

Jamaica

Review of agricultural sector support and taxation



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COUNTRY HIGHLIGHTS





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FOREWORD

This report is the result of good cooperation between the Government of Jamaica, IDB and FAO and seeks to contribute to the dialogue on agricultural support policies.

Using a combination of formal quantitative, informal quantitative and qualitative analysis, this report assesses the level and forms of government support to agriculture in Jamaica and the extent to which this support is sensitive to the challenges of climate change. The report summarizes the key features of three major studies implemented under the FAO/IDB cooperation that provide analysis for the Jamaican context: agricultural sector support analysis, agricultural taxation, and climate change and agriculture.

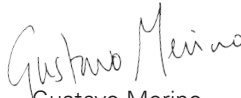
First, the policy analysis is based on calculations of Organisation for Economic Co-operation and Development (OECD) indicators, producer support estimates (PSEs), which measure the level of government support to agriculture through policy instruments for the period 2006-2010. This is set within a broader analysis of recent trends in Jamaican agriculture and trade, and related policies, and of the budget and financial structures associated with support to the sector. The broader analysis provides the data for the PSE calculations and explains key features of the status quo.

Second, this report presents a more narrowly focused analysis of Jamaica's tax regime as it applies to agriculture. Distinguishing between taxation *of* agriculture and *for* agriculture, it bridges the PSE calculations (and the sector review on which they are based) and the Government of Jamaica's current tax reforms. Finally, an empirical analysis of the climate challenges facing Jamaica and of relevant government policies adds a dynamic element to this report's recommendations.

This report concludes that while Jamaica provides a very high level of support to agriculture (by international standards), the support is heavily concentrated on a very small number of favoured subsectors. Not all of the supported subsectors appear to have sustainable growth prospects, while a number of subsectors that appear to be competitive are either unsupported or actually taxed. The support to general services in agriculture or to the adjustment of agriculture to climate change is insufficient. This report makes a set of recommendations that provide an improved framework for developing a competitive rural economy and for reducing poverty at any given level of overall support.



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This report is the synthesis of three studies conducted by the Investment Centre Division (TCI) of the Food and Agriculture Organization of the United Nations (FAO) in close collaboration with the Planning Institute of Jamaica (PIOJ) and the Ministry of Agriculture and Fisheries (MOAF) in the context of an Inter-American Development Bank (IDB) support programme. The studies include one separately published report “Climate Change and Agriculture in Jamaica – Agriculture Sector Support Analysis” and two unpublished reports on “Agricultural Taxation” and “Agriculture Sector Support Analysis”. The series of studies of which this report is the synthesis is aimed at increasing knowledge on agricultural support policies in Jamaica, and in particular discussing options for improvements to the current policy mix.

The report is part of the IDB’s on-going commitment to address the challenges of agriculture and climate change in Latin America, in this case financing work that was conducted through a contract with the FAO, under the technical supervision of the Bank. The IDB staff who participated in the coordination of the study with the Government of Jamaica include Paul Trapido (Team Leader), Mateo Molina and Juan de Dios Mattos (IDB Country Office Specialists).

The work was coordinated by Nuno Santos, Economist, Investment Centre Division, FAO. The synthesis report was written by Christopher Stevens, Trade Economist and FAO consultant based on the different individual reports. The “Agricultural Taxation” report was written by Peter Mullins, Fiscal policy expert and FAO Consultant and the “Agriculture Sector Support Analysis” was written by Eugenia Serova, Director, Rural Infrastructure and Agro-Industries Division, FAO and Olga Shik, Economist, FAO consultant. The “Climate Change and Agriculture in Jamaica” section was written by Selvaraju Ramasamy, Natural Resources Officer, Climate, Energy and Tenure Division, FAO, with the support of Alicia Hayman, National Expert and the guidance of Maria del Mar Polo, Agricultural Economist, Investment Centre Division, FAO.

The report was initially reviewed by technical experts from FAO and subsequently it was extensively reviewed by technical staff at the IDB with suggestions being incorporated into the final report. The draft report was discussed with stakeholders in Jamaica in

July 2012 including H.E. the Minister of Agriculture and Fisheries Hon. Roger Clarke, as well as senior officials from the Ministry of Finance, PIOJ, Ministry of Agriculture and Fisheries, Ministry of Industry and Commerce and University of West Indies. Moreover, as part of the cooperation between IDB/FAO and Government of Jamaica, training on PSE calculation was provided to Government officials by Cristian Morales, Economist, Agricultural and Development Economics Division, FAO. The team would like to thank the very good collaboration with Government officials in preparing this report, including Barbara Scott, Claire Bernard, James Stewart and Barrington Hibbert from PIOJ, as well as Dr. Marc Panton, Zuleikha Budhan, Michael Pryce, Sandor Pyke, and Georgia Domans from MOAF.

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ACRONYMS AND ABBREVIATIONS

ASD	additional stamp duty
BT	budget transfer
CARICOM	Caribbean community
CET	common external tariff
CSE	consumer support estimate
FAO	Food and Agriculture Organization of the United Nations
GCT	general consumption tax
GEF	Global Environment Facility
GSSE	general services support estimate
HRRACC	hazard risk reduction and climate change
IDB	Inter-American Development Bank
IMF	International Monetary Fund
MOAF	Ministry of Agriculture and Fisheries (Jamaica)
MPS	market price support
NRP	nominal rate of protection
OECD	Organisation for Economic Co-operation and Development
PAYE	pay as you earn
PIOJ	Planning Institute of Jamaica
PIT	personal income tax
PSE	producer support estimate
RADA	Rural Agricultural Development Authority
RP	reference price
TAJ	Tax Administration Jamaica
TSE	total support estimate



EXECUTIVE SUMMARY

The role of agriculture in the Jamaican economy is changing quickly as other sectors have grown and traditional agricultural exports have declined. The current review of the support policies and agricultural taxation by the Government of Jamaica offers an opportunity to reshape policy so that it better reflects the new needs and priorities of the agricultural sector.

This report serves as a guide to the agricultural policy shifts that would be desirable in the context of the changing role of agriculture. It focuses on the central question of how to create within the context of fiscal austerity an enabling framework for agriculture that results in a more competitive sector, with prospects for growth and poverty alleviation in the future.

The three major studies underpinning this report are an Agricultural Sector Support Analysis, a Climate Change Report and an Agricultural Taxation Report. This report synthesizes and expands on the elements in these studies that are most relevant to the policy choices facing the government in the context of its tax reform initiative.

Based on the Agricultural Sector Support Analysis, this report provides i) a substantial and detailed analysis of Jamaican agriculture in the regional context and the instruments used to channel support to the sector and ii) a systematic analysis of the forms and levels of support given to the various agricultural subsectors, using a methodology initially developed for the Organisation for Economic and Co-operation Development (OECD) countries and increasingly used by other countries because it is not biased towards any particular form or method of support.

Based on a review of the Climate Change Report, this report discusses climate change and the vulnerability of the Jamaican agricultural sector. It assesses the impact of climate variability and change on agricultural systems, and the institutional context for managing climate risks.

Based on the contents of the Agricultural Taxation Report, this report assesses the implications for agriculture of the current tax regime and the ways in which agriculture may be affected by the reforms

proposed in the Government of Jamaica's 2011 Green Paper. It identifies ways to retain what is good about the status quo, as well as ways the tax system can more effectively support agriculture.

Key findings

The analysis of the data in the three above-mentioned studies has brought some unexpected findings to light. They are as follows:

- Taking into account all of the different ways in which government policy has an impact on agriculture, the sector has received total support estimates (TSE) of between 1.91 percent and 2.6 percent of gross domestic product (GDP) in recent years, with producer support estimates (PSE) accounting for between 19 percent and 30 percent of total farm receipts.
- However, the support provided in Jamaica is much more heavily focused on a small number of products than is the support provided in comparator countries. Poultry has been the most heavily supported commodity, followed by corn and sugar, while contrary to a widespread belief, there has been heavy negative support (in effect, equivalent to a tax), at least in recent years, for coffee, oranges and sweet potatoes.
- Policy is also heavily focused on a very small number of instruments. The key instrument used to support most commodities is the import tax, which serves to keep domestic prices high. Formal government tax and spending play only a small part in the overall picture. The agricultural sector contributes less than 1 percent to national tax revenues and is allocated just over 1 percent of the national budget (one of the lowest levels of allocation in Latin America and one-quarter of the world average allocation). But as the sector is economically small, a tripling of its tax contribution (which would bring it closer to its contribution to GDP) would accommodate only a 1 percentage point reduction in the general consumption tax (GCT).
- The effects of this narrow focus are illustrated well in the Climate Change Report which shows that, although policy direction has changed in recent years and greater importance is now given to strategies and measures that address climate change impacts, these interventions are still not adequately targeting the agricultural sector.
- This underscores the wider problem which is that policy is not entirely forward looking, supporting areas of production that may not be viable in the future (as a result of market or climate changes) and/or have a relatively small effect on the balance

of trade (given the high level of imported inputs). The Climate Change Report suggests a set of changes that would support a more enabling environment, assisting economic actors to find the most competitive activities.

- The current Jamaican policy mix is not only acting as a constraint on the production of some goods but is also particularly damaging for the poorest quintiles of the population. The offsetting effect of subsidies to consumers (such as the Student Nutrition Programme) is negligible by comparison.
- Proposed reforms risk creating casualties before producing positive effects. For example, reducing the maximum import tax to 20 percent, as proposed in the government's 2011 Green Paper, would cut domestic production by an estimated 42 percent in the poultry industry (which provides over two-thirds of the agricultural sector's tax contribution), resulting in a loss of around 7 500 jobs.

The changing role of agriculture

Agriculture accounts for a declining share of GDP and employment but is still a key factor of rural life in Jamaica. Policy needs to be sensitive to these two, strongly diverging characteristics which point, in turn, to a third characteristic: agriculture does not provide sufficient well paid agricultural or non-agricultural employment opportunities in rural areas.

Jamaica has a large and growing agricultural trade deficit. It is such a substantial net importer of livestock-based staples – dairy and meat products – that the forex costs of these staples exceed the combined earnings from coffee, banana and sugar exports. Key agricultural inputs such as fertilizers, feed and fuel also are imported. Traditional agricultural exports are in decline and, while non-traditional exports have been growing steadily since the 1990s, they are still directed mainly towards the diaspora communities which provide limited demand.

The poor performance of the agricultural sector in recent years can in large part be explained by the very risky natural conditions on the island of Jamaica, which have not been adequately offset by *ex post* relief and rehabilitation. Climate change will exacerbate these underlying vulnerabilities. Extreme climate events have already had a strong influence on agricultural production in the country and on GDP. Total damage and loss due to extreme climate events over the last 15 years have been calculated as JMD 14.4 billion, with

damages in the agricultural sector accounting for nearly 20 percent of this amount. In the future, higher temperatures, increased rainfall variability and declining precipitation will increase the variability of water availability.

Highly concentrated government support

It is unclear whether current policy provides most of the support to activities that are likely to be the most competitive in the long run. The amount of direct support to agriculture from the government's budget is very small. Agriculture's share of the national budget has been slightly over 1 percent in recent years, a share that is one of the lowest in Latin America and in 2007, compared with a world average share of budget of 4.2 percent. Moreover, the bulk of the funding is from external aid donors; the share of agricultural spending from the government's domestic resources is significantly lower than 1 percent. Only a small portion of budget transfers (BTs) is for general services that benefit the agricultural sector as a whole.

Although Jamaica provides a high level of support to agriculture (higher than that provided to agriculture by some regional neighbours although still substantially less than that provided by Japan, Norway and Switzerland), the bulk of support is in the form of transfers from consumers who pay higher prices than they otherwise would pay as a result of government policies. As with BTs, this support is very unevenly distributed among agricultural subsectors. Bananas, sugar, milk, poultry and beef benefit most from budget and consumer transfers. Jamaica's agricultural support is much more heavily concentrated on outputs than is the case in any of the comparator countries studied. The share of payments based on input use, for fixed capital formation and for on-farm services are particularly small in Jamaica.

This high proportion of support in the form of transfers from consumers has an impact on poverty because food expenditures represent a large portion of the budgets of the poor. Although the government provides some offsetting subsidies to consumers, these fail significantly to offset the overall effect of higher prices. The largest transfers from consumers to producers are for poultry, corn and sugar.

Agricultural taxation

The agricultural sector's contribution to tax revenue is very small – less than 1 percent of the tax revenue collected by the central government. Compared with the agricultural sector's share of GDP of around 5.4 percent, the contribution to tax revenue is low but consistent with the contribution of agriculture in other countries. This is partly because many farmers are smallholders and earn income that is below the tax threshold or the GCT threshold and partly because the tax concessions available to the agricultural sector are generous.

Special agricultural tax regimes have a long history in Jamaica with the result that today there is a series of laws and associated instruments specifically targeted at the agricultural sector. In addition, there are discretionary policies which the government is committed to reducing. The combined effect of all of these tax concessions is substantial.

Agriculture is also heavily affected by import taxes that contribute to a nominal rate of protection that in 2010 was as high as 852 percent for corn and 735 percent for poultry but much lower or negative for other products. The very high tariff rates and the additional stamp duty (ASD) for the agricultural sector were set originally in the early 2000s.

The effectiveness of concessions to assist the agricultural sector is mixed. There is certainly some potential for short-term gain. Given the sector's small economic size, changes to agricultural taxation will have a bigger impact on the incentives for alternative activities than on the economy as a whole. If the agricultural sector increased its share of total tax revenue from under 1 percent to 3 percent, it would finance only a 1 percentage point reduction in the GCT. But reform could help to support a more sustainable mix of agricultural activities. Many of the various tax concessions and protective taxes were introduced a long time ago for reasons that were relevant at the time but may no longer be as relevant. It is not clear whether serious attempts have been made to regularly review the measures to determine if they are still relevant. It is also unclear whether a serious cost/benefit analysis of concessions or protective taxes has been made to determine how effective they have been in achieving their objectives.

The 2011 Green Paper on tax reform

The Government of Jamaica has since 2011 been reviewing the widespread use of subsidies and concessions. The government's 2011 Green Paper on tax reform has created uncertainty and concern over the proposals to reduce tariffs and to cease discretionary waivers. The agricultural sector is concerned that the trade tax reforms could destroy certain industries. The waivers are popular not only because they reduce taxes on imports but also because their flexibility allows an increase in imports when demand exceeds local supply. The changes to the import taxes on vehicles are also of concern.

The poultry industry benefits most from protective taxes and is likely to be affected significantly by their removal. The analysis undertaken for this report suggests that a reduction in the tax rate from 260 percent to 20 percent would decrease domestic poultry production by 42 percent. A reduction in tax rates could also have implications for government revenue because the poultry industry is the main contributor to tax revenue from the agricultural sector. A sharp fall in domestic production would lead to a loss of income tax and employment tax (although this loss would be relatively small overall, given the agricultural sector's small contribution to total taxes).

Recommendations

Broaden support policies and reduce discretionary policy mechanisms

- Broaden the limited range of support policies to emphasize technology and infrastructure development;
- reduce the number of discretionary policy mechanisms not only for taxes (see below) but also for grants to producers.

Liberalize markets

- Continue the efforts the government has already begun taking to reduce its participation in agricultural production;
- reduce the role of the commodity boards as commercial enterprises and increase the cooperation between the boards and the Ministry of Agriculture and Fisheries (MOAF) for the exchange of information;
- accompany the two aforementioned recommended actions by other forms of support to agriculture: in particular, the government should devote a larger share of TSE to general services support while aiming to lower overall PSE.

Rural development policy should be broadened

- Expanded rural development policy to promote non-agricultural employment in rural areas;
- promote further integration between food programmes and farmer support programmes in ways that benefit consumers and expand the demand for agricultural producers;
- further support improvement in market and rural infrastructure.

Income tax

- Reduce the income tax exemption for farmers with approved farmer status for a period of no more than five years (non-renewable), on condition that the income tax exemptions for other preferred sectors are also being reduced. Farmers currently accessing the concession should be allowed to retain it until their current time period expires;
- expand the current 40 percent investment allowance to cover new agricultural plant facilities and equipment in all agricultural subsectors;
- withdraw the possibility for farmers to offset their losses against income from non-farming activity and in the medium to long term remove the general prohibition against the offsetting of agricultural losses.

GCT

- Retain the statutory GCT exemptions for inputs to agricultural production and certain agricultural products;
- transform the discretionary GCT exemptions for agricultural equipment and pickup trucks/other trucks into statutory exemptions rather than discretionary waivers.

