

Saint Lucia in the Banana Global Value Chain

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Prepared by
Danny Hamrick, Vivian Couto and Karina Fernandez-Stark

Duke Global Value Chains Center,
Duke University

Duke  Global Value Chains Center

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Acronyms

ACIAR	Australian Center for International Agriculture Research
ACP	Africa, Caribbean and Pacific
ANACAFE	Asociación Nacional del Café
AUGURA	Colombia Banana Growers Association
BAM	Banana Accompanying Measures
BPIP	Banana Productivity Improvement Project
BSMP	Banana Black Sigatoka Management Project
CAB	Environmental Banana Commission
CARICOM	Caribbean Community
CORBANA	Corporación Bananera Nacional
EEC	European Economic Community
EU	European Union
FFC	Fine and Flavor Cocoa
FINACAO	Association of Producing Countries of Fine Aroma Cocoa
FLO	Fairtrade Labelling Organization
FONECAFE	National Fund for Coffee Stabilization
GI	Geographic Indication
GVCC	Duke University Global Value Chain Center
GVC	Global Value Chains
ICAFE	Instituto del Café de Costa Rica
IFOAM	International Federation of Organic Agriculture Movements
JAMPRO	Jamaica Promotion Corporation
JAS	Japanese Agricultural Standard
JEA	Jamaica Exporters Association
JMA	Jamaica Manufacturers Association
MGAP	Ministry of Agriculture, Livestock, Aquaculture and Fisheries
MNCs	Multinational Corporations
NFTO	National Fairtrade Organization
OAS	Organization of American States
SENA	National Vocational Training Academy
SLBGA	Saint Lucian Banana Growers Association
SMEs	Small and medium-sized enterprises
TEPA	Trade Exports Promotion Agency
TQFC	Tropical Quality Fruit Company
UK	United Kingdom
US	United States
USDA	United States Department of Agriculture
WIBDECO	Windward Islands Banana Development and Exporting Company Limited
WTO	World Trade Organization

Executive Summary

This report uses the Global Value Chain (GVC) framework to examine Saint Lucia's position in the global banana industry and identify opportunities for local businesses to improve their position in the sector. While the country is a relatively small player in terms of overall production volume, it has a distinguished historical tie to banana and the industry is a significant economic and job generator in the nation. However, declining export prices and increased issues with disease and production disruptions threaten the industry.

After a period of sustained growth, the industry has experienced many challenges since the mid-1990s. Liberalization of European Union (EU) markets facilitated the emergence of new suppliers who have considerably lower production costs than Saint Lucia. At the same time, consistent supply disruptions from diseases, such as Black Sigatoka and storms threatened the industry. The decision to move towards a niche market via Fairtrade provided some reprieve, but the price margins farmers receive under this scheme are low, pushing many out of production. To remain an industry player, Saint Lucia must address these constraints as well as issues of industry coordination.

The Banana Global Value Chain

Bananas are a major crop serving as both a commercial crop and as a source of nutrition and livelihood for millions across the globe. Bananas are diverse with multiple varieties consumed across nations. In the export market, bananas sales are concentrated on the Cavendish variety. Production reached 113 million tons in 2016 with a retail value of over US\$20 billion (BananaLink, n.d.-b; Statista, 2018b). That same year, exports surpassed US\$14 billion, making the banana industry a major economic driver for many nations (BananaLink, n.d.-b; UNComtrade, 2018). While production spans the globe, exports are concentrated in Latin America and the Caribbean, which accounts for the majority of exports. Ecuador alone supplies 27% of globally traded bananas (UNComtrade, 2018). Amid strong export activities, a restructuring of the industry is shifting power increasingly to retailers in the Global North, which is resulting in downward pressure on unit value among exporting nations. Some of the most pronounced recent trends that influence the industry include:

- **The organization of the fresh banana industry is shifting from being vertically integrated towards a fragmented model, with different firms active along various segments of the value chain.** Unlike the banana industry of the 1980s through the 2000s, which was characterized by vertically integrated multinational corporations (MNCs), today's market is less concentrated (FAO, 2014a). The historical model consisted of large MNCs (for example Chiquita, Del Monte and Dole) that managed almost all segments of the value chain, from the selection of input suppliers to distribution. It is estimated that in the 1980s, the five leading banana firms accounted for 80% of trade in bananas. However, recent divestments of company-owned plantations and shipping vessels has lowered their impact to only managing 39% of banana trade (BASIC, 2015). This reduction is creating opportunities for new entrants. At the same time food retailers are rising in importance, leveraging their access to consumers to set prices and production specifications (Reardon, 2011). As a result, while consumer prices have risen slightly since 2001, wholesale prices have declined 25% (BASIC, 2015)
- **Global supply in recent years is shrinking due to the emergence of diseases.** Banana productivity is declining as disease and climate factors make it hard to produce large

quantities of bananas in many nations. Between 2013 and 2016 export volumes declined 10% with export value remaining constant (UNComtrade, 2018). One of the major reasons associated with declining production is diseases such as Black Sigatoka and the Tropical race 4 which plague production across the globe (Baggaley, 2017; Ploetz, 2001a). Such a trend is problematic not only for importing nations but also for the estimated 400 million people in producing nations depending on bananas to meet their nutritional needs (BananaLink, n.d.-b).

- **Shifts in EU trade policies are allowing large-scale producers better access to the market, increasing the challenges for small producing nations to compete.** Historically, select nations held preferential access to the EU, most often former colonies in the Africa, Caribbean and Pacific (ACP) region (Mlachila et al., 2010). Under this model, ACP nations benefited from duty and quota free access for EU markets. As a result, many ACP countries increased exports to EU, most notably the Dominican Republic and Cote d'Ivoire. However, this preferential access is ending as a result of resolution of longstanding disputes between the EU and many Latin American nations excluded from this preferential access. The resolution, under the Geneva Agreement on Trade in Bananas, went into effect in 2012. The agreement removes barriers many nations faced in the previous system and eroded preferential access for select nations. The result is the entry of many new large volume supplier such as Colombia and Ecuador.

Saint Lucia in the Banana Global Value Chain

In 2016, Saint Lucia's banana exports were approximately US\$7 million (UNComtrade, 2018). One of the biggest constraint to industry growth is competitive pressures from larger volume exporting nations, such as the Dominican Republic and Ghana who enjoy lower production and transport costs. These nations are increasingly supplying the United Kingdom (UK) market, limiting demand for Saint Lucia's bananas. Further, the country's export unit value declined 25% since 2005 and is now 19.5% lower than the global average (UNComtrade, 2018). Between 2010 and 2011, Saint Lucia experienced a drastic drop in exports, from US\$26.5 million to US\$7 million (UNComtrade, 2018). Current participation in the banana GVC remains concentrated on the production, packaging and export segments of the chain.

The banana industry in Saint Lucia is characterized by a high degree of power held by the primary exporter, WINFRESH. WINFRESH exclusively sources Fairtrade bananas from the National Fairtrade Organization (NFTO) and sends virtually all of its bananas to the UK market. The estimated 748 farmers on the island have considerably less power, accepting the terms set by WINFRESH and smaller scale buyers (Field Research, 2018). However, this system is changing as regional demand grows.

Saint Lucia has several advantages it can capitalize on as it pursues upgrading trajectories in the banana GVC. The advantages include:

- I. **Historical experience in banana production.** Saint Lucia can trace banana production and exports to the 1950s. This, coupled with the family-owned structure of production, translates into vast experience and knowledge in the agricultural practice.

2. **Expertise and knowledge in international trade.** The legacy of banana production and export has enabled GVC stakeholders—namely NFTO and WINFRESH—to gain considerable expertise in the international market as well as great business management skills.
3. **Established ties with the UK market.** Since the Lomé Convention in 1975, Saint Lucia has exported the majority of its banana production to the UK. Currently, WINFRESH exports to a group of supermarkets that account for 39% of the UK grocery store market 2017, namely ASDA, Sainsbury and Waitrose (Statista, 2018a).
4. **Reputation as a Fairtrade and GlobalGAP producer.** Saint Lucia’s involvement in Fairtrade dates back to the scheme’s commencement in the late 1990s. Currently, the country is the only producer of Fairtrade bananas in the Winward Islands, and unusually, all commercial banana imported by the UK from Saint Lucia are Fairtrade certified.

Despite these strengths, there are multiple challenges, some of which have become particularly pronounced in recent years. The most prominent include:

1. **Coordination failures and weak management support.** Saint Lucia’s government and WINFRESH have very different priorities and directions. Disagreements on how to best integrate in the banana GVC is not only limiting the competitiveness of the industry but also the design and implementation of an effective national strategy. The result is the nation is unable to predict and monitor production figures, hectares available for production, and the location of plantations.
2. **High cost of production.** The cost of banana production—especially Fairtrade bananas—is higher than competitors due to high cost of inputs, pest control, labor and packing materials. For farmers exporting to the regional market, production inputs are frequently unavailable, with delays of about a month to obtain inputs and packing materials. Further, fungicide treatment for Black Sigatoka and irrigation systems are very costly and therefore often lacking in the country.
3. **Low productivity coupled with crop lost due to poor pest and disease management and weather conditions.** Low productivity is attributed to Black Sigatoka disease, weak land fertility due to heavy use of pesticides during the 1980s-1990s, and poor labor productivity. Poor labor productivity is perceived to be rooted in the lack of modern agricultural practices—namely, proper fertilizing and chemical application. Further, with most growers having their farms in the hills, steep slopes prevent mechanization and irrigation; hence farmers are at the mercy of increasingly unpredictable weather patterns.
4. **Limited land availability due to archaic ownership system and transfer of agricultural lands to commercial land.** Saint Lucia’s banana industry is constrained by the lack of available lands for farming. This is due to several issues, including: a) the island utilizes a family land tenure system that hinders land transactions, since multiple owners may own the same land plot and many are difficult to identify and contact; b) critical agricultural lands are being shifted to commercial lands, mainly benefiting the tourism industry.

5. **Weak infrastructure both at the national and regional level.** Despite government support, agricultural road access and the quality of national infrastructure is still not sufficient. This constraint is especially hindering plantations in steep lands, despite relatively higher investment in road infrastructure. In addition, according to field research, moving bananas from Saint Lucia to nearby regional markets is highly constrained by the absence of established shipping routes. Frequently, transportation times to regional markets exceeds seven days with produce going to Miami before reaching its buyer.
6. **Limited access to finance.** The lack of financial capital is another barrier to addressing high production costs, as well as to adopting new technologies or implementing more efficient agricultural practices. Current programs that offer financing are focused only on NFTO members, excluding local and regional farmers, which represents the majority of banana farmers on the island.
7. **Limited data availability.** Production data is limited. While WINFRESH collects certain data on the banana industry, including number of farmers and exports, government officials indicate that obtaining these is difficult. The lack of data presents severe difficulties in monitoring the productivity of the industry or establishing proper programs targeting the correct audience.

Other producers of bananas have overcome similar impediments using a variety of tactics. Ecuador provides an example of government-led growth. The government, through a variety of laws and programs is focusing on increasing production and reducing the number of bananas rejected due to defects. It also successfully leveraged its position as a lead producer and the reorganization of the global market to move into new activities, namely coordination of exports and logistic activities.

In contrast, Costa Rica offers an example of an association-led industry strategy focused on disease management and variety production. Through research partnership with various educational institutions and programs with farmers, the nation is effectively handling Black Sigatoka. At the same time the nation is investing in methods to differentiate their bananas on the global market, though this is not improving export unit values.

Beyond productivity and disease management programs, both nations are also diversifying into other crops, replacing banana plantations completely or intercropping them with other products. Ecuador is using its strategic climate advantages to bolster cocoa production, planting high value varieties of the plant for artisanal chocolate makers. Costa Rica, in contrast, is moving into coffee, enjoying high value and rapid growth in the specialty coffee market. Both of these actions illuminate ways that Saint Lucia can leverage its knowledge and experience in bananas into new crops that have higher value and greater economic returns for farmers. The cases also show the importance of coordinated efforts led by either the government or industry associations.

Saint Lucia's potential upgrading can employ similar strategies to these cases, while addressing the country's location-specific challenges. Specifically, Saint Lucia should attempt the following trajectories:

1. **Short-medium term investments in process upgrading to increase productivity and effectively manage banana diseases.** Productivity in Saint Lucia—estimated at an average of 19.77t/ha—is less than half the global average. Efforts are needed to boost

productivity on banana lands to help increase supplies and become a more attractive sourcing location. Attention should be given to the distribution of inputs and the promotion of good agricultural practices among all farmers.

Additionally, Black Sigatoka and other diseases represents a critical constraint to growth. As an island, Saint Lucia has some natural buffers to disease but once they arrive, it is difficult to contain them. Any programs designed to increase productivity should also work towards effectively managing the disease and involve all banana farmers on the island.

- 2. Medium-term diversification of export markets to include markets that offer higher price margins.** Saint Lucia's banana exports are largely concentrated in one market, the UK. The emerging demand from regional trade partners provides an increasingly attractive alternative to the UK market, characterized by low prices and high standards. Regional markets frequently have less stringent quality and certification requirements, lowering the cost of production, and providing higher profit margins for farmers.
- 3. Long-term diversification into higher value agriculture commodities that offer entry into niche, premium markets.** Given Saint Lucia's limited land area and higher production costs, it is better suited to niche markets which focus on aspects other than price and volume. Saint Lucia is well suited for coffee and cocoa and is currently active in both to certain extents. In fact, 100% of its cocoa exports certified as fine and flavor cocoa (FFC) beans, a requisite for export into specialty markets. While such a shift is a major departure from the established banana industry organization, the growing demand for premium and niche products in several agricultural chains, coupled with the persistent challenges to the banana industry in Saint Lucia—make a case for diversification.

All of these upgrading trajectories should be accompanied by a set of transversal actions to help bolster the industry. Specifically, these transversal policies should focus on the following:

- ***Institutionalization:*** Historically, institutionalization in the Saint Lucia's banana industry centered on WINFRESH and NFTO, yet these concentrate on one export market. With the entry of new actors and internal issues, new efforts around institutionalization are necessary. Stronger coordination of all support roles, including knowledge transfer of best practices, input provisions, research into disease management, and implementation of productivity programs for all stakeholders is needed to help better position the industry. It should also provide a clear strategy for the nation. The government can employ a more aggressive strategy in supporting the industry through helping to establish a national committee to help direct the industry, fund projects and coordinate efforts towards a common strategy.
- ***Infrastructure:*** Roads in Saint Lucia are difficult to navigate, especially during rainy seasons. As a result, many farmers struggle to reach exporters. Significant investments to improve infrastructure in the banana producing regions will help facilitate the upgrading trajectories mentioned here, particularly process upgrading by smoothing the flow of inputs. It will also help minimize loss during transportation by allowing for faster transport times. Beyond internal infrastructure, focus should be given to establish trade routes between regional actors to make the flow of goods more efficient.

I. Introduction

Bananas, a highly consumed fruit also represent a major agricultural export. With global sales exceeding US\$20 billion in 2016 and exports surpassing US\$14 billion (BananaLink, n.d.-a; UNComtrade, 2018), the banana industry is a major economic driver for many nations. While production spans the globe, exports are concentrated in Latin America and the Caribbean, which accounts for the majority of exports. Ecuador alone supplies 27% of globally traded bananas. One variety of banana, 'Cavendish', is the primary exported banana, accounting for 99% of all global exports (Dale et al., 2017). Amid strong export activities, a restructuring of the industry is shifting power increasingly to retailers in the Global North, which is resulting in downward pressure on unit value among exporting nations.

Compared to other exporting nations, Saint Lucia is a small supplier of bananas. In 2016, exports were approximately US\$7 million (UNComtrade, 2018). One of the biggest constraints to industry growth is competitive pressures from large volume exporting nations, such as the Dominican Republic and Ghana who have lower production and transport costs. These nations are increasingly supplying the United Kingdom (UK) market, limiting demand for Saint Lucia bananas. Further, the nation's export unit value declined 25% since 2005 and is now 19.5% lower than the global average (UNComtrade, 2018). Between 2010-2011, Saint Lucia experienced a drastic drop in exports, from US\$26.5 million to US\$7 million (UNComtrade, 2018). The steep fall is attributed to several factors, namely the emergence of Black Sigatoka on the island, and losses from Hurricane Thomas.

Further challenges to the industry stem from high production costs and low productivity. High production cost is partly explained by the Fairtrade certification used for all exports to the UK which set strict standards on input use and production methods. Additional challenges from a lack of industry coordination, archaic land tenure system and infrastructure problems place further strain on the industry.

This paper uses the Duke Global Value Chain Center framework to assist local and regional stakeholders' efforts to boost the Saint Lucia banana sector. The Global Value Chain (GVC) framework helps policymakers better understand how the global banana industry is evolving and assess Saint Lucia's current position in the chain with the goal of identifying opportunities for economic upgrading that provide returns for small and medium-sized enterprises (SMEs) in the country. The report is structured as follows: It first provides an overview of the banana value chain to present a clear understanding of the scope of the industry, how markets are structured and how the distribution of supply and demand destinations influence structural dynamics within the industry. It then analyzes the domestic industry within Saint Lucia, first detailing the country's position in the chain as well as recent export trends. After examining Saint Lucia's position in the chain, it outlines the organization and governance found in the local landscape. Following an assessment of the advantages and constraints observed in Saint Lucia, it looks to Ecuador and Costa Rica for comparative case studies and lessons for Saint Lucia. The report concludes by outlining potential upgrading strategies to enhance the country's competitiveness.

2. The Global Banana Industry

Bananas are a major agricultural crop not only as a commercial crop but also as a source of nutrition and livelihood for millions across the globe. The product is diverse with multiple varieties consumed across the globe. In the export market, bananas sales are concentrated on the Cavendish

variety. Production reached 113 million tons in 2016 with a retail value of over US\$20 billion (BananaLink, n.d.-b; Statista, 2018b). Bananas are frequently consumed locally, being a major source of nutrition for 400 million people. As a result, it is not only a driver of economic growth but also a food and nutrition security concern for many producing nations.

Most bananas are consumed locally, with only 15-20% being traded on the global market. However, it does represent a major agricultural export industry with trade totaling US\$14 billion in 2016 (BananaLink, n.d.-b; UNComtrade, 2018). Exports are growing as consumers across the world increasingly consume the fruit for its health benefits. Despite a growth in export, unit prices are declining signaling changes in the organization of the market and the entry of new suppliers for key markets.

Despite a long history of dominance by major fruit exporters, the industry recently underwent notable changes. Three major trends have shaped the global banana industry in recent years: (1) the fragmentation of the fresh banana market as retailers grow in prominence; (2) Shrinking global supply as demand in key markets grows; and (3) Changes in European Union (EU) trade policy, reducing preferential access of select nations facilitating entry of new producers. Each is discussed below.

- 1. The organization of the fresh banana industry is shifting from vertical integration towards a fragmented model, with different firms active along various segments of the value chain.** Unlike the banana industry of the 1980s through the 2000s, which was characterized by vertically integrated multinational corporations (MNCs), today's market is less concentrated (FAO, 2014a). The historical model consisted of large MNCs (for example Chiquita, Del Monte and Dole) that managed almost all segments of the value chain, from the selection of input suppliers to distribution. It is estimated that in the 1980s, the five leading banana firms accounted for 80% of trade in bananas.¹ However, recent divestments of company owned plantations and shipping vessels have lowered their impact to 39% of banana trade (BASIC, 2015). This reduction is creating opportunities for new entrants. At the same time food retailers are rising in importance, leveraging their access to consumers to set prices and production specifications (Reardon, 2011). As a result, while consumer prices have risen slightly since 2001, while wholesale prices have declined 25% (BASIC, 2015).
- 2. Global supply in recent years is shrinking due to the emergence of diseases.** Banana productivity is declining as disease and climate factors make it hard to produce large quantities in many nations. Between 2013 and 2016 export volumes declined 10% while export value remained constant (UNComtrade, 2018). One of the major reasons associated with declining production is diseases, such as Black Sigatoka and the Tropical race 4, which plague production across the globe (see Box #) (Baggaley, 2017; Ploetz, 2001b). Such a trend is problematic not only for importing nations but also for the estimated 400 million people in producing nations depending on bananas to meet their nutritional needs (BananaLink, n.d.-b).

¹ Chiquita, Del Monte, Dole, Fyffes, and Noboa.

