NTNU

Norwegian University of Science and Technology

Master's degree thesis

AM521413 Mastergradsavhandling - disiplinorientert

An Analysis of demand for Norwegian salted & dried cod in the Dominican Republic

Candidate number: 10009 & 10011

Number of pages including this page:121

Aalesund, 06.06.2017

Mandatory statement

Each student is responsible for complying with rules and regulations that relate to examinations and to academic work in general. The purpose of the mandatory statement is to make students aware of their responsibility and the consequences of cheating. **Failure to complete the statement does not excuse students from their responsibility.**

*Please complete the mandatory statement by placing a mark **in each box** for statements 1-6 below.*		
1.	**I/we herby declare that my/our paper/assignment is my/our own work, and that I/we have not used other sources or received other help than is mentioned in the paper/assignment.**	☒
2.	**I/we herby declare that this paper** 1. Has not been used in any other exam at another department/university/university college 2. Is not referring to the work of others without acknowledgement 3. Is not referring to my/our previous work without acknowledgement 4. Has acknowledged all sources of literature in the text and in the list of references 5. Is not a copy, duplicate or transcript of other work	Mark each box: 1. ☒ 2. ☒ 3. ☒ 4. ☒ 5. ☒
3.	**I am/we are aware that any breach of the above will be considered as cheating, and may result in annulment of the examination and exclusion from all universities and university colleges in Norway for up to one year, according to the Act relating to Norwegian Universities and University Colleges, section 4-7 and 4-8 and Examination regulations .**	☒
4.	**I am/we are aware that all papers/assignments may be checked for plagiarism by a software assisted plagiarism check**	☒
5.	**I am/we are aware that NTNU will handle all cases of suspected cheating according to prevailing guidelines.**	☒
6.	**I/we are aware of the NTNU's rules and regulation for using sources.**	☒

Publication agreement

ECTS credits: 30

Supervisor: Trond Bjørndal

Agreement on electronic publication of master thesis

Author(s) have copyright to the thesis, including the exclusive right to publish the document (The Copyright Act §2).
All theses fulfilling the requirements will be registered and published in Brage, with the approval of the author(s).
Theses with a confidentiality agreement will not be published.

I/we hereby give NTNU the right to, free of charge, make the thesis available for electronic publication: ☒**yes** ☐**no**

Is there an agreement of confidentiality? ☐**yes** ☒**no**
(A supplementary confidentiality agreement must be filled in and included in this document)
- If yes: **Can the thesis be online published when the period of confidentiality is expired?** ☐**yes** ☐**no**

This master's thesis has been completed and approved as part of a master's degree programme at NTNU Ålesund. The thesis is the student's own independent work according to section 6 of Regulations concerning requirements for master's degrees of December 1st, 2005.

Date: 06.06.2017

Preface

After two years of our Master of Science program in International Business and Marketing at NTNU Ålesund, we can look back on an exciting and educational time. This thesis represents the end of our education, and the work related to this has been challenging, interesting, and a great learning experience. The chosen research topic is based on our personal interest and the great success the fishing industry is experiencing these days. We are lucky to find ourselves in the middle of this industry, and this has been a great help to us during this learning process.

There are many people who have been involved and helped us during this process. First, we would like to thank all exporters and importers for providing us with valuable information in the qualitative part of this study. A special thanks to Tor Helge Valderhaug at Cod Export who assisted us with their agent, Axel Hendrich, in Santo Domingo. Axel's contribution, openness and help during our fieldwork in Santo Domingo, was highly valued. Secondly, we would like to thank SUROFI and Norges Råfisklag for the grant, which gave us the opportunity to conduct our fieldwork in Santo Domingo. Finally, we also would like to thank our friend Ole Jørgen Roth and our teacher Erik Nesset, for excellent guidance and useful advice. We highly appreciate every single person for their help in providing the necessary data and information to carry out our research.

Most importantly, we would like to express our deepest gratitude to our supervisor, Trond Bjørndal. His expertise, constructive feedback, and knowledge within this topic has been very helpful writing this thesis. He has also provided us with the quantitative data which has been a great help to finish this thesis.

Katrine Oline Istad Nesset, Hanne Gjendem Haahjem

Aalesund, June 2017

Abstract

The objective of this study is to examine the Dominican market for salted & dried cod, by presenting an analysis of demand for this product from 1988 to 2015. Additionally, the study investigates how demand for slated & dried cod influences the Norwegian companies´ current and future market position. Finally, it examines whether Country-of-Origin (COO) has an effect on Dominican consumer choice. Data collection is triangulated through the use of both quantitative and qualitative methods. An OLS model was used to identify income, own and cross-price elasticities of demand in addition to 11 in-depth interviews to test the proposed framework. The findings indicate that the market is price and income sensitive, i.e. changes in price and income has a significant effect on demand. This is confirmed both in the qualitative and quantitative analyses. The Dominican market is currently dominated by Norwegian companies who have approximately 98% of the market. Future prospects indicate increased competition from China, due to an increase in national wealth. Furthermore, COO is found to have no effect on consumer choice.

TABLE OF CONTENT

List of figures and tables

List of pictures

1.0 Introduction

Fisheries have long traditions in the Caribbean and have a central role in the food economy of the different countries in this area, particularly in the Dominican Republic. However, the Dominican fishing industry is poorly organized and the supply of fresh fish for domestic commercial use is very unstable. There is no production of salted & dried cod in the Dominican Republic, even though there is a long tradition of consumption of this product. The country has the second largest consumption per capita of salted & dried cod in the world (Seafood, 2017). Salted & dried cod is well suited for the Dominican market due to the product's ability to handle the tropical climate as it is not dependent on being kept in cool storage. This is important because the Dominican population often lack electricity or experience frequent power black outs. Data show that 98% of all salted and dried cod imported by the DR is supplied by Norway. Two other countries, China and Canada, also export this product, but have only minor market shares and use different types of white fish to that used by Norwegian producers. The Norwegian product is made of saithe, the Canadian product is made of Pollock and Hake and the Chinese product is made of Gadiformes. The trend in recent years, however shows that China has strengthened its position as a supplier in the Dominican salted & dried cod market and could be a potential threat to the Norwegian producers/exporters in the future.

Research Questions

Salted & dried cod is one of the major Norwegian export commodities, and is an industry with which we have a close relationship as we both come from the Sunnmøre region where this industry is of particular importance. This, along with our mutual interest, guided our decision to examine this industry. We chose to investigate the demand for salted & dried cod in the Dominican Republic out of curiosity for a field which very few or none have conducted any research in before. Many of the local companies, export to this market, and we were fortunate to have access to necessary import data from the Norwegian Seafood Council (will be mentioned as NSC) . While there has been little research on the Dominican market for salted and dried cod, there has been extensive research on the Brazilian salted and dried cod market. This study will examine the Dominican Republic market for salted & dried cod by presenting an analysis of the demand for this product in the period 1988 to

2015. This study will also assess markets trends, identify major players in the Dominican market, and compare this to the Brazilian market.

The research questions addressed in this study are:

RQ1: How price and income sensitive is the demand for salted and dried cod in the Dominican market?

RQ2: How can the Dominican demand for salted & dried cod influence the Norwegian companies´ current and future market position in the Dominican Republic?

RQ3: Does country-of-origin have any effect on Dominican consumer choices?

To answer the research questions, this study applies both qualitative and quantitative methods.

Structure

The thesis is organised in the following way: Chapter 2 gives a short description of the Dominican Republic's history, economic development, demographics, and food and culture trends, in addition to an overview of the Dominican market for salted and dried cod and the current Norwegian position in this market. Chapter 3 describes the theoretical framework, and ends with the hypotheses to be tested. Chapter 4 provides a description of the methodologies and the data collected. Chapter 5 presents the results from the quantitative and qualitative analyses. Chapter 6 discusses the findings. Chapter 7 presents some implications and the limitations of the study. The final chapter provides the concluding remarks.

2.0 The Context

2.1 The Dominican Republic

The Dominican Republic occupies the eastern two-thirds of the island of Hispaniola, which it shares with the Republic of Haiti. The country is the second largest in the Caribbean region, with a surface area of 18.704 square miles. Located in the heart of the Caribbean, the Dominican Republic is surrounded by the Atlantic Ocean in the north and the Caribbean Sea in the south (Everyculture, 2014).

2.1.1 A brief history

The Dominican Republic was first discovered in 1492 by Christopher Columbus who named it La Isla Espanola, which later became Hispaniola. In 1496, his brother founded Santa Domingo and it became the Spanish capital of the New World. Because of its location in the trade winds, it was the gateway to the Caribbean. The island was first colonized by Spain, but the development of the sugar industry resulted from a period under French control. In 1844, the Dominican Republic gained its independence after a group of revolutionaries seized power from the Haitian rulers of the Island of Hispaniola. Since then, the Dominican Republic has been ruled by a series of dictators interrupted by only brief intervals of democracy. In 1965, there was a civil war resulting from dissatisfaction with President Donald Reid Cabral and his government. A combination of reformist military and civilian combatants took over the streets, and replaced the President. The United States intervened, under the belief that the Constitutionalists were dominated by communists and that they therefore could not be allowed to come to power (Everyculture, 2014).

2.1.2 Economic development

The Dominican Republic has the largest economy in Central America and the Caribbean, and it is known for its positive attitude towards foreign investments. Their financial sector is strong and the country has a well-organised business community. Geographically, they are located near major markets, and the Dominican Republic is at the center of the Americas. As such, it has signed trade agreements that provide privileged market access to and from the United States, Europe, Central America and the Caribbean. The Dominican Republic's economy is largely based on services, manufacturing, trade, telecommunications, and

constructions. The agriculture and remittance from Dominicans living abroad are also important factors. The agricultural production is mainly sugarcane, with smaller amounts of coffee, cacao, and tobacco. This was the economic backbone until the late 20th century, when the economy became more diversified. The growing economy has helped the Dominicans to accelerate the rate of urbanization and increased the size of the middle class. The government has a central role in the Dominican economy, and in the 1990s, there were controversial privatizations of many formerly state-owned companies. The government also permitted the establishment of numerous foreign-owned factories in tax-free port zones, and in the end of 1990 the nation had one of the highest economic growth rates in the world. However, the government's privatization program remained contentious. Despite improvements in the national economy, 60% of Dominicans were below the poverty threshold and most the population belonged to the lower income segment. This comprised mostly farmers, landless agricultural workers, itinerant merchants, and unskilled manual labourers. However, since the middle of the 20th century the middle class has grown substantially and the nation's economic and social oligarchy has become somewhat fragmented, as newly rich families have joined its ranks (Howard and Gonzalez, 2016).

Recent Dominican economic history has been characterized by long periods of economic growth, alternating with shocks that caused short periods of economic slowdown, such as those of 1990-1991, 2002-2003, and 2008-2009. After the balance of payments crisis in 1991, the Dominican Republic experienced a decade with the second highest growth rate in Latin America, resulting in an average annual GDP growth of 5.6% for nine years. This resulted in low volatility and low inflation, where economic growth was primarily due to free trade zone exports, the tourism sector and remittances (Inter-American Development Bank Washington, 2010). Figure 1, show developments in GDP in the period from 1988 to 2015. This also identifies the above-mentioned shocks and resulting downturns in the Dominican economy (Inter-American Development Bank Washington, 2010)

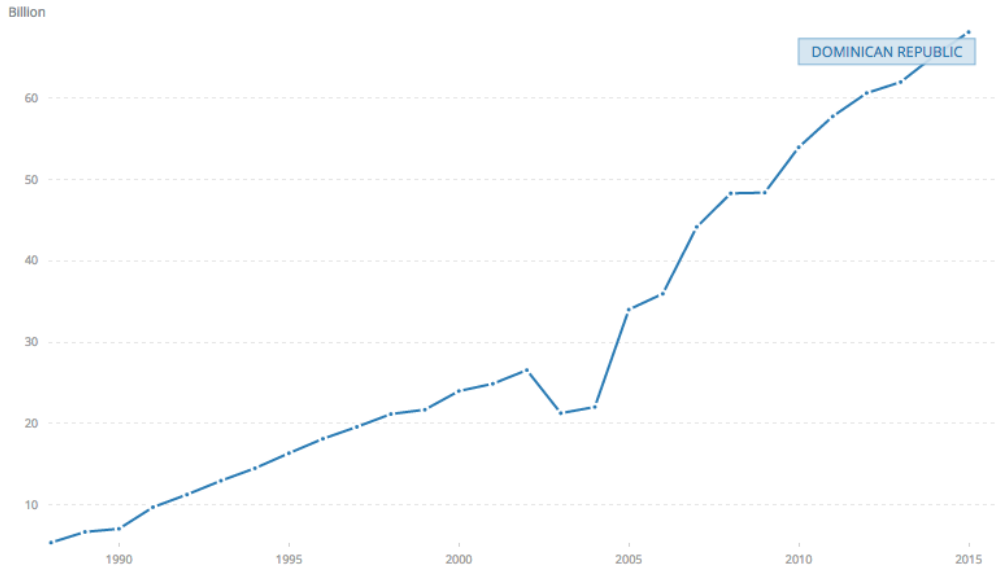


Figure 1: GDP from 1988 - 2015

The period between 1992 and 2002 was a Dominican economic success story. The country experienced a significant economic growth, where the real GDP grew by 74%. The Dominican Republic therefore closed its income gap with the USA, moving from a real GDP per capita of about 12 % of the U.S 1992 level, to 18% in 2002. After a decade of rapid economic growth, a downward spiral followed in 2003. For the first time since 1990, the economy dropped and the inflation rate jumped to 42.7% (as shown in Figure 2). The Dominican Peso collapsed as the exchange rate depreciated from 17.76 per USD to 35 per USD in 2003. In addition, governmental debt more than doubled, interest rates soared, and the central bank experienced large losses. The crucial economic downturn followed a botched bank bailout and the collateral damage from the bailout then spread throughout the economy. The problem started when one of the country's largest banks started experiencing increased withdrawals of deposits: what started as a garden-variety lender-of-last-resort operation, ended with the Central Bank taking over one of the largest private banks in the Dominican Republic. This resulted in a decapitalizing of the central bank, costing the Dominicans about 15% of GDP. The public had now lost their confidence in the government and the central bank. The country´s strategy was unable to restore confidence and growth, which lead to a second year of recession and double-digit inflation. To turn the economy around again, the 2004-elected president, Leonel Fernandez, embraced a bold set of

confidence-enhancing reforms. The main focus of these was a new Dominican monetary regime that produced stable money (Hanke, 2004).

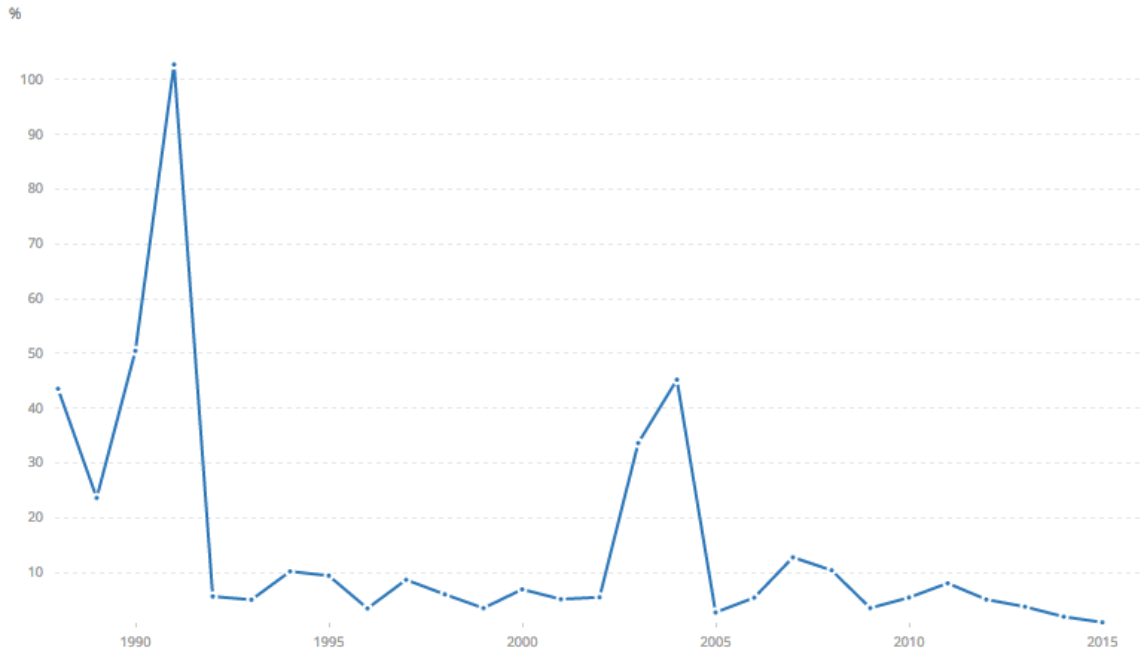


Figure 2: Inflation, GDP deflator (annual %)

In 2004 over 40% of the population was poor and the national income distribution deteriorated during this period. From 2004 to 2008, a rapid stabilization and economic recovery process began, and the economic activity in the Dominican Republic grew with an average annual GDP rate of 6.8%, exceeding the regional average by two percentage points. In 2004, the new administration implemented reforms and measures to fight the fiscal imbalance, primarily through a series of tax reforms that raised the value-added tax and slightly increased the energy rate. Cuts in public spending accompanied this reform, primarily by reducing civil service spending leading to a 10% cut in the public payroll. During this period, the USA continued to be the Dominican Republic's main trade partner, receiving about 70% of its exports. The USA also accounted for more than one third of tourists to the Dominican Republic, as well as serving as its primary source of remittance, and representing over one-third of the country's FDI. Dominican economic trends have also been impacted by the current global financial crisis (2009) and the slowdown of the U.S. economy. Annual GDP growth for 2009 was 3.5% and the account deficit was 9% of GDP, which were almost double the levels in 2007. However, the impact from the international financial crisis was smaller than initially anticipated and the recovery was strong with a growth in the first quarter of 2010 estimated at 7.5% (Martin, 2006). Figure 3 shows annual GDP growth from 1988 – 2015.

Figure 3: GDP growth (annual%) from 1988-2015

Overall, the Dominican Republic has had one of the fastest growing economies in the Americas over the last two decades. According to the World Bank, the annual growth rate in 2015 was at 7%, and the forecast for 2016 was expected to be 6.7%. However, growth in the following years is expected to slow down to some extent. In 2017, the growth is expected to remain robust, but will slow down. The rapid growth has been mainly due to increasing construction, manufacturing and tourism (Inter-American Development Bank Washington, 2010)

According to Martin (2006), the country is highly dependent on its traditional agricultural base; the economy has in recent years been supplemented by industrial growth (by adopting its large hydropower potential) and a large increase in tourism. Sugar is still the main agricultural export item, followed by coffee, cocoa, tobacco and fruit. Extraction of nickel and gold is becoming increasingly important. The population of the country live mostly off subsistence farming, and grow mainly rice and corn. The Dominican Republic is a representative democracy where there are three branches of government: Executive, Legislative and Judicial. The language is Spanish, however due to its popularity as a tourist destination, many people speak English, French, German and Italian. On an index measuring levels of corruption, the Dominican Republic scored 31 points out of 100, indicating a high corruption level where citizens face the tangible impact of corruption on a

daily basis (Transparency International, 2016). According to the 2016 Corruption Perceptions Index reported by Transparency international, the Dominican Republic is the 120th most corrupt nation out of 175 countries. From 2015 to 2016, the score increased from 103 to 120, indicating that their rank in position relative to the other countries had worsened.

2.1.3 Demographics

In 2015, the Dominican Republic had a population of 10.5 million people, with a growth rate of 1.17% (World Bank, 2017) This number is however, based on total number of residents living in the country, and does not necessarily include the "illegal" immigrants from Haiti (The World Bank Group, 2016). It also has a relatively young population with about 45% of inhabitants below 24 years old; in 2015 the median age was 27.4 years old. The Dominican people consist of diverse groups of different ethnicities. The total population consists of people who are mixed or mulattoes (73%), white (16%) and black (11%). Figure 4 shows the wage distribution between the social classes. Dominican stratification shows that economic position in the society is influenced by race ethnicity, with the upper class dominated by people of white European ethnicity. The majority of the population is the growing middle class, which includes mostly people with mixed African and European ancestry. The lower social class is most often black (originating from Haiti or from the African slave population). According to IMF (2014), poverty in the Dominican Republic affects 35.5% of the population, while 7.2% are living under extreme poverty. The average unemployment rate was 5.9% in 2015. The minimum wage was 70,200 DOP per year in 2010, with an hourly rate of $0.84, whereas the living wage $2.83 (SFGOV, 2012). The Dominican Republic official state religion is Roman Catholicism, and about 95% of the population belong to this denomination.

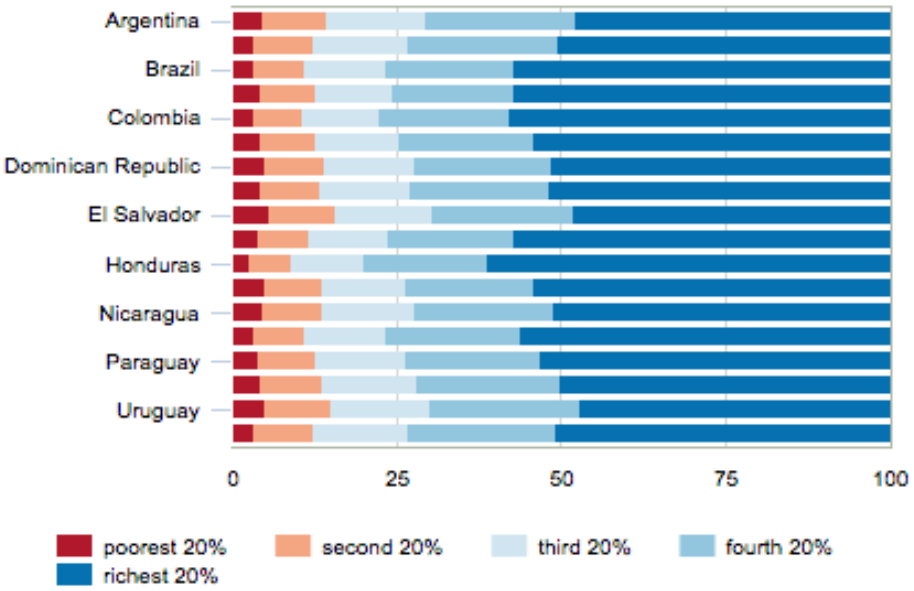


Figure 4: Wage distribution

2.1.4 Food and Culture

Traditionally, the women are in control of the household in the Dominican Republic, and the resources used are often associated with consumption preferences in favour of basic needs and the welfare of children (Rogers, 1996). Dominican family nutrition traditionally consists of three daily meals, where the mid-day meal is normally the largest and most important. According to Suarez & Mendez (2003), a typical breakfast for middle class consumers, includes ingredients such as bread, eggs, vegetables, fruits, salami, ham and coffee. For low-income households, breakfast often contains only eggs with vegetables, milk, salami and coffee (Mayol, 2016). For lunch "La Bandera" is often served, a dish with rice, beans, meat (normally chicken, beef or pork) or a pasta/salad.

A Dominican household's choice of protein source is often determined by family preferences (children often prefer the taste of meat), medical conditions, family traditions, how easily it is accessed or the price (per kilo). According to a household study, fish is considered as a healthier alternative to meat. However, it is considered more expensive and often not the most usually preferred according to taste (Focus Group Bacalao, 2011). Therefore, the most common animal protein source in the Dominican kitchen comes from meat such as chicken, pork and beef. The consumption of chicken is highest and the Dominicans produce about 190 million chickens per year. This results in an average consumption of about 32 kg of chicken per capita. Pork on the other hand, has a consumption

of approximately 7 kg per capita (Foreign Agricultural Service, 2016). According to the Herrera et al. (2011), the average annual fish consumption in the country is about 2.5 kg per capita. The salted & dried cod consumption per capita was however 0.92 kg per capita in 2015 (Norwegian Seafood Council, 2016). Nevertheless, there is a long tradition of fishing in the Dominican Republic, although it has been looked upon as a marginal activity. The majority of active fishermen are not full-time and consider it only as an additional source of income. This is also reflected in the small impact the fisheries have on the country's GDP, only contributing about 0,5% (Herrera et al., 2011). However, the Dominican catches include more than 300 different fish species, shellfish, echinoderms and molluscs. No fish resource is exclusively targeted, and more-or-less whatever is caught is considered as having possibilities for consumption or potential for commercialization.

According to a consumer habit study by Marín and Durán (2007), the traditional food distribution system, contains of wholesalers, supermarkets and colmados. A colmados is a national institution in the Dominican Republic, and is in general a small street-corner shop. These shops normally offer everything from basic foodstuffs, cleaning products and soft drinks to alcohol, and most Dominicans purchase their groceries and food here. There were about 52,000 registered colmados in 2007, and this type of grocery store accounts for about 70% of the total food distribution. This is the natural place for consumers to find and buy fish products, such as salted and dried cod, smoked herring and preserved tuna and sardines. Supermarkets on the other hand often distribute more fresh and frozen fish, which is mainly imported. Figure 5 provides an overview of the typical food distributions where Mayoristas – Almacenistas are wholesalers; Supermercados are supermarkets; Colmados is a small corner –shop and Otros is other.

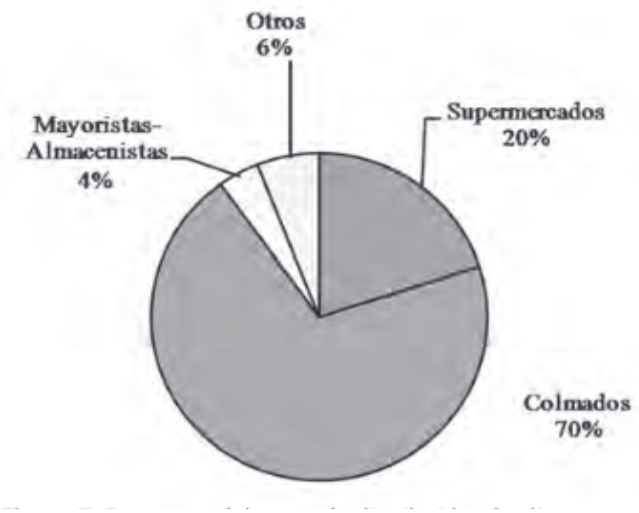


Figure 5: Structure of food distribution market

The imports of salted & dried cod increase significantly around Easter time. This is mainly due to the religious holidays, which tend to have a great impact on a country's food traditions. Since most Dominicans are Roman Catholics, Easter is a time with food restrictions. A long-standing Catholic tradition is the Carnival (literally "full of meat"), which begins on Sunday before Ash Wednesday and these are days of feasting before the Lenten period starts (Farrell, 2017). The following 40 days of Lent involve fasting and abstinence from eating meat. In the Dominican Republic there is a tradition not to serve meat, poultry or food that is considered "hot meat" on Tuesdays and Fridays throughout this period, although they are allowed to eat fish. In addition to the high consumption of salted & dried cod around Easter, it is used frequently in the Dominican kitchen, and about 95% of the population eat it during the year. While most of the Dominicans daily nutrition contains traditional and locally produced basic food items such as rice, beans, meat and vegetables, the trend among the more urban consumers has become more sophisticated during the last few years (Canadian Trade Commission Service, 2014). There has been a change in the number of daily meals and types of food consumed. Many office workers do not have time to eat lunch back home with their families, and often prefer to "grab a snack" or eat out (Suarez & Mendez, 2003). There has also been an increase in demand for processed and ready-to-eat products. Middle and upper-class Dominicans are also becoming more concerned about food safety and health issues. Diets and health products with less sugar, carbohydrates and saturated fat are therefore increasing in demand.

