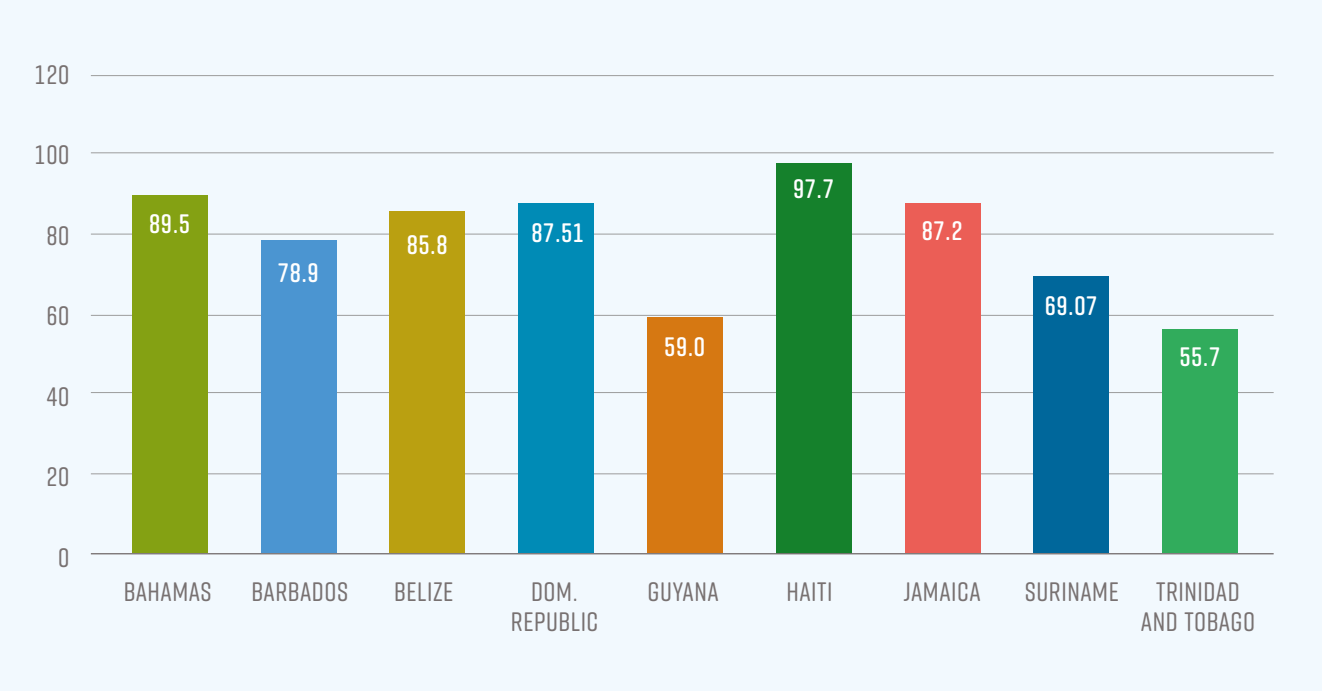
The significance of the CSE is two-fold. In terms of the domestic market, the higher price for staple foods can have a regressive effect, as poorer families spend proportionately more on such goods. In this regard, it is notable that Haiti, the poorest country in the region, has a CSE of nearly -%30 of the value of consumption of foodstuffs, although much of it comes from high marketing costs rather than tariffs per se (Figure 3.6).[42] Social programs may have a difficult time offsetting such a tax on food for

42. The PSE approach is to compare prices at the same level of the marketing chain (the farm gate). Normal transport costs are therefore taken into account. However, if imperfections in the market suppress producer prices or increase consumer prices, then the effect will show up as a tax on consumers and hence increase the negative CSE.

consumption. The case of Jamaica is also instructive but from a different perspective. The high negative CSE is primarily due to a high tariff on imported poultry meat. Again, the tax is regressive, but in this case the policy change is simple: reorganize the poultry market to eliminate the need for such a high tariff.