Box 1. Major Banana Diseases: Black Sigatoka and Tropical Race 4

A major threat to global banana supplies, in addition to climate issues, is disease. Diseases frequently impact crops, lowering global supplies for specific varieties. While some of the more prominent diseases in the past did not impact the Cavendish banana, the primary variety seen in export markets, more recent diseases now threaten the Cavendish banana tree. These diseases are discussed below.

One of the major threats to productivity in many nations is the Black Sigatoka, or leaf spot disease. The disease, discovered in 1963 in Fiji, now spans the globe. It is noticeable by a yellow streak across banana leaves and often results in an up to 50% crop loss due to smaller leaf area and premature ripening. Black Sigatoka is often difficult to manage with heavy use of fungicide and removal of infected leaves being the most efficient disease management technique. However, the treatment cost—which are up to 20% of retail prices, makes it nearly impossible for smallholders to manage. The disease was identified in Saint Lucia in 2010 and now infects an estimated 70% of all domestically produced bananas.

A second, potentially more devastating disease for bananas is the Tropical Race 4, a major fungal disease that threatens banana productivity, is spreading across the globe. Currently contained in Asia and Africa, experts worry that if it reaches Latin America, it could reduce global supplies by as much as 80%. The disease is a variation of an early 20th century disease that attacked many export varieties causing near extinction for many types of bananas. Tropical Race 4 is worrisome because it attacks the Cavendish variety. Further, the disease thrives in mono-cultivation environments, a major feature of export-oriented banana production. As mentioned earlier, the disease has not appeared in the Western Hemisphere, but it is impacting global supplies and could have an even greater impact in the future.

Source: Guilford (2014); ICDF (2017); Ploetz (2001a)

3. Shifts in EU trade policies are allowing large producing nations better access to the market, increasing the challenges for small producing nations to compete.

Historically, select nations held preferential access to the EU, most often former colonies in the Africa, Caribbean and Pacific (ACP) region (Mlachila et al., 2010). Under this model, ACP nations benefited from duty and quota free access for EU markets. As a result, many ACP countries increased exports to EU, most notably the Dominican Republic and Côte d'Ivoire. However, this preferential access is ending as a result of resolution of longstanding disputes between the EU and many Latin American nations excluded from this preferential access. The resolution, under the Geneva Agreement on Trade in Bananas, went into effect in 2012. The agreement removes barriers many nations faced in the previous system and eroded preferential access for select nations. The result is the entry of many new large volume supplier such as Colombia and Ecuador. Under the agreement, the EU will gradually reduce the tariff rate from €176/MT to €127/MT in 2016 (FAO, 2017b). By 2020 it is projected to be at €114/MT (FAO, 2017b). Further, bilateral trade agreements with several producing nations is setting their rates even lower. South American nations, such as Peru and Colombia are seeing a reduction in their tariff rates, accelerated by a set of bilateral trade agreements.² Under the current system, these nations receive a tariff rate of €96/MT. It will decrease further to €75/MT by 2020 (FAO, 2017b).

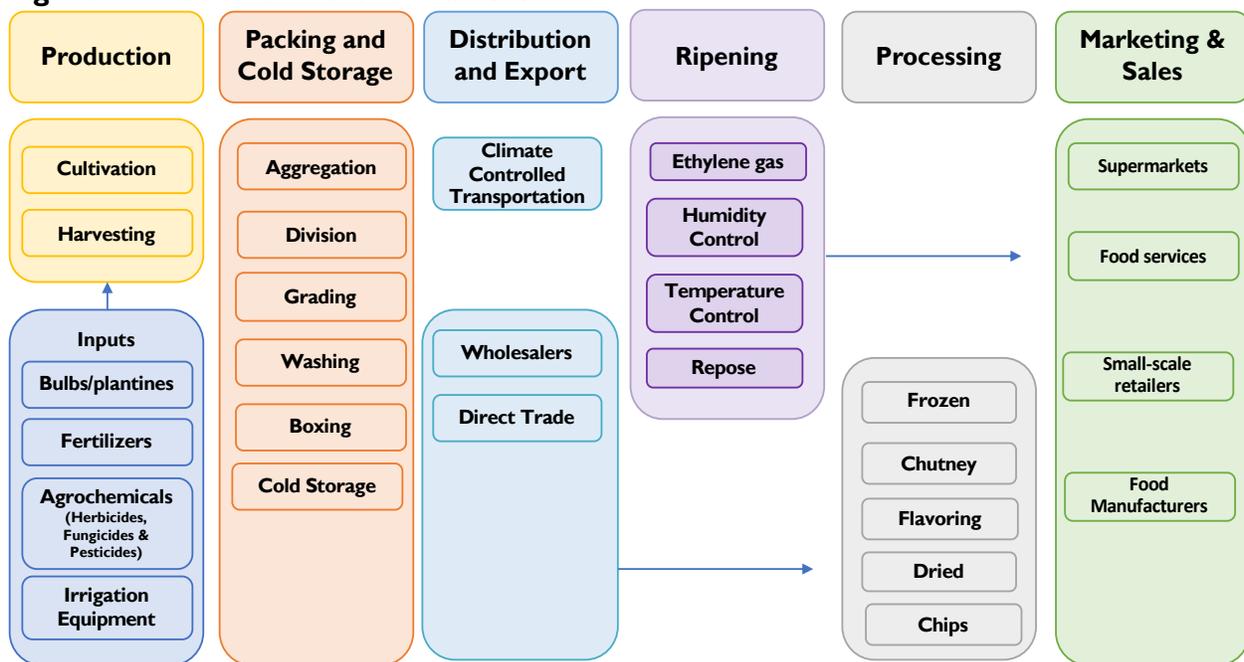
² Ecuador is included in these agreements. However, due to European farmers concerns of a flooded market the agreement includes quotas and a 1€/ton higher rate for Ecuador. Ecuador's tariff is currently €97 and will be reduced to €76 by 2020 (FAO, 2017a).

In contrast to increased access for large producing nations in Latin America, ACP nations who produce marginal quantities with low productivity levels are facing new competitiveness issues. A major impediment for the Caribbean banana producing nations and other smaller exporters, in addition to the marginal volumes, is production costs. A study of Saint Vincent and the Grenadines concluded that banana production costs in the small island were three times higher compared to Ecuador (Cali et al., 2010). The combined higher cost and lower volume makes it difficult for these nations to secure contracts with EU retailers.

2.1 The Banana Global Value Chain

The banana global value chain can be divided into seven main segments: Inputs, Production, Packaging, Distribution, Ripening, Processing and Marketing and Sales. Figure 1 illustrates these main segments. Fresh bananas earn higher prices than bananas for processing but require higher investments in handling and distribution capacities to meet the requirements of retailers. In contrast, bananas for processing have less stringent requirements from buyers but offer lower prices for producers. The segments of the banana GVC are discussed in further detail below.

Figure 1. The Banana Global Value Chain



Source: Authors

Inputs. Unlike other fruits, bananas grow from a bulb, which are planted in soil with rich moisture and irrigation channels. Conventional banana production also requires several pesticides as well as plastic bag covering to minimize loss from birds and insects, as well as loss from wind damage (BananaLink, n.d.-a). The use of agrochemicals is critical for the expansion of yields. Many banana farms require irrigation and draining systems to regulate waterflow and increase productivity.

Production. Bananas thrive in tropical climates with most grown within 30 degrees of the equator. Bananas do best with high rainfall, between 78 and 98 inches. Temperatures should be high, above

30°C during the day and 22°C at night (ASDA, n.d.). It takes approximately 9 months for bulbs to reach maturity and produce fruit (BananaLink, n.d.-a). Unlike other fruits, bananas are technically classified as an herb and can be harvested year-round following the 9-month growing period (BananaLink, n.d.-a). Harvest occurs by hand with workers cutting large groupings of bananas, known as bunches from the main tree.

Banana production is more export-oriented than most fruits but most production is still oriented towards domestic markets. While the majority of total output is consumed by domestic buyers, approximately 15-20% is traded globally (BASIC, 2015). By comparison, only 11% of apples and 3% of mangoes are exported outside their host countries (Liu, 2009). Historic production centered on large plantations owned by banana MNCs. However, banana production now is comprised of a variety of small medium and large farms. Bananas, as a fruit are varied with over 1,000 varieties in existence (CIRAD, n.d.) The most common on export markets, as mentioned above, is the Cavendish banana which is noted for its curve and yellow color when ripe. It comprises 99% of banana exports (Dale et al., 2017). It is worth noting that harvesting of bananas is a waste intensive process and many efforts are underway to find alternative uses for the waste (Box 2).

Box 2. Emerging Uses for Banana Harvesting Waste

Banana production is a waste intensive industry with a waste to banana ratio of 2:1. Waste includes leaves, and flower bud, as well as the rachis or stem that holds banana bunches on the plant. Rejected bananas also contribute to the large amount of waste. Often these byproducts are left on the farm to degrade naturally or are discarded at packaging stations. However, new research is discovering innovative uses for this waste.

The traditional use of banana waste is in handicrafts for local and artisan markets and as a soil nutrient. The strong leaves from banana plants can be used to weave baskets and bags. The fiber on the leaf and stalk make it a strong, durable material. It is also frequently used as a natural food wrapping in many locations. Beyond crafts, it has historically been left on the farm to decompose and add additional nutrients to the soil for future planting.

Beyond traditional uses, banana waste is increasingly cited as an attractive biofuel. Industrial ethanol can be derived from banana peels, making it a very strong input for renewable energy in many developing nations. Researchers found that the waste from one major banana producing region in Ecuador, El Oro, could generate over 19 million liters of bioethanol, covering 10% of national demand. It could also potentially supply 55% of electricity needs for the entire country.

Beyond energy and artisanal products, banana waste is frequently used as inputs into food manufacturing and for agricultural inputs. Banana byproducts are a suitable input for bio-fertilizer as well as animal feed, helping to generate additional agricultural revenue. It is also useful as an ingredient in flavoring and food thickening agent.

Source: Guerrero et al. (2016); Obi (2016); Padam et al. (2014); ProMusa (2017).

Packing. Once harvested, bananas are transported to packing locations where workers inspect, sort, wash and box the bananas (BASIC, 2015). Sorting and grading is based on several characteristics, for example, bananas that have bruises are rejected at packing houses. Bananas approved for export are washed and packaged in crates or specialized containers, often made of cardboard and transported to ports for shipment to consuming nations. Bananas must be green at the time of packing to ensure freshness. Bananas are separated from the harvested bunches into

smaller grouping or clusters. Clusters are generally 3lb. each and are placed into 40lb. crates (Munasinghe, 2013). At this stage they are placed in holding containers with a regulated temperature of no more than 14°C until they are moved to transport centers and ports (Munasinghe, 2013).

Distribution. In the 1990s, improvements in logistics services switched banana distribution from flat bottom ships to shipping via refrigerated containers (Anania, 2015; Arduino et al., 2015). This advancement removed critical barriers to entry and allowed new actors to flourish in the chain. Bananas are now the largest cargo moved by leading shipping companies such as Maersk, CMA CGM and Evergreen each year and are a central aspect of their growth strategies (Park, 2013).³

Bananas are transported in specialized containers known as “reefers” that are refrigerated to help preserve banana quality. Reefers maintain a temperature of 13.3°C and are monitored for changes in humidity and vented as needed during the transport process. It can take up to 12 days to reach import destinations (BananaLink, n.d.-a). Once shipped bananas are acquired by two primary types of import actors: wholesalers and dedicated suppliers who exclusively partner with select retailers, forming a system of direct trade.

- Wholesale activities in the banana GVC are completed by many of the large fruit companies who have shifted from being completely vertically integrated to acting as brokers between producers and retailers. However, some of these traditional lead firms still source some bananas from company farms. For example Chiquita and Del Monte source roughly 40% of their banana supply from company plantations, with the remainder purchased from independent farmers (BASIC, 2015).
- Retailers are increasingly sourcing directly from producers, creating a system of direct trade. This new role for retailers such as supermarkets and discount stores, is the result of their closer partnership with shipping companies that have invested in refrigerated containers, allowing for more direct links with producers. Data on this model of distribution is not available, however it is evident in the declining role of traditional fruit companies. While the fruit companies are still prominent actors, their influence is waning. Chiquita, Dole, del Monte and Fyffes controlled 42% of global banana exports in 2013 compared with 62% in 2002 (FAO, 2014b).

Ripening. For fresh bananas, the primary processing activity is ripening. Ripening occurs after export in designated rooms with the optimal temperature and humidity. Ripening is a complex process that involves precise temperatures and humidity levels to get an optimal banana. Green bananas are moved into specialized ripening rooms in open containers. The room has a constant temperature of at least 14°C. Once the room is filled, it is closed and remotely controlled to maintain a temperature of 15-17°C for the entire process, up to five days (Kohli, 2010). Humidity in the room is high, beginning at 90% (Babooa, 2012). Ethylene gas may be added to the room for the

³ Of the independent shipping companies, Maersk is the global leader in banana shipping (Park, 2013). The container line moved 8.4 billion bananas in 2012 (Park, 2013). The company has added vessels that focus on bananas to keep pace with consumption—to cite one example, the number of containers of banana exports from Ecuador to China has increased from 1,890 in 2012 to 15,000 in 2015 because of increased Chinese demand (Maersk, 2015). Fruit companies, meanwhile, have divergent shipping strategies. Dole operates the largest refrigerated container fleet in the world; Chiquita, on the other hand, sold its container ships (Wang, 2015).

first 24 hours to speed the process, at which point it is extracted out and the room is closed an additional 3-4 days, when the room temperature remains the same, but humidity is reduced to 70-75% to preserve the color. The banana pulp reaches up to 32°C during this time (Babooa, 2012). After these days, the room is vented again, and bananas are removed. During the entire process, workers monitor several factors, including temperature, humidity and carbon dioxide levels. As a byproduct of the ripening process, carbon dioxide must frequently be vented out of the room to achieve an optimal product as levels above 7% concentration impedes the process (Kohli, 2010). The sector is quite open, as the required investments are relatively modest. Due to the wide availability and overcapacity of ripening services across Europe, importers as well as retailers can easily supply yellow bananas, either by using their own facilities or by outsourcing to independent ripeners (BASIC, 2015). Because of the high degree of technical capabilities and the fragility of ripened bananas, it is difficult to perform this activity long distances from retail markets (Kohli, 2010). Bananas destined for the fresh market are then moved to distribution hubs and sent to retail locations. The short life span of ripened bananas necessitates that ripening facilities be close to distribution and retail centers.

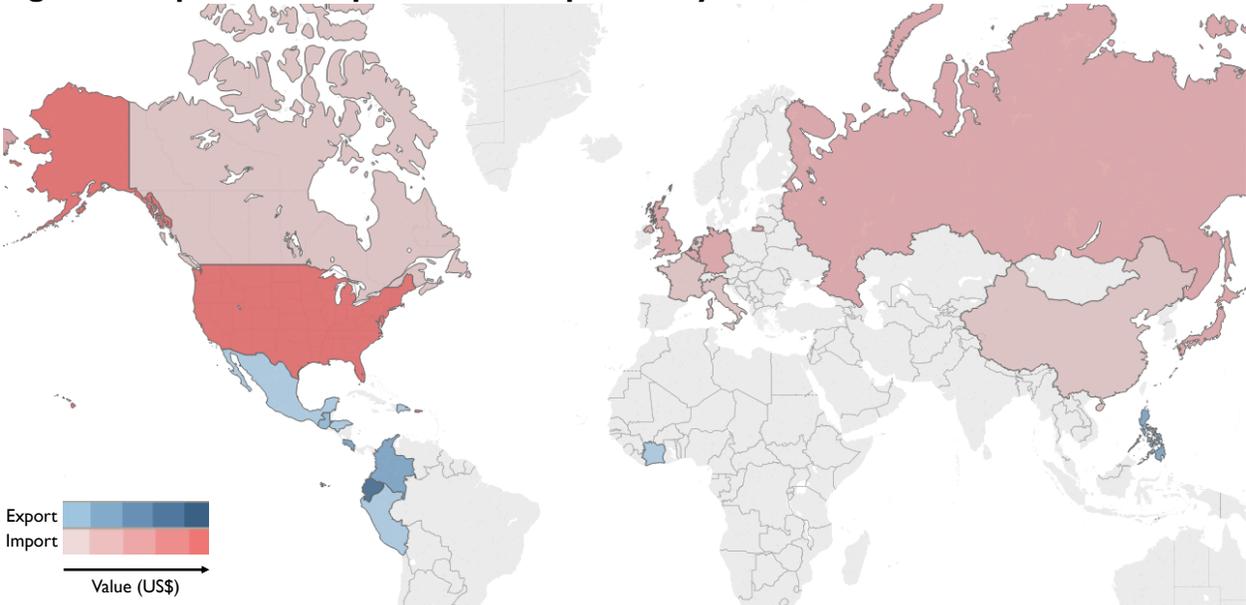
Processing. Bananas that will not enter the fresh market are shipped to food manufacturing locations to undergo further processing. These bananas can undergo a variety of processes including freezing, drying, or to be used in flavoring or in the manufacturing of banana chips, jams and chutney. While some processing, such as drying or use for food flavoring can utilize lower quality bananas than the fresh market, other processing activities necessitate a high-quality input. Freezing, for example, can be challenging due to the high sugar content of bananas and therefore needs bananas of similar quality to the fresh banana market (Octofrost, 2017). These activities can occur in factories across the globe and can be sold to individual consumers or for industrial food preparation though prices are often lower than fresh bananas.

Marketing and Sales. Bananas reach consumers via retailers, with large MNC retailers playing an increasingly significant role in the chain. Several large supermarkets are forging direct links with producer. For example, since 2010 Tesco and Morrisons have sourced from only select nations, with Morrisons only working with independent growers (EC, 2014). Sales of bananas occur most frequently in supermarkets and other retail locations with some bananas going to smaller retailers or food manufacturers. Like other fruit and vegetable chains, retailers are increasingly becoming the key actor driving value chain activities. As mentioned above, retailers are increasingly active in downstream GVC activities. In Europe, both Tesco (a retailer based in the UK) and Compagnie Fruitière (a French importer of African and Latin American bananas) import more than 200,000 tons of bananas per year (BASIC, 2015).

2.2 Global Trade in the Banana Global Value Chain

This section of the report examines how demand and supply are changing in the banana GVC, using export and production data. In 2016, total world exports of bananas reached US\$14 billion (UNComtrade, 2018). Export volumes grew 41% over the last decade, reaching over 19 million tons in 2016 (UNComtrade, 2018), yet declines in exports since 2013 reflect production issues due to disease and climate factors. Production is concentrated in the global south, with most top exporting nations located in the Latin America and Caribbean region. Importers, on the other hand, are spread across the Global North (Figure 2). This section of the report examines how demand and supply are changing in the banana GVC, using production and export data to situate Saint Lucia in the overall context of industry change.

Figure 2. Top Banana Exporters and Importers by Value, 2016

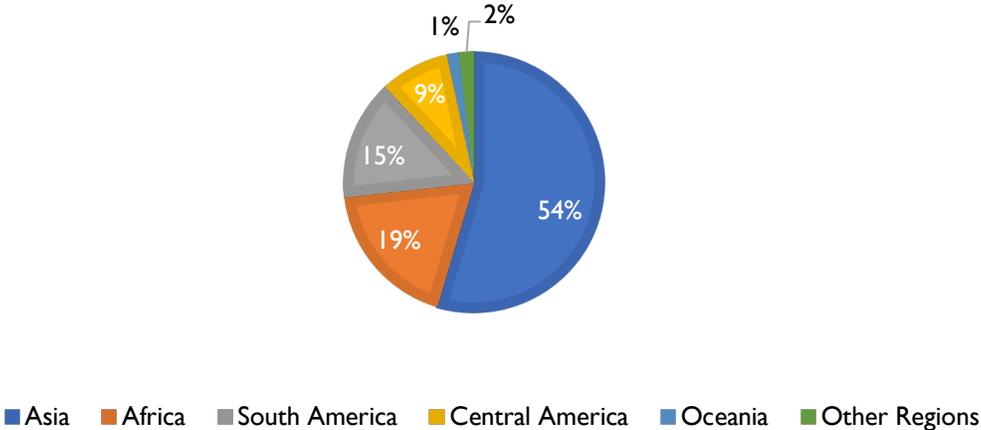


Source: UNComtrade, HS2002-0803, all reporters imports from the world. Retrieved May 1, 2018.