2.2 Fisheries and Markets for fish products in the Dominican Republic

2.2.1 Fisheries in the Dominican Republic

There is a long tradition of fisheries in the Caribbean and they have had a central role in the food economy, and been strong contributors to the development of civilization in the area. The Dominican Republic has a 1,575 km coastline which boarders the Atlantic Ocean and the Caribbean Sea. The country's maritime claims consist of a 12 nautical mile territorial sea, with an exclusive economic zone of 200 nautical miles, a contiguous zone of 24 nautical miles and a 200 nautical mile continental shelf (Mateo, 2012). From early on, fish was considered a healthy option and it was used in combination with other staples, such as beans, maize, cassava and vegetables (Ferin et al., 1989). The fisheries sector in the Dominican Republic is important but marginal, and contributes approximately 0.5% of the country's total GDP (Perez et al., 2004).

When including aquaculture, the total contribution of fisheries to the GDP is still less than 1%. However, during the last two decades this sector has experienced a rapid development, and the number of catches, fishers and fishing vessels have increased since the 1980s (Herrera et al., 2011). The fishing fleet is mainly artisanal (98%), with more than 11,600 fishers and 4,000 small and medium-sized boats, and about 200 landing sites among the 16 provinces. However, there are also a few larger semi-industrial fishing vessels operating at the offshore banks on the north coast of the country (Mateo, 2012). Despite this, the Dominican fishing sector is poorly organised, and the supply of fresh fish for domestic commercial use is very unstable. The fishing activity in the Dominican Republic involves more than 200 different types of fish, molluscs, crustaceans and echinoderms. The artisanal fishery has no targeted resource, and all that is caught is either consumed or sold. It is therefore difficult to give an exact definition of Dominican fishing activities, especially as the fisheries are only partly controlled and fishers have open access to the fishing grounds (Herrera et al., 2011). In addition to Dominican vessels there are also fishers operating from overseas; the Dominican Republic has poorly established laws and regulations in this sector. However, according to Herrera et al., (2011), the marine fisheries can be divided into commercial, small-scale and recreational fisheries. Within the commercial fisheries, the three most important targeted species (according to weight) are; different types of *snappers*, of which a total of 2,401 tonnes were harvested in 2010; *groupers*, with an annual harvest of approximately 1,583 tonnes; and the *spiny lobster* fish, of which the annual catch was

about 1,001 tonnes. These three species are also among the most valuable. The small-scale fisheries mainly target the species *scalefish (parrotfish, groupers and snappers), spiny lobster* and *shrimp*. The total harvest of these three species was 14,004 tonnes in 2011. The recreational fisheries are both important for consumption and non-consumption use and they mainly target *marlin, wahoo, tuna* and *dolphinfish*.

Dominican *aquaculture* has approximately 167 hectares of operating ponds, where mainly species such as carps, tilapia, and marine or freshwater shrimps are cultured. In 2000, the aquaculture production was about 488 MT in total and some of these products were also exported. The aquaculture sector in general only makes a small contribution to the economy, but is increasing in importance (Perez et al., 2004). However, the harvesting of the different types of seafood in the Dominican Republic does not fulfil the national demand, and every year about 50% of local fish consumption is provided by imports (Perez, 2004). In the period between 1960 and 2005, the average annual import of seafood products was 34,000 tonnes (Herrera, et al. 2011). According to Mateo (2012), fisheries and aquaculture will have a higher priority, in accordance with the Presidential Decree 40-13, and greater improvement in the fishing sector are expected.

Table 1 provides an overview of the Dominican food balance sheet in 2012 (FAO, 2016a), and shows that overall national seafood production was 16,153 tonnes. Table 1 shows that the total volume of imported products was 76,533 tonnes, and 13,083 tonnes were exported. Fish protein contributed to 8,6% of the the daily supply of animal protein, which equals about 2.3 grams per capita per day.

FAO 2012		Food balance sheet and fishery production in live weight and fish contribution to protein supply								
Production	Non-food uses	Imports	Exports	Total Food Supply	Population	Per Capita Supply	Fish Proteins	Animal Proteins	Total Proteins	Fish/Animal Proteins
tonnes in live weight					(´1000)	(kg)	(grams per capita per day)			(%)
16 153	0	76 533	13 083	84 149	10 404	8,1	2,3	26,7	58,2	8,6

Table 1: Dominican balance sheet[1]

The domestic market is the main destination for domestic production absorbing almost all the catches. However, it is difficult to estimate the annual per capita supply as this market is

[1] FAO: Fishery and Aquaculture Statistics Report 2014: Food balance sheet 2013, however data for the Dominican Republic is based on 2012 figures.

strongly influenced by the demand for fresh and frozen fish from tourism. This sector has also been a driver for a steady increase in imports of fishery products, in addition to the traditional dried and canned fish products destined for the consumption of the local population (FAO, 2008). Figure 6 shows the total value of Dominican imports and exports of fish and fishery products from 1980 to 2013 (FAO, 2017a). In 2011, the total value of imports was about USD 158.2 million and Dominican fishery products were exported for USD 14.7 million. In 2014, fish products worth USD 159 million were imported and fishery products valued at USD 14 million were exported (FAO, 2016a).

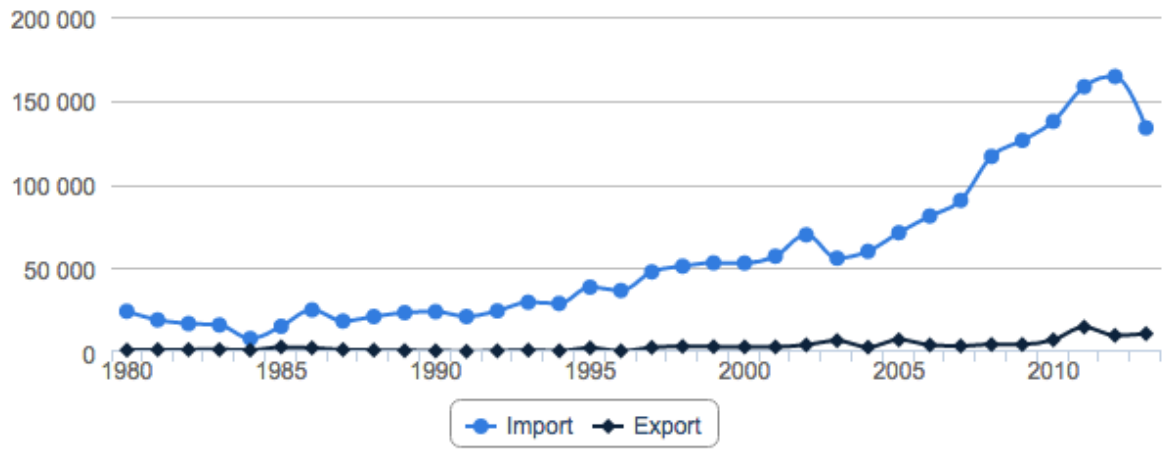


Figure 6: Total Dominican imports and exports of fish and fishery products (USD 1000)

2.2.2 Salted & Dried Cod

Cod is a cold-water fish that is found in the North Atlantic and Arctic. The distribution is mainly around the coast of Canada, outside Greenland and Island and in the Barents and North Sea (FAO). Salted and dried cod is also called "Klippfisk" or "Bacalao" (in Spanish) and "Bacalhau" (Portuguese), and is made from white fish, primarily cod *(Gadus Morhua/Microcephalus)*. However, salted and dried cod can also be made from other codfish or related species such as saithe *(Pollachius Virens)*, ling (*Molva Molva/Dypterygia),* tusk *(Brosme Brosme),* haddock *(Melanogrammus Aeglefinu)* or Alaska pollock (*Gadus Ahalcogrammus),* etc. Cod fishing is a seasonal activity, mainly taking place in the period from February to April following the spawning migration routes of the North Atlantic cod. However, the coastal cod and other codfish/Gadiformes can be caught all year around (Normarine, 2017).

Picture 1: Salted & dried cod

Salted & dried cod is preserved in a similar way to stockfish by drying, but it is also salted. Traditionally the fish was dried outdoors on the cliffs and rocks along the coast. The method of preserving fish by salting and drying goes back more than 500 years, and is said to have been developed by Basque and Portuguese fishermen. Salted & dried cod was also an important provision when crossing the seas because the preservation method kept it "fresh" during the long voyages. Today the product is still very popular, but modern production methods are used. The fish are immediately treated in the fishing boat where the heads are cut off and it is cleaned and often frozen on board. These are important steps in securing the quality of the fish. On shore, the fish is landed at warehouses where it is carefully defrosted (if frozen) and then the specking, washing, salting and drying takes place. The traditional way of drying the fish outside on cliffs is no longer used, and more modern technologies such as drying tunnels have taken over this process (Torske et al., 2011). The length of drying depends on the preference of the targeted market, but takes normally between two to seven days. The fish is ready when it contains 40-50% water, and can be stored for several months, retaining all its nutrients through preservation. Table 2 shows the nutritional benefits of salted & dried cod compared to fresh cod; for example, the protein level is more than doubled. The ready products are sorted by size and quality according to the preference of the intended market (Norwegian Seafood Council, 2017). Another important fact that is emphasised by exporters is the advantage of the increased total weight of the product when it is properly soaked/desalted before use, which is said to be an increase of 30-35%.

According to Grete Lorentzen, *"Shelf life of salted and dried is influenced by several factors, such as temperature, humidity, water content and packing and the number of reddishness. It is also important to acknowledge that the products shelf life is considerably reduced when stored in high temperatures"* (Nofima, 2015). Salted & dried cod that is stored at 30 degrees, with a humidity of 60% can be kept for at least 21 days. Whereas storage with 80% humidity is reduced to about 17 days (Nofima, 2015). From table 2 below, we can see the nutritional contents of dried salted fish and fresh cod. As can be seen, dried salted fish contains more protein than fresh cod.

Nutrition content Per 100 g	**Dried salted fish**	**Fresh cod**
Protein	38 g	18 g
Fat	1 g	0,3g
Calcium	60 mg	20 mg
Iron	1,6 mg	0,6 mg
Vitamin B:		
1) Thiamine	0,01 mg	0,07 mg
2) Riboflavin	0,20 mg	0,08 mg
3) Niacin	2,40 mg	2,00 mg

Table 2: Nutritional content (Cod-export, 2017)

2.2.3 The Salted & Dried Cod Market in the Dominican Republic

Salted and dried cod have a long history in the Dominican Republic, and this is the country in the world with the second largest consumption per capita of this product (Norwegian Seafood Council, 2011). The preserved fish in this market is also considered to have relatively the same nutritional benefits as fresh fish, and is well suited to the Dominican Republic market. This is because the product can "handle" the tropical climate, and is not dependent on being kept in cool storage. The Dominican population often lack electricity or experience frequent power black outs. Fresh fish is dependent on cooling, but salted & dried fish is not, and is therefore very suitable. The Dominican consumers prefer mostly salted and dried cod made from saithe. This saithe is mainly caught along the coast of Norway, and in the fjords of the Atlantic Ocean. Dried saithe is said to have a much stronger flavour than other types of salted and dried cod, and is therefore preferred when preparing casseroles or

Bolinos/albóndigas (Jangaard, 2017).

According to research on households conducted by NSC and ASISA, the main driver in the market for salted and dried cod is its unique flavour. This is advantageous when cooking, because it does not require a lot of seasoning. Freshness also involves various elements, such as the colour and thickness of the fish, as well as the smell and humidity level. Dominican consumers prefer the salted and dried cod, which is as white and thick as possible. The fish was also considered a low fat, and a healthier option, without sacrificing the taste benefits as well as being seen as a rich source of protein. Salted and dried cod is a100% import commodity, as the cod species are not found in the warm waters of the Caribbean. Dominican imports of salted & dried cod are mainly from Norway, Canada and China. Figure 7 shows that Norway was the only supplier in the market until Canada entered in 2000. Canada had its highest market share between 2004-5, holding about 9-10%, but since then has gradually disappeared from the market. China entered in 2012[2], acquiring between 1-2% of the market.

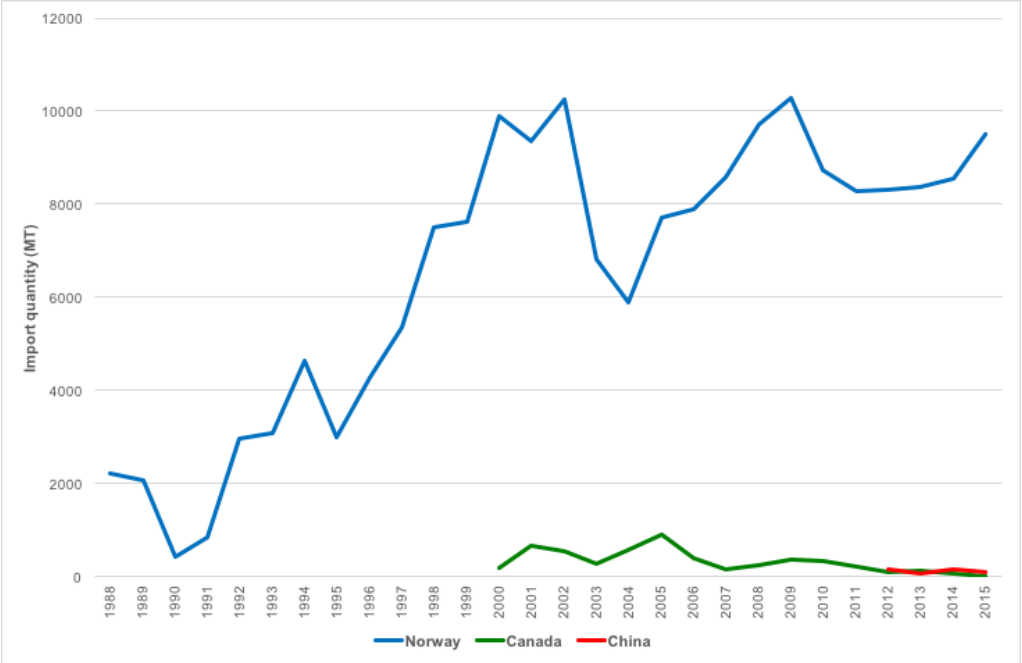


Figure 7: Total Dominican imports of salted & dried cod from 1988 – 2015

The absolute majority of the imported products, come from Norwegian salted & dried cod exports made of saithe. The Canadian exports are mostly salted & dried cod from Alaska Pollock or hake, and the Chinese "Gadiformes". However, according to the majority of the

[2] In 2006, China exported an insignificant quantity of 16 tonnes of cod and did not appear again until 2012.

exporters this is mainly Alaska Pollock.

According to the Government of Canada (2017), dried fish products made from herring, saithe, Pollock, hake and cod, account for about 60% of the total seafood imported to the Dominican Republic. Norwegian salted & dried cod (saithe) together with Canadian smoked herring, acquired the majority of the dry fish market in the Dominican Republic, with a combined 90% of the total market share. In our own market research of the Dominican Republic in April 2017, these products were found in the same outlets. We also found that these products were sold alongside each other in supermarkets, colmados and in traditional markets. In 2015, the Canadian exports of fish and seafood to the Dominican Republic, reached 18.1 million CAD, and included smoked herring, salted and dried pollock and hake, as well as frozen fish products (Government of Canada, 2017). Canada has limited access to the raw materials from cod, due to many years of overexploitation of the North Atlantic cod and other groundfish. The Chinese salted and dried cod export to the Dominican market comprises more-or-less 100% of the filleted products (Norwegian Seafood Council, 2016). According to our market research, this product is only found in supermarkets. This is mainly because the fish is not as dry as the Norwegian product, and therefore cannot be stored in locations without cooling (Agent, 2017).

Picture 2: Chinese filleted products (blue bags), Canadian herring (left) and Norwegian salted & dried cod (right) offered in a Supermarket

There is a long tradition of salted & dried cod in Norway, and production goes back as far as the late 1600's. The access to large fishing stocks and the climate of the north and west coast of Norway, was excellent for this type of fish production and this is one of the reasons why Norway is one of the leading export nations in this industry (Norwegian Seafood Council, 2017). Today salted & dried cod is one of Norway's most important export commodities, and in 2015 a total of 87,652 tonnes, worth NOK 3.991 billion were exported to various countries around the world (Norwegian Seafood Council, 2017). The Dominican Republic (along with Brazil) is one of the most important markets for Norwegian exports of salted & dried cod made of Saithe. According to Norwegian exporters and Dominican importers (2017), the consumption of this product goes back as far as the times of slavery. The Dominicans strong relationship with the Norwegian fish is demonstrated in the term Bacalao Noruego, and as the famous Dominican chef, Madeline Pealez, so nicely explained it:

> *My experience with bacalao is unforgettable. Since I was a little girl, Friday was always "bacalao day" in my family. We would wait all week for this day. Norwegian clipfish has deep roots in Dominican gastronomy. This product allows us to innovate and is perfect for both the home cook and professional chefs. I love using Norwegian clipfish because of its delicate taste and firm texture. It is also endlessly versatile. In addition, dried and salted fish from Norway is perfect in a tropical climate because of its long shelf life.*
> (Norwegian Seafood Council, 2017)

Norway's dominant role in the market has also resulted in Dominican consumers believing that all salted & dried cod products originate from Norway (Dominican agent, 2017).

According to the NSC export data (2016), Norwegian companies exported a total of 9,563 tonnes of salted & dried cod made out of saithe to the Dominican Republic in 2015. Figure 8, shows how demand for the Norwegian product has changed over time, in accordance with real prices for this product. According to Figure 8, prices show a decreasing trend from 1988 to approximately 2004, where they stabilise. Import quantity shows an increase from 1988 to 2002. In the period between 2002-04, there is a major drop in demand, which reflects the 2003 banking crisis. In 2004, a new government was elected, the economy stabilised, and import demand started increasing again. Despite these economic shocks, there is reason to believe that there is an inverse relationship between price and import demand.

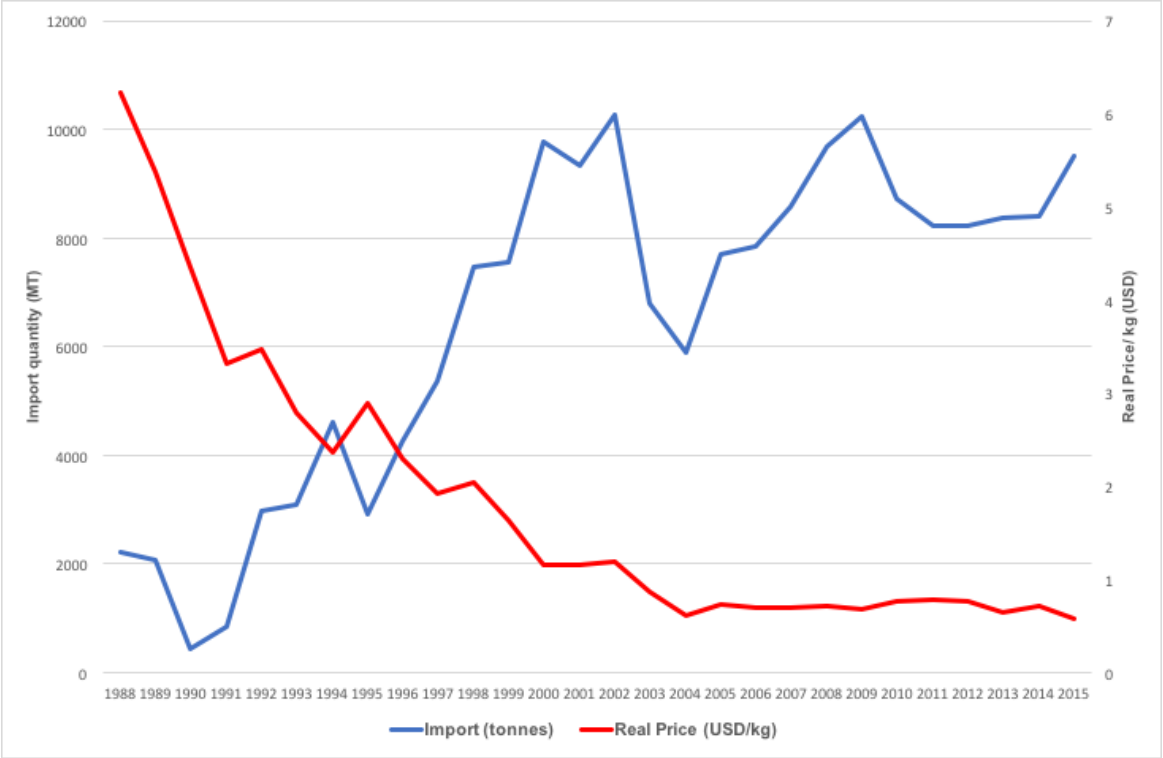


Figure 8: Dominican import demand and real price per kg in USD (1991=100).

According to a consumer habit study by Marín and Durán (2007), the traditional food distribution system comprises wholesalers, colmados and supermarkets. A colmados is a national institution in the Dominican Republic, and is a small town or street-corner shop. These shops offer everything from basic foodstuff, cleaning products, soft drinks to alcohol. The majority of Dominicans consumers purchase their groceries and food from these shops. In total, there were about 52,000 registered colmados in 2007, and this type of grocery store accounted for about 70% of the total food distribution. This is natural place for consumers to access and buy fish products, such as salted and dried cod, smoked herring and preserved tuna and sardines.

Picture 3 & 4: Salted & dried cod offered in colmados

However, as the growing middle class is moving their purchasing from traditional colmados to supermarkets, many of the exporters of salted and dried cod, are now looking for opportunities to develop competitive retail products (Marin and Durán, 2007).

3.0 Theoretical framework

This chapter reviews the literature on important topics, forming the theoretical foundations for the thesis. Firstly, we will start by giving a brief introduction on consumer theory which is the basis for how a demand function emerges. Secondly, we will discuss challenges for exportation of a product to another. Three different elasticity expressions would be discussed here. Finally, we will present the research model.

3.1 Consumer behaviour

Consumer behaviour is the explanation of how consumers allocate incomes to the purchase of different goods and services. It is determined by both available options given by a budget restriction and preferences, which are represented by a utility feature. It is assumed that consumer´s preferences are complete and well defined, so that consumers can always choose between two combinations of goods. That is, if A is preferred to B, and B is preferred to C, A will be preferred to C. The preferences are continuous, which means that there is always a combination of A and C equal to B. If these axioms are met and the individual is rational, the preferences can be represented by a utility function with corresponding indifference curves. It is also assumed that the limit of consumption is always positive. Indicating that the maximum benefit that can be achieved will always be at the point where the utility function tunes the budget line so that the entire budget will be used. Finally, it is assumed that the indifference curves are convex to origin. This mean that consumers prefer a combination of two goods, which are on the same indifference curve, rather than more of just one good (Pindyck and Rubinfeld, 2013).

Budget constraints

To this point, the focus has been on the first element of consumer theory - consumer behaviour. Now we turn to the second element of consumer theory: budget constraints. Consumers face budget constraints because of their income limitations (Pindyck and Rubinfeld, 2013). The budget constraints set a limit on how much can be bought by the goods at a given price and it is assumed to be linear. It represents all the combinations of goods and services that a consumer may purchase given current prices within his or her given income. These combinations of goods and services can be analysed from the budget line. The total amount of money spent is equal to income and the price of the goods the consumer is purchasing (Pindyck and Rubinfeld, 2013). Demand for the goods can be found

by utilization maximization at a given budget condition that shows demand as a function of price and total expenses. This is the regular demand function that gives an increase to the indirect utility function. Demand can also be found by minimizing the expenses required to achieve a given level of benefit at given prices. This gives the compensated demand function expressed as a function of prices and utility (Deaton and Muellbauer, 1980).

Some characteristics of a demand feature follow directly from the assumptions about linear budget terms and non-saturation that underpin general demand theory. Demand for goods places themselves at the edge of the feasible so that the entire budget is used. The sum of the budget shares sums up to one. This is called the "adding-up" restriction. The last restriction is the cross-pricing of the compensated demand, and this is symmetrical for all benefits. This means that the Hessematic matrix of the expense function is symmetrical and negative. This is called the symmetry restriction (Deaton and Muellbauer, 1980).

Consumer Choice

Given preferences and budget constraints, consumers can now determine how much of each good they want to buy. According to Pindyck and Rubinfeld (2013), consumers choose goods to maximize the satisfaction, given the limited budget available to them. The maximizing market basket must satisfy two conditions: it must be located on the budget line and it must give the consumer the most preferred combination of goods and services. Maximizing consumer satisfaction to choose one by picking an appropriate point on the budget line can be reduced by using these two conditions. By comparing market baskets or bundles of commodities, the consumer will make a choice. Consumers make choices by comparing market baskets or bundles of commodities. Additionally, economists assume that more of each good is always preferred to less (Pindyck and Rubinfeld, 2013).

3.2 Demand functions

According to Pindyck and Rubinfeld (2013), demand for a good depends on price, consumer income and on the price of other goods. If the price of a product increases, the quantity demanded will fall and the quantity supplied will rise. Often, however, we want to know how much the quantity demanded will rise or fall. How sensitive is the demand for a product to its price? How much will it change if income rise by 7 percent? Elasticities are used to answer questions like these. Elasticity measures the sensitivity of one variable to another.

Specifically, it is a number that tells us the percentage change that will occur in one variable in response to a one-percentage increase in another variable (Pindyck and Rubinfeld, 2013). In this chapter, four elasticities will be discussed that are believed to influence the demand for salted & dried cod.

