Increasing Commerce Competitiveness: Case Study on Solving Issues in the Fruit Supply Chain in the Dominican Republic, which Limit Exports, and Self-Reliance

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INCREASING COMMERCE COMPETITIVENESS: CASE STUDY ON SOLVING ISSUES IN THE FRUIT SUPPLY CHAIN IN THE DOMINICAN REPUBLIC, WHICH LIMIT EXPORTS, AND SELF-RELIANCE

By

Maria Gabriela Mera

A research paper submitted in partial fulfillment of the requirement for the degree of

MASTER OF SCIENCE

In

International Food & Agribusiness

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UTAH STATE UNIVERSITY
Logan, Utah

2017
ABSTRACT

Increasing Commerce Competitiveness: Case Study on Solving Issues in the Fruit Supply Chain in the Dominican Republic, which Limit Exports, and Self-Reliance

by

Maria Gabriela Mera, Master of Science
Utah State University, 2017

Major Professor: Dr. Ryan Larsen
Department: Agriculture

Agriculture was the main economic pillar of the Dominican Republic from its origins. Government decisions during the 80s and 90s resulted in high imports of food products, migration of rural workers to the urban areas, loss of arable land, and disinterest from a younger generation to continue food production. This case study explains the findings from research conducted in the Dominican Republic and Georgia, USA between 2014 and 2017. The researcher interviewed major players in the fruit sector in both areas, used data from the cacao sector to analyze exports behavior, and applied Porter’s Diamond of National Advantage to the Dominican fruit sector to assess its competitiveness, and analyze growth opportunities through improvements in the fruit supply chain. The Dominican fruit sector is key for the nation’s agricultural and economic growth; its enhancement will allow the country to become more self-reliant, increase exports, and improve its citizen’s quality of life.

Primary qualitative data was collected through interviews to industry experts, observation, and field visits, by using deduction, induction and abduction, following a
pragmatist philosophy. Quantitative data was obtained from reliable Dominican and international sources. Secondary data was gathered through the review of academic and professional literature, and the news. The findings show the nation has the potential and natural resources to considerably improve its economic circumstances. Strengthening of the fruit sector can be accomplished by adding value to its products, decreasing the amount of food product imports, increasing fruit product exports, providing infrastructure and education in rural areas, and aiding farmers obtain the knowledge and financial opportunities they need to grow.

(132 pages)
Completing this dissertation would not have been possible without the time and attention of important people in my academic life. Dr. Ryan Larsen, my major professor in Utah, was very enthusiastic and supportive of my project from day one. Having spent some time in the Dominican Republic, and being a very experienced person in the field of agriculture, Dr. Larsen provided me with relevant insight and feedback that served to make my work better; he gave me perspective when I was too involved in the details of my study. I am very grateful that I could contact him while I was in England, Georgia, and the Dominican Republic, and he made time to brainstorm together whenever it was needed.

I am very grateful for my committee members, Dr. Ruby Ward and Dr. Ryan Bosworth, because despite their busy schedules, they made time to meet with me, to read this paper, and to help me see things more clearly by asking questions and giving suggestions about tests that should be run, or ways in which I should analyze the data. They guided me in applying the newly acquired knowledge from my master’s degree to analyze the information I had for this paper in a way that would better explain the characteristics of the Dominican fruit supply chain, and the behavior of cacao exports, yielding beneficial results for my country and any interested parties.

I thank my professors in England, Dr. Federico Topolansky and Dr. Allan Butler, for their guidance and honesty! Dr. Topolanski was very frank from the beginning, when this paper was still a research proposal. Despite the time constraint as I was finishing writing, and despite him being away from the university, Dr. Topolanski made sure he
read everything that I had written and promptly sent me feedback for improvement. Dr. Butler was there to support me. Probably without knowing, he helped me formulate a plan of action by talking with me about the big picture of what this paper was going to be.

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After visiting multiple supermarkets in Georgia, Mr. Gene Viñez was the only person truly willing to help me with my research. After asking him if he would allow me to interview him, he accepted immediately. I am very grateful because without his help I would not have had access to formal information from this sector of the industry. I also want to thank the Futch Reece family, for welcoming me into in their business as a friend and letting me see how it is operates.

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I acknowledge the hospitality from my family in law, and the Myers, for the support they gave me during the writing of my thesis, a time in which I would just sit in their dining rooms and write nonstop; my roommates for the respect toward my work time and for not being bothered by me leaving the lights on until very late into the night.

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Maria G. Mera
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CHAPTER I

INTRODUCTION

1.1 Overview

Hispaniola is the second biggest island in the Caribbean and it is shared by two nations: the Dominican Republic (from now on the D.R. or Dom. Rep.) and Haiti. It is covered with fertile land, presenting a climate that enables the growth of many fruits and other crops that are typical of the tropics, some of which are endemic to the place.

Agriculture has always been one of the main sources of economic growth in the Dominican Republic accompanied by tourism, manufacturing (especially in free trade zones\(^1\)), mining, and services (e.g. call centers). Even though the D.R. is the fastest and biggest economy in its region, the economic distribution among its people is extremely uneven. This country, being a third world, underdeveloped nation, also presents important opportunities for investment, especially in the agricultural sector, which has the potential to drive progress and lift people out of poverty. The Dominican Republic has some comparative advantages to other countries in the region including lower land and labor costs, and shorter transit times to key export markets (IESC, 2015).

1.1.1 Agriculture in the Dominican Republic

When the Spanish people colonized the Americas in 1492, they first established themselves in La Hispaniola where indigenous people subsided by growing crops, and hunting for self-consumption. Once the Spaniards discovered sugarcane, tobacco, cacao, and coffee, these became the four main products that they would pursue to exploit in the

\(^{1}\) Free Trade Zones are companies that operate in an enclosed area within the Dominican Republic, but considered as international space, and which are subject to special laws that liberate them from sales tax and tariffs.
island aside from mining. This is how the economy in the island started to take shape: by using agriculture as its backbone.

The situation continued with little change save the addition of new industries as the population of the island grew. The western third of the colony formally became part of France thanks to the Treaty of Ryswick in 1697, and then turned into Haiti in 1804. The Dominican Republic became a sovereign nation in 1844 when its independence was declared. It continued to rely on sugarcane, tobacco, cacao, and coffee as its main sources of exports and economic sustainability, and it added the hospitality industry as it progressed as an independent nation, and globalization started to take place.

Due to economic crises after the instability that followed the execution of Rafael Leonidas Trujillo in 1961, a dictator who ruled the country for 31 years, the Dominican government decided to apply incentives to the manufacturing, mining, construction, and hospitality industries, neglecting agriculture. The people who lived in the rural areas saw in these other industries an opportunity for a steady income, personal and professional growth, and what seemed like an easier job than working the land everyday.

During the 1960s, the agricultural sector employed close to 60% of the Dominican labor force, contributed 25% of GDP, and provided between 80 and 90% of exports. In 1988, agriculture employed only 35% of the labor force, accounted for 15% of GDP, and generated approximately 50% of all exports. By 1992 the sector's share of exports dropped to 43% and agricultural employment to 28% of the total workforce. By the end of 1995, the agricultural sector's contribution to GDP stood at 12.7%, employing approximately 12.9% of the labor force. (Metz, 2001)
The declining importance of sugarcane, the principal source of economic activity for nearly a century, was even more dramatic, Metz explains. Sugarcane's share of total exports fell from 63% in 1975 to less than 20% by the late 1980s. Sugar exports in 1995 were 75% lower than in 1981, and a severe drought in 1997 further lowered production. However, production of some major export products, coffee and cocoa, grew by 9% in the latter 1990s.

By favoring other industries aside from agriculture, the government accelerated urbanization, planning very little in the process and often using fertile land that would have been perfect for agricultural use to build houses for the people that were migrating from the rural areas to the growing cities. This resulted in a waste of arable land, and in small pieces of land scattered around the cities instead of bigger portions that could have been used for larger plantations.

According to the 1981 agricultural census, 2% of the nation's farms occupied 55% of total farmland. By contrast, landholdings averaging less than twenty hectares (which represented 82% of all farms or 314,665 units), covered only 12% of the land under cultivation; about 161 farms (0.1% of all farms), occupied 23% of all productive land, and tens of thousands of peasants possessed only a few tareas (i.e. one-sixteenth of a hectare).

The government is the largest landholder, followed by Central Romana, Casa Vicini and several large cattle ranches. Trujillo grew a sizable estate during his dictatorship through colonization, eviction of owners, and simulated purchases, seizing approximately 60% of the total arable land in the country at the time. By means of the Decree 6988, the Dominican government expropriated the land that the Trujillo family owned after the
dictator was executed. Part of this land was redistributed to peasants. As with most things in the D.R., the figures expressing how much land was redistributed are neither verifiable nor coherent.

It is thought that the IAD, the Dominican Agrarian Institute that was created in 1962 to centralize agrarian reform and land policy, had distributed approximately 409,000 hectares by 1987 and that land distribution has been minimal since 1988. Another major problem is the fact that only 38% of the land that the IAD managed was actually being used for agricultural purposes in the late 1980s since 9% was being used for livestock and 53% in forestry.

All these issues, added to the fact that the government had put agriculture on the backburner while trying to rehabilitate the economy by betting on other industries, discouraged the farmers, reduced the incentives given to them, increased costs and prices of produce, and caused the decline in agricultural production. This, plus the new growing relationships with other countries given the expansion of the new booming industries and the 1997 drought, gave space for imports of food products to start growing and competing with the local production.

By the end of the 1990s, informal and illegal land occupations became very frequent: peasants would move into someone’s unused land and start maintaining use of it, claiming ownership. Interest rates were too high at the time for people to be able to afford investment, whether of new land or replacement equipment. Finally, in 1998, Hurricane George caused immense losses in agriculture, which was especially noticeable in sugarcane, cacao, coffee, citrus and banana, the latter of which experienced a loss of 80% of the crop. All of this translated into a significant increase in imports of food products.
However, the government did do something right in terms of distributing the land. Even though a very large amount of arable land has been destined to forest reserves instead of production, this has helped prevent deforestation, droughts, soil dryness, and other environmental changes that would further threaten agriculture. The government created 13 national parks and 9 scientific reserves during the late 1900s, as well as water dams that increased irrigation area from 139,000 hectares to 225,000 by 1991 (Metz, 2001).

Another issue in the D.R. by the end of the 20th century was that the Dominican agriculture and economy depended too much on the previously mentioned sales of sugarcane, the country being one of the world’s biggest producers. However, this also meant that government efforts failed at diversifying the agricultural offer. When the world prices for sugar started to fluctuate, the United States (the D.R.’s main business partner) adjusted their sugar quotas. Coupled with the growth of European sugar beet growers, the increasing use of high-fructose corn sweeteners, and foreign companies operating in Dom. Rep. selling their shares, the economy suffered significantly. On top of all of that, some of the land the government was using for sugar production was sold for touristic and manufacturing purposes, further reducing sugar production, and availability of arable land.

Coffee, the second leading cash crop in the D.R., has some issues of its own. Like sugar, and many other crops grown in the country, it is very labor intensive. On top of that, small land holdings make the coffee production inefficient and production fluctuates with international market prices. Finally, disagreements over quotas between the International Coffee Organization (ICO) and the International Coffee Agreement (ICA)
often cause middlemen to smuggle coffee to Haiti and export it from there. Still, most of the production is guaranteed consumption locally: Café Santo Domingo buys the majority of the national seed production at international price.

Cacao is another one of the cash crops, competing with coffee in terms of revenue. The Dominican Republic is the number one exporter of organic cocoa in the world according to the International Cocoa Association. It is also the largest producer in the Caribbean.

Struggles with the main cash crops forced Dominicans to start exporting other agricultural products, such as tropical fruits, vegetables (especially those that don’t grow in countries like the United States during winter), spices and nuts.

Other very important crops in the country are:

- **Rice**, because it is part of the Dominican traditional lunch: rice, beans and meat.
  The country has been self-sufficient in its production a few times, and others it has had to import to meet the demand. However, it is a protected crop and as such its export is forbidden without special permission.

- **Corn and sorghum**, especially used for animal feed in the poultry industry.

- **Starchy fruits and vegetables**, such as plantain, yams, yucca, potatoes and sweet potatoes, which are all used daily for breakfast and/or dinner, even for lunch. Plantains are consumed in abundance, whether boiled, baked, sweetened or fried, ripe or green.

- **Beans**, which are the main source of protein and iron for the Dominican people.
  Beans and other legumes are grown in large quantities and a wide variety. Red beans, black beans, white beans, lentils and peas are the most common.
- Bananas, given that the Dominican Republic is the number one exporter of organic bananas in the world (Canada Trade Commissioner Service, 2014).
- Tomatoes, used daily to cook in the form of tomato paste, tomato sauce or as part of green salads.
- Avocados, a fruit that Dominicans have found ways to have all year long. A slice of avocado is usually served as a side at lunch. Avocados are also exported.
- Pineapples, a very important commodity for exports.
- Oranges, widely and commonly consumed in the D.R. Orange juice and morisoñando (i.e. orange juice with evaporated milk, vanilla extract and sugar) are the two most common non-alcoholic drinks in Dominican culture, closely followed by lemonade and other fruit juices.
- Bell peppers, one of the most exported commodities.
- Mangoes, of which a wide variety is produced in the D.R., both for export and local consumption.
- Coconut, mainly for export, but also commonly consumed locally.

Findings by the Canada Trade Commissioner Service (2014) reveal that local production in the D.R. meets between 60% and 70% of the local demand, having to be supplemented with imports. Some of the most important imported agricultural products are beans, garlic, onions, potatoes, and (sometimes) rice. The country has several well-established food processors, especially in the areas of edible oils, wheat-based products (made with subsidized imported wheat), processed meats, canned goods, sauces, dairy,
fruit juices, and alcoholic beverages, especially rum and beer. However, most exports have little or no value added.

There are eight agricultural items that are protected under the "Technical Rectification" clause approved by the World Trade Organization (WTO): rice, beans, garlic, powdered milk, sugar, onions, corn, and unprocessed chicken. Imports of these products are subject to tariff rate quotas and a specific import calendar, and also require special permits from the Dominican government prior to entering the country.

In the last 5 years, imports into the D.R. have experienced a shift from high-value products from the United States (U.S. or USA) and the European Union (EU), to low-cost goods from South and Central America, Asia and Mexico. This is response to the economic condition of the country, and the prices that the population can afford.

Supermarkets of all sizes, mom-and-pop shops denominated “colmados”, and street markets conform the food retail market in the Dominican Republic. The Canada Trade Commissioner Service (2014) found that 50% of retail food products are sold at the colmados and informal markets, whereas supermarkets sell the other half. Supermarkets are the main outlet for imported food products.

Importers and distributors conduct most of the food imports, and supply the supermarkets. Big chains usually have a subsidiary in charge of importing, as well as several exclusivity agreements with international brands. For example, CCN is the only chain to distribute Food Club, Full Circle, Gusto Bello, and Nostimo products. Sometimes supermarkets chains that import also act as local distributors for other supermarkets, hotels, resorts and restaurants.
The Dominican Republic's labeling requirement mandates that all pre-packed foods must have a sanitary registry number; the label should be in Spanish, including information about the ingredients, expiration date, industrial and sanitary registry numbers, name and address of manufacturer or distributor, among others. To make imports of food products easier, Dominican authorities have been accepting that importers stick a Spanish label with the required information on top of, or next to, the original ones. This was supposed to be a temporary allowance, but it has been taking place for years. Nutritional information, which is not mandatory under this norm, will supposedly be required at a later (not specified) date.

1.1.2 Free-trade Agreements

The Dominican Republic has signed several free-trade agreements with other countries in the world to negotiate tariffs and taxes, and facilitate the import and export of products. The most important one in recent years has been the CAFTA-DR.

According to the Office of the United States Trade Representative, the Dominican Republic-Central America-United States Free Trade Agreement (CAFTA-DR) was signed in 2004 between Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, the Dominican Republic and the United States. Through this agreement the parties significantly liberalize trade of goods and services. CAFTA-DR. covers topics concerning customs administration and trade facilitation, technical barriers to trade, government procurement, investment, telecommunications, electronic commerce, intellectual property rights, transparency, and labor and environmental protection.

CAFTA-DR. went into effect for the Dominican Republic on March 1, 2007. According to the United States Bureau of Economic and Business Affairs, CAFTA-DR.
has increased bilateral trade between the United States and the Dominican Republic. There has been a growth from USD$9.9 billion in imports to the D.R. from the U.S. the year before the implementation of CAFTA-DR to USD$12.5 billion in 2016.

The Dominican Republic was the United States’ 40th largest goods trading partner, trading USD$12 billion in goods during 2015 between the two countries. The United States exported USD$7.1 billion to the Dominican Republic, and the D.R. exported USD$4.7 billion to the U.S., meaning that the U.S. had a goods trade surplus with Dominican Republic of USD$2.5 billion that year.

The D.R. is the fifth largest market in the American continent for U.S. agricultural exports, following Canada, Mexico, Venezuela, and Colombia. According to the Department of Commerce, U.S. exports of goods to Dominican Republic supported an estimated 37 thousand jobs in 2014 (latest data available).

The D.R. also has an Economic Partnership Agreement (EPA) with the EU. Products from European countries enter the D.R. either tariff-free or with a preferential tariff.

1.2 Research Context

The following considerations conform the context within which this dissertation has been developed:

- The Dominican Republic is a third-world country with an underdeveloped economy.
- Most people in the rural areas and the agricultural industry in the Dominican Republic are poor and uneducated.
- The Dominican Republic has a large portfolio of fruits, several of which only grow in the country or are limited to similar tropical regions.
❖ The Dominican Republic already has business relationships established with the United States, the European Union and Eastern Asia.

❖ The Dominican Republic needs to increase its self-reliance in order to reduce imports and/or increase exports.

❖ Agriculture is key to motivate economic growth in the country.

The author will attempt to find solutions for the problems found throughout the fruits supply chain in the Dominican Republic within the previously mentioned context.

1.3 Statement of Problem

The D.R. has a history of trade deficit (i.e. larger imports than exports), which has a toll on the value of the Dominican peso. After the crises that affected countries in the Caribbean and Central America in the late 1980s and the 1990s, its government invested highly in Free Trade Zones (FTZs) with the intent of keeping the economy moving. Nevertheless, when the economy of a country is focused solely on one industry (or sector, like with the case of sugarcane previously explained) an economic crash is inevitable because of the economic theory of diversification.

Diversifying the economic base to achieve growth and stability is akin to diversifying one’s personal investment portfolio. As a portfolio (economy) becomes more diversified, it becomes less sensitive to fluctuations caused by factors outside of the portfolio (region). In addition, the greater the number of investments (industries) one has in their portfolio (economy) the greater the likelihood that one of those investments (industries) will grow at a faster rate than the market (Bauer and Deller, 1997).

The importance of the production of goods, the generation of a large and increasing Gross Domestic Product (GDP), and an appropriate balance of trade cannot be
underestimated in developing economies. Self-sustainability is another trait that can improve a nation’s economic health, prepare it to face global disasters, and provide its citizens with a sense of security. Therefore, it is crucial to motivate Dominicans and international business people to invest in new industries that will help the Dominican economy grow.

The D.R. is home to a wide variety of crops, large amount of arable land, water, sun, industrious people, and up until now, cheap labor. All these characteristics, when combined, fulfill the requirements of an almost perfect formula for great agricultural expansion. Unsurprisingly though, larger portions of the Dominican population are moving to urban areas and away from the fields everyday in search of a better quality of life.

The D.R. has a large potential for growth. Agriculture represents a raw diamond in the search for ways to stabilize the Dominican economy, increase self-sustainability, reduce imports and increase exports. For this dissertation, the agricultural sector will be considered as a starting point for investment coming from businesses and the Dominican government.

Food satisfies a basic need that will not cease to exist: hunger. It is imperative that nations keep producing quality, nutritious food to feed their people and those that live in other countries that do not produce enough. It is necessary to reduce waste by turning those products that cannot be sold fresh into final products that can be sold on supermarket shelves.