2.2.1 Global Supply

Bananas are a global product, produced across the globe with 135 nations producing bananas or plantains (Ploetz & Evans, 2015). Figure 3 shows Asia is the largest producing region globally, producing over half of all bananas globally in 2016 (Statista, 2018b). Other major producing regions include Africa and South America with significantly lower production in North America and Europe due to less favorable climate conditions. Most of this production, however, is for domestic consumption with exports representing a small market share for many top producers such as India and China (World Atlas, 2017).

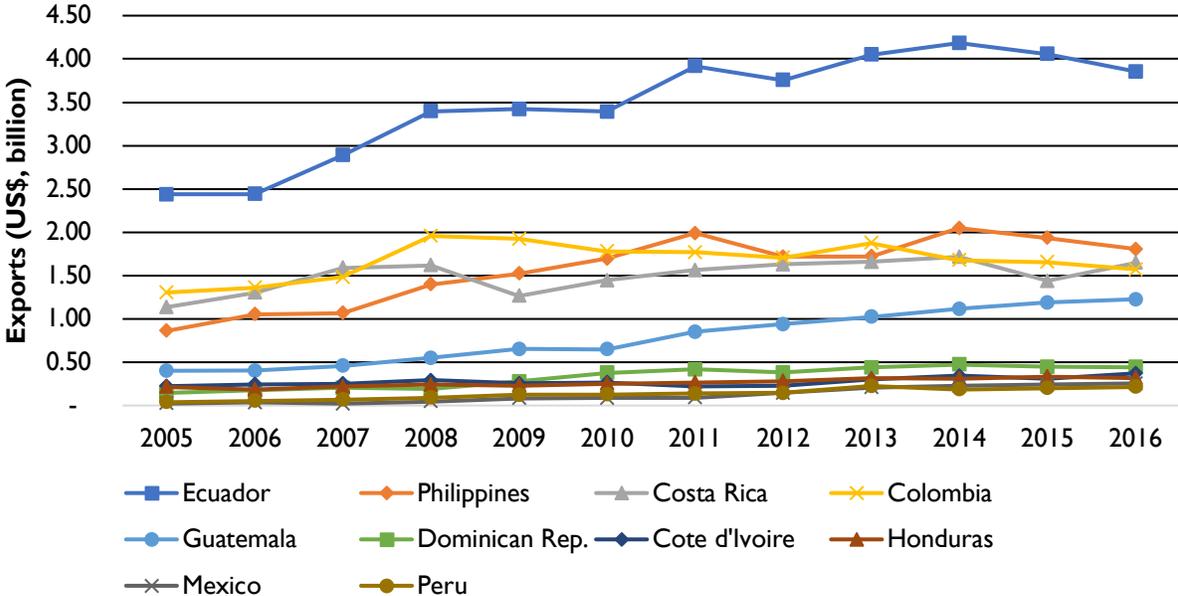
Figure 3. Global Banana Production Share by Region, 2016



Source: Statista (2018)

While Asia dominates production with over 54% of total banana production, Latin America is the primary exporting region. Exports of bananas are concentrated among a handful of nations. In 2016, the top ten exporters of bananas account for 83% of all traded bananas (Figure 4) (UNComtrade, 2018). The top three nations, Ecuador, the Philippines, and Costa Rica comprised over half of all traded bananas globally with Ecuador alone supplies 27% of globally traded bananas (UNComtrade, 2018).

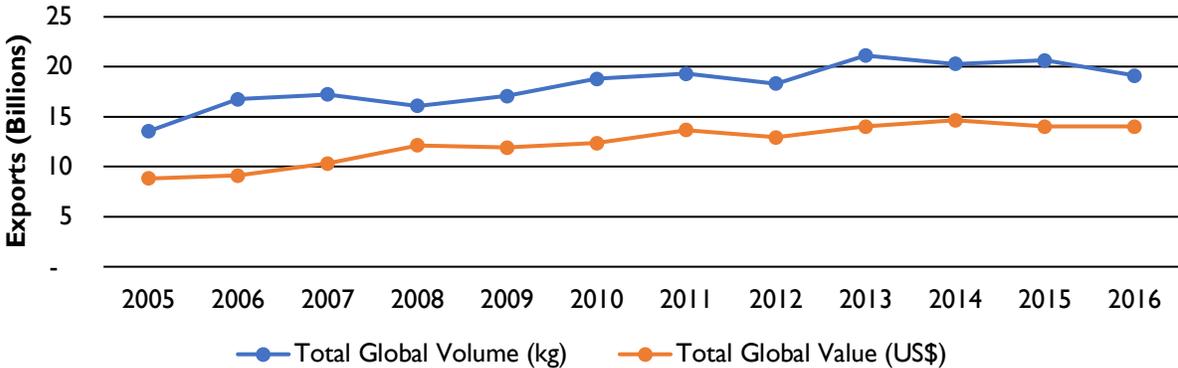
Figure 4. Top Banana Exporters by Value (US\$), 2005-2016



Source: UNComtrade, HS2002-0803, all reporters imports from the world. Retrieved May 1, 2018.

Figure 5 shows a decline in the volume of global exports by nearly 10% since 2013 while export values have remained stagnate (UNComtrade, 2018). The reduction in global export volumes can be attributed to several factors including growing domestic demand and issues of banana disease, which impact crop availability. The recent decline in volume indicates a potential opportunity for new suppliers that can address this gap.

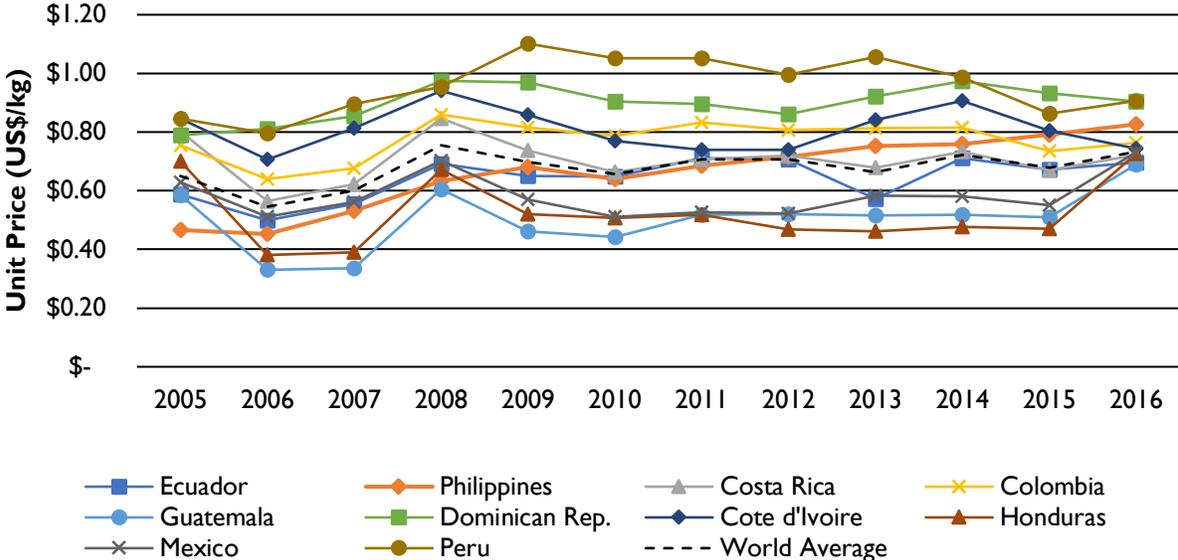
Figure 5. Global Banana Export by Volume and Value, 2005-2016



Source: UNComtrade, HS2002-0803, all reporters imports from the world. Retrieved May 1, 2018.

Banana unit prices are converging with only slight differences among exporters (Figure 6). Units prices among nations experienced great variation between 2008 and 2013. After 2013, prices are converging with the top earning getting less than US\$0.20 more than the global average. The global average unit price for exports was US\$0.73 in 2016, a 12% increase from the 2005 price of US\$0.65. Of the top exporters by value, four received higher prices than the global average with Peru earning the highest at US\$0.91/kg in 2016 (UNComtrade, 2018). As a consequence of limited price benefits for certified bananas, all top ten countries have a similar unit export price. In 2009-2010 greater variation exists. For example, in 2009 Guatemala exported at US\$0.56/kg and Peru at US\$0.85/kg. In 2016 Guatemala had a unit price of US\$0.69 and Peru of US\$0.91 (UNComtrade, 2018). It is notable that Peru and the Dominican Republic, the highest unit price exporters in 2016 were both primarily organic banana exporters with almost all of Peru’s banana exports being organic and over half of the Dominican Republic’s bananas being organic (FAO, 2017c, 2017d). However, the prices received for organic production often does not justify the cost and time investments needed to receive the certification (see Section 2.4.1 below).

Figure 6. Banana Unit Price for Export (US\$/kg), 2005-2016

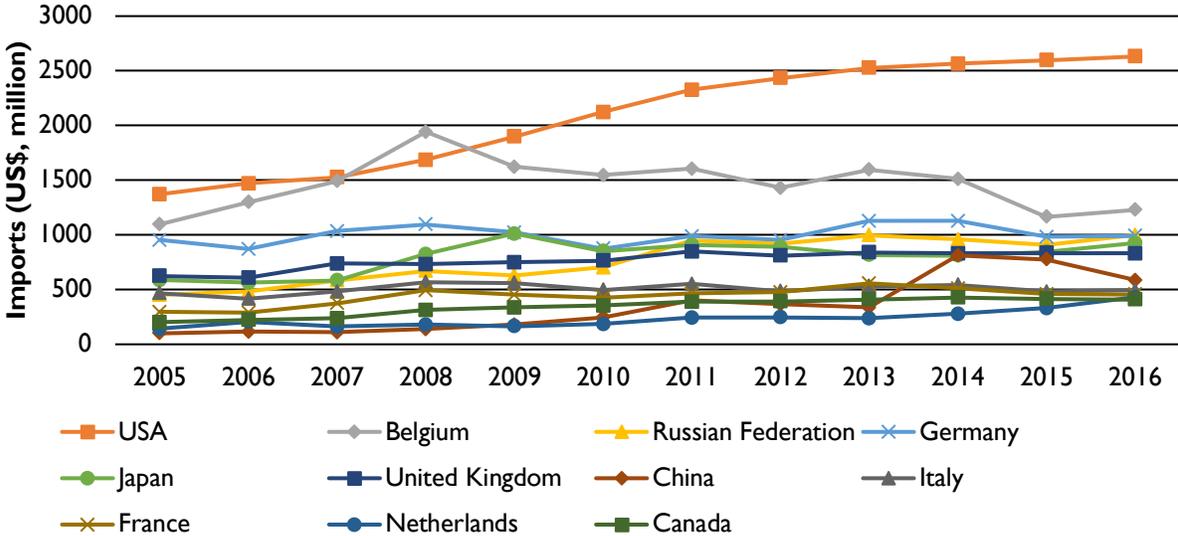


Source: UNComtrade, HS2002-0803, all reporters imports from the world. Retrieved May 1, 2018. Unit price calculated by US\$/kg.

2.2.2 Global Demand

The majority of consumption among top producers are domestic buyers. Bananas that are traded go to developed nations in the Global North where consumers are unable to source large quantities of bananas domestically. **The United States (US) is the largest banana importer by value, accounting for 19% of all global imports.** By comparison, the second largest importer, Belgium, only accounted for 9% of total imports. Further, US imports are growing rapidly, increasing 86% in the last decade, from US\$1.4 billion in 2005 to US\$2.6 billion in 2016 (UNComtrade, 2018). Lead importers in Europe, as well as Japan each import approximately US\$1 billion in 2016 (UNComtrade, 2018). Global imports have grown over the last decade from US\$8 billion to US\$14 billion, an increase of nearly 59% (UNComtrade, 2018).

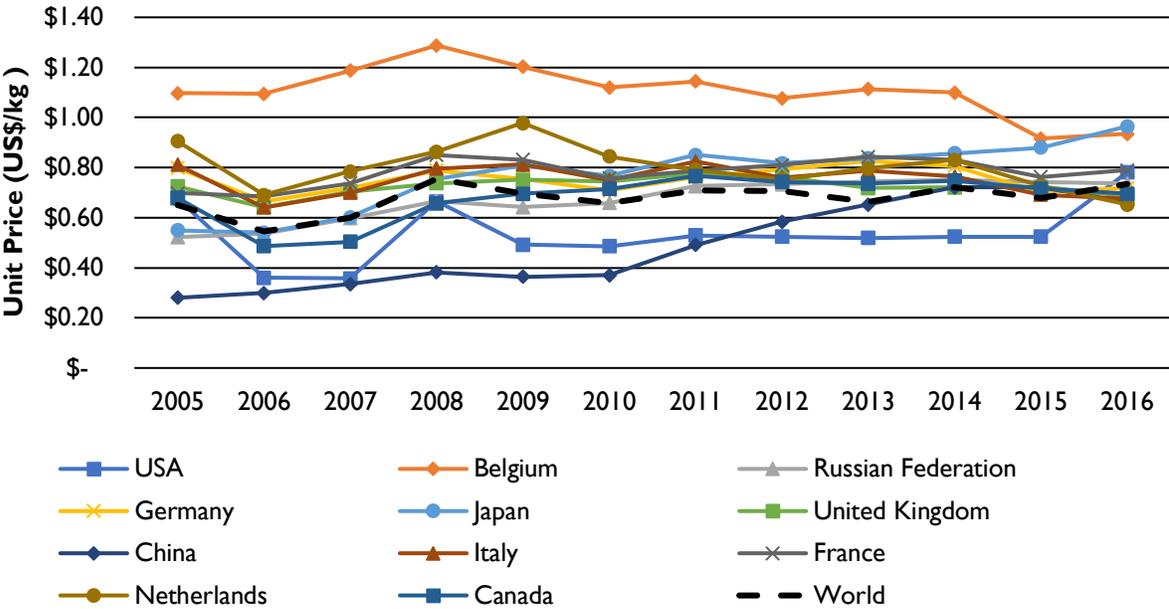
Figure 7. Top Banana Importers by Value (US\$), 2005-2016



Source: UNComtrade, HS2002-0803, all reporters imports from the world. Retrieved May 1, 2018.

Top banana importers pay a global average import unit price of US\$0.73/kg in 2016, the same figure as the export unit price for 2016 (UNComtrade, 2018). **Unit prices grew modestly over the last decade from US\$0.65 in 2005 to US\$0.73 in 2016, an increase of 12%** (Figure 8). Little variation exists in prices among import markets signaling no clear importing nation of certified or premium bananas. Notable exceptions are Japan and Belgium, each paying over US\$0.90/kg (UNComtrade, 2018).

Figure 8. Banana Unit Price for Import (US\$/kg), 2005-2016



Source: UNComtrade, HS2002-0803, all reporters imports from the world. Retrieved May 1, 2018. Import unit price calculated by US\$/kg.

Similar to exports, import unit prices are converging. Belgium, the highest unit price importer paid US\$1.10/kg in 2005 while China paid substantially less, US\$0.28/kg (UNComtrade, 2018). By 2016 this has changed dramatically with Belgium declining to US\$0.93/kg and China raising to US\$0.66 (UNComtrade, 2018). China's rising price is particularly noteworthy given its 144% increase over a decade.⁴ Other nations followed a similar trend, converging on the global average unit price. As a result, there exist no clear high value market and all nations, even developing nations pay similar prices for bananas. This trend is further explained by the fact that certified production is less critical on the global market compared to meeting volume needs of retailers in importing nations.

2.3 Lead Firms and Governance

The banana GVC is currently characterized by a shift away from the integrated operations of fruit companies, such as Dole and Chiquita, to new models where retailers wield significant power over a fragmented supply base. At a global level, retailers capture an estimated 40-48% of the value across the chain for all types of bananas (Liu, 2009). Their strong position can be attributed to their access to markets as well as their relative concentration. In contrast to the power held by retailers, producers have less opportunities capturing only 13.1% of the value across the chain. Workers on larger farms fared even worse, capturing an estimated 7% of value in the chain (BASIC, 2015). Such asymmetrical relationships lead to a governance structure that bears similarities to the captive model described in the GVC literature.⁵ In practical terms, the power disparity between lead firms (retailers and fruit companies) and producers facilitates contractual practices that significantly constrain the economic gains experienced by farmers and other in-country actors. In a comprehensive study on the banana industry, BASIC (2015) described how downstream companies interact with upstream actors in ways that result in disproportionate-risk sharing. This is most evident in the structure of contracts between suppliers and consumers which have historically been negotiated on a short-term basis. As a result, frequently the dramatic price fluctuations as supply and demand ebbs and flows are absorbed by producers and not lead firms.

In an attempt to counter this power asymmetry, there have been recent industry-wide moves toward longer-term contracts (one to three years) negotiated at a national level (especially among European nations), which provides higher stability for producers. However, there are still embedded advantages for retailers. The most prominent of these is the use of contractual language that allows buyers to terminate contracts on short notice if their margins are insufficient (Basic, 2015). These "leonine clauses" are not extended to suppliers, which puts them at risk when demand oscillates (BASIC, 2015). Common examples of how the contract structures undermine producers, including the following:

- When demand is high and retail prices increase, the specified contract prices prevent producers from receiving benefits from higher demand and retail prices increases. Higher

⁴ By comparison, Belgium's unit price decline was less striking, decreasing only 15% from 2005-2016 (UN Comtrade, 2018).

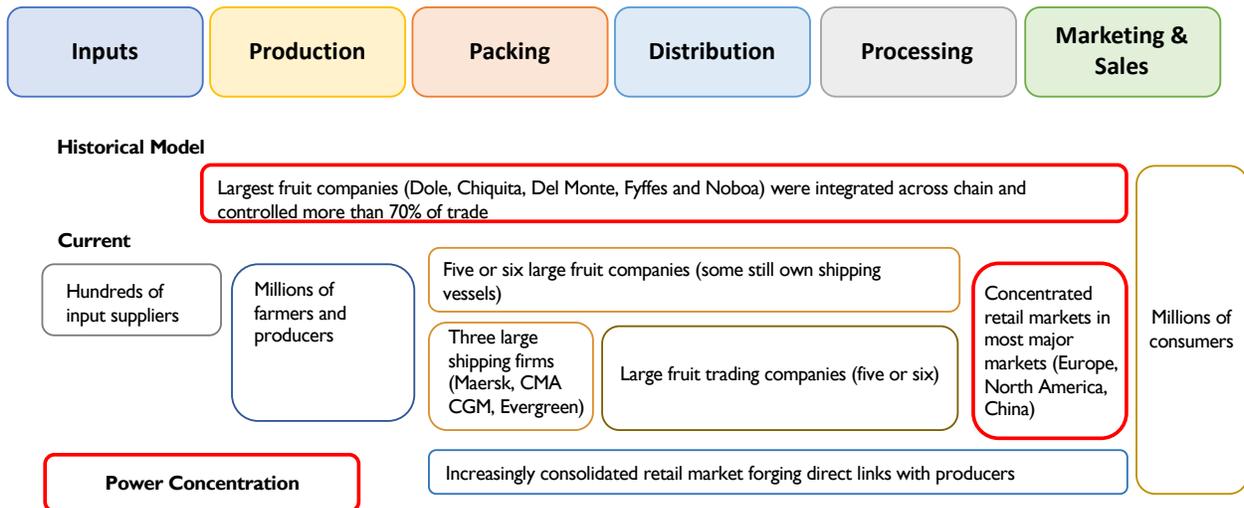
⁵ See Gereffi et. al (2005) for an overview of GVC governance models. Gereffi and Fernandez-Stark (2016:11) further describe the captive governance as one where "small suppliers are dependent on one or a few buyers that often wield a great deal of power. Such networks feature a high degree of monitoring and control by the lead firm. The power asymmetry in captive networks forces suppliers to link to their buyer under conditions set by, and often specific to, that particular buyer, leading to thick ties and high switching costs for both parties. ... Ethical leadership is important to ensure suppliers receive fair treatment and an equitable share of the market price."

demand pushes farmers to use the spot market to fulfill orders since spot market prices are likely to be more favorable in times of elevated demand. Spot markets, however, lack the specifications needed and disadvantages growers with higher rejection rates and greater instability.