Price Elasticity

Price elasticity of demand refers to the percentage change in quantity demanded of a good resulting from a one percent increase in its price (Pindyck and Rubinfeld 2013). The price elasticity of demand can be written as:

$$\boldsymbol{E_p} = \frac{\Delta \boldsymbol{Q/Q}}{\Delta \boldsymbol{P/P}} = \frac{\boldsymbol{P}\,\Delta \boldsymbol{Q}}{\boldsymbol{Q}\,\Delta \boldsymbol{P}}$$

where Q is quantity and P is price. According to Pindyck and Rubinfeld (2013), the price elasticity of demand is usually a negative number indicating the quantity demanded falls when the price of a good increases. Hence, the change in quantity for a change in price ($\Delta \boldsymbol{Q/\Delta P}$) is negative, as is $\boldsymbol{E_p}$**.** Sometimes the price elasticity is referred to as *magnitude* i.e. its absolute size. For example, if $\boldsymbol{E_p = -3}$, we say that the elasticity is three in magnitude. When the price elasticity is greater than one in magnitude, demand is price elastic because the percentage decline in quantity demanded is greater than the percentage increase in price (Pindyck and Rubinfeld, 2013). When the price is less than one in magnitude, demand is said to be price inelastic. In relation to price and demand, people often talk about how sensitive demand is in relation to price increase. According to Besanko et al. (2013), if an increase in price only leads to a low reduction in the quantity sold, the demand will not be sensitive to the price and the price is therefore price inelastic. According to Bjørndal and Ellingsen (2015), most salted & dried cod markets are price sensitive. A product that has too high a price, due to exchange rate fluctuations or other market factors, will normally result in low sales and bad revenues. Generally, the price elasticity of demand for a good depends on the availability of other goods that can be substituted for it. When there are close substitutes, an increase in price will cause the consumer to buy less of the good and more of the substitutes, therefore the demand will tend to be price inelastic (Pindyck and Rubinfeld, 2013). It is assumed that consumers who are loyal to a product are not price sensitive, but they adjust their quantity requirement beyond the price. If the price

of a product increases, they will still be loyal, but they will not be able to consume the same amount as before the price increases. Consumers who are not loyal to a product will be more sensitive to price changes and make their choice where they get the highest value (Krishnamurthi and Raj, 1991). The more elastic the demand for the good, the greater substitution possibilities there will be and therefore the keener the competition (Lem et al., 2014). Timmer's proposition (1989) own-price elasticities of demand are larger in absolute value for low-income countries than for high-income countries (Lem et al., 2014).

Cross-price elasticity

Large parts of the Dominican Republic´s population have a low disposable income, and it is therefore logical to assume that when the price for salted & dried cod increases, the demand for other products that can be used as substitutes will increase. According to Pindyck and Rubinfeld (2013), the demand for some goods is affected by the price of other goods; therefore, the demand for a product can also be affected by changes in the prices of other goods. This is known as cross-price elasticity, and it is about increasing the price of another product and changing the individual´s demand curve. Cross-price elasticity refers to the percentage change in the quantity demanded for a good that results from a 1% increase in the price of another good (Pindyck and Rubinfeld, 2013). The cross-price elasticity of demand for product 1 with respect to the price of product 2 is written as:

$$\boldsymbol{E_{Q_b\,P_m}} = \frac{\boldsymbol{\Delta Q_b / Q_b}}{\boldsymbol{\Delta P_m / P_m}} = \frac{\boldsymbol{P_m}}{\boldsymbol{Q_b}} \frac{\boldsymbol{\Delta Q_b}}{\boldsymbol{\Delta P_m}}$$

where Q_b is the quantity of product 1 and P_m is the price of product 2. Regarding cross-price elasticity, there are two phenomena that must be mentioned: substitute and complementarity. In this example, the cross-price elasticities will be positive because the goods are substitutes as they compete in the market. A rise in the price of product 2, which makes product 1 cheaper relative to product 2, leads to an increase in the demand for product 1. When the demand curve for product 1 shifts to the right, the price of product 1 will rise. This is not always the case, because when goods are complements, they tend to be used together. An increase in the price of one tends to push down the consumption of the other (Pindyck and Rubinfeld, 2013).

Income elasticity

So far have we looked at price elasticity, but it is also interesting to look at how demand responds to changes in income. When aggregate income rises, the demand for most goods usually rises. The income elasticity of demand is the percentage change in the quantity demanded, Q, resulting from a one-percent increase in income I (Pindyck and Rubinfeld 2013). It enables us to predict how much the demand curve will shift for a given change in income. Income elasticity can be written as:

$$\boldsymbol{E_I} = \frac{\Delta \boldsymbol{Q/Q}}{\Delta \boldsymbol{I/I}} = \frac{\boldsymbol{I}}{\boldsymbol{Q}} \frac{\Delta \boldsymbol{Q}}{\Delta \boldsymbol{I}}$$

Income elasticity of demand is mainly determined by the degree of necessity of the good. In a developed country such as the Dominican Republic, the demand for luxury goods is expanding rapidly as people´s incomes rise; whereas the demand for basic goods, such as bread rises only a little. Items with higher costs have a high-income elasticity of demand, whereas items such as rice and beans have a low-income elasticity of demand (Sloman, 2007). Some goods decrease in demand as income rises. These are inferior goods where the demand decreases as consumer income increases. As incomes increase, people switch to more expensive goods, which become defined as normal goods. Sloman (2007) maintains that the demand for normal goods increases as consumer income increases. Luxury goods will have a higher income elasticity of demand than more basic goods. Income elasticity of demand is an important concept to firms considering the future size of the market for their product (Sloman, 2007). Rising income will drive a shift in diets from staple foods to more value-added and higher protein products, especially for consumers in emerging economies who will increasingly demand meat and dairy products in their consumption choices (Lem et al., 2014).

3.3 A model of consumer import demand

Since there is no domestic production of salted & dried cod in the Dominican Republic, the import volume of this product is also the total demand. A model of consumer import demand is given in the equation:

$$\textbf{(1)}\ \boldsymbol{Q} = \propto * \boldsymbol{P^{\beta 1}} * \boldsymbol{Y^{\beta 2}} * \boldsymbol{E^{\beta 3}}$$

where Q is import demand quantity, P is consumer price of import, Y is consumer disposable income and E is exchange rate. This multiplicative model is convenient if one assumes constant elasticities. In this model, the marginal effects of the explanatory variables depend on the values of the variables, and this is more realistic than a linear model where the marginal effects are constant. The model I equation (1) is made linear by taking the natural logarithm of both sides of the equation giving:

$$\textbf{(2) } \ln Q = ln \propto * \beta_1 ln P * \beta_2 ln Y * \beta_3 ln E$$

The βs in equation (2) are now constant elasticities of price, income and exchange rate, respectively, and ln $\propto$ is a new constant term. Price and exchange rate are expected to have a negative effect on demand, and income is expected to be positive. Equations 1 and 2 can also include prices of substitute products. This will be included in the empirical model.

3.4 Country of Origin

The academic literature on whether country of origin influences consumer purchase evaluations and purchase intention has a history ranging over the last 50 years. Consumers care more and more about which country products originate from and where they are made. They consider factors such as cultural traditions, history and product experience when evaluating the quality of products (Parkvithee and Miranda, 2012). According to Keller (1993), country of origin can also be a brand association; the country where the product is "made in" or provides the services in such a way that consumers have specific associations. Yassin et al., (2007) holds that information regarding the country of origin of products helps to form preferences and purchase decisions. Consumers often develop stereotypical beliefs regarding products developed in a specific country, as well as beliefs about attribution products established in a specific country. Country image is one of the first variables that researchers test regarding foreign products in international business and consumer behaviour studies. Country image influences consumers' purchase decisions as image can have a negative or positive effect based on previous memories and experiences about products from specific countries or products in general (Kotler, 2011). In the Dominican Republic, the Norwegian Bacalao has a cooking competition in its honour. This competition is organised by the Norwegian Seafood Council and has been taking place for several years thus becoming a tradition for the Dominican people. This competition has helped distinguish

Norwegian Bacalao from salted & dried cod of different origins in the market, building a positive image and helping the Dominican people associate Noruego as the homeland of Bacalao (Baccala, 2017). According to Arne Sørvik of Baccala, 97 per cent of the population in the Dominican Republic knows the term Bacalao Noruego, while 64 per cent prefer Norwegian salted fish (Baccala, 2017).

3.5 Competition

According to neoclassical theory, there are four main theoretical market structures: perfect competition, monopolistic competition, oligopoly and monopoly. These are all essentially static (Lipczynski et al., 2013). The two most extreme cases of market structure are monopoly and perfect competition. According to Lipczynski et al., (2013), monopoly is characterised by one firm serving a large number of buyers. The company determines the market price and can therefore earn abnormal profits. The total opposite of monopoly is perfect competition. Lipczynski et al., (2013) explain that there are six main characteristics of a perfect competitive industry; homogeneous products; buyers and sellers have perfect information; there are large numbers of buyers and sellers; companies act independently of each other, and the goal is to maximize one's own profits; no transport costs; no barriers to entry. Accordingly, we will assume that the Dominican market for salted & dried cod has a market structure defined as perfect competition.

According to Bain (1956), entry barriers are market conditions that allow established companies/incumbents to earn abnormal profits without attracting new entries (Lipczynski et al., 2013). There are seven main types of barriers to entry; economies of scale; absolute cost advantage; product differentiation; switching costs; network externalities; legal barriers; and geographical. Economies of scale and absolute cost advantage can serve as entry barriers as incumbents incur a lower long-run average cost than an entrant by virtue of producing on a larger scale, and benefiting from economies of scale. Barriers to entry exist if established companies' customers are loyal to their product and reputation. Successful entrants will have to persuade customers to switch to their products. This can be achieved by increased advertising and marketing campaigns, or lowering prices, however this will give them higher costs than for the incumbent firm. Network externalities make it difficult for new entrants when the established company already has a large user network.

Furthermore, legal barriers such as government policies can create barriers; for example, in the form of tariffs and taxes.

3.6 Hypotheses

Hypotheses regarding research question 1 are based on the literature review and the qualitative analysis. In addition, this study compares the salted & dried cod market in Brazil with the Dominican market. Previous research on the Brazilin market (Neto et al., 2015) has examined the same variables of demand and in approximately the same time period. This will therefore be relevant for comparisons. In 1990, the Dominican Republic experienced an economic crisis. A dummy variable "the 1990 crisis" is therefore added to the models to be tested. The hypotheses are below.

Hypotheses
H1: The demand of salted & dried cod is price-elastic
H2: The demand of salted & dried cod is Exchange rate elastic
H3: The demand of salted & dried cod is income-elastic
H4: The cross-price elasticities of substitutes products are positive

Table 3: Hypotheses

The hypotheses H1-H4 are tested in two regressions. The first tests whether price, income and exchange rate have a significant effect on the demand for salted & dried cod. The second tests the effect of substitute products, including those in the regression model. The additional research questions 2 and 3 are answered by analysing the interviews in the qualitative analysis. Additionally, we wanted to investigate whether Dominican demand for salted & dried cod influenced the Norwegian companies´ current and future market position. We also investigate whether Country-of-Origin has an effect on Dominican consumer choice.

4.0 Methodology and data

To the best of our knowledge there is limited or no research examining the market for salted & dried cod in the Dominican Republic, at least not from a Norwegian point of view. Our quantitative data has been collected by the Norwegian Seafood Council and we chose to combine qualitative and quantitative methods. Combining in-depth interviews providing subjective views of the market, with quantitative objective information from the import data, gives us a much broader picture of demand for Norwegian salted & dried cod in the Dominican Republic. The in-depth interviews were with exporters who sell fish to the Dominican Republic and with Dominican importers. Using both methods of data collection help us to support our findings. The first section of this chapter starts with a discussion about the research design. In the following section, we review quantitative and qualitative approaches. Finally, we discuss the reliability and validity of this study.

4.1 Research design

To answer the research questions and address the hypotheses, it is important to find the most suitable research design. Research can be divided into three different categories: exploratory research, descriptive research and causal research (Shiu et al., 2009). Exploratory research aims to collect secondary or primary data using unstructured formal or informal procedures to interpret them. Descriptive research uses a set of scientific methods and procedures to collect raw data and create data structures that describe the existing characteristics of a defined target population or market structure. Here questions such as who, what, where, how and when are answered and the findings do not explain why the phenomenon occurs but depicts what is happening (Shiu et al., 2009). Causal research on the other hand, is designed to collect raw data and create data structures that will enable the decision maker to determine a cause-and-effect relationship between two or more decision variables (Wilson, 2006). This study uses a mix between exploratory and causal research design, in an attempt to investigate which variables have the highest effect on the export of salted & dried cod in the Dominican market. Even though there are several studies investigating the export of salted & dried cod, there are few or none investigating the Dominican Republic. Hence, this study is exploratory, gaining preliminary insights into the export of salted & dried cod to the Dominican Republic.

When the research design bas been chosen, there are two primary approaches for the collection of data; a qualitative and a quantitative approach. Qualitativ research uses a small number of carefully selected subjects to generate in-depth knowledge of the topic at hand. It is used to quantify the problem by way of generating numerical data or data that can be transformed into useable statistics. On the other hand, quantitative research undertakes a sample of the population to produce quantifiable insight into the research topic. This method is primarily exploratory research used to gain an understanding of underlying reasons, opinions, and motivations. The method is also used to uncover trends in thought and opinions, and dive deeper into the problem (Wilson, 2006). Larsen (2007) refers a combination of both methods as methodological triangulation, or mixed methods approach. Researchers are able to strengthen the findings of the study, using quantitative and qualitative methods in the same study. Weaknesses found in one of the methods can be balanced by the strengths of the other method. Moreover, one can use the triangulation of methods to increase the validity of the study, as the researcher can compare findings of the two approaches (Larsen, 2007).

This study thus uses triangulation by applying both quantitative and qualitative methods of data collection. The quantitative part of the study includes statistics on Ordinary Least Squares (OLS) method to analyse the import market for salted & dried cod. Descriptive statistics such as means, median, maximum, minimum, standard deviation, skewness and kurtosis, etc. are also conducted. The sample used in this study is small and therefore IBM`s Statistical Package for the Social Sciences (SPSS) was used to conduct all statistical analyses. However, if the sample had been bigger, we could have used the econometric model Almost Ideal Demand System (AIDS) modelling framework. This model is a popular empirical procedure for evaluating demand possibilities and calculating elasticities, and has been applied by Salvanes and DeVoretz (1997) when testing demand for fish and meat products. The qualitative part of the study entails preliminary in-depth interviews with exporters who export salted & dried cod to the Dominican Market and importers who import salted & dried cod from Norway. These interviews were conducted in order to achieve a deep understanding of the topic under investigation, and provide guidelines for the quantitative part of the study. Because of our lack of knowledge about the subject, we felt the need to develop this and therefore chose to conduct an interview/conversation in advance of the in-depth interviews. We did this to gather opinions and insight informally from people we considered to be knowledgeable about the issue (Shiu et al., 2009).

4.2 Qualitative analysis

Qualitative research is normally used in exploratory research design and one main objective is to gain preliminary insight into the research problem. It tends to focus on the collection of detailed amounts of primary data from relatively small samples of subjects by asking questions or observing behaviour (Shiu et al. 2009). The qualitative part of this study involves preliminary in-depth interviews with eight exporters who export salted & dried cod to the Dominican market, four importers who import salted & dried cod to the Dominican Republic and one supermarket. These interviews were conducted to gain a profound understanding of the topic under investigation, and provide guidelines for the quantitative part of the thesis. One of the main methods of data collection used in qualitative research is in-depth interviews (Legard et al., 2003). According to Wilson (2006), this method requires face to face communication in which the respondents' understanding of the research topic is explored in detail. In-depth interviews can be conducted in a structured, semi-structure or unstructured manner. The advantage of this method is that information can be gathered quickly, and if there is doubt, irrelevant information can be eliminated immediately (Saunders et al., 2009). The qualitative research strategy is inductive, meaning that one tries to obtain strong evidence of the truth of the conclusion (Okasha, 2002).

Semi structured interview

Semi-structured interviews facilitating two-way communication have a non-standardized framework and usually last between 30 minutes to an hour. Although the topics are listed in advance, the method is flexible and the interviewer can respond freely in his/her own words (Wilson, 2006). For the present study, it was essential to retrieve profound insight regarding the export of salted & dried cod to the Dominican market because of our limited knowledge. Therefore, we used semi-structured interviews when conducting the preliminary in-depth interviews.

Interview selection

The selection of interviewee started with examining how many companies exported salted & dried cod to the Dominican Republic. The population of interest for this study consists of approximately 18 exporters who export salted & dried cod to the Dominican Republic from Norway. A list of all exporters was provided by the Norwegian Seafood Council. From a

total of 18 exporters, 10 of these are localized here in Sunnmøre. Due to the limited time and lack of contacts outside Sunnmøre, we decided to focus on exporters in this area. From these 10 we chose to interview seven exporters all of which are small-medium sized firms. The selected exporters are: Cod Export AS, Scan Mar AS, Brødrene Sperre AS, Nils Sperre AS, Solbac Export AS, Jangaard Export AS and AS Møre Codfish Comp. All seven firms export salted & dried cod to different countries and all the interviewees have primary focus on the Dominican Republic market or are directly involved with export to this market.

It was also interesting to interview importers located in the Dominican Republic. Therefore, we travelled to the Dominican Republic to interview importers. We were put in contact with one of the exporter's agents located in the Dominican Republic, who was willing to take us around and introduce us to some importers, and if possible conduct an interview. The selection of these interviewees was therefore out of our control and we did not know how many importers we would be introduced to. It was important for us to capture important aspects of the import of salted & dried cod; we therefore wanted to interview people in control of the import or people with good knowledge about this.

Interview guide

The purpose of the qualitative study was to gain deeper insight into which factors affected the demand for salted & dried cod in the Dominican Republic, whether there were differences between consumers and whether the country of origin has an impact on what product the consumers decide to buy. Another purpose was to gain an understanding of why exporters export to the Dominican Republic. According to Wilson (2006), the design of the interview guide has a significant influence on the quality of the data. To maintain the structure of the interview and by revealing required information regarding the research questions, we made a simple interview guide. This interview template is provided in Appendix 2. An interview guide varies from highly scripted to relatively loose. We chose something in between since this permitted follow-up questions if necessary. When planning and conducting the in-depth interview, the construction of the questions was based on conversations with the exporters mentioned in 5.2 as well as the information we needed in order to answer the research questions. The interview guide contained five sections covering the areas that would form the basis for answering our research questions. The first part of the interview guide includes information regarding the respondent's reasons for exporting

to the Dominican Republic, which fish types are exported, and when they started to export. The second part asks for information about the respondent´s demand factors, while the third part asks whether the respondent sells directly to the importers or through agents, whether the fish is sold whole or cut in smaller pieces and who eats salted & dried cod in the Dominican Republic. The fourth part asks for information about the respondent´s competition and finally, the last section examines other imported products in the Dominican Republic and whether country of origin is important for the consumers.

This study also includes interviews with importers from the Dominican Republic. We wanted to gain an understanding of why importers import salted & dried cod from Norway and if they import from other countries. No agreements were made in advance, so we did not know whether it would be possible to conduct interviews, but we knew that we would meet four importers. Nevertheless, we made an interview guide similar to that which we made for the exporters so that if the importers were willing to be interviewed, we were prepared. We were also prepared for not all importers being able to speak English and expected there would be some language barriers. We therefore agreed with the agent of the exporter that he would be an interpreter if necessary. Because of limited time, we were only introduced to five importers, and all five were willing to be interviewed.

Qualitative data collection

Before starting the interview with the exporters, it was important to be well prepared; know the topic as well as the interviewees own situational context so as to understand the interviewee better. To provide a relaxed atmosphere to collect information, interviews were conducted face-to-face in the firms' headquarters so that the interviewees might feel more comfortable answering questions. All the interviews were conducted in Norwegian, as it represents the main language of the respondents. Before the interviews started, we provided information about the purpose of the study and the need to tape-record the interview. In addition, the respondent was guaranteed that the answers they provided would only be used for academic purposes. According to Wilson (2006), tape-recording the interviews enables the conversation to flow, eye contact to be maintained and interaction to occur. We also took separate notes throughout the process when important topics were discussed. The interviews lasted between 45 to 60 minutes. Afterwards, transcription of the interviews were sent to the respondents by e-mail so that they had the opportunity to confirm their answers, and clarify

possible misunderstanding. Saunders et al., (2009) describes transcription as the written record of what an interviewee says in response to a question, in his or her own words. There are several different ways to transcribe interviews and this study followed a "data collection" transcription, transcribing the parts of an audio recording that are relevant to the research.

4.3 Quantitative analysis

4.3.1 Statistical analyses

The following section provides a brief description of the various statistical analysis applied in this study. The results of the various analysis are used to accept or reject the proposed hypotheses. Additionally, the result will be compared with the qualitative part of the thesis by discussing the implication of the answers to the research questions. The quantitative analysis was conducted in two steps: descriptive statistics and hypothesis testing through multiple regression analysis. The variables we use behave predictably over time and we therefore use time series. Time series is a sample of repeated measurements of a single variable, observed at regular intervals over a period of time (Carver and Nash, 2009). The length of the intervals varies, and in this study, we use a year.

Descriptive statistics

Descriptive analysis is used to summarize and describe the data obtained from the respondents and to check for disruption of important assumptions underlying statistical techniques (Shiu et al. 2009). According to Wilson (2006), the most commonly used descriptive statistics are measures of central tendency as mean, mode and median, and measures of variability as range, interquartile range and standard deviation. The analysis starts by presenting the mean scores. The mean is the most commonly used average and is calculated by summing all the values in a set of data and dividing by the number of cases. The mean can only be computed from interval or ratio data, but mode on the other hand can be calculated with any type of data (nominal, ordinal, interval and ration). The mode on the other side is the most common value in the set of responses to the question, indicating the most given response to the question (Wilson, 2006). Another measure used is the median. When the observations are sorted in ascending order, the median is the middle observation. If there are two observations standing in the middle, we should use the average of the two

numbers that are right at the centre to find the median. Unlike the mean, the median has the advantage of being unaffected by extreme values in the data set (Shiu et al., 2009).

According to Wilson (2012), the measures of variability, also called dispersion, indicate how "spread out" the data set is. It can be measured as range, interquartile range and standard deviation. The range is found by calculating the difference between the largest and the smallest value in the data. The interquartile range reduces the impact of any extreme values by measuring the difference between the 75^{th} and 25^{th} percentile. Standard deviation is the most commonly used measure which is calculated by taking the square root of the sum of the squared deviations from the mean divided by the number of observations minus one (Hair et al., 2014). Wilson (2012) argues that one of the reasons why standard deviation is an important parameter is that most values in a dataset of random variables will be close to average, where "near" is defined by the standard deviation.

Pallant (2013) states that descriptive analysis should provide some information concerning the distribution of scores on continuous variables like skewness and kurtosis. This is needed if the variables are to be used in, for example, a t-test, analysis of variance (parametric statistical techniques). Kurtosis provides information about the ´peakedness´ of distribution. A positive kurtosis value indicates that the distribution is rather peaked (clustered in the center) and values below zero indicating a distribution that is relatively flat (too many cases in the extreme). Skewness, on the other hand, provides an indication of the symmetry of the distribution. Positive skewness values indicate scores clustered to the left at the low values (positive skew) and negative skewness values indicates a clustering of scores at the high end (right-hand side of the graph). It is preferable that both kurtosis and skewness should obtain values of zero, indicating perfectly normal distribution (Pallant, 2013). Normality can be assessed to some extent by obtaining kurtosis and skewness values, however, other techniques are also obtainable. Pallant (2013) holds that tests of normality are tested in Kolmogorov-smirnov statistics in SPSS and this assesses the normality of the distribution of scores. A non-significant result is when the sig. value of more than 0.05 indicates normality.

Regression analysis

Regression analysis is a statistical method that can be found in several scientific fields. The method discovers the relationship between one or more dependent variables and the predictors. Wilson (2012) describes three types of regression: the simple linear regression which is used to model the linear relationship between two variables (one dependent and one independent); the multiple linear regression which is very similar to the first type but with more than one independent variable; and the non-linear regression which assumes that the relationship between the dependent variables and predictors is not linear in regression parameters. Considering the aim of this study and the context of the problem, the multiple linear regression was selected as the method for studying the impact on quantity and price, exchange rate and GDP per capita.

Multiple regression is a dependence technique analysing a single metric dependent (criterion) variable presumed to be relevant to two or more metric independent (predictors) variables. The general purpose is to learn more about the relationship between the independent variables and dependent variables and to estimate a separate regression coefficient for each of these independent variables (Shiu et al., 2006). According to Hair et al., (2014) the objectives of the multiple regression is to use the independent variables to predict the value of the dependent variable. This is found by determining how much the variance in the dependent variable is explained by the independent variable. All variables must be based on interval or ratio scales if they are to be suitable for a multiple regression. Under certain circumstances, it will be possible to use nominal independent variables if they are recoded as binary variables (Wilson, 2012).

Several measures must be considered when assessing the regression model´s predictive capability. The coefficient of determination (R^2) indicates the overall fit of the variate indicating how well our model generalises. The higher the R^2 the better this will be. The value of the coefficient generally increases with the number of explanatory variables, even if they do not contribute positively to the accuracy of the model. Therefore, the adjusted R^2 is used because it is a more conservative measure than R^2 and it is a more conservative measure. This is because it is modified from the R^2 and takes the number of independent variables included in the regression equation and the sample size. If the adjusted R^2 shows 0.60, this indicates that 60% of the variables are explained by the model (Hair et al., 2014).

Autocorrelation is a common problem in time series regressions, and occurs when the residuals in a regression model are correlated. This is a problem because it means that useful information is missing from the model. Such information might explain the movement in the dependent variable more accurately (Cengage, 2017). The Durbin Watson measures whether there is autocorrelation in the residuals and is always between zero and four. Values approaching zero indicate positive autocorrelation and values towards four indicate negative autocorrelation (Makvana and Patel, 2016). F-test is another measure used to statistically evaluate difference between the group means. The higher the F ratio is, the more likely it is that the null hypothesis will be rejected (Pallant, 2013). The significance level (alpha) represents the level the researcher is willing to accept that the estimated coefficient is classified as different from zero when it is not (Hair et al., 2014). The purpose of this study is to validate the cases where the null hypothesis is rejected. Hence, the models are considered valid if the p-values of the calculated coefficients are inferior to the level of significance of 5% (p-values < 0.05) indicating a 5% chance of rejecting a true null hypothesis. The closer the level is to 0.00, the more demanding the willingness to accept is (Shiu et al., 2009). The unstandardized B expresses how much change the independent variables have in the dependent variable if the other values of the other independent variables are constant. Increase in the dependent variable by one unit, will lead to an increase in the dependent variable by one unit (Wilson, 2016).