Additionally, it is imperative that economic growth flows across the food and agricultural products supply chain. Small players, growers, and all the people in the
lowest level of this supply chain, are usually the least remunerated, but the biggest risk

takers. A value chain that distributes risk and reward in an uneven manner is not

sustainable in the long run given that the small rewards to farmers are driving them out of

business and out of the rural areas. Without farmers, there is no food. Therefore, fixing

the problems at the different stages of the supply chain and finding ways to increase the

reward for the most affected players is not only necessary, but also urgent.

For research and simplification purposes, the Dominican fruit sector will be taken as a

model. Its supply and value chain will be analyzed in search of what needs to be done to

improve them. It is expected that most of the solutions found in the process would be

equally applicable to other agricultural sectors in the country. Therefore, this research

would be contributing to the industry as a whole, and indirectly to the country’s

economic growth.

1.4 Objectives and Aim of Research

The data obtained, and the conclusions of this research are expected to provide new

information that could be useful to the Dominican government and its people – producers, investors, exporters, economists and other interested parties –, as well as
global citizens interested in investing in the Dominican Republic. The aim is to use the

results as an incentive for prospective and current investors to bet in the agricultural

industry of the country, and thus contribute to the stimulation of its economy.

The main objectives are the following:

1. Find out what the main issues are in the current fruit supply chain in the

   Dominican Republic.
2. Analyze business strategies that could help the progress of the local fruit sector in the Dominican Republic, such as the improvement of the value chain and the analysis and use of Porter’s Diamond of National Advantage.

3. Conduct a case study to find ways in which to effectively add value to products throughout the Dominican fruit supply chain in order to increase the income received by the players that take on the highest risk, and strengthen the demand for the Dominican fruit offer.

1.5 Research Questions

The questions below guided the discovery process for this paper. Answering them has shed new light on this research and has made it possible to arrive to more realistic conclusions.

The questions pursued are the following:

❖ What should a functioning food supply chain look like?
❖ What does the fruit value chain look like in the Dominican Republic?
❖ What are the main limitations that prevent fruit farmers from growing in the Dominican Republic?
❖ Why is the Dominican Republic not exporting more fruit products?
❖ Why does the Dominican Republic import so many fruit products?
❖ Does it seem like the government should provide the solution to the fruit farmers’ problems?
❖ What can be learned from fruit farmers and the people in the food industry located in Ellijay, Georgia (USA)?
What are the growth opportunities currently available for fruit farmers in the Dominican Republic of which they are not taking advantage?

1.6 Aims of Research

The aim during this research is to conduct a case study that allows the author to find ways to help Dominican fruit farmers grow by adding value to their products and thus increasing their local and international sales. In order to do that, the researcher conducted visits to various fruit farms both in Dominican Republic and the United States, interviewed Dominican and American farmers and other people related to the food industry, and paid visits to institutions that play an important part along the fruit supply chain, such as customs, agricultural ministries, food safety offices, export centers, and others.

Empirical data has been gathered via observation and interviews. Said information, along with academic research, will be used to elaborate realistic conclusions and find possible solutions to the problems found along the Dominican Republic’s fruit supply and value chains.

Porter’s Diamond of National Advantage will be used to analyze the case of fruits in the D.R. This tool will aid the reader in better understanding what would be the potential competitive advantages of Dominican fruits in both the local and global markets.

1.7 Importance of this Research

The Dominican Republic has a history of trade deficit that negatively impacts the value of the Dominican peso and can have a shrinking effect in local production. One of the activities for which the country has high potential for export and self-reliance is the
production of agricultural goods given the large variety of fruits, vegetables and other crops that can be grown in the D.R., the climate and the existence of arable land.

At a moment in time in which farmers are older than in previous generations and their offspring make their way to urban areas in search for a better life, the need to give the agricultural sector a positive shock by increasing the amount of money it produces becomes vital. One way to accomplish this is turning the fruits that are cannot be sold immediately into finished products that have an added value, and a higher price, both locally and internationally.

Not only would this motivate the farmers’ families to keep working the land and producing the food that as human beings we all need, but it would also reduce the amount of food imports to the country, increase exports, or both; it would strengthen the local currency, reactivate the economy, and make the country a little more self-sufficient.

1.8 Dissertation Structure

Chapter I introduces the reader to the Dominican Republic, the agricultural sector in the country and its evolution, as well as food imports and exports, and some of the free-trade agreements that make them possible. It explains in what context this research was conducted, the objectives, aims and questions that were pursued during the data collection process, what the problem studied is, and why is it important to try to find solutions to it.

Chapter II dives into the topic at hand: the fruit supply chain in the Dominican Republic. In it the reader will find clear definitions of the main concepts in this paper: fruit, supply chain and value chain. It presents a profile of the country, the fruits that are
grown there, and the importance of the agricultural sector, both for self-reliance and for exports.

Chapter III constitutes the case analysis. This chapter focuses on finding potential opportunities and formulating strategies via Porter’s Diamond of National Advantage so that Dominican fruit farmers can progress should they decide to take advantage of these. It presents an analysis of the Dominican fruit value chain and improvements to it. Finally, it exposes current, potential and future risks that Dominican fruit farmers might face.

Chapter IV explains the methods used to conduct the research for this paper, collect the data, and the limitations that were encountered in the process. Chapter V gives a detailed account of the findings of this research: it summarizes the case study and the supporting research, and provides possible solutions for the issues found. This dissertation finalizes by laying out a series of conclusions, as well as recommendations for future research to enhance and complete the information published here.
CHAPTER II
THE FRUIT SUPPLY CHAIN IN THE DOMINICAN REPUBLIC

2.1 Definition of “Fruit”

The United States Department of Agriculture (USDA) defines fruits as the ripened ovary of a seed-bearing plant. Botanically, a fruit is the mature ovary of a plant, including its seeds, covering, and any closely connected tissue, whether they are edible or not (Vainio, 2013) and any part of the plant that comes out of the flowers and contains seeds.

On the other hand, vegetables would be all other parts of the plant, whether edible or not. This includes leaves (e.g. spinach, lettuce), root (e.g. carrots), tuber (e.g. potatoes, cassava), stem (e.g. celery), bulb (e.g. onions), or flower (e.g. artichoke). Mushrooms and seaweeds are either placed in the plant kingdom, or in a kingdom of their own as Protista, or Protista and Fungi.

Despite differences in culture, culinary habits, and preferences, a study conducted by the end of the 1990s in Australia, China, Canada, Germany, Korea, Mexico, the Philippines, Portugal, Puerto Rico, Sweden, the United Kingdom and the United States came to the conclusion that food classification as cereals, vegetables, fruits, meats, dairy, fats and sweets are similar around the world (Vainio, 2013).

Traditionally, people believe that fruits are only the edible parts of plants that include the seeds, and have a sweet, tart, or citric taste. However, tomatoes, cucumbers, avocados, peppers, plantains, zucchini, and many other foods that are commonly considered vegetables for culinary purposes are actually fruits; they grow out of the flowers of the plants and they have seeds. Nevertheless, in databases where statistical
facts can be found, as well as when information is obtained from farmers and growers, these are considered vegetables, so they will not be included as fruits in this thesis. All foods that are typically included in savory meals due to their texture and flavor, and therefore traditionally considered vegetables, will be excluded from this study.

Additionally, cacao (Theobroma cacao) is a high-value food that grows in the Dominican Republic as well as other countries along the Equator. One of the most complicated to classify, the cacao is commonly called a fruit, pod, berry, nut, seed or herb. For the sake of clarification, the seeds are the part that is used to process the cacao, but the cacao itself is not a seed. Botanically, it is considered a fruit, and it has been classified as a berry instead of a pod according to the Oxford University Herbaria; it will be treated as such for the purposes of this paper. The word “pod” may still be mentioned as it is universally used in the industry.

2.2 The Supply and Value Chains

Supply chain is the combination of steps that need to take place for a product to go from origin to final consumption. For instance, the fruits supply chain will go from the farm to the time when a person eats the fruit or a finished product made with it, weaving a network between the markets, delivery trucks, and any other middlemen in between, and taking into account all players and activities that make the movement of the fruit possible. Section 2.7 will go into detail about the Dominican fruit supply chain.

The value chain, in contrast, is the group of activities that add value to a product. The value chain takes a raw material and makes it more attractive to consumers by adding characteristics to it that people desire. For example, an added-value activity is to cut up fruits and turn them into a ready-to-eat fruit salad for customers who have little time on
their hands. Turning fruits into a preserve that can be used to make pastries is an added value for consumers who like to bake. Specifying which fruits are organic and which are not is an activity that adds value because it helps health- and environment-conscious customers find the products they are looking for more easily.

The aim of the value chain is to differentiate a product or service, and make it attractive enough that consumers are willing to pay more for it than they would for the raw, unaltered material. Theoretically this means that an improvement in the value chain should increase the revenue of the participants in it.

The raw materials that enter the value chain are called “inputs”, and the products in which they are turned after some kind of value is added to them are called “outputs”. Michael Porter classified the activities through which value is added to the inputs into primary or secondary (also referred to as “support”) activities.

According to Porter (1985), the primary activities are:

- **Inbound Logistics** - involve relationships with suppliers and include all the activities required to receive, store, and disseminate inputs.
- **Operations** - are all the activities required to transform inputs into outputs (products and services).
- **Outbound Logistics** - include all the activities required to collect, store, and distribute the output.
- **Marketing and Sales** - activities inform buyers about products and services, induce buyers to purchase them, and facilitate their purchase.
- **Service** - includes all the activities required to keep the product or service working effectively for the buyer after it is sold and delivered.
And the secondary activities are:

❖ Procurement - is the acquisition of inputs, or resources, for the firm.

❖ Human Resource management - consists of all activities involved in recruiting, hiring, training, developing, compensating and (if necessary) dismissing or laying off personnel.

❖ Technological Development - pertains to the equipment, hardware, software, procedures and technical knowledge brought to bear in the firm's transformation of inputs into outputs.

❖ Infrastructure - serves the company's needs and ties its various parts together, it consists of functions or departments such as accounting, legal, finance, planning, public affairs, government relations, quality assurance and general management.

2.3 Dominican Republic Profile

The Dominican Republic is occupies two thirds of the island called La Hispaniola, the 2nd largest of the Big Antilles. Its surface measures 18,704 square miles (48,442 square kilometers). It has the Atlantic Ocean to the north and east, the Caribbean Sea to the South, and Haiti and Canal de la Mona to the west.

According to the World Bank, the Dominican Republic is a middle-income (third-world) country, with the largest economy of Central America and the Caribbean. It has one of the fastest-growing economies in the Americas, generating an average real GDP growth rate of 5.4% between 1992 and 2014, and 7% in 2014 and 2015. Recent growth has been driven by construction, manufacturing, and tourism. On the demand side,
private consumption has been stronger in the past two years due to low inflation (under 1% on average in 2015), job creation, and high level of remittances.

The Observatory of Economic Complexity at the Massachusetts Institute of Technology (MIT) Lab states that the Dominican Republic is the 90th largest export economy in the world. In 2014, the Dominican Republic exported $10.7B and imported $17B, resulting in a negative trade balance of $6.3B.

The Observatory reported that top exports of the D.R. are gold and precious metals, medical instruments, rolled tobacco, low-voltage protection equipment, bananas and other agricultural goods, footwear, clothing, plastic products, cement, metals, and pharmaceuticals. Its top export destinations are the United States, Canada, Haiti, Switzerland, China, the Netherlands, Germany, Spain, the United Kingdom, South Korea and Japan.

According to the Canadian Trade Commissioner Service (2014), the agricultural sector (i.e. crops and livestock) represented 7.6% of the country's GDP in 2012, which has been the case since 2009. Agriculture represents a raw diamond in the search for ways to stabilize the Dominican economy, increase self-reliance, reduce imports and increase exports. The D.R. possesses all the characteristics necessary to lay the foundation for great agricultural expansion. However, for said progress to take place, solutions to the current problems that Dominican fruit farmers face are needed.

2.4 The Dominican Fruit Sector

The Dominican Republic is the birthplace of many colorful, delicious, nutritive fruits. Some examples of exotic fruits grown in the country are: limoncillo, uva de playa (sea grape), guanábana (soursop), guava, jagua (genipap), zapote, noni, banana, carambola
(star fruit), tamarind, pineapple, avocado, pan de fruta (fruit bread), cacao, cajuil (cashew), coconut, mango, papaya, chinola (passion fruit), tayota (chayote), lime, orange, mandarin, toronja (grapefruit), cereza (acerola or Barbados cherry), grapes, mabetree, nispero (loquat), melon, and strawberries. Most fruits are grown for local consumption, but some are grown also for exports, such as bananas, mangoes, dragon fruit, cacao, and coconut.

As previously mentioned, the D.R. is the number one exporter of organic bananas in the world. However, this is not because farmers wanted to add value to the product or meet the demand of environmentally conscious consumers. The main reason why Dominicans started to grow crops organically is because they lacked the resources to buy pesticides, fertilizers, and chemicals. After figuring out ways to keep their plantations alive and noticing the growing global demand for organic products, farmers kept growing crops this way.

According to the FAO (2002), much of the information on organic production is either documented in grey literature or is not documented at all. Organic production in the country is clearly dominated by bananas, which account for about 80% of all organic exports.

The country started exporting organic products in 1989. Plantaciones Tropicales was the pioneer when it exported organic bananas to Europe and the United States, followed by cocoa, coffee, coconut (and coconut oil) and mango. SAVID, the largest organic banana exporter, started shipping its product in 1994. It works with small farmers in Azua in order to be able to meet the demand of its clients. The company provides farmers with technical and financial support to keep them strong and growing. Since the beginning of
organic exports, this way of crop cultivation has been growing in the country and many other companies and farms have adopted it, especially as the demand for organic products grows globally.

To incentivize small farmers to turn to organic production, local and international foundations as well as private companies have helped the growers. For example, SAVID loans its farmers up to 70% of production costs thanks to feasible loans obtained via German partners who can guarantee them from abroad. Horizontes Orgánicos provides its farmers loans for input purchase.

An element that does not incentivize Dominican fruit farmers to grow crops organically (aside from the financial aspect) is the fact that sellers do not usually differentiate organic from non-organic products; therefore, they are not interested in paying a premium for the organic ones. Some Dominican consumers began to perceive added value in organic products recently, when the health and environment trends took off globally. However, even now only a small part of the educated population shows an interest for organic products, and only high-class consumers are willing to pay a higher price for them.

One of the main issues that small farmers face is the lack of financial resources, whether they grow organically or not. This is their main barrier for growth. It is difficult for growers to obtain credit due to lack of credit score or useful collateral. Even if they meet the aforementioned requisites, the interest rates in the country are so high (currently 11-20%) that it is almost impossible for them to afford them.

Another issue that Dominican fruit farmers face is the lack of technical and intellectual knowledge. Most small farmers have learned to work the land empirically, by
looking at family members or neighbors do the same. Although this can be a good way to
grow crops for personal consumption, it is frequently not the most effective way to grow
commercially or in large quantities. There is also a lack of qualified personnel in the
country. The people who can provide the knowledge for small farmers to increase their
yield, improve the quality of their products, and grow as a small business are not easily
accessible or affordable.

According to the FAO (2002), 60% of farm labor in the country comes from Haiti.
Small farmers who own less than 2 hectares of land and who represent the majority in the
country, use mainly family labor, hiring neighbors and family friends during harvest
time.

The crops in small farms are first for family use, and then for sale. The men are
usually in charge of it and provide for their families. In bigger plantations, men work in
the field and women at the cleaning, packing and/or processing plants. However, farming
is mostly a man’s job.

In order to sell to big supermarket chains, restaurants and hotels, farmers need their
fruits to meet certain quality requirements. For export, specific practices need to be
followed and norms met. Farmers also need to keep detailed records of their operations,
which they almost never do. Because many farmers are uneducated and unaware of the
mentioned requisites, and because some of them are unable to understand how to meet
them, they end up selling their excess at the street markets for a very low price, barely
covering their costs. This is the main reason why small farmers live under the poverty
line.
On top of the aforementioned problems, farmers face infrastructural issues. There are many places where farmers have no water for irrigation, where there is no more arable land available for expansion, and where there are no paved streets that would make transportation easier. These logistic problems scare away investment and represent an obstacle for bigger companies that would like to conduct business with local, small growers. They also increase costs for the farmers.

Dominican farmers prefer to work alone instead of entering alliances. This prevents the formation of cooperatives. Farmers would rather be part of a cluster or another kind of association in which they keep their assets and independence; only collaborating when lobbying, marketing and other bigger goals need to be accomplished. This seems to keep the farmers happy. Some would argue that they would not be able to grow by keeping this structure, and they may be right. However, just like in the case of SAVID and the Azua small growers, and Café Santo Domingo and the country’s small coffee growers, it seems to work every time small farmers gather to do business with big private companies. The conformation of a big marketing cooperative in the D.R. seems unlikely unless a party can gain the trust of a large group of farmers that believe their best interest is protected.

2.5 Agriculture as Key to Economic Development and Self-Reliance

This paper’s argument behind agriculture as a means to self-reliance in the Dominican Republic is the following: one of the most basic human needs is food. Human beings need to eat. The nation has become very dependent in terms of food supply due to the changes that took place in the 1980s and 1990s, the government’s focus on other industries, the migration from rural to urban areas, the increasing low-cost food-product
imports, and the decreasing interest of Dominican people to work the land and grow crops in farms. Consumers look at imported food products as more valuable than local ones, not to mention that due to free-trade agreements, the quantities imported, and the lack of enough support to the farmers imported products are often times sold for a lower price than the local ones.

The large amount of imports currently taking place in the Dominican Republic translates into a demand for foreign currency. Because the country does not export as many products (in general) as it imports, the value of the Dominican peso suffers. In addition, the nature of business is one of relationships; as with any business, the relationship between two nations can become strained, which implies that at any point the D.R. could lose its ability to conduct trade with other countries. For instance, the United States and Haiti (relevant export receivers of the D.R.) have closed their borders to food products several times due to supposed pests, quotas, or governmental disagreements. Similarly, there could be a time in which the Dominican Republic is not able to import the products it is accustomed to buying, like in the event of natural disasters abroad, protection of a product, war, or simply disagreement. What would the people do then? There is not enough production in the country to make up for a loss like that because not enough farmers are growing crops. There is also not enough processing taking place and little value is added to national products, which is the reason why consumers are not willing to pay more for them.

The country needs to take action to strengthen its economy and to make sure its people are protected against major events. With all the arable land available and people willing to work it as long as they see a benefit in it, the D.R. should be able to increase its
yields, add more value to the products, convince consumers that local products can be better, equally tasty, and even sometimes healthier than imported ones, and can increase exports and better balance its trade. Even if production were only sufficient for local consumption, which will not be the case with all crops, it would translate into fewer imports, which is already an economical improvement. Additionally, these changes would create thousands of jobs in farming, processing, distribution and export that do not exist right now and that are much needed.

2.6 The Fruit Supply Chain in the Dominican Republic

2.6.1 Growers

In the Dominican Republic, most growers are people with little resources who have a small amount of land in which they grow fruits and vegetables. There are all sizes of farms, but the big ones are owned by large companies that use the fruits to sell them under their brands, such as Rica (orange juice) and Bon (marmalades, ice cream and frozen yogurt).

As is the case in most parts of the world, small farmers usually lack the resources to market and take advantage of their crops. In an underdeveloped economy, they tend to grow crops for their own consumption first, and sell the surplus in local community markets for money that is mainly used to meet the family’s needs.

Historically, Dominican growers have not had good experiences with cooperatives, so they create other kinds of associations, such as clusters, through which they accomplish certain things that as individuals they could not. Lobbying, subcontracting farm cleaning, and some marketing efforts are a few of the actions taken by clusters and agricultural associations. Even though they sound like similar to cooperatives, members look at these
associations differently, keeping a relaxed attitude and a fraternal feeling that they otherwise would not. Furthermore, cooperatives have to comply with specific national laws, while other kinds of associations create their own set of norms and have less stringent membership requirements.

In some cases, large companies (like SAVID) sign agreements with individual smaller producers through which the farmers commit to grow their product in a certain way and sell it to the buyer, who agrees to pay a certain amount for them. Sometimes, the buyers also help the producers through transfer of knowledge or endorsement.

The case of Finca 6 in Azua, Dominican Republic, is worth studying. The Dominican government gave land and houses to a group of low-income residents in Azua in 1992. They called it Finca 6 and started growing maize, cassava, some bananas, and provisions for their own subsistence. The crops were grown organically because the people simply did not have enough money to buy fertilizers. They were helped by the fact that in the area the climate is very hot and semi-dry, which prevents disease.