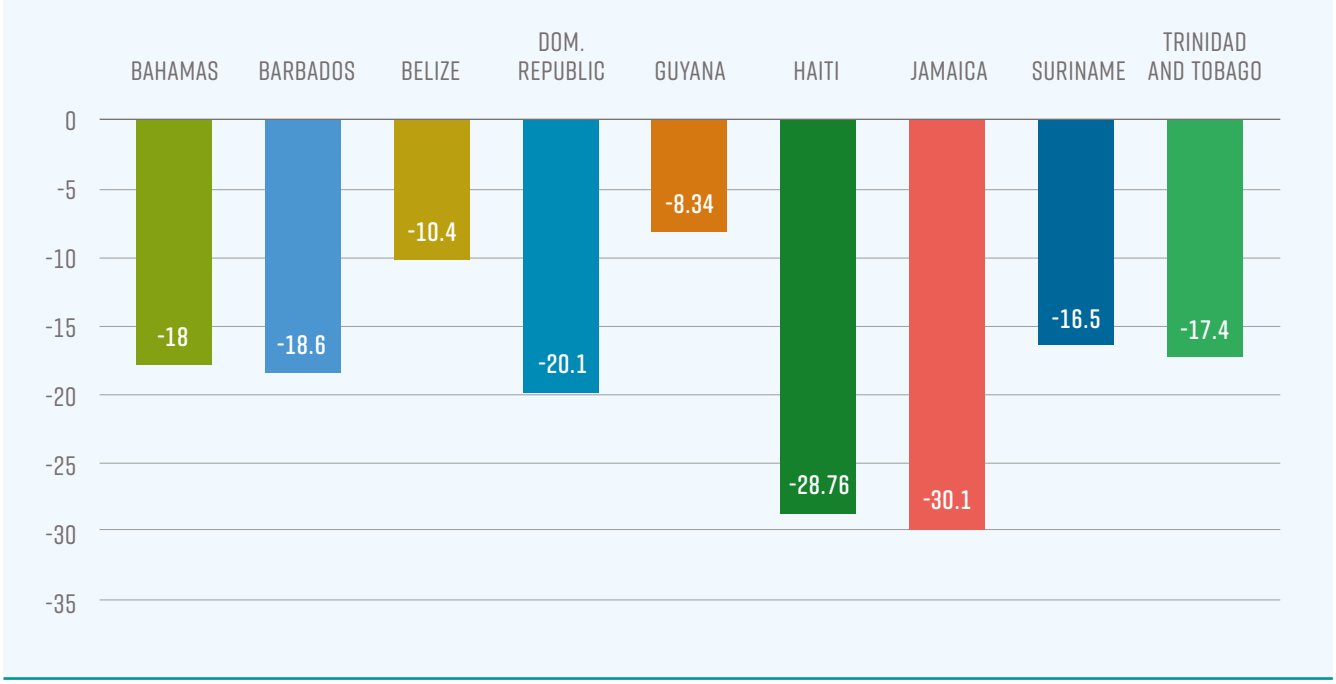
In terms of regional markets, the higher prices indicate trading opportunities that could lead to growth and to positive integration. The significant price differences for similar foods found in the nine country estimates have implications for regional trade. Although they can to some degree be attributed to transport costs and market structures, their existence often suggests the possibility of more regional trade flows.

FIGURE 3.5: MARKET PRICE SUPPORT (MPS) AS A SHARE OF PSE IN NINE CARIBBEAN COUNTRIES (2016)



Source: Compilation of numbers from preceding chapters.