There are a number of assumptions about the data being analysed in a regression analysis. One assumption is that the sample size must be sufficient for the desired level of at least five observations for each independent variable (Hair et al., 2014). Another assumption is multicollinearity. Multicollinearity occurs when one independent variable is highly correlated with other independent variables. This will affect the interpretation of the individual predictors. When this problem occurs, these two coefficients are of specific interest: Tolerance and Variance Inflation Factor (VIF). Tolerance is defined the amount of variation of the selected independent variable that cannot be explained by the other independent variables. The Tolerance value should be high, indicating a small degree of multicollinearity (Hair et al. 2014). The second measure of multicollinearity is the VIF, which is calculated as the inverse of the Tolerance value. The VIF value should be between zero and 10, and values above 10 indicate multicollinearity that is too high (Hair et al., 2014). Multiple regression is very sensitive to outliers and it is therefore important to check for extreme values in the data screening process (Pallant, 2013).

4.3.2 An empirical import demand function

An empirical version of equation (2) is:

$$(3)\ \ln Q_t = A + \beta_1 \ln P_t + \beta_2 \ln Y_t + \beta_3 \ln E_t + \beta 4\ ln\ P_t^s + \in_t$$

where t denotes years (from 1988 – 2015), $\in_t$ are the residuals, and $\mathbf{A} = \mathbf{ln} \propto$. In this empirical equation we have also included the price of a substitute product (P^s_t) The residuals, $\in_t$, must meet the following assumptions:

1) The relationship between the independent and dependent variables is linear.
2) There is no multicollinearity (correlation between the independent variables)
3) Residuals are not correlated (i.e. no autocorrelation)
4) The residuals are homoscedastic
5) The residuals are normally distributed

4.4 The data

The quantitative part of the study uses secondary data that were collected from external sources available in the Norwegian Seafood Council (2016) databases. Because of low exports from many countries, only exports from Norway were chosen. The data consists of time series of demand quantity, prices, income and exchange rates from 1988 to 2015.

There are two basic sources of secondary data and this research used information that was available from published and electronic sources originating outside our research (Wilson, 2006). A limitation of the data is that we have no knowledge of how the data was collected, and this could affect the accuracy of our research (Schmidt and Hollensen, 2006). However, according to the Norwegian Seafood Council, the key source of their market insight is based on statistics, trade information, consumer – and consumer's insight (Norwegian Seafood Council, 2017). This means that all samples are taken from all the exporters who export salted & dried cod to the Dominican Republic. Another limitation with the secondary data is the fact that the information is not designed specifically to meet our research needs (Wilson, 2012). Since we were not involved in the original collecting of the data, we have no control over the accuracy of these. To be sure that the data from the Norwegian Seafood

Council are accurate, we double-checked the data with the exporters we were in contact with. This increased the chances that the data obtained from Norwegian Seafood Council truly reflects the situation for the entire population of interest. Therefore, we concluded that the sample from the Norwegian Seafood Council is relevant, accurate and precise in relation to our research.

Dependent variable

The dependent variable in this study is demand for salted & dried cod, and is measured in tonnes. The demand describes the Dominican consumers' desire and willingness to pay a price for salted & dried cod. Holding all other factors constant, an increase in the price of salted & dried cod will decrease demand, and vice versa (Pindyck and Rubinfeld, 2013). This study will measure whether the independent variables influence demand for salted & dried cod in the Dominican Republic. The data used are collected from the NSC.

Independent variables

Own price

Price responds to shortages and surpluses where shortages cause prices to rise and surpluses cause price to fall. If consumers decide that they want more of a good, demand will exceed supply. The demand curve shows how much a consumer is willing to buy as the price per unit changes. Pindyck and Rubinfeld (2013) hold that the demand curve is the relationship between the quantity of a good that consumers are willing to buy and the price of the good. If the price is lower, the consumers are usually ready to buy more. For example, a lower price may encourage consumers who have already been buying the good to consume larger quantities. Similarly, it may allow other consumers who were previously unable to afford the good to begin buying it. If income levels increase and the market price is constant, an increase in the quantity demanded is expected because of consumers' higher incomes. This will make the demand curve shift to the right. With greater income, consumers should be willing to pay a higher price and the demand curve will again shift to the right (Sloman, 2007). Sloman (2007) also holds that the demand will be affected by changes in the price of related good. Goods are substitutes when an increase in the price of one leads to an increase in the quantity demanded of the other. The nominal value of a good is its money values in different years, however this does not take changes in price levels into account. Real prices

adjust for changes in the price level in those years. In other words, real prices are adjusted for inflation in the relevant time period (Econlib, 2017). In this paper we use real prices, which are calculated using USD import prices adjusted for inflation, using the Dominican consumer price index (1991=100). Figure 9 shows changes in nominal (import) prices in relation to real prices for Norwegian salted & dried cod in the period 1988 to 2015.

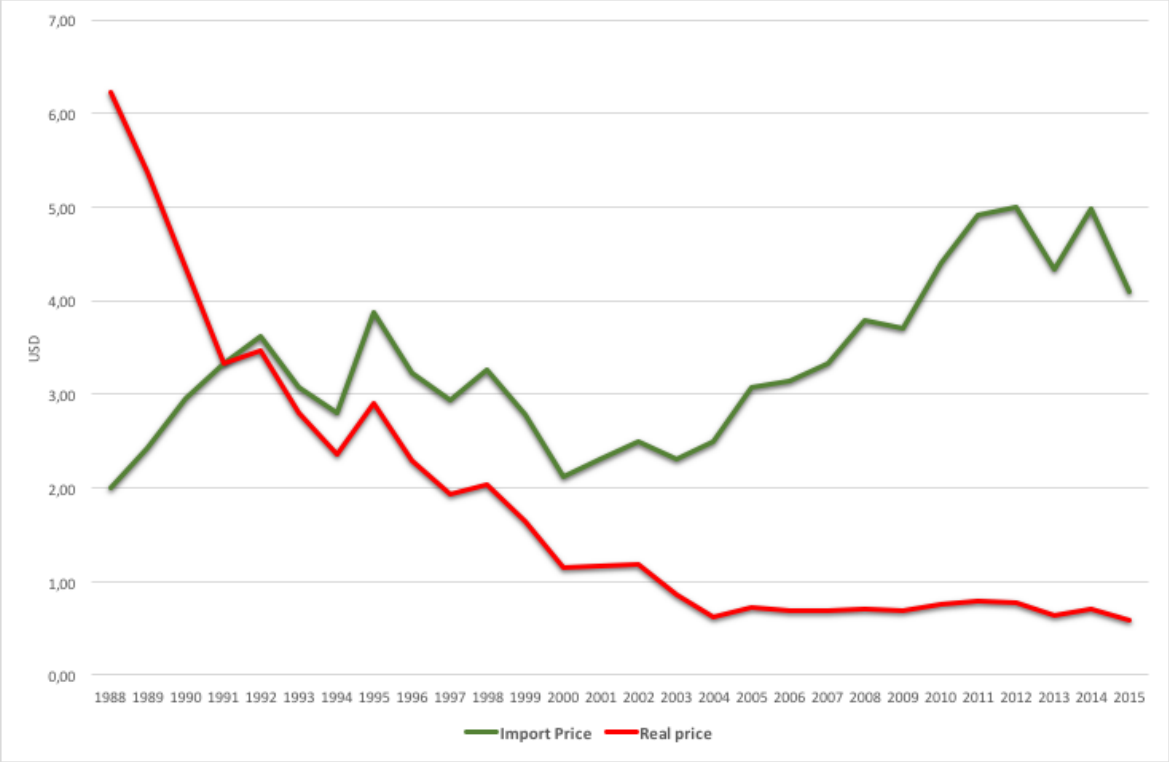


Figure 9: Nominal and real prices of salted & dried cod, 1988-2015

Substitute prices

Based on the literature review in chapter 3 and the preliminary in-depth interviews, it seems apparent that the interaction between price and substitute influences demand for salted & dried cod. The operationalization of the substitutes is primarily based on literature but also on the results from the qualitative interviews. The variable substitute is a mutual name for chicken and pork. These were measured through a question where the respondents answered in relation to other imported fish types, local catches and other products such as chicken, which is the main substitute for salted & dried cod. The prices collected from chicken and pork are from FAO (2016a), and come from producer prices and prices paid at the farm-gate. These are in US Dollars. We wanted to measure the responsiveness in the demand for salted & dried cod when a change in price takes place for the substitutes. If the regression

shows a coefficient of zero, the salted & dried cod and the substitute unrelated items are therefore independent of each other. If the products have a positive but low cross elasticity of demand, chicken and pork will be weak substitutes for salted & dried cod. If they are strong substitutes, they will have a higher cross elasticity of demand (Pindyck and Rubinfeld, 2013). The alternative is if the coefficient is negative, then chicken and pork are complementary products to salted & dried cod. Figure 10 presents the real price of chicken, pork and salted & dried cod from the period 1991 – 2015. The figures show that changes in the price of chicken and pork follow more or less the same trends. There is therefore reason to believe, that only one of these products will have a significant substitution effect.

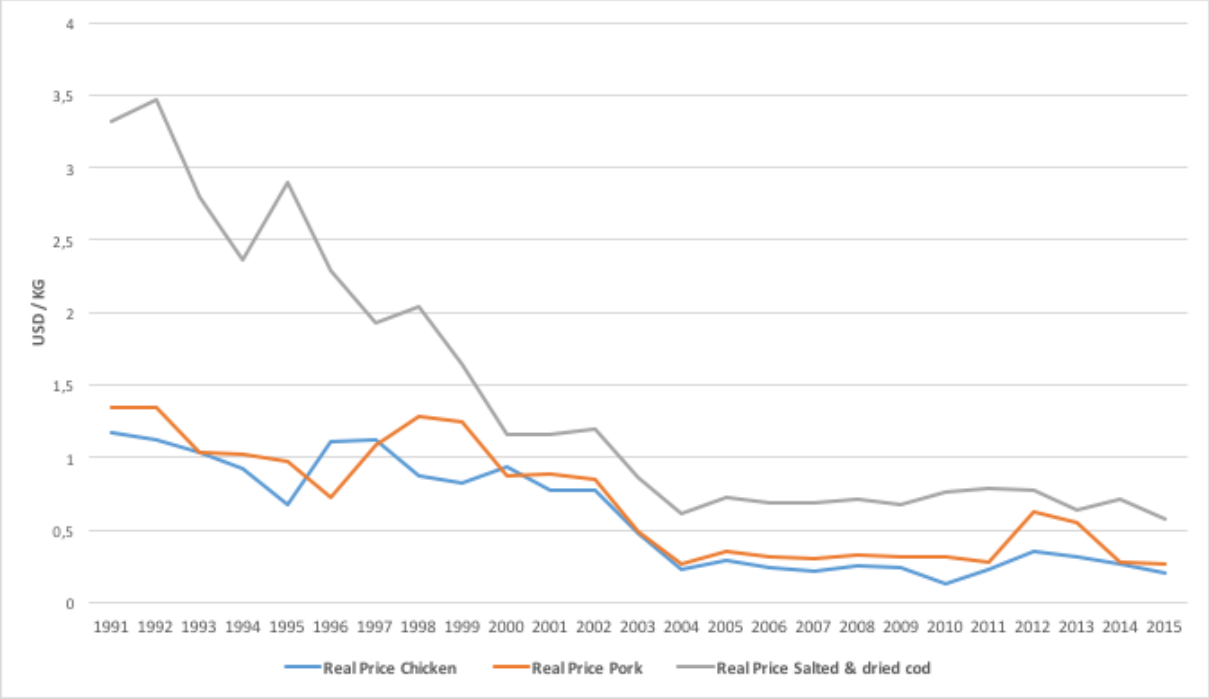


Figure 10: Prices of chicken, pork and salted & dried cod 1991-2015

GDP

Gross domestic product (GDP) is the measure of total economic activity in a country. GDP is defined as the total value added of output produced in a country without any adjustment for depreciation of capital. GDP also equals the sum of income earned domestically by both nationals and foreign citizens working in the country (Miles and Scott 2002). There are three ways of thinking about an economy´s GDP, these are:

1. GDP as the value of the final goods and services produced in the economy during a given period,

2. GDP as the sum of value added in the economy during a given period, and
3. GDP as the sum of incomes in the economy during a given period (Blanchard 1997).

The GDP could be either nominal or real. Nominal GDP multiplies the output of each good by the current price of that good in each year. Economics calculate real GDP by using a constant price from one particular year. Real GDP increases because the quantity of goods being produced is increased, not because prices have changed (Miles and Scott, 2002). In this study, the real GDP is used where it is adjusted for inflation and often used as GDP per capita. This study uses real GDP per capita as an income variable for Dominican consumers' disposable income (due to no available average wage data). Figure 11 shows changes in the annual import quantity for salted & dried cod, and how Dominican consumers' income has developed from 1988 to 2015. The two lines in Figure 11, presenting import quantity and income, moves in the same direction and has some of the same cyclical fluctuations. This might suggest that there is a positive relationship between income and import quantity, or in other words demand.

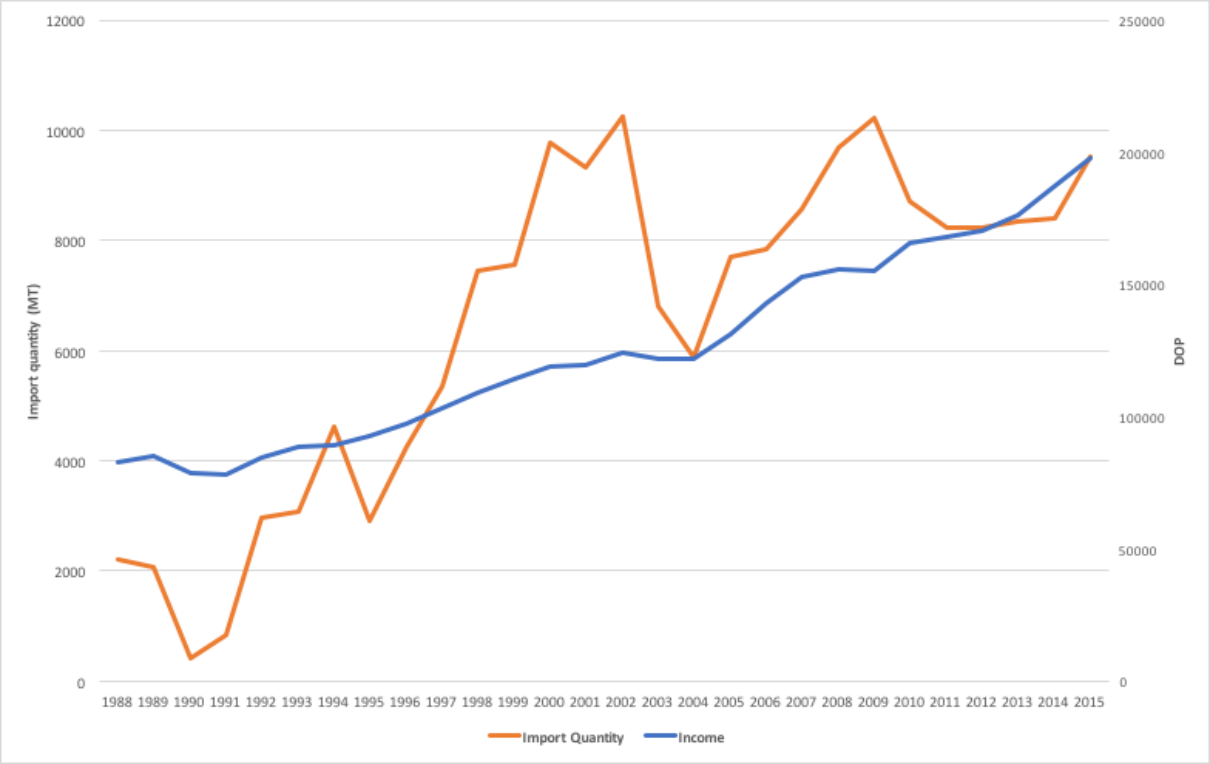


Figure 11: Import quantity and income 1988-2015

Exchange rate

The exchange rate is represented by the index from DOP to USD. The exchange rate is important for international trade with other countries because the exchange rate decides how expensive it is to buy products from other countries, and how expensive it is for other countries to buy our products. Fluctuations in the exchange rate can cause problems in the economy; when the NOK is strong, it leads to a reduction in Norwegian exports because foreign customers think the Norwegian products are too expensive. Therefore, many countries choose to have a fixed exchange rate, i.e. the government or central bank announces that the currency must have a fixed rate relative to one or more other currencies. Norway has chosen instead to have a floating exchange rate, which means that the exchange rate is determined by supply and demand in the foreign exchange market. In this study, nominal exchange rate is used (Bjørnland, 2009). Blanchard (1997) defines nominal exchange rate as the number of units of domestic currency you can exchange for one unit of foreign currency, or equivalently, as the price of foreign currency in terms of domestic currency. Blanchard (1997) holds that exchange rates between foreign currencies and the dollar fluctuate every day. These variations are known as nominal appreciations or nominal depreciations. Nominal appreciation of the domestic currency is an increase in the price of the domestic currency in terms of a foreign currency, and corresponds to **E** ↓. This means that the dollar´s value goes up in terms of the peso, indicating that the peso is worth fewer dollars, which means the exchange rate has decreased. Appreciations will lead to imports from abroad being cheaper because one must pay less to reach the currency amount that the seller require. Similarly, a depreciation of the dollar means that the dollar is going down in terms of the peso, and thus corresponds to **E** ↑. Figure 12 shows the exchange rate, Dominican Pesos per U.S. Dollars. In 2003, the figure shows the banking crisis. The Dominican Peso collapsed, as the exchange rate depreciated from 17.76 per USD to 35 per USD.

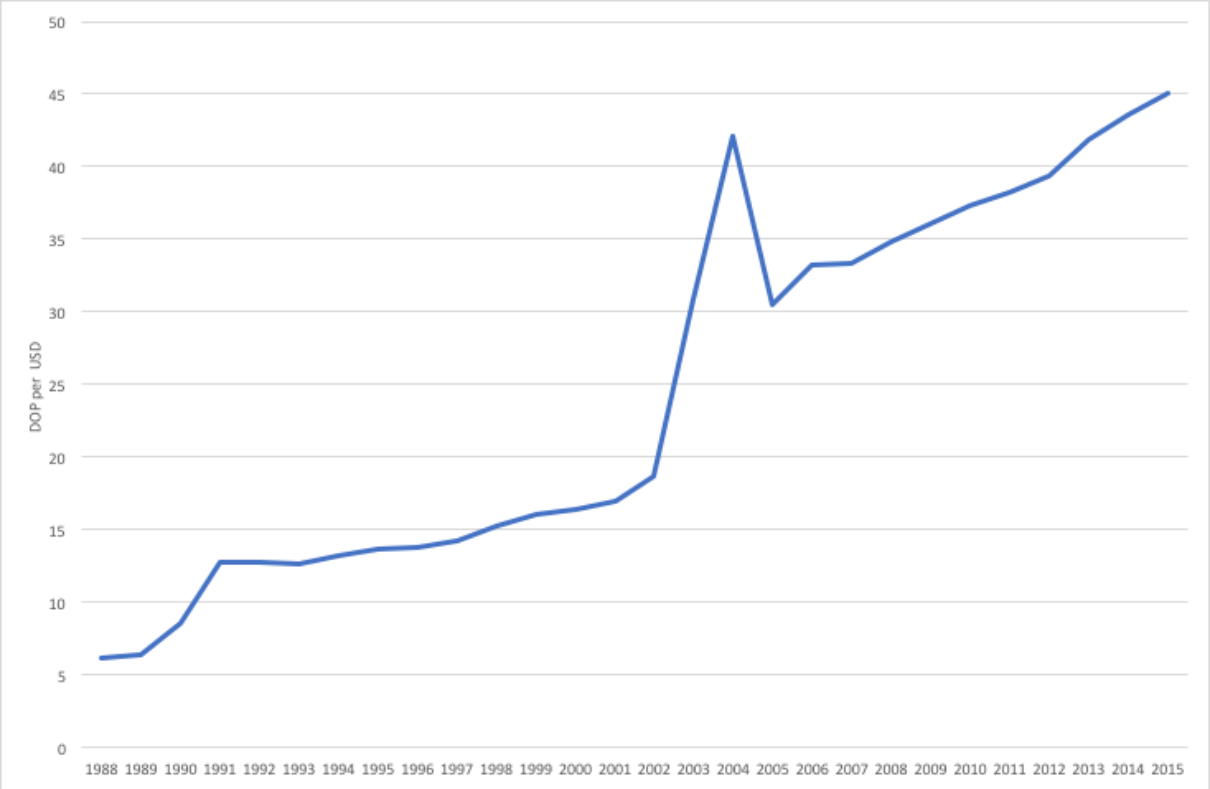


Figure 12: Exchange rate, dop per USD, 1988-2015

Dummy variable

In this study, a dummy variable for year 1990 is included. In 1990, there was a balance of payments crisis in the Dominican Republic. As mentioned in chapter 1, this led to a GDP decline of 6 %. The consolidated fiscal deficit reached 5 % of GDP, the inflation rate was 79%, and the official and private market exchange rates depreciated (60 % and 36 %, respectively). These events justify the use of a dummy variable with value one in 1990 and zero in all other years.

4.5 Reliability and validity

An important part of the research process is the discussion of the data collection and its reliability and validity for the research question. Before analysing the findings, it is important to test the reliability and validity of the research since these pertain to the quality of the research. As mentioned, the present study combines qualitative and quantitative methods. By acquiring a more profound understanding of the research topic, Patton (2002) believes that triangulation strengthens the findings. Therefore, the methodological approach of this study may improve the reliability and validity of the findings. The concepts will be

most relevant to the in-depth interviews and statistical analysis as this is the data collection methods used in this study.

4.5.1 Reliability

The reliability of the study refers to the extent to which a rating scale produces consistent or stable results and to which the data collection technique generates consistent findings (Shiu et al., 2009). Reliability can be tested through several studies conducting the same research; replicated results suggest high reliability. Alternatively, the same researcher can conduct the same research at different times and has approximately the same results (Larsen, 2016). Because there are few or no research studies conducted on the export of salted & dried cod to the Dominican Republic, it is difficult for us to compare our results with others. There is similar research done in other countries, but the results from these cannot be compared on an equal basis as the results may be different. This may affect the reliability of our research.

The reliability is also about the accuracy in the way in which the information is processed. By keeping track of the interviews and observational data, one ensures high reliability so that there is no confusion about who has said what (Larsen, 2016). During the interview process, we chose to write transcripts after each interview. Since the interviews were not conducted on the same day, it was easy for us to keep track of who had said what since the transcripts were completed immediately after each interview. We also had the recordings, so if we were in any doubt, we had these to return to. As stated before, the transcripts were sent to the respondents, which meant that uncertainties were resolved relatively quickly. According to Larsen (2016), the reliability is higher when there is more than one person interviewing the respondent. Therefore, during all the interviews we were both present. The data we analysed are obtained from reliable sources, the NSC, which are both accurate and reliable; in addition, the interviews were transcribed after each meeting and forwarded to the respondents for approval. We therefore chose to believe that the reliability of this research is good.

4.5.2 Validity

Validity refers to the extent to which the conclusions drawn from the study are true and the degree to which a measure accurately represents what it is supposed to (Shiu et al., 2009). There are two main types of validity: internal and external validity. Internal validity is the

extent to which the research design accurately identifies causal relationships, while external validity refers to the extent to which a causal relationship found in the study can be expected to be true for the target population (Schmidt and Hollensen, 2006). The internal validity is influenced by how we collected and interpreted the information. To ensure a good internal validity in the qualitative part of this study, the respondents received transcripts of the interviews afterwards. They could therefore revise and verify their answers. Regarding external validity, we have chosen an industry and market from Norway. From this, we selected eight different companies, based on their location here at Sunnmøre. This enables us to interview the companies face-to-face and compare the similarities and differences between the companies.

Furthermore, the selection of industry is particularly important for the external validity of the quantitative result. The responses are likely to reflect the population by investigating one homogenous sample. The total population of interest consisted of 18 companies that export salted & dried cod to the Dominican Republic from Norway, where 10 are located in Sunnmøre. Based on the location of the firms, eight out of 10 companies from Sunnmøre were used as the population. Hence, this study achieved a sample that accounted for 40% of the targeted population. This indicates that some generalizations can be made based on the population. Nevertheless, generalising the findings should be approached with caution (Hair et al., 2014).

5.0 Results

This chapter will present the results from both the qualitative analysis and the quantitative study (regression analysis). The chapter is divided into three parts: the first part presents the main results obtained from the interviews with the exporters and importers; the second part presents the main results from the regression analysis; and the third part provides a summary of the main findings from the regression analysis, supported by the results from the qualitative analysis.

5.1 Qualitative results

This section will emphasise the results that answer our research questions and support our hypotheses. The qualitative results are used as a supplement and support for the main research question 1. Furthermore, the qualitative results aim to answer the two following research questions 1 and 2. The key interview answers are presented in Table 4 - 9 representing the main findings from the qualitative analysis. The rest of the interview responses can be found in the appendix. The questions asked relate to the main economic drivers of demand: population, GDP, changes in price and income, and consumer preferences and trends.

The first section of the interview covered general facts and aspects of the market (Q1), and when and why Norwegian companies choose to enter the Dominican Market (Q2). All respondents agreed upon the fact that the Dominican market favours saithe and that this is due to long standing traditions. From the exporters' point of view, access to raw materials and the proportion of salted & dried cod production made from saithe determines how active they are in this market (Q3). Importers base their imports on traditions and the "shelf life" of the product. The key points are presented in Table 4 below.

