



**UiT** The Arctic University of Norway

Biosciences, Fisheries and Economics | Norwegian College of Fishery Science

## **Effects of the Covid-19 pandemic on Spanish Cod market**

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## Abstract

Covid-19 was a pandemic situation that affect the world during 2020, creating an economic and health crisis due to the lockdowns that has affected all the sector of the economy including seafood sector. The subsequent lockdowns create disruptions on the supply chain, affecting the food system.

The purpose of this thesis has been to explore how Covid-19 has affected the cod supply chain in Spain. To answer these questions, I have interviewed a processing company and a retail company, doing that, it is going to be possible to show the influence of Covid on the amount of kg that were sold on Spain and where they were sold and how affected was the market due to the pandemic situation.

The results from this thesis give an important idea of what should be done in future crises, because is possible to learn from the past and build resilience to avoid that future incidents, would not affect so severe on the seafood sector.

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## **1. Introduction**

In this last year, the Covid-19 pandemic has affected the global economy. Changes in the behaviour of consumers have affected what they buy and the way that they buy products. This was caused by various governmental measures to reduce the spread of the virus. The measures that were applied affected mostly to hotel, catering, transport and leisure industry, which is 9% in the Euro Zone and in Spain was the 13%.

It is important to understand how covid-19 affect supply chains and understand the different ways companies solved the problems that Covid -19 create. To find some possible answers to these questions I will study and understand how this affected the Spanish seafood market. As cod is one of the most important seafood products, I will focus on this. Thus, the main objective of the assignment is to look the effects of Covid-19 and his influence on the Spanish seafood economy.

## **1.1 Theoretical background**

Crisis like pandemics and financial breakdowns can influence societies in many ways when they appear. Examples of such crisis are the ones on Image 1.

As can be seen, Covid-19 is not the first one, there have been many pandemics, looking into the number of deaths, the Bubonic Plague was the worst. The reason for this is that at that time the non-pharmaceutical interventions were normal due to the lack of medical solutions to it (Brodeur et al, 2020).

There were others pandemics in the world and normally when this occurs, negative impacts on economics may arise, according to Brodeur et al, (2020) the social distance measures can affect the consumption and purchase of goods. On health is obvious that an impact will occur, because it is going to be more hospitalization and more medical cost, people will be affected on their jobs, they can lose it or they can change the way that they normally work.

This disruption can affect also services and travel, the measures adopted can forbid the movements on different countries and the economies of different countries can be affected.



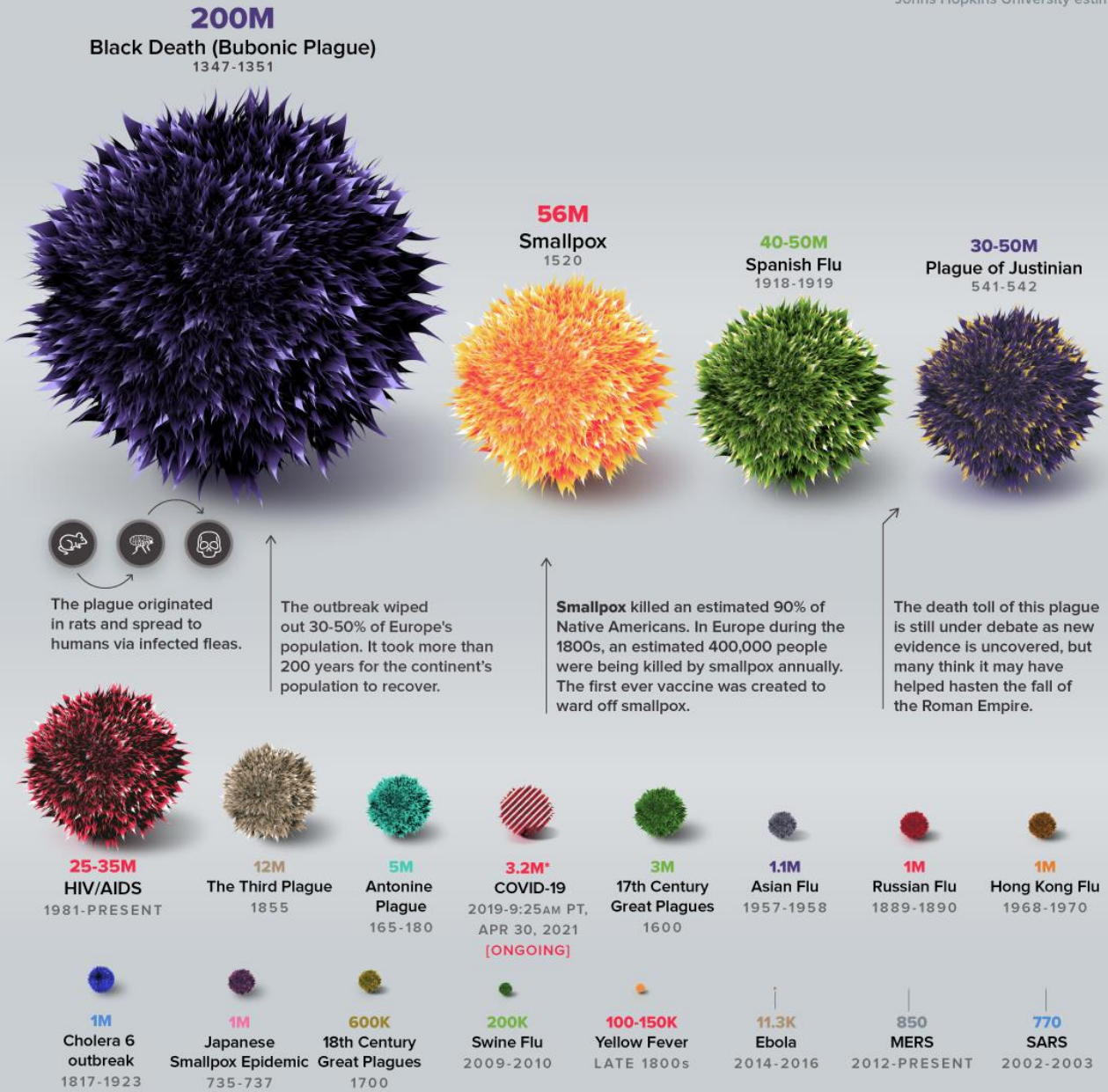
# DEATH TOLL

[HIGHEST TO LOWEST]

WHO officially declared COVID-19 a pandemic on Mar 11, 2020.

It is hard to calculate and forecast the impact of COVID-19 because the disease is new to medicine, and data is still coming in.

\*Johns Hopkins University estimates



\*Johns Hopkins University estimates

Sources:  
 CDC, WHO, BBC,  
 Wikipedia,  
 Historical records,  
 Encyclopedia Britannica  
 Johns Hopkins University



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Image 1 Death Toll of pandemics (Visual Capitalist)

The Covid-19 pandemic and subsequent lockdowns have created health and economic crises in many countries across the world. The food system has been severely disrupted with effects on multiple levels and across supply chains (Love et al., 2020) Governments, industries, society, everyone has been affected, including seafood.

Covid-19 affected seafood supply on different levels. For example, according to Gruère & Brooks (2020), because of the lockdowns and restrictions to eat outside your own home during the pandemic, the demand for seafood in the restaurant sector rapidly decreased, causing demand in retail to increase.

Covid-19 also affected other parts of the seafood supply chain. As an example, if the production in China was stopped for some products, these products were not coming to their destined markets and if this occurred in a lot of countries, there would be a disruption in the distributions all over the world. (Love et al., 2020)

The pandemic made the governments use different measures to prevent the spread of the virus. As an example, if the measures meant that, fishermen could not go out fishing, fish could not enter into the boats and there would be no fish to export or to sell. So, the industry of fish cannot work, the fisherman could lose his job. However, in many countries such as Spain, fisheries were considered “essential work” and could continue fishing, but the problem was that due to the closures of restaurants during the lockdowns, it was not worthy for the sector to go fishing, and they have loses on the sector.

According to EIT (2020) consumers were also affected by the covid-19 pandemic. The governmental restrictions caused consumers to change their behaviour and started to buy fish in retail or local markets. This change in the behaviour turns into buying more frozen seafood. They did not buy and consume the same way as they did before. Now the consumers look more at the products that they buy, they pay more attention.

As the examples above show, during the pandemic, almost all of the sectors in the seafood supply chain could be affected. For this reason, it is important to study and understand how this affected the Spanish seafood market. As cod is one of the most important seafood products in Spain, this thesis will study and increase the understanding of the impact of Covid-19 in the Spanish cod sector, and what actions were taken to be able to continue this business during

covid-19. This understanding is important to build up resilience to future shocks to preserve the continued flow of the economy during a global pandemic.