Import taxes

- Retain the statutory import tax exemptions for inputs to agricultural production and expand the statutory exemptions to include agricultural equipment;
- review the current list of agricultural products for discretionary waivers and, if it is unlikely that domestic production of any such goods will be able to meet demand in the long term, adjust the tariff rates accordingly; the review would be undertaken by the MOAF;

- align the tariffs for most agricultural goods with the 20 percent tariff rate proposed by the government in its 2011 review of the tax regime and apply a standard ASD of around 50 percent to provide protection for the agricultural sector;
- retain the current higher trade taxes for the poultry industry and the goods of any other industry where a reduction in the above standard rates would severely threaten local industry but ensure that these rates are reviewed after three years with a view to gradually reducing them.

Property tax

- Retain the current tax settings, including the de-rating of agricultural land.

Administrative issues

- Ensure that all agricultural tax concessions have a sunset clause of no more than five years to ensure that the concessions are reviewed to determine their effectiveness in achieving the objectives;
- require farmers with approved farmer status to file income tax returns so that data becomes available on the government revenue forgone from the tax exemption.

Chapter 1 - Introduction

Agriculture's role in the economy

Agriculture is an important part of the Jamaican economy but its role is changing quickly. Until recently, it accounted for a significant share of export earnings, and current policy reflects the past need to support the export sector. But this has been changing both because other sectors (particularly services) have been growing and because traditional agricultural exports have declined. The decline is largely a result of changes in external markets that the Government of Jamaica has tried to influence (with some success) but over which it ultimately has no control.

The current review of support policies and tax regime by the Government of Jamaica offers an opportunity to reshape policy. This opportunity must be grasped energetically so that a revised set of policies towards agriculture reflects the changes to the agricultural sector's role in developing the economy and fosters a shift to a more sustainable pattern of production.

This report serves to guide the policy shifts that would be desirable in the context of tax reform. It is based on the evidence contained in major studies on producer support (the Agricultural Sector Support Analysis) and on agricultural taxation (the Agricultural Taxation Report), together with a parallel study on the implications for Jamaican agriculture of climate change (the Climate Change Report).

The central question asked in this report is how to create in the context of fiscal austerity an enabling framework for agriculture that results in a more competitive sector with prospects for growth and poverty alleviation in the future. The task is challenging for several key reasons:

- Major public and private sector policy changes in Jamaica's main agricultural export markets might mean that non-traditional export crops or import-substituting production may be commercially more attractive than traditional export crops. But current policies, far from supporting the emergence of new production lines, could actually be hindering it.
- Jamaica runs a large and growing trade deficit not only in food commodities but also in agricultural inputs. Increased domestic production, which would face a range of natural as well as

market constraints, would reduce import dependency only if sufficient domestic value were added to imported inputs. But some established industries add little domestic value;

- climate change will make some agricultural activities less viable and a policy framework is needed that is adequate to deal with the new demands and opportunities;
- there exists a complex lattice work of policy supports and taxes on agriculture, many of which have been in place for years. It is unclear whether these supports and taxes are still the most relevant and effective given the many changes that have occurred since they were introduced. But change must be handled sensitively: livelihoods that are dependent upon the policy status quo may be badly damaged if the existing supports are removed before new economic activities have sprung up.

The contributions of this report

This report contributes to meeting the challenge of creating an enabling framework for agriculture that results in a more competitive sector in the context of tax reform, in order to inform policy change.

First, it provides a substantial and detailed analysis of Jamaican agriculture in the regional context and of the instruments used to channel support to the agricultural sector. On the basis of the analysis, a systematic analysis of the forms and levels of support given to the various agricultural subsectors was undertaken (Chapters 2 and 4). The systematic analysis uses the PSE methodology initially developed by the OECD countries and increasingly used in other countries because it is not biased towards any particular form or method of support and thus allows comparisons to be made across countries. In making comparisons, a government can see how by providing the same overall level of support but in different ways the outcomes might vary, some being better than others. This report extends an earlier exercise that used the same methodology in Jamaica and provides details of the technical differences between the two exercises.

Second, this report assesses the vulnerability of the Jamaican agricultural sector to climate variability and future climate change, the impact on agricultural systems of climate variability and change, and the institutional context for managing climate risks (Chapter 3). It also identifies good practices for better managing climate risks and concludes with a set of key messages and recommendations.

Climate change scenarios for the Caribbean region show a continuation in the warming trend, which has already had a significant impact in Jamaica, most substantially in terms of frequent droughts and other extreme climate events. As a result, the agricultural sector is ever more prone to a decrease in crop yields and damage to livestock, fishery and aquaculture infrastructure, and irrigation structures.

Third, by focusing on the formal tax system, this report assesses the implications for the agricultural sector of the current policy regime and the ways in which agriculture may be affected by the reforms proposed in the government's 2011 Green Paper (Chapter 5). The government's proposed tax reform offers the opportunity to shepherd agriculture into a new role that is more relevant to the circumstances of the second decade of the twenty-first century. In reforming taxes, the government must retain what is good about the status quo in agriculture, such as the high value and profitable areas of production, provision of livelihoods especially in the rural areas where employment alternatives are few, and the contribution to the trade balance. It must also use the support provided to agriculture more effectively so that a given amount of resources creates more employment, more sustainable production, more environmentally desirable outcomes and more synergies with other sectors such as tourism than is possible with the current policy mix.

This report synthesizes the data contained in the Agricultural Sector Support Analysis, the Climate Change Report and the Agricultural Taxation Report that is most relevant to the policy choices facing the government in the context of its tax reform initiative. It then analyses this data and presents findings, some of which are unexpected.

- Taking into account all of the different ways in which government policy has had an impact on agriculture, the sector has received support (TSE) of between 1.9 percent and 2.6 percent of GDP in recent years, with producer support (PSE) accounting for between 19 percent and 30 percent of total farm receipts.
- Moreover, support in Jamaica has focused much more heavily on a small number of products than has support in comparator countries. Poultry has been the most heavily supported commodity, followed by corn and sugar, while coffee, oranges and sweet potatoes have been subjected to heavy negative support (equivalent to a tax), contrary to the widespread view, at least in recent years.

- The key policies for the most heavily supported goods are import taxes that keep domestic prices high. Formal government taxation and spending play only a small part. The agricultural sector contributes less than 1 percent of national tax revenues and is allocated just over 1 percent of the national budget (one of the lowest levels of allocation among the Latin America countries and one-quarter of the world average allocation). As agriculture is a small sector of the economy, a tripling of its tax contribution (which would bring it closer to its share of GDP) would allow only a 1 percentage point reduction in the GCT.
- The current Jamaican policy mix is not only acting as a constraint on the production of some goods but is also particularly damaging for the poorest portion of the population. The offsetting effect of subsidies to consumers (such as the student nutrition programme) is negligible by comparison.
- Proposed reforms risk causing casualties before producing positive effects. For example, reducing the maximum import tax to 20 percent as proposed in the government's Green Paper, would cut domestic poultry production by an estimated 42 percent in the poultry industry (which provides over two-thirds of the agricultural sector's tax contribution), resulting in a loss of around 7 500 jobs in the industry.¹

This report is organized into five chapters.

Chapter 2 provides a broad analysis of the Jamaican agricultural sector, its recent performance and how it compares with that of its neighbours, and the government budget allocation to agriculture. The analysis is based on the data and analysis of the Agricultural Sector Support Report.

Chapter 3 provides a brief summary of how climate change may affect agriculture production in Jamaica and consequently the new opportunities and challenges that need to be taken into account by policy-makers.

Chapter 4 discusses the ways in which government policies currently impact the agricultural sector. It summarizes the main findings from the PSE analysis (given in full in the Agricultural Sector Support Report, Section 4, and data in the earlier sections

1 The estimate of job loss assumes that the percentage reduction in employment is the same as the estimated reduction in production, and that total employment in the subsector is 18 000 people, based on estimates from the Ministry of Agriculture and Fisheries (MOAF).

of the same report). These findings provide an important context for the analysis of future policy options.

Chapter 5 (based on the Agricultural Taxation Report) continues the analysis of current policy, focusing more narrowly on the agricultural taxation regime and how it might be amended as part of the current tax reform policies of the government.

Chapter 6 draws conclusions based on the data and analyses provided in Chapters 2–5 and makes recommendations.

Chapter 2 - Jamaican agriculture in the broader context

The changing role of agriculture

Agriculture and food both have a “dual personality” in Jamaica. Policy needs to be sensitive to these two, strongly diverging characteristics of the agricultural sector.

Some areas of the agricultural sector are highly productive. The food industry, while not a big contributor to the national economy, has been assessed by the World Bank as one of two best performing Jamaican industries, with tourism being the other (World Bank, 2011:9).² Despite the success of the food industry, the decline in the export of major traditional products such as sugar and bananas means that agriculture accounts for a declining share of GDP and employment.

Yet, agriculture is still a key factor of rural life in the country. Although only one-fifth of the employed labour force works in agriculture, a much larger portion of the population is affected indirectly by the health of the agricultural sector. The rural population makes up about half of total population and more than 85 percent of the rural people lives on farms of less than 5 ha (even if not all family members are employed in farming). The current situation consisting of a large portion of the population depending on agriculture and agriculture making a small contribution to GDP points to insufficient agricultural production of high-value crops and/or interesting non-agricultural employment opportunities in rural areas.

As a small, vulnerable economy, Jamaica shares many of the features that characterize its Caribbean partners. In terms of the significance of agriculture to the economy, Jamaica is in the middle of the ranking for agriculture’s share of GDP (5.8 percent in 2010), along with the Dominican Republic, Grenada and Suriname but notably lower in the ranking than Belize, Dominica and Guyana. Annual figures on agricultural GDP can be heavily affected by

² The Ministry of Industry, Investment and Commerce estimates its contribution to GDP at around 8 percent, down from 19 percent.

weather events but over the last decade the sector's share of agricultural value added has fallen by about 1 percentage point.

Agriculture has been more significant for trade than for the economy as a whole. Over the last 15 years, agrifood products have accounted for 14–26 percent of export earnings and at the same time 14–18 percent of agricultural imports. However, during the period 2006–2008, imports were more than double exports. This means that the country has an agricultural trade deficit. Jamaica is such a substantial net importer of livestock-based staples – dairy and meat products – that the forex costs of these commodities exceed the combined earnings from coffee, banana and sugar exports. The deficit has been growing steadily since 2006.

Traditional agricultural exports, particularly sugar and bananas, are in decline, while coffee (Blue Mountain coffee) continues to attract a premium price as does rum, following efforts to add value. Non-traditional export commodities such as yams, papayas and marine products have been growing steadily since the 1990s but export is still oriented mainly towards the diaspora, which has a limited demand.

Not only is Jamaica's food supply dependent to a significant degree on imports but also its agricultural sector is dependent on imports. Key agricultural inputs such as fertilizers, feed and fuel are imported. This adds to the already inherently high level of vulnerability of agriculture owing to weather conditions. In the last decade alone, Jamaica's agricultural sector has been severely affected by hurricanes Ivan (2004), Dennis and Emily (2005), Dean (2007) and Gustav (2008) as well as by drought (2005) and floods (2009). This volatility is likely to increase (refer to Chapter 3). Also prices of imported inputs have become increasingly volatile, which has contributed further to the vulnerability of the agricultural sector.

The poor performance of the agricultural sector in recent years can in large part be explained by the very risky natural conditions on the island that have not been adequately mitigated by *ex post* relief and rehabilitation. These conditions have contributed to significant annual variability in agricultural output (particularly of crops), which has in turn demotivated farmers. The fertilizer application rate and use of tractors have declined over the last five years (FAOStat 2012). According to preliminary findings from the 2007 Jamaica Agricultural Census, the area of farmland shrank by almost 23 percent between 1996 and 2007 (STATIN, 2011). Labour productivity is one of the lowest in the Caribbean, at slightly above

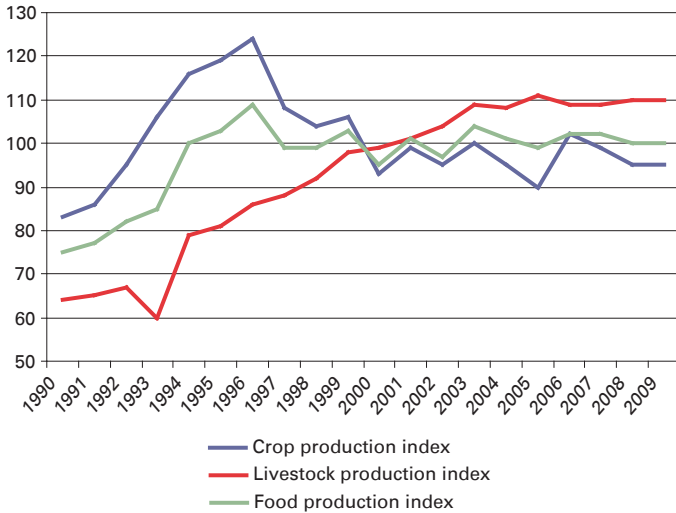
USD 2 000 per year per worker (in constant 2000 US dollars) (World Development Indicators).

This contributes, in turn, to the vulnerability of small producers and also to the uncertainty of export revenues and input supply to the food industry. At the same time, this variability in agricultural output should not be overstated. The coefficient of variation in production during the period 1980–2008 (which measures deviation from trend) is 24 percent, which is much lower than that of production in sub-Saharan Africa (40 percent to 67 percent), Kazakhstan (37 percent) and North Korea (34 percent) (USDA, 2011:10).

There have been some bright spots in the agricultural sector. Although the agrifood sector has stagnated since the mid-1990s, the livestock subsector has grown (Figure 1). This growth in the livestock subsector reflects a common trend throughout the region (with the exception of the Dominican Republic and Belize). Growth has been especially marked for fisheries, with an increase in output of more than 24 percent since 2003 (PIOJ, 2009:4).

The question that arises is whether this diverging trend reflects an underlying relative competitiveness of livestock, given the lower vulnerability of livestock to shocks and the growing domestic demand: per capita meat consumption increased eight times between 1961 and 2007. Or is it the result of policy interventions that have made livestock production more profitable than crop production, although not necessarily more sustainable (Figure 1)? As explained in Chapters 4 and 5, for example, the broiler subsector is the most highly subsidized on the island by virtue of extremely high import taxes on broilers combined with duty-free import of feed ingredients.

Figure 1: Crop, livestock and food production indices for Jamaica, 1990-2009



Source: World Development Indicators.

Note: 1999–2001 = 100.

The government’s budget for agriculture

The share of the national budget allotted to agriculture has been slightly over 1 percent in recent years (Table 1). Although the budget allocation for agriculture has grown marginally, it is one of the lowest allocations of any Latin American country and is significantly lower than the world average allocation of 4.2 percent in 2007 (IFPRI, 2010).

Moreover, the bulk of this funding (designated as the “Capital B” budget) is from external aid donors; the share of spending on agriculture is 0.75 percent to 1.05 percent of total recurrent expenditures and just 0.06 percent to 0.46 percent of Capital A expenditures.³ This spending is not only low but has been declining over the last four to five years. Some general services provided by government agencies to producers have to be paid for by the recipient. For example, while most Rural Agricultural Development Authority (RADA) services are free to users, almost no service

3 The three components of the Jamaican budget include: Recurrent expenditures, Capital A expenditures and Capital B expenditures. Capital A expenditures are funded entirely by GOJ, while Capital B expenditures are funded by donors.

provided by the Plant Health Inspection Agency is free and the Agro-Investment Corporation (which has overall responsibility for the promotion and facilitation of agricultural investment, and project and market development) received back from users about 50 percent of budget funding for 2010/2011; a number of other agricultural departments and agencies got back around 20 percent to 30 percent of their funds.

Table 1: Share of Jamaica's budget for agriculture, 2003/04-2010/11

	2003/04 %	2004/05 %	2005/06 %	2006/07 %	2007/08 %	2008/09 %	2009/10 %	2010/11* %
Share of MOAF expenditures to total expenditure	0.57	0.76	0.70	0.89	1.15	1.21	1.03	1.12
Of which:								
Share of recurrent budget of MOAF to total recurrent budget	0.75	1.04	1.01	1.05	1.03	0.97	0.77	0.91
Share of Capital A budget of MOAF to total Capital A budget	0.06	0.09	0.11	0.20	0.46	0.37	0.21	0.16
Share of Capital B budget of MOAF to total Capital B budget	7.84	7.99	5.93	6.10	10.80	13.47	17.56	8.50
Share of Capital B budget for agriculture to total budget of MOAF	14.29	15.73	14.16	20.50	30.27	40.34	44.64	40.70
Capital A budget as % of Capital B budget of MOAF	26.10	31.60	48.90	40.71	44.70	26.73	14.65	9.20
Share of expenditures for agriculture to non-MOAF budgets	n.a.	n.a.	n.a.	n.a.	n.a.	19.38	15.96	14.41

MOAF = Ministry of Agriculture and Fisheries.

Source: National budget of Jamaica, corresponding years.

Note: * Estimate.