Question	Answer
Q1. **What is your approximate market distribution in relation to imports in 2016? Has this change a lot during the last 10 years?**	**Exporter** The main export markets for the Norwegian companies were: Brazil, Portugal, Caribbean and West Africa (The Democratic Republic and Republic of Congo, Angola). Most of the exporters explained that their distribution has not changed significantly in the last 10 years. While others, point out that this changes according to availability of raw materials and "framework conditions". Many draw parallels between the Dominican market and the Brazilian or the Portuguese market. The Dominican market is similar to the Brazilian regarding large consumption of salted & dried cod made from Saithe, and large income differences. Similarities to the Portuguese market is based on a steady consumption throughout the year, whereas Brazil has a more seasonal consumption. Before joining the EU, the Portuguese market was poorly developed (compared to other European countries), but experienced a rapid growth, and a fast expansion in the number of supermarkets after becoming a member. Today, most exports of salted & dried cod to Portugal, go directly to supermarkets and some claim that this represents about 80% of the total quantity. This is a trend that some believe is developing in the Dominican Republic as well.
	Importer Not relevant
Q2 **When and why did you start exporting/import**	**Exporters** The exporters entered the market at different times, in the period between 1960 and 2009. All respondents mentioned that one of the main reasons why they entered, was due to a desire to explore new markets, and because a significant proportion of their salted & dried cod production was made from saithe, which was what the Dominican market wanted. Exporters also mentioned that they needed a market for their small size saithe, which was considered too small in other markets e.g. Brazil.

to the Dominican Republic?	
	Importers The import of salted & dried cod has long and strong traditions in the Dominican market. The first importer started importing salted & dried cod from Norway in the 1960s, and then the others followed. All the traditional importers responded that they started importing salted & dried cod because of economic opportunities, and to expand their business. It was essential to import products that were profitable and desired by the customers. Salted & dried cod was one of the first products they started to import. Because of the dryness and not requiring cold storage, this product was suitable for the market. The supermarket started importing around 1992. This was because importing salted & dried cod was cheaper than buying it from a local supplier.
Q3 **Which fish types and fish products do you import/export to the Dominican Republic? Why?**	**Exporters** All respondents answered that they only exported salted & dried cod made of saithe. This was due to tradition and the fact that Dominicans prefer the strong flavour of saithe over cod.
	Importers The fish types imported to the Dominican Republic is saithe, herring, cod, Sardines, Hake and Pollack fillets. The supermarket imports mainly saithe, but also a small portion of cod from Norway, and Pollock from China. According to the supermarket, their results from the first quarter of 2017, showed that the total import distribution of salted & dried cod was 9 Norwegian containers and 1 Chinese. The consumption is special in this period, due to Lent, and consumption goes back to normal after this. However, the supermarket respondent claimed that distribution between the export countries is 90% Norwegian and 10% Chinese throughout the year.

Table 4: Results from interview – General facts

The second section of the interview questioned exporters and importers about their opinions regarding demand for salted and dried cod, and important factors that influence demand (Q4-Q8). Price was highlighted as a very important factor, and the key points are presented in Table 5 below.

Question	Answer
Q4 **Which factors influence demand for salted and dried cod?**	**Exporters** The most important factor is exclusively price, which the exporters say is a function of raw materials and the exchange rate between NOK and USD. If the price is too high, the consumers will choose other protein products. The exporters therefore claim that producing "cheaper fish" is important. Today the Norwegian quotas of saithe are relatively large, but a greater proportion of the fish is frozen on board the vessels and can therefore be exported directly abroad. This makes competition for raw materials tighter. Other factors which are mentioned are currency and unfavourable exchange rates that influence prices. Today, Dominicans have limited access to USD which can be a challenge. Demand for salted & dried cod will also differ according to variations in the prices of alternative products. Many exporters therefore are of the impression that the market is very price sensitive.
	Importers Importers agree with the exporters; price is the main factor affecting demand. If the price is low, the consumer buys more fish and vice versa. The importers also mention that quality is essential, but quality is influenced by price. The better quality, the higher the price. One of the importer also mentioned tradition as an important factor and the fact that the salted & dried cod can be stored without refrigeration (compared to other protein foods).
Q5	**Exporter** Exporters have different opinions when it comes to changes in price. Some believe price changes over the last 25 years have had major variations due to the exchange rate and raw material prices.

How have changes in price been in recent years? Has the price been stable or has there been large fluctuations?	While others state that price developments measured in retail prices per dollar, have decreased in recent years. Two or three years ago, the price for salted & dried cod was 127-140 dollar per 25 kg carton, and today it is between 90-100 USD. Other exporters say the price is stable, and there have been small variations between NOK 4-5 in the last 5-10 years. The number of Norwegian exporters have increased, hence competition is higher and prices are being pushed down.
	Importer According to the importers, prices vary according to the exchange rate between DOP and USD, and NOK per USD. There has been great variation between DOP and USD.
Q6 **Does price have a great impact on demand for the product?**	**Exporter** Some believe that the current high demand is explained by low prices, however some are of the opinion that demand is stable regardless of price.
	Importers All importers agree with the exporters that the prices have a major impact on demand because the consumers select products with the lowest price.
Q7 **Does exchange rate fluctuations influence your import/export quantity?**	**Exporter** There are some disagreements among exporters in terms of currency changes and its impact on demand. Some say they do not notice much of the currency changes in relation to what is exported, while some say that currency fluctuations affect demand to the extent that it affects the sale price in dollars. Despite this, everyone agrees that the exchange rate may have an impact on price.
	Importer The importers agree that the exchange rate has an impact on their imports of salted & dried cod. This is due to appreciation or depreciation of the currency between DOP and USD, which can sometimes vary between 2-3% more or 2-5% less.

Q8 **Has the country's economic growth had an impact on demand in the national market?**	**Exporter** The export of salted & dried cod has increased and all exporters believe that the economic growth may have had an impact, although it is difficult to pinpoint one exact reason. National wealth has improved and the population's wages have increased, resulting in a growing middle class, hence higher purchasing power. The exporters claim that even though large parts of the population are poor and the salted & dried cod is a fairly expensive product, most of the consumers still eat salted & dried cod. This is because, 1 kg of salted & dried cod gives more food than 3 kg of chicken, indicating that the salted & dried cod is a product that provides more food than chicken. At the same time, the salted & dried cod is handled in such a way that it can stay for a long period of time without being in a fridge or freezer, which means that the salted & dried cod lasts longer than other products.
	Importer The importers responded that if people have access to more money, they will be able to buy not only salted & dried cod, but also other products. While the revenues increase, people will switch to other products such as salmon or cod instead of saithe.

Table 5: Results from interview – Factors affecting demand

The next interview section identifies different consumer groups and consumer patterns (Q13, Q15 & Q16). It also addresses factors which are important for the consumers and their preferences (Q14). Key points are represented in Table 6.

Question	Answer
Q13 **Who buy salted & dried cod in the**	**Exporter** All respondents believe that most people buy salted and dried cod in the Dominican Republic. All respondents also agree upon the fact that salted & dried cod has a long tradition of being part of the Dominican cuisine. This is in relation to religion and the durability of the preserved product. The majority of the respondents do not think there are any differences between social classes and income

Dominican Republic? **Are there differences between consumers from different social classes and income groups?**	groups, in relation to the consumption of salted & dried cod. This is because the consumption is related to food traditions. Some of the respondents mentioned that the product used to be found in poorer households and was, back in the days, "slave food". Today however, this is a relatively expensive product compared to chicken, but all classes eat it. However, many explained that the salted & dried cod is in fact "cheaper" as you get more food from 1 kg Bacalao Noruego than 3 kg of chicken. A few also point out that the richest might prefer salmon or salted & dried cod made from cod, rather than saithe.
	Importer The importers agreed with the exporters. They also emphasised that it is mostly the housewives who plan and purchase the food for the Dominican households, i.e. they are the ones buying the product.
Q14 **What is important for the consumers and what are their preferences?**	**Exporter** Price was highlighted as an important factor in this market. There was also agreement upon thickness and colour of the fish as important purchasing factors for the consumers. Some of the exporters also mentioned that the consumers prefer fish which is made from frozen (on board the fishing vessels) raw materials. According to the exporters this gives the fish a lighter colour and the fish is also a bit thicker.
	Importer All importers also believed that the thickness and colour of the fish was the most important factors for the consumers: "Dominican consumers buy food with their eyes". Their perception was that a whiter colour was a sign of freshness or cleanliness, and wanted thicker pieces because "it has more meat".
	Exporter The majority of the respondents found it hard to answer this question, but some believed that young people do not have as much time to prepare food as older people, and salted & dried cod

Q15 **Are there differences among the different age groups, in accordance to demand? Do the younger consumers eat as much as the elderly?**	is maybe therefore not their first choice. However, the respondents believed that young people that still lived with their families, still ate it. It was also claimed that when younger people establish their own families, they would take the time to prepare this product for their children in accordance with national food traditions. Some of the respondent believed that young people eat as much as older people. Most of the respondents did not think so, and believed that younger people do not spend that much time on cooking. The younger section of the population has less time and would therefore prefer more convenient food, such as pasta or pizza.
	Importer The majority believed that there were differences among the age groups. They think that older people eat more of this product than the younger. They also claimed that many of the younger consumers sometimes did not like the taste. However, some of the importers claimed that traditions were stronger the older you got. One of the importers also mentioned, that younger people, such as students are served Bacalao Noruego for lunch, in accordance with the new national school meal programme.
Q16 **How often does the average consumer eat salted & dried cods?**	**Exporter** The overall impression of the exporters is that consumers eat salted & dried cod a few times a month, and some maybe weekly. Their thoughts are mostly based on the annual exports statistics, which claim that consumption per capita is ca. 1 kg. When desalted/hydrated this is equivalent to about 1.3-1.4 kg per capita annually. It is also claimed that the Dominican consumers have a different consumption pattern when it comes to this product, then in some other markets. For example, 1 kg of salted & dried cod may be used in 10 different meals, whereas in some other markets this would only be enough for 4 meals. The exporters emphasised

	that consumption is very stable, but increases slightly in the Lenten period.
	Importer According to all importers most Dominicans eat salted & dried cod approximately once a week, and probably more around Easter. The supermarket also mentioned that cooking competitions and shows have had a positive effect on the consumption. It teaches the consumers different ways of preparing the fish and different recipes. This has made people more aware of the product and they eat more of the product when they know additional ways of preparing it.

Table 6: Results from interview – Distribution

This section, with key answers in Table 7, investigates the current competitive situation in the Dominican Market (Q17). Overall, the market is dominated by Norwegian firms, however during the last few years Chinese competitors have entered the market, and the Canadians have more or less disappeared (Q18).

Question	Answer
Q17 **Who are your greatest competitors and are these mainly Norwegian exporters?**	**Exporter** All interviewed exporters, see other Norwegian exporters as their main competitors. They compete both in accordance to orders and price. However, they also mentioned that if one exporter does not have enough fish, he can sometimes buy this from other competitors. Furthermore, they were unanimous that Alaska Pollock or filleted products from China were an increasing threat.
	Importer Not relevant
Q 18	**Exporter** In general, they do not notice a lot of competition from other countries in this market, except a little from China. Some draw parallels with the Brazilian market, where Chinese products have acquired more and more market share. However, there is consensus among the exporters, that the quality of the Chinese fish

Do you experience any competition from other countries? China? Canada?	is not as good as the Norwegian products. However, Canada used to be a competitor, but is not as visible in the market today. This is mainly because they do not have sufficient access to raw materials, and their prices are higher than the Norwegian products.
Where do you import salted and dried cod from other than Norway? China? Canada?	**Importer** According to all traditional importers, they only import salted & dried cod from Norway. The supermarket however, also imports from China, and has done so for 4-5 years. The traditional importers also see the Chinese products in the market, and find the product whiter but, "you do not know what you are eating". According to the supermarket, due to tradition, the consumers have a stronger relationship with the Norwegian fish because they know it and are used to it: "If you put the Chinese product on special promotions, the sales will maybe double. When you do a special promotion with the Norwegian product, the sales increase by maybe 10 times the normal sales". The Chinese fish is Pollock and the Norwegian is Saithe**.** The Chinese fish are filleted products, which are whiter in colour and not as dry and have a more appealing packaging. However, you do not see the whole fish because of the type of bags used, and the product is more expensive. "In the end the price is often the most important factor".

Table 7: Results from interview – Competition

In this section we wanted to find out whether there are any natural substitutes competing with salted & dried cod (Q20). We also wanted to investigate whether country of origin is a competitive advantage for Norwegian companies, due to the term Bacalao Noruego (Q21) as well as finding out whether the respondents see "prepared products" such as filleted products or desalted fish as a threat (Q22). The key answers are presented in Table 8.

Question	Answer
Q20	**Exporter** Exporters agree that a potential substitute is chicken. Furthermore, some exporters mentioned that other imported fish types and other protein products may be relevant for the consumers. The exporters

In relation to other imported fish types, local catches and other products such as chicken – What is the main substitute to salted & dried cod?	are in general not a 100% sure about direct substitutes for salted & dried cod, and whether there is one. However, many point out parallels with the Brazilian market, where chicken and other protein products such as cheap meat are the most common substitutes.
	Importer According to the importers the main substitutes are chicken, pork and sardines. One also mentioned herring as one of the important substitutes (as these products are sold side by side in all outlets). In relation to local catches, the Dominican fishing industry is artisanal and poorly organised with no stable supply to supermarkets, for example.
Q21 **Has Country of Origin an impact on what product the consumers decide to buy?**	**Exporter** Country of origin is important according to all respondents. Exporters claim that the Dominican consumers have a strong relationship with salted & dried cod from Norway – Bacalao Noruego, and they believe that this is more as a "brand" than a country. Consumers are familiar with Bacalao Noruego, due to long traditions, and it is presumed to be a safe choice, because they "know what they get". Many of the respondents claim that most of the consumers associate salted & dried cod with Norway, and therefore believe that all Bacalao products are Norwegian. Salted & dried cod from Norway is also associated with good quality. However, it is claimed that consumers do not think about country of origin in their everyday life and choose the products that "their eyes like". Another important issue addressed by exporters, was the threat of salted & dried cod products "pretending to be Norwegian" using the Norwegian flag or colours.
	Importer The importers agreed with the exporters, and thought that Bacalao Noruego was perceived more as a brand than a country. However, according to the importers Norway has a good product reputation in relation to product quality, but also due to the annual cooking

	competition organised by the Norwegian Seafood Council. The publicity is important for Norwegian salted & dried cod. It was also mentioned that most consumers believed that all salted & dried cod was from Norway.
Q22 **Do you think that "prepared products / ready to eat products" as e.g. already desalted and deboned / desalting bags will influence future demand?**	**Exporter** Exporters agreed that these products would affect future demand. These expectations are explained by the increasing wealth, and higher purchasing power. However, some mentioned that if you compared it to the Portuguese market, this was not the case. Also, if you looked at the Brazilian market, prepared products had been increasing for some time, but according to some of the exporters these were on their way back. Price is also an important factor in this case, prepared products are more expensive than the traditional product. Most of the respondents believed that the consumers in the Dominican market, would also in the future buy the "whole" fish as they do today, but the "prepared products" from e.g. China would be present.
	Importer Importers in general do not think this will have a major influence on future demand. This is due to the 20 % import tax on filleted products, which the traditional salted & dried cod does not have. This is why the Chinese fish is more expensive than the Norwegian. However, the consumers like and are used to seeing the whole fish, as they feel able to "control" the quality of the product.

Table 8: Results from interview – Substitute, country of origin and prepared products

Finally, the interviewed exporters and importers were asked about their personal opinions in relation to future potentials (Q23). Their answers are presented in Table 9.

Question	Answer
Q23	**Exporter** All respondents were positive in relation to the future of the Dominican market. According to the exporters the increasing

How do you see future potentials?	wealth and growing middle-class, gives the consumers higher purchasing power, and the number of supermarkets are expected to increase. However, there were different opinions in relation to the speed of the development. Many believed the market was very stable, and that it would grow and be more important in the future, whereas some believed that it would remain as stable as today.
	Importer The importers point out that if the quality and price of the Chinese products improve, they could be a much stronger competitor in the future.

Table 9: Results from interview – Personal opinions

A summary of the qualitative results is provided in section 5.3. This is presented in accordance with the results in section 5.2. Furthermore, these results will be discussed in chapter 7.

5.2 Quantitative results

This section analyses the results from the import data of Norwegian salted & dried cod to the Dominican Republic, obtained from the Norwegian Seafood Council (2016). We will start with an overview of the descriptive statistics. In order to accept or reject the research hypotheses, two multiple regression analysis will be conducted. As we mentioned earlier, due to the small sample, IBM´s Statistical Package for the Social Sciences (SPSS) was used to conduct all statistical analyses.

5.2.1 Descriptive statistics

The descriptive statistics - minimum and maximum values, mean standard errors, standard deviation, skewness and kurtosis - are presented in Table 10, relating to the variables demand, exchange rate, income and the price of salted & dried cod in the period from 1988 to 2015. During this period, the average quantity of salted & dried cod exported to the Dominican Republic was 6471.96 MT where the average real price was USD 1.8366.

Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Std. Error	Statistic	Std. Error
Demand1	28	420,00	10253,00	6471,9643	572,28989	3028,27343	-,617	,441	-,941	,858
Price1	28	,58	6,22	1,8366	,28994	1,53424	1,492	,441	1,683	,858
Income1	28	77938,46	197826,09	125539,152	6813,76264	36055,0429	,393	,441	-1,032	,858
Exchange1	28	6,11	45,05	24,4104	2,45623	12,99712	,202	,441	-1,618	,858
Valid N (listwise)	28									

Table 10: Descriptive statistics. n= 28

Hair et al., (2014) maintain that the statistical techniques conducted in this study assumes that the distribution of scores on the dependent variable is "normal". Appendix 6 contains Kolmogorov-Smirnov´s test of normality for the variable quantity. A non-significant result with a sig. value > 0.05 indicates normality. In this case, the sig. value for the variable is over 0.05. Thus, the assumptions of a normally distributed dependent variable are valid. Figure 13 shows the normal distribution of the dependent variable (demand quantity).

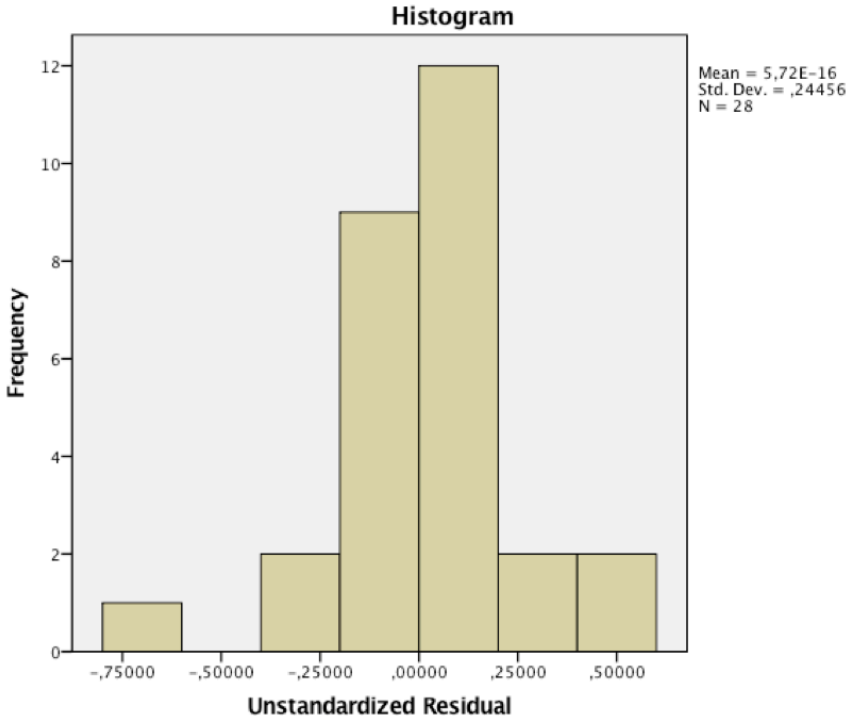


Figure 13: Histogram of normal distribution for the dependent variable

5.2.2 Regression analysis results

The analysis of salted & dried cod imported to the Dominican Republic, is conducted by an estimated demand function using real price, real GDP per capita, 1990 (dummy), exchange

rate and real substitute prices as explanatory variables. Many different exchange rate variables were tested, and due to problems with autocorrelation using the real effective exchange rate, we ended up using the nominal. This is because both nominal and real effective exchange rates provide overall the same result. Consumption of goods within a country may be defined as: (national production + imports – exports). In the Dominican Republic however, there is no national production of salted & dried cod, and therefore no exports either. Consumption is therefore measured as import quantity. In order to test the hypothesis, two regression analyses were conducted. In the first model, all the independent variables are tested on the dependent variable and a dummy variable, to test H1, H2 and H3. In the second model, the substitute variables are included. This model allows us to test hypothesis H4 and see if the results including substitutes (chicken and pork) deviate from the first model. We have conducted an Ordinary Least Squares (OLS) regression model, using the general model specifications as follows:

Once the variables are defined, it is possible to perform the OLS regression model. The first regression model is selected by quantity as the range of dependent variables, and real price, nominal exchange rate, real GDP per capita and the dummy variable "the 1990 crisis" as the range of independent variables. Table 11 presents a summary of the estimated model. The model shows an adjusted R^2 of .886 indicating that quantity can be explained by 88.6% from the independent variables. The Durbin-Watson has a value of 1.941, and indicates no autocorrelation in the residuals.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,950[a]	,903	,886	,26497	1,941

a. Predictors: (Constant), Exchange, Dummy, Income, Price

b. Dependent Variable: Demand

Table 11: Model summary regression 1

The F-test shows a good model fit, with a value of 53.53, indicating that the model is statistically significant (appendix 5). Table 12 provides an overview of the most significant results from the analysis. The estimated coefficients of price, income and exchange rate is

statistically significant (P < 0.05), which allows us to reject the null hypothesis. The price variable shows that an increase in price by 1%, led to a reduction of 1.44% in demand for salted & dried cod. This shows that demand is elastic in relation to price. This was also indicated in table 12, showing an inverse relationship between price and import demand for Norwegian salted & dried cod. The income variable revealed that demand increased by 1.331% when income increased by 1%. An economic crisis in 1990, led to a drop in quantity and average income per capita, which is captured by the dummy variable with an estimated coefficient of -1.731. Indicating that the dummy variable makes a stronger contribution to quantity than other variables in the analysis. With an income elasticity greater than one, Lem et al (2014) suggests that salted & dried cod is a "luxury" good. In our context this means that as income increases, demand for salted & dried cod will proportionally rise; however, this is more than the increase in income. The exchange rate variable has a negative coefficient, which represents an inverse relationship to the imported quantities of salted & dried cod. For the period between 1988 and 2015, the estimated model shows that an increase of 1% in the exchange rate led to a reduction in import quantities of about 1.529%. The VIF values show expected multicollinearity between the variables. This is explained by the use of the consumer price index 1991=100, when adjusting the used variable values for inflation.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-1,831	5,280		-,347	,732	-12,754	9,091		
	Dummy	-1,731	,283	-,417	-6,108	,000	-2,317	-1,145	,907	1,103
	Price	-1,444	,282	-1,371	-5,126	,000	-2,026	-,861	,059	16,960
	Income	1,331	,466	,488	2,858	,009	,367	2,294	,145	6,906
	Exchange	-1,529	,344	-1,183	-4,450	,000	-2,240	-,818	,060	16,769

a. Dependent Variable: Demand

Table 12: Estimates of the salted & dried cod demand function regression 1

The estimated model gives access to predictions for demand, as illustrated in Figure 14. According to Figure 14, predicted demand is very close to actual demand, it follows the same trends and has an overall good fit, and is always within the 95% confidence interval.

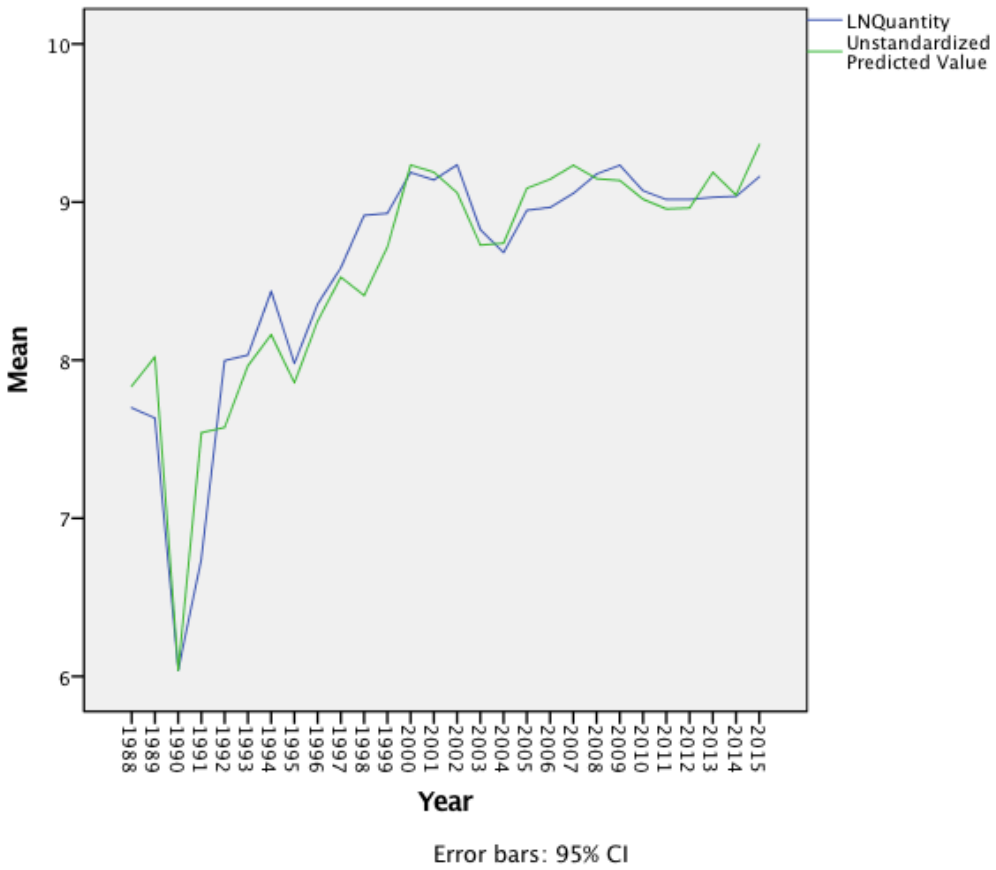


Figure 14: Prediction of demand for salted & dried cod

The second model aims to test cross-price elasticity of potential substitutes. Here the price of chicken and pork are utilised to investigate whether either of them has an impact on the demand for salted & dried cod. This analysis therefore includes the real price of chicken and the real price of pork as independent variables in the regression model. The dummy variable is excluded because the data for substitute prices available are for the period 1991 to 2015. The estimated model when including prices of potential substitutes, gave a poorer model fit with an adjusted R^2 explaining 79.8% of the model. Table 13 shows that none of the substitutes' real prices had any statistical significance, and H4 is therefore rejected ($P > 0.05$). The results confirm those of the regression, namely that demand is price elastic and salted & dried cod is a "luxury" product. The VIF values show multicollinearity between the variables. This is explained by the additional two substitute variables using CPI 1991=100, when adjusting the prices for inflation.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-6,974	6,238		-1,118	,278	-20,029	6,082		
	Price	-1,364	,298	-1,459	-4,579	,000	-1,987	-,740	,084	11,909
	Income	1,840	,560	,869	3,287	,004	,669	3,012	,122	8,192
	Exchange	-1,793	,482	-1,551	-3,720	,001	-2,802	-,784	,049	20,398
	Chicken	-,072	,281	-,090	-,257	,800	-,660	,515	,070	14,205
	Pork	,101	,282	,109	,358	,724	-,489	,692	,093	10,792

a. Dependent Variable: Demand

Table 13: Coefficients regression 2

However, as already mentioned Figure 10 shows that prices of chicken and pork have small differences and that price developments over time are quite similar. Hence, only one of these products will have a substitution effect, and might therefore be the reason why none of the included substitutes, show any statistical significance. Two additional regressions were therefore conducted, testing the substitutes individually. Yet, the results were overall the same, and of the substitutes show any significant effect (Appendix 7c-d).