## 1.2 Cod in Spanish market

Cod (*Gadus Morhua*) is a very popular fish for human consumption, and it is sold over large parts of the world. Its white flesh colour and neutral or mild taste make it suitable for a wide range of culinary purposes (Otterå et al., 2007) It has one of the largest stocks in the world, it is also a migratory fish, its habitat is centered in the Barents Sea, spawning all along the coast of Norway, focusing on the Lofoten area, During spawning in the Northern part of Norway cod is known by the name Skrei, a product that has become well known in many European countries. An important reason for this is because of the special organoleptic characteristics that the fish has. (Image 2)



**Image 2** *Cod Source: Internet*

Skrei has a flesh that is smooth and juicy, white and tight, with a shiny and more intense flavour, Skrei is fished from January to April and has its own quality label. The Norwegian Seafood Council (NSC) has defined a special Norwegian Standard (NS 9406 - Skrei) together with the seafood industry that is linked to the quality label for Skrei. The quality label is a guarantee to the buyer that the Skrei meets all quality requirements imposed by the standard. Only Skrei and Skrei products that are handled and packaged in accordance with NS 9406 - Skrei may carry the Skrei quality label. Any company that labels and sells Skrei under the quality label is responsible for ensuring that all quality requirements are met. (NSC, 2019)

According to NSC (2019), the most important requirements for a cod, for being labelled Skrei, starts by that they must be wild-caught from 1<sup>st</sup> January to 30<sup>th</sup> April. The Quality-labelled can be certified when the fish is bled alive, to ensure the whiteness of his meat. Also, when is fished on the boat must be gutted with or without the head. The fisherman must do a fine neck cut and all the guts and blood must be removed. The packing of this fish must have sufficient quality for a 12-day shelf life after packing.

This packing must be approved by the Norwegian Food Safety Authority and must have an approved monitoring system for better traceability.

### **1.3 Consumption of cod in Spain**

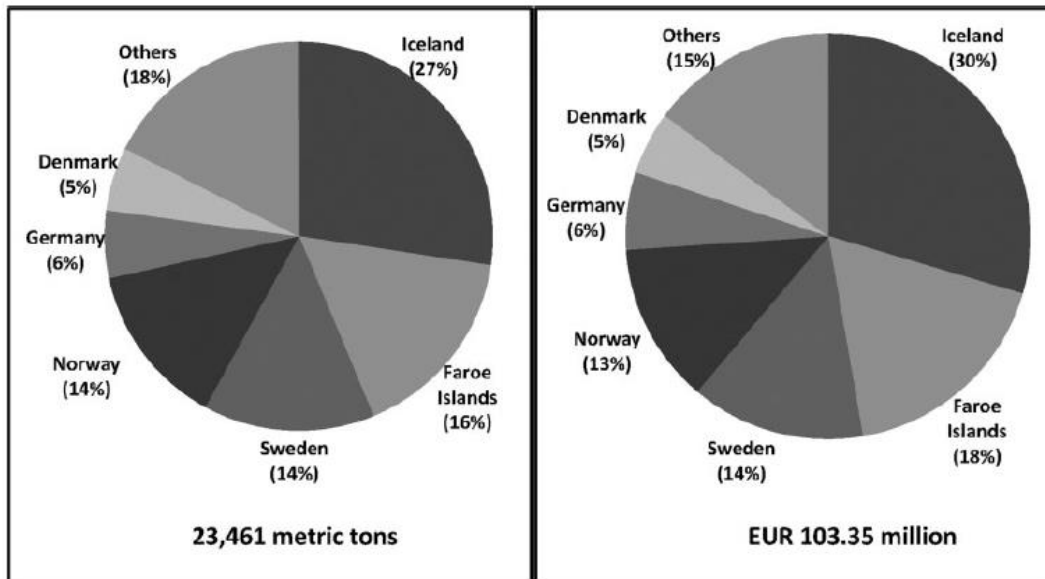
Spain is surrounded by water on all sides, the Atlantic Ocean to the West, the Mediterranean Sea to the East and the Cantabrian sea to the North. Because of this, seafood is important for the Spanish lifestyle. In 2016 the largest importers of fish and seafood of the world by volume were China, Japan, United State, and Spain. Furthermore, Spain has a high average consumption of seafood, with 42.4 kg, compared with the world average of 18.9 kg. Nine out of ten consumers eat fish at least once a week and 70% eat fish at least twice a week, showing the importance of Spain when we speak about seafood (NSC, 2016)

Gastronomy is important in the Spanish culture and society, and for centuries Spaniards has distributed, produced, prepared and consumed a diversity of food products on a regional or local scale. Because the cod is not naturally from Spain it took some time to become a product that entered into Spanish gastronomy. Over time cod became deeply established in Spanish cuisine and is used in many dishes and tapas. Some regions are more adapted to cod than others, the most important are País Vasco, Galicia, Andalucía, Madrid, Cataluña and, Comunidad Valenciana. This is evident when looking at the 55 out of 67 manufactured and importer companies are establish in these six communities (Espinosa S.A., 2011)

The influence of cod in Spanish gastronomy is important, but how cod is consumed and supplied has changed in the last two decades. If seen from the supply side, cod has not been so strong due to the abandonment of the Spanish cod fleet, the overfishing and the establishment of quotas within the Economic Exclusive Zone has changed. This has changed the way of obtaining cod in Spain, currently, most cod is imported from the Scandinavian countries. This has also led to the development of new ways of consumption, like the introduction of new fish species, similar in taste to cod, like saithe. (Espinosa S.A., 2011)

## 1.4 Import of cod to Spain

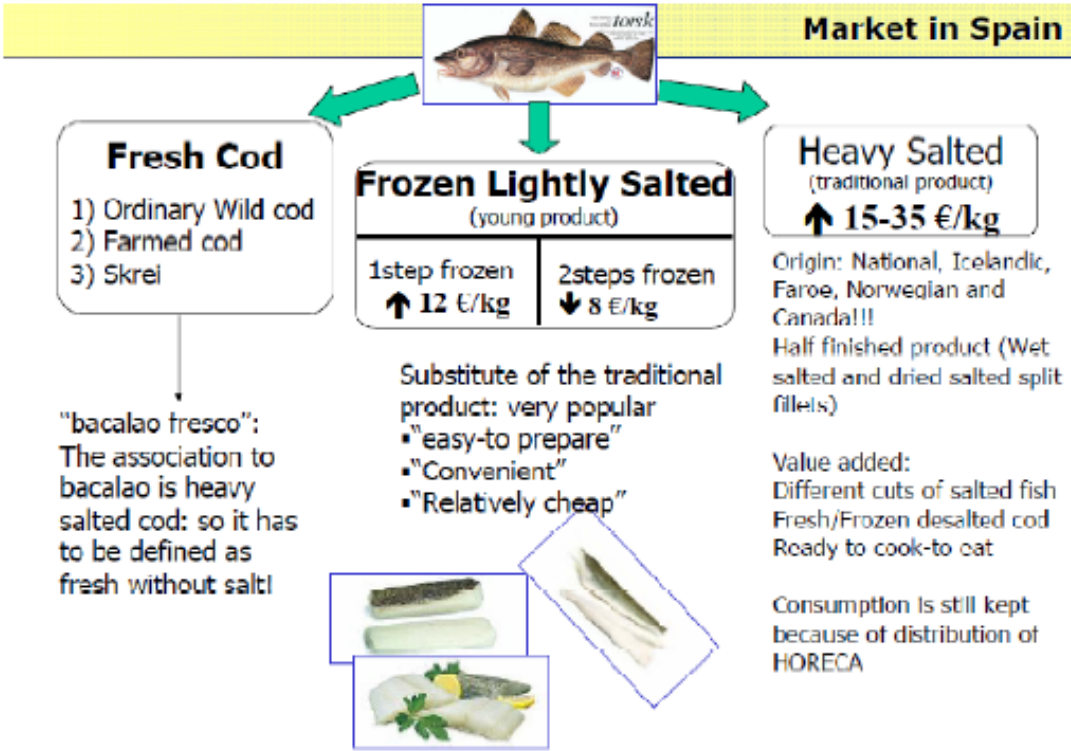
As said before, cod has an important position in the Spanish kitchen but the preference for cod is something that during years has changed. The presence of the Norwegian-style salted cod now has been replaced by the Icelandic cod, which is whiter, thicker, lighter and, juicer. This can be seen in Image 3 where the Iceland products are the 27 % of the imports of cod in Spain. The Faroe and Norwegian cod are the second on kg imported.