Chapter 3 - Climate change in Jamaica

Recent effects of climate change

Jamaica faces a challenge in addressing the impact of climate change on agriculture due to its small land mass, extensive coastal zones, fragile ecosystems and high dependence on food imports. Climate change is likely to have adverse effects on the country, mainly due to an increase in the intensities and/or frequency of natural events, increased drought and a rise in the sea level.

The effects of adverse natural events are already being felt. Extreme climate events are having a strong impact on agricultural production in the country and, in turn, on GDP. They include hurricanes, floods, landslides, drought and heavy winds.

The warming trend has given rise to an increased frequency of droughts, and increased frequency and magnitude of extreme climate events. The agricultural sector is particularly prone to crop yield loss and damage to livestock, fishery and aquaculture infrastructures, and irrigation structures. Two critical impacts of climate change not only on agriculture but also rural livelihoods are reduced water availability, especially for small-scale agriculture, and variability of rainfall.

Hurricanes and associated flooding often cause severe damage to high-value crops such as cocoa, citrus, coffee, banana and sugar cane. They often severely damage parochial roads and processing plants. Total damage and loss due to extreme climate events over a 15-year period have been calculated at JMD 14.4 billion, with the agricultural sector accounting for nearly 20 percent of this amount.

- Damage caused to cocoa production by hurricane Ivan amounted to JMD 27.6 million.
- The citrus growing regions are affected by sustained winds, soil erosion and flower and fruit dropping. The damage caused by hurricane Dean to the citrus industry was estimated at JMD 116 million.
- In 2004, hurricane Ivan caused damage to berries in 45 percent of the coffee producing areas and led to the permanent withdrawal of some farmers from coffee production partly due to the expense of crop insurance. In 2007, hurricane Dean caused the loss of approximately 45 percent of an entire coffee crop. In 2008, hurricane Gustav caused damage estimated

at around JMD 138 million, with the Coffee Industry Board reporting that approximately 5 percent to 10 percent of the crop was damaged by the storm.

- Banana crops suffered damage caused by four major storms during the last six years. Hurricane Ivan destroyed the entire banana crop, which subsequently caused unemployment of about 8 000 people for six to nine months. The damage caused by hurricane Dean was significant across the major banana growing areas, with an 85 percent loss of standing crops and a 95 percent loss of maiden suckers. Another direct outcome was the complete loss of income for an estimated 3 000 people, who depended solely on banana production for their livelihoods. The cost of damages, including the cost of lost export earnings, as a result of hurricane Dean has been estimated at USD 7.5 million.
- Sugar cane crops are affected by extended flooding caused by the heavy rainfall associated with hurricanes. Hurricane Ivan damaged and uprooted canes as well as flooded large areas, resulting in a crop with reduced sugar content, a lower yield and increased processing costs. The factories of the Sugar Company of Jamaica incurred losses amounting to approximately JMD 761 million during hurricane Dean and as a result, total sugar production for the 2007/2008 season declined by an estimated 29 000 tonnes (21 percent), representing lost revenue of about JMD 1.1 billion.
- Dairy farmers located in the southern parishes of Jamaica are among those most vulnerable to hurricanes. Hurricane Dean caused widespread dislocation of electricity and water supplies, which had a negative impact island-wide on the dairy sector, either directly or as a result of the suspension of milk purchases by milk distributors. It was estimated that in the aftermath of the hurricane, milk production was approximately 25 percent of usual daily production.
- Hurricane Dean resulted in moderate damage overall to the poultry subsector, with small-scale farmers (who account for between 30 percent and 35 percent of national production) experiencing the worst damage.
- Losses within the fisheries sector due to hurricane Dean were estimated at JMD 9.8 billion (JMD 106 million of this amount was incurred by the aquaculture subsector). The losses caused by hurricane Gustav to the fisheries sector amounted to approximately JMD 17 million. In both cases, the income-generating capacity of fishing communities was severely interrupted.

Jamaica's near shore waters are among the most over-fished in the Caribbean. Overfishing is reported to have nearly eliminated large predatory fish species, such as grouper and snapper, and caused a massive decrease in herbivorous fish populations, such as the parrot fish population, resulting in an increase in algal cover at the expense of corals. Poorly planned coastal development has also taken its toll on Jamaica's reefs, as has eutrophication and sedimentation resulting from land-based sources of pollution. Rising sea temperatures will exacerbate these problems.

Future climate change scenarios

Climate change prediction is an inexact science and it is to be expected that the various predictions made for the Caribbean region as a whole and for Jamaica in particular may vary but they tend to point in the same direction. The Climate Change Report provides a full set of data produced by the many studies conducted on climate change. A summary of the main changes in climate anticipated in the Caribbean is as follows:

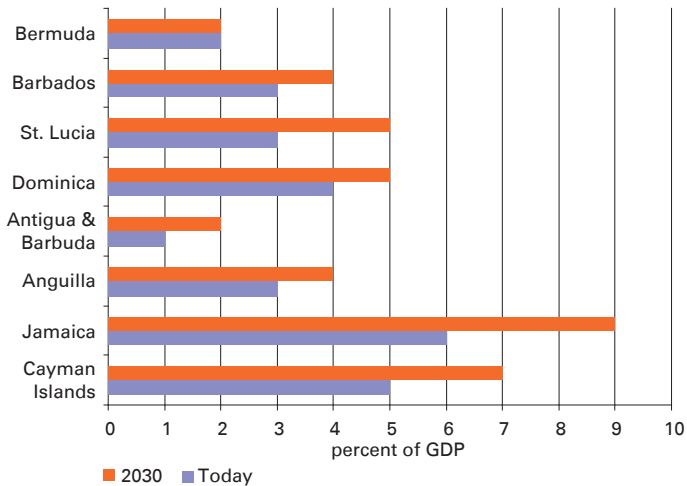
- Overall, the sea level is likely to continue to rise during this century, with significant effects on the small islands in the Caribbean Sea. Models indicate that the effects will not be geographically uniform and large deviations among models make regional estimates of effects across the Caribbean uncertain;
- temperatures in all of the Caribbean islands are very likely to increase during this century. The warming is likely to be somewhat less than the global annual mean warming in all seasons;
- summer precipitation in the Caribbean is likely to decrease in the vicinity of the Greater Antilles but the extent of changes elsewhere and in winter are uncertain;
- it is likely that intense tropical cyclone activity will increase but the tracks and global distribution of cyclones are uncertain (Christensen *et al.*, 2007).

An overall increase in average temperature of 2.45°C is predicted for Jamaica by the 2080s (Chen *et al.*, 2009). McSweeney, New and Lazcano (2008) report that the mean annual temperature is projected to increase by 0.6 to 2.3°C by the 2060s and by 1.1°C to 3.5°C by the 2090s. All projections indicate a substantial increase in the frequency of days and nights that are considered "hot" by current climate standards.

The projections of mean annual rainfall made by the various models indicate a decrease overall for Jamaica in the period of March to August. According to Chen *et al.* (2009), rainfall “begins to decrease in most regions [in Jamaica] by the 2050s and the decrease in rainfall becomes significant by the 2080s”. The estimated decrease in rainfall is predicted to be 10 percent by the 2050s and almost linear.

Higher temperature, increased rainfall variability and declining precipitation will contribute to enhanced variability of water availability in watersheds. Agriculture is the major user of the freshwater resources. Given the importance of agriculture to local livelihoods, the freshwater system is one of the areas with the highest priority for remedial action in light of the imminence and severity of the anticipated impacts of climate change. The Climate Change Report includes details of the estimated costs of forecasted climatic deterioration. It suggests, for example, that the current estimate of the expected annual cost is 6 percent of GDP and this cost could increase by 1 percent to 3 percent of GDP by 2030 (see Figure 2 below).

Figure 2: Expected loss in GDP from climate change today and by 2030



Source: Caribbean Catastrophe Risk Insurance Facility, 2010.

Implications for crop suitability

Of particular relevance to the focus of this report are the effects that climate change may have on a range of agricultural goods that can be produced in Jamaica. A study conducted by CIAT-OXFAM (2011) on the impact of climate change on the Jamaican hotel industry supply chains and on farmers' livelihoods has estimated the effects on the feasibility of production for 14 crops (Table 2). Although the study did not cover several of the most important Jamaican crops, it provides a salutary indication of how production feasibility may change over the next two decades.

The study used focus group discussion to identify key crops and to undertake a participatory analysis of the current and future biophysical suitability of crops under a changing climate. A mechanistic model based on the Ecocrop database was used to spatially predict crop suitability (FAO, 1998). The model essentially uses minimum, maximum and mean monthly temperatures together with total monthly rainfall to determine a suitability index.

The model shows excellent growing conditions in the current climate (indicated by crop suitability values of between 80 and 100 in the table). The study suggests that by 2030 there will be a slight increase in overall climate suitability for bananas but that growing areas will shift from lower regions and coastal areas to more mountainous regions. It also suggests that climate suitability will remain very good for cucumber, sweet potato (low altitude), tomato (low altitude) and zucchini. But the climate suitability of crops such as cabbage, carrot, ginger, sweet potato and tomato will decline by between 25 percent and 47 percent.

This decline in suitability is predicted to be ongoing until 2050. Most of the crops remain suitable for the climate (but less comfortably so). This applies to cabbage, carrot, Irish potato, and orange and yellow sweet potato (high altitude). But values below 40 in the table suggest that there will be production problems in future. This will be the case for ginger production.

But the Climate Change Report also notes that there are significant gaps in the data collected and available for adaptation planning. Without complete data, it is difficult to understand the existing stresses in the agricultural systems and how climate change may exacerbate them.

Table 2: The effect of climate change on the suitability of selected crops

Crop	Average current suitability	Average suitability for 2030	Average suitability for 2050	Average suitability change by 2030	Average suitability change by 2050
Banana	69	82	87	13	18
Cabbage	91	73	57	-19	-35
Carrot	88	66	53	-22	-35
Cucumber	74	86	93	13	19
Ginger	81	53	34	-27	-47
Irish potato	82	69	59	-13	-22
Lettuce	92	76	64	-16	-28
Mango	63	69	62	7	-1
Orange	59	61	53	2	-5
Sweet potato (low altitude)	70	85	92	15	22
Sweet potato (high altitude)	91	72	56	-19	-36
Tomato (low altitude)	68	84	91	16	23
Tomato (high altitude)	88	74	64	-14	-25
Zucchini	77	90	95	13	18
Average all crops	78	74	69	-4	-9

Source: CIAT/OXFAM, 2011.

Notes: Sweet potato is calculated for two different altitude levels (low; mostly red skin, white flesh; high; mostly red skin, yellow flesh).

Tomato is calculated for two different altitude levels (low; normally a variety called salad; high; plummy variety).

Institutional and policy contexts to respond to climate change

Chapter 6 of the Climate Change Report (FAO/IDB 2013) includes a detailed account of the institutional and policy context in Jamaica in relation to climate change issues.

While Government has recognized the importance of dealing with climate change and numerous programmes and projects have been designed and implemented, there are still many shortfalls. At the institutional level, arrangements for climate change adaptation are mostly weak and lack an appropriate legislative framework.

The resulting efforts related to climate change in agriculture are therefore highly fragmented and *ad hoc*.

The review of MOAF programmes and projects concludes that despite the number of new initiatives being planned, the level of intervention taken up by the Government, donor agencies and NGOs focusing on climate change issues in the agriculture sector is still very low compared with its importance for the livelihoods of the local population.

As per the same report's analysis, policies have been developed but there is still no coherent approach in dealing with the impacts and associated effects of climate change. For example, Vision 2030 does not deal explicitly with the effects of climate change and the Hazard Risk Reduction and Climate Change Sector Plan 2009-2030 does not have a goal related to climate change. In fact, climate change is normally placed under the theme of environmental management in hazard risk reduction. Still, the analysis indicates that many aspects of the Government's plans are relevant to dealing with climate change and just need to be adjusted to make the link explicit. More details can be found on the key recommendations extracted from this analysis in chapter 6 of this report.

Chapter 4 - An estimate of support to Jamaican agriculture

How has support from 2006 to 2010 been calculated?

The team has undertaken a detailed and comprehensive set of calculations to estimate the types and levels of support provided to the agricultural sector in Jamaica over the period 2006–2010. To do this, it used a widely accepted methodology called the PSE methodology, developed initially by the OECD Secretariat, to aggregate all the many and varied effects of government policies into a single set of measures (Box 1). This methodology considers several separate but related measurements that together show not only the overall net effect of government policies but also the main avenues through which these effects are mediated and their relative scale (Box 2).

Box 1: What is the producer support estimate (PSE)?

The PSE is a measure developed by OECD in 1987 that has established itself as a standard for estimating the level of support to agriculture and comparing support levels internationally. It is now used not only in the OECD countries but also in many other countries such as Brazil, Chile and Mexico. Compared with many other developing countries, Jamaica has unusually good data for PSE calculations.

The agricultural support and tax regimes in many countries are very complex, with a host of overlapping and cross-cutting direct and indirect taxes and subsidies which make seeing their net impact through casual observation very difficult. The PSE methodology has established a systematic approach to identifying and aggregating all relevant measures which can be adapted to the policy specificities of any country.

The two main ways in which policy affects agriculture (to which all the specific policies affecting agriculture are attributed) are:

- market price support (MPS), which is measured by calculating the difference (or "gap") between domestic prices and a reference price; and
- BT either to agriculture (subsidy) or from agriculture (tax).

If the PSE calculation results in a positive number, farmers are the beneficiaries of the government policy which provides net support to agriculture. If the number is negative, the overall effect of all the policies affecting the sector is to impose implicit taxation. The higher the number, the greater the net support (if the number is positive) or taxation (if the number is negative) and also the greater the extent to which markets are being distorted by government policy.

Source: Organisation for Economic Co-operation and Development, 2010.

Box 2: Key definitions of PSE

Key definitions of PSE and of other coefficients for measuring support to agriculture and its components are:

PSE: the annual monetary value of gross transfers from consumers and taxpayers to agricultural producers, measured at the farmgate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production or income.

Percentage PSE (PSE%): PSE as a share of gross farm receipts.

General services support estimate (GSSE): the annual monetary value of gross transfers to general services provided to agricultural producers collectively (such as research, development, training, inspection, marketing and promotion), arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on farm production, income or consumption. The GSSE does not include any transfers to individual producers.

Consumer support estimate (CSE): the annual monetary value of gross transfers from consumers of agricultural commodities to producers and taxpayers, measured at the farmgate level, arising from policy measures that support agriculture, regardless of their nature, objectives or impacts on consumption of farm products.

Percentage CSE (CSE%) – CSE as a share of consumption expenditure (measured at farmgate) net of taxpayer transfers to consumers.

Total support estimate (TSE): the annual monetary value of all gross transfers from taxpayers and consumers arising from policy measures that support agriculture, net of associated budgetary receipts, regardless of their objectives and impacts on farm production and income, or consumption of farm products.

Percentage TSE (TSE%): TSE as a share of the GDP.

Nominal rate of protection (NRP): the coefficient of support to agricultural producers measured as the difference between the value of output in (a) domestic producer (farmgate) prices and (b) reference (border) prices, expressed as a percentage.

Reference price (RP): the price that domestic producers could have received for their production in the absence of any domestic or trade policy affecting the commodity's market. Border prices of imports or exports are often used as reference prices. Another option is to use specific border prices in close neighbour countries or in the countries playing a major role in international trade of the commodity or stock exchange prices.

When calculating MPS, both the RP and the producer price must be measured for the same level of processing and in the same market. So RP must be adjusted for marketing margins to make it comparable to farmgate producer prices. Adjustment is also needed for the costs of processing, handling and transportation to the market where the domestically produced commodity meets the commodity from the foreign market.

Source: Organisation for Economic Co-operation and Development, 2010.

This approach is particularly useful in cases, such as that of Jamaica, where there exists a complex array of government policies, some of which modify the effects of others. In such cases, it may be impossible from casual observation alone to judge whether the net impact of these policies is positive or negative for

the sector as a whole or for specific commodities and whether it has been growing or declining over time. For this reason, the PSE methodology is being used in a number of non-OECD countries. By looking at all government policies affecting agriculture, it is not biased towards or against any particular form of intervention. It is equally applicable, therefore, to Jamaica and to OECD countries. Use of the PSE methodology by a growing number of countries allows comparisons to be made between the level and structure of support for agriculture in Jamaica and in other countries. These comparisons can serve as benchmarks, illustrating the different ways in which any given level of support can be delivered and suggesting how a change in the mix of measures might produce a better overall outcome.