A young Dutch woman named Jetta van den Berg had started SAVID to export organic bananas from the country, which was very unusual at the time. The demand from Europe, the United States and Japan grew so rapidly that the company had to look for suppliers, and Finca 6 members decided this was a good opportunity. They began growing bananas as their main crop under SAVID’s requirements. In return, SAVID financed them to improve their plantation. This was especially important after Hurricane George destroyed their land in 1998 (the hurricane caused damages in the country of approximately USD$1.2 billion at the time). Instead of taking advantage of the farmers’ weakness, SAVID financed them until they got back on their feet. All plantations are
certified organic by the German agency BCS, and the company is also certified Fair-Trade by Max Havelaar from the Netherlands. Each farmer owns his own land, but they constitute an “association” in which they discuss matters that affect them all (like proper prevention of disease by each player to prevent spreads between lands), and their dealings with SAVID since the company said it would be easier to deal with representatives of the association as opposed to each farmer individually.

Likewise, there are multiple clusters and associations around the country, such as the Cacao Cluster, ADOBANANO (the Dominican Bananamen Association), and ABAPROMANGO (Bani Mango Producers Association). These associations have as a main goal to join forces for lobbying and to go after the best interest of the members without sharing assets or limiting their independence.

Another kind of association that is common in the country is Village Savings and Loan Associations (VSLA) programs, where farmers come together to build their savings and create credit opportunities for one another. This kind of program was brought to the country by the Plant with Future organization. In the same way, other non-profit, governmental, non-governmental and academic international organizations and/or foundations go to the country to help struggling farmers by making knowledge, training, donations, and/or financing options available to them.

The main crops in the D.R. have always been sugarcane, tobacco, coffee and cacao. This thesis is focused on fruits because the aforementioned four crops have been industrialized, and the barriers to entry are very strong. On the other hand, the Dominican Republic provides a wide variety of fruits that are not being taken advantage of and that
pose a great opportunity for progress, development and exports, as well as to help people progress out of poverty.

_Cheap Labor / Immigrant Workers_

Cheap labor is one factor that makes Dominican products competitive abroad and affordable to locals. However, it also keeps people in poverty. Fair-trade plantations pay a higher rate to people who work the land and provide them more benefits and a better work environment.

Fair Trade USA is the leading certifier of Fair Trade products in the United States. According to their Website, Fair Trade Certified™ products are made with respect to people and planet. Their rigorous social, environmental and economic standards work to promote safe, healthy working conditions, protect the environment, enable transparency, and empower communities to build strong, thriving businesses. The purchase of fair-trade products can improve an entire community’s day-to-day lives. One of the most important aspects of Fair Trade USA is they designate the funds specifically for social, economic and environmental development projects.

In the Dominican Republic, both Dominicans and Haitians work on the field. However, the Dominican Republic and Haiti have had political and cultural problems since the beginning of history. The Spanish colonized the island of Quisqueya (as the indigenous people used to call it back then) in 1492. It was renamed La Hispaniola during colonization. Due to the riches found in the land, such as gold, silver, precious stones, spices, coffee, sugarcane, tobacco and cacao, the French tried to get their share.

The French first established themselves on the island through the presence of buccaneers. According to Plummer-Rognmo, buccaneers, essentially pirates, were active
during the sixteenth and seventeenth centuries when they preyed on Spanish merchant vessels. Derived from the term boucan, which referred to the practice of drying cattle meat on grills, buccaneers were often of English, French, or Dutch origins. In between attacking vessels, they would hunt cattle on La Hispaniola, dry the meat, and sell it to passing ships.

As The Library of Congress puts it:

By 1600 Spanish colonists had largely abandoned the colony, opening the way for smugglers, cattle ranchers, and later French colonists, who began to settle the northwestern region of the island after mid-century.

The present-day division of Hispaniola into two countries–French- and Creole-speaking Haiti and the Spanish-speaking Dominican Republic–can be traced to the 1697 Treaty of Ryswick, in which Spain recognized French sovereignty over the western third of the island. In the 18th century Saint-Domingue (as the French called Haiti) became known for its great wealth and its enormous population of enslaved Africans.

When the Haitian revolution culminated in 1804, Haiti became the first colony in the Caribbean to obtain its independence. Afterward, the Haitian people invaded the Spanish part of the island, called Santo Domingo, as it was trying to gain its independence from Spain in 1821. The Haitians dominated Santo Domingo for 22 years, until it won the war and became the Dominican Republic in 1844.

Since then, both Republics have grown in different directions. Their language, religion, and culture are very different, and because of historical resentment, their people
don’t get along. Additionally, Haitians are taught in school that the whole island belongs to them, while Dominicans are always keeping an eye on Haitian immigration, worrying that another forced invasion may start at any point. Haitians claim they have no luck because their land is dry and does not produce enough fruit, while the land on the Dominican side is fertile. However "luck" has nothing to do with it; the dryness of the Haitian side was caused by “roza”. The roza system is the practice of cutting down the remains of a plantation, and then using clearance burns to clean the site up. This is a technique that was applied by some indigenous and African people and that was then implemented in Haiti. It has catastrophic consequences, causing intense erosion on the soil and generating dangerous accidental fires.

Dominicans are also guilty of some bad practices, but not as bad as roza. In terms of the way in which Dominican farmers and workers live and interact with the environment, Plant With Purpose writes:

In rural communities, poverty is linked directly to environmental degradation. Deforestation and unsustainable agriculture techniques deplete the soil and decrease crop yields. Farmers then turn to cutting trees to sell as charcoal or firewood to care for their families, continuing a vicious cycle of poverty and deforestation. As farming families lose hope, many head to the city, where they often wind up in urban slums.

Despite the differences that exist between the two nations, Haitian people cross the border everyday to earn a living in the Dominican Republic, whether legally or illegally. This steady stream of immigrants, along with the existing rural Dominicans, ensures a cheap labor source come harvest time. In spite of this knowledge, a question arises: how
can Dominican farmers and their workers come out of poverty without increasing product prices and therefore transferring the burden to the local society in general?

2.6.2 Processors

For the purpose of this paper, all companies that take an agricultural product and add even the minimum amount of value to it through packaging or transformation are considered processors. The author of this paper believes that adding value to Dominican crops is key to improving the circumstances of the agricultural industry in the country. It is unfortunate the amount of products that are being imported to the D.R. that could be produced in situ. Poverty, ignorance, and lack of a very basic education prevent the average farmer from thinking of innovative (even if simple) ideas that they could put into practice to make their products more attractive and increase their profits. The lack of infrastructure also plays its roll. However, it is the author's belief that with minimal assistance and new realistic financing opportunities, the life of growers and their workers could be changed.

In terms of fruits, some processing activities that are already taking place in the country are packaging for exportation, as well as cutting and packaging for sale in supermarkets and other stores; squeezing for fresh and concentrated juices; dehydration, sun drying, canning, elaboration of preserves, marmalades and jams; manufacturing of baked goods and other local desserts; manufacturing of yogurts, and manufacturing of vinegar, wines and spirits.

Even though it may seem like advantage is being taken of fruits in the country, aside from the making of juices, manufacturing only uses a small variety of fruits to make their products out of the wide diversity the country has to offer. Strawberry, banana, mango,
pineapple, lemon, lime and orange are the most common ones. Guava, papaya, dragon fruit (pitahaya), pummelo, melon, sapote, nispero, cherry, other berries, sea grape, grapefruit, breadfruit, passion fruit, tamarind, granadilla, cashew apple, prune, coconut, jackfruit, fig, guanabana, mamey, mangosteen, pomegranate, pummel, carambola (star fruit), rhubarb, tangelo, mandarin, jagua, tangerine, clementine, limoncillo (genip), date, anon, litchi, longan, ponsere, topepo and cacao are all rich in nutrients and delicious fruits that are being neglected, some of which the current generations of Dominicans don’t even know exist because what they are used to seeing in the supermarkets are imported apples, pears and plums. So much could be done with these fruits! Not to mention that the USDA has already approved most of the previously mentioned ones for import into the United States.

Other processing activities that could be applied to fruits are pulverization, freezing, candying, and using them in finished packaged products, such as salads, snacks, healthy or fitness foods, bars, cereals, breads, and others.

During visits to an apple house and plantations in Ellijay, Georgia, USA, during the summer of 2017, the author could see new products that can be created with fruits that the Dominican people are not even aware of. An apple house is a store owned by farmers who have orchards, in which they sell apple and apple products from September through January, and that sometimes offer activities for kids and family in order to attract more people. The only apple house in the area that is open year round is R&A Orchards.
A family-owned business, R&A started when Leonard and Della Payne planted their first apple trees in Gilmore County. It was named R&A once their daughter Ann, and her husband Roger Futch opened a roadside market in 1972. Andy (Roger and Ann’s son), his wife Jennifer, and their 4 children are the ones currently running the apple house. They sell a wide range of fruit products, such as: fried sweet pies with fillings of peach, blueberry, strawberry, cherry, apple, coconut and blackberry, home-made ice cream made with the fruits in season, fruit butters, apple or peach cake, apple or peach bread, wild grape or apple slushies (a frosted juice), cider made out of apple or other fruits, baked pies, fried breaded fruit, apple cider doughnuts, apple fritters, caramelized frusted bread, seasonings, salad dressings, BBQ sauce, salsas with fruits inside, sun-dried fruits, fresh fruits, and preserves.

R&A is a local, relatively small business compared to large, well-established supermarkets in the Dominican Republic, but its owners make the most of their crops.
Their processed products don’t require an intense use of machinery; some of them require refrigeration, but that is something that could be available in the Dominican Republic. The point of the example is that it is possible and feasible for farmers in the D.R. to add value to their products and start developing their operations, no matter how small they are.

Packers Of Fresh Products

Bani is the most famous area in the Dominican Republic for growing mangoes. The heat, humidity level, altitude, proximity to the sea, and the composition of the soil make it ideal for this crop. There are several associations and clusters in the region, where a big mango festival is hosted every year. It is called Expo Mango and lasts for about a week. Growers, local authorities, people in agriculture and forestry, merchants, and other interested parties attend the exhibit. In it they can find over 50 varieties of mangoes, pulp, preserves, jams, desserts, and other derived products, as well as supplies, equipment, new technologies, and entertainment.

During the 13th festival, held from June 14 through June 18, 2017, it was announced that there had been over 1500 organized mango plantations in 2016, totaling 62,886 square meters of crops (100 tareas\(^2\)), which is the equivalent to 15.54 acres or 6.29 hectares. Mrs. Gisela Taveras, executive president of the Dominican Mango Cluster, stated that Dominican mango exports generated over USD$20 million for the country in 2016. Bani alone exports around USD$6.9 million in mango per harvest.

This year, attendees were able to taste 23 varieties of mangoes, including: Mingolo, Grano de Oro, Gota de Oro, Crema de Oro, Pascual, Banilejo, Yamagui,

\(^2\) Land is measured in tareas in the Dominican Republic. 1 tarea is equivalent to 628.86 square meters.
Madame Francés, Keitt, Kent, Marcelo, Tommy Atkins, Moradito, Fabricó, Puntica, Parvin, Palmer, Springfield, Manzano, Rosita, Luis, Osteen and Haden. The Keitt variety accounts for approximately 65% of total mango exports from the country according to Mr. Onesimo Mejia, president of the Bani Mango Producers Association (Abapromango).

Image 3 – Photo of Expo Mango XIII in Bani, Dominican Republic. This photo was published in the Hoy newspaper on June 18, 2017.

In the south, the provinces of Peravia (to which Bani belongs), San Cristóbal, Azua, San Juan, Barahona y Bahoruco grow 85% of the national mango production. The country relies on them for the creation of jobs and generation of money.

However, visits to Mangos de Matanzas in Bani revealed how much easier and more profitable it is for a person to own a packing facility than a plantation. A packing plant requires fewer employees, less time, and involves less risk. It can be used for different products, provided cross-contamination is prevented, and can be subcontracted.
This packing plant is used to sanitize, prepare and pack the farm’s fresh mangoes for export to Japan, the European Union and the United States. Additionally, the company started selling sun-dried organic mangoes (CariMango) in 2008, and in 2011 added dried
organic bananas (CariBano) to its offer. The products are organically certified for sale in both the United States and Europe, with no additives or added sugar.

Other companies and independent middlemen hire the plant to package their own products. During the visit it could be observed that hot peppers were being inspected, as well as another company’s mangoes, which were going to be exported to Spain.

The company’s trucks, as well as trucks from truckers unions, arrive to the plant to pick up the boxes. The former take products to supermarkets and stores around the country, while the latter take them to the chosen port for export. Truckers from the unions must be used in case of export in order to prevent riots, delays and assaults to the trucks.

**Semi-Processed Products**

The cacao tree is denominated Theobroma cacao. It grows in places between 20° north and 20° south of the equator, in areas that are not too high, too cold, or too dry, and demands shelter from the wind and intense sunrays. The cacao tree is grown in 3x3m spaces and starts bearing fruit in its 3rd year. It usually continues to bear fruit for 20 years, but it is not uncommon for cacao trees to continue to do so for a hundred years.

The cacao berries grow in periods of 6 months. They can be red, green, purple or yellow, and contain 20 to 40 cacao beans embedded in a soft white pulp. In most producing countries, there are two major harvests during the year: one around November and December, and the other around May and June, with the first one being the most plentiful. In West Africa, the main crop is harvested from September to February.

Experienced pickers are highly valued because the only way of knowing whether a pod is ready is by its color and the sound it makes when tapped.
The cacao tree is cultivated in many countries, but the leading suppliers of cacao beans are Ivory Coast, Ghana, Indonesia, Nigeria, Brazil, Cameroon, Ecuador, Dominican Republic and Papua New Guinea. Other well-known growing countries are Madagascar, Malaysia, Mexico, Peru, Belize, Colombia, some Caribbean islands like Grenada and Cuba, and some Pacific islands like Samoa.

There are three kinds of cacao bean, all of which have several varieties:

1. The Criollo bean, mainly cultivated in South and Central America. This bean is very aromatic and of very high quality, but it is very susceptible to plagues and diseases. The yield is fairly low: the Criollo bean only represents 10-15% of the world’s production. A number of varieties of Criollo are cultivated and its beans are often mixed with other kinds of cacao beans when making chocolate.

2. The Forastero bean, very widely cultivated in Africa, but also in Central and South America. It constitutes approximately 80% of the world production of cacao. This tree grows faster and gives higher yield than other types of cacao. A number of varieties are cultivated. The Forastero "Amenolado" tree produces a delicate, aromatic bean and is cultivated primarily in Ecuador; it is called “Arriba” and it is considered the best bean in the world.

3. The Trinitario bean, a crossbreed between the Forastero and Criollo, mainly cultivated in Central and South America, and Asia. It gets its aroma from Criollo, and its resistance to disease and its productivity from Forastero.
The flavor of the cacao beans is not only dependent on their variety, but also on the soil, temperature, sunshine and rainfall. It is now possible to buy specialty chocolates made with cacao beans from one single region and thus compare the aromas.

Chocolate Antillano is the perfect example of what a semi-processor is in the Dominican Republic. Chocolate Antillano usually buys Dominican cacao seeds from various previously selected providers. Their seeds have already been fermented or dried, and the mill accumulates a considerable amount before beginning to process, according to the orders received and its forecast. The mill then proceeds to clean, grade, and roast the seeds until the humidity has been reduced to the desired level. They are then winnowed to obtain the nibs, which are grinded, divided into pressed-cakes and cacao butter, and sold. Part of the cakes are dutched (i.e. alkalized to alter their color and taste), others are grinded again and packed. All products are then put into boxes and taken to port, from where they are shipped FOB. The mill is certified organic and kosher.

Because of a recent market decision, Dominican farmers will no longer be allowed to dry the beans because they disagree with the mills and manufacturers about the importance and stringency of the drying process. The mill bought new equipment and at the time of the last visit it was preparing to dry the beans in its facilities.

Also, the mill recently bought equipment for packing a variety of mixed powders, like sweet and unsweetened cocoa. The employees were not yet skilled to do this properly at the time of the last visit, so mixed powders were not being sold at the moment.

There are several steps in the processing of the cacao and its beans, which are explained below. Each step is assigned to a specific agent depending on the product to be
made. The underlined steps are the ones that Chocolate Antillano mill is currently equipped to perform.

I. FARMERS

1. Growing

2. Harvesting

When the experienced pickers say the pods are ready, the workers proceed to remove them from the trees with the help of a knife held with the hand or attached to a pole to pick those that are in higher places.

3. Fermenting

The pods are split with the help of a machete and the beans are taken out. The beans are then put into wooden boxes so the surrounding pulp starts to ferment. They are covered with plantain leaves, sometimes also with other kinds of leaves or plastic. In some countries, the beans are enfolded in the banana leaves instead of only covered with them. The beans are then moved between boxes during the next 5 to 6 days. The color of the beans changes from purple to chocolate brown. This is the first crucial stage in developing beans of superior quality.

II. FARMERS / MILLS

4. Drying

The beans are spread out on bamboo mats, wooden drying floors or commercial drying plants in places where rainfall and humidity are high. They are regularly turned to prevent mold from forming, and exposed to the sun at different times of the day for the next 10 to 20 days.

5. Cleaning and grading
During this step beans pass through a machine that removes stones and other objects by sieving; next, they go to storage hoppers on a moving belt, and then to the cleaning and grading machines. During the inspection, all shriveled and double beans are discarded.

6. **Roasting for flavor *(selling point)*

Roasting develops the flavor and aroma, enriches the color and dries the bean to make the removal of the husk surrounding the nib (the edible inner part of the bean) easier. Each type of bean needs its own roasting temperature and time (mild ones need lower temperatures than stronger ones). Overdoing the roasting destroys the flavor and produces a bitter product, while underdoing it makes the removal of the husk difficult and fails to eradicate the natural bitterness of the raw bean. Roasted beans need to be cooled as quickly as possible to prevent further internal roasting.

III. MILLS

7. **Winnowing *(selling point)*

The husking and winnowing machines crack open the roasted beans, blowing the lighter husks away from the heavier pieces of nib.

8. **Blending**

Specified quantities of different varieties of cacao nibs are weighed and transferred to a blender. The blending is less exact for cocoa powder than it is for eating chocolate, since the latter one requires the skill of a chocolatier.

9. **Grinding**

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This step is not usually conducted in mills that do not belong to the manufacturers because the blend recipes are secret and well guarded.
The nibs pass through a series of rollers, resulting in coarse particles that eventually turn into warm paste because of the frictional heat of the grinding process. A second grinding brings the particles down to the required size (usually between 25 and 50 microns, or 0.001 inch); the finer the particles, the pastier the chocolate. After the grinding, the liquor flows into shallow metal containers.

10. Deconstruction of the liquor (*selling point*)

   A large amount of the cacao butter is pressed out of the liquor by applying approximately 620 pounds to it. The cacao butter flows out of the machine and into containers, while the residue is converted into wheel-like cakes that have a powdery look.

   - Some of the cakes are sold to chocolate makers so they make their own mixings.
   - The cacao butter is sold in blocks.

   The steps explained below will vary significantly depending on the product to be made:

IV. MILLS / MANUFACTURERS

11. Grinding (and mixing*) (*selling point*)

   For cocoa powder, the cakes are grinded 2 or 3 times to a point that makes it easier to mix with other ingredients (e.g. sugars, spices, corn starch, wetting agents, such as lecithin). Then the powder is grinded to the desired size and packed for its distribution.

   The powder can also be dutched, which is a process during which it is treated with alkaline salts to make it easier to mix with liquids like cold water and milk. This process darkens the color of the chocolate and lightens its flavor.

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* Only recently did the mill start to pack mixes; the employees still have little knowledge about the process and it is not done regularly yet.
12. Packing

All products are packed in plastic bags. Plastic bags containing powder are also wrapped in paper bags. Cacao butter is placed in blue-labeled cardboard boxes and cakes are placed in brown-labeled cardboard boxes. Manufacturers pack their cocoa in cans, tins, envelopes, bags, boxes or any other kind of container designed for their companies.