5.3 Summary of quantitative and qualitative analysis

The results from part 5.2. are supported by part 5.1. These are presented to best answer the proposed research questions, and the related hypothesis. The main research question is:

"How price and income sensitive is the demand for salted and dried cod in the Dominican market?"

Table 14 presents a summary of the hypothesis testing from the two regression models. In total, the analyses identifies price, consumer disposable income, exchange rate, (and the dummy variable) as significant contributors to the demand for salted & dried cod. Therefore, the following hypothesis H1-H3 must be accepted. According to the results from regression (1), price is elastic and has a significant effect on demand. A price increase of 1% led to a decrease in demand by 1.44%. The qualitative result in **Q4-Q6** shows that price is the most important factor affecting demand in the Dominican market. If price is low, consumption goes up and vice versa. Hence, demand is very price sensitive. The results also show that exchange rate has an inverse effect on demand. An exchange rate increase of 1% resulted in a 1.5% reduction in demand. This is partly supported by the results in **Q4** and **Q7**. These results show, that exchange rate fluctuations have an impact on demand, mainly because it

impacts prices. This effect can be illustrated by somewhat "high" VIF values between exchange rate and price. However, importers claim that exchange rates due to appreciation or depreciation of the currency have an impact on demand, sometimes of ± 2-5%.

Another important factor influencing demand is consumer disposable income. The quantitative results show that demand is elastic, and an increase in income of 1%, led to an increase in demand of 1.33%. Indicating that salted & dried cod is a luxury good in the Dominican market. This is supported by **Q8**, where it is stated that national wealth has improved, thus wages have increased, resulting in higher purchasing power. The dummy variable captures noteworthy economic instabilities in 1990. Furthermore, substitute products of salted & dried cod were identified as chicken and pork, and were seen to have no statistically significant contribution to demand for salted & dried cod. According to the results from regression (2) and answers provided by exporters in **Q20**, interviewees are not definite about whether there are any direct substitutes for salted and dried cod. Hence, hypothesis H4 was rejected.

Hypothesis	**Remark**
H1: The demand of salted & dried cod is price-elastic	Accepted
H2: The demand of salted & dried cod is Exchange rate elastic	Accepted
H3: The demand of salted & dried cod is income-elastic	Accepted
H4: The cross-price elasticities of substitute products are positive	Rejected

Table 14: Summary of hypothesis testing *P < 0.05

The two additional research questions are based upon the qualitative result from part 6.1. Research questions 2 is:

"How can the Dominican demand for salted & dried cod influence the Norwegian companies´ current and future market position in the Dominican Republic?"

According to results in **Q1-Q3**, Dominican demand for salted & dried cod is stable throughout the year. The Dominicans prefer salted & dried cod made from saithe and this preference is built upon long traditions. This is a fish type which Norwegian companies have

good access to, compared to other countries. The results in **Q17** show that the current market is dominated by Norwegian companies, as exporters only see each other as competitors. However, they have noticed the entrance of the Chinese product. The results from **Q18** shows that only supermarkets offer salted & dried cod from China. These are filleted products, which are not as dry as the Norwegian fish, and have a whiter colour. **Q22** also show that these filleted products have an import tax of 20%. According to **Q3,** the current supermarket distribution between the product from the two countries is 90% Norwegian and 10% Chinese. It is claimed, that this distribution has not changed since the Chinese entered the salted and dried cod market in the Dominican Republic 4-5 years ago. **Q18** explains that Canada used to be a competitor, but is not visible in the market today. This is mainly due to limited access to raw materials and higher prices than the Norwegian products. Furthermore, **Q22-Q23** presents results according to future aspects. Increases in national wealth and consumer purchasing power are believed to have an impact on future demand. This might lead to an expansion in number of supermarkets. In relation to higher income and numbers of supermarkets, consumption of "prepared products" is expected to increase in the future. Importers points out that if the quality and price of Chinese products improves, they will be a stronger competitor in the future. However, Norwegian exporters believe consumers in the future will continue to buy the "whole" fish, but the "prepared products" from countries such as China will be present.

The final research questions 3 is:

"Does country-of-origin have any effect on Dominican consumer choices?"

The results from **Q13-Q16**, explain factors that influence Dominican consumers' choice. First of all, **Q13** shows that the majority of the population buy salted & dried cod in the Dominican Republic, and this is despite large differences in consumer disposable income. Salted & dried cod is a relatively expensive product, but it is perceived as "cheap" as 1 kg of salted & dried cod, provides more food than 3 kg of chicken. This makes the product affordable for all social classes. Furthermore, it is mostly housewives who plan and purchase food for Dominican households. According to **Q14**, consumers buy "with their eyes", and thickness and colour is the most important factor. White colour is preferred and is perceived as a sign of freshness or cleanliness. Other factors influencing consumer choice are **(Q15)** age, taste and available time. Young people have limited time schedules, and do not always

like the taste. Yet many of the respondents believe this is a taste preference, which due to tradition often develops the older you become. However, according to **Q16**, the average consumer chooses to eat this product once a week.

According to the results in **Q21**, Country of Origin (COO) has some effect on a consumer's choice. There is a long tradition in the consumption of Bacalao Noruego and it is perceived to be of high quality and to be a safe choice. However, it is also believed that all salted & dried cod is from Norway, and many consumers see Bacalao Noruego more as a brand, than a country. Yet, importers claim that the annual cooking competition organised by the NSC, has a positive COO effect on consumer choice.

6.0 Discussion

The following section will critically discuss the results obtained from the qualitative and quantitative analysis in chapter 5. The main purpose of this study was to investigate whether price, income, exchange rates and substitutes affect the demand for salted & dried cod in the Dominican Republic. The results, will therefore be discussed in the section below. Additionally, research questions 2 and 3 will be debated. By assessing both quantitative and qualitative research methodologies, this allows us to achieve triangulation which increases the validity through preliminary in-depth interviews. There is no similar research or other studies conducted about the Dominican market for salted & dried cod. The findings will therefore be discussed and compared in accordance to a similar study conducted by Neto et al., (2015), investigating the *"Brazilian demand for salted & dried cod – the 1989–2014 period"*. Neto et al. (2015) examine the same estimations of demand and approximately in the same time period. The paper also addresses Norwegian competition in the Brazilian market and factors influencing consumer choice. Although, the Brazilian salted & dried cod market has more distinct competition, as Portugal and China have gained greater market share in recent years, we believe this paper is comparable with the Dominican market, as many of the same market trends are developing in the Dominican Republic. We therefore find this research paper suitable as a comparison.

6.1 Factors affecting demand (RQ1)

The results show that demand for salted & dried cod in the Dominican Republic is both price and income elastic. According to these, demand is elastic in relation to price, whereas a price increase of 1%, led to a decrease in demand of 1.44%, indicating that the market is very price sensitive. This is supported by Bjørndal & Ellingsen (2015), who claim that most markets for salted & dried cod are price sensitive. According to Neto et al. (2015) this is not the case in the Brazilian market. Their results show that demand is inelastic in relation to price, where an increase in price of 1% only led to a reduction in demand of 0.66%. The contradicting results may be due to different consumer patterns. Salted and dried cod is a traditional good in both markets; however, according to our qualitative findings, the average Dominican consumes this product weekly. In Brazil the consumption is mainly seasonal (Christmas and Easter), and has, according Neto et al. (2015), few substitutes, which explains the low price sensitivity. Lem et al. (2014) claim that the more price elastic the demand for the good, the greater substitution possibilities there will be, i.e. stronger

competition. However, our cross-price elasticity analysis, testing the substitution effect of chicken and pork, showed no significant effect on demand for salted & dried cod. This is supported by Neto et al's (2015) findings in Brazil. The qualitative result indicated no clear substitutes. Nevertheless, this result also points out parallels to the Brazilian market, where chicken and other protein products such as cheap meat were mentioned as common substitutes. An explanation of why we did not find a substitution effect, may be due to the fact that 1kg of salted and dried cod gives more meat than 3kg of chicken. The Dominican Republic is a relatively poor country with large income differences, indicating that the average consumer will buy products that give the "most value for their money". This is supported by Pindyck and Rubinfeld (2013) claiming that more of each good is always preferred to less.

According to our results, income was found to have a positive effect on demand. An increase in consumer income of 1%, led to an increase in demand of 1.33%. This shows that demand is income elastic and indicates that the product is a "luxury" good. This is supported by Lem et al. (2014), claiming that a good with a value greater than one is a "luxury" good. Neto et al. (2015) also support this, and found a similar income elasticity of 1.32 in the Brazilian market. There are large income differences in both countries; however, the Dominican Republic has, seen an expansion in the middle class due to rapid economic growth, which might explain the high-income elasticity in this market. Even though the average consumer income is low, our findings show that all Dominican households eat salted & dried cod. In Brazil however, the majority of the consumers of this product belong to the high-income groups. This is supported by Lem et al. (2014) and Sloman (2007) who claim that demand for luxury goods will expand as people's income rises. According to the qualitative results salted & dried cod is a fairly expensive product, which most people eat. This might be due to the fact that you get "more value for money" for salted & dried cod compared to chicken, indicating that it might not be perceived as a luxury good in the Dominican market after all. In our results some respondents also claimed that increased purchasing power would lead to consumers not only being able to buy more salted & dried cod, but also other products such as salmon or cod instead of saithe.

Our results also show expected somewhat high VIF values. This is due to the deflator used when adjusting income (GDP per capita) and prices for inflation. Furthermore, the results show that an exchange devaluation, has a negative impact on demand for salted & dried cod.

An increase in exchange rate of 1%, led to a reduction in demand of 1.52%. A devaluation of the DOP, will make imports more expensive as you get less for your money in USD. This is supported by Neto et al's (2015) findings in the Brazilian market.

6.2 Norwegian companies´ current and future market position (RQ2)

Norwegian exports of salted & dried cod to the Dominican Republic, is based on long history and traditions. However, as already mentioned the country has experienced rapid economic growth, resulting in higher consumer purchasing power and an expansion in the number of supermarkets. According to Neto et al. (2015) these changes are similar to the Brazilian market. Their research shows that Norway was the only supplier of salted & dried cod in the Brazilian market until 1990. Portugal entered the market in 1991, followed by China in 2013-2014. During this period, the two competing countries have acquired increasingly large market shares. In 2014 Norway's market share was reduced to just over 50%, Portugal had increased its share to about 41% and China 6%. In relation to the changes in the Brazilian market, we want to investigate how *"Dominican demand for salted & dried cod influences Norwegian companies´ current and future market position"*.

According to our import data (NC), Norway has been and is currently dominating the Dominican market for salted & dried cod. Norway was according to our import data the only supplier until 2000, then Canada entered, followed by China in 2012. Despite the entry of these two competing countries, Norway's market share has never been below 90%, and the largest Canadian market share was 9-10% in 2004-05. Since its entry, China has had between 1-2%. According to our import data and qualitative results Canada has in recent years, more or less disappeared from the market mainly because they do not have access to raw materials and the prices of their product are higher than Norwegian products.

Our qualitative results, show that the Dominican market, despite economic growth has and is developing very slowly, and can in accordance with economic theory to some extent be identified as a static market (Lipczynski et al., 2013). In 2015, Norway had 99% of the market and can therefore, according to neoclassical theory, be characterised as a monopoly market structure. However, there are many Norwegian firms competing against each other in this market, as well as quite a few Chinese firms (even though you do not see them in

terms of quantity). There are also many buyers, and products are more or less homogeneous. Information is well known for both importers and exporters, and companies' goals are to maximise their own profits. Furthermore, none of the exporters have a large enough market share to be able to be a price setter. According to these results the market structure is according to neoclassical theory, leading towards free or perfect competition (Lipczynski et al., 2013). Perfect competition has no entry barriers, meaning that anyone that knows how to produce salted & dried cod, can enter this market. Critics of this economic market theory claim that it is not a realistic approach, and that many of the assumptions in perfect competition cannot be achieved. However, according to our qualitative results it is claimed that the Dominican Republic has a free market structure. Exporters find it very easy in terms of trade regulations, to export their products there, compared to Brazil (Q1, appendix). Furthermore, our results show that Norwegian companies do not notice a lot of competition from other countries, except a little from China. Canada used to be a competitor, but is not visible in the market today. This is because they do not have sufficient access to raw materials, which makes their prices higher than Norwegian products. According to economic theory, there is reason to believe that natural barriers to entry exist.

According to the qualitative results Dominican's have long traditions of eating salted & dried cod made from saithe. The Norwegian products have a very good reputation and a well-established user network. Our results show that exporters have long and strong relationships with the importers, this is partly due to the use of agents, which also provides the exporters with market information (Q11, appendix). This might make market entrance difficult for non-Norwegian companies. Furthermore, Norway's access to raw materials such as saithe, contributes to a competitive advantage. The Chinese fish is made from Gadiformes (Alaska Pollock) according to our quantitative results. Most Dominican consumers buy their fish at local colmados, which are corner shops that often lack cool storage facilities. Our results show that colmados only offer salted & dried cod from Norway. This is because of the dryness of Norwegian products, which is perfect for the tropical climate. They have a long shelf life, because they can be stored for some time without cooling. This gives Norwegian products a competitive advantage. However, according to our results the Norwegian fish is becoming more wet and this is due to prices. This will again affect the shelf life of the product, thus the competitive advantage. The Chinese fish is according our findings, filleted products which are more wet than the

Norwegian fish and are dependent on cooling facilities, and are therefore only offered in supermarkets. Our results show that the current market distribution in supermarkets is 90% Norwegian fish and 10% Chinese. It is also claimed that this distribution has not changed since China entered the market in 2012. However, in a global context the trend shows an expansion in the number of supermarkets. There is therefore reason to believe that the Dominican Republic is no exception, and that Norwegian companies will face more competition in the future. This will not just come from other countries producing salted & dried cod, but also come from an increase in potential substitutes. According to Neto et al. (2014), most consumers in the Brazilian market buy their fish in modern supermarkets or in local food markets. Despite few governmental trade restrictions, there is an import tax on filleted or "prepared products", which gives the imported traditional "whole" Norwegian fish, a competitive advantage. China has a much cheaper labour force, and can produce their products at a much lower cost than Norwegian companies, but this advantage is eliminated by the added 20% import tax, which in fact (according to our qualitative results) makes the Chinese fish more expensive than the Norwegian. According to Neto et al. (2014), Norwegian prices were higher in general than for Portuguese products. Furthermore, they claim that China more recently has taken a small but increased market share due to the country's industry and has competitive prices for processed products in the international market. Comparing the two markets, there is reason to believe that price is the main factor affecting competition between countries. It shows that the current income tax in DR, makes it difficult for Chinese firms to increase their market position, unless they start producing products similar to the traditional "whole" Norwegian. However, we believe that Chinese firms do not have the acquired access to raw materials, knowledge or traditions necessary for making such products.

According to our qualitative results, all exporters are positive towards Norwegian companies' future prospects. They have different opinions regarding the speed of development in the market. It is believed that the market will continue to be very stable in relation to the Norwegian market share, but that it will grow in quantity imported and be more important for the Norwegian companies. However, others believe that we will not see major changes in the market for a long time, hence the market will stay stable. Importers on the other hand think that if the quality and price of Chinese products improves, they will become a much stronger competitor in the future. We think there is reason to believe that if

the Dominicans' economic growth increases and there is expansion in the number of supermarkets, more consumers will purchase their products there and China might become a greater competitor in the future. This is because consumers today have less time available and the trend will therefore lead to an increase in convenience products. This will be further discussed in the next section. Norwegian companies will therefore evaluate the market trend, and maybe consider producing more convenient products. However, Norway will then lose its competitive price advantage, as processing costs will be cheaper in China. According to our qualitative results, some mention this trend, but also explain that in the Portuguese market, 80% of the salted & dried cod goes directly to supermarkets. Portugal has the highest consumption of this product, and despite the fact that salted & dried cod is purchased in supermarkets, about 88% is sold as "whole" and not as prepared products.

6.3 Consumer choice and the effect of Country of Origin (RQ3)

Demand for a product within a market is heavily influenced by consumer choice and preferences in the given market. Awareness of country of origin is also said to have a positive effect on purchase choice for those consumers who can recognize the difference between countries. We therefore wanted to investigate whether *"Country-of-Origin has any effect on Dominican consumer choices"*

According to Pindyck and Rubinfeld (2013), consumers choose goods to maximise the satisfaction they can achieve, given the limited budget available to them. In other words, consumer behaviour and budget constrains determine how much of each good the consumer will buy. Our results show that price is an important factor influenced by the budget constraints. However, our findings claim that all income groups consume it, despite large differences in their available budget and the fact that salted & dried cod is perceived as an expensive product. This has already been discussed in section 7.1, because of the "value for money" which salted and dried cod gives compared to chicken. *"1kg of salted & dried cod gives more food than 1kg of chicken"*. This makes this protein product affordable for all income groups. The results show that Dominican consumers "buy with their eyes" and prefer products which are thick and have a whiter colour. The colour is perceived to be a sign of freshness or cleanliness. The two main products in this market, Chinese and Norwegian fish, are to some extent similar. However, the Chinese fish is "prepared" fillets which are whiter and have a more appealing packaging. However, the price is higher for the Chinese fish and,

according to our results, the Norwegian fish is preferred, despite the identified product preferences. This indicates that price in accordance to their budget constraints is the most important factors in consumer choice. According to Neto et al. (2015), the most important purchasing considerations for Brazilian consumers are (low) price, colour (light) and thickness of the fish.

Other factors affecting consumer choice are age, taste, and availability of time. The Dominican Republic has a relatively young population (45% were under 24 years old in 2015), and our qualitative results show that there are differences in age groups. Young people have less available time to cook, and are likely to choose other more convenient food such as pizza or pasta. Our own observations in Santo Domingo and informal conversations with locals, have given us the impression that this is indeed the case. However, our qualitative results show that the average Dominican eats this product once a week and this is claimed to be about 1kg per capita annually. When this fish is desalted this equals about 1.3-1.4kg per capita. The Chinese fish is, as already mentioned, quite "wet", and does not provide the same "value for money" when desalted. Our results show that there are different consumer patterns among the social classes as well as frequency in consuming the product. In low income households, 1kg of salted and dried cod might be used in 10 different meals, whereas in high income households each person might eat 250g per meal. We also found that not all consumers know how to prepare the product. Some do not desalt it before use, and therefore do not benefit from the increased weight.

According to importers, cooking competitions and shows have a positive effect on consumption, as these teach consumers how to prepare the product with different recipes. Every year there is a cooking competition in Santo Domingo, organised by the NSC. According to our qualitative results this has a positive effect on consumption/demand, and is also claimed to strengthen the perception of quality and the good reputation of Bacalao Noruego. However, the findings also indicate that Bacalao Noruego is seen more as a brand or image rather than a country. According to Kotler (2011), country image influences consumers' purchase decisions as image can have negative or positive effects based on previous memories and experiences about products from specific countries. In our own field observations in Santo Domingo, this was confirmed. When asking consumers about country of origin, they often did not know it was from Norway. However, when we asked about Bacalao Noruego, they knew exactly what was meant. This can be explained by lack of

geographical knowledge/education, and the fact that many do not know that Norway is a country. However, this is a problem since the average consumer thinks all salted & dried cod (Bacalao Noruego) originates from Norway. This makes it possible for the Chinese fish to be seen as Norwegian. Findings show that, despite poor knowledge, when informed about COO of the different products, consumers choose the Norwegian fish. According to our results, this is due to the consumer perception of Chinese fish as: *"you don't know what you are eating"* (Q12, appendix). This is also supported by Yassin et al., (2008), who holds that information regarding the COO of products helps to form preferences and purchase decisions. It can therefore be argued that the awareness of country of origin has a positive effect on purchase choice for those consumers who can recognize the difference between Norwegian and Chinese products. If consumers do not know that more countries produce these products, there is reason to believe that consumers think all products are from the same country, despite differences in product types (fillets vs traditional).

According to our results, supermarkets receive the salted and dried cod as "whole", and then cut the fish into smaller pieces themselves, which is put on trays covered with cellophane. The labelling is also done by the supermarkets themselves, and the Norwegian fish is labelled as Bacalao Noruego. However, according to our own observations, labelling of the Norwegian products varies. Not all Norwegian salted & dried cod is labelled with Noruego. This might amplify the perception of *"all salted & dried cod is Norwegian"*. Before our field trip to Santo Domingo, we believed that the labelling of the Norwegian fish would be more prominent and may include the Norwegian flag, as you see in many other markets, or the Norwegian Seafood Federation (NSF) logo "Sjømat Norge". However, this was not the case and according to our interviews this is because it is time consuming and it increases costs for the supermarkets. According to Neto et al. (2015) mislabelling of the different species used in various products has also been a challenge in the Brazilian market. The issue of poor labelling by the supermarkets, makes us speculate whether this is to eliminate the COO effect, and boost sales for both Norwegian and Chinese products. However, our results show that most consumers prefer to see the "whole" fish when buying salted & dried cod, and the majority purchase this product from colmados. Our observations show that the COO situation is different in colmados. Here the fish is sold straight from the various Norwegian exporters' cartons, which all have the NSF logo (Appendix 9). We believe that this has a positive effect on consumers' perceived image of Norwegian products. This is because the logo is well-known to the consumer, and will therefore have a positive

effect on their purchasing decisions, given that their previous experience of the products was good.

7.0 Managerial implication and limitations

This study attempts to provide insights into the Dominican market for salted & dried cod. The context of this thesis is highly relevant because limited or no previous research has been conducted in this market. Our findings can, therefore, be useful to managers and executives, in Norwegian companies. Our results indicate that COO has currently no effect in the Dominican market. Despite, the fact the Norwegian products dominate this market, people do not know the difference between the Norwegian and Chinese products. An important implication relates to the effectiveness of marketing and better labelling of products. If competition increases in the future, it is essential for Norwegian products to have a well-established COO effect. Better labelling of the products in the supermarkets will make it easier for consumers to distinguish Norwegian products from those that come from elsewhere.

Furthermore, our findings reveal that the market is very price sensitive and that due to increased competition among the exporters, prices are being pushed down resulting in reduced dryness of the products. This is an important implication, as one of the main reasons why the Norwegian products were imported, was because of the dryness of these which made them suitable for a tropical climate.

7.1 Limitations and future research

The aim of this thesis was to examine which factors affected demand for salted & dried cod in the Dominican Republic, how this demand affected Norwegian companies´ current and future market positions, which factors influenced consumer choice and whether Country of Origin has an effect. Even if the present study contributes to both theory and practice, the reader should be aware of certain limitations. First of all, there is limited or no research conducted about the Dominican market. This paper therefore serves as ground research, as to our knowledge, we have no previous research papers to base or compare our research upon. The Dominican Republic is a country in development. Current available data and information is therefore limited, and not easily accessed. Most studies conducted about the Dominican Republic often concern the Caribbean region as a whole. This makes it difficult to acquire specific information and data about the country.

With regard to our qualitative interview, without a network ourselves and limited time in the Dominican Republic, the interviewed importers were chosen by our contact person in Santo Domingo. This may lead to the risk of response disturbance where the individual's tendency is to respond in a certain way, regardless of the actual evidence they are assessing. Due to limited English language skills, the respondent had difficulties in understanding what we meant. Therefore, there are some limitations in relation to what the importers say. However, our contact person was present during some of the interviews and acted as an interpreter. Another limitation is that the selection of respondents could have been larger and from regions other than Santo Domingo. In relation to research question 3 concerning consumer choice and COO, the result is only provided through qualitative data and based on a limited sample of respondents, without quantitative results confirming the results. In further studies, we therefore recommend using a questionnaire with the consumers so that these results can help confirm others.

An additional limitation is related to the import data used in the quantitative analysis. At the beginning of this study, we wanted to conduct a competitive analysis of the Dominican market according to the demand for salted & dried cod. After studying the full data of all data on imported groundfish, we wanted to include in our competitive analysis demand for salted & dried cod from four different countries. Due to limited or missing data for all other countries, we ended up only using data from Norway. Another limitation in the quantitative analysis is the substitutes' prices. The prices used in this study come from limited data sources and lack of time made it difficult to access more accurate data, much of which was not easily available. In addition, the results might have been different if more substitutes had been included. Therefore, we recommend that further research is conducted using more accurate data as well as analysing more substitutes, for example herring. This could lead to better results for the cross-price analysis making it possible to use the AIDS model. Furthermore, the data concerning exchange rate and income had many different available estimations. This made it difficult to choose one and be sure that it was the right one.

Since there is no previous available research on the demand for salted & dried cod in the Dominican Republic, this study is compared to a similar study by Neto et al. (2015) on the Brazilian market. This implies that there are limitations in relation to the credibility of the results as it is only compared to one other study. Therefore, further research should be compared with more than one similar study and should be compared to similar studies on

the Dominican market. Furthermore, Neto et al's (2015) study used nominal prices, but in this study, we used real prices. This may have affected the results.

8.0 Conclusion

This research studies the Dominican market for salted & dried cod, in the period from 1988 to 2015. This was completed using a demand analysis, in order to identify the main variables affecting demand for this product. Additionally, it examined how the Dominican demand for salted & dried cod influences Norwegian companies´ current and future market position. Finally, it investigated whether country-of-origin has any effect on Dominican consumer choices.

The Dominican Republic has a long tradition of importing Norwegian salted & dried cod made from saithe, having done so for decades. Our empirical analysis starts however in 1988. During the period under examination, Norwegian companies have dominated the market, with approximately 98% of the product. This is mainly due to good access to raw materials. However, Chinese competitors have in recent years entered the market, offering salted & dried cod filleted products in supermarkets. These "convenient products" are considered to be a potential threat in the future. During recent decades, the Dominican Republic have experienced a significant economic growth, nevertheless the country has developed slowly. We therefore question whether the dominant role of Norwegian companies in this market will remain in the future.