- In summer months when the availability of local fruits increases in Europe and North America, demand for bananas recedes. However, this also aligns with high banana production in Latin American countries; if retailers cancel their existing orders, banana producers have little market opportunity for their excess supply.
- Buyers also reject bananas in greater frequency on quality concerns during periods of lower demand. Since rejection occurs in the importing country, there is little recourse for producers to appeal.

Figure 9 below presents the important power dynamics in the sector. It illustrates the industry trends described in this section, including the shift away from integrated fruit companies, the emergence and consolidation of retailers' as lead firms and the changes in the shipping segment of the chain. The discrepancy in numbers between producers and retailers is significant and helps explain the difference in value capture by each category of actor.

Figure 9. Power Concentration in the Banana Value Chain



Source: Authors based on BASIC (2015).

In all banana exporting countries over one third of value is captured by retailers with shippers and importers also gaining a large share of the value (see Table 1). However, variation in value capture at the domestic level exists. For example, farmers in Ecuador capture only 6.8% of the value compared to over 16% in the Dominican Republic or over 21% in Cameroon. This variation is attributable to both national policies and certifications held by farmers in each nation (BASIC, 2015).

Table 1. Value Capture Between Select Banana Producing Countries and EU Market

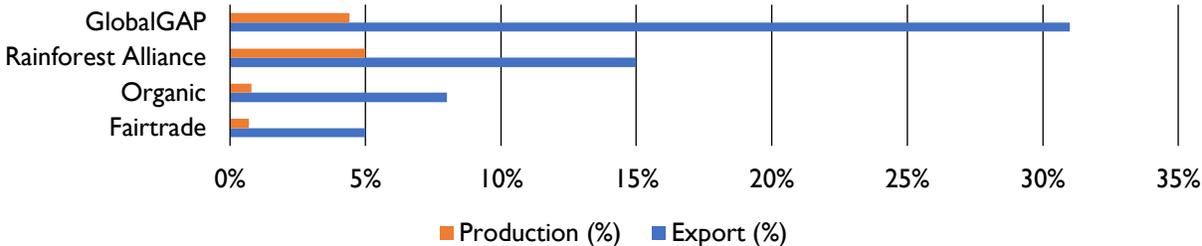
Actor	Ecuador	Colombia	Costa Rica	Dominican Republic	Cameroon
Retail	42.4%	36.8%	40.7%	43.4%	41.6%
Ripening	10.6%	10.6%	10.6%	10.6%	10.6%
Tariffs	8.6%	8.6%	8.6%	—	—
Shipping & Import	20.4%	20.2%	18.3%	18.1%	17.1%
Export	4.3%	4.3%	4.3%	4.3%	4.3%
Production	6.8%	10.5%	10.5%	16.5%	21.2%
Workers' Wage	6.9%	9.0%	7.0%	7.1%	5.2%

Source: BASIC (2015)

2.3.1 Standards and Certifications Institutions

Producers frequently seek out certifications to differentiate their product and many hold multiple certifications, rather than electing one specific one for their farm. For example, an estimated 50% of organic bananas also hold Fairtrade certification (EuroFresh, 2016). However, most producers are oriented toward conventional bananas, with organic and Fairtrade certified bananas representing less than 3% of output and at most 5% of global banana exports (EuroFresh, 2016; Liu, 2009). Similarly, GlobalGAP certification is only pursued by export-oriented producers. 31% of banana exports have GlobalGAP certification, while only 4.4% of all banana production area is certified (Lernoud et al., 2015). Finally, bananas may be certified via the Rainforest Alliance, with 15% of global bananas exported achieving the certification. For all of these certifications, they are most prominent in export markets than local markets that frequently are more price motivated (Figure 10).

Figure 10. Certified Bananas as Percentage of Total Production and Exports, 2014



Source: Lernoud et al., 2015; Eurofresh, 2016. Note: GlobalGAP and Organic data from 2013.

Fairtrade certification helps smallholders and farmer associations receive more equitable treatment by advocating for fair prices from buyers. Fairtrade International, the organization behind the certification cites bananas as one of the most successful products under the label, with over 579 thousand MT of Fairtrade bananas sold in 2016 (FairTrade International, 2017). A low number of banana producers/associations had the certification in 2014, totaling less 115 (Lernoud et al., 2015). Roughly 0.6% of 2014 global production and 0.7% of cultivated banana land is certified Fairtrade, though 2014 data excludes the Dominican Republic and Peru. Export bananas have significantly higher certification, estimated at 5% of all production areas (EuroFresh, 2016). Certification is concentrated among a handful of nations with the five largest producers by area comprising 88% of all Fairtrade production. The Dominican Republic is the largest Fairtrade producing nation, accounting for 11,416ha in 2014. Ecuador and Peru are the second and third

largest, with 6,401ha and 5,286ha respectively (Lernoud et al., 2015). Despite the low level of banana production certified Fairtrade, it is growing rapidly, increasing 60% since 2008 (Lernoud et al., 2015).

Growth in Fairtrade certification among producers can be attributed to the price premiums associated with the label (Fairtrade International, 2018b). In 2016, the minimum Fairtrade price for conventional bananas was US\$6.75/18.14 kg for non-ACP nations with a US\$1 premium to invest in their business. ACP nations received higher rates at US\$7.65/18.14 kg with the US\$1 premium. The Windward Islands have considerably higher prices with the label compared to the average ACP price, earning US\$9.40/18.14 kg. It is possible to have Fairtrade and Organic certification, with prices slightly higher among organic producers. In non-ACP nations, Organic and Fairtrade certified farmers receive an average of US\$9.05/18.14/kg and ACP nations earn an average of US\$10/18.14/kg (Fairtrade International, 2018b).

In comparison to the rapid growth of Fairtrade certification, GlobalGAP certification is shrinking, declining by 6% since 2012 (EuroFresh, 2016). In 2013, only 4.4% of total global banana production held the certification, equaling roughly 223,000 producers. However, it is a key certification for exporters, with over 31% of all exported bananas having GlobalGAP certification (EuroFresh, 2016). Major producing nations with the certification include, Ecuador, Colombia and Costa Rica. These three paired with Guatemala and the Dominican Republic represent 64% of GlobalGAP certified banana production (Lernoud et al., 2015). Despite these nations' large share of global certified bananas, the percentage of total production certified is smaller than other nations, Saint Lucia, for example, certifies 61.5% of all banana produced on the island with GlobalGAP (Lernoud et al., 2015).

Organic standards are set by various regulatory bodies at the national and regional level with both producing and importing nations offering certification. For example, the United States Department of Agriculture (USDA) sets standards for organic labeling in the US and Japanese Agricultural Standard (JAS) sets the standards for Japan. The International Federation of Organic Agriculture Movements (IFOAM) is the worldwide umbrella organization coordinating over 1000 organic certifying bodies in 120 nations (IFOAM, 2018a). In addition to maintaining an independent evaluation program for organic, it also advises policy makers and NGOs on organic practices (IFOAM, 2018b). In 2013, less than 1% of bananas produced globally were certified organic, representing an estimated 856 MT. Despite low production, over 855,000 producers were certified. Major producing nations include the Dominican Republic, Ecuador and the Philippines (Lernoud et al., 2015).⁶

Finally, **Rainforest Alliance certification is frequently used in banana GVCs to convey minimum standards are met in price distribution and sustainability.** Roughly 5% of all bananas achieve this certification with most coming from Latin America, an estimated 95%.⁷ Since 2008, production under the Rainforest Alliance certification regime has grown 28% (Lernoud et al., 2015).

⁶ In 2013, the Dominican Republic had 22,000ha of organic banana production compared to 10,400 ha in Ecuador and 6,000ha in the Philippines. These three nations, along with Peru (5,500ha) and Mozambique (1,700ha), comprise nearly 95% of all organic banana cultivation globally.

⁷ Top producing nations include Costa Rica, Guatemala, and Colombia (Lernoud et al., 2015).

As shown above, certification is frequently concentrated in Latin American nations. This is largely linked to the regions role as the primary banana exporter for the globe. While multiple certifications exist, the most used is GlobalGAP which is often required by retailers in importing nations. Increasingly however, producers are pursuing Fairtrade certification as consumers become sensitive to conditions at the farm-level (FairTrade International, 2017).

Box 3. Key Takeaways

The global banana industry is marked by a concentration in exports among Latin American nations with the top three exporters (Ecuador, Philippines, and Costa Rica) comprising over half of all banana exports in 2016. Many of these nations are becoming increasingly competitive attributed to shifts towards trade policies that further liberalize markets in the EU. At the firm level, a shift in power away from vertically integrated banana MNCs towards supermarkets who set prices and required standards. The result is a convergence of prices among importers indicating the declining premium associated with many certifications.

At the same time, increased threats from disease and climate issues are threatening supplies as demand is growing across the globe and more consumers depend on bananas to meet their nutritional needs. Such challenges present opportunities for nations that can increase productivity in ways that minimize risk to disease.

Source: Authors

3. Saint Lucia in the Banana Global Value Chain⁸

Saint Lucia's participation in the banana GVC totaled less than US\$7 million in 2016 (UNComtrade, 2018). The country is a relatively small player in this industry, representing less than 1% of total global banana exports (UNComtrade, 2018). Despite a long history of banana cultivation, Saint Lucia's banana industry is in a crisis due to a liberalized EU market and increasing competitive pressures from South and Central American countries. The island also struggles with productivity issues and disease. Initially, efforts to specialize by supplying the UK's Fairtrade market allowed the industry to survive. However, as continued liberalization of EU markets occurred, several new "niche market" suppliers entered the industry, leaving Winward Islands' banana industries unable to compete.

Saint Lucia's banana industry is largely structured around two key actors: WINFRESH and the National Fairtrade Organization (NFTO). WINFRESH is the primary exporter for the nation, being the sole Saint Lucian supplier to the UK market. NFTO is the supplier to WINFRESH, aggregating supply and overseeing the Fairtrade certification in the nation. Additionally, an estimated 748 farmers work in the industry, with 270 supplying WINFRESH via the NFTO.

In recent years, high production costs, coupled with natural disasters and the Black Sigatoka disease have severely harmed the industry. Rising input costs, strict standards from buyers and ageing farmers threaten future growth. Hence, while the banana industry propelled economic growth during the 1980s and 1990s, high expenses and industry challenges are pushing several stakeholders to question the future of the banana industry. However, opportunities exist, especially in regional

⁸ The Saint Lucia section of the report is based on extensive interview with Saint Lucian stakeholders conducted in May, 2018. Individual citations are provided when additional material is used to supplement the field research.

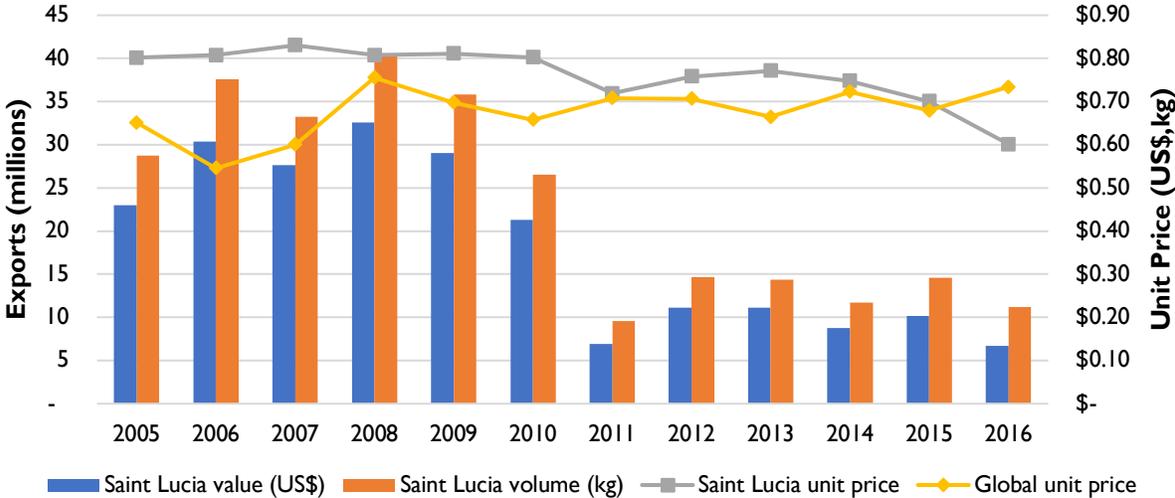
markets, provided Saint Lucia can make necessary improvements in industry coordination and productivity.

The following section seeks to further understand the depth and breadth of Saint Lucia’s participation in the banana GVC and provide a foundation for analyzing how the country can take advantage of available opportunities. First, current products and exports are examined using available industry data and human capital dynamics in the industry are overviewed. Attention then shifts to the structure of the industry is then outlined as well as key actors active in the country at each stage of the value chain, followed by an overview of industry evolution and its impact on GVC participation. The section concludes with advantages and constraints that will shape future participation in the banana GVC.

3.1 Saint Lucia’s Current Participation in the Banana Global Value Chain

Compared to other exporting nations, Saint Lucia is a small supplier of bananas. In 2016, exports were approximately US\$7 million (UNComtrade, 2018). One of the biggest constraint to industry growth is competitive pressures from larger volume exporting nations, such as the Dominican Republic and Ghana who have lower production and transport costs. These nations are increasingly supplying the UK market, limiting demand for Saint Lucia’s bananas. Further, the export unit value declined 25% since 2005 and is now 19.5% lower than the global average (Figure 11) (UNComtrade, 2018). Between 2010-2011, Saint Lucia experienced a drastic drop in exports, from US\$26.5 million to US\$7 million (UNComtrade, 2018). The steep fall is attributed to several factors, namely the emergence of Black Sigatoka on the island, and losses from Hurricane Thomas.

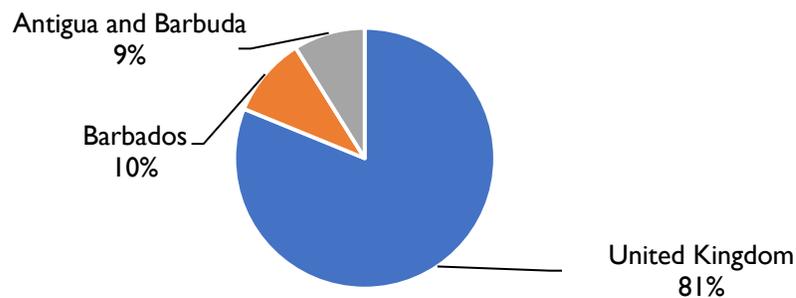
Figure 11. Evolution of Saint Lucia’s Banana Exports, 2005 – 2017



Source: UNComtrade, HS2002-0803, all reporters imports from Saint Lucia. Retrieved May 1, 2018.

The export market for Saint Lucia is highly concentrated with the UK representing the main export market. The UK is by far the primary export market for Saint Lucia bananas, accounting for 81% of all banana exports in 2016. Regional trade among Caribbean nations accounts for the remaining 19% with Barbados, Antigua and Barbuda being the main regional trade partners, accounting for 10% and 9% of exports respectively (UNComtrade, 2018) (Figure 12).

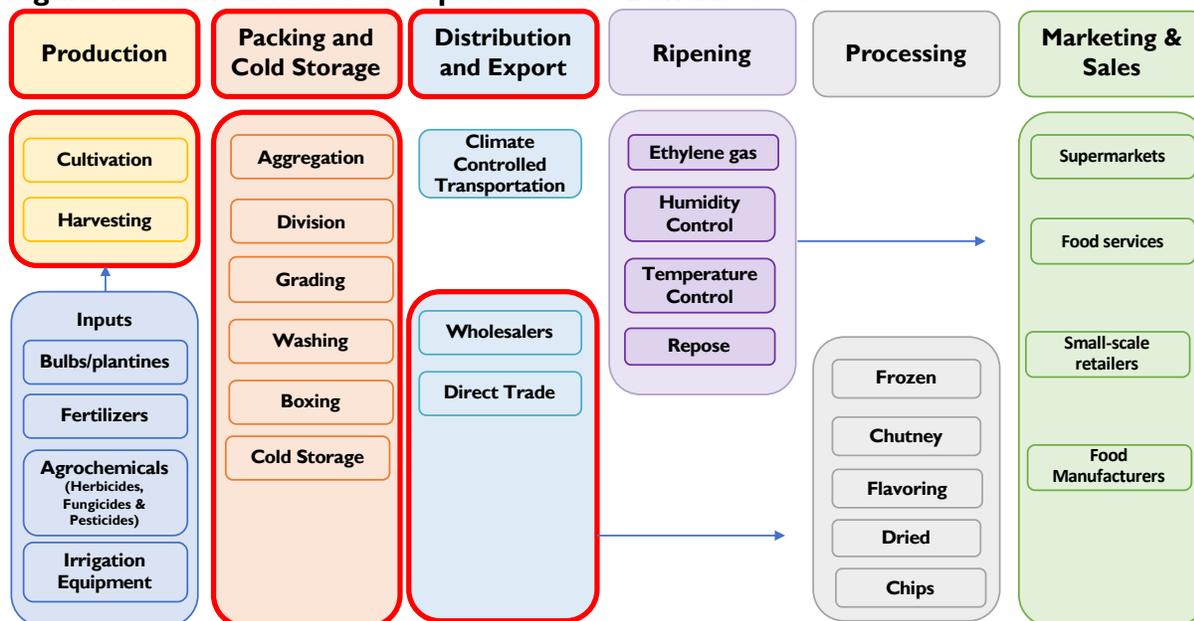
Figure 12. Saint Lucia Banana Export Destinations, 2016



Source: UNComtrade, HS2002-0803, all reporters imports from Saint Lucia. Retrieved May 1, 2018.

Saint Lucia’s participation in the banana GVC is primarily in the production, packaging and distribution/export stages of the value chain (Figure 13). Some actors do engage in value-added activities and produce banana chips for the local market and tourists. However, these firms are small in size and are not participating in global markets to any notable extent. Each of the segments that Saint Lucia participates in is discussed below.

Figure 13. Saint Lucia's Participation in the Banana GVC



Source: Authors based on Field Research (2018)

Production: Bananas are cultivated throughout Saint Lucia with one industry expert estimating 748 farmers are active in banana production on the island. However, production is most concentrated in the Mabouya Valley, a forested hillside cleared for farming several decades ago. The area is well suited for banana cultivation due to the annual rainfall and presence of two rivers, the Mabouya and the Derniere. Like other exporting nations, Saint Lucia produces the Cavendish variety. Both the production and exact land area dedicated to production are unknown; however, the average size of a banana plantations is 1.2-1.6 ha. Banana yields in Saint Lucia are very low;

estimated at an average of 19.77 tons per hectare (t/ha) per year (FAO, 2017a). Productivity is higher among Fairtrade farmers who focus on bananas for exports, reaching 24.7t/ha. However, this productivity level still is 50% lower than average global yields, which ranges between 40 and 50t/ha.⁹ Of the estimated 748 banana farmers on the island, only about 270 are actively selling their produce to NFTO. These bananas are GlobalGAP and Fairtrade certified and are aggregated by the NFTO for purchase by WINFRESH. Production occurs using two methods: conventional farming systems or Fairtrade certified farming. Organic production not occurring due to low returns for farmers.

The government provides limited access to inputs, due to the cost and availability of inputs on the island as well as connections to banana farmers. However, this is changing somewhat with the recently established Banana Productivity Improvement Project (BPIP) that is seeking to assist the industry following a series of hurricanes collapsed the drainage system. A key feature of the program is the provision of pesticides and fungicides for the treatment of Black Sigatoka at half market price.¹⁰ BPIP delivers inputs to farmers or are available for pickup at BPIP and Ministry of Agriculture offices. Subsidized inputs are primarily sold to NFTO affiliated farmers who are easier to identify and access due to data provided by WINFRESH and the NFTO. The majority of farmers not connected to WINFRESH source unsubsidized inputs from a private local company, Renwick and Co. Ltd, or buying from other farmers on the island.¹¹ NFTO sells inputs in the form of credit due to producers' limited cash flow. After harvest, NFTO buys bananas which are then sold to WINFRESH, the only exporter in the island. WINFRESH then exports bananas, primarily to the UK. Farmers who source inputs from Renwick and Co. Ltd., in contrast, sell primarily to local and regional markets.

Production occurs on several farms, varying in size from around 1ha to 8ha. Small and medium farmers frequently sell to WINFRESH or the local market. In contrast, larger farmers sell to neighboring markets via a network of regional distributors. WINFRESH buys from approximately 270 producers via the NFTO, with each banana farmer cultivating around 1 ha of land on average.