IV. EATING CHOCOLATE MANUFACTURERS

11. Mixing

For brown eating chocolate, roasted and ground nibs are mixed with pulverized sugar, spices and other flavors. The mix is then enriched with cacao butter (not necessarily extracted from the same batch of seeds) or wetting agents, such as lecithin from egg yolks or soybeans. Mass producers usually use larger amounts of lecithin; some of them do not use cacao butter at all. Finally, when milk chocolate is being made, powdered or evaporated sweetened milk is added. The nibs are not used when making white eating chocolate.

12. Mélanging

The mixture goes to a mélangeur, which is a round machine with a horizontal rotating base on which run heavy rollers. The mix turns into a paste that resembles well-kneaded dough.

13. Refining

The chocolate paste is thinned through a series of five rollers, each succeeding roller rotating faster than the previous one. The paste enters the first pair of rollers as a thin film and passes from roller to roller, through carefully adjusted gaps, in a
process that resembles that of making pasta. By the time the paste comes out of
the fifth roller, it is wafer-thin.

For most mass producers, this is the end of the process. Finer chocolate needs
further treatment.

14. Conching (from the French word “conche” that means “shell”)

The paste goes to a conching machine invented by Rodolphe Lindt, that will
gently agitate the chocolate for a period of time that may be as long as seven days.
During this step, the flavor of the chocolate is developed and mellowed; any
residual bitterness is removed, and the texture reaches velvety smoothness.
The most accessible good chocolates are conched for as little as twelve hours,
while quality producers will continue conching for up to a week, sometimes
adding extra cacao butter to make the chocolate even smoother. Flavors like
vanilla and cinnamon may be added during the conching process.
- Vanilla is almost always added because people are so used to its flavor that a
  chocolate without it would easily be rejected. Quality manufacturers use pure
  vanilla extract (e.g. Bourbon Vanilla from Madagascar) while cheaper chocolate
  is made with natural or synthetic substitutes like vanillin.

15. Tempering

The chocolate is fed into tempering kettles, where it is stirred and carefully cooled
without solidifying. The various types of fat contained in cacao butter, and their
different melting and setting points, make this step tricky.
16. Molding

The liquid chocolate is pumped into molding machines to make bars or other shapes, and into enrobing machines if it will be used as coating chocolate. Because of the tin surfaces of the molds, good-quality shaped chocolate displays a high degree of gloss.

17. Enrobing (the coating of confectionary centers)

The enrobing machine agitates chocolate with thin consistency once more, maintaining a temperature that is just high enough to keep it liquid. The centers to be coated have to be warm when entering the coating chamber; hot centers will lose their shape, but cold centers will expand with the coating temperature and result in burst chocolate pieces. Enrobing is also used to cover the mass-produced candy bars.

18. Packaging

A mill could process and sell the following finished products:

- Roasted cacao beans
- Nibs
  - Regular nibs
  - Sweet nibs
- Shells
  - Garden mulch
  - Low-quality soft shell butter
- Cacao liquor (the paste produced after grinding the beans; it can be sold in solid blocks or liquid)
• Cacao cakes
  ▪ Cacao powder (pulverized cacao cakes)
    - Cocoa powder / cocoa essence
  • Cacao butter (sold solid) (only about 50% of the cocoa butter in the liquor is extracted; this is done with a hydraulic press)

❖ Eating chocolate

There are three flavors of chocolate, which can be mixed mainly with fruits, spices, starches, liquors, dairies and/or nuts. Each flavor will be more or less intense according to the percentage of cacao solids added to the mix. The flavors are:

❖ Dark chocolate = cacao liquor + cacao butter + sugar

• Chocolate must have a minimum of 30-35% cacao solids to be considered “dark”. Generally speaking, the higher the proportion, the better the chocolate.

❖ Milk chocolate = cacao liquor + cacao butter + sugar + milk

❖ White chocolate = cacao butter + sugar + milk

Finished Products

Nazario Rizek, Munné & Co., and Cortes Hermanos are the three most famous chocolate makers in the Dominican Republic. The three of them make finished products, even though they do not provide the same quality obtained from manufacturers in Europe. However, Rizek is renowned worldwide for the quality of its cacao berries and the flavor of the chocolate that can be manufactured with them.

Supermarkets like those owned by Centro Cuesta Nacional (CCN) and Bravo, two of the biggest supermarket chains in the country, are processors of agricultural products as well. However, they only make finished products for themselves, which are sold under
a while-label brand (i.e. manufactured by third parties or the supermarkets themselves, and sold under a brand owned by the supermarket that offers them).

For example, they take oranges, grapefruit, papaya, pineapple, cherries, tamarind and passion fruit and turn them into fresh juices that are sold by the gallon. Bravo has added value to its offer by also selling cold-pressed juices to meet the needs of health conscious and fit clients. They serve ready-to-eat meals at their cafeterias. Each has their own bakery (CCN sells its baked products under the brand “La Panera”), which offer different kinds of bread and desserts. They also chop fruits and sell them in containers, ready to be consumed.

Bravo supermarkets have an in-house dairy processing facility in each of their stores manufacturing yogurts and fresh cheeses, mainly “queso crema” which is a kind of cheese similar to ricotta and cottage cheese, mozzarella and “queso de hoja” or leaf cheese in English. Each processing facility is located in an area surrounded by glass.
windows and doors so clients can see the cleanliness of the process. Bravo’s fruit jams are added to part of the quesos crema to increase the variety offered. These products are sold under the white label Mu Bravo.

Image 7 – Yogurts produced by Bravo supermarkets and sold under their white-label brand.

Photo taken Bravo’s Website.

Image 8 – Dairy processing facility at one of Bravo Supermarkets, published by Diario Libre.

Procesadora Vizcaya is a company that manufactures jams, jellies, preserves, other sweets made with fruits, honey and syrups out of tropical fruits. Their products are sold under the Delifruit brand. They are mainly distributed in the Dominican Republic,
sold to supermarkets, bakeries, restaurants, hotels and resorts; but they are also exported to the United States, the Caribbean islands and Western Europe.

2.6.3 Shipping Methods

There are several ways in which agricultural and food products are shipped from the supplier facilities. It is important to point out that the Dominican Republic does not have good infrastructure. Even though there are some major highways connecting big and touristic cities, it is still very common to only find dirt roads in the rural areas where most agricultural companies are located. This translates into higher transportation costs, longer delivery time in very hot weather, and sometimes a resulting compromised freshness of the products.

Trucker unions are a problem in the country, especially when it comes to shipping products to ports for export. The unions set their own terms and are known to sabotage shipments done by any other means. They have a lot of pull with the government due to their tendency to riot and strike, and that is a issue for businesses, the economy, and the lower working class. There is the added fact that said truckers are usually people with very limited resources who are vulnerable to bribes from drug dealers that can compromise shipments. It must be mentioned that issues with drugs have not always been as big of a problem as they are becoming now. With chaos in neighboring countries like Venezuela, the withdrawal of visa requirements to nationals from Colombia, the Russian immigration to the east coast of the island, the political instability and several other changes that have taken place in the country in the past 14 years, the situation has gotten worse.
Below the reader can find an excerpt from news published in April 2015 by Listin Diario (one of the main newspapers in the country) in which companies and associations complain about the transit monopoly managed by FENATRADO (National Federation of Transport Men) and the damage they cause to businesses, violating the freedom of the enterprise. In this particular case, one of the trucker unions that belong to FENATRADO parked five large trucks at the entrance of a company named Gomas y Plasticos, S.A. (Goplaca), preventing the company’s trucks from delivering merchandise to the port for export, and even impeding other company trucks from re-entering the premises.
Several important national associations, including the Association of Industrial Businesses, the Young Businessmen Associations, and the Provisions Commerce Confederation, have raised claims regarding the transportation monopoly, which affects the competitiveness of the companies, increases operation costs, and has a toll on the final consumers who have to pay for the subsequent increase in prices. People and businesses requested the Dominican government to intervene and to pass a suggested law
drafted as the Law of Mobility, Transit, Road Safety and Ground Transportation. Said law was finally passed and published on February 24, 2017. It is the Law 63-17 on Mobility, Ground Transportation, Transit and Road Safety and it is the first modification since the last transportation law was published in 1967.

Ironically, even though articles 104 through 124 are specifically devoted to freight transportation, the unions are not mentioned at all in the legal document. A new institution was created for the regularization of transit in the country. However, without the weight of the law, there is little that said institution could enforce regarding the transportation monopoly that has been established by force and threats.

Own Small Trucks

Small agricultural companies often use their own small truck or pick-up truck to deliver their goods. Because these goods are traveling mainly to markets and supermarkets, and quantities are usually small, unions do not pose a threat to them. This is the main way in which small farmers transport their products. The advantages are that the company doesn’t have to rely on anyone but a hired person to drive the truck, and that shipment can take place at any time. The disadvantage is that these small truck and pick-up trucks do not protect the products against the climate conditions. For the most part, this does not pose a threat to green fruits, and ones with hard peel, such as melons, pineapples, oranges and papaya. However, it can harm delicate fruits such as strawberries, guavas, passion fruits, and even bananas and mangoes if the trajectory is too long and hot.
Corporate Trucks

Big companies, such as CCN, have their own large trucks in which they ship products from distribution centers to their diverse branch locations. These trucks are prepared to maintain products fresh, lower the impact of travel in terms of shaking and moving, and adjust to specific climate conditions. Big companies can design their local distribution systems without having to worry about unions, therefore being able to deliver goods on time wherever they need to. The problem arises if they decide they want to export, in which case they would have to hire a driver from one of the unions in order to prevent delays, boycotts, and other problems.

Trucker Unions

Trucker unions are associations of truckers who have gotten together to join forces and increase power in order to press the government to do things for them and companies to hire them. They claim they are “fathers of families” whenever they feel threatened by a new decision made by the government, or by actions taken by business people. Saying they are “fathers of families” is used as a way of implying they are the sole providers of a low-resource family that needs their income to subside (even though they are not always the sole provider, nor do they always have families). It should go without saying that a working class citizen in an underdeveloped country, lacking a supportive public system, depends heavily on his or her job. However, this should not be an excuse for their illegal and disrespectful behavior toward businesses, government, and the country’s general population. Most owners and employees at the businesses they are affecting are also “fathers of families”, many of which also have few resources and depend very much on
their jobs, which the truckers are putting in jeopardy by preventing the companies from conducting business in an orderly manner.

Trucker unions all belong to FENATRADO, which is the National Federation of Transport Men. They go together to lobby on their behalf. They own their own trucks. They have also been known to sue companies claiming they are causing them to lose jobs by not hiring them, and in June 2017 the president of FENATRADO, Ricardo de los Santos, said that Law 63-17 is driving the freight transportation industry to the verge of collapse due to the various interpretations given to it by some governmental and industrial sectors that were not specified in his statement on Diario Libre (2017). In a comment that reads more like a threat than a concern, Mr. de los Santos said that freight transportation is essential for the economy and that the sector is in danger of falling into situations of anarchy and popular confrontations.

*Ships and Ports*

According to the Dominican Port Authority (APORDOM for its name in Spanish), there are 12 ports in the Dominican Republic:

1. Río Haina – has 15 berths, and capacity for 2000 importing vehicles; it is available for import and export of all kinds of merchandise.

2. Santo Domingo – the oldest one in the Dominican port system, it has 3 terminals, 1 for import and export of wheat (Molinos Dominicanos/Molinos Modernos, and 2 with touristic purposes (Don Diego and Sans Souci).

3. Boca Chica – has 3 berths; it is available for export and import of merchandise, including gasoline, and for touristic ships.
4. Multimodal Caucedo – this maritime terminal is equipped to receive loose
merchandise or containers, specifically for the use of Free Trade Zone companies.

5. San Pedro de Macorís – has 4 berths and it is used mainly to import bulk cargo of
clinker, coal and fertilizers, and to export sugar, molasses and bagged cement; it is
also open to touristic ships.

6. Puerto Plata – this is the second most important port in terms of freight
management; it is used for import and export of containers, gasoline, and general
freight, and for the parking of touristic ships.

7. Samaná – this port is focused on general loose loads and touristic ships.

8. Azua – this is the main port in the country for the management of liquefied
petroleum gas (LPG) or propane, as well as cement and clinker.

9. Barahona – this port has 4 berths and is mainly used for shipments of plaster or
gesso, salt, cement, sugarcane and mineral coal.

10. Manzanillo – its operations are mainly based on import of clinker and mineral
coal bulk cargo, and export of refrigerated containers, especially bananas and
other fruits.

11. La Romana – built by the then Gulf and Western (today Central Romana), this
port operates from within Central Romana’s facilities. It has 2 berths: a
commercial dock (from which sugar and molasses are exported, and Free Trade
Zone and petroleum are imported), and a touristic terminal.

12. Pedernales – this port has a Dolphin type dock with 2 facilities for export in the
form of bulk cargo, such as clinker, limestone, bauxite and cement.
The Dominican port service regulations (no. 1673) mandate, first of all, expression of agreement with the current port fees. All shipping agencies have to present the following documents (in Spanish) for APORDOM to provide its services:

a. A service request filed at least 48 hours prior to the arrival of the shipment so that the ship is towed and allowed to dock.

b. A cargo general manifest, which is a legal document that gives information about the physical aspects of the cargo. Four copies are required for imports and one for exports.

c. A bill of lading, which is a list of the products that are being shipped; it is a form of receipt issued by the carrier to the person or company that is sending the goods. Two copies are required for either import or export.

d. A cargo stowage plan showing the distribution of the parcels inside the vessel, and the way in which they are disposed. The Port Authority demands this plan to be specified by hatch. According to General Cargo Ship, the cargo plan should include relevant information about the cargo and the vessel, such as name of the vessel and Master, list of loading and discharging ports; sailing draughts, voyage number, total quantity of cargo, description of package, bales and pallets; tonnage load breakdown, hatch tonnage breakdown, port of discharge highlighted in a specific color, identification marks, recommended temperatures for the various goods, identification of dangerous or special cargo (if any), total volume of empty space remaining, statement of deadweight (e.g. fuel, stores, water), chief’s signature, possible access in the event of fire, among others. This document helps
prevent merchandise from being delivered at the wrong port. It also helps avoid excessive carriage.

e. The container stowage and discharge sequence.

f. Any other document that may modify the cargo manifest in terms of marks, numbers, entities, weight, volume, and shortages or surpluses.

g. Request to sail.

Additionally, exporters have to present four copies of the boarding order approved by customs and issued by the shipping company, as well as one copy of any other certificates required by law.

The fees charged by the Dominican Port Authority can be found at the following link:

http://www.apordom.gob.do/Archivos/Tarifas.pdf

2.6.4 Farm/Client Relationship

Buyers of fruits at the farm level in the Dominican Republic are usually supermarkets that buy in bulk for resale, and fruit-men (“fruteros” or “marchantes” in Spanish) who take fruits in a wooden pushcart and sell them around the city. Most large processors grow their own fruits. For example, via its company Consorcios Cítricos Dominicanos, Grupo Rica grows acres and acres of Valencia and Piña Florida oranges to make juice. Restaurants usually buy fruits from the markets or supermarkets (depending on the quantity they need), with which they may or may not have an arrangement.
Image 10 – Advertisement published by Grupo Rica stating that the company owns 1.2 million orange trees. This photo is published in Cargo Collective’s Website.

In general, small backyard farms sell their crops in street markets or via fruit-men, the medium-size farms sell their fruits to supermarkets, and the large farms use their fruits for processing or exporting.

Image 11 – Street market in San Cristobal. Photo published in El Dinero newspaper on 16.08.15.
Per studies conducted by the FAO (2000), banana and other fresh fruits are usually sold directly to ripeners or to supermarkets. SAVID, for example, sells most of its produce to ripeners in the United Kingdom, and directly to supermarkets in Germany and Switzerland. In Germany some produce is sold to ”green shops”.

Often times, supermarkets place their orders in advance. However, due to the limited outlets farmers have, and the enormous power posed by the chains, supermarkets usually sign three- to six-month credit agreements. Bravo started a revolution in the first half of 2016: in order to ensure full and prompt supply of fruits and vegetables, and possibly lower prices than those obtained by other companies (although it was not possible to confirm this during the investigations), they started paying farmers on the spot, at the moment of delivery. Bravo took extra advantage of this by launching an advertisement campaign in which they published what they were doing, and transmitting the message...
“we care about our farmers, we are doing a social good” to the clients with the intent to boost sales. Bravo also does a fruits and vegetables sale every Tuesday to prevent their produce from rotting or expiring.

Other growers (like Finca 6) are still considered small farmers, but sell their entire production to a bigger farm that then sells the fruits in bulk. A case worth noticing is Café Santo Domingo. Even though coffee is not a fruit, this is a useful example for the purposes of this paper. Café Santo Domingo is the biggest producer of coffee in the Dominican Republic. It is also the biggest seller. It has such a high demand for coffee that the national coffee bean supply is not sufficient for production; the company imports coffee from Vietnam, and creates a mix that includes corn flour and other ingredients to yield the amount they need. In order to ensure supply, Café Santo Domingo pays the highest international price to the Dominican growers, which very few companies are willing to do. Farmers like the deal for two reasons: they are certain that Café Santo Domingo will want as many coffee beans as they can provide, and they will get paid the highest price.
CHAPTER III

CASE ANALYSIS

3.1 Porter’s Diamond of National Advantage


Michael Porter is a renowned economist and researcher, professor at Harvard Business School, business advisor, and author of many business, economics and strategy books. Among the large amount of contributions that Dr. Porter has made to the world, his theory of national advantage is one of the most famous in macroeconomics.
Porter’s theory states that although most scholars, governments, and people think that natural resources, labor, currency value, or interest rates (among other attributes) are the source of progress and prosperity, it is an industry’s innovation and ability to constantly upgrade that constitutes a nation’s competitiveness (Porter, 1990). Competition, pressure, necessity, challenges, motion… these are the factors that make a person, a company, and a nation better.

According to the National Competitiveness Council of Ireland:

Competitiveness is the ability to achieve success in markets leading to better standards of living for all. It stems from a number of factors, notably firm level competitiveness and a supportive business environment that encourages innovation and investment, which combined lead to strong productivity growth, real income gains and sustainable development. (…) In the long run, competitiveness is about growth in productivity, (…) in the short run, national development in prices, wages and exchange rates can have significant impacts on the competitive performance of a nation’s firms – even those firms with high rates of productivity growth.

The World Economic Forum issues a report every year called The Global Competitiveness Report, in which 138 countries (for the 2016-2017 report) are ranked according to their competitiveness based on 12 pillars (see image 14).

The 12 pillars classify countries into thee types: (1) factor-driven, (2) efficiency-driven, and (3) innovation-driven. Factor-driven countries focus on cheap labor and natural resources, which is in part where the Dominican Republic is at the moment. These
countries present low prices as their main advantage, selling products with little value, support services, and commodities. Pillars 1-4 are what would present a competitive advantage in these nations. However, as mentioned earlier in this paper, the D.R. has very inefficient public institutions, lacks proper infrastructure for the fruit sector, and has a deficient primary education system.

Efficiency-driven nations are those where workers receive a higher pay and products are better developed than those from factor-driven countries. Pillars 5-10 sustain their competitiveness by providing people with higher education and training, efficient markets, the space to take advantage of technology, and a big enough market for companies to play.

The last category is innovation-driven, achieved when employees are paid well and posses good quality of life. Companies compete by selling valued and innovative products or services. Their competitiveness depends on sophisticated production and constant innovation (pillars 11-12).
The 2016-2017 report defines competitiveness as the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the country can achieve. The main findings for this year were that:

1. monetary stimulus is not enough to reignite growth if economies are not competitive,
2. an increasingly important element of competitiveness is creating an enabling environment for innovation, and
3. innovation in turn goes hand in hand with openness and economic integration.
Hoffman (2005) states that enhancing productivity is the primary means of raising prosperity. In turn, gains in productivity are dependent on competitiveness. He defines productivity as “the efficiency with which goods or services are produced by a given set of inputs, such as capital and raw materials (...), often considered to be an intermediate stage between the inputs, such as physical infrastructure, and the outputs of economic performance and prosperity”, and prosperity as “economic well-being (...) or more generally quality of life”.