The results show that the main variables determining demand for salted & dried cod are price, income and exchange rate. These are found to have a significant effect on demand for this product. Price is identified as having the largest effect on demand, and that Dominican consumers are sensitive to changes in price, as this product is consumed weekly. This is consistent with the findings from the in-depth interviews where it was seen that consumers consider price as the most important factor in the demand for salted & dried cod. The results show a negative relationship between the price of salted & dried cod and demand, a negative relationship between the exchange rate and demand, and a positive relationship between income and demand. Furthermore, the results suggests an income elasticity greater than one, i.e., the product is a "luxury" good and demand expands as people´s income increases. In addition, demand for salted & dried cod is considered elastic in relation to price. The cross-price elasticity shows no significant effect between substitutes and demand for salted & dried cod.

Norwegian companies' market position in the Dominican Republic does not currently face noteworthy competition from other countries. This is due to tradition and good access to raw materials compared to other countries. This is reflected in the market, where only Norwegian products are offered in colmados. However, if Dominican economic development results in higher consumer disposable income and a significant increase in the number of supermarkets, we believe that the Chinese will be a greater competitor in the future.

Dominican consumers are very familiar with the term Bacalao Noruego and our results show that the Norwegian fish is preferred to Chinese products, because of its dryness and *"you know what you are eating"*. However, the Country-of-Origin effect has no implications for consumer choice. This is due to the insignificantly small competition in the current market, and because the consumers often lack knowledge about Norway even being a country and perceiving Bacalao Noruego rather as a brand. Still, there is a reason to believe that if competition increases, country of origin will have a stronger effect on consumer choice. This is because Bacalao Noruego has existed in the market for long time and has long been part of the Dominican cuisine. Therefore, the country image of Bacalao Noruego is strong among the consumers.

These results provide important implications for Norwegian export companies. First and foremost, even though Norwegian companies hold 98% of the market share, exporters should be aware of the developments in the country and the potential threats in the market. Of importance are the Chinese products and the increase in the number of supermarkets. Norwegian exporters should also be aware of the competitive advantages of the Norwegian products which is price and dryness. In recent years, there has been a trade-off between the two, due to increased competition between the Norwegian exporters. This is also a noteworthy implication, as the Norwegian fish is becoming less dry in order to push prices down. Resulting in a reduced shelf life in colmados - the less dry, the more dependent on cold storage.

9.0 Reference

Baccala. (2017). Available:

http://www.baccala.com/default.asp?menu=4&submenu=&id=1393

Last accessed 10 May. 2017.

Besanko et al., (2013). *Economics of strategy*. 6th ed. USA: Economics Books.

Bjørndal, T., and Ellingsen, C. A. (2015). Ramevilkår for klippfisknæringa. *Rapportserien 2015*. 04

Bjørnland, H. C. (2009) "Monetary policy and exchange rate overshooting: Dornbusch was right after all". **Journal of International Economics.** 79(1), 64-77

Blanchard, O. (1997). *Macroeconomics - international edition*. New Jersey: Prentice-Hall, Inc.

Carver, R. H., and Nash, J. G. (2009). *Doing data analysis*. 16th ed. Canada: Brooks/Cole, Cengage learning.

Cengage. (2017). *Chapter 7 Autocorrelation: A Problem with Time-Series Regressions*. [online] Available at: http://www.cengage.com/resource_uploads/downloads/0030348064_54176.pdf Last accessed 24 May. 2017.

Cod export. (2017). *NUTRITIONAL CONTENT.* Available: http://www.bacalhau.no/products- c3573911601/nutritional-content. Last accessed 14 Apr 2017

Country situation and role of agriculture. (2016). COUNTRY FACT SHEET ON FOOD AND AGRICULTURE POLICY TRENDS. [online] FAO. Available at: http://www.fao.org/3/a-i5814e.pdf. Last accessed 19 Apr. 2017.

Deaton, A., & Muellbauer, J. (1980). An Almost Ideal Demand System. The American Economic Review, 70(3), 312-326.

Econlib. (2017). *Real, Relative, and Nominal Prices.* Available: http://www.econlib.org/library/Topics/College/realrelativenominalprices.html. Last accessed 15 Mar 2017.

Everyculture. (2014). Culture of Dominican Republic - history, people, clothing, traditions, women, beliefs, food, customs, family. [online] Available at: http://www.everyculture.com/Cr-Ga/Dominican-Republic.html. Accessed 4 Jun. 2017.

FAO. (2008). Food and Agriculture Organization of the United Nations. [online] Food and Agriculture Organization of the United Nation. Available at: http://ftp://ftp.fao.org/FI/DOCUMENT/fcp/es/FI_CP_DO.pdf. Las accessed 23 Mar. 2017.

FAO. (2016a). *FAO Price Statistics, 2015.* Available: https://knoema.com/FAOPS2015July/fao-price-statistics-2015?country=1000490-dominican-republic&action=export&utm_medium=watermark&utm_source=xlsx. Last accessed 20 Apr. 2017

FAO. (2016b). *Fishery and Aquaculture Statistics 2014*. [online] Rome: Food and Agriculture Organization of the United Nations. Available at: http://www.fao.org/3/a-i5716t.pdf. Last accessed 9 Mar. 2017.

FAO. (2017a). Fishery and Aquaculture Country Profiles. [online] FAO. Available at: http://www.fao.org/fishery/facp/DOM/en. Last accessed 3 Feb. 2017.

FAO. (2017b). FAOSTAT. [online] Available at: http://www.fao.org/faostat/en/#country/56. Last accessed 24Mar. 2017.

Farrell, B. (2017). Carnaval in the Dominican Republic A Stew of Cultures. [online] Revista. Available at: https://revista.drclas.harvard.edu/book/carnaval-dominican-republic . Last accessed 10 Mar. 2017

Ferin et al. (1989). *CONSUMPTION OF FISH AND SHELLFISH AND THE REGIONAL MARKETS.* Available: http://www.fao.org/docrep/t8365e/t8365e04.htm. Last accessed 10th Feb 2017.

Focus group Bacalao. (2011). Brand image and positioning for Norwegian Bacalao in the Dominican Republic. Norway: Norwegian Seafood Council.

Foreign Agriculture Service. (2016). USDA Foreign Agriculture Service. [online] Available at: https://gain.fas.usda.gov/Recent%20GAIN%20Publications /Grain%20and%20Feed%20Annual_Santo%20Domingo_Dominican%20Republic _4-4-2016.pdf. Last accessed 5 Apr. 2017.

Government of Canada. (2017). *Agri-Food Sector Profile - Dominican Republic.* Available: http://www.agr.gc.ca/eng/industry-markets-and-trade/statistics-and-market- information/agriculture-and-food-market-information-by- region/latin-america-and- the-caribbean/market-intelligence/agri-food-se. Last accessed 5 Apr. 2017.

Hair et al. (2014). *Multivariate Data Analysis*. 7th ed. Edinburgh: Pearson Education Limited. 1.

Hair et al. (2016). *The Essentials of Business Research Methods*. 3rd ed. London: Routledge.

Hanke, S. H (2004). The Dominican Republic Resolving the Banking Crisis and Restoring Growth. *Foreign Policy Briefing*. 83 (1)

Herrera et al., (2011). Coastal fisheries of the Dominican Republic. *Coastal fisheries of Latin America and the Caribbean. FAO Fisheries and Aquaculture Technica Paper.* No. 544. Rome, FAO. pp. 175-217.

Howard J. W., and Gonzalez. N. L. (2017). *Dominican Republic.* Available: http://academic.eb.com/levels/collegiate/article/117380 . Last accessed 19 Jan. 2017

Inter-American Development Bank Washington. (2010). *COUNTRY PROGRAM EVALUATION: DOMINICAN REPUBLIC (2004-2008).* Available: https://www.oecd.org/countries/dominicanrepublic/47812661.pdf. Last accessed 24 Jan. 2017.

Jangaard. (2017). *Saithe.* Available: http://www.jangaard.no/en/products/saithe. Last accessed 14 Mar. 2017.

Keller, K. L. (1993). Conceptualizing, measuring, and managing customer-based brand. *The Journal of Marketing*. 57 (1), 1-22.

Kotler, P. (2011). "Philip Kotler's Contributions to Marketing Theory and Practice." In *Special Issue: Marketing Legends (Review of Marketing Research)*, edited by Naresh K. Malhotra, vol. 8, West Yorkshire, UK: Emerald Group Publishing.

Krishnamurthi, L., and Raj, S. P. (1991). An Empirical Analysis of the Relationship Between Brand Loyalty and Consumer Price Elasticity.10 (2), 172-183.

Larsen, A. K. (2007). *En enklere metode*. Bergen: Fagbokforlaget.

Larsen, A. K. (2016). *En enklere metode: veiledning i samfunnsvitenskaplig forskingsmetode*. 5 ed. Bergen: Fagbokforlaget

Lem et al. (2014). Economic analysis of supply and demand for food up to 2030 – special focus on fish and fishery products. FA0 Fisheries and Aquaculture Circular No.10890, 1089.

Lipczynski et al. (2013). *Industrial organization*. Harlow, England: Pearson.

Lem et al. (2014). *Economic analysis of supply and demand for food up to 2030 - Special focus on fish and fishery products*. FAO Fisheries and Aquaculture Circular. Rome: Audun Le, p.1.

Makvana, S. M and Patel, A. P. (2016). IJIP Journal of studies. *The International Journal of Indian Psychology*. 3 (8).

MARCO DE PROGRAMACION DE PAIS-MPP- República Dominicana 2013-2016. (2012). [online] Santo Domingo, República Dominicana: FAO. Available at: http://www.fao.org/3/a-bp539s.pdf. Last accessed 25 Feb. 2017..

Martin, P. (2006). *Geographica - Atlas og kunnskapsverk om jorda, folk og land*. 4th ed. Australia: Spektrum forlag AS. 394.

Marín, M. G and Durán, N. (2007). *ESTUDIO DE LOS HÁBITOS DE CONSUMO Y LA CADENA DE COMERCIALIZACIÓN DE PESCADOS Y MARISCOS EN QUINCE PROVINCIAS DE LA REPÚBLICA DOMINICANA.* Available:

http://www.aecid.org.do/images/Publicaciones_y_Documentos/Desarrollo_Agropecuario/4.Estudio_habitos_consumo.pdf. Last accessed 10 Mar 2017.

Mateo, J. (2012). Country Review: Dominican Republic. Coastal fisheries of Latin America and the Caribbean, 544, pp.137-160.

Mayol, V. (2016). *Dominican Republic Grain and Feed Annual 2016.* Available: https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Grain%20and%20Feed%20Annual_Santo%20Domingo_Dominican%20Republic_4-4-2016.pdf. Last accessed 3 Mar. 2017.

Miles, D. and Scott, A. (2002). *Macroeconomics, Understanding the Wealth of Nations*. 1st ed. Chichester: Wiley.

Neto et al. (2015). Brazilian demand for salted & dried cod - the 1989 - 2014 period. (2015). Roque Pinto de Camargo Neto.

Nofima. (2015). *Minst to års holdbarhet på klippfisk.* Available: https://nofima.no/nyhet/2015/11/minst-to-ars-holdbarhet-pa-klippfisk/. Last accessed 16 Feb. 2017

Normarine. (2017). *Cod.* Available: http://www.normarine.no/product/cod. Last accessed 15 Feb. 2017.

Norwegian Seafood Council. (2011). Data collected from Norwegian Seafood Council.

Norwegian Seafood Council. (2016). Data Collected from Norwegian Seafood Council 2016. Demand for Salted & dried cod.

Norwegian Seafood Council. (2017). *Norwegian: Klippfisk.* Available: https://cod.fromnorway.com/norwegian-cod/clipfish/. Last accessed 15 Mar. 2017.

Okasha, S. (2002). *Philosophy of science:* A very short introduction. Oxford Univeristy Press

Pallant, J. (2013). *SPSS Survival manual*. 5th ed. Maidenhead: McGraw-Hill Higher Education.

Parkvithee, N., and Miranda, M. J. (2012). *"The interaction effect of country-of-origin, brand equity and purchase involvement on consumer purchase intentions of clothing labels",* Asia Pacific Journal of Marketing and Logistics,Vol. 24 Issue: 1.

Patton, M. Q. (2002). *Qualitative evaluation and research method.* 3rd ed. Thousand Oaks, CA: Sage Publications.

Perez, J. (2004). Fisheries management in Dominican Republic. The role of international cooperation for responsible fisheries. [online] Available at:

http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/56862/395.pdf;sequence=1. Last accessed 7 Apr. 2017.

Pindyck, R. S. and Rubinfeld, D. L. (2013). *Miroeconomics*. 8th ed. United State: Pearson Education Limited.

Roger, B. L. (1996). World Development. *The implications of female household headship for food consumption and nutritional status in the Dominican Republic*. 24 (1), 113-128

Salvanes, K. and Devoretz, D. (1997). Household Demand for Fish and Meat Products: Separability and Demographic Effects. *Marine Resource Economics*, 12, pp.37–55.

Saunders, M., Lewis, P., and Thornhill, A (2009). *Reserach methodes for business students.* 5th ed. Person Limited.

Schmidt, J. and Hollensen, S. (2006). *Marketing research: an international approach*. Edinburgh: Pearson Education.

Seafood. (2017). Norwegian codfish exports at record levels in January. [online] Available at: http://en.seafood.no/news-and-media/news-archive/norwegian-codfish-exports-at-record-levels-in-january/. Last accessed 11 Feb. 2017.

SFGOV. (2012). *WORKER RIGHTS CONSORTIUM ASSESSMENT ITIC APPAREL (DOMINICAN REPUBLIC) FINDINGS AND RECOMMENDATIONS.* Available: https://sfgov.org/olse/sites/default/files/FileCenter/Documents/8534-WRC%20Findings%20%26%20Recommendation%20re%20ITIC%20Apparel%20%28Dominican%20Republic%29%202-8-12.pdf. Last accessed 01 Apr. 2017.

Shiu et al. (2009). *Marketing Research*. London: McGraw-Hill Higher Education

Sloman, J. (2007). *Essentials of Economics*. 4th ed. London: Pearson Education Limited

Wilson, A. (2006). Marketing Research an Integrated Approach, 2nd ed. Harlow: Pearson Education Limited.

Wilson, A. (2012). *Marketing research an integrated approach*. 3rd ed. Edinburgh: Pearson Education Limited.

The World Bank. (2017). *Inflation, consumer prices (annual %).*Available: http://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?end=2016&locations=DO&start=1986. Last accessed 17 Apr. 2017.

The World Bank Group. (2016). Population, total. Available: http://data.worldbank.org/indicator/SP.POP.TOTL?locations=DO&year_high_desc=true. Last accessed 20 Jan. 2017

Torske et al. (2011). *Klippfiskløypa fra Bud til Kristiansund.* Available: https://mrfylke.no/Media/Files/Filer-kultur/Kulturvern/Klippfiskloeypa-fra-Bud-til-Kristiansund4/(language)/nno-NO. Last accessed 15th Feb. 2017.

Trading economics. (2016). *Dominican Republic Corruption Index. Available*: http://www.tradingeconomics.com/dominican-republic/corruption-index. Last accessed 25 Jan. 2017

Transparency International. (2016). *Dominican Republic Corruption Index.* Available: https://www.transparency.org/country/DOM#. Last accessed 25 Jan. 2017.

Van der Meer, L et al. (2014). Reconstruction of total marine fisheries catches for the Dominican Republic (1950-2010). [online] Available at: https://www.researchgate.net/publication/283078983_Reconstruction_of_total_marine_fisheries_catches_for_the_Turks_and_Caicos_Islands_1950-2012 .Accessed 8 Apr. 2017.

World Bank, Data.worldbank.org. (2017b). *GDP growth (annual %) | Data*. [online] Available at: http://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?end=2014&locations=DO&start=1988. Last accessed 29 Feb. 2017.

World Bank, Data.worldbank.org. (2017c). *Dominican Republic | Data*. [online] Available at: http://data.worldbank.org/country/dominican-republic. Last accessed 21 Feb. 2017.

World Bank, Povertydata.worldbank.org. (2017d). *Poverty & Equity Data | Latin America & Caribbean | The World Bank*. [online] Available at: http://povertydata.worldbank.org/poverty/region/LAC. Last accessed 30 May. 2017.

Yassin et al. (2007). "Does image of country-of-origin matter to brand equity?", *Journal of Product & Brand Management,* Vol. 16, pp.38-48.

Appendices

Appendix 1: E-mail to interview objects

Hei,

Vi er to studenter fra NTNU Ålesund som tar en mastergrad i Internasjonal business og markedsføring. Vi skriver masteroppgave om klippfisk eksport til den Dominikanske Republikk hvor vi skal utarbeide en konkurranseanalyse av klippfiskmarkedet i samarbeid med vår veileder Trond Bjørndal. I forbindelse med vår mastergradsavhandling ønsker vi å gjennomføre intervju med bedrifter som eksporterer klippfisk til det Dominikanske marked. Vi tar derfor kontakt med dere for å høre om dette kunne være av interesse? Intervjuene vil kun bli brukt til akademiske formål og alle svar vil selvfølgelig bli behandlet konfidensielt.

Vi håper å høre fra dere. Ha en fortsatt fin dag ☺

Med vennlig hilsen,

Katrine Oline Istad Nesset & Hanne Gjendem Haahjem
NTNU Ålesund

Appendix 2: Interview guide

Firma:

Navn:

Stilling

Generelt
1. Med en ca. fordeling, hva er deres viktigste markeder i forhold eksport for 2016? Har denne fordelingen endret seg i stor grad de siste 10 åra?
2. Når begynte dere å eksportere til den Dominikanske Republikk?
3. Hvorfor valgte dere å eksportere til dette markedet?

4. Hvilken type fisk og hvilken type produkter eksporterer dere til Dominikanske Republikk? Hvorfor?
5. Hvilken valuta trades det i?

Etterspørsel Faktorer

1. Hvilke faktorer påvirker etterspørsel av deres produkt?
2. Hvordan har prisutviklingen vært de seneste årene? Har den vært stabil eller har det vært store variasjoner?
3. Har **prisendringer** stor påvirkning på etterspørsel?
4. Merker dere noen til at **valutaendringer** påverkar etterspørselen
5. Har den økonomiske veksten hatt påvirkning? (**inntekt**)
6. Vi ser en moderat økning i folketall de seneste årene. Fra 8.5 millioner i 2000 til 10,5 millioner i 2015. Hvordan har dette påvirket etterspørsel?
7. Vi ser også en økning i turismen, fra 1,7 millioner besøkende 1995 til mer enn 5 millioner i 2014. Har denne utviklingen noe påvirkning på etterspørsel?

Klippfisk, importører og forbrukere

1. Selger dere direkte til importører eller bruker dere agenter? Hva er de typiske utsalgsstedene?
2. Blir fisken som dere eksporterer, bearbeidet på noen måte i Dominikanske Republikk? Blir klippfisken solgt hel / delt opp i stykker / pakket? Hvem gjør i tilfelle dette?
3. Hvem kjøper klippfisk i Dominikanske Republikk?
4. Er det forskjeller blant sosiale lag og inntektsgrupper?
5. Hva er viktig for forbrukeren og hva foretrekker de?
6. Dominikanske Republikk har en veldig ung befolkning, kan man se forskjell i etterspørsel mtp. aldersgrupper?
7. Hvor ofte konsumerer folk klippfisk?

8. Spiser unge like mye klippfisk som eldre?
Konkurranse
1. Hvem er deres største konkurrenter? Er dette hovedsakelig norske eksportører? 2. Merker dere noe til utenlandsk konkurranse? Kina? Canada? 3. I det Brasilianske markedet er Portugal en stor konkurrent, hvorfor er Portugal ikke en konkurrent i det Dominikanske markedet?
Annet
1. I forhold til annen importert fisk, lokal fanget fisk og andre produkter som f.eks. kylling. Hva er substitutt til klippfisk i Dominikanske markedet? 2. Vi har fått inntrykk av at Norge som merkevare har mye å si for konsumentene, stemmer dette? Har Country of Origin noe å si? 3. Tror du "ferdig produkter" som ferdig utvannet og renset fisk / utvanningsposer vil påvirke etterspørsel i fremtiden?

Avsluttende spørsmål:

1. Hvilke potensialer tror du det er for fremtiden?
2. Er det noe annet som du ønsker å legge til som ikke er blitt nevnt

Appendix 3: Interview guide with importers and supermarket

Company:

Name:

Position:

General
1. Which fish types and fish products do you import? Why? **2. When did you start importing to salted and dried cod?** **3. Why did you decide to start importing?**

4. Who do you sell the most to? Is it mainly supermarkets, colmados or traditional markets? Has this changed a lot during the last 10 years?
Demand
1. Which factors influence demand for salted and dried cod? **2. How have changes in price been in recent years? Has the price been stable or have there been large fluctuations?** **3. Does price have a great impact on demand for the product?** 4. **Does exchange rate fluctuations influence your import quantity?** **5. Do you believe that tourism has an impact on demand for salted and dried cod?**
Salted & dried Cod and Consumers
1. Do you undertake any processing? Is the product sold whole / cut in smaller pieces / new packaging? Who does it? **2. Who buy salted & dried cod in Dominican Republic?** **3. Are there differences between consumers from different social classes and income groups?** **4. What is important for the consumers when they buy salted and dried cod? Are there any common consumer preferences?** **5. Are there differences among the different age groups, in accordance to demand?** **6. How often does the average consumer eat salted & dried cod?** **7. Do the younger consumers eat as much salted & dried cod as the elderly?**
Competition
9. Where do you import salted and dried cod from other than Norway? China? Canada? **10. Are there differences between the products from the various countries?**
Other
1. In relation to other imported fish types, local catches and other products such as chicken – What are the main substitutes to salted & dried cod? **2. Has Country of Origin an impact on what product the consumers decide to buy?**

3. Do you think that "prepared products / ready to eat products" as e.g. already desalted and deboned / desalting bags will influence future demand?

Final Questions:

How do you see the future potentials in terms of market development and competition?

Is there anything else that you would like to add/share, which has not been mentioned?

Appendix 4: List of interviewees

No.	Company	Position	Gender	Type of interview
1.	Exporter	Managing Director	Male	Individual
2.	Exporter	Sales Director	Male	Individual
3.	Exporter	Export Executive	Male	Individual
4.	Exporter	Sales Director	Male	Individual
5.	Exporter	Export Executive	Female	Individual
6.	Exporter	CEO / Export Department	Male / Female	Group
7.	Exporter	Sales Department	Male	Individual

No.	Company	Position	Gender	Type of interview
1.	Importer	Purchasing Manager / Representative	Male	Group
2.	Importer	Purchasing Manager/ Representative	Male	Group
3.	Importer	Representative	Male	Individual
4.	Importer	Sales Director	Male	Group
5.	Importer, Supermarket	Purchasing Director	Male	Group

Appendix 5: Summary from all 7 in-depth interviews

Question	Answer
Q1	**Exporter** The main export markets for the Norwegian companies were Brazil, Portugal, the Caribbean and West Africa (The Democratic Republic and Republic of Congo, Angola). Most of the exporters explain that their distribution has not changed significantly over the past 10 years. While others, point out that this changes according to availability of raw materials and "framework conditions". Many

What is your approximate market distribution in relation to imports in 2016? Has this change a lot during the last 10 years?	draw parallels between the Dominican market and the Brazilian or the Portuguese market. The Dominican market is similar to the Brazilian regarding the large consumption of salted & dried cod made from Saithe, and large income differences. Similarities with the Portuguese market is a steady consumption throughout the year, whereas Brazil has a more seasonal consumption. Before joining the EU, the Portuguese market was poorly developed (compared to other European countries), but experienced a rapid growth, and a fast expansion in the no. of supermarkets after becoming a member. Some claim that, about 88% of the fish in this market is sold as "whole", and that the 80 % of the total imported quantity goes directly to supermarkets. The trend of selling directly to supermarkets is by some believed to be developing in the Dominican Republic as well. Exporters claim that exporting to the Dominican Republic is very easy, as it is a free market, with no trade restrictions and very few changes in accordance to the time period with which they have been operating there. Brazil on the other hand is said to be more difficult, and have many restrictions.
	Importer Not relevant
Q2 **When and why did you start exporting/import to the Dominican Republic?**	**Exporters** The exporters entered the market at different times, in the period between 1960 and 2009. All respondents mentioned that one of the main reasons why they entered was due to a desire to explore new markets, and because a significant proportion of their salted & dried cod production was made from saithe, which was what the Dominican market wanted. Exporters also mentioned that they needed a market for their small size saithe, which was considered too small in other markets e.g. Brazil.
	Importers Import of salted & dried cod have long and strong traditions in the Dominican market. The first importer started importing salted & dried cod from Norway in the 1960s, and then the others followed. All the traditional importers said that they started importing salted & dried cod because of economic opportunities, and to expand their business. It was essential to import products that were profitable and desired by the customers. Salted & dried cod was one of the first products they started to import. Because of the dryness and not requiring cold storage, this product was suitable for the market. The supermarket started importing around 1992. This is because importing salted & dried cod, is cheaper than buying it from a local supplier.
Q3 **Which fish types and fish products**	**Exporters** All respondents answered that they only export salted & dried cod made of saithe. This is due to traditions, and the fact that Dominicans prefer the strong flavour of saithe over cod.
	Importers The fish types imported to the Dominican Republic are saithe, herring, cod, sardines, hake and Pollock fillets. The supermarket import mainly saithe, but also a small portion of cod from Norway,

do you import/export to the Dominican Republic? Why?	and Pollock from China. According to the Supermarket, their results from the first quarter of 2017, showed that the total import distribution of salted & dried cod was 9 Norwegian containers and 1 Chinese. The consumption is special in this period, due to the Lenten period, and consumption goes back to normal after this. However, the supermarket respondent claimed that distribution between the export countries is 90% Norwegian and 10% Chinese throughout the year.