**Image 3** Spain's salted fish imports by country of origin (Sánchez-Hernández & Espinosa-Seguí, 2015)

The same occurs with the value, percentage is in the same order as volume, being the Icelandic the more preferred one, because it is much whiter, lighter and juicer. The Icelandic developed a product that almost replicates the fresh hake, which is the species most preferred for home consumption, and by doing that, now, they have a big influence on consumers and know what they want to buy and eat. (Sánchez-Hernández & Espinosa-Seguí, 2015)

The most important cod products in Spain can be divided in fresh cod, frozen lightly salted cod and heavy salted cod (Image 4). The fresh cod is the one that is captured and send directly to Spain, this can be Skrei, the ordinary wild cod or farmed cod. The second product is the lightly salted frozen cod, which is frozen on board or it is frozen in the factories and processed and delivered to Spanish producers or supermarkets.



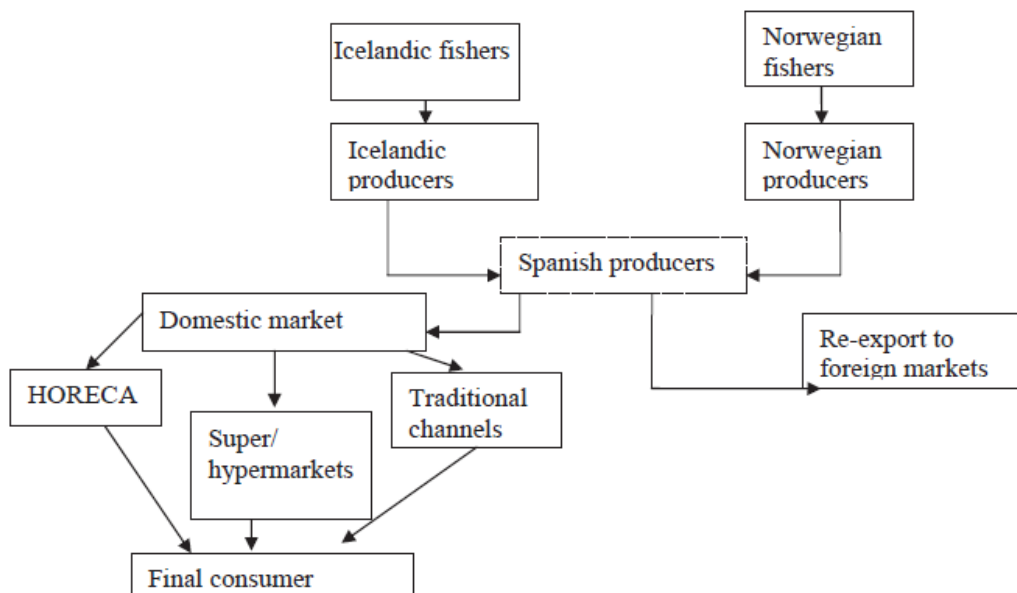
**Image 4** Market cod products in Spain (Þórarinsdóttir et al, 2010)

The third product is the heavy salted cod, that is less common nowadays because of the quality of the lightly salted, that is more preferred in the market and healthier due to the fewer quantities of salt (Þórarinsdóttir et al, 2010)



## 1.5 Cod value chain in Spain

As soon as the fish depart from Iceland or Norway, the actors who appear on the value chain are the same in both countries, the only difference is that Norwegian fisheries are more based on seasonality and there is a lot of cod caught during January to May and not so much the rest of the year. The Icelandic producers have their cod quotas, so they can control the supply and quality of their fish also they have been more dynamic in processing development (Þórarinsdóttir et al 2010). Once arrives to Spain cod is either used as an industrial raw material or goes directly to the market. As an example; some of the products go directly to hotels, restaurants, catering (HORECA) sector or the supermarkets and then to the final consumer as can be seen on Image 5. The other cod products are processed in factories or re-exported to different countries.



**Image 5** Value Chain in Spain (Larsen, 2014)

According to Larsen (2014) the supermarket sector have the most power in the value chain in Spain, and the quality wanted for the Spanish market contributes to strengthening their position on the value chain.

As it was said before, cod can be sold, fresh, (as Skrei or other fresh cod), frozen lightly salted and heavy salted, depending on how it is going to be prepared. How it is fished, distributed and processed varies between the products. Fresh Skrei is caught in the Northern part of Norway,

packed in polystyrene boxes that can contain 4-5 fishes depending on the size. For the transportation, the base of the box is covered with ice and the fish goes on top, because if you put ice on the top the fish can be burned by the ice and sold in retail or from fishmongers, where the customer can choose the cuts. In fresh for example, normally the presentation is in fillets, boneless. If we talk about frozen fish, it is normally frozen on board the fishing vessels as fillets and send to the factories. Then it is cut in different type of shapes, as we can see in Image 6



**Image 6** *Cod cuts* Source: *Internet*

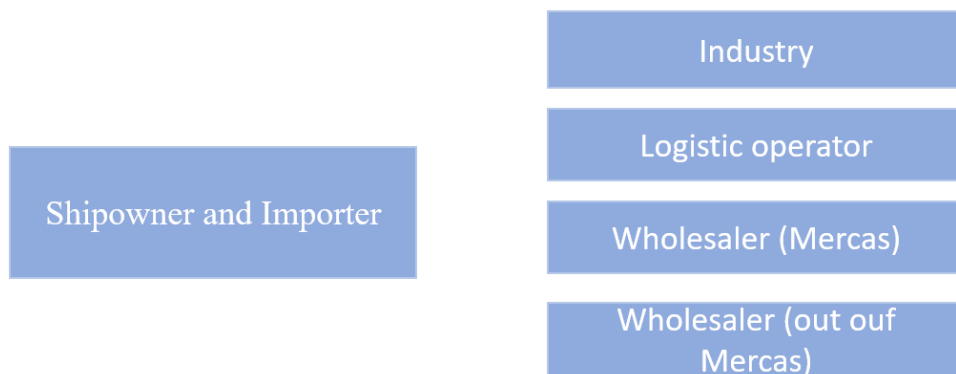
These shapes are normally decided by the customers that buy from the Spanish factories because a high percentage of the frozen fish that is sold in Spain goes to the HORECA sector.

The case of the frozen lightly salted is similar to the frozen cod, normally is processed in the country where it landed and then exported to Spain, where is cut, portion packed or dried and then send to the Spanish market or exported (Larsen, 2014). An example of this can be the two photos below (Image 7) where it is possible to see how cod arrive to Spain (left picture) and an example of the different cuts that are made from a lightly salted fillet (right picture).



**Image 7** Totems of lightly salted cod and different cuts of the fillets (Own elaboration)

The fish normally enter to Spain by port and by road the agents that are more used here, are the (shipowner and importer) that are the ones that own the quotas and the companies that buy the fish, then this is divided as can be seen on Image 8:



**Image 8** Distribution and sales channel

The wholesaler (also called Mercas) sells cod in Spain normally is divided, can be inside de Mercas or out of them. Mercas is structured in a group of wholesalers in different communities as can be seen in the Map of Mercas in Spain. This Mercas are wholesale companies that have as main customers the retailers, neighbourhood supermarkets, HORECA sector. As can be seen on the image almost every community in Spain has one, to make easier the distribution of the fish through the country. (Image 9)



**Image 9** Map of Mercas in Spain (Wholesaler)



And the ones that are out of the Mercas, share installations and sections where they sell the cod. An example of this is the Central Markets, these ones guarantee the supply of urban areas, fluidity in operations and the correct evaluation of prices according to supply and demand.

The independent fishmongers, normally work in mercas; here is where some restaurants buy the fish. Depending on the restaurants the quantity needed may vary, so fish can be buying fish on the Central markets, and if you have a chain of restaurants probably you need to go to the Mercas and buy the fish.

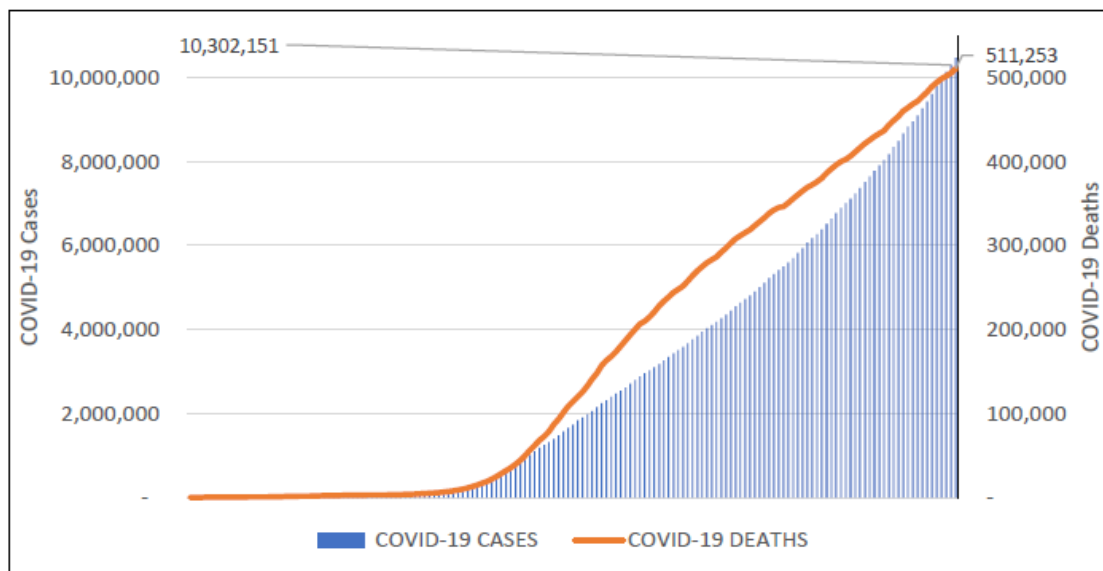
In this place, the fish can be bought whole or you can ask for different types of cuts. Normally the fish is present as Image 10, and depending on your needs the cuts are made.