This report updates and extends in various ways a calculation undertaken in 2009 for Jamaica which used the PSE methodology. The 2009 calculation covered the period 2006–2007 and its findings are described in *Agriculture Support Structure in Jamaica: Towards a More Competitive Agriculture Sector* (Peña, Gurria and Smikle, 2009).⁴

Full details of the data sources used and the calculations undertaken for this report are also provided in the *Agricultural Sector Support Analysis*. In brief, the updated and extended calculation discussed in this analysis is applied to a group of commodities that accounted for just over 60 percent of the value of agricultural production in 2010. Figure 3 shows the share in value added of each of the products that are included in the calculation. The bottom bar (MPS COM) shows the combined share of the MPS commodities in total agricultural production value. The estimates for the poultry sector's MPS use an alternative set of trade data because of perceived problems with the use of the conventional PSE methodology in the case of Jamaica (see Appendix 2 for details).

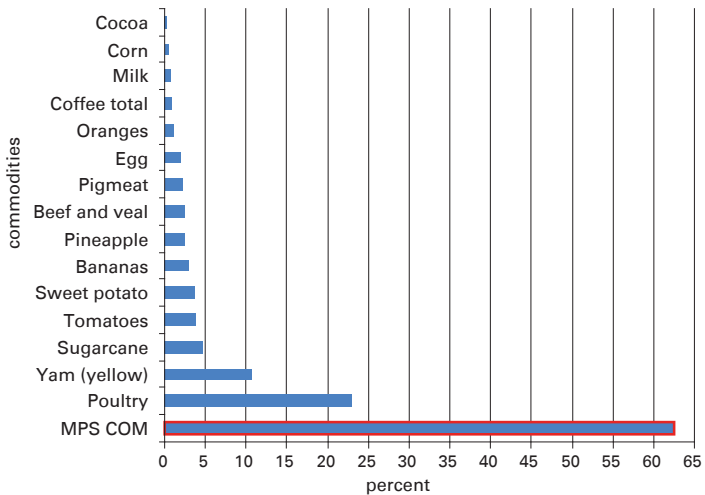
The products analysed include most of the commodities that contributed more than 1 percent of total agricultural production throughout the last five years, which is a recommended selection criterion in the PSE methodology. In addition, three products that do not fulfil this criterion have been included: cocoa and milk because they are a focus of Jamaica's agricultural policy and corn because it is a source of livestock feed and a good example for comparison with other countries.

4 A summary of the report and the ways in which this report differs from it are explained in the *Agricultural Sector Support Analysis* (FAO/IDB unpublished report).

The full analysis compares the level and forms of agricultural support of the Government of Jamaica with those of several countries. Key features of this comparison are included in this report.

The final, bottom-line figure derived from these calculations is the TSE. The TSE is the sum of the GSSE, the PSE and transfers to consumers from taxpayers. Thus, it represents all the transfers in the economy that arise from national agricultural policy and is measured as a share of the country's GDP. This chapter of the report starts off with this bottom-line figure and shows how it has been built up from the various components.

Figure 3: Commodities and their share of the total value of agricultural production, 2010⁵



Source: MOAF database provided to the Food and Agriculture Organization (FAO) team during its mission to Jamaica in March 2011.

5 Preliminary results.

Findings

Jamaica provides a high level of support to the agricultural sector but this support is very unevenly distributed among subsectors. The main source of PSE is in the form of transfers from consumers, who pay higher prices than they otherwise would pay as a result of customs regulations, the price formula for sugar cane producers, the fixed price for coffee delivered to the Coffee Industry Board, and similar measures. BTs, though smaller than consumer transfers, reflect the same bias towards certain products. Except for the Sugar Transformation Project and the Banana Support Project, the transfers from taxpayers are mainly in the form of tax revenue foregone. Only a small portion of the transfers from taxpayers is for general services that benefit the agricultural sector as a whole.

TSE for agriculture in Jamaica

Jamaica's TSE varied between 1.9 percent and 2.6 percent of GDP during the period 2006–2010. Figure 4 shows both the share of GDP of TSE (the line graph measured against the right-hand axis) and the relative importance of its components (the shaded bar segments measured against the left-hand axis). Part of the reason for the annual fluctuations is that, as explained below, the level of support depends in part on the level of world prices (Box 3).

Figure 4 demonstrates that Jamaica provides positive support to the agricultural sector, although it could be argued that the support is modest given that the sector employs about one-fifth of the total labour force and is the largest employer of rural labour (approximately 80 percent of the poorest quintile of the population is rural). However, as the bottom-line figure is disaggregated to reveal its underlying components, it becomes clear that the overall total figure obscures major differences among subsectors.

Box 3: NRP and its role in support calculations

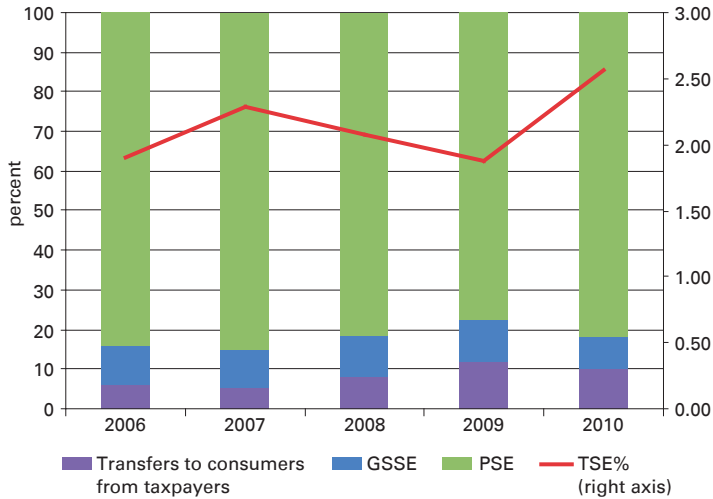
The NRP is an important input into the calculations but provides only a part of the picture; taken on its own, it tends to underestimate the level of support to agriculture. It is the difference between the value of domestic output for a commodity (a) at farmgate prices and (b) at a reference price, adjusted for transportation, handling and processing costs. The reference price is often the price that imports would have cost and exports would have received in the absence of government policies that affect them (such as tariffs on imports and an export monopoly). If the adjusted farmgate price (a) is higher than the reference price, producers are being supported; if it is lower, they are being taxed. The level of support will vary from year to year if either (a) or (b) changes – and (b) is likely to change frequently.

The calculations undertaken for the five year period 2006–2010 show that NRP varied greatly between crops. Corn and poultry producers received a price for their product that was substantially higher than the reference price. Sugar prices have also been consistently higher and milk prices modestly higher than the reference price. Bananas and milk received a declining level of support, while the net position for cocoa and tomatoes varied from year to year. But for 8 of the 15 commodities analysed the net effect of government policy has been negative (i.e. farmer welfare has been reduced) in all or almost all of the five years covered.

These differences in the level of NRP underlie many of the variations between the PSE for specific commodities that are described in the present report.

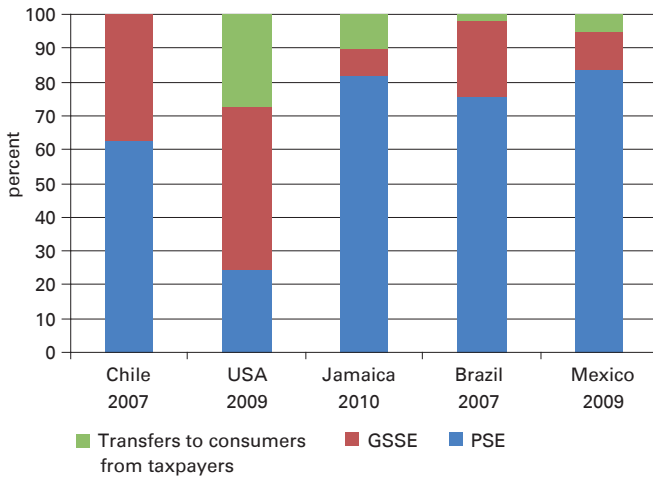
As is clearly shown in Figure 4, the PSE is overwhelmingly the most important component of TSE. Only in 2009 did the other two components identified in the figure reach 20 percent of total TSE. In this respect, Jamaica differs from some of the comparator countries. In two of the four comparator countries identified in Figure 5 PSE forms a similarly high share of TSE as in Jamaica but in the other two countries the PSE share of TSE is much lower. This has important implications, as discussed below, for the distributional impact of support in Jamaica and its effect on the pattern of trade compared with the situation in some other countries.

Figure 4: TSE % and its components for agriculture in Jamaica, 2006-2010



Source: Authors' estimates.

Figure 5: The structure of the TSE for agriculture in Jamaica and four other countries

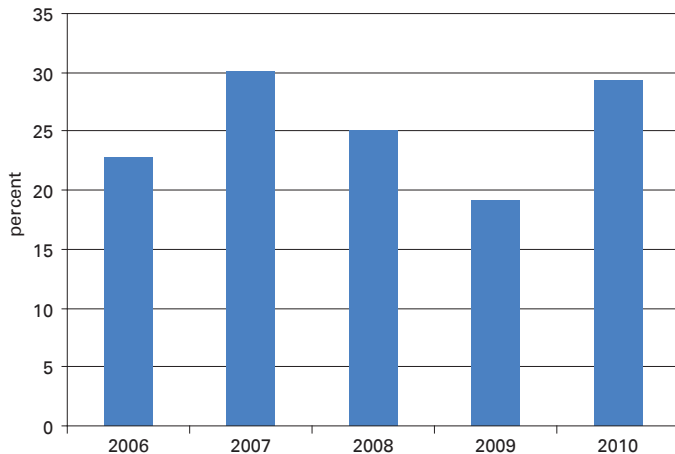


Source: OECD and authors' estimates.

PSE for agriculture in Jamaica

Given the overwhelmingly important contribution of PSE to TSE, the PSE serves as a starting point on the journey to understanding the make-up of Jamaica's agricultural support policies. The level of Jamaica's national PSE% (i.e. PSE as a percentage of total farm receipts) is shown in Figure 6. PSE rose from 23 percent in 2006 to 30 percent in 2007, fell in 2008 and again in 2009 and then went back up to 30 percent in 2010. The year-to-year changes in PSE can be partly explained by the volatility of domestic prices due to the natural disasters that led to shortages of supply, as well as to the influence of inflation of world food prices. The increase in PSE in 2010 was due to an increase both in MPS and in BTs to producers, with the former contributing more to the increase in PSE than the latter.

Figure 6: National PSE% for agriculture in Jamaica, 2006-2010



Source: Authors' estimates.

Although the overall level of support to producers is high, it is distributed unequally among the subsectors, some of which are, in fact, implicitly taxed. This is because one group of products is favoured (and another group disfavoured) by both of the contributors to PSE: MPS and BTs. Of the two contributors, MPS is by far the most important, accounting for between 7 percent and 86 percent of the total level of support during 2006–2010.

Market price support (MPS)

As is the case in many other developing countries with limited budget resources, customs regulations as well as indirect support

are the most widely used methods of supporting producers. MPS captures the result of these activities. One feature of MPS is that it is attributed to specific commodities. PSE support can be given either to single commodities or to groups of commodities, or to agriculture as a whole. But in Jamaica, largely because of the dominance of MPS, around 50 percent of PSE is in the form of transfers for single commodities.

Poultry has been the most heavily supported commodity, followed by corn, sugar, tomatoes (in some years) and, to a declining extent, bananas. Sugar producers are supported through the sugar regime of the European Union (EU) and, hence, received a transfer from European consumers and taxpayers as well as from domestic consumers (on the white sugar imported for domestic consumption). The high support to sugar producers that has arisen in the past owing to the ACP-EU Sugar Protocol has been criticized as contributing to an inefficient use of resources by the producers, high production costs by international standards and the use of obsolete technology (Mitchell, 2005).

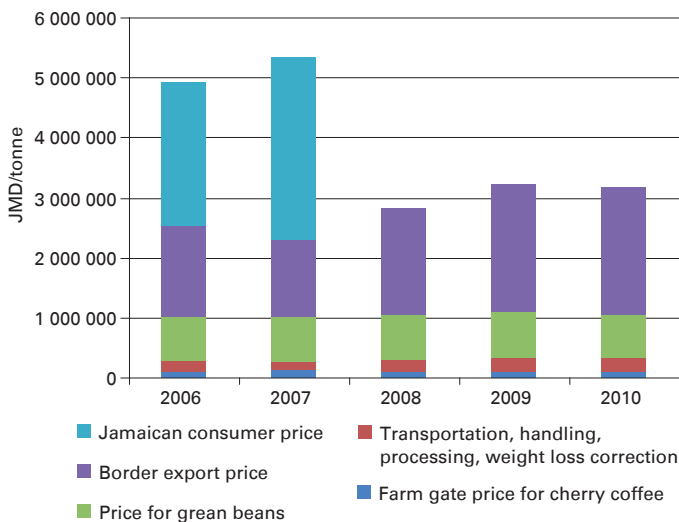
By contrast, overall support to several export commodities was negative (effectively equivalent to a tax). These include coffee, oranges and sweet potatoes, together with cocoa and yams in some years.

How can the negative support for these commodities be explained? Coffee is a good example of a commodity that incurs negative support, given the widespread view that the producer price for coffee is very favourable, yet the PSE calculation shows it to be taxed, i.e. producers received less in the years analysed than they would have received had there been no government (or government-backed) intervention.

As explained above, the PSE calculation compares the price that coffee producers actually receive with the best estimate of price that they would have received in the absence of government intervention. The government intervention consisted in part in establishing a Coffee Industry Board monopoly on exports and in part in having the board pay prices to growers that are normally fixed in nominal terms (though the board retains the right to vary the price downwards). As indicated in Figure 7, the border export price increased during the review period 2006–2010, and the board would no doubt claim that this increase is partly due to its monopolistic position, which allows it to negotiate the best deals. However, the price received by growers did not change. Hence, they received (over the review period) a decreasing share of the

final price, which according to the PSE methodology is equivalent to being taxed.

Figure 7: The value chain for coffee in Jamaica, 2006–2010



Source: Authors' estimates and based on UNStat (unstats.un.org), STATIN (statinja.gov.jm) and Coffee Industry Board (www.ciboj.org) data.

Budget transfers (BTs)

Some BTs are made to groups of products and to the agriculture sector as a whole but most BTs are to specific products. Product-specific BTs reinforce the differences among products created by varying levels of MPS. Those products with high MPS as a result of trade policy also receive the largest BTs (in both absolute and proportionate terms). Bananas, sugar, milk, poultry and beef benefit most from budget support. The sugar subsector received more in BTs than any other subsector during the period 2008–2010 due to the implementation of the Sugar Transformation Project. Yams, eggs, oranges and coffee also received some BTs but this support was not sufficient to offset the negative MPS.

The overall position on single commodity transfer (SCT)

The distribution of MPS and BTs to the commodities analysed in this report is shown in Table 3. This confirms the consistent, reinforcing positive effects of MPS and BT for corn, sugar and bananas as well as milk and beef. The situation for other commodities is as follows.

The export price of oranges fell between 2006 and 2010 so that the gap between domestic and reference prices declined. The taxation of producers of oranges remained high in spite of BTs to the subsector under the tree crop programme and subsidized interest rates.

The situation for cocoa producers varied from year to year. Taxation declined during the period 2006–2008 and the cocoa subsector received some support in 2009. However, taxation increased again in 2010. High market concentration (there are only two processing plants on the island) and an export monopoly are the most likely causes for increased taxes. While export prices and exporters' revenues increased significantly, farmgate prices stayed the same.

Cocoa farmers are a focus of the Marketing and Agriculture for Jamaican Improved Competitiveness project (a project started in 2010 to improve the competitiveness of cocoa farmers). The liberalization of the cocoa marketing system as proposed by the MOAF (with less control by the Cocoa Industry Board over marketing and pricing) may also improve competitiveness (PIOJ, 2009).

The reference price of sweet potatoes increased but this did not affect domestic producers. Both domestic prices and reference prices for yams fell in 2010, resulting in the elimination of the taxation of the producers. Domestic consumers of these commodities were the beneficiaries of implicit taxation of domestic producers.

Pineapple growers received support during the period 2006–2007 but have been implicitly taxed since 2008. Domestic producers have not benefited from an improved world market situation.