In order for a country to achieve competitiveness in comparison with other nations it has to present some advantages. For example, a country where income and wealth taxes are low will attract individuals who own large amounts of money. Countries where property tax is low will encourage individuals to invest in real estate. Countries where it is easy to create companies, the government is stable, and it is easy and safe to do business will attract businesspeople. In the same way, nations where products can be produced in large quantities with inexpensive labor will seem advantageous for manufacturers in contrast to others where production would be more expensive.

Dr. Porter created a diamond comprised by four attributes that determine a country’s national advantage, which he defines as the “playing field that each nation establishes and operates for its industries”. The four attributes are: factor conditions, demand conditions, related and supporting industries, and firm strategy, structure and rivalry.

Because the factors that make a country competitive vary from nation to nation according to the elements found within each of Porter’s four attributes, as well as to the products and services they offer, it is imperative to figure out where each country’s strengths, deficits, and opportunities for growth lie. This is the reason why Porter’s
Diamond for National Advantage has been chosen here to analyze the situation of the fruit sector in the Dominican Republic, to find ways in which to improve its supply chain and add value to the products in order to increase competitiveness and productivity, as well as opportunities to enhance the quality of life of the people involved with the sector, and make them more prosper. Once wages and income start to grow, the only way for the Dominican fruit sector to sustain this situation will be to expand productivity and keep adding value (innovating) and getting better (constant upgrade).

3.1.1 Factor conditions

The factor conditions are the elements required for production, such as infrastructure, labor and raw materials, all of which are necessary for a company to manufacture a product or provide a service, and to compete in a certain industry.

As previously explained, the Dominican Republic meets the factor conditions in the fruits sector by having arable land available, enough people, and a wide variety of fruits that grow in the country. The D.R. also has a privileged position in the world: it is strategically located around the middle of the American Continent and on the way to Europe, near the equator, from where it is easy to ship fruit products to countries in both continents. Thanks to its proximity to the Panama Canal, the Dominican Republic can easily export to Asia as well. However, the nation needs to increase its bet on agriculture so younger people feel attracted to it and become willing to put in the work, driving progress and innovation to take place in this sector.

Factors beyond natural endowments are also imperative for national competitiveness. Education and infrastructure are two important elements that Dominicans lack that are urgently needed for Dominican fruit farms and companies to progress locally and be
competitive abroad. A lack of education generates unskilled workers who lack the knowledge to improve crops and to conduct business. This is an area in which the Dominican government needs to achieve considerable improvement by motivating people to attend school when young, and providing scholarships or feasible loans to students with potential to prepare in agriculture, science, and business. The Dominican government also needs to invest in infrastructure: paving the roads around rural areas, building better connecting routes, increasing water reserves, and facilitating irrigation.

3.1.2 Demand conditions

Demand conditions refer to the requests presented by the local market that need to be met in order to sell a product or service at the desired price. If the local demand conditions are similar to those of the international market, then meeting them will increase the chances of a company or a nation being successful abroad as well.

The Dominican Republic consumers are for the main part uneducated and have limited resources, which makes them less interested in fruits that are, for example, organic because most of them do not believe the effects of pesticides to be relevant enough to justify a premium in price. This is the reason why many supermarkets and retailers refuse to pay a premium for organically grown products in the country: they do not think they would be able to sell them for a higher price than regular products. In turn, even though farmers long to sell organic fruits for two to three times the regular price (per the global demand) they are forced to accept the lower price.

Dominican farmers who grow organically do so due to the lack of financial resources rather than to create a premium product, and therefore they have little leverage when negotiating prices. Those farmers who have a certain education or awareness of global
trends, and who can gain access to the necessary resources, do their best to either export their fruits or sell them to chains like CCN, who do differentiate organic products from inorganic for high-class, sophisticated consumers.

As Donahue (2011) wrote, highly sophisticated and well informed consumers in a nation’s domestic market can help drive innovation and quality in a sector. They can also make companies better and more competitive in markets abroad.

Another demand factor that can motivate growth and innovation is market size and the potential for higher sales, as well as the increased income that inherently follows. The Dominican Republic has a strong enough market for new farmers to enter the game and get a big share. For this to happen, however, the new fruit farmers or producers would have to be innovative – probably even disruptive – and find ways to ignite the customers’ curiosity, get them to try their products, gain their trust and loyalty, and then secure their market share. Their fight would be against low-cost imports. Nevertheless, the Dominican soil is rich, the variety of fruits in it is magnificent, and if people find ways to take advantage of it, the country could start strengthening its national advantage quite rapidly.

3.1.3 Related and supporting industries

“Related and supporting industries” in this case would be companies that supply or work together with the fruit sector. Sellers of chemicals (pharmaceutical industry), tractors (automotive industry), machinery (manufacturing), packaging (manufacturing), accounting & information software (technology), and providers of loans and insurance (financial and insurance industries), are all examples of supporting industries. Parallel companies, such as processors of baked goods (which buy fruits and mix them with
products from the dairy, cereal and sweeteners sectors) are representatives of related industries. Another example would be the clusters, cooperatives and other kinds of associations that constitute a joining of forces so that each fruit grower can be more competitive. Cooperation between fruit growers, and related and supporting industries can lead to innovation, lower costs, increase in sales and value added, and an increase in profits.

3.1.4 Firm strategy, structure and rivalry

This last attribute refers to the laws and norms in place in a country that dictate the way in which companies can be created, the rules of competition (rivalry), and the management and organization of industries. These elements create the environment in which companies evolve and behave in regards to each other; this is what enables progress and shapes the companies’ behaviors just like a school’s and a home’s environment shape a child’s character. This environment also forces companies to be innovative, improve their skills, and be constantly upgrading in order to beat the competition, or simply stay alive.

The Dominican Republic has flexible laws for the formation of companies. However, without a lawyer the process can be long and tedious, which added to the required taxes makes the creation of companies an expensive one.

In regards to structure, the country is not very strict. The D.R. lacks order and is not known for planning ahead. History indicates that the nation lets growth happen and then tries to fix issues as they arise; this is the approach it took when cities were growing. Despite councils being formed with the objective of urban planning, little or no progress takes place. The same thing happens with companies: industries start taking shape and the
government does not intervene in its structure unless a powerful player, or group of players, complains. Often times, personal interests of the people in charge and corruption allow room for disorganization too.

In terms of competition, rivalry would usually be considered decent in terms of respectful marketing by not mentioning the competition directly or divulging false information. The country does try to prevent monopoly, but it is hard to avoid in small third-world countries where numerous opportunities for investment still exist. For instance, in some areas there are unique players providing a product or service because there seems to be no one else willing or daring to enter the arena due to the size of the present companies. As long as the big player does not seem to be abusing customers the country will not intervene. The general belief is that even if a large, powerful company were to require government action, it would not be broken up. Rather, the company would create some sort of agreement with the government, even if the agreement were not transparent or legal. Many big companies involve people from the government or the Catholic Church on their boards from the beginning to prevent obstacles like this from getting in the way of the progress that the owners envision.

As the reader is probably thinking by now, big Dominican companies can seem like bullies in comparison to potential new players, who would probably only stand a chance if they were either disruptive, powerful and well-connected, very wealthy, or a combination of these characteristics. This situation impedes progress in the country, but does not necessarily prevent competitiveness abroad. Big companies like the ones mentioned usually provide high-quality products or services that can easily compete abroad, and they have the financial and human resources to do so. The problem lies in the
fact that the profits are not distributed in the country – in fact they are sometimes directed to shell companies in tax havens – so the Dominican population is not benefited in any way except, maybe, for the “Dominican Republic brand” that the sales of quality products and services abroad create.

3.1.5 Porter’s Diamond Applied to the Dominican Fruits Sector

This paper seeks to analyze the Dominican fruit supply chain, find ways to improve it, provide ways in which to add value to the fruits grown, and make contributions that could potentially increase the farmers’ profit and quality of life. Porter’s Diamond of National Advantage has been chosen to help analyze the current situation in the Dominican fruit sector and to spot possible opportunities that Dominican fruit growers could use to compete locally (strengthening the country’s economy), and internationally in the form of exports.

Based on the examples provided while defining each of the four attributes above, it can be concluded that the Dominican Republic partially meets the factor and demand conditions, that there are related and supporting industries around the fruit sector that can help it grow and become stronger, and that there are established laws and norms that dictate the way in which farms and companies are formed and interact. Nevertheless, there is plenty of room for improvement, from taking proper advantage of the resources available, to the government enforcing the law, contributing to the agricultural sector and its adjacent industries, and the population fighting corruption. Just by starting to pay attention to the overlooked fruits, adding value and quality to the current products so more people buy them, and exporting larger quantities, the Dominican fruit sector would already be a step forward.
3.2 Improving the Value Chain

One of the main arguments for which this paper is advocating is that adding value to the fruits grown and sold in the country would generate more income to the sellers thanks to an increase in local sales and exports. Some ways in which value can be added along the Dominican fruit supply chain are the following:

❖ Expand the fruit offer. There is a wide variety of fruits that are grown in the country, many of which are only remembered by the older generations still alive. Younger generations (currently under 55 years of age) do not remember or consume many of the local fruits that their parents used to. Taking them on a discovery journey – especially at a time when advertising all their nutritional and health benefits would be a huge marketing tool – would largely increase sales since preferences are highly influenced by advertising campaigns and trends.

❖ Improve quality. Even though scientists and educated people improve crops by using genetic engineering, just by applying more attention and gentleness to the crops during harvest Dominican fruit farmers would be able to improve the quality and presentation of their products. Customers buy mainly with their sight: “if it looks good, it must be good”. Nobody is willing to pay a decent price for a fruit that is bruised, dirty, or cut.

❖ Sell at the optimum point. By transporting fruits under proper conditions and only keeping them on the shelves while they are green or just ripened, the players along the supply chain guarantee that the consumer will be satisfied. Any overripe fruits, and any others that do not look their best, should be used in the making of processed goods (look at the next item).
Process the fruits. This does not necessarily mean adding chemicals and other products to the fruits, this can also mean turning them into another natural product that is ready to be consumed. Some finished fruit products that can easily be sold in supermarkets or exported are fruit juices, chopped fruit salads, jams, preserves, marmalades, yogurts, extracts, flavoring, scents, baked goods, chocolates, sun-dried or dehydrated snacks, ice cream, butters, ciders, ales, wines, and others.

Pay attention to the presentation. It has been proven, time and time again, that buyers prefer products with a nice, attractive, and clean presentation. Most Dominican food products cannot compete with imported food products in presentation. For the same costs that a farm or small company would pay to pack their products, they could do a much better job just by choosing a more appropriate color palette, a more suitable material, or by finding a way to present the offer in a more attractive way at the retail spaces. This is even more important when referring to exports: the country already has a dubious reputation in some destinations, which would not be helped by products that do not look attractive or whose packaging is not practical. This is an important point to be taken into account.

3.3 Future Risks

Risks are always present when talking about the future. In the case of the Dominican fruit sector, some of the main risks are:

- Natural disasters that could wipe out complete plantations\(^5\).

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\(^5\) The Dominican Republic is prone to the passing of hurricanes between June and November of each year. While this paper was being written, hurricanes Irma and Maria caused major damage in the country. The magnitude of said damages had not been calculated by completion of the study.
❖ Lack of skilled labor, which could translate into losses when a company is growing and lacks the resources to train the people or hire more educated ones.

❖ New regulations that could affect costs, prices, and distribution. For example, an industry insider whose names cannot be published in this paper told the researcher over the summer that there might be a new regulation issued in the United States concerning truck-driving times. Currently, there are rules that mandate how long a Trucker can stay on the road. Even though they exist, because they are so restrictive many food-distribution companies work around them. New trucks are expected to have digital clocks that would time the hours a vehicle is on the road. This would mean that fruits and food products that are currently being shipped fresh (i.e. never frozen) from one side of the country to the other would not arrive to their destination soon enough to be in optimal conditions. What this also means is that either food companies will have to open more processing plants – increasing costs – or certain areas of the country will have to go without a certain product until a new player surges at a place in between. Either way, this has a toll on both producers and consumers, and is a risk that all players along the fruit supply chain would feel.

❖ Fluctuations in international prices, which are constantly taking place.

❖ War. Even though it would be highly unlikely for the Dominican Republic to be involved in a war, the situation with Haiti is not getting any better and could turn into a confrontation at any point if Dominicans feel threatened by an invasion.

❖ End of free-trade agreements. This is a risk that would have both positive and negative effects: positive because it would probably slow down imports to the
country, negative because it might render Dominican products uncompetitive in other countries unless enough value is added to them.

- Currency devaluation, which would translate into great profits via exports, but would be terrible when buying inputs from abroad for production.
CHAPTER IV
METHODOLOGY

This paper is an academic project, meant to theoretically analyze the observations and data obtained during the research process. It is the goal of the author to propose new ideas, suggestions and calls for action, but this is not an empirical paper.

In this chapter the reader will find explanations about how the author went through the research process to obtain and analyze data, unfold the findings, and arrive to the conclusions. It lays out the intricacies of the process, pointing out any assumptions made, limitations found, methods chosen, channels used for collection of data, and basis for discussions and proposals.

4.1 Research Philosophy

The four main philosophies adopted by researchers when conducting studies are the following:

1. Positivism – The most common of the research philosophies, positivism is the belief that the only way to get to the truth is through the use of science, that information must be obtained through observation in order to be reliable, and that the researcher’s sole purpose is to gather data and interpret it in an unbiased manner, which means that his or her ideas, assumptions and interests should not be taken into account to prevent contamination of the information. Positivist research is empirical, based on observable facts and logic only; it leaves no room for general knowledge or judgment. It can be argued that positivism is mostly descriptive, and therefore it would be limiting in business and case studies due to
the fact that it overlooks subjective details pertaining to the way individuals, companies and markets behave. It also assumes that all aspects of an investigation can be obtained through observation, which is not the case; historical information cannot be experienced, it has to be obtained through other means and relied on.

2. Realism – This philosophy tries to take the reality and keep it raw, not altered by the researchers or sources of information in any way. Saunders (2012) explains that there are two types of realism: direct, when the researcher obtains data through personal senses, and critical, when he or she is aware that our senses can be deceiving and therefore digs deeper to find the truth. Naturally, critical realism is the preferred philosophy among the two when research is being conducted.

3. Interpretivism – Interpretivist researchers use their critical knowledge to explore and try to explain the data found. This can leave room to interpretation and bias, but it seeks to find the causes and reasons behind data found, and interpret it with the goal of providing a context to the findings, making them more understandable to the reader.

4. Pragmatism – Concepts are only relevant if they support action. “Pragmatics recognize that there are many different ways of interpreting the world and undertaking research, that no single point of view can ever give the entire picture and that there may be multiple realities” (Saunders et al., 2012). Unlike the other 3 philosophies, pragmatism combines as many different approaches and strategies within itself as necessary in order to give a satisfactory answer to the research question.
The philosophy of pragmatism was the one chosen to develop this paper. It is the author’s belief that there are, in fact, different ways to research a subject, to find the truth, to solve issues and to make things work. The author also believes that a combination of methods and approaches should be used to gather data, to analyze it and to come up with good possible solutions.

Within pragmatism, some critical realism and interpretivism have been included. Some of the data in this paper was gathered through observation, experience, and interviews. The author does not assume, however, that the true reality is exactly as it looks or seems: there are factors that create the current situation of the Dominican fruit sector, which need to be understood and explained – which cannot be noticed just by mere use of the senses –, and the researcher has a responsibility to dig deeper to lay out a portrait that is as truthful as possible to the reader.

4.2 Research Approach

As explained by Merriam-Webster, humans use methods of reasoning when trying to give answers to daily, usual questions, such as “what would be the best choice for lunch today?” The most common methods are deduction, induction and abduction.

Deduction is “the deriving of a conclusion by reasoning” (Merriam-Webster). It means taking a situation and arriving to a conclusion based on commonly accepted premises. For example, if a farmer decides he wants to sell a certain type of fruit in the future and he finds out that the specific tree he needs takes 3 years to bear fruit, then he can deduct that he needs to plant the tree at least 3 to 4 years before the time at which he wants to start selling. Deductive reasoning always arrives to conclusions based on
premises: If all trees are plants, and the maple is a tree, then the maple is a plant. As long as the premises are true, the conclusion will always be true.

Contrary to deduction, induction assumes that a particular observation can be used to arrive to a generalized conclusion; it involves probability. Even though induction is widely used and it can arrive to accurate conclusions, this is never 100% certain. It is commonly used in population studies, where observations made in samples are used to arrive to conclusions pertaining a population as a whole. For example, a person observes that at his local supermarket there are two baskets full of apples in the morning: one filled with red apples and the other with green apples. When he goes back in the afternoon, he notices the basket of green apples is empty. He induces that people in his area like green apples more than red apples. Even though he could be right, it could be the case that the supermarket staff simply filled up the basket of red apples for the third time that day; this is why a person needs to gather as much information as possible before inducing conclusions.

Abduction consists of formulating the best possible conclusion using the insufficient information available; this makes the conclusion only possible at best. It is what on a daily basis people would call “making your best guest”, similar to having parts of a recipe and assuming it corresponds to a certain dish.

This paper presents parts in which all three methods of reasoning are used. Deduction is used when parting from the literature review to justify solutions by taking premises that have worked before and adding them to premises about the fruit sector in the D.R., arriving to conclusions that make sense. Induction was used when generalizing the situation of the farmers in the country. Even though most small fruit farmers are in the
same situation, there are always outliers. Nevertheless, for the purpose of this study, they are all considered equal. In the case of abduction, it is impossible for this paper to gather all the little details that conform the current situation in the D.R., like studying all the laws regarding agriculture and export, studying all free-trade agreements in depth, and so on. The author can do her best by putting all the pieces she does have available together. Some suggestions for future research are also made at the end of this paper.

4.3 Methods Chosen

The method chosen to compile data can be broadly considered as either quantitative or qualitative. Quantitative methods gather numerical information, such as the one obtained through experiments whose outcome can be measured in numbers, regression models, the results of close-ended questionnaires, among other tools. Qualitative methods gather descriptive – non-numerical – information, such as the one obtained through open-ended surveys or focus groups, observation, and other means that give as a result useful information answering questions like why, how, what, where, and who with non-numerical information. Often times, qualitative data can give more insight into a matter and explain the quantitative data related to it. In this case, it is said that the researcher used a mixed research method, as opposed to a mono- or multi-method approach. The mono-method approach gathers only one kind of quantitative or qualitative data; when a multi-method approach is taken, different kinds of quantitative (or qualitative) data are gathered. The only downfall to mixed methods is the fact that they are more complex, usually requiring multidisciplinary teams and more resources, including time.

Because this paper is being treated as a case study and not an empirical project, mainly qualitative data was gathered. The approach adopted, therefore, is multi-method
qualitative since different kinds of qualitative data are presented, obtained through observation of the country and during personal field visits, as well as via open-ended interviews. More information about the strategies used to collect primary and secondary data can be found in the following section.

4.4 Research Strategy

The research strategies are the tools that people use to systematically conduct research. They provide a structured plan that can be followed to obtain the desired information. For example, open-ended question surveys constitute a strategy to obtain a certain qualitative data. Experiments, archival research, theory analysis, and questionnaires are all strategies that can be used.

For the purpose of this paper the author used observation and field visits, as well as open-ended interviews. Secondary data was collected from the literature review conducted in books, academic research, governmental and institutional Websites (e.g. Central Bank of the Dominican Republic), journals, international databases (e.g. Quandl), newspapers, previous dissertations, governmental reports, non-governmental organizations (such as the UN and FAO), published laws, and other trusted publications.

Visits to SAVID, CariMango, Chocolate Antillano, the Valley of Constanza, R&A Orchards, Ingles Supermarkets, Food Lion Supermarkets, CCN, Bravo, the Valley of La Vega Real, food processing plants, Ministry of Agriculture offices, customs offices, and interviews with other players in the food and agricultural industry were performed in the Dominican Republic and the United States to provide further insight for this project.

Interviews and visits to the different Dominican customs, agriculture, and food safety institutions, as well as exporting organizations, provided useful information for assessing
the options available in the country that could used to improve the Dominican fruit supply chain.

Qualitative data was gathered at the city of Ellijay, in the state of Georgia, USA, during the summer of 2017. Even though the U.S. and the D.R. possess very different markets and economies, the U.S. is so big that many scenarios can be explored in it. It is also very important to note that the U.S. is the Dominican Republic’s number one business partner, especially so in terms of food import and export, making it a relevant nation to study for the purposes of this research given it is trying to find ways to improve the fruit supply chain that might end up there. The D.R. is conveniently located 90 minutes away from Florida and 3 hours from Georgia, making businessmen and investors from both countries very interested in each other’s ways. Dominican people look up to Americans and the way in which they conduct business internationally.