*Image 10 Fishmonger stand (Source: Arturo Reboyras 2021)*

## 1.6 The Covid-19 pandemic

Covid-19 pandemic has changed many things in the world. Coronavirus is a disease that was originated in December 2019, where the Wuhan Municipal Health and Sanitation Commission (Hubei Province, China) reported a small outbreak of an unknown pneumonia, appearing in a seafood, fish and live animal market. In January 2020, they identified the new virus of the Coronaviridae family (SARS-CoV-2) and on March 11, WHO declared a global pandemic. Covid-19 comes from a family of viruses that cause infection in humans and animals, it is a zoonotic disease, meaning that it can be transmitted from animals to humans. This means that like many outbreaks of the coronavirus family, the primary source of the problem is of animal origin.



**Table 1.** *Cumulative Covid-19 cases and Deaths Global (30-June) (Brodeur et al. 2020)*

By mid-year (2020) there were more than 10 million cases over the world, this rapid spread caused a change in people's attitudes, mainly to prevent the spread of the virus (Table 1). Examples of this were the social distancing, also some laws made by the governments order the closure of businesses, schools etc... Large-scale meetings were also prohibited, travel was banned and a quarantine was applied in some countries for months, with the intention of preventing further contagion. This severely influence the economic activity to, affecting markets, supply chains, world finances, etc. Different distancing measures were applied, the effect on the economies depended on how strict they were.

According to Brodeur et al. (2020) the economic effects of Covid-19 could be explained by the effect of the different measure of Covid-19. The measures were social distancing, the socioeconomic determinants and the effectiveness of social distancing, the economic and financial impact of Covid-19, consequences on the labour, health, and environmental aspects and the different policies that were created during this pandemic situation.

Due to this governments need to choose a strategy to defeat Covid-19. The strategies could be:

- Do nothing.
- Test, trace and quarantine.
- Social distance measures (Lockdown)

	No lockdown	Late lockdown (>10 cum. infections per 100 k)	Medium late lockdown (>5 and <10 cum. infections per 100 k)	Early lockdown (<5 cum. infections per 100 k)
	Belarus Iceland Norway Sweden			
Soft lockdown		<i>Ireland 87</i>		Denmark 64 <i>Netherlands 67</i> <i>Germany 70</i> <i>Hungary 73</i> Latvia <i>Romania 73</i> <i>Slovenia 76</i> <i>Finland 77</i> <i>Lithuania 77</i> <i>Ukraine 77</i>
Moderate lockdown		<i>Italy 69</i> Spain 75 Switzerland 78 Luxemburg 78 Belgium 79 Germany 82 Netherlands 83 United Kingdom 83 Cyprus 87 Ireland 89 Estonia 90	Austria 77 France 78 Portugal 80 Greece 84 Moldova 85 Poland 92	<i>Russia 66</i> Albania 72 Kosovo 73 Bulgaria 74 Czechia 76 Serbia 76 Croatia 84 Romania 86 Hungary 88 Ukraine 95
Hard lockdown		Italy 81 Russia 91		Serbia 79 Bosnia-Herzegovina 81

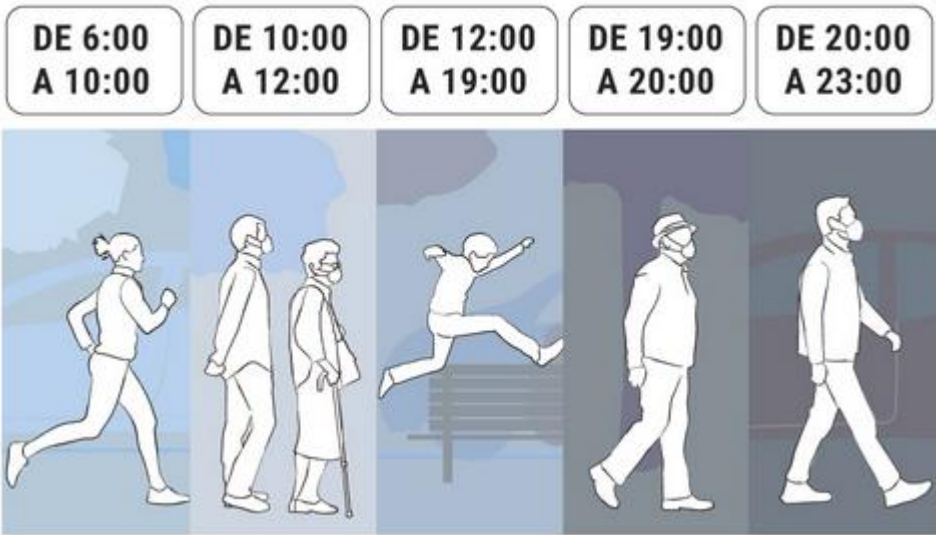
Note: Numbers indicate the day of the year 2020 the measure was implemented, cases in italic have adjusted their lockdown strategy.

**Table 2** Lockdowns in European countries by epidemiological timeliness and stringency. (Plümper & Neumayer, 2020)

The majority of the countries in Europe decided to use the third option. According to Plümper & Neumayer (2020) the majority of the countries in Europe wanted a moderate lockdown that allow people go outside only to do daily exercise, go to grocery shops and do “essential trips”. (Table 2)

### 1.6.1 The influence of Covid-19 on cod consumption in Spain

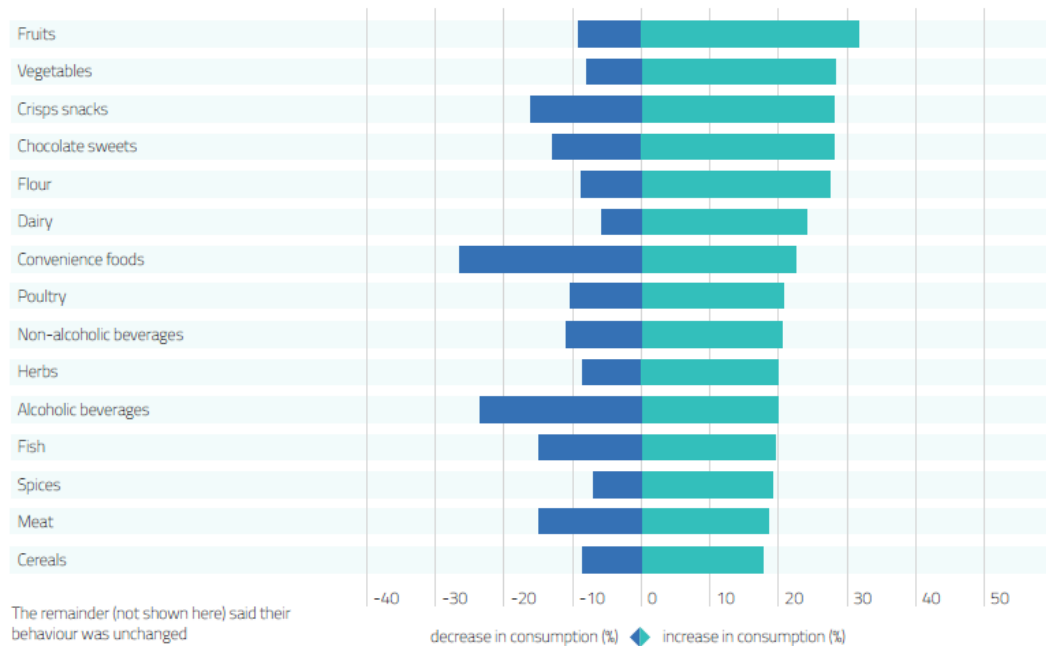
In Spain, different measures were used to prevent the spread of the virus. This caused several changes in the Spanish society. Because of a limitation on the movements, it was only possible to go out to buy food, go to your workplace, and go back to your home. Schools and universities were closed, only online classes were allowed. All commercial activities, that were not, “first necessity” were closed, meaning that restaurants and hotels were closed. During the lockdowns there was a curfew, meaning that during 23:00-06:00 people must stay in their home. You were only allowed to go outside to go for a walk-in different hour, like can be seen on Image 11



**Image 11** Hours permitted for being outside during quarantine. (MoH 2020)

All these policies resulted in jobs changes and changes in attitudes, that affected all levels of economy. Covid-19 also affected the food supply chain, due to closures restaurants people started to eat at home, so the demand for food changed (especially fruit, vegetables, snacks and flour). This increase can be seen on Image 12 where the fruit, vegetables were on top of the increased consumption during the pandemic in the EU.