In contrast, Saint Lucia's regional exports occurs via a small network of brokers and clients and is characterized domestically by approximately 5 independent farmers who own large plantations (6.5 to 8ha). Regional exports primarily go to clients in nearby islands. Regional markets include Barbados, Antigua and Barbuda, Saint Maarten and Trinidad and Tobago. Demand from these markets have grown significantly since 2017, after Hurricane Irma and Maria hurricanes, which destroyed one quarter of Dominica's banana industry (BananaLink, 2017).

Packaging and Cold Storage: Farmers own their packing houses, which are located near the banana farms. For UK destined produce, WINFRESH provides packing material, which are distributed by the NFTO to farmers. The payment of the cardboard boxes and plastic trays is later deducted from the farmers' total banana sale to NFTO. THE NFTO acts as the primary aggregator

⁹ Some of the large producers in countries with well-established industries such as the Philippines and India can reach average yields of around 60 t/ha., while smaller producers in other countries only produce around 30 t/ha. (FAO, 2017a).

¹⁰ Many interviewed noted that the distribution of subsidized pesticide was focused on farmers who sold to NFTO, limiting its availability to local producers and regional exporters.

¹¹ NFTO sources inputs from across the globe while Renwick and Co. Ltd primarily sources from Latin America. Following the government's distribution of incorrect inputs that resulted in the loss of banana trees, some farmers now prefer purchasing inputs from Renwick and Co. Ltd or NFTO because of the perception of higher quality supplies and less risk for the banana plants.

of bananas in the nation and connects farmers to WINFRESH. It also oversees inspecting, grading bananas for purchase by WINFRESH.

Packing processes vary by end-market as a result of buyer specifications in the UK. Increasing UK retailers demand alternatives to collapsible cardboard boxes triggered the introduction of plastic trays to Saint Lucia in the mid-1990s. In 2018, WINFRESH announced that all UK supermarkets would convert to plastic trays, eliminating the use of cardboard boxes. According to NFTO, the use of plastic trays has no negative impact on farmers; and are actually more beneficial for farmers because of their cost is relatively lower to cardboard boxes, and less labor is needed to pack the bananas. In addition, plastic trays are less likely to become damaged in moist or wet conditions. Despite the shift by WINFRESH, farmers exporting to the regional market and local buyers continues to use cardboard boxes for packing (St. Lucia Times, 2018). In March 2018, the NFTO continued to utilize approximately 4,000 cardboard boxes weekly for the local and regional market but will gradually phase these out in the near future (St. Lucia Times, 2018).

Distribution and Export: Before 2016, the loading operation took place at the Vieux Port but now occurs in Castries due to operational and economic efficiency. Bananas exported to the UK are distributed by Geest Line, which is 50% owned by WINFRESH. Further, both companies share many directors (Farquhar, 2012). While Geest Line is responsible for shipping, vessels are subcontracted to third parties, which load banana exports for the UK once a week. Farmers that export to the regional market subcontract shipping to other lines, often informal actors. Regional distribution is severely constrained by the absence of established shipping routes to nearby islands and by the unreliability of many regional shipping firms (Farquhar, 2012). In an effort to address issues of regional trade, in 2017 the Trade and Export Promotion Agency of Saint Lucia (TEPA) facilitated shipment of coconut and plantains to Antigua. Plans to expand the initiative to include bananas and other crops are underway but require further coordination among regional exporters.

Exports of fresh bananas to the UK market is exclusively run by WINFRESH. Once the fruit arrives in the UK, a subsidiary, WINFRESH UK, is responsible for the importing, ripening, distribution and sales of the fruit. After clearing customs, ripening occurs in designated rooms owned by WINFRESH UK. After ripening, bananas are sold to three large UK supermarkets: ASDA, Sainsbury and Waitrose. Altogether, Collectively, these supermarkets accounted for 39% of the UK grocery store market in 2017 (Statista, 2018a).¹²

Quality and packaging requirements for farmers exporting to regional markets are less stringent. Therefore, many farmers exporting to these nations are not associated with NFTO, nor are they GlobalGAP certified.¹³ Even though margins obtained by these farmers are lower than margins obtained from farmers exporting through NFTO, regional exporters have no need to comply with Fairtrade nor GlobalGAP certification, which significantly lowers production costs. Farmers who sell domestically frequently sell to Massy Store, a large national supermarket chain (see Box 4).

¹² Even though this company has tried to embark on new processing initiatives through joint ventures and associations with other Winward Island governments, no high-value added processing of the produce occurs in St. Lucia nor in the UK.

¹³ Some farmers were previously certified and associated with NFTO but decided to leave the NFTO due to low margins. As a result, they abandoned Fairtrade and GlobalGAP certification.

Box 4. Massy Stores Linkages with Banana Farmers

Massy Stores, the largest supermarket chain in Saint Lucia, sources from about 300 registered farmers within the island. To become a supplier, growers must fulfill the following requirements: i) Completion of a certification program developed and financed by Massy; ii) Presentation of a letter from the Ministry of Agriculture which specifies acres, ownership, number of employees, etc. Whilst farmers are frequently associated with NFTO, Massy does not require Fairtrade nor GlobalGAP making it an increasing popular avenue for farmers to sell their bananas. Further, farmers providing green and ripened bananas to Massy are paid within the following seven days of delivery.

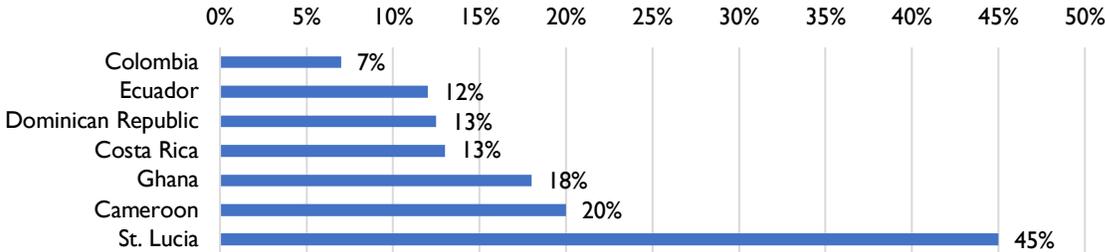
One benefit of supplying Massy is the Massy Stores Registered Farmers Loans Program. This interest-free, deposit-free loans program was established to help farmers meet production challenges, enhance quality, introduce new varieties of crops and undertake farm repairs. Over 300 farmers have received financial assistance through the program. Massy also supports the entrepreneurial spirit of farmers in the community by conducting regular visits to farms to discuss market needs and demands including scheduling, supply logistics, production planning for improved product availability and the introduction of new crop varieties. Dialogues also extend to the importance of business planning, labelling, packaging and value-added options to create more marketable products.

Source: Field Research (2018); George (2018)

3.2 Human Capital: Gender and Youth in the Saint Lucia’s Banana GVC

Human capital is one of the most important factors in the production of banana, due to its high dependence on manual labor. Fertilizer application, harvesting, de-flowering, sorting, etc. are all done by hand. The labor-intensive nature of the crop resulted in a majority of male workers within the largest exporting countries, such as Ecuador, Costa Rica and Colombia (Figure 14). Compared to these nations, the share of women workers and small producers in St. Lucia is significantly higher (Cooper, 2015)

Figure 14. Employment by Gender in Key Banana Exporting Nations



Source: Authors based on Cooper (2015)

In Saint Lucia, female participation in banana production increased in the 2000s, following the decline of the banana industry which led many male farmers to migrate from the sector to other industries such as construction, transportation and tourism. Women tended to stay in the industry due to family responsibilities and limited employment opportunities in other sectors compared to men. Limited alternatives for women is partially due to lack of education and, in some cases, literacy levels (Cooper, 2015).

Compared to Latin America banana exporting countries, where women's involvement is almost exclusively limited to the packing stations, female producers and workers in St. Lucia's undertake all tasks involved in production, from fertilizer application to harvesting (Cooper, 2015). Women also play a key role in quality assurance, as they are frequently responsible for ensuring that bananas meet the buyers' standards of size, shape, color and packaging, especially in family farms. Further, within NFTO's farmers groups, Saint Lucian' female farmers hold a key role in decision making: about 90% of women farmers are involved in their groups' decision-making process, exceeding men involvement by 3% (Fingal-Robinson, 2016).

Due to new opportunities in the labor market for youth, and their relatively high education levels compared to older generations, Saint Lucian' youth engagement in banana production is limited.¹⁴ The shortage of banana farmers under 35 years old highlights to the industry's critical situation with regards to aging farmer population (Klal et al., 2009). Though veteran banana farmers describe at length how rewarding a career can be, the current low prices, market uncertainties and exposure to sun have effectively dissuaded younger generations from entering the banana industry.

3.3 Industry Organization

Actors involved in Saint Lucia's banana industry exhibit great heterogeneity in terms of scale of operation, economic interests, and power. The industry is comprised of both public and private-sector actors who organize industry activities. The private sector consists of banana farmers, NFTO and WINFRESH. While farmers are the largest group of actors in the chain, WINFRESH has the most power given its connection to retailers. WINFRESH, which is owned by the Winward Islands Governments, further exhibits its power in the chain through the setting of specifications for banana quality, as well as by setting prices for inputs. However, the company has little influence over farmer prices following the introduction of Fairtrade certification in the mid-2000s. The government supports the industry via two institutions the Ministry of Agriculture and the Trade Exports Promotion Agency (TEPA), which attempt to assist the industry, especially export oriented production. This section discusses these actors in greater detail paying attention to their role and linkages to others in the chain (see Table 2 at the end of the section).

- **Banana Farmers.** Unlike Latin America, where plantations can occupy thousands of hectares and employ hundreds of workers, Saint Lucia farms are primarily family-run operations with small plots of land devoted to the industry. The average number of full-time wage workers employed per farm is less than two. Data regarding farm sizes and number of farmers are not collected, yet experts estimate that there are 748 banana farmers in the nation. Farmers who are part of the NFTO are able to access inputs from the organization and earn higher prices due to the price premium associated with Fairtrade certification. However, the majority of producers are not connected to the NFTO and must acquire inputs on their own. Non-NFTO producer often report lower yields and are often not certified, instead supplying the regional or local market. However, the non-NFTO affiliated farms report significantly lower production costs, resulting in higher price margins. Both NFTO and non-NFTO farmers have limited power and often are bound to the terms of trade set by other actors in the chain.

¹⁴ The money gained from the industry boom in the 1980s and 1990s enabled many Saint Lucian's farmers to finance their children education up to the tertiary level, frequently in the United States, UK or Canada.

- **National Fairtrade Organization (NFTO).** Representing 270 farmers, the NFTO's role in the Saint Lucia banana GVC is as an aggregator or intermediary, connecting farmers to WINFRESH. Virtually all bananas exported to the UK are sourced from the NFTO as it is the only Fairtrade association on the island. Farmers are organized into nine groups consisting of 30 members. NFTO groups have set rules and procedures for the development and implementation of social projects, which are funded by Fairtrade social premiums (see Section 2.3.1 above) and for the election of group leaders. Each group is represented at the national level by a chairman. Chairmen communicate issues from their group to the national executive body and NFTO officials who then liaison with WINFRESH. Despite being farmer owned, officials within the organization are not farmers. Instead NFTO employees are industry experts with many frequently coming from WINFRESH or the now dissolved Saint Lucian Banana Growers Association (SLBGA) (Mills, 2017).¹⁵

Launched in the early 2000s, NFTO represents an effort to revive the banana industry and protect local farmers against the negative impact of trade liberalization. During the last decade, NFTO farmers groups began providing producers with banana pack boxes, cutting knives, and gloves which previously could have only been sourced in the country's capital, Castries (Fingal-Robinson, 2016). These inputs are entirely financed by farmers in the form of credits which are repaid following the sale of bananas. The affordability of inputs and profitability of production are frequently discussed in group meetings, yet many farmers report no notable changes, creating a general feeling of frustration among members. Additionally, around 10% of payments to farmers from WINFRESH finance the NFTO's work, including farmer representation, extension services, and training (Farquhar, 2012). Prices for bananas are not set by NFTO. Instead prices are based on Fairtrade International guidelines.

When NFTO emerged, it sought to empower farmers via the transfer of knowledge about the global banana industry. Through NFTO programs, farmers learned more about trade flows and the demands of the UK market. It also helped to convey information on price distribution to farmers, who beforehand had little knowledge of prices consumers paid abroad. Farmers also learned about GAP and environmental consequences of chemically intensive production. However, the knowledge transfer is not equitable among farmers. Less than 1/3 of farmers surveyed in one study could define Fairtrade and 38% did not know about the associated social premium or their impact on the community. Only 44% knew about the international market and consumers in the UK (Fingal-Robinson, 2016).

The NFTO is facing additional challenges as well. Due to the high production cost of certified bananas, heavy storms and the Black Sigatoka disease, the number of farmers associated to NFTO has decreased significantly in the last ten years. After years of being the primary aggregator in the nation, NFTO is seeing its position diminish in recent years as growers shift away from Fairtrade certified production or leave banana production entirely. In 2010, almost every farmer in the island sold under the Fairtrade label through NFTO. However, by 2018 less than 40% of active banana farmers are associated with NFTO. Many farmers that left NFTO have shifted to other crops, such as coconut or pineapples, reducing the scale of banana production by 75% or more. Some have abandoned bananas entirely. Farmers that continue to

¹⁵ See below for more detail.

produce bananas sell to the local market, namely Massy Stores.¹⁶ Even though prices are much lower in regional and local markets, the difficulty of following Fairtrade and UK buyers' stringent standards discourages farmers to work with NFTO. Those that remained part of NFTO are often more efficient in production and frequently have more formalized agricultural and business skills, as well as the social capital needed to benefit from Fairtrade certification.

- **WINFRESH** is the sole large exporting firm in Saint Lucia and the only company exporting to markets in the Global North. Almost all of WINFRESH's banana exports go to the UK market. WINFRESH is 100% owned by the Windward Islands' governments (in the form of shares). The corporation is directed by a group of 10 individuals: two representatives from each island and two representatives from WINFRESH UK. Of the Windward Islands, WINFRESH exclusively sources bananas from Saint Lucia. However, it does buy bananas from cheaper suppliers on the global market such as Ghana and the Dominican Republic. This imposes further competitive pressure on Saint Lucian producers and push many out of the export market. Despite government ownership, the Saint Lucia government has no formal decision-making power within the firm. However, company directors are often former government officials, and in some cases, simultaneously hold positions in the government and within WINFRESH.

WINFRESH has ownership of several GVC activities. Transportation is managed via half owned shipping firm, Geest Line. WINFRESH UK owns and operates ripening rooms, controlling this stage of the value chain. As a result of its downstream activities, WINFRESH is able to exert power in the chain dictating banana specifications and requiring affiliation with NFTO for country producers.

- **The Ministry of Agriculture** is the historic government agency that provides industry support. Historically, the Ministry of Agriculture has been light involved in the industry because the sector had its own extension and R&D services through the SLBGA. However, following the removal of its Fairtrade certification and a perception of corruption, SLBGA ceased operations in the early 2000s and the Ministry became more involved in bananas. Involvement by the ministry of agriculture is primarily via the Banana Productivity Improvement Project, introduced in 2017 (Box 5).¹⁷ The goal is for Saint Lucia to increase banana production by 300% by 2019 (CNS, 2017).

¹⁶ In addition to the programs mentioned in Box 4 above, Massy Stores Saint Lucia has created an incentive program where the retailer pays US\$0.22 per 18.1 kg box, as long as the farmer maintains sound agricultural practices. These practices are defined by Massy, meaning that GlobalGAP is not required for farmers selling to Massy.

¹⁷ The BPIP is the current project in a line of several banana productivity programs. The programs change with each new government administration. All programs have focused on managing Black Sigatoka disease as well as provide inputs to export oriented farmers. The previous project, the Banana Black Sigatoka Management Project (BSMP), lasted five years and is regarded as a successful intervention, doubling exports during its lifecycle.

Box 5. Banana Productivity Improvement Project

In May 2017, the Saint Lucian Government launched the Banana Productivity Improvement Project (BPIP). The primary goal of the BPIP is to control the Black Sigatoka disease; however, soon after the first six months of the project's implementation the scope expanded to include both production and productivity issues. The shift in focus included the incorporation of foreign agronomists and improving the technical capacity of the extension services staff participating in the project.

During its first year (2017) the BPIP provided farmers the necessary inputs to produce at no cost; payments would only be made after farmers were able to market their bananas. This initiative was not successful, with farmers mentioning that the spray treatment for Black Sigatoka was either ineffective or harmful for crops. This led to several farmers to reject the spray provided in the project's second cycle (January 2018 – May 2018). However, the second batch appears to be more efficient. Currently, the BPIP provides the spray treatment at half the price of the local market.

In February 2018, the program obtained financial contribution from the government of Taiwan, which agreed to contribute US\$700,000/year for four years, totaling US\$2.8 million for the BPIP. The Taiwan International Cooperation and Development Fund has a history of industry support with the purchase of fungicides and sprays provided to previous banana projects. They also contributed technical assistance to manage Black Sigatoka disease and set up plots to determine which variety of banana would be more likely to be resistant to the disease.

Throughout 2018, the major focus of the BPIP is restoring the industry to pre-Matthew condition and increasing productivity. Attention will then shift to expanding current acreages, building resilience to climate change, establishing sustainable financing mechanism, building capacity—especially of the BPIP staff—and strengthening diseases control measures. While there is no expectancy to achieve 130,000 tons, the level seen in the 1990s, BPIP hopes to expand to between 60,000 to 70,000 tons on 2,020 or 2,428 hectares of land. In addition, project funds will also be allocated towards the establishment of a credit facility at the National Farmers Credit Union, to ensure that farmers will be able to continue to obtain all the necessary inputs that are critical to produce bananas at low interest rates following the formal end of the project.

Source: Borgen Project (2018); Field Research (2018); Isidore (2014); SNO (2018); St. Lucia Times (2017); STBO (2017)

The Ministry of Agriculture is also supporting the sector through the Banana Accompanying Measures (BAM) program funded by the EU. BAM is a support package for a number of banana-exporting countries from ACP group of states; its objective is to facilitate these economies' adjustments to trade liberalization. In Saint Lucia BAM is designed not only to foster competitiveness but also to encourage diversification. While it has financed 80,000 gallons of fungicide to treat Black Sigatoka disease and construct 'banana-roads', additional resources have been poured into the implementation of facility that will favor diversification towards cocoa. The facility is facing setbacks due to limited funding from the EU.

- **Trade Exports Promotion Agency (TEPA).** TEPA is a government agency that helps connect local producers with export markets recently announced plans to include the banana industry into its portfolio. In May 2018, TEPA became involved in the banana industry through an agreement with the Ministry of Agriculture that enables the former to focus on the promotion of agricultural exports, such as cacao, plantains and coconut. TEPA's role in the banana industry is to promote regional exports and became a no-fee broker for interested farmers; currently, support is provided through the development of a regulatory framework

that will enable regional exporters' organization. However, this program has yet to be enacted and it is unclear of its impact on the industry. It will require greater collaboration among industry actors.

Table 2. Key Industry Stakeholders in the Saint Lucia Banana GVC

Actor	Description	Role
National Fairtrade Organization (NFTO)	National farmer organization that holds the Fairtrade certification and works with 270 farmers on the island to provide supplies to WINFRESH for the UK market	<ul style="list-style-type: none"> • Aggregates country production for sale to WINFRESH • Oversees Fairtrade Certification • Coordinates input distribution and repayment
WINFRESH	National export firm that controls many downstream GVC activities, linking Saint Lucia to UK retailers	<ul style="list-style-type: none"> • Main buyer of Saint Lucia bananas • Oversees export and import to UK market • Ripens Saint Lucia bananas before distributing to retailers
Ministry of Agriculture	Government body that supports agriculture on the island and maintains industry data	<ul style="list-style-type: none"> • Oversees BPIP • Registers farmers
Trade Exports Promotion Agency (TEPA)	Connect local producers of several crops with export markets	<ul style="list-style-type: none"> • Announced program to promote regional exports and be a no-fee broker for farmers

Source: Authors.