Georgia has a very well developed fruit sector in terms of growing, distributing, and selling their product, both wholesale and retail. Ellijay, in particular, is a very rural town with dirt roads and lacking infrastructure, including poor telecommunication availability and power shortages. Ellijay is located far from most places where its products are sold, just like in the D.R.

The people in Ellijay have access to good primary education provided by the government, a benefit not many people in rural Dominican areas can obtain, but not all of them complete even high school, and higher education is not a priority. In this town most farms are family owned, and children learn to work the land at a very young age with the aims to help the family and inherit the farm when they are older. This is different from the situation in the D.R., where many children have no wish to stay in the campos (rural
areas) and where their parents usually try to motivate them to move elsewhere in search for a better life due to lack of resources.

Since Ellijay poses a similar situation in the fruit sector to that of the D.R. but seems to be a few steps ahead, the author was motivated to study the area, the good practices shown by the businesses there, and the circumstances under which the sector strives with the hopes to find some information and techniques that could help solve some of the issues in the Dominican fruit sector and improve its supply chain.

Quantitative data was obtained from the most reputable sources containing information from the Dominican Republic. The main sources used were (1) the Central Bank of the Dominican Republic for information concerning Gross Domestic Product (GDP), exchange rates, and inflation; (2) United Nations Comtrade database, from where the values of total Dominican cacao exports were extracted\(^6\); and (3) Quandl database to get futures prices for Cacao Futures, Continuous Contract #1 (CC1) (Front Month). United States Inflation Calculator was used to extract the inflation rate for the US dollar from 1988 to 2017, and to convert nominal dollars into real dollars.

4.5 Time Horizon

All research is conducted during a certain amount of time. The time horizon can be longitudinal, if the study is repeated during a period of time, or cross-sectional if it is conducted within a defined timeframe.

The time horizon for this paper is considered cross-sectional because it was conducted during 2016 and 2017. However, qualitative data was collected from 2014

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\(^6\) No reliable information concerning Dominican cacao exports was found, so the researcher took the value of cacao imports from the Dominican Republic reported by the 95 countries in UN Comtrade to do the calculations found in this paper.
through 2017, including some interviews and field visits. The dates for their collection are specified when each piece of information is mentioned in the paper. The quantitative data covers year 1988 through 2016.

4.6 Qualitative Data Analysis

Interviews were conducted with open-ended questionnaires customized for each interviewee. All questions were designed to obtain as much information as possible from people who devote their lives to the progress of the Dominican fruit sector, the Ellijay fruit and food retail sectors, as well as specialized people in the fields of agriculture, customs, and exports. The purpose of the open-ended questionnaires was to obtain quantitative data of quality that was later used by the researcher. Answers were read, analyzed, studied for patterns among the interviewees’ answers, applied to the circumstances of the Dominican fruits sector, and used as basis to explain the findings and arrive to conclusions.

The interviewees were selected in three ways: renowned leaders in the Dominican fruit sector to whom the author had access, employees in the Dominican agricultural sector that the author visited, and leaders in the Ellijay fruit sector to whom the author was introduced.

The following people were interviewed in the Dominican Republic:

❖ Mr. Daidone from SAVID
❖ Mr. de la Rosa from Chocolate Antillano
❖ Mr. Anselin from Mangos de Matanzas
Mr. Simon Fernandez Sr. and Mr. Miguel Salas at the Santiago branch of the Dominican Republic Centre of Exports and Innovation (CEI-RD for its name in Spanish)

The following people were interviewed in Ellijay, Georgia:

- The Futch Reece family, owners of R&A Orchards
- Mr. Gene Viñez, co-manager of store operations at Ingles supermarket

Other people who were not formally interviewed or who did not wish their names to be published, but with whom the author had serious and illustrative conversations that have been very useful for the development of this paper include: exporters of red pepper, a grower and processor of coffee beans who is considering exports, some of the owners of one of the top three rice growers in the country, a man who owns an extensive amount of land that is used to grow different kinds of crops mainly for family consumption, employees at the customs office located at the Santiago International Airport, employees at the branch of the Dominican Ministry of Agricultural located in La Vega, and CCN, Bravo and Food Lion employees.

Observation through field visits and touring the country was conducted at the following locations in the Dominican Republic:

- SAVID in Hacienda Paso Robles, Guayubin, Montecristi on February 18, 2014
- Mangos de Matanzas in Bani on April 2, 2014
- Chocolate Antillano at Guazumal, Tamboril on January 8, 2014 and July 23, 2015
- TerraVerde Organic Market at Galerías 360 in Santo Domingo on June 4, 2015
- The Valley of Constanza on May 13 and 14, 2017
- The Valley of La Vega Real on May 14, 2017
Bravo supermarket in Santiago on May 15, 2017
CCN El Nacional supermarket in Santiago on May 17, 2017

The following locations were visited in Georgia:

- R&A Orchards, several times throughout the months of June, July and August of 2017
- Food Lion Supermarkets, several times throughout the months of June, July and August of 2017
- Ingles Supermarkets on August 3, 2017

Secondary data was collected from books – mainly text books published in the areas of agriculture, botany, under-developed economies, business and supply chain management –, academic articles published in renown journals or by universities, previous honorific dissertations, formal information published in governmental and institutional Websites, international databases such as those belonging to the United Nations, the Food and Agriculture Organization (FAO), the USDA, the CIA, the EU and others; renown Dominican newspapers such Hoy, Diario Libre and Listin Diario; government-issued reports, published laws in the Dominican Republic and the United States, and other trusted publications. Additional secondary data was obtained from case studies and consulting work that Dr. Jonathan Turner has conducted in big multinationals and several countries that he shared with the author.

Both primary and secondary data was analyzed together and individually to get a better understanding of the fruit sector in the Dominican Republic, its current situations, its opportunities and weaknesses, and to formulate possible solutions.
4.7 Quantitative Data Analysis

Quantitative data was gathered and analyzed to try to better understand the behavior of cacao exports from the Dominican Republic. Total nominal and real value of cacao exports was analyzed over time, per importing country, and per continent. Cacao exports were compared to total agricultural production, as well as to cacao production in the Dominican Republic, which at the same time was analyzed against the other three main industrial crops for exports: sugarcane, tobacco, and coffee. Additionally, cacao exports were compared to gross domestic product, the peso-dollar exchange rate, and to cocoa futures prices.

4.7.1 Top Importers of Dominican Cacao

Information about Dominican cacao exports could not be found for more than five years at a time, and it is very inconsistent and unreliable. Therefore, information reported by the importing countries to the United Nations Comtrade database was gathered instead for the longest period available: 1988 to 2016.

Dominican cacao exports have been increasing over time since 1988. In the graph below it can be seen that there was a drop in exports in 1999 after Hurricane George hit the country, then again a slight fall in 2004 after the economic crisis caused when many free trade zones closed.
The jump from 1990 to 1991 can be explained by the fact that in 1988 only Germany imported cacao from the Dom. Rep. In 1989, Spain and Canada started importing as well. In 1990, as the two parts of Germany were being unified, this nation did not import cacao. The only country to import cacao from the D.R. in 1990 was Spain. In 1991, Germany resumed its imports of Dominican cacao, alongside Spain and Canada, and this was the same year that the United States started importing cacao from the D.R. In 1992, the Netherlands, Switzerland and Brazil are added to the list of importers. And every year after that more countries have been added, some of which have only been temporary importers, like in the case of those nations that are also producers (e.g. Central American countries).

In 2009, India, Barbados and Slovenia started importing Dominican cacao, which accompanied by an increase in international prices created a bump in Dominican cacao
exports. Malaysia and Colombia, who have been long-time importers, did not export during 2011, and Honduras stopped imports that year. Costa Rica, Brazil, Chile, and Serbia started importing in 2014, hence the increase observable in the graph. Costa Rica, Guatemala, El Salvador, Ukraine, Morocco, and New Caledonia did not import Dominican cacao in 2016, which is one of the reasons why exports slightly went down that year.

When total value of cacao import is considered to rate the 95 UN Comtrade reporting countries, the top 25 countries over time are the following:

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>2016 GDP per capita in billions USD</th>
<th>Distance from the D.R. (Km)</th>
<th>Total Value of Cacao Exports 88-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>57,466.80</td>
<td>1,882</td>
<td>1,422,234,447.00</td>
</tr>
<tr>
<td>Netherlands</td>
<td>45,294.80</td>
<td>7,384</td>
<td>339,027,794.00</td>
</tr>
<tr>
<td>Belgium</td>
<td>41,096.20</td>
<td>7,329</td>
<td>313,374,027.00</td>
</tr>
<tr>
<td>France</td>
<td>36,855.00</td>
<td>7,169</td>
<td>241,340,997.00</td>
</tr>
<tr>
<td>Italy</td>
<td>30,527.30</td>
<td>8,037</td>
<td>171,261,952.00</td>
</tr>
<tr>
<td>Canada</td>
<td>42,157.90</td>
<td>5,129</td>
<td>144,440,791.00</td>
</tr>
<tr>
<td>Germany</td>
<td>41,936.10</td>
<td>7,745</td>
<td>144,165,200.00</td>
</tr>
<tr>
<td>Spain</td>
<td>26,528.50</td>
<td>6,691</td>
<td>95,388,360.00</td>
</tr>
<tr>
<td>Mexico</td>
<td>8,201.30</td>
<td>3,393</td>
<td>64,705,941.00</td>
</tr>
<tr>
<td>India</td>
<td>1,709.40</td>
<td>14,489</td>
<td>41,353,950.00</td>
</tr>
<tr>
<td>Japan</td>
<td>38,894.50</td>
<td>13,206</td>
<td>25,039,001.00</td>
</tr>
<tr>
<td>Poland</td>
<td>12,372.40</td>
<td>8,327</td>
<td>24,396,191.00</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>11,824.60</td>
<td>1,770</td>
<td>12,089,112.00</td>
</tr>
<tr>
<td>Malaysia</td>
<td>9,502.60</td>
<td>17,311</td>
<td>11,845,975.00</td>
</tr>
<tr>
<td>Honduras</td>
<td>2,361.20</td>
<td>1,753</td>
<td>11,845,975.00</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>39,899.40</td>
<td>6,946</td>
<td>9,879,438.00</td>
</tr>
<tr>
<td>Switzerland</td>
<td>78,812.70</td>
<td>7,625</td>
<td>7,647,880.00</td>
</tr>
<tr>
<td>Indonesia</td>
<td>3,570.30</td>
<td>17,971</td>
<td>6,956,241.00</td>
</tr>
<tr>
<td>Colombia</td>
<td>5,805.60</td>
<td>1,637</td>
<td>5,453,540.00</td>
</tr>
<tr>
<td>Brazil</td>
<td>8,649.90</td>
<td>4,173</td>
<td>4,950,665.00</td>
</tr>
<tr>
<td>Guatemala</td>
<td>4,146.70</td>
<td>2,154</td>
<td>4,072,551.00</td>
</tr>
<tr>
<td>Russian Federation</td>
<td>8,748.40</td>
<td>11,075</td>
<td>1,936,298.00</td>
</tr>
</tbody>
</table>
Table 1 – Top 25 Importers of Cacao from Dominican Republic by Total Value. List of countries and total value of cacao traded sourced from UN COMTRADE, distance from the Dominican Republic was calculated using Google Maps, and GDP obtained from the World Bank and Trading Economics.

However, when the average value of cacao imported per year is calculated based on how long each country has been importing from the Dominican Republic, the top 25 countries on the list shift. This is important because using the previous table it is easy to overlook the fact that there are new strong importers, such as Indonesia (who went from #18 to #6), Singapore (#27 to #21), and Hong Kong (#42 to #24). Both Indonesia’s and Hong Kong’s first year importing cacao from the Dominican Republic was 2016.

Therefore, table 2 gives a better idea of what the most relevant business partners for the D.R. currently are in terms of cacao exports.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>2016 GDP per capita in billion USD</th>
<th>Distance from the D.R. (Km)</th>
<th>Total Value of Cacao Exports 88-16</th>
<th>Average Cacao Import Value per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>57,466.80</td>
<td>1,882</td>
<td>1,422,234,447.00</td>
<td>54,701,324.88</td>
</tr>
<tr>
<td>Belgium</td>
<td>41,096.20</td>
<td>7,329</td>
<td>313,374,027.00</td>
<td>16,493,369.84</td>
</tr>
<tr>
<td>Netherlands</td>
<td>45,294.80</td>
<td>7,384</td>
<td>339,027,794.00</td>
<td>13,561,111.76</td>
</tr>
<tr>
<td>France</td>
<td>36,855.00</td>
<td>7,169</td>
<td>241,340,997.00</td>
<td>10,493,086.83</td>
</tr>
<tr>
<td>Italy</td>
<td>30,527.30</td>
<td>8,037</td>
<td>171,261,952.00</td>
<td>7,446,171.83</td>
</tr>
<tr>
<td>Indonesia</td>
<td>3,570.30</td>
<td>17,971</td>
<td>6,956,241.00</td>
<td>6,956,241.00</td>
</tr>
<tr>
<td>India</td>
<td>1,709.40</td>
<td>14,489</td>
<td>41,353,950.00</td>
<td>5,169,243.75</td>
</tr>
<tr>
<td>Canada</td>
<td>42,157.90</td>
<td>5,129</td>
<td>144,440,791.00</td>
<td>5,158,599.68</td>
</tr>
<tr>
<td>Germany</td>
<td>41,936.10</td>
<td>7,745</td>
<td>144,165,200.00</td>
<td>5,148,757.14</td>
</tr>
<tr>
<td>Spain</td>
<td>26,528.50</td>
<td>6,691</td>
<td>95,388,360.00</td>
<td>3,668,783.08</td>
</tr>
<tr>
<td>Mexico</td>
<td>8,201.30</td>
<td>3,393</td>
<td>64,705,941.00</td>
<td>3,235,297.05</td>
</tr>
<tr>
<td>Poland</td>
<td>12,372.40</td>
<td>8,327</td>
<td>24,396,191.00</td>
<td>2,439,619.10</td>
</tr>
<tr>
<td>Malaysia</td>
<td>9,502.60</td>
<td>17,311</td>
<td>12,089,112.00</td>
<td>1,343,234.67</td>
</tr>
<tr>
<td>Japan</td>
<td>38,894.50</td>
<td>13,206</td>
<td>25,039,001.00</td>
<td>1,317,842.16</td>
</tr>
<tr>
<td>Honduras</td>
<td>2,361.20</td>
<td>1,753</td>
<td>11,845,975.00</td>
<td>1,316,219.44</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>11,824.60</td>
<td>1,770</td>
<td>20,977,384.00</td>
<td>1,165,410.22</td>
</tr>
<tr>
<td></td>
<td>Country</td>
<td>Average Yearly Value</td>
<td>Total Value of Cacao Traded</td>
<td>GDP</td>
</tr>
<tr>
<td>---</td>
<td>------------------------</td>
<td>----------------------</td>
<td>----------------------------</td>
<td>-----</td>
</tr>
<tr>
<td>17</td>
<td>Brazil</td>
<td>8,649.90</td>
<td>4,950,665.00</td>
<td>707,237.86</td>
</tr>
<tr>
<td>18</td>
<td>United Kingdom</td>
<td>39,899.40</td>
<td>9,879,438.00</td>
<td>658,629.20</td>
</tr>
<tr>
<td>19</td>
<td>Colombia</td>
<td>5,805.60</td>
<td>5,453,540.00</td>
<td>454,461.67</td>
</tr>
<tr>
<td>20</td>
<td>Cuba</td>
<td>6,182.80</td>
<td>1,513,343.00</td>
<td>378,335.75</td>
</tr>
<tr>
<td>21</td>
<td>Singapore</td>
<td>52,960.70</td>
<td>1,033,548.00</td>
<td>344,516.00</td>
</tr>
<tr>
<td>22</td>
<td>Switzerland</td>
<td>78,812.70</td>
<td>7,647,880.00</td>
<td>318,661.67</td>
</tr>
<tr>
<td>23</td>
<td>Guatemala</td>
<td>4,146.70</td>
<td>4,072,551.00</td>
<td>214,344.79</td>
</tr>
<tr>
<td>24</td>
<td>China, Hong Kong SAR</td>
<td>43,681.10</td>
<td>159,788.00</td>
<td>159,788.00</td>
</tr>
<tr>
<td>25</td>
<td>Russian Federation</td>
<td>8,748.40</td>
<td>1,936,298.00</td>
<td>148,946.00</td>
</tr>
</tbody>
</table>

Table 2 – Top 25 Importers of Cacao from Dominican Republic by Average Yearly Value. List of countries and total value of cacao traded sourced from UN COMTRADE, distance from the Dominican Republic was calculated using Google Maps, and GDP obtained from the World Bank and Trading Economics.

Needless to say, the United States and Canada make North America the region that imports the largest amount of cacao from the Dominican Republic, followed by Europe, Asia, and Central America.

**Total Value of Cacao Imported from the Dominican Republic by Continent from 1988 to 2017**

Map 1 – Data sourced from UN COMTRADE.
4.7.2 Dominican Cacao Exports over Time

Given that all numbers are in US dollars, the inflation of said currency was gathered to calculate the real value of Dominican cacao exports and see if there was a significant difference in behavior. It was found that even though the real values are higher, the way cacao exports behaved between 1988 and 2016 is the same, as shown in the graph below.

4.7.3 Dominican Cacao Exports compared to Cacao Futures

One of the most interesting relationships was found when analyzing Dominican cacao exports against cacao futures prices. Originally, international cacao prices were going to be used, but reliable data was only found for some months between 2005 and 2009, so futures prices from Quandl were chosen instead.
As shown in the graph below, the futures prices and the Dominican cacao exports follow almost the same behavior. What makes this interesting is that when prices go down – according to economic theory – sales (or in this case exports) should go up unless the price drop is so large that the growth in volume of sales cannot make up for the difference; this has not been the case with the Dominican cacao exports. Another interesting fact is that even though both futures prices and cacao exports went down in 1999 and 2000, in the case of exports the reason was Hurricane George, not any movements in the markets.

![Graph 3 – Total value of cacao traded sourced from UN COMTRADE. Futures prices for the Continuous Contract #1 (CC1) (Front Month) obtained from Quandl.](image)

Given how interesting the previous graph is, cacao futures prices were also compared to cacao production in the Dominican Republic. Reliable information regarding cacao production in the country could only be found for the years 1991 to 2005 via the
Dominican Office of National Statistics (ONE), so that was the period used to do the comparison.

Future prices and production seem to follow a very similar trajectory. However, it is important to remember that, again, production went down after 1998 due to a hurricane, whereas an explanation about why futures prices went down in 2000 has not been found.

Given that the behavior of both futures prices and exports seem to be so similar, the correlation was calculated. Cacao futures prices and Dominican Cacao Exports have a correlation of 0.9427. A perfect, positive correlation has a value of 1. The correlation obtained proves that the lines are statistically moving very similarly; however, it is imperative to remember that correlation does not imply causation and therefore this number does not mean that the behavior of either futures prices or cacao exports is caused by the other.

4.7.4 Dominican Cacao Exports compared to the Dominican GDP

When comparing cacao exports to Dominican GDP, it was found that both cacao exports and GDP have an upward trend over time even though GDP is growing at a faster rate.
4.7.5 Dominican Cacao Exports compared to the Peso-Dollar Exchange Rate

The relationship between the peso and the dollar is a very important one for the Dominican Republic given that the United States is its main business partner in general, and also in the cacao sector. When cacao exports are graphed together, there seems to be little similarity.
4.8 Ethical Considerations

All third-party work used during this research, as well as first-hand information obtained, have been properly acknowledged and explained. The researcher has no intention of causing any damage to external parties by violating laws or disrespecting customs and institutions, so precautions have been taken.

4.9 Limitations Found

The main limitations found during this research were the inability of the author to travel more to gather additional information due to her academic placement and studies, and the inability to confirm certain numbers that have been explained as “inconsistent” or not verifiable in this paper due to the informality with which records are kept in the Dominican Republic, if at all.