Table 3: Single commodity transfers⁶ by commodity⁷ in Jamaica, 2006–2010

	Unit	2006	2007	2008	2009	2010
Corn, SCT%	%	76	45	89	40	90
MPS	Million JMD	166	107	313	174	296
BT	Million JMD	7	7	14	20	9
Coffee, SCT%	%	-72	-37	-100	-134	-143
MPS	Million JMD	-1 195	-509	-1 355	-1 636	-1 206
BT	Million JMD	48	34	37	33	26
Cocoa, SCT%	%	-124	-46	-20	6	-37
MPS	Million JMD	-50	-111	-37	4	-83
BT	Million JMD	1	8	5	6	7
Sugar, SCT%	%	19	22	25	43	58
MPS	million JMD	618	770	598	833	1 781
BT	million JMD	78	245	669	1 556	1 520
Oranges, SCT%	%	-113	-105	-161	-43	-43
MPS	Million JMD	-1 256	-1 423	-1 848	-517	-479
BT	Million JMD	59	68	54	70	78
Bananas,* SCT%	%	33	34	23	13	14
MPS	Million JMD	821	600	226	175	83
BT	Million JMD	100	109	140	160	298
Pineapple,* SCT%	%	21	15	-2	-9	-6
MPS	Million JMD	224	139	-23	-150	-129
BT	Million JMD	3	2	3	4	5
Tomatoes,* SCT%	%	-133	24	16	-23	17
MPS	Million JMD	-1 914	439	307	-461	494
BT	Million JMD	4	6	6	6	10
Sweet potato, SCT%	%	-12	-34	-38	-91	-151
MPS	Million JMD	-213	-531	-853	-2 511	-4 450
BT	Million JMD	5	4	6	8	9

6 Percentage Single Commodity Transfer (SCT%): the commodity SCT as a share of gross farm receipts for the specific commodity.

7 OECD terminated calculations of PSE per commodity since 2006 and replaced PSE per commodity by SCT. The difference between PSE per commodity and SCT is in the treatment of budget payments: the MPS calculation methodology did not change.

Jamaica - Review of agricultural sector support and taxation

Yam (yellow), SCT%	%	9	-7	-7	-15	1
MPS	Million JMD	495	-368	-604	-1 599	69
BT	Million JMD	23	16	32	44	30
Milk, SCT%	%	13	22	5	30	7
MPS	Million JMD	6	78	-17	170	29
BT	Million JMD	42	15	51	39	15
Beef and veal, SCT%	%	2	26	25	8	18
MPS	Million JMD	18	437	465	122	339
BT	Million JMD	18	18	24	30	26
Pigmeat, SCT%	%	-61	-34	-117	-108	-86
MPS	Million JMD	-497	-339	-1 600	-1 633	-1 540
BT	Million JMD	17	21	34	36	47
Poultry**, SCT%	%	69	63	69	67	74
MPS	Million JMD	10 024	10 999	14 504	15 278	18 026
BT	Million JMD	261	343	393	405	418
Eggs, SCT%	%	10	1	-30	-42	-39
MPS	Million JMD	98	-44	-558	-868	-685
BT	Million JMD	117	55	75	99	46
Other (non-PSE), SCT%	%	24	35	27	19	34
MPS	Million JMD	3 883	6 003	5 559	5 110	9 429
BT	Million JMD	221	287	283	407	694

Source: Authors' estimates.

Note: * Alternative reference prices used. ** see discussion in Annex 2 for details.

Tomato farmgate prices increased by 156 percent between 2006 and 2010, which is faster than average food inflation for the period. Reference prices went up by only 38 percent and tomato imports decreased. Milk as well as beef and veal producers received moderate support. Milk producers were a focus of budget programmes, such as the Revitalization of Dairy Sub-sector programme, and grants to the Jamaica Dairy Development Board. In 2008, positive BTs exceeded negative MPS, and SCT for milk became positive. However, despite the increasing demand for beef, resulting in high farmgate prices, beef cattle and dairy cows breeding and beef production continued to decline (PIOJ, 2009).

Pigmeat producers were implicitly taxed and even large BTs (mainly from tax concessions) did not reverse the situation.

According to the PSE calculations, egg production was taxed but the negative MPS figure may be misleading given the low level of trade (which means that the reference price may not have been an accurate reflection of what would happen in the absence of government intervention). Egg producers benefited from customs tax waivers on imported equipment.

Jamaica's PSE was much more heavily concentrated on outputs than was the case for PSE in any of the comparator countries except Japan (Table 4). The same applies to the importance of MPS as a vehicle for PSE – only in Japan was MPS anywhere near as high as in Jamaica. In the United States of America and Chile, BTs played a more important role than did price support. The share of payments, based on input use, for fixed capital formation and for on-farm services was particularly low in Jamaica.

Table 4: Comparison of the structure of PSE in Jamaica and five selected countries, 2007–2010

	Chile	USA	Brazil	Mexico	Japan	Jamaica
	2007 %	2009 %	2007 %	2009 %	2009 %	2010 %
1. Support based on output	13.0	18.5	52.6	35.3	87.6	85.4
1.1 MPS	13.0	15.2	38.8	34.2	84.3	80.4
1.2 Payments based on output	0.0	3.3	13.8	1.1	3.3	5.0
2. Payments based on input use	85.8	30.5	45.6	42.9	3.4	14.5
2.1 Variable input use	18.3	9.9	11.2	18.6	1.3	8.1
2.2 Fixed capital formation	42.1	4.5	34.0	18.4	1.2	2.9
2.3 On-farm services	25.4	16.1	0.4	6.0	1.0	3.6
4. Payments based on current A (area) /An (animal number) /R (receipts) /I (income), production required	1.3	19.6	1.8	1.1	1.9	0.0
5. Payments based on non-current A (area) /An (animal number) /R (receipts) /I (income), production required	0.0	0.0	0.0	5.0	0.0	0.0
6. Payments based on non- current A (area) /An (animal number) /R (receipts) /I (income), production not required	0.0	23.1	0.0	15.7	7.1	0.0
7. Payments based on non- commodity criteria	0.0	8.4	0.0	0.0	0.0	0.0
8. Miscellaneous payments	0.0	0.0	0.0	0.0	0.0	0.1

Source: www.oecd.org and authors' estimates.

CSE for agriculture in Jamaica

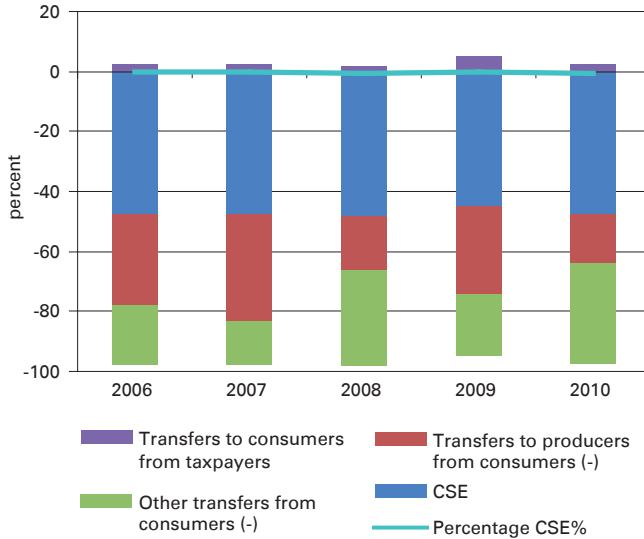
If the CSE for a product is negative, there are transfers from consumers to producers; if it is positive, the transfer moves in the opposite direction. The CSEs for poultry, sugar, bananas, milk, beef and corn were negative. The high SCT for these products as noted in Table 3 was due to transfers from consumers and not from taxpayers via the budget.

As food expenditures represent a large portion of the budgets of the poor, a negative CSE, representing a transfer from consumers to producers, is damaging to the poorest portion of the population. Approximately 80 percent of the poorest quintile of the population is rural (WTO, 2011). The effect of negative CSE may be offset to a certain extent by BTs to consumers under such programmes as the Students Nutrition Programme (which accounts for 80 percent of BTs to consumers), by tax waivers for agroprocessors and by research for and development of the agroprocessing industry.⁸ But these are inefficient ways to overcome the problem.

The overall position of CSE is shown in Figure 8. This figure illustrates how the subsidies to consumers from taxpayers (e.g. under the Student Nutrition Programme) fail significantly to offset the overall effect. The largest negative consumer SCTs (i.e. transfers from consumers to producers) are for poultry, corn and sugar. The transfer from poultry consumers is the result of the very high border protection afforded to the domestic industry. Sugar consumers are affected by the arbitrage whereby domestically produced sugar is exported to the EU on preferential terms, while white sugar is imported for domestic consumption.

8 The agroprocessing industry for PSE calculations is treated as a consumer for primary commodity producers. However, where we estimated that the transfers to agroprocessors would, in fact, benefit farmers/be transferred to farmers (due to the ratios of price elasticities), we included transfers to agroprocessors in PSE, not CSE.

Figure 8: CSE for agriculture in Jamaica, 2006–2010



Source: Authors' estimates.

Is PSE high in Jamaica relative to other countries?

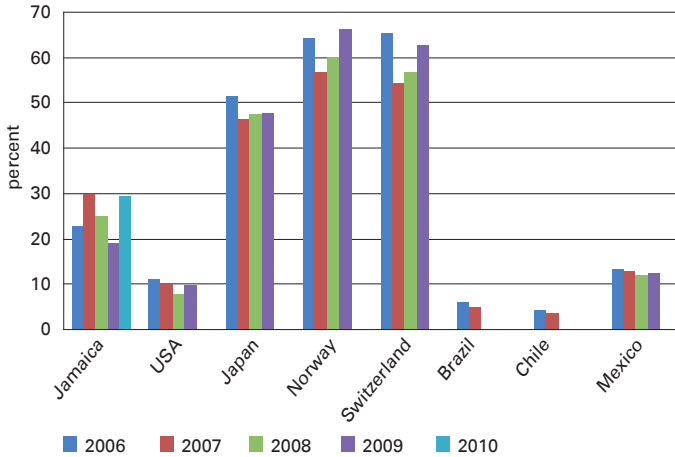
At an aggregate level, the PSE in Jamaica was high (Figure 9) during 2006–2010. It was higher than PSE in the neighbouring countries (United States of America, Brazil, Mexico and Chile) although it was closer to Mexico than it was to those of the OECD countries with the highest PSEs in the figure: Japan, Norway and Switzerland.

However, this support was heavily focused on a few products. In Jamaica the main source of support to producers was from consumers. In two of the three most recent years, the level of negative CSE% was greater in Jamaica than in any of the other review states although it was a little lower in the other years than in the countries with the highest PSE (Figure 10). And, unlike in the other countries, in Jamaica the support is provided only to certain products while other commodities (including competitive exports) suffer from implicit taxation.

Consequently, Jamaica's relative position in the "global league" with regard to SCTs varied widely among commodities (Table 5). Whereas Jamaica had a higher national PSE than that of the United States of America, for example, its support to sugar producers

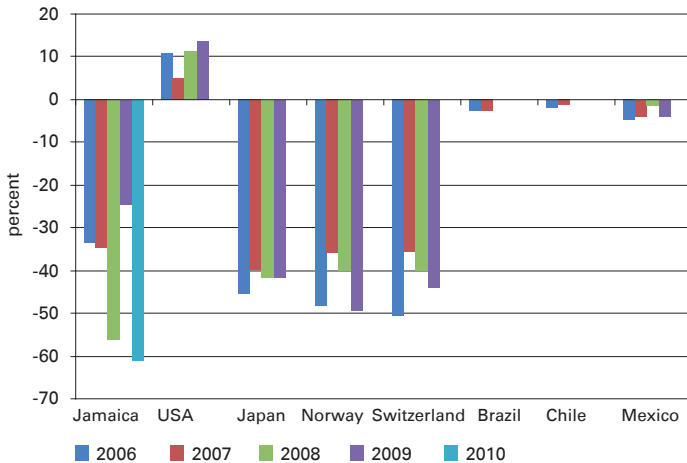
during the period 2006–2008 and to milk producers during the period 2006–2007 was lower.

Figure 9: PSE% for agriculture in Jamaica and selected countries, 2006–2010



Source: www.oecd.org and authors' estimates.

Figure 10: CSE% for agriculture in Jamaica and selected countries, 2006–2010



Source: www.oecd.org and authors' estimates.

Table 5: Comparisons of SCT% for five commodities in Jamaica and four selected countries, 2006–2009

Commodity	2006 %	2007 %	2008 %	2009 %
Corn				
USA	0.43	-0.45	2.78	-0.52
Chile	16.19	3.00		
Mexico	9.50	2.35	5.00	5.40
Brazil	4.61	2.08		
Jamaica	75.90	45.06	88.77	39.59
Refined sugar				
USA	21.42	34.84	26.29	20.80
Chile	0.99	9.09		
Mexico	13.89	32.49	24.04	6.63
Brazil	0.37	0.40		
Jamaica	18.95	22.09	25.11	42.66
Milk				
USA	13.70	24.83	0.02	14.26
Chile	0.00	0.46		
Mexico	10.87	-0.02	0.41	17.86
Brazil	0.78	0.00		
Jamaica	12.80	21.94	5.39	30.42
Poultry				
USA	0.00	0.00	0.00	0.00
Chile	0.00	0.00		
Mexico	9.44	14.53	9.19	12.42
Brazil	-0.90	0.00		
Jamaica	69	63	69	67
Coffee				
Mexico	0.00	1.51	1.25	0.00
Brazil	3.67	2.73		
Jamaica	-72	-37	-100	-134

Source: *www.oecd.org* and authors' estimates.

Chapter 5 - Agricultural taxation

Chapter 4 has shown that Jamaica provides significant support to its agricultural sector, though this support is concentrated on a handful of products. BTs form a relatively small part of this assistance and tax breaks are only one of the budget instruments used (other instruments include loan subsidies and development projects).

Although formal tax arrangements are only “a part of a part” of the support provided, they are one of the instruments that the government can most directly control. Moreover, the radical review of the entire tax system being undertaken by the government (Government of Jamaica, 2011) also covers taxes on imports that underpin the MPS, which, as noted in Chapter 4, provides the bulk of assistance to the agricultural sector.

The time is ripe to consider afresh the advantages and disadvantages of the current tax regime for agriculture. This topic is the focus of this chapter.

Current tax regime

The agricultural sector is affected both directly and indirectly by the tax system. Taxes impact on agricultural producers, and agroprocessors, agrobusinesses and consumers of agricultural products. Both tax policies and the institutions that administer the tax system are to be reformed as part of the restructuring necessary because of the country’s high debt to GDP ratio and in the context of an International Monetary Fund (IMF) support package. The government released a Green Paper in 2011 that proposes reforms to the tax system with the objectives of: simplicity, equity, base broadening, and improved compliance, growth and competitiveness; and meeting revenue demands (Government of Jamaica, 2011).

Contribution of agricultural sector to tax revenue

The agricultural sector’s contribution to tax revenue is very small. Table 6 shows that, based on the available data, the agricultural sector contributes less than 1 percent of the tax revenue collected by the central government. This does not include property tax (which is included in the budgets of local governments). Land tax collection in 2010 totalled JMD 1.8 billion (0.2 percent of GDP)

but there is no data on the agricultural sector's share of the tax revenues.⁹

Table 6 omits trade taxes. The amount of tax paid on imports of agricultural inputs, which should also be included in the table, is not available but is assumed to be small and it is unlikely that these tax revenues would increase the share of revenue to above 1 percent. Trade taxes on imports of agricultural goods for consumption, by contrast, were high and it is estimated that in 2009 trade tax revenues reached around JMD 8.6 billion or 36 percent of total tax on international trade.¹⁰ While trade taxes do not form a contribution by the agricultural sector to tax revenue, they are closely linked to the health of agriculture and are considered further below.

Compared with the agricultural sector's share of GDP (around 5.4 percent), the contribution to tax revenues (less than 1 percent) is low (although it is high when compared with the sector's share of domestically financed government expenditure, as shown in Chapter 2). This relatively low contribution is consistent with the situation in other countries, wherein the agricultural sector is usually not a large contributor to government revenues.¹¹

One reason for the low tax revenue yield in Jamaica is the small size of many of the country's 230 000 farms and the low incomes generated from smallholdings: incomes are below the threshold for paying income tax or GCT. Data from the Ministry of Finance indicate that only around 190 taxpayers identified themselves as being in the agricultural sector.

Another, more contentious, reason for the low revenue yield is the generous tax concessions available to the agricultural sector as indicated above. While the general tax system in Jamaica is broadly consistent with that in other countries in the region (where practice generally follows the international norm of offering widespread tax concessions to agriculture), the widespread use

9 A report in 2004 estimated that tax collected from agricultural properties contributed 1.47 percent of the tax liability (Sjoquist, 2004).

10 This estimate is based on applying the relevant rates of import duties and stamp duties to the values of the main imported agricultural products, reduced by 10 percent to account for waivers granted.

11 For example, in Canada the agricultural sector's share of corporate tax revenue is 1.5 percent compared with the sector's 2.3 percent share of GDP (based on data from the Canada Revenue Agency and Statistics Canada). In Australia, the agricultural sector's share of corporate tax revenue is 0.4 percent compared with the sector's 4 percent share of GDP (based on data from the Australian Tax Office and the Australian Bureau of Statistics).

of discretionary waivers in Jamaica differs from regional practice. Elsewhere, this practice is not common and, in fact, in many countries the practice has been phased out due to concerns about transparency, the increased potential for corruption and the additional administrative burden of discretionary incentives.