3.4 Industry Evolution in Saint Lucia's Banana Global Value Chain

Saint Lucia's entrance into the banana GVC was facilitated by the Lomé Convention signed in 1975 between 71 African, Caribbean and Pacific (ACP) nations and the European Economic Community (EEC). The convention allowed ACP agricultural exports to enter the EEC duty free. As a result of this agreement the banana industry flourished. By the mid-1990s Saint Lucia supplied around 14% of the UK conventional banana market; collectively the Caribbean supplied close to 40% (Balch, 2013; UNComtrade, 2018). As a result, the banana industry became the single largest contributor to the island's economy, accounting for 34% of its GDP (Fingal-Robinson, 2016). However, EU trade liberalization, the entry of new suppliers, and declining productivity caused the industry to collapse. By 2016, Saint Lucia's share of the UK market had fallen dramatically, amounting to less than 1% of UK banana imports (UNComtrade, 2018). The period between the 1970s and present can be divided into three waves: i.) A booming market demand due to strong UK imports; ii.) Trade Liberalization and the emergence of Fairtrade and iii.) Industry decline and the emergence of regional trade networks (see Table 3). Each of these are discussed in detail below.

Table 3. Saint Lucia's Banana Industry Evolution, 1970s-Present

Time period	Characteristics	Key Actors
Wave 1 (1970s-1990s)	<ul style="list-style-type: none"> • Preferential access to European Markets • Major source of GDP and Employment • Focus on Conventional, uncertified bananas 	SLBC TQFC WIBDECO
Wave 2 (1990s-2012)	<ul style="list-style-type: none"> • Declining market share of key import partners • Crop loss due to storms and disease • Many farmers leave industry • Focus on Fairtrade and GlobalGAP 	WINFRESH NFTO
Wave 3 (2012-present)	<ul style="list-style-type: none"> • Continued issues of low productivity • Farmers abandon Fairtrade system • Growth in regional trade • Emergence of diversification interest 	WINFRESH NFTO Massy Stores Regional buyers

Source: Authors

First wave: The Saint Lucia banana industry flourishes due to preferential access to European markets until the late 1990s. Until the mid-1990s, the banana market flourished due to strong demand by UK retailers and preferential access to European Markets. During this time Saint Lucia was a major supplier of fresh bananas for the UK and often one of the top three exporters (UNComtrade, 2018). With a protected UK market under the Lomé Convention, between 1975 and 1995 Saint Lucia's banana industry become the single largest contributor to its economy, accounting for 34% of the country's GDP as well as a major job creator for the island. The Lomé Convention insulated local farmers from global competition, but this changed in the mid-1990s after the founding of the World Trade Organization (WTO) in 1995. In 1996, the WTO ruled against the Lomé Convention, opening the European Market to new suppliers. This resulted in a major decline for the Saint Lucian banana industry as exports faced new competition. Trade pressures were further exacerbated by several hurricanes and the Black Sigatoka outbreak which drastically lowered supplies. As a result, exports declined, and many farmers exited the industry. In 1993, Saint Lucia had an estimated 10,000 farmers active in banana production. By 2003 the number had dropped to 1,600 (Field Research, 2018; Ville et al., 2017).

During the first wave, the major aggregators on the island were the Saint Lucian Banana Growers Association (SLBGA) and the Tropical Quality Fruit Company (TQFC). Both operated as aggregators for the main exporter in the nation, Windward Islands Banana Development and Exporting Company Limited (WIBDECO). WIBDECO, established in the 1990s focused on developing and maintain the banana industry in the Winward Islands and helping establish export partners. This was done primarily through a subsidiary based in the UK, WIBDECO UK (BVC, 2015).

Second wave: Faced with the collapse of the banana industry, Saint Lucia pursues Fairtrade certification. Faced with farmers leaving the industry, government stakeholders decided to pursue a new, niche market strategy centered on Fairtrade. Farmers and other banana industry stakeholders were initially resistant to the conversion to Fairtrade—and many opted out at the beginning.¹⁸ However, industry leaders considered Fairtrade the most viable path to industry growth, safeguarding farmers from rising competitiveness and declining market shares (Fingal-Robinson, 2016). WINFRESH lead the push towards Fairtrade by lobbying farmers and developing

¹⁸ During this time, many alternative strategies were proposed. For example, one banana company advocated for the development of a 'Winward Islands' brand.

links with the Fairtrade Foundation in London, WINFRESH then worked to convince supermarkets in the UK to start stocking its new Fairtrade line (Fingal-Robinson, 2016). The great majority of stakeholders indicate that Fairtrade facilitated the industry continuity by providing a minimum price for farmers, set at US\$9.40 per box (US\$0.52 per kg.) in 2018, and a social premium of US\$1 per box (US\$0.05 per kg.) (Fairtrade International, 2018b). It also helped facilitate the obtaining of GlobalGAP certification. Pushed for GlobalGAP began under the SLGBA and continued with NFTO. By 2018 not only was NFTO GlobalGap certified as an organization and so were 241 national farmers, many of whom work through NFTO to export their bananas (GlobalGAP, 2018). However, as discussed in wave 3, the scheme has failed to provide productivity improvements, and production is not expanding, hindering economic upgrading.

The switch to a Fairtrade niche market also altered domestic actors active in the banana GVC. Prior to 2008, there were two key growers' associations, SLBQA and TQFC. Both of these organizations connected farmers with the national exporter, WIBDECO, which changed its name to WINFRESH in the early 2000s.¹⁹ In 2008, it was ruled that these organizations did not have the right to be included in the sale of Fairtrade bananas because they were not certified (Fingal-Robinson, 2016). As a result, these fade away or ceased exporting to the UK and NFTO became the only intermediary between Saint Lucian farmers and WINFRESH. WINFRESH became the sole channel to access the UK market. Further, per Fairtrade International regulations, farmers who exported under the certificate were unable to plant other crops on their banana yields, forcing a policy of monocropping.

While Saint Lucia moves towards a Fairtrade niche market, a new challenge emerges in the form of Black Sigatoka. At the end of October 2010, most plantations were battered by Hurricane Thomas and shortly after, crops were subject to an outbreak of Black Sigatoka. By 2010, Black Sigatoka destroyed more than two thirds of banana farms in Saint Lucia (ICDF, 2017). Faced with the new issue of Black Sigatoka, coupled with increased competition from large banana producers in Latin America, Saint Lucia began to contend with lower prices due to over-supply on the international market, which made farmers' margins even slimmer.

Third wave. Stringent standards set by Fairtrade and UK buyers, combined with sustained difficulties from storms and Black Sigatoka, continue to negatively impact the banana industry. Fairtrade enabled Saint Lucia's continuity in the global market, by solidifying its trade with the UK. However, high costs associated with Fairtrade production, and low profit margins pushed more farmers out of the industry. For example, due to health concerns, farmers are not allowed to use chemicals to combat weeds. Instead weeding must be done by hand or using mechanical weed eaters. This not only raises the cost of production for farmers, who must hire workers to clear the plantation, it also reduces productivity.²⁰ By 2017, only 285 farmers were actively exporting to the UK.

Concurrently, as farmers continued to recover from Hurricane Thomas and the first emergence of Black Sigatoka, at the end of 2013 the Winward islands were battered by torrential rains and severe winds, devastating rural communities. Because of the storms, an estimated 36% of banana

¹⁹ WIBECO became WINFRESH to help better establish itself as an exporter of several agricultural commodities, not only bananas. As a result, banana was dropped from its name though it remains the primary export product.

²⁰ In 2015, 55% of Fairtrade farmers reported that their wage expenses increased as a result of the herbicide ban by an average of US\$44 per fortnight (Moberg, 2015).

production on Saint Lucia was affected, while pack houses and other infrastructure and necessary supplies were also damaged (FairTrade International, 2018a). This especially impacted Fairtrade farmers who were required to follow strict production requirements. At the same time some farmers report, WINFRESH is suspending suppliers under the suspicion of Black Sigatoka disease in plantations with banana trees having less than six leaves, which, could potential indicate the presence of Black Sigatoka.

Despite these challenges, new opportunities are emerging, especially in the regional market. The regional market became a profitable and flexible opportunity to export bananas with much less stringent standards. While retail prices in the UK market are higher than the regional market, production costs and less stringent standards gives the regional market higher profit margins for farmers. Further, due to the OECS, the regional market is under the CARICOM Single Market and Economy, which facilitates duty free export.

Exports to the regional market are increasing, reaching nearly 20% by 2016 (UNComtrade, 2018). The markets behind this trend, namely Barbados and Antigua and Barbuda, account for 22% and 12% of St. Lucia’s total banana exports in 2016, respectively (UNComtrade, 2018). Moreover, while the unit price of bananas exported to the UK in this period grew by only 3%, average regional market price increased by 35% (Table 4). This shows an increasingly favorable climate for regional export versus trade with developed economies that entail higher production costs due to higher quality standards and the need for certification.

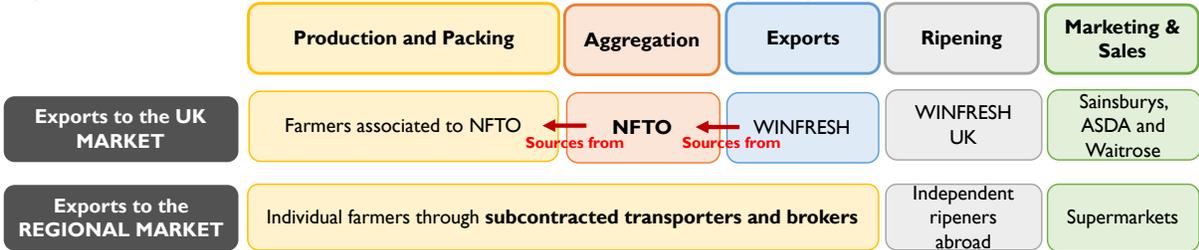
Table 4. Unit Price of Exported Bananas, by Market, 2005 - 2015 (US/ kg)

Export Market	2005	2007	2009	2011	2013	2015	Change 05-15 (%)	Share in total exports, 2015 (%)
UK	0.81	0.86	0.84	0.88	0.85	0.83	3%	68%
Barbados	0.40	0.31	0.32	0.37	0.28	0.26	-36%	5%
Antigua	0.70	0.91	-	-	-	0.83	20%	3%
Trinidad and Tobago	0.23	0.53	0.60	0.53	0.54	0.70	203%	21%
Regional Market ^(a)	0.44	0.59	0.46	0.45	0.41	0.60	35%	15%

Source: Authors based on UNComtrade (2018). **Notes:** ^(a) Unit price of the regional market is the average of unit price of Barbados, Antigua, and Trinidad and Tobago. Similarly, share in exports of regional market is the sum of Barbados’, Antigua’ and Trinidad and Tobago’ shares.

The shift to regional markets is changing the actors involved in the industry, with smaller, regional and local actors overseeing activities performed by NFTO and WINFRESH for UK exports (Figure 15). The majority of this activity is performed by farmers and small firms that are subcontracted by buyers or famers. While a small percentage of exports, at less than 20% of total exports, recent growth suggests this is increasingly viewed as a profitable pathway for many farmers. This indicated future potential for smaller actors to participate in the industry via regional trade.

Figure 15. Saint Lucia’s Banana GVC Stakeholders by Export Market



Source: Authors based on Field Research (2018); Fingal-Robinson (2016)

At the farm level, regional markets also provide better prices to farmers. While the local market only provides US\$0.41 in 20, the regional market was much higher reaching as high as US\$0.61/kg, a 49% increase compared to local market prices. The UK market offers slightly lower prices at US\$0.52, only 27% higher than the local market (Table 5). A further difference in the markets is that regional markets do not offer social premiums, so the higher prices go exclusively to the farmer and not to other organizations for community projects. This is important because a portion of the social premiums tied to UK markets goes to help fund NFTO operating costs. Moving forward, the major challenge to increase regional exports is logistics. Due to longer transportation times to reach the consumer market—sometimes exceeding seven days—produce can be lost or ruined in transport, despite travelling fewer miles to regional actors.

Table 5. Banana Prices Paid to the Farmer by Market, 2018

Market	Unit price per kg. to farmer	Unit price per box to farmer	Social premium per box	Total price per box (including social premium)
Local market (Green)	US\$0.41	US\$7.41	US\$0.08	US\$7.49
Regional market, export (Green, highest)	US\$0.61	US\$11	-	US\$11
Regional market, export (Green, lowest)	US\$0.55	US\$10	-	US\$10
UK market, export (Green)	US\$0.52	US\$9.40	US\$1	US\$10.40

Source: Authors based on Field Research (2018)

3.5 Advantages and Constraints

Saint Lucia’s potential in the banana GVC depends on capitalizing on a set of structural strengths within the nation and addressing industry weaknesses. These strengths, including the historic experience in the banana sector and industry expertise allows for strategic opportunities that should be capitalized on. At the same time, weaknesses, for example high production costs and low productivity must be addressed for the country to improve its position in the industry. These strengths and weaknesses are presented in Table 6 and elaborated below.

Table 6. SWOT of Saint Lucia in the Banana Industry

Strengths	Weaknesses
<ul style="list-style-type: none"> • Historical experience in banana production • Expertise and knowledge in international trade • Established ties with the UK market • Reputation as Fairtrade and GlobalGAP producer. 	<ul style="list-style-type: none"> • Lack of coordination and weak management support • High cost of production • Low productivity coupled with crop lost due to poor pest and disease • Land availability shortages due to archaic ownership system and shift of agricultural to commercial land • management and weather conditions • High cost of shipping to the regional market • Limited access to finance for regional exporters • Limited data availability
Opportunities	Threats
<ul style="list-style-type: none"> • Growing demand in regional markets • Unit price increasing in regional markets 	<ul style="list-style-type: none"> • Competition from countries with lower operational costs (e.g. Ghana, and Dominican Republic) • Increasing prevalence of diseases • Further supply disruptions due to storms

Source: Authors

3.5.1 Advantages

Saint Lucia’s primary strength in the banana GVC is the nation’s historic experience on banana production and exports, which lead to vast expertise and knowledge in international markets. Strong ties with the UK market and a reputation as a Fairtrade and GlobalGAP producer with most exported bananas going into large supermarkets with very strict quality requirements. The following sub-section expounds upon these opportunities.

1. **Historical experience on banana production.** Saint Lucia can trace banana production and exports to the 1950s. This, coupled with the family-owned structure of production, translates into great experience and knowledge in the agricultural practice.
2. **Expertise and knowledge in international trade.** The legacy of banana production and export has enabled the GVC stakeholders—namely NFTO and WINFRESH—to gain considerable expertise in the international market as well as great business management skills. The quality and frequency of transportation to the UK is a result of the know-how and experience developed throughout six decades of operation.
3. **Established ties with the UK market.** Since the Lomé Convention in 1975, Saint Lucia has exported the majority of its banana production to the UK. Despite the marked decline since the mid-1990s, the ties developed with UK clients endure. In addition, Saint Lucia is a

part of the British Commonwealth, giving a historical tie between the two nations. Currently, WINFRESH exports to a group of supermarkets that account for 39% of the UK grocery store market 2017, namely ASDA, Sainsbury and Waitrose (Statista, 2018a).

- 4. Reputation as Fairtrade and GlobalGAP producer.** Saint Lucia's involvement in Fairtrade dates back to the scheme's commencement in the late 1990s. Currently, the country is the only producer of Fairtrade bananas in the Windward Islands, and unusually, all commercial banana imported by the UK from Saint Lucia are Fairtrade certified and follow Fairtrade Labelling Organization (FLO) production guidelines.

3.5.2 Constraints

Despite Saint Lucia strengths, there are multiple challenges it must address. Some of these challenges have become particularly more pronounced in the last two decades. Significantly high costs of production, often due to Black Sigatoka and stringent quality requirements from the UK, has blocked many farmers from the export industry. While weather conditions continue to hinder productivity improvements, flexible opportunities are opening for Saint Lucia in the regional market. However, poor logistics are limiting the volume of exports to nearby islands. Limited data availability and the lack of coordination amongst relevant stakeholders undermine the entire competitiveness of the sector while weak management support threaten future growth. The following sub-section expounds upon these challenges.

- 1. Coordination failures and weak management support.** Saint Lucia's government and WINFRESH have very different priorities and directions. Disagreements on how to best integrate in the banana GVC is not only limiting the competitiveness of the industry but also the design and implementation of an effective national strategy that is able to predict and monitor production figures, hectares available for production, and location of plantations. The latter creates a perception of the government leaving the banana industry up to chance amongst both WINFRESH and farmers. In addition, according to farmers, the input subsidies' scheme implemented by BPIP is not standardized nor is it uniformly implemented. This results in a perception among farmers of preferential treatment for select farmers, weak management skills among program staff and corruption. The lack of standardization is a result of the severe shortages in stakeholders' coordination. Coordination failures are also present in the link between the academic sector and government agencies; namely, curriculum from colleges and other educational institutes are not aligned to the Ministry of Agriculture needs.
- 2. High cost of production.** The cost of banana production—especially Fairtrade bananas—is higher than competitors due to expensive inputs, pest control, labor and packing materials. For farmers exporting to the regional market, production inputs are frequently unavailable, with delays of about a month to obtain inputs and packing materials. Further, fungicide treatment of Black Sigatoka and irrigation systems are very costly and therefore often lacking. In addition, high cost of farm labor has contributed to the banana decline in St. Lucia; plantation workers are paid around US\$19 per 4-hour day, which is about six times higher than in the Dominican Republic (Field Research, 2018; ILO, 2017). Wages continue to increase as less labor is available, with youth shifting into other economic activities such as tourism, which is viewed as less laborious work.

- 3. Low productivity coupled with crop lost due to poor pest and disease management and weather conditions.** Low productivity is attributed to Black Sigatoka disease, weak land fertility due to heavy use of pesticides during the 1980s-1990s, and poor labor productivity. Poor labor productivity is perceived to be rooted in the lack of modern agricultural practices—namely, proper fertilizing and chemical application. It is further exacerbated by slow uptake of training, despite efforts from NFTO, WINFRESH and the Ministry of Agriculture. Pest and disease management continues to be a great threat to the banana industry as R&D facilities remain completely absent since early 2010s. Finally, with most growers in the hills, steep slopes prevent mechanization and irrigation; hence, farmers are limited in timing and at the mercy of increasingly unpredictable weather patterns.
- 4. Limited land availability due to archaic ownership system and transfer of agricultural lands to commercial land.** Saint Lucia's banana industry is constrained by the lack of available lands for farming. This is due to several issues, including: a) the island relies on a family land tenure system that hinders land transactions, since there may be multiple owners for one plot, and many are difficult to identify and contact; b) critical agricultural lands are being shifted to commercial lands, mainly benefiting the tourism industry. The perpetuation of these phenomenon will severely limit the banana industry's competitiveness.
- 5. Weak infrastructure both at the national and regional level.** Despite government support, agricultural road access and the quality of national infrastructure is still not sufficient. This constraint is especially plantations in steep lands, despite relatively higher investment in road infrastructure. In addition, according to field research, moving bananas from Saint Lucia to nearby regional markets is highly constrained by the absence of established shipping routes. Frequently, transportation times to regional markets exceed seven days with produce going to Miami before reaching its buyer. These long transit times frequently result in produce being lost or ruined.
- 6. Limited access to finance.** The lack of financial capital is another barrier to addressing high production costs, as well as to adopting new technologies or implementing more efficient agricultural practices. Current programs that offer financing are focused only on NFTO members, excluding local and regional farmers, which represents the majority of banana farmers on the island.²¹ Credit or agricultural loans outside the NFTO scheme often require conformity to conditions that farmers struggle to fulfill, such as technical information on drainage and irrigation and sound marketing arrangements. The financial situation of regional exporters is slightly worsened by considerable lag times between harvesting and payment. Payments from regional buyers could take more than ten days, compared to payments from local markets, where funds are wired after one week.
- 7. Limited data availability.** Production data is limited. While WINFRESH collects certain data on the banana industry, including number of farmers and exports, government officials indicate that obtaining these is difficult. The lack of data presents severe difficulties in monitoring the productivity of the industry or establishing proper programs targeting the correct audience.

²¹ Massy Stores has introduced a loan scheme for registered farmers but its impact remains unclear.