Dominican farmers and businesspeople are very skeptical and do not give away information easily, which made obtaining reliable quantitative data, certain qualitative facts, and visiting some plantations impossible. For example, agricultural production data cannot be found for longer periods of time, or in a consistent manner; some of the supermarket chains and farmers that were surveyed in Georgia never turned in the answers, some because of potential Public Relations issues given that this paper will be published, and others out of mere secrecy and worry. However, the author compensated for this limitation by explaining when certain information was not available, by using numerical proxies, and by visiting other plantations.
5.1 The Case Study

Through the interviews, field visits, and literature review mentioned in the previous chapter, the author was able to find quality information that is detailed below. Thanks to these findings the reader will have a better understanding of the real circumstances the Dominican fruit sector is currently facing. The facts displayed below, accompanied by the background and history provided at the beginning of this paper, serve to put together the whole picture, making it easier and possible to find realistic solutions to the problems in the Dominican fruit sector and ways to improve its supply chain while adding value to the products, increasing the farmers’ quality of life and, hopefully, the economic conditions in the country.

The following paragraphs lay out information obtained via the interviews conducted in the Dominican Republic and the United States.

Mr. Daidone, who passed away on April 20, 2017, was married to Mrs. Jetta van den Berg, the owner of SAVID, number one exporter of organic bananas in the Dominican Republic. They managed the company together.

Mr. Daidone arrived to the country from Ethiopia decades ago. He worked developing melon farms in Montecristi for many years before he met his wife and transferred to the field of organic bananas. He had extensive experience in the agricultural industry, specifically in growth and marketing of fruits. During his meetings
with the researcher on February 18, March 10, June 13, and November 19 of 2014, and on March 17, 2015, much information and guidance was shared.

On February 10, Mr. Daidone showed the researcher around SAVID and explained to her how the business works. Bananas are grown in their ten farms, as well as in smaller farms from whom they buy (like Farm 6 in Azua). When bananas are at its optimal green point they are taken off the trees and moved through a cable system (see image 15) around the land until they get to the packaging area. They are inspected and prepared to be shipped in containers. SAVID’s main clients are located in the Netherlands, Belgium, Germany, the UK and Japan.

To illustrate SAVID’s effect on the communities around it, the following is the breakdown of where the company's product comes from, which can be found in the Website:

An average of 60% of the production is organic and 40% conventional. 10% comes from organic farms owned by SAVID that were developed as models to train field technicians and growers. Of the remaining 90% of the fruit, 60% comes from small producers (less than 10 Ha, usually associated farmers), 25% comes from medium producers (10 to 30 Ha) and 15% comes from farms that have more than 30 Ha.

Mr. Daidone talked for a while about the differences in culture between Europeans, Central Americans, South Americans and Dominicans; he wanted to illustrate a point: “help to the people of a country can only be given after understanding and accepting their culture”. He gave as an example a person they hired as a supervisor to improve the skills of their workers, most of them being uneducated farmers who learned from experience
rather than through formal education. He explained that this supervisor in particular was not able to stay in the company because he could not respect the culture of the employees. “He wanted to change them,” Mr. Daidone said, “when he should have understood them to learn how to work with them, and then teach them”.

The supervisor came from a South American country where farming and agriculture are well developed and where people go to specialized institutions to learn agriculture before starting to work. He could not understand why or how Dominican workers do what they do, and because he did not respect that, he was not able to teach them in a way that they could understand or be able to perform.

Mr. Daidone also talked about doing business internationally. He said that one of the most sensitive aspects of exporting is choosing your clients. As a successful company, they have exported to many countries over the years, but not all of them work out the same. They look for countries with clear standards, prompt payment, and honesty when doing business. Additionally, they have an office in Amsterdam to make sure things run smoothly on the other side of the world.

The company has found out that many countries in Europe prefer fruits from the Caribbean to those from other American countries due to the richness in flavor they possess. This has been one of its biggest advantages in selling bananas abroad.

In the other meetings the author learned more about the intricacies of Dominican exports: the differences between organic and conventional fruit production, fair trade and how to treat employees with dignity, the relationship between the government and the industry, social responsibility, and best practices in the industry. The most relevant ideas that came out of these conversations can be summed up as follows:
❖ The area where the company is located does not have much support from the government. There are no paved roads, for example, and there is only one school. Farms build their own water systems, need to have water reserves, and provide for their own power supply.

❖ Organic banana production takes more attention, but it is perfectly doable and it is certainly attractive for customers abroad.

❖ Fair trade is important not only due to the certification and the premium clients abroad are willing to pay, but because companies will want to treat their employees with respect; it is preferable that the employees are happy and that their lives improve.

❖ It is important for companies to give back to their communities in order to foster a better environment with people willing and able to support the company. As the saying goes, “the rising tide lifts all boats”.

❖ Big investors always try to buy the smaller farms, which is not necessarily a bad thing, but prevents the growth of the lower class.

❖ Mr. Daidone had four children, all under the age of 16 at the time. His children have the privilege of good education: they attend the local school, have other lessons at home, and the oldest was transferred to a private school in the Netherlands to finish school, which is the plan for the rest of the children as well. They have pools to swim in, horses to ride, a spacious house to play, and plenty of space to have fun outdoors. However, Mr. Daidone expressed that there is a certain kind of loneliness that comes from living so far away from everything – from cities, from family, from entertainment. They have to plan the household
trips to the supermarket, which are conducted weekly or biweekly by a person who takes product to the city and comes back with the groceries; the family owns a cold room at the house that enables them to store food because the nearest city is over two hours away. The kids have little friends in the area, and they are not used to the city life. Their mom takes them on trips, both nationally and internationally, so they can see other environments, but it used to worry Mr. Daidone that not having much exposure to the city, the sea, and people in general, and therefore considering that lifestyle as “exotic”, would make them look down on the country life and not want to take care of the company later on. This is something that only time will tell.

Mr. de la Rosa is a Dominican businessman who owns a plant that processes organic and kosher cocoa in Guazumal, Tamboril. His company is called Chocolate Antillano. He and the author had conversations in person on two occasions: January 8, 2014, and July 23, 2015. They have since spoken a few times via telephone and e-mail.

Mr. de la Rosa has been in the cocoa business for over 50 years and has plenty of knowledge and experience that he was happy to transmit to the author. He gave the author a tour around a small cacao plantation he has at the back of the factory, and exposed her to the world of chocolate. He also gave her a tour of the plant and explained the whole process, which was explained earlier in Chapter II. In his case, Mr. de la Rosa buys the cacao beans from local producers and then processes them for export. The size of each batch depends on each client’s requests. Because the chocolate business is so secretive, some companies buy the unaltered dried beans, others buy the nibs, some buy the liquor, and others the butter, or the powder (natural or alkalized).
Mr. de la Rosa and the author talked about agriculture, the organic and kosher certifications, processing, machinery, packaging, exports, and business in general. He specifically illustrated the cyclicality of the fruit business in general, and more in detail related to the candy business. He said “it has been proven that candies are sold less during the summer because people have fruits, so they get their sweet tooth satisfied with fruits instead”. This causes the demand curves of both chocolate and fruit to change with the seasons.

Demand for processed products derived from fruits (i.e. jams, chocolate, preserves, candy) falls during the summer due to the accessibility of fresh fruits. However, to reap the most reward from the harvest, prudent businessmen can create processed products, thereby cashing in when their demand rises. Additionally, the case of seasonal demand needs to be taken into account: people usually bake and make a larger amount of desserts for the Holidays at the end of the year than at any other time. Hence the importance of adding value to fruits, and transforming them into other products that can be used nationally, and internationally, while improving the current Dominican situation.

An issue that concerns Mr. de la Rosa is his age: he is in his early 80s and has two grown children, neither of which has an interest in taking over the company. He has been trying to sell the plant for a few years now without success. The installations and machinery are not new or state-of-the-art, but the mill still processes the cacao beans without a single problem, and in a way that is approved by his clients and the countries they belong to.

At the time Mr. de la Rosa was considering not renewing his organic certification for many reasons: it was becoming difficult for him to keep track of the smaller growers, he
did not want to go through the certification process again, and he did not consider the price premium worth the trouble. He did wish to keep the kosher certification however, because Jewish clients made up a considerable portion of his sales.

In the past three years, new powerful investors have been entering the cacao business in the country, and there are already three major established players: Rizek, Munée and Cortes Hermanos. The biggest new one is the Vitienes Group, who inaugurated Hacienda Ambrosía in 2015. This can mean good or bad news for small growers depending on whether the bigger players buy from them or not, and whether they can maintain the quality on their own.

Mr. Anselin, who is the owner of Mangos de Matanzas, is a French natural who moved to the Dominican Republic over a decade ago. He acquired a large amount of land that is now planted with diverse kinds of mangoes. The mangoes are grown mainly for export, but the company also sells locally and adds value to the fruits by drying mangoes and bananas, and selling them as snacks. Additionally, Mr. Renaud owns the packaging plant mentioned earlier that other people are able to hire.

The researcher visited Mangos de Matanzas on April 2, 2014. Mr. Renaud gave her a tour of the land and they talked about the different kinds of mangoes, the conditions under which agriculture is handled in the country, the intricacies of exports, packaging, the local market, and family businesses.

One of the issues he pointed out about his specific area is water management. The government has built water channels so farmers can have water for their crops, for which they are supposed to pay a fee. The government has instituted a maximum amount of
water that each land can take so that everybody in the community has enough water, but it is uncertain whether this measure is respected.

Mr. Renaud has four children, none of which has shown a desire to continue the legacy. This poses a problem because the only other way to keep the production alive is by selling the land, which has been on the market for years without results.

Mr. Renaud lives in Santo Domingo and travels to Bani everyday for work. At the stage in life in which he finds himself, this becomes tiring. He explained that his company’s is a common situation because agriculture takes a lot of effort and attention, the profit margins are low, production takes time, and younger generations have other ways to grow a career and make money faster. City people consider that it takes almost craziness to get involved with agriculture these days. He also stated that the packaging plant and the services that add value to fruits are more profitable than production itself, and require less time and effort.

Introducing new processed products to the market requires business skills and knowledge: the new product has to be appropriately presented (i.e. packaged in an attractive way), marketed, advertised, negotiated, and distributed. Selling perishable products also means that whatever is left on the shelves of retailers is sometimes the producers’ responsibility. It is not often that someone in the Dominican fruit sector possesses the skills to handle a product launch and success. Logistic and transportation are sensitive subjects too, especially in terms of exports when union truckers need to be hired.

When talking about exports, Mr. Anselin talked about a Japanese client who once sent a representative to his plant to stay there for six months teaching his employees
exactly what kind of mangoes they wanted. Due to cultural perception and customer preferences, each country has its own criteria list that fruit products have to meet. For example, Japanese people like a specific kind of mango called Keitt. Each mango has to be a certain size and present a specific combination of red and green. This limits the quantity of mangoes that can be exported by a large percentage. The ones that do not meet the criteria are either sold nationally or processed (in his case, sun dried). Because shipments by sea take 30 days to get from the Dominican Republic to Japan, mangoes have to be sent by air so they retain freshness; this limits quantity as well.

Additionally, exports are very sensitive to information: Japan was not accepting Dominican mangoes until 2009 because the Japanese authorities thought the country did not meet their food safety conditions. In order to fix this, the Dominican government invited Japanese representatives to the country so they could confirm that the country did, and that is when the borders were opened for this fruit. The United States also put a stop to mango export at one point because of lack of hydrothermal treatment plants, which Dominican mango exporters now use. Most of these problems can be fixed through communication and use of the appropriate technologies, but the closing of borders is a risk that all exporters face, especially in underdeveloped countries because the rest of the world is always afraid of pests and diseases coming from these nations.

Mr. Anselin also shared some stories about cases in which drug has been planted in shipments. He said “government institutions have tried to prevent this by creating new seals and marks used to signal whether the doors of a container have been opened between the point of shipment and the port, but people who want to do harm always find new ways to work around the law”. At the time of this interview he said “people who
want to plant things in shipments are sliding the doors of the containers upward without having to break the seals”.

One thing that these three interviewees have in common is the belief that it takes some craziness to get involved with agriculture. All of them want to see the people around them progress as well. They believe it is possible to improve the conditions in the Dominican fruit sector, but they all agree that it requires a lot of motivation, respect for the Dominican culture, and self-reliance. Finally, they are all facing the same situation when it comes to handing over the company to the next generation: the younger generation is not necessarily interested in keeping it.

Mr. Simon Fernandez Sr. and Mr. Miguel Salas, who are president and analyst, respectively, at the Santiago branch of the Dominican Republic Centre of Exports and Innovation (CEI-RD for its name in Spanish), were of big help in explaining the whole export process to the author. The visit to this office took place on July 14, 2015. The researcher and Mr. Salas had a lengthy conversation during the interview about how fruit exports work in the country. Mr. Salas later sent her extensive information about the requirements that the U.S. and the European Union (EU) have for the D.R. fruits. He said that the CEI-RD is actively working in the country to help farmers and businesspeople export more. They are doing workshops, informative sessions, and conferences about the subject, most of which are free of charge, to give people the information and guidance they need to begin exporting.

Mr. Salas explained that, often times, people have the desire to export, but obtaining certain certifications or the approval of the USDA and the EU can be costly and time consuming. Many people in the Dominican fruit sector either lack the resources to go
through these processes, or they simply give up when realizing all the requisites they have to meet.

While in Georgia, the author visited several farms and supermarkets with the goal of comparing the fruit supply chain in both countries. Just by observation it can be noticed that the people in the United States consume first the fruits that are grown in their country, and then supplement the offer with fruits from abroad that do not grow in the U.S., and those that have been imported because they are no longer in season there. For example, avocados are imported while peaches, apricots, nectarines, and apples are all from the U.S., and more specifically, from towns surrounding the supermarkets, in this case Ellijay and other towns nearby. Apples are imported from other areas when they are out of season in Georgia to meet demand.

Mr. Gene Viñez is the co-manager of store operations at the Ellijay store of Ingles, a supermarket chain that covers North Carolina, South Carolina, Georgia, Tennessee, Alabama and Virginia. The researcher interviewed him to find out what fruit products the company buys, where they get them, how they distribute them, the credit terms the company negotiates, the new trends they have noticed in the fruit sector, and the main issues along their fruit supply chain.

Ingles sells fruits from all over the world, giving special attention to local growers. Ingles imports fruits mainly from Mexico, Chile, Argentina, and Costa Rica. The processed fruit product that Ingles buys the most is canned fruit, mainly from Dole, Del Monte, and Libby. The company has its own white brand called Laura Lynn, and processes fruits like watermelons, blueberries, strawberries, mangoes, cantaloupe, kiwi and honeydew, selling them in the 205 stores it has. Additional to processing at the Laura
Lynn’s facilities, the company processes at the store level, and also hires other companies to process fruits exclusively for Ingles. Mr. Viñez said the company perceives higher profits from sales of processed fruit products than of fresh fruits, and their highest profits in this segment come from sales of cut and packaged fruits, which are processed at store level.

All fruit orders are placed to the headquarters in North Carolina. The offices there then source the product from their suppliers and distribute them to the stores. Fresh fruit orders are placed by the store two to seven days in advance, and processed fruit product orders are placed two days in advance.

In regards to new trends, Mr. Viñez said “we are selling more and more organic fruits (and) we are getting more and more of a variety of organic products”. The demand for processed fruit products has increased recently too. In the same way, “more and more people are looking for non-GMO fruits”.

When asked about the steps of their fruit supply chain and the issues they face, Mr. Viñez said that the biggest issue they face in logistics is “weather (conditions) affecting availability, and (availability of) drivers to transport”. Because fruits are a perishable and sensitive product, coolers are used to extend freshness in all steps of the supply chain. The stores process the fruits that do not look appealing to customers due to scratches or bruises, as well as those that are getting too ripe to be sold. He also said that it is imperative for the company to “keep in good standing with (the) growers”, which is noticeable given the infamy that big supermarket chains have as powerful buyers who bully small providers.
Looking at the information provided by Mr. Viñez it is realistic to say that a Dominican person or company wanting to export fruits to the U.S. would have to make sure their product is in optimal condition so it retains freshness until it arrives to the point of sale to the consumers. It can also be said that the fruits that will garner most interest will be the ones that cannot be found in the specific area to which they are exporting. This would be an easy added value given that the D.R. is a tropical island and tropical fruits do not grow in cold zones. Of course, there would be little value in exporting strawberries from Constanza to the U.S. unless there was a shortage of this fruit. However, pineapples, dragon fruits, and bananas, for example, are fruits that are not grown in Georgia that Dominicans could export there.

It can also be said that it is very attractive for American companies to buy processed fruit products from abroad: their profits are higher, they do not have to worry about the fruits arriving damaged or keeping them cold, and processed products last longer. This presents an opportunity for the Dominican people to add value to those fruits that could be hard to export due to their soft exterior or climate needs, as well as those that do not meet the physical appearance criteria to be exported.

R&A Orchards is one of the main producers of fruits in Ellijay. As explained in chapter II, R&A is the only orchard in Ellijay that remains open year-round. With their diversified crops, and variety of processed fruit products, they are able to sustain a business that otherwise would be seasonal.

The main lessons learned through the conversations with the Futch Reece family and the visits to their business are:
❖ Diversity is a necessity if the company does not wish to be affected by seasonality.

❖ Quality is what will keep the business ahead of the competition, and what will ensure sales.

❖ If the family wishes to keep the company among the relatives, the kids need to learn to love the land as babies. The business has to be their life because agriculture is a full-time job, and it requires a large amount of work, attention, and care.

❖ It is a good idea to rely on touristic activities for additional income, such as mazes, tours, photos tours, and many others that attract people to the business. These turn into fruit sales as well.

❖ Going against the flow and what is common in an area is not necessarily a bad idea. R&A is considered the most profitable of all orchards in Ellijay. Additionally, they have little competition outside apple season because no one else dares to follow them and remain open the rest of the year.

5.2 Supporting Research

During the time spent in the Dominican Republic and Georgia many observations were made that supported the information given by all interviewees for this paper. One particular observation that caught the researchers attention was that workers seemed happier when working for someone who takes pride in treating them well. For example, at SAVID employees smile and make jokes, especially when they are not aware that people are looking. At Mangos de Matanzas, it was easy to notice the workers’ desire to do a good job by paying attention to detail. When reading about Finca 6 it is evident how
the lives of the landowners and their families have changed since SAVID started buying their bananas.

When traveling around the Valley of Constanza, and the Valley of La Vega Real, different scenes could be appreciated; some people looked tired of working. It is easy to tell how hard it is for their bodies to continue working the land, especially during harvest season, but most small farmers have no other means to provide for themselves.

In Santo Domingo, the researcher drove around the street markets in Calle Duarte to see the scene. Fruits are sold there everyday under the shining, tropical sun. The fruits are usually displayed in wooden boxes or on top of pickup trucks, and are generally sold at lower prices than in the supermarkets, although the price depends on what the seller says it is and whether the client negotiates it or not.

Also in Santo Domingo, TerraVerde used to set up a small organic market every Saturday at a mall called Galerias 360. TerraVerde owners are a family of brave people who are trying to go against the flow in the country. They own a farm in which they grow a variety of crops certified organic by organizations in the U.S. and the European Union. Terra Verde opened a small store in the city in January 2017. At the store they offer processed products that they manufacture with the fruits and vegetables that are not sold during the Saturday markets, such as salsas, preserves, and seasonings. Saturday markets are also operated at the store now instead of at Galerias 360.

TerraVerde’s business model constitutes an innovation in the Dominican market because (1) people are not used to buying produce outside of supermarkets unless it is at the street markets, where prices are lower instead of higher (which is the case of TerraVerde products), (2) most Dominican consumers do not discriminate between
organic and inorganic products, and (3) the company is betting on the health & fitness trend\textsuperscript{7} in Santo Domingo, and leveraging it to educate the people who can afford their products on why organic is better and worth the price premium.

Secondary data was used throughout this paper to support or contradict claims made by interviewees, observations made by the researcher, and the information laid out in this chapter. The notes sent by Dr. Jonathan Turner about his works with the value chain and Nestlé prepared the researcher to think critically about the supply chain while conducting observations, and to undertake the challenge of writing this paper.