Pay-as-you-earn (PAYE) tax is by far the most important component of the agricultural sector's contribution to government tax revenue, accounting for 44 percent of the contribution in 2010. Other important sources of agriculture's contribution are GCT, (17 percent) and corporate income tax (13 percent), the education tax (13 percent), HEART (9 percent) and other smaller employment-related taxes. From this, it is clear that the source of the greater part of agriculture's direct contribution to tax revenue is related to enterprises and formal employment. This is a common feature of many countries at the same stage of development as Jamaica.

Not surprisingly, therefore, the poultry and egg subsector was the most significant contributor, accounting for 68 percent of the total contribution in 2010, of which 70 percent was employment-related taxes. The other significant sources were the fruit and vegetables (10 percent) and sugar (9 percent) subsectors. This illustrates the relative importance of the poultry subsector for the agricultural sector (although much less important for the whole economy). The MOAF estimates that this subsector employs around 18 000 people.

Table 6: Taxes collected by tax type and the agricultural sector's share in Jamaica, 2007–2010

Type of tax	JMD billion				Share of GDP (%)				Agricultural sector's share (%)			
	2007	2008	2009	2010	2007	2008	2009	2010	2007	2008	2009	2010
Total	188.4	219.5	246.2	265.9	24.0	24.7	24.4	24.5	0.38	0.47	0.37	0.36
Direct taxes	85.5	102.9	119.2	130.6	10.9	11.6	11.8	12.1	0.67	0.84	0.63	0.58
Income tax	35.4	44.5	49.9	62.3	4.5	5.0	4.9	5.8	0.42	0.75	0.40	0.25
Corporate	18.3	21.2	26.9	29.9	2.3	2.4	2.7	2.8				
Non-corporate	17.1	23.3	23.1	32.5	2.2	2.6	2.3	3.0				
PAYE	41.0	48.2	57.5	56.0	5.2	5.4	5.7	5.2	0.81	0.87	0.75	0.83
Education tax	7.4	10.3	11.8	12.3	0.9	1.2	1.2	1.1	1.25	1.08	1.01	1.11
Taxes on goods and services	79.6	88.9	97	106.6	10.2	10.0	9.6	9.8	0.19	0.18	0.17	0.20
GCT	57.6	66.7	69.8	70.3	7.3	7.5	6.9	6.5	0.26	0.24	0.22	0.25
Imports	24.3	29.3	29.4	28.8	3.1	3.3	2.9	2.7				
Domestic	33.3	37.4	40.4	41.5	4.2	4.2	4.0	3.8				
SCT	13.3	12.6	18.9	30.2	1.7	1.4	1.9	2.8	0.01	0.03	0.07	0.12
Imports	9.2	9.0	14.3	23.5	1.2	1.0	1.4	2.2				
Domestic	4.0	3.5	4.6	6.7	0.5	0.4	0.5	0.6				
Stamp duty (local)	8.7	9.6	8.3	6.2	1.1	1.1	0.8	0.6				
Taxes on international trade	20.0	22.6	23.7	22.2	2.6	2.5	2.3	2.0				
Customs duties	16.9	19.2	20.8	19.0	2.2	2.2	2.1	1.8				
Stamp duties	1.1	1.2	1.3	1.3	0.1	0.1	0.1	0.1				
Travel tax	2.0	2.2	1.6	1.9	0.3	0.2	0.2	0.2				
Other levies	3.2	5.1	6.4	6.5	0.4	0.6	0.6	0.6	0.1	0.03	0.02	0.01
GDP					783.7	887.4	1 009.7	1 083.4				

Source: Ministry of Finance, Jamaica.

Impact of special tax provisions on agricultural producers and consumers

Special tax regimes for the agricultural sector have a long history in Jamaica, becoming prevalent in the early 1970s. The Agricultural Incentives Act was introduced in 1972 and property tax de-rating was introduced from 1973; from its inception in 1991 or very soon thereafter, the GCT included exemptions and zero-rating for agriculture-related inputs.

These provisions have remained in place and been added to so that today there is a range of tax laws and associated instruments that are specifically targeted at the agricultural sector and include tax concessions and taxes imposed to protect the sector from imports. The net effect is substantial. An estimate derived by comparing the “calculated” tax payable and the taxes actually collected indicates that in 2010 income tax concessions resulted in the government foregoing JMD 1 206.02 million in revenue. Of course, some of this shortfall is due to tax evasion as well as to avoidance through concessions and to the exemption of farmers with incomes below the tax threshold. The legitimate tax concessions relating to agriculture are described in detail in the Agricultural Taxation Report and the key points of that report are summarized below.

Direct tax concession

The taxes outlined above potentially apply to all taxpayers in the agricultural sector. However, the tax burden on the agricultural sector is greatly reduced by a number of important tax concessions, all of which are statutory reliefs (and thus not subject to the current cap on waivers: see below).

Approved farmer status. Approved farmer status provides income tax relief (under Section 36D of the Income Tax Act) to farmers earning income exclusively from prescribed agricultural activities. Designation of this status involves RADA, which does an assessment, and then the MOAF, which makes a recommendation to the Tax Administration Jamaica (TAJ) for approval by the Minister of Finance. The main tax benefit is a tax exemption for a period of up to ten years with a possible five-year extension, which, it appears, can be granted more than once, effectively creating a permanent tax holiday. The losses incurred by farmers with approved farmer status – and only those with approved status – from a prescribed agricultural activity may be offset against the farmers’ profits or gains. Approved farmer status is often used as an indicator of a farmer’s legitimacy when assessing his/her

eligibility for other concessions, such as discretionary waivers, even though approved farmer status is not required by law to qualify for other concessions.

TAJ's records show that approved farmer status has been granted to around 700 farmers since the inception of the concession. Of those 700, around 30 farmers continue to be entitled to an income tax exemption.

Property tax concession. Under the property tax concession, the owner of land classified as agricultural land is entitled to a 50 percent reduction on property tax once the land is sufficiently being used for agricultural activity. This concession is granted for a period of up to three years. Because land tax accrues to local authorities, paradoxically the more agricultural land there is in a parish, the fewer are the funds available for the improvement of community infrastructure.

Although not strictly a "concession," the rules for determining the value of unimproved land for property tax purposes are favourable to the taxpayer. The value of agricultural land can be reduced to take account of its current use. This may result in a lower valuation than an alternative valuation based on the highest-and-best-use, i.e. valuing the land, taking into account all potential uses which are reasonably likely to occur, legally permissible, physically possible, adequately supported by the market and financially feasible.

Special investment allowance. A concession to farmers who are not entitled to approved farmer status includes a special investment allowance of 40 percent for new plant and machinery used in agroprocessing, the sugar industry, animal husbandry and animal breeding. This allowance does not reduce the value of the asset for purposes of the standard capital allowance.¹²

Indirect tax concessions

Two key statutory concessions offer either zero-rating or exemption from the GCT. The difference between zero rating and GCT exemption is the following: when a product is zero-rated, no GCT is payable on the sale of agricultural products by the farmer but the farmer is still entitled to a credit for GCT paid on inputs; with exemption, no GCT is payable on the sale of the product but the credit on inputs also does not apply.

¹² For example, if a farmer acquires new equipment for JMD 800 000, the total capital allowance over the life of the equipment will be JMD 1 120 000 (i.e. JMD 800 000 x 40 percent plus depreciation of JMD 800 000 over the depreciable life of the asset).

Supplies zero-rated under the GCT. One statutory concession allows that certain agricultural supplies are zero-rated under the GCT and exempt from customs duties. The supplies are mainly small equipment or inputs into agricultural production, and agricultural produce which a farmer registered or sells to another registered taxpayer for use in the production of finished goods.¹³

Supplies exempt from GCT. The other statutory GCT concession allows that certain agricultural supplies are exempt from GCT.¹⁴ Apart from an exemption for certain fishing equipment and animal feed other than pet food, most exemptions apply to agricultural products for final consumption rather than inputs.¹⁵

Discretionary waivers. In addition, there are a number of discretionary waivers, which the government is committed to reducing. Concessionary waivers granted at the discretion of the Minister of Finance have been subject to a cap of JMD 140 million per month since December 2010.

Discretionary waivers are used for two purposes in the agricultural sector. The traditional purpose is to reduce taxes so as to reduce the cost of imported inputs (including capital equipment). The other purpose is to encourage imports to deal with short-term shortages of supply in the market, where the domestic producers are unable to meet demand. Discretionary waivers relating to agriculture fall into three broad categories.

- (i) Agricultural equipment is exempt from customs duties and the GCT. Taxpayers must apply for the waiver, which, if granted, is published on the Ministry of Finance's web site.¹⁶
- (ii) Imported farm vehicles have been subject to a reduced rate of tax, though this has been changed by the 2011 budget (see below). This tax, whose maximum rate is 20 percent, is in lieu of the common external tariff (CET), SCT and GCT. Without the concession, the combined taxes on these vehicles can be as high as 97 percent.¹⁷
- (iii) Certain agricultural inputs to manufacturing or used in the hotel industry are eligible for waivers on all taxes (CET, ASD and

13 These are listed in the First Schedule of the GCT Act (see Group 2 of Part II) and the Third Schedule of the Customs Act.

14 No GCT is payable on the sale of agricultural products by the farmer but the farmer is not entitled to a credit for GCT paid on inputs.

15 These are listed in the Third Schedule of the GCT Act.

16 This requirement to publish on the web site was introduced in December 2009.

17 These rates reflect the budget announcements made in April 2011.

GCT). The waivers apply to goods not currently available in the market (e.g. beef trimmings, pectin, raisins and tenderloins) and for foods in short supply (e.g. hams at Christmas time). The MOAF and the Ministry of Industry, Investment and Commerce make a recommendation to the Minister of Finance for the waiver. The waivers for the hotel industry are for fish products and top-end beef.

Protective taxes

As explained in Chapter 3, agriculture is also affected by import taxes that protect local industries. The analysis of support to Jamaica's agricultural sector conducted for this report shows that these import taxes contributed to a nominal rate of protection that in 2010 was as high as 852 percent for corn and 277 percent for poultry but much lower or negative for other products.

The primary taxes used for agricultural protection are the CET and especially the ASD on imports. Given that the CET is a uniform tariff for the Caribbean Community (CARICOM) (though derogations are allowed), it is through ASD (which is unilateral) that the government can fine tune the protection according to its perception of Jamaica's particular needs.

Many of the higher tariff rates of 40 percent and above apply only to agricultural products. WTO estimates put the average agricultural tariff at 19 percent, which is much higher than the average nonagricultural tariff of 7.3 percent (WTO, 2011). The very high tariff rates and the ASD for the agricultural sector were set originally in the early 2000s.

The ASD, which is set at rates ranging from 28 percent to 90 percent, applies *inter alia* to meat, poultry, milk, eggs, grains, fruit and vegetables and sugar. The combined effect of these charges can be very significant because the ASD is applied to the import value inclusive of the tariff. For example, the tariff on poultry is 100 percent and the ASD is 80 percent; combined, these charges result in an overall tax of 260 percent. WTO (2011) calculates that ASD raises the average border protection for agricultural goods from 19 percent to 30.4 percent. Among the highest ASD rates are 90 percent for onions, beans and ground nuts; 86 percent for edible vegetables; 80 percent for meat; and 70 percent for cereals and cereal products.

As noted above, some of these higher tariffs are reduced under the waiver system to deal with shortages of supply of certain agricultural products.

The proposed tax reforms

The government's 2011 Green Paper on tax reform proposed to reduce tax rates, broaden the tax base and simplify the overall tax system (Box 4). Formal consultations on the proposals began in June 2011.

Box 4: The Green Paper tax reform proposals

The specific proposals in the Green Paper include the following:

- Introduce a **Customs Administration Fee** to replace the current customs user fee, processing fees, the environmental levy and the standard compliance fee. The ASD would remain, to provide some level of protection for the agricultural sector;
- **reduce tariffs**, potentially to a maximum rate of 20 percent, subject to discussions with the CARICOM partners;
- **broaden the GCT base**, by reducing exemptions and zero-rated supplies and reducing the standard GCT rate from 17.5 percent to 12.5 percent or 15 percent;
- **reduce the CIT rate** from 33 $\frac{1}{3}$ percent to 30 percent;
- **simplify some taxes** by raising the threshold at which the flat rate of Personal Income Tax (PIT) becomes payable and amalgamating the education tax with the PAYE tax;
- phasing in the **compulsory filing of income tax returns** and compulsory electronic filing for large taxpayers and professionals;
- create an **Omnibus Tax Incentive Law** by the end of 2012 to bring together all the many pieces of legislation granting tax concessions to various sectors and industries.

Source: Government of Jamaica 2011, authors' interpretation.

Assessment of the tax system for agriculture

The low tax burden in the agricultural sector

Given that the use of subsidies and concessions currently under review by the Government of Jamaica benefit the agricultural sector, the proposed Green Paper reforms to reduce tax rates will have a significant impact on the agricultural sector. The burden of formal taxes on the sector is slight in that the many small-scale farmers are below the threshold for paying income tax and/or GCT, the tax concessions are generous, and compliance is potentially low. While this is not unusual in international practice, the government's objectives to improve its overall revenue performance and rationalize its tax base raise important questions for the agricultural sector.

Should the agricultural sector contribute more to government revenues and, if so, how? These questions about the status quo are addressed in the discussion to follow.

The effectiveness of current tax concessions and protective taxes

The effectiveness of the current concessions to assist the agricultural sector is mixed. Assessing the gains from providing tax concessions is a complex matter that involves taking into account not only the short-term benefits but also whether these are sustained into the longer term or benefit the broader economy.

There is certainly some potential for short-term gain:

- tax concessions that reduce the price of agricultural inputs relative to the price of inputs of other sectors have the potential to increase agricultural output (although only if this benefit is passed on to input consumers, which may not be the case);
- tax concessions that affect the price of outputs, such as the GCT exemption on certain agricultural products, may also increase the output of the relevant commodities through increased demand;
- tax concessions relating to taxes on income or fixed factors such as land may also indirectly impact costs of production and, hence, have the potential to increase output.

But some features of the tax concessions could reduce the potential for sustained increased output. First, some of the concessions are time bound (e.g. the approved farmer status, although it can be extended in certain cases). Unless used to finance a fixed cost that yields permanent cost savings, the concession once it expires ceases to have effect and production would be expected to fall so that the effect of the concession is unlikely to be sustained or very large.

Second, the reliance on some discretionary waivers creates uncertainty over future tax treatment, which will significantly dampen any long-term positive impact on production.

Third, the effectiveness of the GCT zero-rating for certain agricultural supplies is limited due to administrative weaknesses. For farmers who are registered for GCT zero-rating, the ability to claim refunds in a timely manner is important to ensuring the effectiveness of the zero-rating. A recent IMF report (Zake, Jones and Brimble, 2010) that reviewed the Jamaican tax administration

raised concerns with refund management, mentioning that funds are not available to complete the refund cycle and discretion is being used to decide who receives refunds. In some cases, this induces applications for waivers. The report recommended the streamlining of the management of refunds.

Fourth, the tax concessions for agricultural inputs (as well as other types of input subsidies) are limited to certain subsectors or farming activities, so that distortions may arise in the allocation of resources to different activities. This can lead to serious inefficiencies, such as the subsidized growing of crops in locations that are better suited to producing other types of crops.

The GCT exemption for certain food items, many of which are domestically produced, may also indirectly impact the local agricultural sector. Local producers are not able to claim input tax credits for inputs to exempt products, which could place them at a disadvantage compared to imports of these same products that may be produced at a lower cost, particularly if the foreign producers do not face similar input tax regimes.

While GCT exemptions on basic goods are often provided as a mechanism to assist the poor, they are not usually considered an effective instrument for promoting equity. This is because even if the poor spend a larger proportion of their income on some particular item (such as food), the rich will typically spend a larger absolute amount. Therefore, a reduction in the tax rate on that item actually transfers more money to the rich than it does to the poor. A more effective policy is to tax at the standard rate and use the enhanced revenue this yields to finance pro-poor spending that may be better targeted.

The generous tax treatment of farming losses for farmers with approved farmer status, while encouraging the development of agriculture in addition to other income earning activities, can be abused by manipulating farm losses to shelter other income. TAJ officials advise that this is a concern in Jamaica.