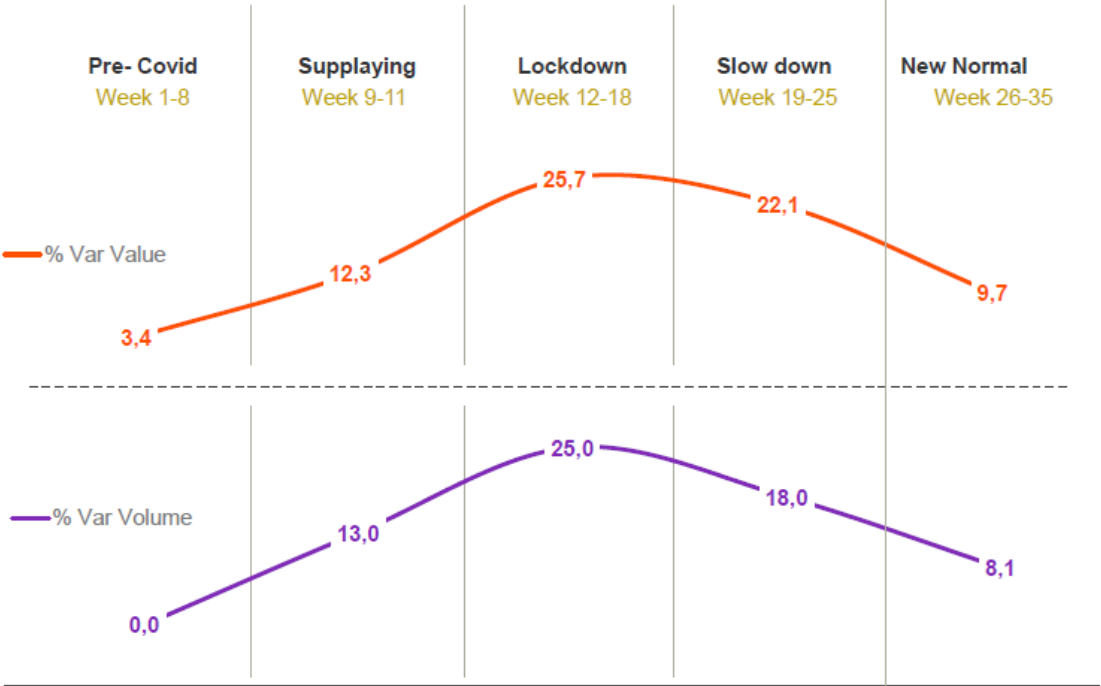


**Image 12** Most increased products during 2020 (EIT\_Food, 2020)

Companies also had to start changing their strategies since products were not sold in the same way as before. There were production stoppages in the factories due to interruptions in HORECA. Retailers in this case are the ones who have had to adapt more their portfolio, and example of this was the increase on the online shopping and the home delivery, this two were the shopping behaviour that changed the most during the Covid. In the other hand the restaurants need to adapt their whole business structure, people were more interested on the cost and access to food, their change their meal time behaviours, so restaurants need to adapt their service to the new reality of Covid (EIT\_Food, 2020)

To understand the market and what they consume is important to use the Fast-Moving Consumers Goods (FMCG) to look at it, so the FMCG refers to goods, that have a short life (for example fresh food) due to the nature of the product itself or due to a high consumer demand. The first ones are fresh products and the other can be products that are marketed on a specific campaign. It is a market that is undergoing a major transformation due to the fast changes on consumer needs and preferences. If we look into the Fast-Moving Consumer Goods in Spain (Image 13) is possible to see that there is a moment in time were the consumption in Spain start to grow a lot, the Supplying zone were the lockdown start the Spanish people increase their purchases, making to the 25 % value growth. This is because all the out of home

consumption, was translated to home, this means that the home consumption grew 25% during the Covid -19.

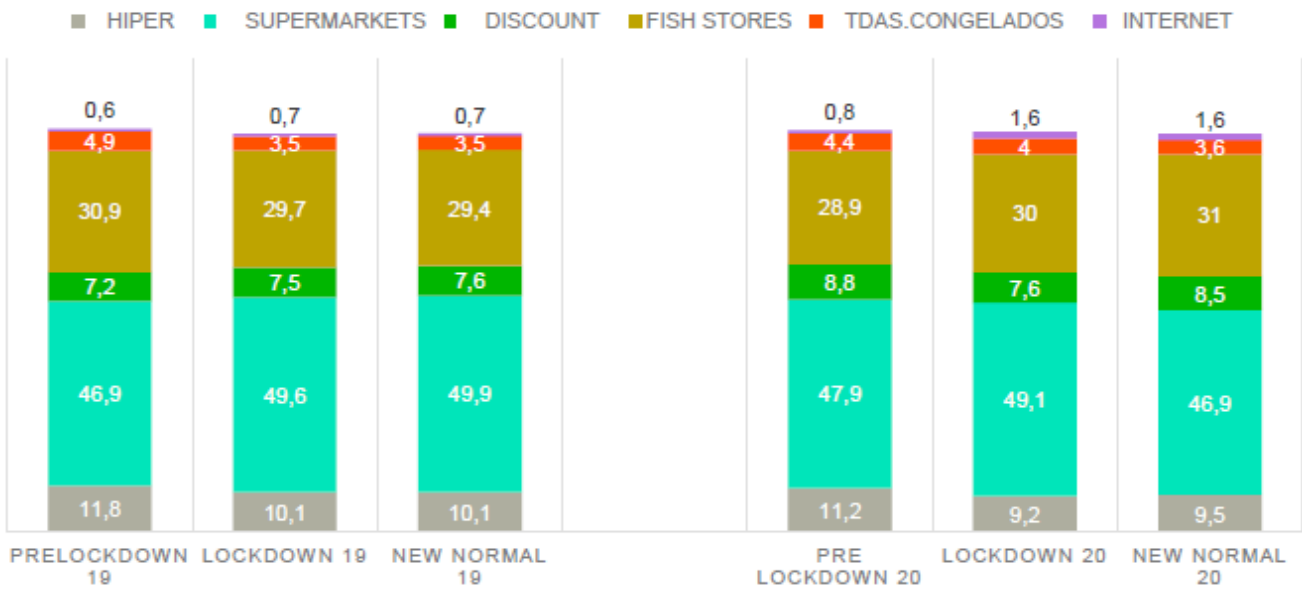


**Image 13** FMCG evolution (Own elaboration from Seminar)

The home meals grow a lot during the Covid, there is less impulse when it is time to spend money out. This changes on the shopping behaviour, was due to their fear of infection on the stores, so the buy more things than ever but more conscientiously.

Putting the focus on the Retail in Spain, the seafood share value during the 2019-2020 it is possible to differentiate on Table 3, where appears the prelockdown 19, Lockdown 19 and New Normality 19 (also for 2020)

## % VALUE SHARE TOTAL SEAFOOD



**Table 3.** Value seafood share % in Spain during 2019-2020 (Own elaboration from Seminar)

Looking at Table 3, it is possible to see that Fish Stores gain market share and maintain it after New normal 20, this is something important because the Supermarkets year by year were gaining percentage and thanks to this situation the fish stores achieve gain some percentage and reduce the significance with the big retailers. The table also shows that the consumption of seafood in Spain during the Covid-19 was stable because the number of fish that Spanish buy was the same or more. Change where they eat it, but the consumption was high.

To get a better idea of what happened during this lockdown, it started with a declaration of state of alarm, which means that the population had to remain confined at home until the de-escalation process. Furthermore, the state of alarm means that there was a closure of all non-essential economic activities, schools, and it was banned to travel to Spain. People were only allowed to be outside their home for basic activities.