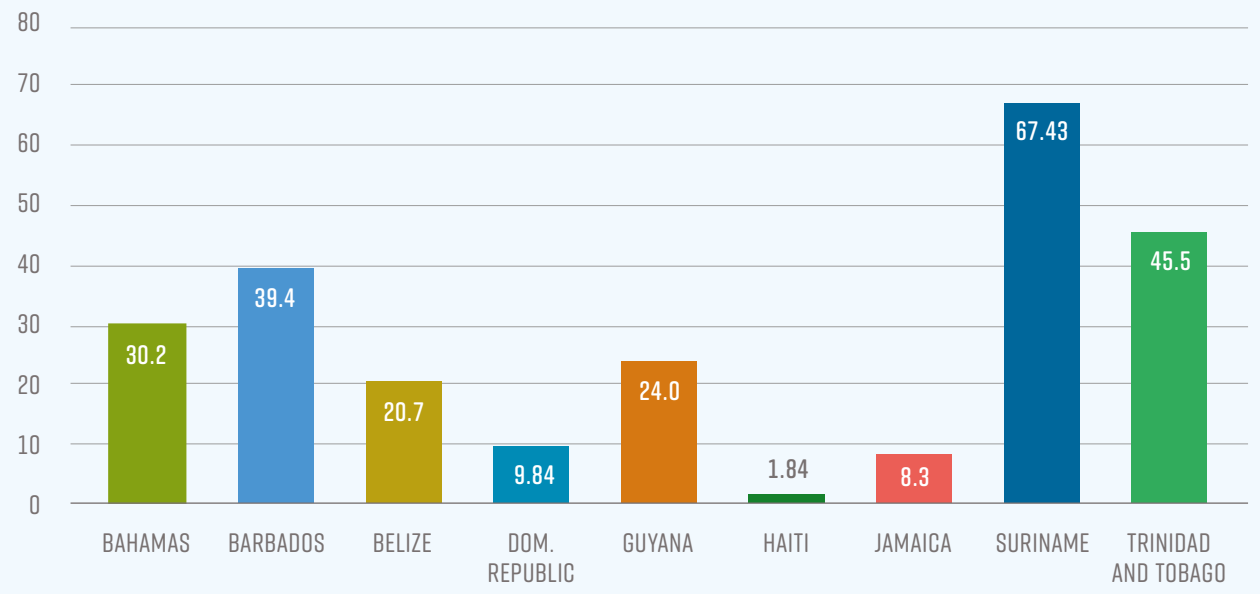
FIGURE 3.6: CONSUMER SUPPORT ESTIMATE (CSE) AS A SHARE OF CONSUMPTION EXPENDITURE AT FARM-GATE LEVEL IN NINE CARIBBEAN COUNTRIES (2016)



Source: Compilation of numbers from preceding chapters.

One important measure of policy intentions is the expenditure on general services that assist the agricultural sector. **The General Services Support Estimate attempts to capture transfers to the agricultural sector that take the form of infrastructure, training, and marketing assistance**. Of the nine countries, Suriname stands out, as 70% of its total support takes the form of general services potentially available to all farmers without limitation to crop type (Figure 3.7), although in this case much of the support is for irrigation in the rice sector. In sharp contrast, Haiti has a relatively insignificant share (1.84%) of general services in its portfolio of support expenditures. Trinidad and Tobago (45.5%) and Barbados (39.4%) appear also to give priority to general support as opposed to commodity-based support. The Dominican Republic and Jamaica have apparently placed less emphasis: Both dedicate less than 10% of total sector support to general services in their agricultural policies.

FIGURE 3.7: GENERAL SERVICES SUPPORT ESTIMATE (GSSE) AS A SHARE OF TSE IN NINE CARIBBEAN COUNTRIES (2016)



Source: Compilation of numbers from preceding chapters.

CONCLUSION

One feature common to the nine countries included in this study is their involvement in trade. Exporting has been a prominent part of their economic development, and it remains something that defines their policy toward agricultural trade. Concentration in a small number of tropical products exposes their economies to external shocks from unstable world markets, but also allows for the marketing of attributes peculiar to these countries. An additional hazard facing export crops is extreme weather events that can disrupt supply. All these issues define the agricultural strategies for many of these sectors. The historical emphasis on marketing boards as a way of regulating exports and protecting domestic producers poses challenges in the more open global economy.