Question	Answer
Q4 **Which factors influence demand for salted and dried cod?**	**Exporters** The most important factor is exclusively price, which the exporters say is a function of raw materials and the exchange rate between NOK and USD. If the price is too high, the consumers will choose other protein products. The exporters therefore claim that producing "cheaper fish" is important. Today the Norwegian quotas of saithe are relatively large, but a greater proportion of the fish is frozen on board the vessels and can therefore be exported directly abroad. This makes competition for raw materials tighter. Other factors which are mentioned are currency and unfavourable exchange rates, that influence prices. Today, Dominicans have limited access to USD which can be a challenge. Demand for salted & dried cod will also differ according to variations in prices for alternative products. Many exporters therefore are of the impression that the market is very price sensitive.
	Importers Importers, agrees with the exporters; Price is the main factor affecting demand. If the price is low, the consumer buys more fish and vice versa. The importers also mention that quality is essential, but quality is influenced by price. The better the quality, the higher the price. One of the importers also mentioned tradition as an important factor and the fact that the salted & dried cod can be stored without refrigeration (compared to other protein foods).
Q5 **How have changes in price been in recent years? Has the price been stable or has there been large fluctuations?**	**Exporter** Exporters have different opinions when it comes to changes in price. Some believe price changes over the last 25 years have had major variation due to the exchange rate and raw material prices. While others, state that price developments measured in retail prices per dollar, have in recent years decreased. Two or three years ago, the price for salted & dried cod was 127-140 dollar per 25 kg carton, and today it is between 90-100 USD. Other exporters say the price is stable, and had small variations between 4-5 NOK in the last 5-10 years. The number of Norwegian exporters have increased, hence competition is higher and prices are being pushed down.
	Importer

	According to the importers, prices vary according to the exchange rate between DOP and USD, and NOK to USD. The variation between DOP and USD have varied greatly.
Q6 **Does price have a great impact on demand for the product?**	**Exporter** Some believe that the current high demand, is explained by low prices. However, some are of the opinion that demand is stable regardless of price.
	Importers All importers agree with the exporters that the price has a major impact on demand because the consumers select products with the lowest price.
Q7 **Does exchange rate fluctuations influence your import/export quantity?**	**Exporter** There are some disagreements among exporters in terms of currency changes and its impact on demand. Some say they do not notice much of the currency changes in relation to what is exported, while some say that currency fluctuations affect demand to the extent that it affects the sales price in dollars. Despite this, everyone agrees that the exchange rate may have an impact on price.
	Importer The importers agree that the exchange rate has an impact on their imports of salted & dried cod. Sometimes its 2-3% more or 2-5% less.
Q8 **Has the country's economic growth had an impact on demand in the national market?**	**Exporter** The export of salted & dried cod has increased and all exporters believe that the economic growth may have had an impact, although it is difficult to pinpoint one exact reason. National wealth has improved and the population's wages have increased, resulting in a growing middle class, hence less poverty. The exporters claim that even though large parts of the population are poor and the salted & dried cod is a fairly expensive product, most of the consumers still eat salted & dried cod. This is because, 1 kg of salted & dried cod gives more food than 3 kg of chicken, indicating that the salted & dried cod is a product that provides more food than chicken. At the same time, the salted & dried cod is handled in such a way that it can stay for a long period of time without fridge and freezer, which means that the salted & dried cod lasts longer than other products.
	Importer The importers said that if people have access to more money, they will be able to buy not only salted & dried cod, but also other products. While the revenues increase, people will switch to other products such as salmon or cod instead of saithe.
Q9 **Do you believe that population growth has an influence on demand?**	**Exporter** Most exporters believe that a moderate increase in the number of people, can in general impact demand for salted & dried cod. The exporters have seen an increase, but are not sure of the extent to which this is a result of population growth.
	Importer Importers also agree that an increase in the number of people has affected demand. Due to traditions and religion - as people are

	born, and more Catholics grow up, this will affect the demand for salted & dried cod, especially before Easter. The importers claim that demand increases by 30% around Easter. However, during the rest of the year, religion does not affect the demand that much.
Q10 **Do you believe that tourism has an impact on demand for salted and dried cod?**	**Exporter** There are some disagreements among the exporters when it comes to tourism and its impact on demand. Some believe that tourists eat salted & dried cod, while other think that only Dominicans consume this product. However, they do agree that tourism contributes to economic growth. Maybe some of them eat salted & dried cod, but mainly the tourists are injecting currency into the market. First and foremost, the tourism gives hope for a paid job, which means that the Dominican people can buy more things. The middle class increases and the purchasing power increases.
	Importer Do not believe that tourism affects demand for salted & dried cod. They claim that tourists do not eat this product, and that the quantity that goes to hotels and restaurants is very low. The importers respond that the only way tourists can influence demand, is related to the access of this product in hotels and restaurants, which is limited or none existent. This is because of two things; salted & dried cod is not requested by customers. Secondly, hotels and restaurants usually only offer products which they can buy cheaply. In general, importers believe tourists do not influence the demand for salted & dried cod. However, they agree with the exporters that tourists are contributing to economic growth, which they are dependent on.

Question	Answer
Q11 **Do you sell your products directly to the importers or do you use agents? What is the typical outlets?**	**Exporter** Almost all the exporters respond that they sell through agents, with whom they have long and strong relationships. Exporters argue that agents located in the Dominican Republic, make it easier to stay in contact with the buyers, and they can closely follow price levels. This way exporters always have a person informing them about market conditions. Two of the interviewed exporters sell directly to the supermarkets. According to all exporters, typical outlets are colmados and traditional markets, as well as supermarket. The exporters argue that the number of supermarkets have increased in recent years, but colmados are the most used outlets.
	Importer Not relevant
Q12 **Does the exported fish get handled in any way in the**	**Exporter** All exporters said that the salted & dried cod is sold whole in 25 kg cartons, and that the outlets cut the fish themselves. The exporters argue that these know customer preferences better. In supermarkets, they cut the fish into pieces themselves and sell it on trays covered with cellophane. Regarding the colmados and

DR? Is the product sold whole / cut in smaller pieces / new packaging? If so, who does it?	traditional markets, the fish is cut into pieces as preferred by the consumer.
	Importer The importers respond that they sell the salted & dried cod, the same way as they are delivered by the exporters, whole in 25kg cartons. The supermarkets, colmados and markets cut the fish themselves. The supermarket which also imports, answered that they cut and pack the fish themselves.
Q13 **Who buy salted & dried cod in the Dominican Republic?** **Are there differences between consumers from different social classes and income groups?**	**Exporter** All respondents believe that most people buy salted and dried cod in the Dominican Republic. All respondents also agree upon the fact that salted & dried cod has, due to long traditions, become part of the Dominican cuisine. This is in relation to religion and the durability of the preserved product. The majority of the respondents do not think there are any difference between social classes and income groups, in relation to the consumption of salted & dried cod. This is because the consumption is related to food traditions. Some of the respondents mentioned that the product used to be food for the poor households, and was, back in the days, "slave food". Today however, this is a relatively "expensive" product compared to chicken, but all classes eat it. However, many explain that the salted & dried cod is in fact "cheaper" as you get more food from 1 kg Bacalao Noruego than 3 kg of chicken. A few also pointed out that the richest might prefer salmon or salted & dried cod made from cod, rather than saithe.
	Importer The importers agree with the exporters. They also emphasise, that it is mostly the housewives who plan and purchase the food for the Dominican households, i.e. they are the ones buying the product.
Q14 **What is important for the consumers and what are their preferences?**	**Exporter** Price was highlighted as an important factor in this market. There was also agreement upon thickness and colour of the fish as important purchasing factors for the consumers. Some of the exporters also mentioned that the consumers prefer fish which is made from frozen (on board the fishing vessels) raw materials. According to the exporters this gives the fish a lighter colour and the fish is a bit thicker.
	Importer All importers also believed that the thickness and colour of the fish were the most important factors for the consumers. "Dominican consumers buy food with their eyes". They perceive whiteness as a sign of freshness or cleanliness, and want thicker pieces because "it has more meat".
	Exporter The majority of the respondents found it hard to answer this question, but some believed that young people do not have as much time to prepare food as older people, and salted & dried cod

Q15 **Are there differences among the different age groups, in accordance to demand? Do the younger consumers eat as much as the elderly?**	is maybe therefore not their first choice. However, the respondents believed that young people who still live with their families, continue to eat it. It is also claimed that, when younger people establish their own families, they will take time to prepare this product for their children, in accordance with national food traditions. Some of the respondent believed that young people eat as much as older people. Most of the respondents do not think so, and believe that younger people do not spend that much time on cooking. The younger section of the population has less time, and would therefore prefer more convenient food such as pasta or pizza.
	Importer The majority believed that there are differences among the age groups. They think that older people eat more of this product, than younger people. They also claim that many of the younger consumers sometimes do not like the taste. However, some of the importers claim that traditions are stronger the older you get. One of the importers also mentioned, that younger people, such as students are served Bacalao Noruego for lunch, in accordance with the new national school meal programme.
Q16 **How often does the average consumer eat salted & dried cods?**	**Exporter** The overall impression of the exporters is that consumers eat salted & dried cod a few times a month, and some maybe weekly. Their thoughts are mostly based on the annual export statistics, which claims that consumption per capita is ca. 1 kg. When desalted/hydrated this is equivalent to about 1.3-1.4 kg per capita annually. It is also claimed that the Dominican consumers have a different consumption pattern when it comes to this product than in some other markets. For example, 1 kg of salted & dried cod may be used in 10 different meals, whereas in some other markets this is only be enough for 4 meals. The exporters emphasise that consumption is very stable, but increases slightly in the Lenten period.
	Importer According to all importers most Dominicans eat salted & dried cod approximately once a week, and probably more around Easter. The supermarket also mentioned that cooking competitions and shows have had a positive effect on the consumption. It teaches the consumers different ways of preparing the fish and different recipes. This has made people more aware of the product and they eat more of the product, when they know additional ways of preparing it.

Question	Answer
Q17	**Exporter** All interviewed exporters, see other Norwegian exporters as their main competitors. They compete both in accordance to orders and price. However, they also mentioned that if one exporter does not

Who are your greatest competitors and are these mainly Norwegian exporters?	have enough fish, he can sometimes buy this from other competitors. Furthermore, it is unanimous that Alaska Pollock or filleted products from China are an increasing threat.
	Importer Not relevant
Q18 **Do you experience any competition from other countries? China? Canada?**	**Exporter** In general, they do not notice a lot of competition from other countries in this market, except a little from China. Some draw parallels with the Brazilian market, where Chinese products have acquired more and more market share. However, there is consensus among the exporters, that the quality of the Chinese fish is not as good as the Norwegian products. Canada used to be a competitor, but is not as visible in the market today, this is mainly because they do not have sufficient access to raw materials, and their prices are higher than the Norwegian products.
Where do you import salted and dried cod from other than Norway? China? Canada?	**Importer** According to all traditional importers, they only import salted & dried cod from Norway. The supermarket however, also imports from China, and have done so for 4-5 years. The traditional importers also see the Chinese products in the market, and find the product whiter but, "you do not know what you are eating". According to the supermarket, due to tradition, the consumers have a stronger relationship with the Norwegian fish, because they know it and are used to it. "If you put the Chinese product on special promotions, the sales will maybe double. When you do a special promotion with the Norwegian product, the sales increase by maybe 10 times the normal sales". The Chinese fish is Pollock and the Norwegian is saithe**.** According to the supermarket the salted & dried cod from the two countries are very similar, and he does not believe that the consumer knows the difference between the products. The Chinese fish is whiter, and has a more appealing packaging. However, you do not see the whole fish, due to the types of bags used, and the product is more expensive. "In the end the price is often the most important factor".
Q19 **Portugal is a great competitor in the Brazilian market, why are they not present in the Dominican market?**	**Exporter** All respondents claimed that Portugal does not have traditions in eating or producing salted and dried cod made from saithe, but only from cod. They mainly produce the product for national consumption, and it is therefore not "natural" for them to use a raw material other than cod. They do not have noteworthy access to saithe.
	Importer Not relevant

Question	Answer
Q20	**Exporter** Both importers and exporters agree that if there is a substitute for salted and dried cod it must be chicken. Furthermore, some

In relation to other imported fish types, local catches and other products such as chicken – What is the main substitute to salted & dried cod?	exporters mentioned that other imported fish types and other protein products may be relevant for the consumers. The exporters are in general not a 100% sure about the direct substitutes for salted & dried cod, and whether there is one. However, many point out parallels to the Brazilian market, where chicken and other protein products such as cheap meat are the most common substitutes.
	Importer According to the importers the main substitutes are chicken, pork and sardines. One also mentioned herring as one of the important substitutes (as these products are sold side by side in all outlets). In relation to local catches, the Dominican fishing industry is artisanal and poorly organised, with no stable supply to supermarkets, for example.
Q21 **Has Country of Origin an impact on what product the consumers decide to buy?**	**Exporter** Country of origin is important according to all respondents. Exporters claim that the Dominican consumers have a strong relationship with salted & dried cod from Norway – Bacalao Noruego, and they believe that this is more as a "brand" than a country. Consumers are familiar with Bacalao Noruego, due to long traditions, and this is presumed to be a safe choice, because they "know what they get". Many of the respondents claim that most of the consumers relate salted & dried cod to Norway, and therefore believe that all Bacalao products are Norwegian. Salted & dried cod from Norway is also associated with good quality. However, it is claimed that consumers do not think about country of origin in their everyday life, and choose the products that "their eyes like". Another important issue addressed by exporters, was the threat of salted & dried cod products "pretending to be Norwegian" using the Norwegian flag or colours.
	Importer The importers agree with the exporters, and think that Bacalao Noruego is perceived more as a brand than a country. However, according to the importers Norway has a good product reputation both in relation to product quality, but also due to the annual cooking competition organised by the Norwegian Seafood Council. The publicity is important for the Norwegian salted & dried cod. They also mentioned that most consumers believe that all salted & dried cod is from Norway.
Q22 **Do you think that "prepared products / ready to eat products" as e.g. already desalted and deboned / desalting**	**Exporter** Exporters agreed that these products will affect future demand. These expectations are explained by the increasing wealth, and higher purchasing power. However, some mention that if you compare it to the Portuguese market, this is not the case. Also, if you look at the Brazilian market, prepared products have been increasing for some time, but according to some of the exporters these are on their way back. Price is also an important factor in this case: prepared products are more expensive than the traditional product. Most of the respondents believe that the consumers in the Dominican market, will also in the future buy

bags will influence future demand?	the "whole" fish as today, but the "prepared products" from countries such as China will be present.
	Importer Importers in general don't think this will have a major influence on future demand. This is due to the 20 % import tax on filleted products, which the traditional salted & dried cod does not have. This is why the Chinese fish is more expensive than the Norwegian. However, the consumers like and are used to seeing the whole fish, which makes them able to "control" the quality of the product.

Question	Answer
Q23 **How do you see future potentials?**	**Exporter** All respondents are positive in relation to the future of the Dominican market. According to the exporters the increasing wealth and growing middle-class, gives the consumers higher purchasing power, and the number of supermarkets are expected to increase. However, there are different opinions in relation to the speed of the development. Many believe the market is very stable, and that it will grow and be more important in the future, whereas some believe that it will stay as stable as today.
	Importer The importers point out that if the quality and price of Chinese products improves, they could be a much stronger competitor in the future.

Appendix 6: Data

Year	Exchange Rate (DOP per USD)	Average Income (DOP)	Salted & Dried Cod Import Quantitites (MT)	Salted & dried Cod Import Price (USD/kg)	Salted & dried Cod Real Price (1991=100) (USD/kg)
1988	6,11	83006,65	2206	2,00	6,22
1989	6,34	84941,37	2066	2,43	5,38
1990	8,53	78735,51	420	2,96	4,35
1991	12,69	77938,50	848	3,32	3,32
1992	12,77	84483,86	2974	3,62	3,47
1993	12,68	88885,01	3080	3,07	2,79
1994	13,16	89271,68	4607	2,80	2,36
1995	13,60	92512,94	2923	3,88	2,90
1996	13,78	97422,95	4248	3,23	2,29
1997	14,27	103489,27	5354	2,94	1,93
1998	15,27	108970,36	7451	3,26	2,04
1999	16,03	114456,84	7549	2,79	1,64
2000	16,42	119045,30	9773	2,12	1,16
2001	16,95	119325,61	9321	2,31	1,15
2002	18,61	124299,64	10253	2,50	1,19
2003	30,83	122111,89	6803	2,31	0,86
2004	42,10	121876,34	5890	2,49	0,61
2005	30,51	131225,06	7699	3,07	0,73
2006	33,25	143155,73	7833	3,14	0,69
2007	33,31	153114,33	8561	3,33	0,69
2008	34,87	155762,09	9682	3,78	0,71
2009	36,11	155107,58	10225	3,71	0,68
2010	37,31	165774,18	8705	4,40	0,76
2011	38,23	168255,35	8236	4,92	0,79
2012	39,34	170504,57	8235	4,99	0,77
2013	41,81	176454,43	8356	4,33	0,64
2014	43,56	187141,14	8404	4,98	0,71
2015	45,05	197826,05	9513	4,09	0,58

Appendix 7: Regression analyses

7a: Regression 1

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Exchange, Dummy, Income, Price[b]	.	Enter

a. Dependent Variable: Demand
b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,950[a]	,903	,886	,26497	1,941

a. Predictors: (Constant), Exchange, Dummy, Income, Price
b. Dependent Variable: Demand

ANOVA[a]

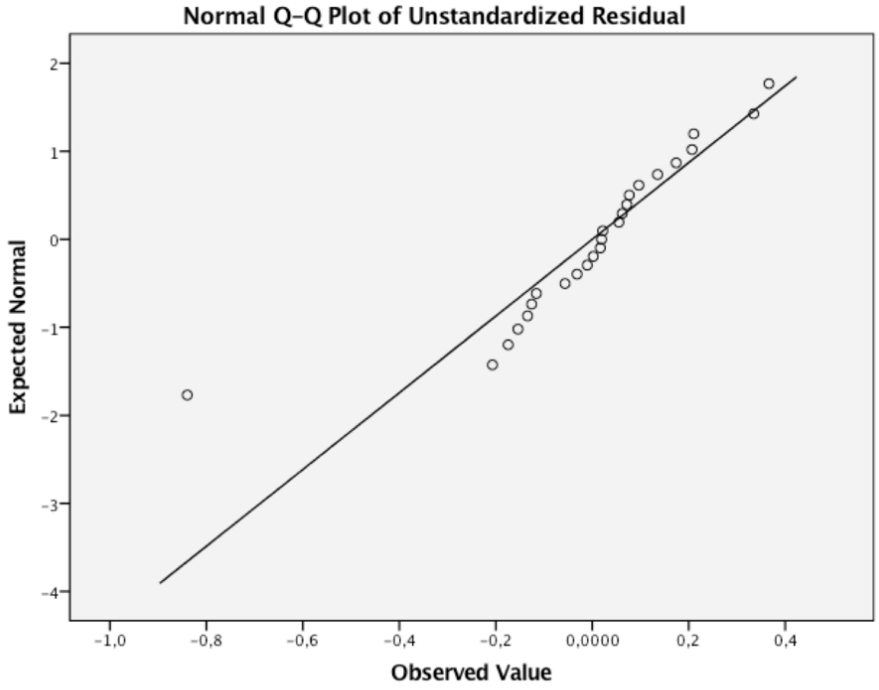
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15,035	4	3,759	53,534	,000[b]
	Residual	1,615	23	,070		
	Total	16,649	27			

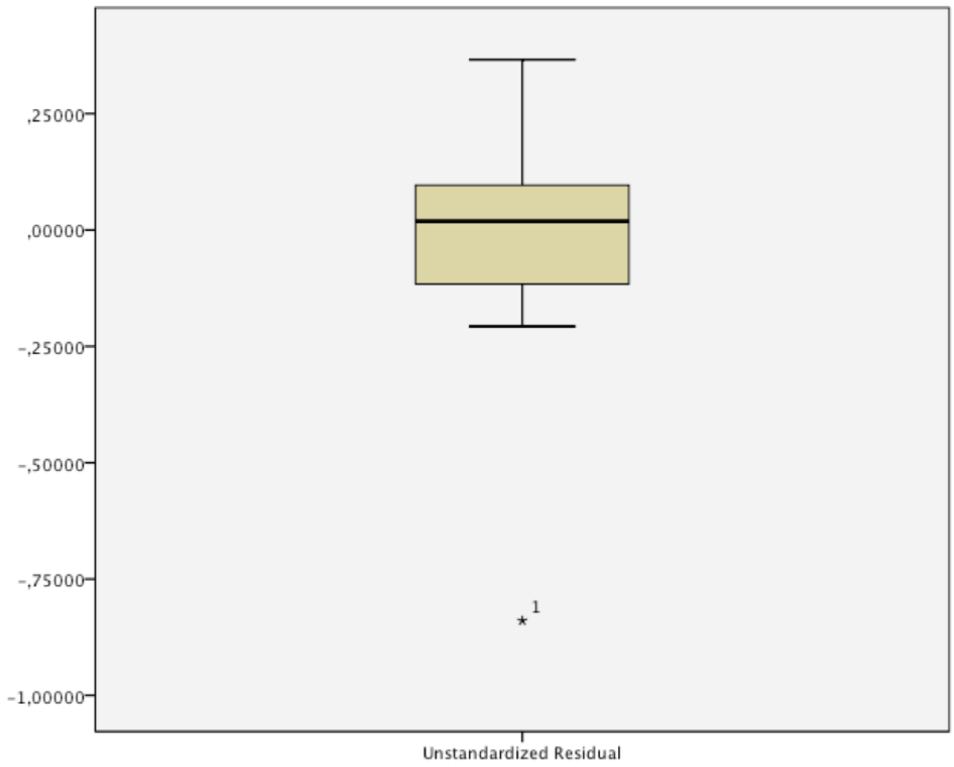
a. Dependent Variable: Demand
b. Predictors: (Constant), Exchange, Dummy, Income, Price

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-1,831	5,280		-,347	,732	-12,754	9,091		
	Dummy	-1,731	,283	-,417	-6,108	,000	-2,317	-1,145	,907	1,103
	Price	-1,444	,282	-1,371	-5,126	,000	-2,026	-,861	,059	16,960
	Income	1,331	,466	,488	2,858	,009	,367	2,294	,145	6,906
	Exchange	-1,529	,344	-1,183	-4,450	,000	-2,240	-,818	,060	16,769

a. Dependent Variable: Demand





7b: Regression 2

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Pork, Income, Price, Chicken, Exchange[b]	.	Enter

a. Dependent Variable: Demand
b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,915[a]	,838	,795	,25788	1,728

a. Predictors: (Constant), Pork, Income, Price, Chicken, Exchange
b. Dependent Variable: Demand

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,539	5	1,308	19,667	,000[b]
	Residual	1,264	19	,067		
	Total	7,803	24			

a. Dependent Variable: Demand
b. Predictors: (Constant), Pork, Income, Price, Chicken, Exchange

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-6,974	6,238		-1,118	,278		
	Price	-1,364	,298	-1,459	-4,579	,000	,084	11,909
	Income	1,840	,560	,869	3,287	,004	,122	8,192
	Exchange	-1,793	,482	-1,551	-3,720	,001	,049	20,398
	Chicken	-,072	,281	-,090	-,257	,800	,070	14,205
	Pork	,101	,282	,109	,358	,724	,093	10,792

a. Dependent Variable: Demand

7c: Regression 3 – Substitute Chicken

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Chicken, Income, Price, Exchange[b]	.	Enter

a. Dependent Variable: Demand
b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,915[a]	,837	,804	,25220	1,717

a. Predictors: (Constant), Chicken, Income, Price, Exchange

b. Dependent Variable: Demand

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,531	4	1,633	25,671	,000[b]
	Residual	1,272	20	,064		
	Total	7,803	24			

a. Dependent Variable: Demand

b. Predictors: (Constant), Chicken, Income, Price, Exchange

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			95,0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-7,705	5,764		-1,337	,196	-19,729	4,319		
	Price	-1,329	,275	-1,421	-4,825	,000	-1,904	-,754	,094	10,647
	Income	1,908	,515	,901	3,702	,001	,833	2,983	,138	7,259
	Exchange	-1,817	,467	-1,572	-3,894	,001	-2,791	-,844	,050	19,990
	Chicken	-,010	,216	-,013	-,047	,963	-,461	,441	,114	8,802

a. Dependent Variable: Demand

7d: Regression 4 – Substitute Pork

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Pork, Income, Price, Exchange[b]	.	Enter

a. Dependent Variable: Demand

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,915[a]	,838	,805	,25179	1,706

a. Predictors: (Constant), Pork, Income, Price, Exchange

b. Dependent Variable: Demand

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6,535	4	1,634	25,770	,000[b]
	Residual	1,268	20	,063		
	Total	7,803	24			

a. Dependent Variable: Demand

b. Predictors: (Constant), Pork, Income, Price, Exchange

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95,0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-7,454	5,812		-1,282	,214	-19,577	4,670		
	Price	-1,345	,282	-1,439	-4,764	,000	-1,935	-,756	,089	11,231
	Income	1,869	,536	,882	3,489	,002	,752	2,987	,127	7,867
	Exchange	-1,739	,424	-1,505	-4,098	,001	-2,625	-,854	,060	16,593
	Pork	,056	,217	,061	,260	,798	-,396	,509	,150	6,687

a. Dependent Variable: Demand

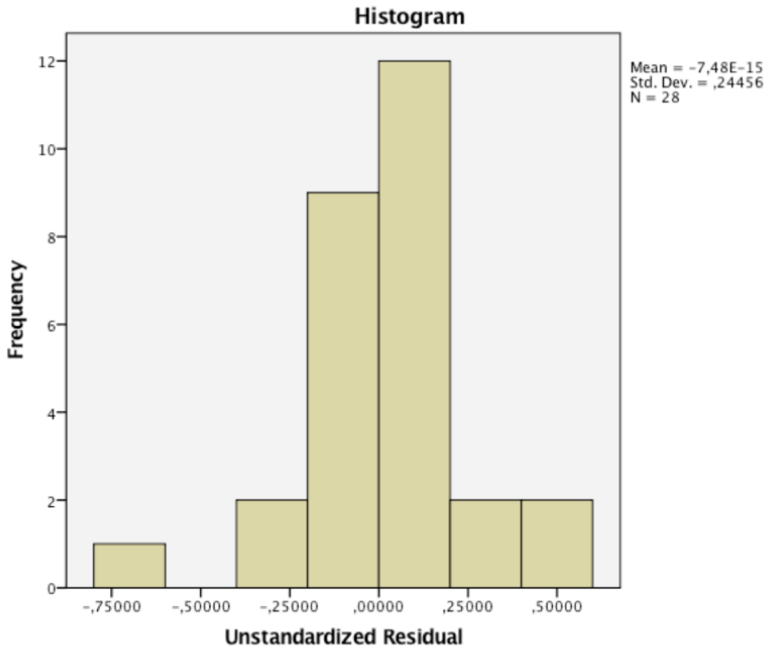
Appendix 8: Dependent variable tested for normality

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Unstandardized Residual	,132	28	,200*	,915	28	,027

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction



Appendix 9: Pictures

9A: Norwegian Seafood Federation logo "Sjømat Norge"

9B: Norwegian Salted & dried cod, offered in a Supermarket – with and without the label Bacalao Noruego

9C: Norwegian Salted & dried cod arriving at importers as “whole” in 25 kg cartons.