**Image 14** Chronology of the lockdowns in Spain (Own elaboration)

Image 14, shows how long the lockdown in Spain was, starting in 14 of March and ending the 21 of June. The different extensions that appear were due to the difference in some communities that were more or less affected, but in general, until the start of the summer the whole country was closed down and only supermarkets and places of essential goods were open.

x	Start Date	Progression	Order
Schools closed (SC)	9 March	Madrid-region stopped educational activities	
Pandemic declaration	11 March	World Health Organization	
State of alarm	15 March	Lockout	Stay-at-home (SAH) order
1st extension period	30 March	Total lockdown with stoppage of any activity except essential sectors	Stay-at-home order reinforced
2nd extension	10 April	As initial stage	Stay-at-home order
3rd extension	26 April	As initial stage + Children walks allowed (1 h/day)	Stay-at-home order
	2 May	Confinement relief-measures for general population	Stay-at-home order
	4 May	Resumption (limited) of commercial activities	Onset of deconfinement
4th extension	10 May		Deconfinement phases
5th extension	24 May		Deconfinement phases
6th extension	7 June		Deconfinement phases
	21 June		End of state of alarm

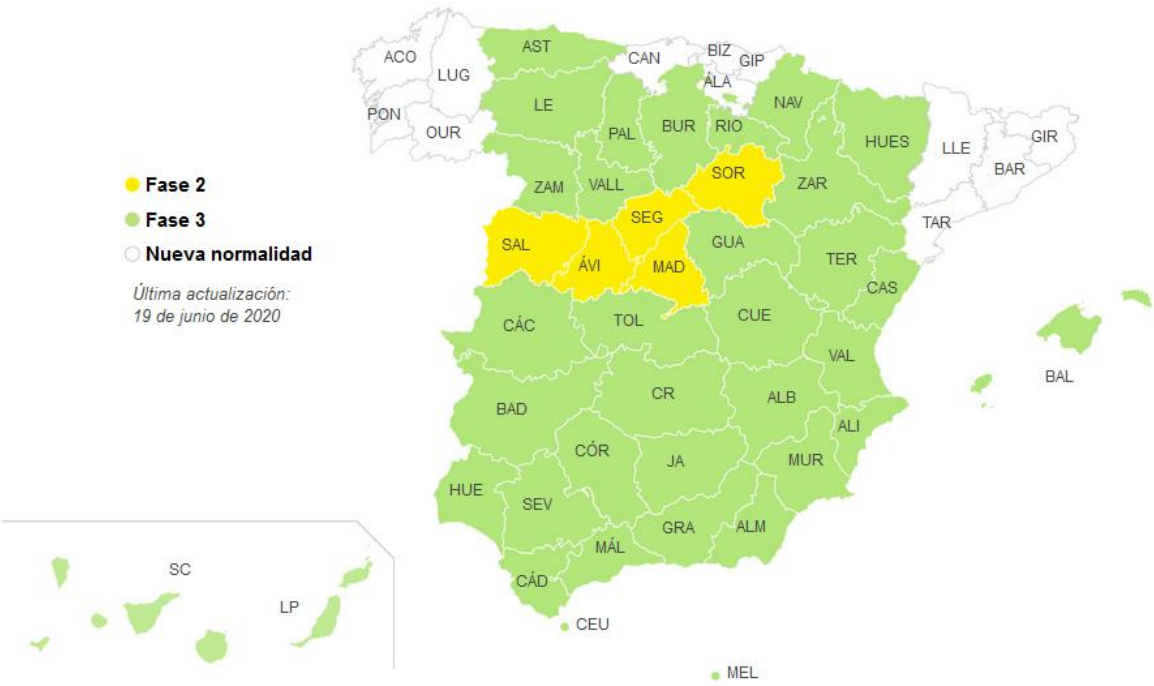
**Image 15** Chronology of state of alarm in Spain (Fernandez-aguera et al., 2020)

As Image 15 shows, during the different extensions there was some different restrictions that the population had to follow.

On the 10 of May when start the Phase 1 people was only allowed to go outside alone to go to rehabilitations, malls, reunions with people (10 max). Restaurants and pubs, could only open at 50% of their capacity, and people could only eat on the outside terrace.

On the Phase 2, the restaurants could serve on the outside terrace, and they could open inside with a maximum of 40% of their capacity. During the Phase 3, restaurants could open to 75% of their capacity

The phases were different in the different communities in Spain. For example, Galicia could be on phase 3 restrictions, whereas Asturias, the neighbouring community be on phase 0. This is illustrated in I.16 which shows the different phases of the communities on 19 June of 2020. Another important issue was that during the lockdown and until May 2021 there was a curfew, meaning that no one could be outside their homes after 23:00.

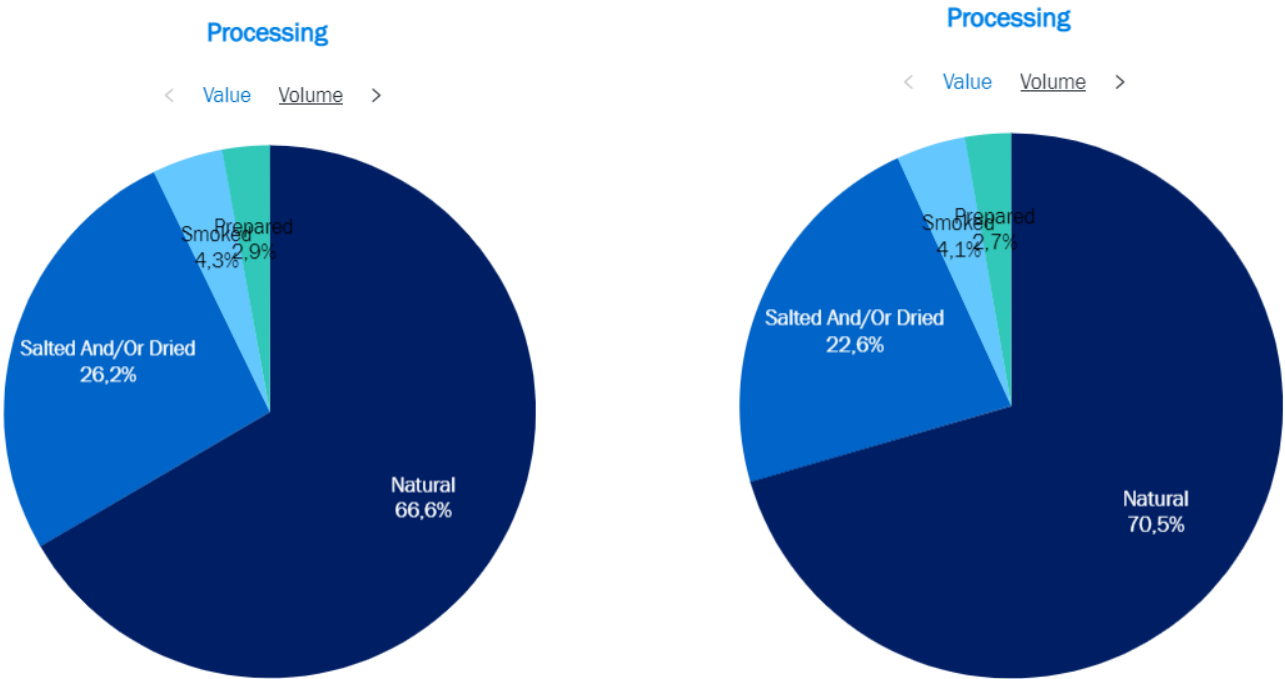


**Image 16.** *Different Phases in Spain during the Covid in 2020 (El País 2020)*

### 1.6.2 Comparison of cod imports to Spain from Norway in 2019 and 2020

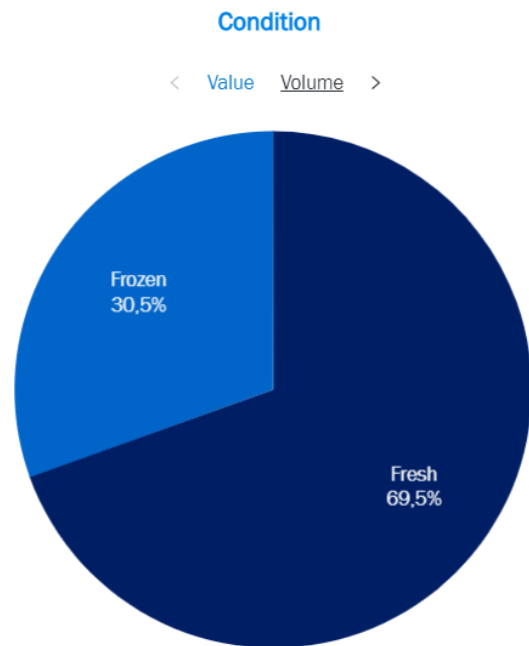
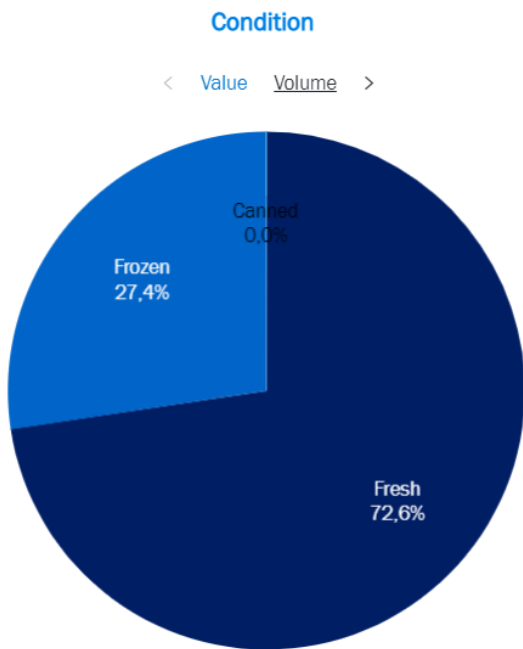
In the following paragraph, there is going to be a comparison of the importations of Cod from Norway to Spain. This is going to be made by comparing the years 2019 and 2020 one year before the Covid and the year that the Covid was affecting the economy. The importations that were chosen for this comparison were the importations of processed cod and the way that it was processed. Also, the way that the cod is sent to Spain is important to study. Also is important to know which type of product are the most imported.