Although the original intention of marketing boards was to organize collection and distribution of tropical products, benefiting individual producers through collective marketing, the industries themselves have changed in recent decades. **Buyers abroad often demand unique products that small farmers can (with assistance) provide**. However, this requires entrepreneurship on the part of

the boards and a willingness to pass benefits back to producers. In a number of cases, farmers do not appear to be receiving the full value their products garner in export markets.[43] This might to some degree be a reflection of unstable supplies, quality issues, and transport inadequacies. But the frequency of negative producer support for traditional export crops (particularly tree crops) suggests that the institutions are still in the process of adapting to the new realities of global markets.

Along with the export orientation of tropical agriculture, these countries depend on imports of food from temperate zones and land-extensive agriculture. **Instability can also be a problem on this side of the trade ledger, raising the question of how much of these products should be produced domestically**. With the exception of the Dominican Republic and Haiti, the capacity to grow cereals is severely limited, even though rice has long been a staple in the region. The issue is particularly pointed in the case of livestock, a sector that could be developed using a mix of domestic grazing and imported feed. Different countries in the region have handled this problem in different ways. Barbados shows a negative product-specific commodity transfer (PSCT) for milk of 36.66%; the Dominican Republic a negative PSCT of 29% for beef but a positive one for milk (54%); Suriname has a positive PSCT for beef of 60%. Trade between the countries of the region would open up opportunities for both beef and milk producers and reduce the variability of incentives.

One sector that illustrates this problem most vividly is that of poultry. Several countries have developed domestic poultry sectors by protecting them from imports from other countries, such as the US and Brazil. The Dominican Republic supports the poultry industry with a PSCT of 74%. Jamaica (64%) and Guyana (52%) follow close behind. This protection often dominates the agricultural support estimates, giving a lop-sided view of the overall support policies. But the asymmetry is itself an important aspect of policy. High levels of protection in one sector have an indirect impact on other sectors that have to compete for resources. And taxation of a popular type of food is generally regressive, hitting poorer consumers particularly hard.

ALONG WITH THE EXPORT ORIENTATION OF TROPICAL AGRICULTURE, THESE COUNTRIES DEPEND ON IMPORTS OF FOOD FROM TEMPERATE ZONES AND LAND-EXTENSIVE AGRICULTURE.

43. Examples include bananas in the Dominican Republic (PSCT% of -111%); coffee in Jamaica (-91%); and cocoa in Jamaica (-37%).

At the other extreme, Barbados has a PSCT of 13%; Suriname of 14%,and Trinidad and Tobago of 10.3%. These countries make use of the low prices on world markets for chicken and use local resources in other ways.[44] This also raises the issue of beneficial trade: High-cost poultry enterprises in a handful of countries in the region may be more sustainable if they were supplying the regional market.

The main lessons arising from this nine-country comparison of similar indicators can be summarized as follows:

Relying on border measures to support domestic producers has negative consequences for domestic and regional objectives. It rewards large farmers, as benefits are distributed in proportion to output; it burdens poor consumers disproportionately and puts additional burden on social safety net programs; it inhibits trade and therefore limits the benefits of scale in production; and it distorts investment in the economy, particularly in the agricultural sector if support among sectors is uneven.

The alternative agricultural strategies emphasize providing the infrastructure and general services needed to increase productivity, improve resilience, enhance competitiveness, and make it easier to liberalize trade and investment within the region. Such programs are less likely to be challenged by regional and global trade partners and would allow countries to take a more positive approach to trade negotiations. In political terms, assisting the agricultural sector through infrastructure, market assistance, and adoption of good health standards may prove to be a better basis for maintaining support than relying on consumer-financed market price transfers. Some countries in the region are moving in this direction; others have yet to make the decision.

44. The saga of the poultry trade extends back some thirty years. The US consumer prefers white (breast) meat and the poultry firms "unload" dark meat (particularly chicken leg quarters) at low prices on the international market. This would not be a problem if chicken were allowed into the US, but only a few suppliers have been licensed. So low priced chicken pieces give constant problems to local producers.

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