5.3 Suggested Solutions

Based on the information laid out in Porter’s Diamond of National Competitiveness, and the findings explained in the previous section, the author proposes the following solutions to the problems encountered in the Dominican fruit supply chain, which have been classified by category:

a) Infrastructure: the Dominican government needs to invest in infrastructure for the fruit sector to progress. The lack of direct routes, paved roads, water supply, power supply, and telecommunication increase the cost of production for the farmers.

Because fruits are sold at market price, a high cost of production places certain growers at a disadvantage compared to others that may have access to one or several

\textsuperscript{7} The health & fitness trend, as the author calls it, is a trend that started taking place in the D.R. around 2009, after the Insanity workout was released and became famous among young people in the country, followed by yoga, pilates, and crossfit workouts. The trend peaked in 2014, specifically in the capital city of the country: Santo Domingo. Young women who were studying abroad returned to the country, got certifications as different kinds of nutrition coaches, and started selling cold-pressed juices and healthy meals at high prices to attract a high-class, high-profile clientele that could afford (and wanted) to be continuously enrolled in fitness programs. Simultaneously, the providers benefited from their customers’ high profiles, increasing brand awareness. Advertisement through the use of social media, accompanied by word-of-mouth, created a boom that was still going as this study was written. The main player is Vita Healthy & Fit, founded by the then 21-year old Dominique Barkhausen.
public infrastructure facilities. High costs of production mean less profits for the farmers who are already struggling and less national competitiveness against other nations that do invest in agriculture and infrastructure, which represents a threat for national sales against imports, and for international sales against those of other countries with lower costs. Additionally, the presence of infrastructure in rural areas would attract supporting industries, such as supermarkets, banks, telecommunication companies, and supply distributors, increasing the impact of the profits perceived by the farms and their workers through its investment within the community, therefore generating progress.

Health and education are two key drivers that the Dominican Republic is lacking. The U.S. Bureau of Western Hemisphere Affairs said:

The Dominican Republic has registered the fastest economic growth in Latin America during 2014-15 with low, stable inflation. Nonetheless, income inequality remains high and the country faces some considerable obstacles to sustaining such robust growth over the long term, including the poor quality of the country's education system, the inability of the health system to adequately respond to the population's needs, and severe inefficiencies in the energy sector.

One way to ensure the D.R's continued economic growth is to invest in small hospitals or urgent care facilities and the improvement of schools in the countryside. These schools should offer agriculture, English, bookkeeping, and business lessons since people begin working at a young age in agricultural communities. Besides, if
the problem of migration to urban zones and of generational transfer is to be fixed, the younger generation needs to learn how to take care of the land (and the family business) early on.

b) Adding Value: growers and investors should focus on adding value to Dominican fruits. The simplest, most basic way to do this is by making sure they are growing quality crops, by growing fruits that look attractive and are full of flavor, and by leveraging the characteristics of the fruits grown in the Caribbean, specifically on Dominican soil. Another way is by transforming the presentation of the fruits by cutting, sun drying, dehydrating, or turning them into juice. An alternative would be to transform the fruits into a new product by turning them into compote, jam, marmalades, preserves, butters, salsas, seasoning, oils, ales, wine, etc. Canning is another option, as is taking a part in the manufacturing of flavors, scents, and extracts. Seasonality, the different harvest times around the world, and fluctuation in prices according to the changing political and natural situation in other nations should be studied and taken advantage of in order to increase sales nationally and internationally.

c) Make the Champions Shine: chocolate is a desired good in the world that tastes differently depending on where it is grown, giving it an intrinsic differentiating factor. The Dominican Republic is fertile for cacao. The Dominican cacao is desirable to manufacturing companies. The country has already established itself as the number one exporter of organic cacao in the world. Why not make it better? There are people and companies with the resources to not only grow quality raw material, but to actually manufacture good chocolate – luxury chocolate, as opposed to what
Dominican companies are making at the moment. Not taking advantage of resources like these is what prevents progress from rocketing. On top of the previously mentioned ways in which cacao is currently being sold, there are many other elaborate products that can be made with cacao beans and produced in the country. Below is a list of possibilities, considering that most edible products can be manufactured in three varieties: dark, milk, and white chocolate.

- Cocoa powder, including its use in other goods such as chocolate corn flour, chocolate pudding, ice cream, flavored dairy products or their substitutes, and dessert mixes.
- Solid chocolate, such as chocolate bars and pieces of any kind (e.g. kisses, drops), filled chocolates, coating chocolate, seasoned bars for the making of hot chocolate, etc.
- Liquid chocolate, like syrups.
- Liquors, ales and wines.
- Solid cacao butter for manufacturers, medicinal cacao butter, and soap.

The same idea is applicable to the fruits that only grow in few parts of the world. Exporters have done a good job at differentiating the dragon fruit in Asia, and banana companies have positioned themselves in a very privileged position; there are many more fruits of which Dominicans could take advantage, such as guava, limoncillo, sapote, níspero, and other fruits that are uncommon in most parts of the world, that are rich in vitamins and nutrients, and that present a big opportunity in the national and international markets.
d) Generational Transfer: with an increase in the quality of education, educational programs focused in agriculture, investment in infrastructure that facilitates the development of other industries in the countryside, and an increase in the profits of farmers, it should be a little easier to convince or allure the newer generations to stay in the rural areas and continue the business their parents started. Elevating the agricultural industry as a respected economic pillar, as it should be, through an educational campaign would give growers dignity and pride in what they do, and would motivate their children and investors to look up to agriculture.

e) Union Truckers: as hard as it may be to believe, this is actually one of the hardest issues to fix. The truck drivers union is powerful due to the large amount of men that belong to it. There is little that companies can do to fight them without recurring to large amounts of resources and violence. Whenever the government decides to disassemble the union, insurrection and riots will take place. However, there is no way to continue operating under the current circumstances, especially given corruption and the drug issues. Potentially, the government could create a public transportation system for agricultural goods using the union drivers as workers. Agricultural exporters, especially small farmers, could (and probably would) access it if it is a reliable, transparent system. It is unlikely that this would work due to corruption, unless said system were decentralized, or maybe if part of the investment were private. Regardless, it is an idea that could work if the desire exists from the government and the people. No matter what, the union truck drivers need to be dealt with because they are sabotaging business, and affecting the country’s competitiveness.
f) Container Seals: customs and governmental institutions need to come up with ways in which to properly seal the containers so that third parties are not able to plant drugs in clean shipments. A special reusable lock for the sides of the container doors is a potential solution.

g) Dominican Republic “Brand”: the Dominican government, the exporters, and farmers in general should focus on building a brand for the country that communicates quality. If people, both inside the country and outside, perceive Dominican fruits and fruit products as good, delicious, safe, and alluring, they will want to buy more. A successful Dominican Republic “brand” will motivate Dominican residents to prefer local fruits and fruit products to imported ones because they will stop assuming that everything that is made abroad is better than what they can make themselves. Furthermore, Dominicans exporters should leverage the extra, special flavor of the fruits grown on their land. A successful Dominican brand abroad will attract consumer to the exotic of the Dominican products they are not able to grow in their countries, without being afraid of their origin. This will help reduce the risk of borders closing for Dominican products due to misinformation.

h) Joining the Little Guy: currently, investors are trying to buy the small farms to build larger ones that they can optimize for larger, and more feasible, exports. Buying farmers out hinders progress in the country. Why not buy the farms but keep the owners to manage them? Or why not follow the example of SAVIS: let the farmers keep their lands, while demanding they follow certain practices, and selling the products under one brand? From a business perspective these plans of action may seem harder to follow than simply buying all the land, and having one management. It
almost sounds like putting social good above profit, which is not often the most attractive of the ideas for investors. However, keeping the owners and having them follow certain good practices means less money is needed for the initial investment, less people need to be hired, and less time needs to be spent in figuring out how the new business will operate. The farmers know their land, and if they agree to the deal, they are agreeing to the terms. As much as change can be hard, Dominican farmers can be convinced to forgo their pride if they see the potential of a better life for their families. Investors, on the other hand, would incur less risk than if they owned everything, and can make their profit with related services and large sales.

i) Attracting the Experts: certain non-governmental organizations (NGO’s), foundations, academic institutions, and governments alike have projects for the development of third-world countries. They have the financial and human resources, the know-how, or both, to improve bad circumstances in their area of expertise when a country is in need. If institutions like the UN, Plant with Purpose, USAID, and many others appreciate that there is a willingness to improve the fruit sector conditions in the country and create progress, they will help. Plant with Purpose, for example, is, per their Website, “a Christian development organization that transforms lives in rural areas around the world where poverty and environmental degradation intersect. We equip impoverished farming families to change their circumstances, provide for their children, and live with God-given hope and dignity. We do this through sustainable agriculture training, land restoration, savings-led microfinance, church mobilization, and local leadership development.” This is one of the many institutions that exist in the world that are willing to help, but they can only do
something for those who are willing to be helped, and starting a progress revolution in the country would motivate people to do better and accept change.

j) Growing Organically\(^8\): the author does not intend to suggest that all plantations are turned organic from one day to the next; nor does she wish to hint at growing everything organically, but the demand for organic fruits is growing around the world. Organic production requires less financial resources in a country like the Dominican Republic, and there is already precedent that indicates it can be done with little training (remember Finca 6). Banana crops, despite having been victim of many plagues, are still grown organically in the country. It is a fact that many other crops could be grown organically too, translating into more attractive products for consumers abroad, higher sales, and certain price premiums. As stated in the SAVID’s Website, “the organic market is one of the country’s fastest growing agriculture segments, as demand for its products is increasing in Europe and in some areas of the United States.” It is time more farmers start taking advantage of this.

k) Free-Trade Agreements: the Dominican Republic has signed many free-trade agreements with other countries over time; CAFTA-DR. is currently the most important one. As stated before, the D.R. imports more than it exports through this agreement, which has a toll in the Dominican currency due to a deficit in the balance of trade. The author does not have a stand against or in favor of D.R. signing more free-trade agreements, but it would be counterproductive for the purposes of developing the fruit sector in the country for the government to motivate imports of

\(^8\) The Organic Trade Association defines organic agriculture as “an ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on using minimal off-farm inputs, and on-management practices that restore, maintain and enhance ecological harmony. (…) Organic agriculture puts the focus on improving soil fertility through the use of mineral and natural fertilizers, and enhancing biological cycles for natural insect and disease control.”
food products, especially in cases where local products end up in a disadvantage compared to the imported ones. The nation has to take advantage of the existing agreements and export more so its currency can be strengthened, its production increased, and its competitiveness improved. Farmers, processors, and investors in general in the fruit sector should take advantage of the lower or non-existing tariffs during free-trade periods to import machinery, and to improve their facilities.

1) Politics: corruption, instability, secrecy, violence, drugs. These are all characteristics that describe the current political situation in the Dominican Republic. In order to attract investors with good faith, the country needs to create a more transparent environment where bribery is punished without exception or impunity and the details of government deals are published. The police force needs to be cleaned up so its members are people with integrity on which Dominican residents can rely, and by which they feel protected.

   Violence has increased in the Dominican Republic in recent years. While there have been coordinated efforts to address corruption, improving transparency is a priority in order to consolidate the country's democratic gains.

   U.S. Bureau Of Western Hemisphere Affairs (2017)

   Likewise, the Dominican government needs to stop allowing the use of arable land for purposes other than agriculture. The permits are usually issued under corrupt pretenses, including the fulfillment of political favors or bribery.

   Despite the stable macroeconomic situation, significant systemic problems remain in the Dominican Republic. Foreign investors cite a lack of clear, standardized rules by which to compete and a lack of enforcement of existing rules. Complaints include allegations of widespread corruption, requests for
bribes, delays in government payments, weak intellectual property rights enforcement, bureaucratic hurdles, slow and sometimes biased judicial processes, non-standard procedures in customs valuation of imported goods, as well as product misclassification as a means of negating CAFTA-DR. benefits and increasing customs revenues. Weak land tenure laws and government expropriations continue to be a problem, though less so than in previous years. The Dominican authorities have carried out some reform efforts aimed at improving transparency, especially fiscal transparency. Nevertheless, corruption and better implementation of existing laws are openly and widely discussed as key public grievances.

U.S. Bureau Of Western Hemisphere Affairs (2017)

m) Fair Trade: the author really believes happy workers yield better results than unhappy ones, and that happy workers get involved into less personal problems than others – or at least they prevent their problems from getting in the way of good work. Paying workers a fair amount of money for their energy and time has the potential of improving the quality of life they lead, and to generate progress in the communities where they reside. As a bonus, fair trade is also a recognized international certification that sends a positive message about the company to consumers, making them more likely to purchase the products offered, and sometimes translating into a price premium that clients are willing to pay to ensure the welfare of workers.

n) Financing and Training: there is a need that financial institutions, not-for-profits, NGO’s, and any other interested party can meet regarding the lack of financial resources and intellectual knowledge in Dominican fruit farming areas. Small and medium-sized farmers need money to invest, and most importantly, they need the
knowledge necessary for that growth to happen. They need programs that help them learn how to improve quality of the crops, how to distribute more efficiently, how to keep records, how to obtain certifications, how to launch or market a product, how to export, how to manage and reinvest their profits, how to prepare for natural disasters (like the recent hurricanes Irma and Maria, which affected the country while this paper was being written), and how to pass the business to the next generation, just to name a few topics. The author suggests, and encourages, anyone who can play a part in improving the farmers circumstances to do so, because there is a market with potential for growth.

o) Tax Havens: in order to discourage the use of tax havens by big companies, the Dominican government could structure ways to benefit those who use their profits in ways that further advance agriculture and production in the country. For example, the country could postpone or reduce the tax rate payable by companies or people who use the year’s profit to invest it in arable land for agricultural purposes, or who start or finance an agricultural business of any kind.

p) Cooperatives, Associations, Clusters: small farmers need to join forces with other people in the industry to make growth happen faster. There are important potential benefits in hiring services as a group, such as reduced transportation costs, or ensured cleaning of the land, even rotational personnel if two farms have harvest times during different times of the year but can benefit from using the same personnel (compliant of all labor laws in the country). Small farmers could also benefit from aggregated business knowledge among the members of an organization, an extended network, increased pull in front of the government and other organizations, and many other
opportunities that arise when people have a common interest and work together to attain it.
CONCLUSIONS

The Dominican Republic has the potential to become self-reliant and improve its economic conditions through the strengthening of agriculture, and more specifically its fruit sector. Hunger is one of the most basic human needs, but Dominican farms are going out of business due to lack of resources and people interested in taking care of the crops, which puts the country at risk. In order to prevent a future crisis it is imperative to figure out a way for farmers to retain larger profits, and to encourage the younger generations to stay in the countryside to work the land.

The Dominican government needs to pay more attention to the agricultural industry. Agriculture needs to be elevated and protected. An increase in fruit production would lead to more Dominican fruits and fruit products on the supermarket shelves, creation of jobs, potential reduction of imports, and a growth in exports that would help balance out trade, strengthening the Dominican peso and the nation’s economy.

Dominican farmers who grow fruits organically usually have to accept regular prices when selling their products locally, but that is not the case abroad. The fact that they are used to growing crops this way places them in a competitive advantage compared to farmers from other nations who export the same products grown in a conventional manner.

Enhancing productivity is necessary to raise prosperity. Nevertheless, for growth in fruit production to take place two main changes need to happen: (1) farmers need to increase the quality of the fruits they produce and add more value to them, and (2) the government needs to support the fruit sector by providing it with infrastructure, education
programs, and a new tax or incentive structure. Both of these changes are hard; they require action from farmers that lack knowledge and a government founded in corruption. However, change is not impossible.

An increase in quality and exports would lift the image of the Dominican fruit products both nationally and internationally. This would in turn reduce the risk of international borders closing to Dominican products due to misinformation. Nonetheless, this requires farmers to maintain consistent quality in their products, innovation, and constant upgrade.

Provided the Dominican government improves the education system in rural areas, fruit productivity grows, and farmers retain larger profits, the newer generations will start paying more attention to the fruit sector. This would make the children of fruit farmers more likely to be willing to keep their land.

Porter’s Diamond of National Advantage was used to critically analyze the case of the fruit sector in the Dominican Republic. (a) The country meets the factor conditions by having arable land, a large amount of people that could work in the sector, and a wide variety of fruits to be marketed. On the other hand, it lacks an effective primary education system and proper infrastructure. (b) On the demand side, people do look for fruits in the supermarkets, but not many differentiate between organic and inorganic. Additionally, the offer of imported fruits is so strong that newer generation are unaware of the large diversity of fruits that their own land offers. The demands of sophisticated consumers will make growers better as they take their products to market, preparing them to have a competitive advantage abroad. Finally, there is a strong enough market for new farmers
to enter the game, where their main competition will be against low-cost imported products that they could potentially beat with higher quality and the diversity advantage.

In terms of (c) related and supporting industries, cooperation among industries and farmers can lead to innovation, growth, and an increase in sales and profits through value added. There is already collaboration among different industries, and this scenario is likely to grow as the fruit sector does. Lastly, (d) firm strategy, structure, and rivalry in the country are reasonable except for the fact that corruption is very much present in everyday life. This creates problems for small (potentially new) companies to compete with the established giants in a certain industry. However, by being innovative and disruptive new fruit farmers or businesses can find their own niche and compete in the sector. The formation of cooperatives and other kinds of associations can also contribute to the growth of small players. A point needs to be made that government must intervene in situations where the welfare of businesses is being threatened, like is the case with the actions of trucker unions; these only hinder progress and transmit a degrading image of the nation. It is clear that if the government were not corrupt and the creation of new companies were less expensive the business environment in the country would be more prone to prosperity. Until changes take place (if they ever do), the fruit sector players need to find ways to succeed regardless.

One key to incentivize interested parties to innovate and thrive is providing Dominican fruit farmers with knowledge, infrastructure and financial resources to grow. There are multiple organizations worldwide willing to help them. It is a matter of will, of contacting them, and of the Dominican government paying more attention since many farmers ignore the possibilities available to them. If the world sees a desire to improve, to
make the fruit sector better, the international community will provide aid to the nation. Still, as the 2016-17 Global Competitiveness Report stated, “money is not enough if an economy is not competitive”, so progress will require work from both farmers and government to fully take place.

Most importantly, as argued in this paper the best way for people in the Dominican fruit sector to increase and retain their profits is by adding value to the fruits they produce. Expanding the fruit and fruit product offer, improving quality and presentation of products, selling fruits at their optimal point, processing fruits to create finished products, taking advantage of seasonality abroad, and getting the fruit products certified are many of the ways presented in this study in which Dominican participants in the fruit sector can add value to their offer. Treating employees well will generate progress in the areas surrounding the farms and will translate into local prosperity, and later a competitive advantage for the country as new businesses evolve and the D.R. gains a stronger image in the minds of both its residents and those of other nations.

In terms of predicting exports, based on the example conducted with cacao, the best option would be to take futures prices as a predictor of what the value of exports will be (accompanied by current production levels, and the investment scenario). The political scene of cacao producing countries, and natural disasters are the main drivers of price changes in the cacao industry, even more so than production. It is also the case that which countries a nation chooses to sell to depends more on the business relationship between the two parties than on wealth or distance. It is extremely important for the Dominican community to keep track of agricultural production and exports in order to improve the agricultural sector, reduce risks, and attract investment.
A catalyst in the agricultural sector can spur economic growth that the Dominican Republic desperately needs. Said growth, supported by increased efficiency, will lift the country and provide its citizens with an improved quality of life. The fruit sector is that catalyst. Farmers, government, investors, and business people in general need to step up and reap the harvest of a country that is ready for picking.
RECOMMENDATIONS FOR FURTHER RESEARCH

This paper studied the Dominican fruit sector as a whole, giving an overview to the reader of the conditions under which it operates. Despite all the information laid out in chapters II, III and V, and the suggested solutions to the issues found along said supply chain, there is still plenty of additional research that could be conducted to enhance the findings presented here.

Examination of other agricultural sectors (like vegetables), scrutiny of the fruit sector by focusing on a specific Dominican fruit, quantitative analysis, construction of economic models, socioeconomic research, economic policies, and import/export laws are other areas that could be considered for supplemental study. These would help the Dominican government further realize the urgency of the change that is needed, and would provide additional information to third parties (e.g. NGO’s, not-for-profit foundations) that would like to aid Dominican farmers progress.
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