The tax concessions provided to the agricultural sector also need to be considered in an economy-wide context. Tax concessions, such as tax holidays to certain sectors or taxpayers, create economic distortions, including the inefficient allocation of resources, complicate the tax system, and open opportunities for abuse of the tax system. In particular, tax concessions narrow the tax base and, hence, cost revenue. This usually means that tax levels are higher for those not fortunate enough to be able

to access the concessions. To put this in perspective, if the agricultural sector increased its share of revenue from under 1 percent to 5 percent of total collections (commensurate with its share of GDP), this would be equivalent in simple terms (ignoring other impacts) to a 3 percentage point reduction in the GCT. If the sector only contributed three times what it contributes currently (which would allow for the fact that many farmers are unlikely to pay tax because their incomes are low), it would still allow a 1 percentage point reduction in the GCT.¹⁸

The empirical evidence on the cost-effectiveness of tax incentives is also weak. It suggests that incentives are not a successful tool for encouraging investment. Even if they do attract investment, there may be “incentives competition” with other sectors such as tourism, which also offer investors very generous concessions. Incentives may attract investment but not in an efficient or cost-effective manner and may end up simply diverting resources from one sector to another sector.

The relevance of the current tax system

The various tax concessions and protective taxes were introduced, often a long time ago, for a range of reasons that were relevant at the time but may no longer be as relevant. It is not clear whether a serious attempt has been made to regularly review the measures to determine if they are still relevant. It is also unclear whether a serious cost/benefit analysis of concessions or protective taxes has been made to determine their effectiveness in achieving their objectives. It seems that once these arrangements have been introduced, it is very difficult for them to be removed, whether due to a lack of adequate review mechanisms, lack of adequate data or political sensitivity to review.

The analysis carried out in 2002 to justify the high import taxes on poultry and vegetables is an example of the kind of research that is needed. While that analysis was relevant for 2002, a similar analysis relevant today should be undertaken to justify the continuation of current tax treatment. For example, it was argued in 2002 that imports of four protected vegetables increased dramatically during the period 1993–1997 after certain import restrictions had been removed, compared with the period

¹⁸ Five percent of collections would mean that the sector contributed around 1.2 percent of GDP in revenue (currently 0.5 percent of revenue is around 0.12 percent of GDP). A 1 percentage point cut in GCT would cost 0.37 percent of GDP in revenue, meaning that if the agricultural sector's revenue collections were 1.2 percent of GDP, the government could cut the GCT rate by 3 percentage points.

1987–1991 when the restrictions were in place. Using tomatoes as an example, imports during 1987–1991 were 13 tonnes (an average of 2.6 tonnes a year) compared with 2 265 tonnes during the period 1993–1997 (an average of 453 tonnes a year).¹⁹ By comparison, imports of tomatoes for the period 2007–2009 were 1 097 tonnes (average of 219.4 tonnes a year), which is well below the level of imports in 1993–1997, and represents only 1 percent of total consumption of tomatoes in Jamaica during that period. This indicates that the higher tariffs have reduced the level of imports since 1997. However, it is also worth noting that during the period 2007–2009, the average price difference between the domestic and import price (before taxes) was only 19 percent.²⁰ This suggests that import taxes of 260 percent are not necessary, and that lower taxes would suffice.

Another question arises about waivers constantly being sought to temporarily reduce the taxes on certain goods: why can't the taxes be permanently reduced for these goods? The predominant argument against a permanent reduction is that the relevant subsector will eventually revive but that clear plans need to be in place for that to take happen.

A positive step in understanding the cost of tax concessions generally is the government's recent publication of a tax expenditure statement, which sets out the estimated costs of particular tax concessions. Unfortunately, most of the tax concessions provided to the agricultural sector are not individually identified due to lack of data or difficulties in allocating certain concessions among the sectors.

Implications of the Green Paper tax reform proposals

Uncertainty

Because the agricultural sector benefits from many of the protective taxes and concessions that are now under review, the Green Paper has created uncertainty over the impact of the proposed tax reforms. Of particular concern are proposals to reduce tariffs and to cease discretionary waivers. The sector is concerned that the trade tax reforms could destroy certain industries. The waivers are popular not only because they reduce

19 This information is taken from a MOFA memo about "Concerns regarding IDB tax reform proposals", 2011.

20 This is based on the consumption price (at farmgate) and the reference price (at farmgate) used in the PSE for this report.

taxes on imports but also because they are flexible to allow an increase in imports when demand exceeds local supply.

The new cap on discretionary waivers is also raising problems as the value of the waivers sought exceeds the available capped amount. At some point, the government is likely to have to reject a significant number of requests, which could create problems, i.e. undermine tax morale and create a perception of inequity.

The agricultural sector is also concerned with the recent changes to the import taxes on vehicles, and what these may indicate for the direction of future reforms. The CET on pickups, which are used by the productive sectors of the economy, was increased from 10 percent to 20 percent, yet the CET on luxury vehicles was decreased from 40 percent to 20 percent.

Implications for poultry

Taxes imposed at the border play an important role in protecting domestic agriculture by increasing the price of imports so that domestic production is more competitive. These taxes benefit the domestic producers but, as shown in Chapter 4, result in increased prices for consumers, including the poor. They may also lead to inefficient industries.

The industry that benefits most from these protective taxes is the poultry industry which is likely to be affected significantly by their removal. The industry has estimated that the proposed tax changes are likely to destroy it, costing thousands of jobs, both directly in the poultry subsector and through knock-on effects in those communities where the industry operates. This prediction is supported by the analysis undertaken for this report. A simple one-commodity model of supply and demand for a reduction in tax rates from 260 percent to 20 percent suggests that while such a rate reduction would significantly increase consumption (ignoring the market for other commodities), it would decrease domestic production by 42 percent. Although the analysis is limited, a significant decrease in production is not unexpected, considering the large differential between domestic price for poultry and the price of poultry imports before taxes (e.g. around USD2 400 and USD 850 per tonne, respectively, in 2009).

A reduction in trade taxes and its consequent impact on the poultry industry may also have government revenue implications, given the importance, as indicated above, of the industry as a contributor to agricultural tax revenue. A sharp fall in domestic production would lead to a loss of income taxes and employment

taxes (although this would be relatively small overall given the agricultural sector's small contribution to total taxes) (Table 6). There is unlikely to be a fall in revenue from the reduction in trade taxes as the increase in imports paying a lower – but still positive – tax is likely to more than compensate. Generally speaking, very high import taxes do not generate much revenue. That is not their purpose; their purpose is to restrict imports. Revenue tends initially to increase as rates are lowered and the volume of imports increases (until, of course, the rates reach zero or low levels).

Chapter 6 - Conclusions and Recommendations

The conclusions and recommendations presented in this chapter are derived from the evidence presented in this report and cover those issues most relevant to the current tax reforms proposed by the government, while the three major studies underpinning this report contain a wider range of conclusions and recommendations, which cover a multitude of researched issues.

Limited range of policy instruments

Agricultural policy in Jamaica utilizes a limited number of policy measures to support the sector. These are:

- tax concessions and waivers of various kinds;
- high import duties for selected agrifood commodities;
- privileged lending to farmers and processors through the Development Bank of Jamaica; and
- BTs (grants) to selected farmers and processors targeted by the various types of programmes/projects/policies.

These measures are mainly discretionary: they are provided at the request of individual market agents and applied ad hoc without transparent rules and criteria. Waivers for import duties, for example, can be released on the advice of RADA when there is a seasonal deficit of inputs to a processing industry. Similarly income tax relief is provided to those whose agricultural producer status is justified by the parish RADA office.

RADA procedures for the selection of individual support project beneficiaries are developed for each specific project and respond to the project objectives, which are sometimes expressed in a vague way. The Agricultural Sector Support Analysis cites examples such as: "the participant should have a good working knowledge of vegetable growing from formal training and/or practical experience" or "must be a vulnerable, low income family". Consequently, the selection process can be rather subjective. Such non-transparent and non-systematic regulation of the agricultural

sector creates uncertainty for the producers and market agents, and leaves room for corruption.²¹

This limited, discretionary and ad hoc set of instruments can be viewed against the widespread need to support sustainable growth in agriculture (and the rural sector more generally) for the economy, for poverty alleviation and, not least, to adapt to climate change. This report lists a number of basic measures related to climate change planning that should be considered (or taken on a sufficiently large scale). These include appropriate zoning and planning within production areas to ensure that climate risk and vulnerability are minimized; updating land suitability and capability maps to ensure that land in production is suitable for the specific crops being planted and areas are not vulnerable; and developing a suite of short-, medium- and long-term adaptation measures that are culturally relevant and suitable for the Jamaican context, or even disseminating crop suitability studies, such as the study distributed by Oxfam to MOAF and RADA.

High level of market distortion

The most substantial support provided to agricultural producers is in the form of transfers from consumers. The level of PSE in Jamaica is high by international standards, which suggests at first that there is substantial support for the agricultural sector. But there are three caveats, all of which are related to the fact that the agricultural market is heavily distorted.

- (i) Price signals are not transferred to producers so that the balance between products does not necessarily reflect either Jamaica's relative competitiveness or the level of demand (at home or abroad).
- (ii) Because current market structures are artificial, the financial viability of producers is vulnerable to future policy decisions that could make an activity that is profitable under the current policy regime (into which investment has been sunk) unprofitable in future.
- (iii) When combined with the non-systematic nature of most support policies as described above, most of the support is provided to a very small number of agricultural activities not

21 According to Transparency International's Perception Index, the perception is that corruption in Jamaica has worsened in the last three years. The island rating has slid from a score of 3.7 out of 10 in 2006 to 3.1 in 2008, but has climbed back to 3.3 in 2010. This score places Jamaica in the same category as Albania, India and Liberia.

all of which are necessarily the most consistent with the achievement of the government's objectives. Only a small part of the support is provided to the agricultural sector as a whole.

A consequence of this distortion is that productivity is low, costs are higher than they should be, there are underdeveloped marketing chains and poor consumers are penalized. The downside of this distortion and the impact on farmer profitability of government policy decisions can be observed in the heavy net taxation suffered by producers of some agricultural goods.

Because such a large proportion of the high support to agriculture is product-specific, the key determinant of the relative profitability of different goods is set as much by government policy as by Jamaica's comparative advantage. Some goods that appear to have strong potential are taxed, while some of those that are subsidized may have a problematic future. More and more resources may be required, whether in the form of transfers to producers from taxpayers or from consumers, to maintain the same level of support to them in the future.

The Inter-American Development Bank (IDB) study on Competitiveness of Jamaican Agriculture suggested that the growth potential is high for poultry and vegetables, medium for yams and oranges and low for bovine meat and dairy (Zegarra, 2010). However, the pattern of support does not reflect this. Although poultry does receive a high level of support, other crops on the list are either less supported or even implicitly taxed. The concentration on a small number of "policy-favoured" goods is reinforced by budget support (tax concessions and loan interest rate subsidies) which is focused on the same subsectors both absolutely and relatively.

Two hallmarks of the status quo are a lack of transparency for market and price signals, and administrative discretion over whether or not to accord support to an activity or producer. It is understandable that Jamaica wishes to support a sector that provides livelihoods for many of the most vulnerable and which faces strong competition from regional neighbours that also support their agriculture heavily. But a more even distribution of policy benefits would increase the gains from any given level of support by working with rather than (as is too often the case now) against the market. This can be achieved by shifting support from transfers to producers to more general services support.

Reforming the tax system for agriculture

A start on achieving this more even distribution of policy benefits can be made by harnessing the current tax reform to serve the objective of providing a more neutral level of support. This would remove or reduce those agricultural tax concessions that are difficult to justify in the current economic and fiscal climate and retain those concessions that continue to provide relevant support to the agricultural sector. It would also review the existing level of protective taxes, reducing those where there would not be a significant negative impact on the agricultural sector.

Income tax

The case for retaining a long-term income tax exemption for farmers is not strong, especially in the current fiscal environment where the government is seeking to reduce tax concessions in order to provide lower tax rates that would benefit all taxpayers rather than specific sectors. The agricultural sector needs to be seen as playing its part, particularly in light of its current low tax burden, although it is recognized that it is unlikely to ever provide a significant amount of revenue. But this does not work unilaterally: removing the farm income tax exemption altogether could have a significant impact on investment if there are not similar moves in other sectors (such as the tourism industry).

Recognizing that the government may still want to provide assistance to new farmers, and balancing the fiscal needs of the wider economy, a compromise option is to retain approved farmer status but limit it to a non-renewable period of no more than five years. Because such an income tax exemption should be sufficient to achieve the purpose of encouraging agricultural activity, there is, therefore, no need for the other income tax concession (deducting losses against other income), which is open to abuse, could encourage inefficiency and is also overly generous, as most countries do not allow losses relating to exempt income.

Capital allowances should be used more widely. Many countries replace income tax exemptions with special capital allowances, such as accelerated depreciation or investment tax credits, that reward the act of investing in capital assets.

GCT

There is a reasonable case for the retention of the statutory GCT exemptions for agriculture which are consistent with international practice. These exemptions are for production inputs and certain agricultural products. The former can be justified on the basis of

a reduction in production costs and the benefits it provides in encouraging profitable farmers, as well as assisting subsistence farmers. The latter is common to protect the poor from the impacts of the GCT on prices of basic food items (although the rich benefit more than the poor).

Property tax

The property tax system in Jamaica is fairly simple and the property tax rates are very low, even without the de-rating. There has also been little reaction in the agricultural sector to the tax. It is reasonable, therefore, to leave it at its current setting.

Trade taxes

The protective taxes for the agricultural sector are under threat due to the proposal in the Green Paper to reduce all tariff rates to a maximum of 20 percent. However, the Green Paper left scope for protecting the agricultural sector, where necessary, through the use of the ASD.

A possible strategy for balancing the needs of the agricultural sector with the government's other social, economic and tax objectives is proposed in the next section. It would not fully solve the adjustment problems faced by those industries currently subject to much higher rates (notably poultry, which, as explained in Chapter 5, would face severe difficulties). But this could be dealt with by deferring the introduction of the new rates.

Some of the other agricultural goods subject to the higher rates might be able to survive with a lower rate of effective protection. In the case of tomatoes, for example, the average price difference between the domestic and import price (before taxes) in the period 2007–2009 was only 19 percent, though as explained in the Agricultural Sector Support Analysis (Section 4), there are some inconsistencies in the volume and unit value of imports.

A more proactive policy on climate change

Despite the increased availability of information upon which to act, Jamaica has remained largely reactive to the management of hazards, and the formal focus on climate change is still weak. There is a gap in institutional arrangements for climate change adaptation, largely due to the absence of a legislative framework. Institutional arrangements are, therefore, fragmented and efforts are ad hoc.

A review of the MOAF policies detailed in the Climate Change Report indicates that there is no coherent approach to dealing with the impacts and associated effects of climate change. Likewise, the issue of climate change is not directly addressed in these policies. Vision 2030 does not deal explicitly with the effects of climate change. The Hazard Risk Reduction and Climate Change (HRRACC) Sector Plan 2009–2030 has a goal of hazard risk reduction, Goal #4: Culture of Hazard Risk Reduction, but there is no goal related to climate change. Instead, climate change is placed within the Goal of HRR under a theme of environmental management. Similarly the Draft National Fisheries Policy makes no specific mention of climate change adaptation, although it does address goals linked to climate change adaptation.

The analysis reveals that although several new programmes are in the pipeline, the level of intervention taken up by the government, donor agencies and NGOs focusing on climate change issues in the agricultural sector is very low compared to population dependence for livelihood activities. While the activities under various projects and programmes may have some impact on addressing the effects of climate variability and change, it is only more recently that various national programmes have committed to mainstreaming climate change in development.

Nonetheless, many aspects of the government's plans are relevant to dealing with climate change and just need to be adjusted to make the link explicit. Agriculture Sector Plan's Vision 2030 highlights the impacts of climate variability and change as being a threat to sustainable development and provides the framework within which corrective and preventive actions should be undertaken. Its focus is on the goal of "An Environmentally Sustainable Sector" with "strengthened risk and hazard mitigation for the sector" (PIOJ, 2009:48). The Agriculture Sector Plan's vision is for the dynamic transformation of the Jamaican agricultural sector through a sustained, research-oriented, technological, market-driven and private sector-led revolution, which revitalizes rural communities, creates strong linkages with other sectors and emphatically repositions the sector in the national economy to focus on production of high-value commodities and contribute to national food security. Through assistance from FAO, the MOAF developed an Agricultural Disaster Risk Management Plan that seeks to build on existing disaster functions of the MOAF as well as other agencies that have a role to play.

There are operational policies/guidelines of the MOAF that have linkages to climate change adaptation and mitigation. They include:

food security; the reduction of environmental degradation; the promotion of market-driven and priority-based research and development programmes to increase competitiveness and output in the agricultural sector; the development of strategies and approaches to promote the sustainable use and management of agricultural lands; the development and strengthening of the fisheries sector; and policy development. There remains a need for the desired outcomes to more clearly reflect climate change adaptation and mitigation measures.