4. Lessons for Saint Lucia Upgrading in Banana Industry from Global Experiences

For Saint Lucia to successfully establish a position for itself as an integrated player in the banana global value chain, it needs to upgrade its current operations in the industry. By adopting new technologies, producing a new product or engaging in an entirely new set of activities, upgrading can also allow actors in the GVC to capture more value from their participation (Humphrey & Schmitz, 2002). In agribusiness chains such as bananas, this can be achieved in several different ways; for example, by improving farm-level practices to increase yields; introducing new technologies for pest management; or moving into other high-value agriculture chains. Due to the growing sustainability challenge in the industry, process upgrading in the production segment – that is increasing productivity and mitigating disease impacts has been a central challenge for most countries. As a result, many producing countries have in place special programs to increase agricultural productivity. These programs are frequently not only led by country governments, but also by firms and NGOs. Table 7 summarizes the critical upgrading trajectories that have typically been pursued by countries in the banana GVC.

Table 7. Selected Upgrading Trajectories in the Banana GVC

Upgrading Trajectories	Description
<p style="text-align: center;">PROCESS UPGRADING (Productivity and Disease Management)</p>	<p>Process upgrading focuses on increasing the productivity of bananas. Improved fertilizer, pesticides and irrigation techniques can all boost production. Achieving this upgrading requires access to training to familiarize producers with new production methods as well as affordable finance to support the integration of new techniques into the production operations.</p> <p><i>Example:</i> Colombia’s National Vocational Training Academy (SENA) seeks to increase the competitiveness of the labor force via training. SENA developed a program in bananas as part of its mandate. The program seeks to use smart farming via wireless sensors to improve yield by monitoring soil quality, fruit size and other factors to optimize the farming process. As a result of this and other interventions, Colombia saw an 11.5% increase in exports from 2015-2016 (Tracy, 2016).</p>
	<p>Process upgrading also deals with the implementation of best practices to contain and minimize the threat of disease. As noted in Section 2.1, diseases pose a significant threat to the crop. The use of good agricultural practices can help reduce exposure and impact of diseases.</p> <p><i>Example:</i> The banana disease, Tropical Race 4, was discovered in Indonesia in the early 1990s and has created millions of dollars in lost revenue for the nation. In an attempt to better address the issue, researchers at Australian Center for International Agriculture Research (ACIAR) led a team study to identify major causes for the disease spread and to train farmers about production practices to reduce disease spread. As part of the project, farmers had direct capacity building through demonstrations on how to manage the disease and boost production. The success of the project led to its replication in the Philippines, a major exporter (ACIAR, 2018; Molina, 2010).</p>

<p style="text-align: center;">PRODUCT UPGRADING</p>	<p>Product upgrading involves the production of a higher value product, such as certified bananas. It requires knowledge of market preferences, costs, and prices. It is important to note that in the banana GVC, entry into certified markets is an example of product upgrading; however, these moves do not always result in higher prices.</p> <p><i>Example:</i> The Colombia Banana Growers Association (AUGURA), with support from the Netherlands, developed several projects totaling US\$5 million. The program sought to increase GlobalGAP certification as well as facilitate Fairtrade certification. Combined these helped producers enter into partnerships with select retailers who only sell Fairtrade bananas. The result of this and other programs was an increase in Fairtrade certified farms from 4 in 2007 to 35 in 2013. Colombia used the premium in a variety of ways with 35% going towards improving productivity and 10% in community development (Ostertag et al., 2014).</p>
<p style="text-align: center;">FUNCTIONAL UPGRADING</p>	<p>Processing activities in the fruit sector entails moving from agriculture to manufacturing, i.e. functional upgrading. This step requires a large and consistent banana production, capital investment for equipment, technical expertise and a team of workers that can take on these tasks. In the banana sector, the most common processed products are dried banana chips, banana flavoring, and frozen bananas.</p> <p><i>Example:</i> The Philippines is one of the largest exporters of banana chips, with production concentrated in the southern island of Mindanao. An estimated 35% of bananas grown on the island go towards dried chips with 26 exporting companies active in this segment of the GVC, processing between 20-60 MT/day. Major import markets include the US, EU, Vietnam, and China (Allance Machinery, 2015; DCED, 2012).</p>
<p style="text-align: center;">CHAIN UPGRADING/ DIVERSIFICATION</p>	<p>Using the experience learned from banana cultivation to move into other value chains. Such moves can include tourism and other activities that involve banana plantations, or it can be new agricultural products such as coffee or cacao.</p> <p><i>Example:</i> Facing struggles to meet their needs with bananas alone, Uganda farmers are increasingly planting coffee among banana plants to both help ward off disease and provide a source of income diversification. Diversification in planting among Uganda farmers helps to boost revenue by up to 50% (CGIAR, 2018).</p>

Source: Authors

4.1 Case Studies

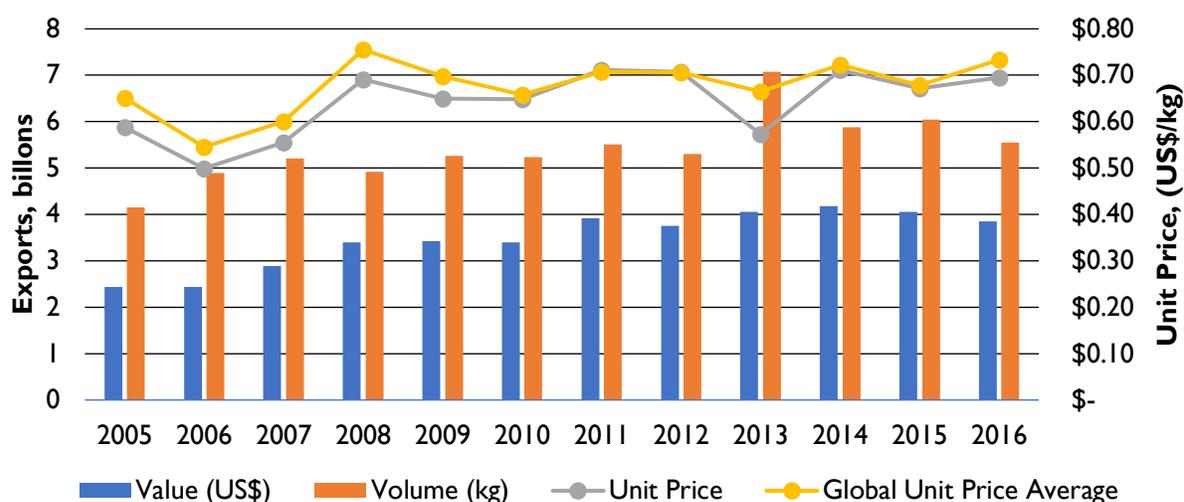
In analyzing different prospective paths for upgrading in the Saint Lucia banana industry, it is useful to look in depth at specific examples from countries facing similar questions of how to add value to their domestic sectors. Two cases provide further details of possible upgrading:

- **Ecuador** offers a compelling display of the benefits of a smallholder-focused growth. By developing policies, such as price minimums and productivity-oriented programs, Ecuador was able to maintain its position as a global leader of banana exports. Recent shifts in EU trade policy have further helped the country benefit from upgrades as new markets present themselves. At the same time, Ecuador is a global leader in cacao, exporting fine and flavor cacao.
- **Costa Rica**, in contrast, offers an example of association driven growth with a focus on pest management. Further, the industry is examining ways to diversify into coffee and banana co-planting, offering new sources of revenue.

4.1.1 Ecuador: Increasing Competitiveness via Smallholder Empowerment

Bananas are a major economic driver in Ecuador, comprising 15% of GDP and 50% of agricultural GDP (ProEcuador, 2016; UNCTAD, 2016). The country is also the largest global supplier of banana exports, accounting for 27% (UNComtrade, 2018).²² An estimated 2.5 million people have direct or indirect employment from the banana industry, 17.5% of the national population (ProEcuador, 2016; Vega, 2011). Steady growth in export volume and value over the last decade, coupled with unit prices close to global averages, has helped solidify Ecuador's position as a global leader in the banana GVC (Figure 16). Since 2005, Ecuador has increased banana exports from US\$ 2.4 billion to US\$3.8 billion while growing export volumes nearly 34% (UNComtrade, 2018).

Figure 16. Ecuador's Banana Exports, 2005-2016



Source: UNComtrade, HS2002-0803, all reporters imports from Ecuador. Retrieved May 1, 2018.

Banana production in Ecuador is centered on small farmers who have plantations under 30 hectares. These farmers comprise 78% of all banana producers and cultivate 22% of all banana land in the country (BASIC, 2015; MIT, 2017). Many of these farms are family operations with many households in major producing areas depending on bananas for their livelihood. Despite their importance for rural communities, small producers face several challenges in the banana industry. These include access to markets, meeting exporters requirements and overcoming a historical link of the industry to child labor, all of which impede the advancement of the sector (BASIC, 2015; MIT, 2017).

Table 8. Ecuador Banana Farm Distribution by Size, 2016

Size	Hectare Range	Area Cultivated, '000 Ha (% Total)	Number of Producers (% Total)
Small	0-30	35.6 (22%)	3,480 (78%)
Medium	30-100	57.5 (35%)	800 (18%)
Large	100+	69 (43%)	193 (4%)

Source: MIT (2017)

²² An estimated 90% of bananas produced in Ecuador are for export markets with the European Union being the largest trade partner (UNCTAD, 2016, UN Comtrade, 2018)

Several programs and policies contributed to the recent rise of Ecuador and its position in the banana GVC and helped facilitate upgrading. The primary industry driver is the government which organizes the industry via specific policies and through laws that stipulate the conditions for production and export. The primary government institution over bananas is the Ministry of Agriculture, Livestock, Aquaculture and Fisheries (MGAP). In addition to export promotion, MGAP oversees the two key policies supporting the industry: Banana Law and the Productivity Development Program for Small Banana Producers and the Banana Act. Each is discussed in more detail below.

Growth can be divided into three key trajectories: 1. Process upgrading to increase productivity among banana growers and better manage pests. 2. Backward linkages upgrading into new value chain activities, most notably export; and 3. Diversification to cocoa beans. All of these occurred with particular attention to small farmer's needs. Each of these upgrading trajectories is examined in further detail below:

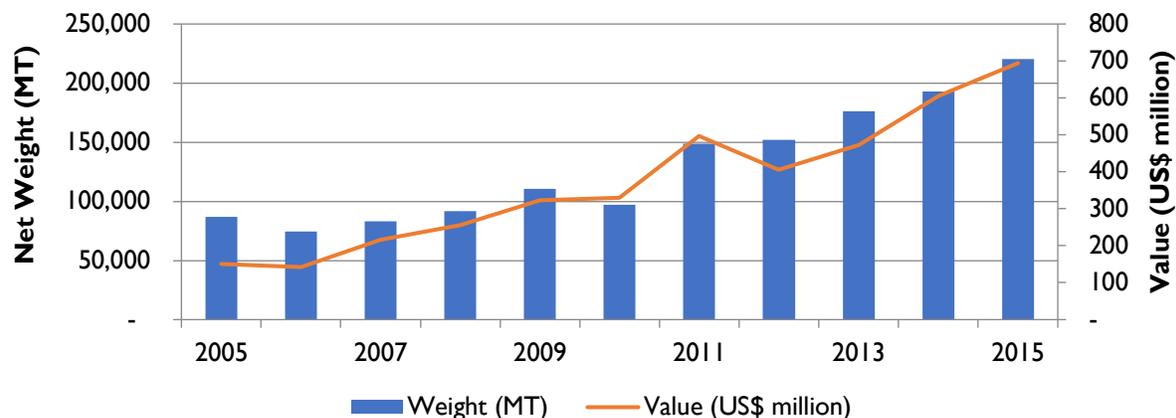
- 1. Process upgrading to increase productivity and control pests.** Banana productivity is a major focal point of policy in Ecuador. Several associations in the nation work with actors along the value chain to enhance industry competitiveness and coordinate productivity programs. Most of these efforts focus on small farms, which comprise 78% of producers but only 22% of cultivated land (MIT, 2017). Efforts focus on technical training and facilitating access to credit to acquire needed inputs and perform necessary farm improvements.

Like many other nations, Ecuador struggles with controlling diseases and pests in the banana sector (Elbehri et al., 2016). While the climate makes it less susceptible to Black Sigatoka than other nations, it is still frequently faced with other issues. Programs designed to manage these diseases and pests in the country are frequently enacted. For example, monitoring at the farm level for pests and the rapid deployment of insecticide to minimize their impact is helping reduce rejection of supplies by exporters (MIT, 2017). Further, additional research in the country on how to best maintain farms is helping minimize negative impacts for farmers and threats to the industry.

- 2. Backwards linkages upgrading into new value chain activities, most notably export.** Backward linkages upgrading entails local firms in one industry moving to supply these activities in a separate GVCs (Fernandez-Stark et al., 2011). Divestment and restructuring by large MNCs created opportunities for new actors to enter into the value chain or expand into new segments. Exporting in Ecuador is now done by over 200 firms, a stark contrast to the conventional method controlled by a handful of firms (Fernandes et al., 2016). Further, high levels of banana production are offering many other opportunities in the packing and transport stage of the value chain, including the fabrication of cardboard boxes and local transportation. While this upgrade is notable, it is essential to mention the low transportation and export cost Ecuador enjoys as well as the fact that this occurred during the same time that large MNCs reduced their role in this segment, both of which gave Ecuador a unique opportunity to expand to this position.
- 3. Diversification into cocoa.** In addition to bananas, Ecuador is leveraging its agriculture knowledge for the cocoa industry. However, rather than focus on the traditional variety of cocoa, Ecuador focuses on higher value varieties for specialty chocolate. Cocoa allows

Ecuador to diversify its agriculture market, limiting risk and provides a higher value industry for farmers. Many small farmers are even switching from bananas to cultivating cocoa plants entirely (Elbehri et al., 2016). Production in Ecuador has been consistently increasing cocoa since 2008 (USDA, 2015). Production increased 154% from 2008 to 2014, growing from 94,300 to 240,000 tons (USDA, 2015). Exports also rose in this period (see Figure 17); increasing by approximately 363% in value and 154% in volume between 2005 and 2015 (the largest gains occurred after 2010) (UNComtrade, 2017a).

Figure 17. Ecuadorian Cocoa Bean Exports, 2005-2015



Source: UNComtrade, HS2002- 1801, all reporters imports from Ecuador. Retrieved 11/28/2017.

- 4. Smallholder engagement.** It is important to note that all of the upgrading trajectories mentioned above paid particular attention to small farmers in the nation. For example, a recent law in the country stipulates that acquisition of bananas by large firms, both domestic and international must include 15% of smallholder crop, helping integrate them into the GVC. Further regulations guarantee a minimum price (Vega, 2011). An illustrative success case from Ecuador is the “El Guabo” association. The association has been noted for its smallholder focus and ability to provide a pathway for competitiveness among farmers (see Box 6).

Box 6. El Guabo

Founded in 1997, El Guabo is an association of small-scale farmers in the main banana producing regions of Azuay, El Oro, and Guayas. The association currently has 350 members and employs over 2,000 people in the banana sector. Beyond its Fairtrade participation, it is active in exporting multiple types of bananas including baby bananas, organic bananas, Cavendish bananas, and mashed bananas.

One of the key drivers of its success is the development of internal monitoring systems to help maintain high-quality production. It has allowed it to obtain several international certifications, including Fairtrade and Organic. It uses the premiums associated with these labels to invest back into the industry, improving irrigation on farms and packing sites, creating a credit program for farm improvements, developing training courses for members and developing recycling programs at the farm to minimize waste. Beyond these, price premiums also help the community via health insurance programs for families and infrastructure and rural education investments.

Source: MIT (2017)

Programs and Policies

Ecuador's upgrading trajectories are the result of several programs and policies to aid in industry development. Most notable among these is the 2011 Banana Law and the Productivity Development Program for Small Banana Producers, enacted in 2013. Together, these two policies seek to improve the industry via a variety of safeguards and initiatives. The Banana Law accomplishes this through a series of regulations, many of which were added since its initial passage. The law seeks to set minimum prices for farmers to help protect their economic livelihood. It also seeks to establish long-term contracts between producers and exporters to provide stabilization and predictability for growers. In contrast, the Productivity Development Program for Small Banana Producers focuses on boosting smallholder participation in the banana GVC. The program offers assistance in four ways: i. technical assistance; ii. financial credits via the National Development Bank; iii. research and development activities; and iv. business development and networking (MIT, 2017). These services are available for any farmer with banana plots under 30 acres. These two major programs are further aided by several smaller initiatives in the banana sector focusing on various issues. These are described below:

Process Upgrading to Improve Productivity and Combat Disease and Pests

- As part of the Productivity Development Program for Small Banana Producers, technical assistance is offered to smallholders to help them learn how to meet the quality control regulations and certifications required for entry into the EU market. For example, farmers learn of the optimal fertilizers to use on their farms. A second branch of the program invests in research programs to identify the most environmentally friendly fertilizers that are appropriate for Ecuador (MIT, 2017).
- In 2014, the Ministry of Agriculture, Livestock, Aquaculture and Fisheries unveiled a new framework for bananas that seeks to maintain and grow production via business management trainings and improvements as well as the implementation of new technologies to boost production at the farm level.
- In 2013, the Ecuadorian government implemented a protocol that standardized inspection of export bananas for mealybugs and scale bugs. Both pests created blemishes on bananas leading to a rejection from exporters and a loss of revenue for producers. The protocol included pest management and effective insecticide use at the farm level. The impact of the guideline was to create zero reported cases of the bugs by 2017 (MIT, 2017).
- Irrigation presents a major issue for producers in Ecuador due to an arid environment. To address this issue, Heifer International worked with smallholders to install irrigation systems on banana farms. The result was an increase of up to 25 banana boxes a week for growers, increasing yields and minimizing farm lost (Heifer International, 2012).

Backward Linkages Upgrading

- Given growing export opportunities and the divestment of large MNCS from many banana GVC activities, many companies are entering into export operations. The number of exporters grew from 69 in 2005 to 201 in 2015, a 191% increase. While the majority of exports are concentrated among a few larger firms, Ecuador represents a departure from

the traditional model because several actors participate in this stage of the value chain (Fernandes et al., 2016).

- Banana production in Ecuador has led to advancements in many additional activities. For example, the fabrication of cardboard boxes has annual sales of US\$260 million in Ecuador, 90% of this is related to the banana industry. Banana production generates 60% of revenue in the agricultural input industry, which contributes US\$600 million in total revenue in 2011; domestic transportation revenue linked to bananas and other agriculture products is estimated at US\$70million/year (Vega, 2011). These spillovers represent opportunities for entry into new segments of the value chain and help expand opportunities in the sector.

Diversification into Cocoa

- Promotion of intercropping with cocoa occurs in many regions where cocoa is a major economic driver. Bananas not only provide shade for cocoa plants, especially FFC beans which have considerably higher prices; banana leaves decompose at a faster rate than other trees providing soil nutrient and helping to boost productivity (Elbehri et al., 2016) Further, the bananas provide a secondary source of income for farmers on the international and local market. However, citing higher revenue, some farmers switch their farms entirely to cocoa from bananas (Boa et al., 2000).
- A set of laws and programs is helping to define and promote specialty cacao. Table 9 highlights several major initiatives used to drive growth in Ecuador. Increased production is the result of a combination of government and private sector programs that sought to increase plantings, improve farming techniques and to boost the sustainability of the industry. At the same time, other programs seek to increase the quality of harvests and to capitalize on the unique cocoa bean varieties grown in the country to capture higher values.

Table 9. Major Policies in Ecuador's Cocoa Industry

Initiative	Year	Description
Abidjan Cocoa Declaration	2012	<ul style="list-style-type: none"> • Ecuador signed the declaration to improve sustainable cocoa economy
National Program of Fine Aroma Cacao	2012	<ul style="list-style-type: none"> • To position Ecuador as the leading producer and exporter of "Cocoa Arriba," an FFC variety • Increase sustainable production, productivity and export of 'Arriba' cocoa • Develop and implement efficient quality processes in the value chain. • Promote national industrialization and "Cocoa Arriba", and promote domestic consumption. • Increase international market share and diversification
National Cocoa Program	2013	<ul style="list-style-type: none"> • To establish links with organizations working towards the commercialization in cocoa such as: INIAP (Investigation), MAGAP (Production), MIPRO (Industrialization), IEPI (Denomination of Origin) and MRECI-PROECUADOR (Promotion of exports and commercial protection)
Geographical Indication (PGI) Status for 'Cacao Arriba'	2014	<ul style="list-style-type: none"> • Applied to the EU commission • Part of negotiations to add Ecuador to an existing trade agreement between EU member states and Colombia and Peru

Source: Adapted from Ahmed and Hamrick (2015).