The first comparison to be studied, as can be seen in the Image 17, are the importations of processed cod in Spain during 2019. The way of consuming cod during 2019-2020 was more or less the same. In 2019 the majority of the cod processed in Spain is natural (frozen filets on board) with 66.6 % and 26.2% salted and dried, the rest was smoked and prepared. If we compare this with 2020 is almost the same, there is a small increase of 3.9% on the natural cod.



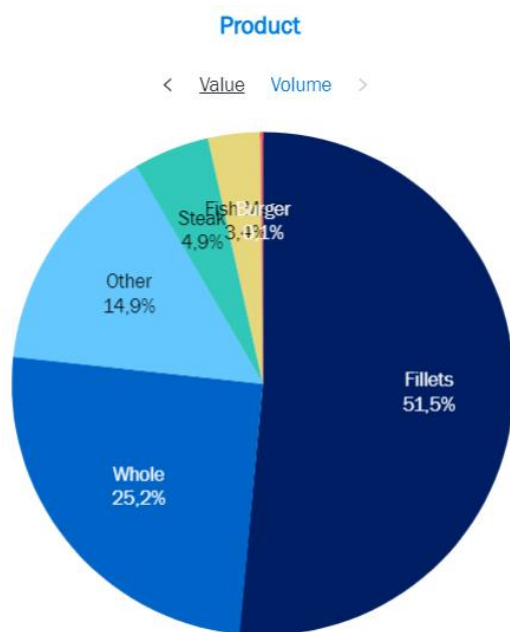
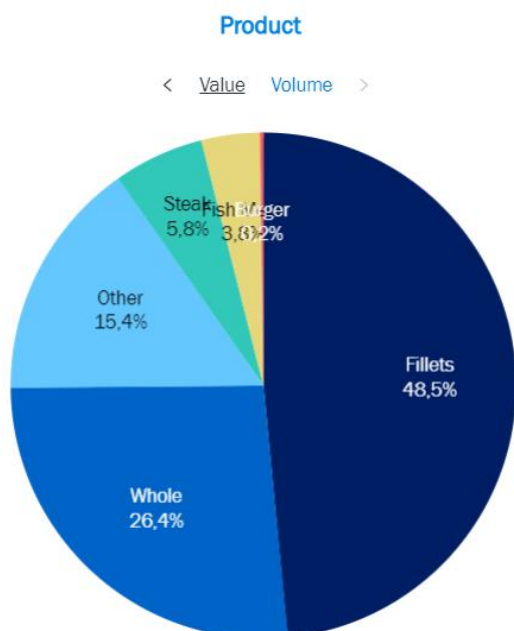
**Image 17** Processed cod imported to Spain 2019 (Left) and 2020 (Right) (Statistic Norway)

The way that cod is sent to Spain is also important, on Image 18, it's possible to see that 72.6% is fresh and 27.4 % is frozen and in 2020 there was more frozen products.



**Image 18** Condition of the imported cod to Spain 2019 (Left) and 2020 (Right) (Statistic Norway)

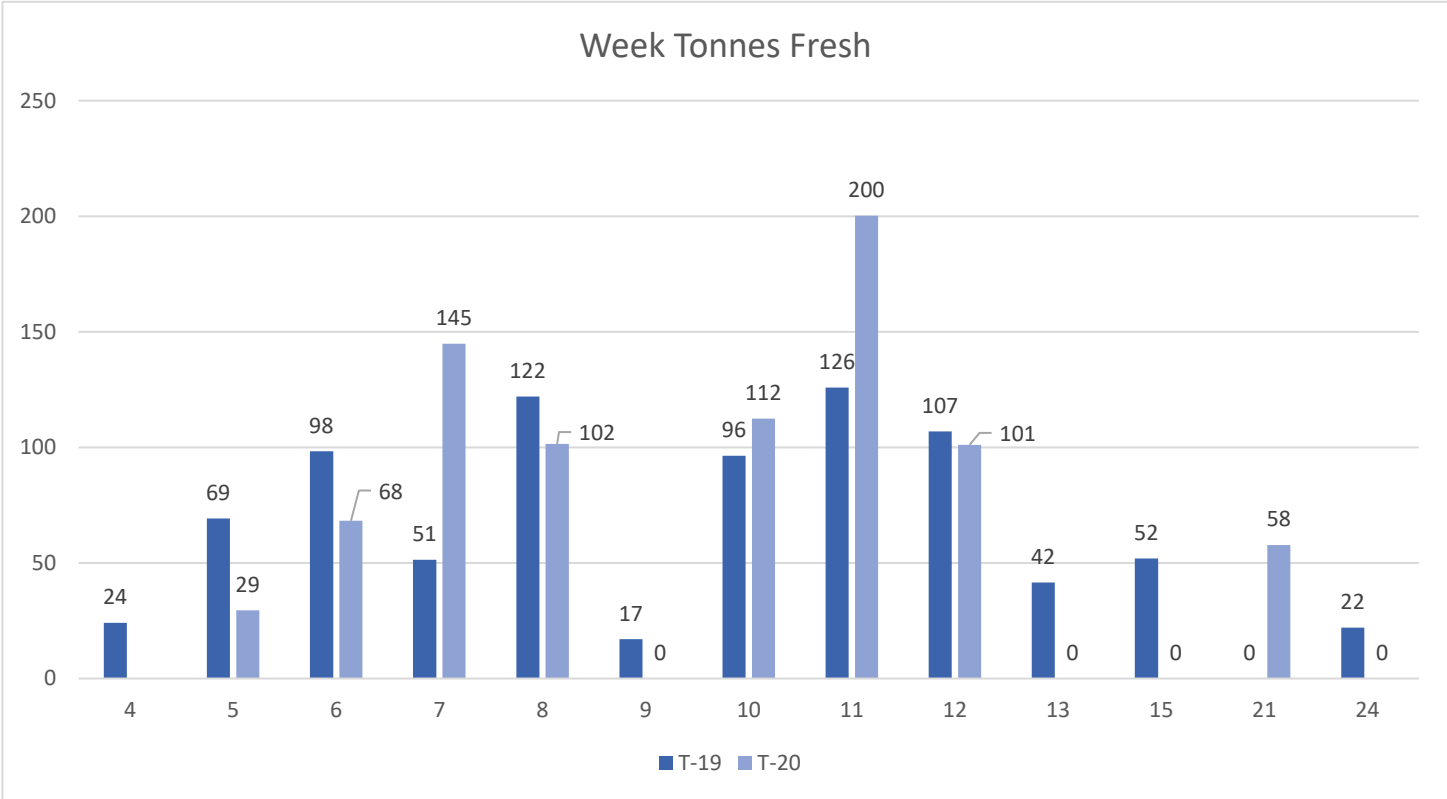
If we look into the type of products that are imported to Spain (Image 19) filets with almost 48.5 % in 2019 and 51.5% in 2020 are the product that increased the most during Covid-19. The rest of the products keep roughly the same percentages during 2019 and 2020.



**Image 19** Cod products imported to Spain 2019 (Left) and 2020 (Right) (Statistic Norway)

**1.6.3 Comparison of cod imports to Spain from Norway per week in 2019 and 2020**

In the next paragraphs, there is going to be a comparison of the importations from Norway to Spain per weeks. This is going to be made comparing week on 2019 and 2020. The imports that were chosen for this comparison were the weekly tonnes of fresh cod imported to Spain, the weekly Tonnes of Skrei imported to Spain in Skrei season in 2019 and 2020, and the importation of salted cod to Spain during the weeks that were exportations in of salted cod.