Although there has been a change in policy direction in recent years and greater importance is now given to strategies and measures which address climate change impacts, these interventions are still not adequately targeting the agricultural sector. There is a wealth of information on coping and adaptation strategies available which enable farmers, fishers and policy-makers to respond to the increasing risks of climate variability and climate change. However, these responses need further improvement – building on the traditional and local knowledge and scientific understanding of climate change impacts on ecosystems, agriculture, fisheries and aquaculture.

The new direction should build on fresh ideas and renewed efforts to attract new investments such as greenhouse technology, slope land stabilization, *in-situ* moisture conservation, alternative surface water source development and water harvesting for the benefit of small-scale agriculture. Equal attention needs to be given to institutional strengthening to support the livelihood adaptation to climate change and to implementing risk reduction measures. The pilot experiences from the community-level initiatives through the Global Environment Facility (GEF) Small Grants programme in Jamaica can provide insights on local vulnerabilities, and help prioritize the measures to reduce the vulnerability and risks and to enhance the resilience to climate impacts.

Recommendations on agricultural support

Broaden the range of non-discretionary support policies

The Government of Jamaica uses a limited number of policy measures in the agricultural sector, with import tariffs dominant. It is recommended that the government consider broadening the measures to put more emphasis on the promotion of technology and infrastructure development to provide long-term advantages and stimulate the competitiveness of Jamaican agriculture.

Jamaica's agricultural policy is to a large extent discretionary and ad hoc. The number of discretionary policy mechanisms should be reduced with respect not only to taxes (see below) but also to grants to producers. Transparent rules and criteria should be established and made available for all participating agents, and the discretion of individual officials in selecting beneficiaries for support should be eliminated.

Liberalize markets

The efforts to reduce government participation in agricultural production already made by the government should be continued. Privatization of the state-owned agricultural and agrifood companies should continue as it has already demonstrated its effectiveness in the sugar sector.

The role of the commodity boards as commercial enterprises should be reduced and cooperation between these boards and MOAF in terms of information exchange should be increased. Increased control over the policy applied by these boards and the prices they pay to the producers for agricultural commodities supplied to them would be desirable to reduce any adverse consequences on their monopoly on exports and on marketing channels. For the banana subsector, the aim could be to reduce the role of the banana board and improve the supply of information on the subsector's development to MOAF. For the coffee subsector, while the Coffee Industry Board provides valuable technical assistance and quality assurance in the subsector, its marketing role should be reviewed and the coffee trade possibly made more liberal in order to ensure that market transfers to the farmers are sufficient for modernization and efficiency enhancement.

The government should aim to lower overall PSE levels but (for example, like Chile) to devote a higher share of TSE to general services support that would provide more opportunities for the development of competitive domestic production. This would stimulate more efficient behaviour by all market players, saving budget funds and providing a basis for long-term growth. More targeted consumer support in combination with decreasing support in the poultry sector would lead to more efficient allocation of public resources.

Broaden rural development policy

Rural development policy is not yet sufficient for developing non-agricultural employment in rural areas. Most of the employment diversification measures are aimed at shifting workers out of

traditional loss-making subsectors such as sugar or bananas into non-traditional crops production or small ruminants breeding. But this approach might only delay the problems in the agricultural sector and not contribute to solving them. To the extent that rural development includes agricultural production, it should be more closely integrated with the rest of the economy. The Climate Change Report provides details of the pioneering work associated with the Sandals Group to build a strong link among domestic suppliers of agricultural produce to its hotels.

At present agricultural production in Jamaica is supported at the expense of the consumer (including tourists) rather than for their mutual benefit, which creates difficulties in reaching poverty reduction goals and requires more funds to be spent on building safety nets. It is recommended that there should be more integration between food programmes and farmer support programmes in ways that benefit consumers and expand demand for agricultural products.

More support is needed for market and rural infrastructure improvement. High transaction costs in Jamaica are reflected in high marketing margins and high costs of delivery of farm produce to markets. Poor infrastructure, especially lack of roads in farming areas, means higher costs and lower revenues for farmers.

Recommendations on agricultural tax

Although they are only a part of an agricultural reform strategy, the following recommendations on tax changes related to the agricultural sector begin to address the issues raised above. Annex 1 of this synthesis report provides a possible sequencing of the reforms and also a broad indication of whether the measures would raise revenue or cost revenue. More accurate estimates of the revenue costs or gains from these measures are difficult as not enough reliable data are available.

Time limit the grant of approved farmer status

Recognizing that the government may still want to provide assistance to new farmers, and balancing the fiscal needs of the wider economy, a compromise option is to retain approved farmer status but limit it to a non-renewable period of no more than five years. This assumes that other sectors will also have their income exemptions either removed or reduced in a similar way. This will provide assistance to new farmers, but at the same time ensure the agricultural sector is contributing to the government's fiscal

needs, that the sector is treated equitably with other preferred sectors and that a more efficient sector is encouraged.

Expand capital allowances

The Jamaican tax system already provides a 40 percent investment allowance for the purchase of new agricultural equipment in certain industries (e.g. agroprocessing and sugar). This provision could be expanded to cover the whole agricultural sector. This expansion should encourage the replacement of old equipment and ensure the sector stays up to date with new technology.

Remove discretion

The discretionary waiver on GCT for agricultural equipment, and trucks and pickups used for agriculture would be better provided as statutory exemptions following appropriate enactment. The import tax waiver for agricultural equipment should also be made a statutory exemption. All statutory exemptions should then be regularly reviewed.

Reduce trade taxes

Strategy needs to balance the desirability of reducing, on the one hand, the intra-sectoral distortions created by much higher import taxes on some products than on others and, on the other hand, allowing producers of the most adversely affected goods time to adjust. It is recommended that tariffs are reduced for most agricultural products to no more than a 20 percent ceiling and that a standard ASD be applied to all protected agricultural goods. This could be set at around 50 percent to produce an effective rate of 80 percent.

While government should proceed with caution, monitoring import and domestic market conditions to ensure that it is “water” that is actually removed from the current protection levels, the suggested 80 percent combined trade tax is similar to the 86 percent effective rate that currently applies to a number of agricultural products. It would bring the agricultural sector’s tariff rates in line with other rates and streamline the ASD, hence simplifying the system, while at the same time still providing protection.

The current rates should be retained for the poultry industry for the present but with a review in three years with a view to gradually reducing the rates in order to encourage the industry to become more efficient.

Reform tax administration

There are two administrative reforms that would improve future agricultural tax policy development.

First, all tax concessions (agricultural and other) should have a sunset clause, normally of no more than five years. This is to ensure that the concessions are achieving the purpose for which they were introduced: if still necessary, they can be continued. This would help to avoid the problem that once a tax concession is in place it is difficult to remove.

Second, the cost of agricultural tax concessions needs to inform future analysis. This applies particularly to approved farmer status, so farmers with such status should be required to file income tax returns to provide data on the revenue forgone which will assist in any cost/benefit analysis. In practice, it will only apply to the larger-scale farmers who qualify for approved farmer status; many of them should have reasonable accounting records.

Annex 1 - Estimated potential revenue impact and timing of reform measures

Measure	Potential timing	Revenue impact (gain "+", loss "-")
Income tax		
Reduce the exemption period for farmers with approved farmer status.	Short term	+
Expand the current 40 percent investment allowance to the whole agricultural sector.	Short term	-
Remove the ability for approved status farmers to offset their losses against other income.	Short term	+
Remove the general prohibition on the offsetting of agricultural losses.	Medium-, long- term	-
GCT		
Retain the statutory GCT exemptions for inputs to agricultural production and certain agricultural products.	No change	No change
Make the discretionary GCT exemptions for agricultural equipment and pickups and trucks as statutory exemptions.	Short term	No change
Import taxes		
Retain the statutory import tax exemptions for inputs to agricultural production and expand the statutory exemptions to include agricultural equipment.	Short term	No change
Review the list of agricultural products for discretionary waivers and ensure that if it is unlikely that domestic production will be able to meet the demands, then the tariff rates are adjusted accordingly.	Short term	-
Align the tariffs for most agricultural goods with the proposed 20 percent tariff rates and apply a standard ASD of around 50 percent.	Short term	-
Retain the higher trade taxes for the poultry industry and other goods if a reduction to the above standard rates would severely threaten the local industry, but review these rates in three years with a view to a gradual reduction.	Short term	-
Property tax		
Retain the current tax settings, including the de-rating for agricultural land.	No change	No change
Administrative issues		
Ensure all agricultural tax concessions have a sunset clause of no more than five years.	Short term	
Require approved status farmers to file income tax returns.	Short term	

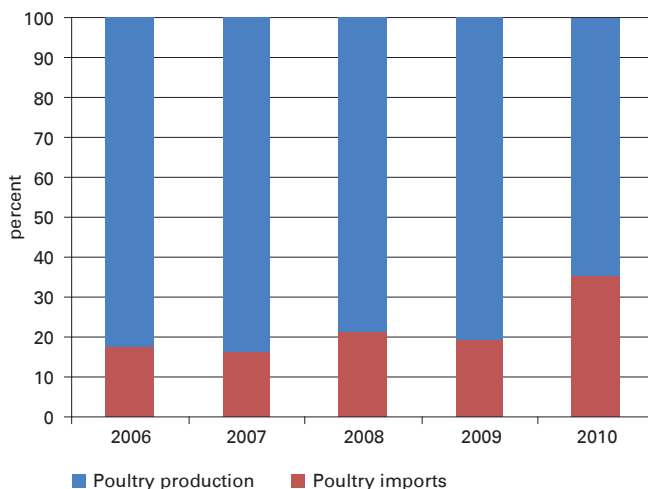
Annex 2 - Poultry MPS calculation revised

The choice of reference prices can significantly affect the results of the PSE calculations. This is particularly important in the case of the Jamaican poultry sector. This appendix seeks to illustrate such differences and indicate the detailed assumptions used in our estimates for the poultry sector.

Applying conventional PSE methodology

According to the conventional PSE methodology, the best choice of reference prices is the weighted average of unit value of imported commodity (also referred to as CIF import prices). This would normally be the choice of reference prices used in calculations in Jamaica, given that 20–35 percent of domestic consumption is imported poultry (Figure 11).

Figure 11: Poultry production and imports in Jamaica, 2006–2010



Source: MOAF, UN Comtrade.

According to the trade and consumption data, one would expect domestically produced poultry to compete with this import product (frozen poultry imported from the United States of America) and

international prices in the absence of the policy intervention would affect domestic prices.

However, the results obtained cannot be explained by the policy in place for protection of the poultry market. Even the existing extremely high border protection for the poultry subsector does not fully explain the high level of price gap which is obtained using the conventional PSE methodology (Table 7).

Table 7: Poultry MPS, NPR and SCT: Jamaica CIF prices (initial results), 2006–2010

	Unit	2006	2007	2008	2009	2010
Poultry reference price ²² (at wholesale level)	JMD/tonne	32 212	37 726	41 556	60 115	28 397
Poultry producer price (wholesale)	JMD/tonne	140 200	165 610	197 990	221 750	243 725
Market price differential poultry	JMD/tonne	107 988	127 884	156 434	161 635	215 328
Poultry NPR=market price differential as a share of reference price	%	335	339	376	269	758
MPS poultry	million JMD	11 232	13 717	16 695	16 891	21 670
Value of poultry production	million JMD	14 582	17 764	21 130	23 173	24 528
Market price support as % of value of domestic production	%	77	77	79	73	88
SCT% poultry	%	77	78	79	73	89
Jamaica National PSE	million JMD	14 385	21 326	20 533	18 439	30 450
PSE% national	%	26	37	30	22	36

Source: Authors' calculations.

Therefore, we suspect that while the methodology applied is theoretically adequate, there are some deficiencies in the reported trade data, which go beyond simply product quality (for example United States statistics describe the same products as Jamaican statistics do but with very different price levels).

22 Source: weighted average unit value of Jamaica poultry imports, UN Comtrade database: Jamaica trade data, converted to JMD using the official exchange rate.

Alternative estimation of support to the poultry sector used in this report

In order to account for these problems, this study makes use of mirror trade statistics reported by the United States of America. Jamaica mainly imports poultry from the USA, whose frozen poultry constitutes 91-96 percent of total poultry imports to Jamaica.

United States of America trade statistics (USDA database) was used to calculate the average unit value of USA exports of poultry to Jamaica (USA FOB export prices) (Table 8).²³ The prices were adjusted for freight and insurance costs from the United States of America to Jamaica, to make the price comparable with the domestic wholesale prices (Figure 12). The results using this reference price seem to reflect adequately the current support policy for the poultry sector in Jamaica (Table 9).

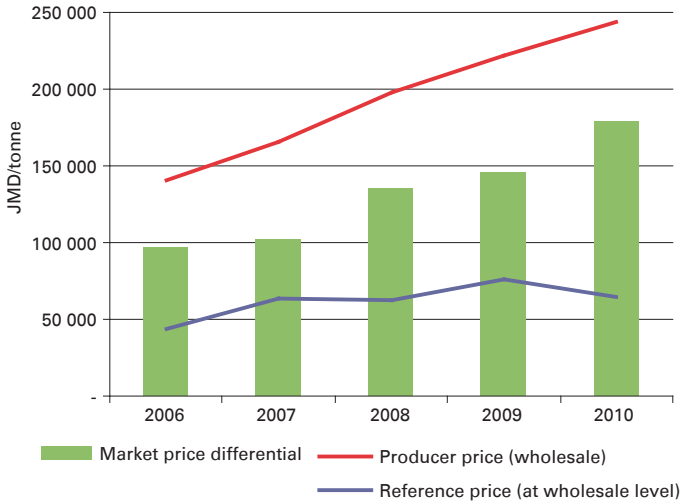
Table 8: Reference price: USA FOB exports to Jamaica, 2006–2010

	Unit	2006	2007	2008	2009	2010
Jamaica CIF price as reported by Jamaica (COMTRADE)	USD/tonne	488.94	546.27	569.87	679.34	324.98
USA FOB price (FAS USDA)	USD/tonne	585.27	833.25	771.35	773.84	659.37
Freight+insurance USA-Jamaica (estimation)	USD/tonne	80	80	80	80	80
Border reference price	USD/tonne	665.27	913.25	851.35	853.84	739.37

Source: UN Comtrade, USDA and authors' calculations.

²³ United States of America exports to Jamaica in terms of volumes of trade are significantly lower than Jamaican imports from the United States of America reported by Jamaica. Therefore, the prices (unit values) of the same United States of America-Jamaica trade value according to Jamaican statistics is much lower, while US FOB data still need to be adjusted for freight and insurance.

Figure 12: Price gap: adjusted US FOB prices, 2006–2010



Source: Authors' calculations.

The price gap is increasing due to domestic price increases: domestic prices are growing steadily at an average 15 percent per year, moderately above domestic consumer price inflation.

The results of poultry MPS, NPR and SCT and Jamaica national PSE calculations are demonstrated in Table 9.

Table 9: Poultry MPS, NPR and SCT: US FOB prices 2006–2010

	Unit	2006	2007	2008	2009	2010
Poultry reference price ²⁴ (at wholesale level)	JMD/tonne	43 828	63 069	62 080	75 556	64 606
Poultry producer price (wholesale)	JMD/tonne	140 200	165 610	197 990	221 750	243 725
Market price differential poultry	JMD/tonne	96 372	102 541	135 910	146 194	179 119
Poultry NPR=market price differential as a share of reference price	%	220	163	219	193	277
MPS poultry	JMD mn	10 024	10 999	14 504	15 278	18 026
Value of poultry production	JMD mn	14 582	17 764	21 130	23 173	24 528
MPS as % of value of domestic production	%	69	62	69	66	73
SCT% poultry	%	69	63	69	67	74
Jamaica national PSE	JMD mn	12 627.75	17 348.52	17 303.09	15 907.97	24 683.21
PSE% national	%	23	30	25	19	29

Source: Authors' calculations.

NPR measures support to the sector as a percent share of price gap to the border reference price. This means that NPR values must be close to the explicit border protection in place, but may be higher or lower due to other policy actions affecting domestic prices as well as due to the non-policy factors (infrastructure deficiencies, etc.).

NPR for poultry calculated with the revised reference prices is 163–277 percent. It reflects a high border protection level (tariff and duties) of 260 percent for poultry in Jamaica, feed supply support measures as well as market monopolization. SCT% for poultry is 63–74 percent, meaning that transfers from different policy actions constitute 63–74 percent of total poultry farmer's receipts.

²⁴ Source: weighted average unit value of United States of America poultry exports to Jamaica (FAS USDA), adjusted for freight and insurance costs and converted to JMD using the official exchange rate.

Therefore, due to the deficiencies of the statistics used in the initial calculations, this reworked version provides more reasonable results. National PSE is lower in this case, because poultry support plays a very important role in the overall level of support to agriculture in Jamaica. However, it does not affect any of the main conclusions made in the report previously, while it better captures the effect of the policy mix on the poultry market.



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