- In 2011, the government established the Association of Producing Countries of Fine Aroma Cocoa (FINACAO) along with other countries in the region who produce FFC beans.²³ It is headquartered in Ecuador. The objective of the organization is to build capacity among small and medium-size producers to help them capture higher value and sustainably cultivate fine flavor cocoa through improvements in harvest quality and international cooperation (Kooij, 2013). The government is investing over US\$80 million in the next 10 years for development of fine and flavor cocoa beans in the country (Cepeda et al., 2013). Money designated for fine flavor cocoa aims to maintain and expand its position as a global supplier of the fine flavor cocoa.

Smallholder Empowerment

- Establishment of a minimum selling price nationally to ensure that producers are able to cover production costs plus earn a modest profit (MIT, 2017). In 2015, it was US\$6.55 per box (UNCTAD, 2016). This is further aided by certifications, such as Fairtrade, which provide a premium to reinvest in the farm and community to help further upgrading outcomes.
- Regulation of contracts to ensure they are beneficial for exporters and producers (MIT, 2017). Policies promote long-term contracts versus the spot market approach traditionally used, which disadvantages farmers. As a result of these pushes, 90% of bananas in the country are now bought on the long-term contract model (UNCTAD, 2016).
- MAGAP, by law, must approve any new banana plantation in order to safeguard producers from oversaturating of the market. Buyers should only buy from registered farms in the country, which account for 75% of all banana lands. By maintaining a registry of farms, the government is better able to anticipate supply and set fair minimum prices (Vega, 2011).

4.1.2 Costa Rica: Disease Management and Diversification into Coffee Production

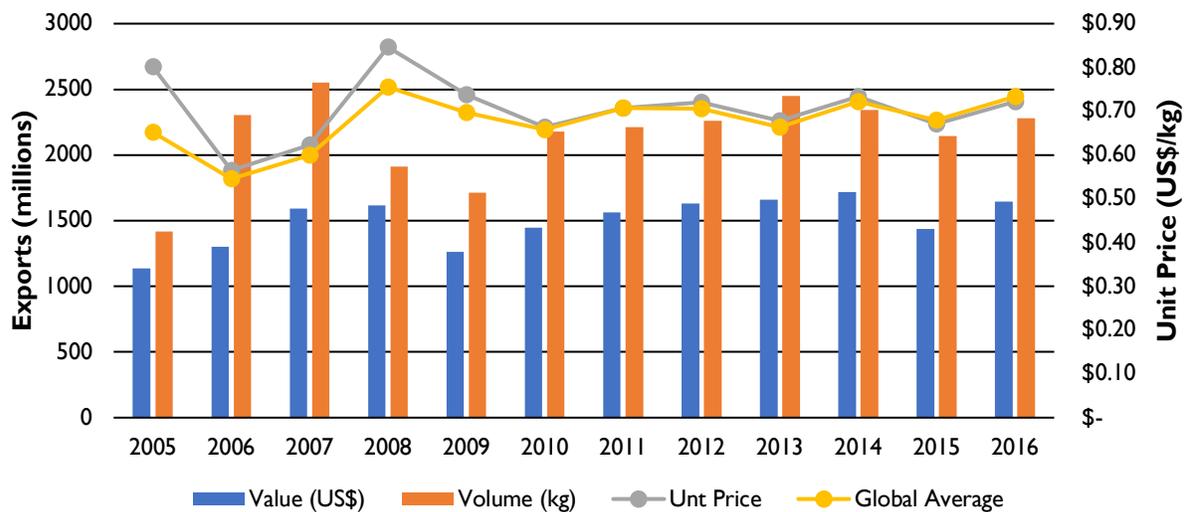
Costa Rica was the 2nd largest exporter of bananas in 2016, accounting for 12% of world exports (UNComtrade, 2018). Costa Rica's position in the banana GVC is attributable to investments in productivity and pest management as well as a strong industry association to advocate for growers. Despite these strengths, high production costs compared to other nations is pushing the nation to leverage its expertise into new industries, such as coffee.

Production spans 44,000 ha or 1% of the nation's landmass. The average farm size is 308 ha with large MNCs accounting for 42% of the production area compared to 58% held by smallholders (Bellamy, 2013). It is estimated that the banana industry contributed to 40,000 direct employment jobs in 2016 with nearly 100,00 direct and indirect jobs in the nation (CORBANA, 2018). In some regions, the percentage of employment from the industry is incredibly high. For example, in the banana producing region of Limon, 76% of all jobs are linked to the banana industry making it critical for the region's economic wellbeing (CORBANA, 2018). The vast majority of export-oriented production is around two types of bananas. The most prominent bananas cultivated for exports are the Cavendish and dessert bananas which are smaller, sweeter bananas.

²³ Other member nations include Bolivia, Colombia, Costa Rica, Nicaragua, Peru and Venezuela.

Exports grew 45% from 2005 to 2016 reaching US\$2.3 billion (Figure 18). At the same time unit prices dropped in the same period, declining to US\$0.72/kg, a 10% decrease (UNComtrade, 2018). The decline in unit prices, despite increases in value, indicate a much higher growth in export volumes during this period. The primary export market is the United States, accounting for 26.5% of all banana exports in 2016. Other major markets include Germany, Italy, Belgium, and the United Kingdom (UNComtrade, 2018).

Figure 18. Costa Rica Banana Exports, 2005-2016



Source: UNComtrade, HS2002-0803, all reporters imports from Costa Rica. Retrieved May 1, 2018.

Production in Costa Rica can be divided into three systems. A conventional system that is dominated by banana MNCs and characterized by processes oriented towards increasing yields. An alternative system focused on organic production as well as production for local consumption and processing and an emerging system that seeks to cultivate land with both bananas and coffee (Bellamy, 2013). Each is discussed below.

- **Conventional production** is the common method for banana production. This model depends on heavy use of synthetic fertilizer, pesticide, and irrigation to increase yields. It is primarily done on mono-crop farms, with some being large plantations owned by leading banana companies.
- **Alternative production** is used for organic production with limited chemical inputs. Yields are lower and there are more diverse plantings on the farm compared to the conventional system. It is also characterized by higher levels of manual labor and smaller farm sizes.
- **Intercropping** represents an emerging trend that shares many features with the organic system. However, a key distinction is the focus on multiple crops on the same land. Productivity was lower than conventional systems, but bananas were viewed as less critical than coffee, instead banana trees are used to help provide shade and protection for the coffee plant. Lower yields are also attributable to the smallholder model with less access to inputs (Bellamy, 2013).

Throughout the nation, the banana industry is overseen by the Corporación Bananera Nacional (CORBANA). CORBANA, founded in 1971 is a public, non-government organization whose mandate is to develop the banana industry. CORBANA acts as an umbrella association with various units performing major services for the industry, offering technical assistance for producers, government advising on the state of the sector and needs of producers, marketing, and Foreign Direct Investment (FDI) attraction activities, and research on the banana industry for the nation and other regional producers (CORBANA, 2018). The association is the primary driver of the industry, coordinating activities among producers, exporters, government stakeholders and others. Such an approach allows for coordinated activities throughout the country.

Costa Rica's position as a lead exporter of bananas is attributable to the strong institutionalization in the industry. It is also helped by a series of industry upgrading actions to help boost the competitiveness of the nation. Primarily, these actions include:

- 1. Process upgrading via a focus on pest and disease management.** Much of the research and technical programs in the nation seeks to minimize the impact of various diseases that threaten future growth, including Black Sigatoka and burrowing pests that attack harvests. This has helped the nation reach one of the world's highest productivity levels, 51 tons per hectare per year (Barquero, 2017)
- 2. Product upgrading with a special label to denote quality.** To provide differentiation for their product, Costa Rica invested in the development of a geographic indication (GI) label for their bananas.²⁴ These labels are specialized marks that use place as a symbol of production process and quality. Despite this attention, this upgrading has had limited impact to date, with export unit prices declining.
- 3. Diversification into other crops.** The advantages of diversified planting for coffee is helping farmers minimize dependence on one crop and help to shift into higher value crops. In 2016, the global unit price for bananas was US\$0.73/kg compared to coffee's export unit price of US\$4.42/kg. In Costa Rica coffee earned US\$4.96/kg compared to US\$0.72/kg for bananas (UNComtrade, 2017b, 2018).

Programs and Policies

Costa Rica's upgrading trajectories are the result of several programs and policies to aid in industry development. The majority of these programs are overseen by CORBANA and various research institutes within the nation, as well as via private sector actors and farmers. Policies around each of the upgrading trajectories are described below.

Process Upgrading for Better Pest Management

- CORBANA is working with farmers to help implement pest and disease management activities including programs promoting weed removal, trimming to remove diseased leaves and reducing humidity and planting density.

²⁴ Geographic Indication labels are collectively shared labels that showcase the unique value derived by having one or all aspects of production in a specific place while also protecting the product from imitations. These labels are growing in popularity and are increasingly being used by developing nations as a strategy to develop rural areas.

- Research on best practices and treatment for Black Sigatoka and other pest are common in the country, with partnerships frequently occurring. Much of the research in best practices is undertaken collaboratively with local university centers such as the University of Costa Rica's Center for Environmental Contamination. Earth University in Costa Rica also conducts research and found that organic production with the use of select microorganisms was especially helpful for disease management. While cost was higher than conventional production, the benefit in productivity mitigated the cost for Costa Rican farmers (Tabora et al., n.d.) After two years, a similar project looking at microorganisms has expanded to 12 growers with over 5,000 acres treated. This constitutes over 1.5 million boxes of bananas destined for both the foreign and domestic market (Elliott, 2016).
- To help reduce pest issues and protect the health of workers, many donors are launching programs to promote proper use of pesticides, protective equipment use and alternative chemicals when possible. For example, a recent 36-month project funded by the Canadian government to study the impact of pesticides on children and infants also included trainings on alternative chemicals and best practices (IDRC, 2013).

Product Upgrading with Specialized Labels

- CORBANA offers programs and assistance to help farmers gain needed certification for export. As a result, most all producers in the nation have GlobalGap, ISO 14001 or Rainforest Alliance certification. The association is now working via the Environmental Banana Commission (CAB) to offer support for producers to gain Fairtrade certification as well as increase environmentally sustainable production (Aguilar, 2014)
- In 2011, Costa Rica implemented a strategy to distinguish its bananas on the global market by the creation of a GI for bananas, the first in the world. The mark indicates to buyers that the banana is from Costa Rica and has high standards and the goal is to help facilitate buyers abroad. However, the unit price for bananas is falling, suggesting that the differentiation is less sought after by banana consumers. Since the establishment of the GI, unit prices have only been US\$0.02/kg higher than the global average with prices dipping below the average in 2015 and 2016 (UNComtrade, 2018).

Diversification of Crops

- Research has shown planting bananas in a monocrop system increases exposure to disease. Bananas do better in mixed farming with smaller plants to help reduce weeds, such as coffee and taller trees to create barriers to reduce air transfer of Black Sigatoka. As a result, stakeholders promote diversification among smallholders using a variety of crops (Bellamy, 2013).
- Beyond diversification to promote bananas, Costa Rica is also diversifying into other crops that do well with bananas but offer their own economic benefit. A promising product for diversification is coffee. Costa Rica has been able to position itself in the specialty coffee industry allowing for diversified revenue at the farm and national level. Using its experience with bananas and other crops, the coffee industry is highly organized and focused on a niche product category (see Box 7).

Box 7. The Costa Rica Coffee Industry

Costa Rica's coffee industry offers an example of how a nation leveraged its experience in bananas to increase competitiveness in other industries. Costa Rica was the first Central American country to cultivate coffee and has become the fourth largest supplier of specialty coffee in the world, despite its small size and predominantly smallholder production model. An estimated 80% of coffee production in the country is for the specialty market. Established in 1993, the Instituto del Café de Costa Rica (ICAFFE) is the country's trade association and provides a strong example of institutional establishment to support and regulate the activities of a large number of coffee producers. Like many other Central America countries, Costa Rica has received support from multilateral and bilateral organizations to improve the quality of coffee production and establish links with foreign buyers.

Although the overall volume of the country's coffee exports fell 44% due to a global coffee crisis, from 2000 to 2015 (from 128 million kilograms in 2000 to 71 million kg in 2015), both the overall value and unit price of its coffee exports steadily increased during the same time period, showing a shift to high-end production. The gains have sustained themselves in the last 10 years. From 2005 to 2015, the value of Costa Rican coffee exports increased nearly 19%, from US\$300 million to US\$356 million. At the same time, the unit value of exports jumped 88%, from US\$2.64 per kg to US\$4.96. The unit price of Costa Rican coffee exports is above the regional average each year in the period from 2005 to 2015, focusing on specialty coffee.

Coffee offers banana farmers in the region an additional income source and opportunities to enter into new markets. It also complements banana production and helps to mitigate risk to smallholders. Beyond this safeguard, coffee growers have other protections. For example, through the National Fund for Coffee Stabilization (FONECAFE), the government compensates farmers when their final coffee price falls below the cost of production by more than 2.5%. Following a price collapse in the late 1990s, producers not only repaid the funds back to FONECAFE, but also accumulated an additional \$23 million through a 2% fee assessed on the total value of coffee sales. These funds are reinvested into FONECAFE and other programs to support the industry.

Source: Daly et al. (2018); Instituto del Café de Costa Rica (2013); Varangis et al. (2003)

4.2 Lesson Learned for Saint Lucia

Despite key points of differentiation between Saint Lucia and the two cases presented above, both Ecuador and Costa Rica's experience in the banana industry provide important lessons for Saint Lucia. Further, both nations export higher volumes than Saint Lucia and have been able to increase their competitive in the banana market via industry focused policies and programs. The most crucial lessons for Saint Lucia from their experience includes the following:

Both nations were able to upgrade thanks to a highly coordinated country strategy that involved multiple stakeholders working for a common goal. A unified approach to growth that involved multiple stakeholders was a key driver of success for both industries. Ecuador did this through government agencies working with the industry via specific programs like the Productivity Development Program for Small Banana Producers and the Banana Act. Coordination was focused on small producers. In Costa Rica, an industry association, CORBANA, drove the growth of the industry and worked with other stakeholders to address several issues, primarily around disease and pest management.

Ecuador used several government-backed programs to address productivity issues and empower smallholders. Productivity is a major challenge in Ecuador. As a result, the government issued several programs to help promote best practices among farmers and also help to improve quality to reduce rejection from exporters. These programs are noted for their focus on smallholders and as a result of government efforts many small producers are moving into new roles, including export activities. However, this shift is largely attributed to the declining role of traditional traders such as Chiquita and Dole.

Costa Rica, via partnerships with local and international academic research centers, focused on disease and pest management. Research on best practices and treatment for Black Sigatoka and other pest are common in Costa Rica, with partnerships between growers and academic institutions common. As a result, the nation has been more successful at addressing disease and has a higher level of productivity and exports than many other banana producers. The nation also sought to establish a special label for their banana to provide further diversification on the global market, but since its implementation unit prices are falling indicating the strategy was not effective.

Both nations also diversify away from bananas and farmers are increasingly also planting higher value crops. Ecuador, seeing the growth of cocoa demand and the rise of the specialty market for cocoa beans, is giving more attention to the crop. In comparison to bananas, which had a unit value of US\$0.68/kg in 2015, cocoa beans from Ecuador earned a unit price of US\$3.15 (UNCOMTRADE, 2018). Costa Rica is using coffee and frequently planting bananas to help protect coffee plants and provide needed shade. For Costa Rica, coffee earns an export unit value of US\$4.96/kg in 2015 while bananas earned US\$0.67/kg (UNCOMTRADE, 2017). Both nations show the need for movement into the most promising niche markets when faced with production limitations.

5. Recommended Upgrading Trajectories for Saint Lucia

Saint Lucia's upgrading path in the banana GVC can mimic some elements of Ecuador's and Costa Rica's experience. The overarching goal of these efforts is to increase productivity, mitigate threats from disease and diversify into higher value commodities and markets with higher price margins for growers, thereby providing increased economic benefits for small businesses. The most immediate upgrading trajectories that will accomplish these aims are discussed in this section.

Most critical are a set of transversal efforts around improving the institutionalization of the industry and investing in modern infrastructure: Specific recommendations depend upon broad upgrading efforts that involve the whole industry but do not necessarily animate strategic aims of individual stakeholders. These efforts should encompass the following overarching components:

- ***Institutionalization:*** Historically, institutionalization in Saint Lucia's banana industry centered on WINFRESH and NFTO, yet these stakeholders concentrate their efforts on one export market. With the entry of new actors and internal issues, new efforts around institutionalization are necessary. Stronger coordination of all support roles, including knowledge transfer of best practices, input provisions, research into disease management, and implementation of productivity programs for all farmers level is needed to help better position the industry. Further, institutionalization should involve all value chain actors,

including farmers and exporters operating in the regional market, as well as provide for a clear strategy for the nation. The government can employ a more aggressive posture in supporting the industry by helping to establish a national committee to help direct the industry, fund projects and coordinate efforts towards a common strategy.

- ***Infrastructure:*** Roads in Saint Lucia are difficult to navigate, especially during rainy seasons. As a result, many farmers struggle to reach exporters. Significant investments to improve infrastructure in the banana producing regions will help facilitate the upgrading trajectories mentioned here, particularly process upgrading by smoothing the flow of inputs. It will also help minimize loss during transportation by allowing for faster transport times. Beyond internal infrastructure, focus should be given to establish trade routes between regional actors to make the flow of goods more efficient.

Concurrent with these transversal actions, a set of upgrading trajectories for the nation is also advisable. These include:

1. **Short-medium term investments in process upgrading to increase productivity and effectively manage banana diseases.** Productivity in Saint Lucia estimated at an average of 19.77t/ha is less than half the global average. Efforts are needed to boost productivity on banana lands to help increase supplies and become a more attractive sourcing location for markets. Attention should be given to the distribution of inputs and the promotion of good agricultural practices among all farmers. Further, policies to help farmers access the financing needed to make farm-level improvements is also advisable. The Ecuador case outlined many practices to help bolster production, including partnering with small holders and encouraging appropriate use of fertilizer.

Additionally, Black Sigatoka and other diseases represents a critical constraint to growth. As an island, Saint Lucia has some natural buffers to disease but once they arrive, it is difficult to contain them. Any programs designed to increase productivity should also work towards effectively managing disease. Disease management programs, developed and implemented across the nation with multiple stakeholders assisting will help reduce the number of bananas rejected by exporters and help to increase the long-term viability of the industry. Costa Rica did this via partnerships with local and international universities to help promote best practices, such as weeding and the removal of infected leaves.

2. **Medium-term diversification of export markets to include markets that offer higher price margins.** Saint Lucia's banana exports are largely concentrated in one market, the UK. This creates a market risk for Saint Lucia as the UK market has new providers enter, offering lower prices. Further, buyer requirements for the UK market significantly increase the cost of production and limit farmer margins. The emerging demand from regional trade partners provides an increasingly attractive alternative. These markets frequently have less stringent quality and certification requirements, lowering the cost of production, and provide opportunities for other exporters to enter the value chain, reducing dependence on one exporter, WINFRESH. As a result, production costs are lower and price margins are higher for farmers, increasing their revenue from participation in the banana GVC. Attention should be given to helping better establish export trade with regional buyers to help diversify markets.

- 3. Long-term diversification into higher value agriculture commodities that offer insertion into niche, premium markets.** Given Saint Lucia's limited land area and higher production costs, it is better suited to niche markets which focus on aspects other than price and volumes. While a diversification strategy is not feasible under Fairtrade production rules, the limited price premium associated with Fairtrade, coupled with the high production costs makes diversification an attractive alternative to Fairtrade. Further, given the fact the majority of farmers are not producing under the NFTO system, diversification would allow more farmers in the country to increase revenue. Saint Lucia is well suited for coffee and cocoa and is already active in both, though only in minimal capacity. It currently has 100% of its cocoa exports certified as Fine Flavor Cacao (FFC) beans, a requisite for export into specialty markets. While such a shift is a major departure from the established banana industry organization, the growing demand for premium and niche products in several agricultural chains shows potential for Saint Lucia. This potential, coupled with the persistent challenges to the banana industry at the country and global level make a strong case for diversification.

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