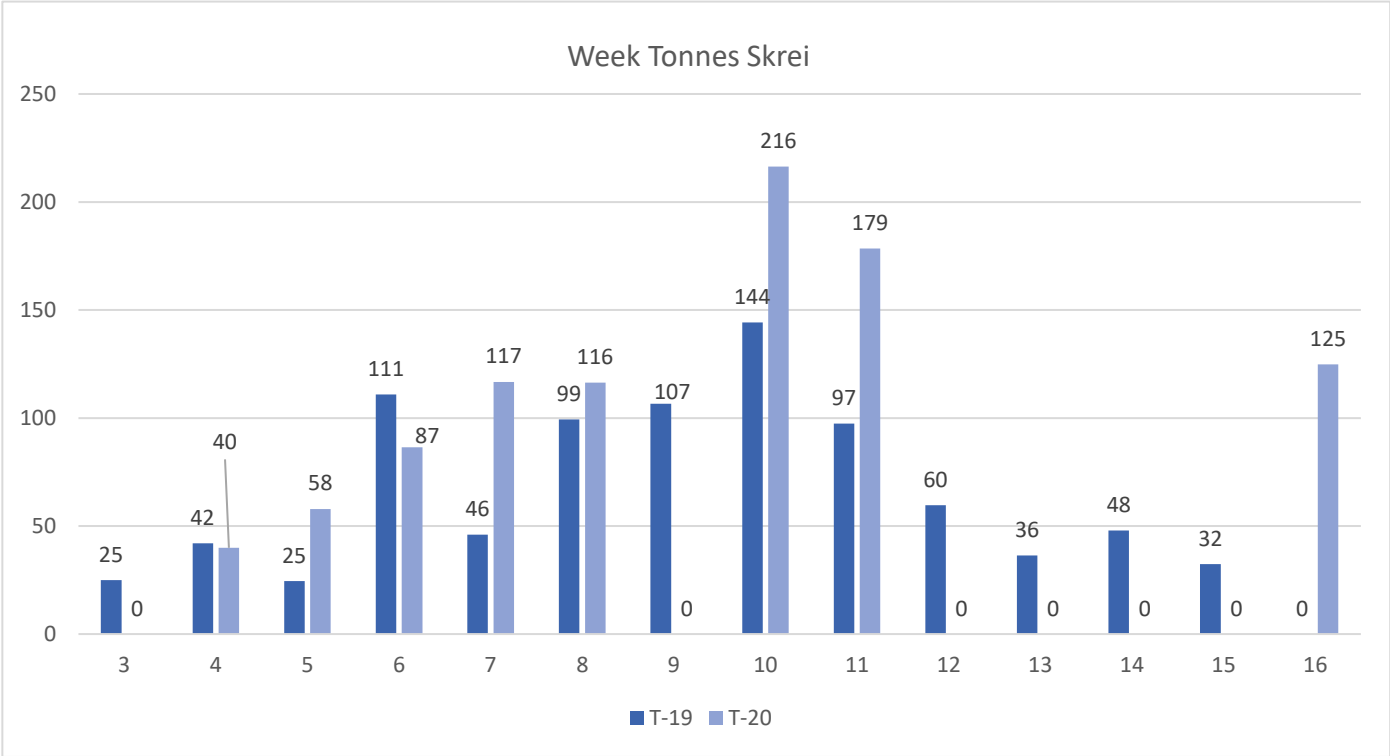


**Table 4.** Tonnes Fresh cod imported to Spain from Norway 2019-2020 (Statistics Norway)

If we compared fresh cod imported to Spain from Norway during 2019 and 2020 the total import was roughly the same, was 827 tonnes (2019) and 816 tonnes (2020). However, if we break this down into weeks (Table 4) the imports of fresh cod in the first weeks of 2019 were bigger than the first weeks in 2020. However, in March 2020 when the lockdown started (week 11) it is possible to see that the week before (week 10) and the week of the lockdown (week 11) were bigger than 2019. Also, if it is compared week 13 15 there is a decrease, that can be



related to the finish of the season of fresh cod or due to the Covid. However, the import of fresh cod during these weeks is quite low, so more information is needed to determine if this is an effect of Covid-19 or other factors, to understand if the changes on the imports are due to the Covid or other reasons.



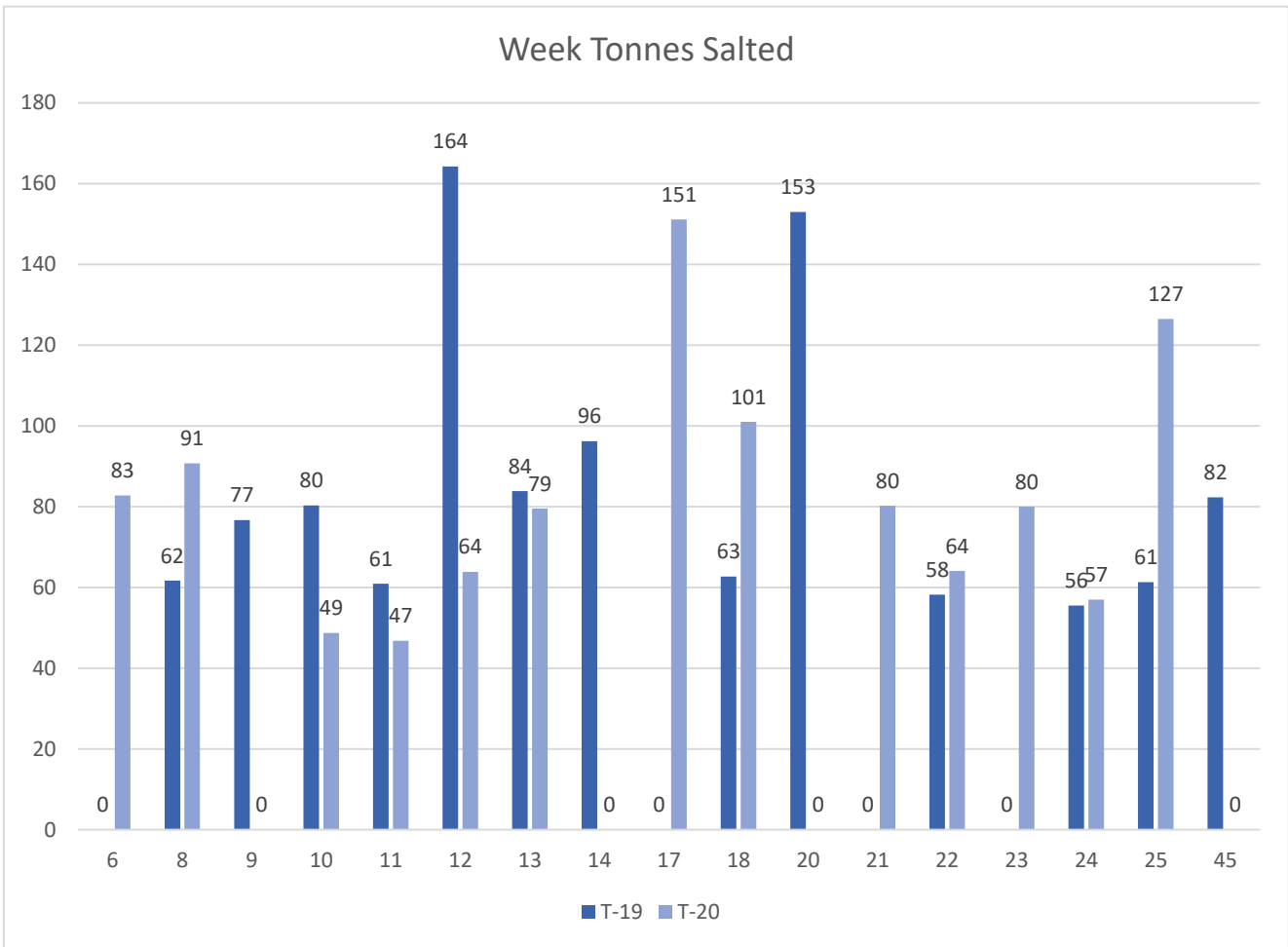
**Table 5.** Tonnes Skrei Fresh cod exported to Spain 2019-2020 (Statistic Norway)

Something similar occurred when the data of tonnes of Skrei is analyzed peer week. First of all, is important to know that Skrei is a fish that is only captured between January and April, and is only available in these months and its value is important to the market due to the flavor and white and shiny color. The data shows that in 2019 there was a total of 873 Tn of Skrei imported to Spain and in 2020 the total was 937 Tn. If we break this down into weeks, the first weeks 2019 and 2020 the import is similar and low. When the fish really appear in big volumes the imports continue increasing, as can be seen in 2019 and 2020. The big difference occur during the week before the lockdowns start (week 10-12) there were big imports, because this is the middle of the Skrei campaign in Spanish media. Then the Skrei start to move again and the exportations decrease, as can be seen in 2019 the amount of Skrei exported is not the same as

the previous weeks so more information is needed to determine if this is an effect of Covid-19 or other factors, to understand if the changes on the imports are due to the Covid or other reasons. These questions are going to be asked in the interviews to determine the factors that affect the exportations.

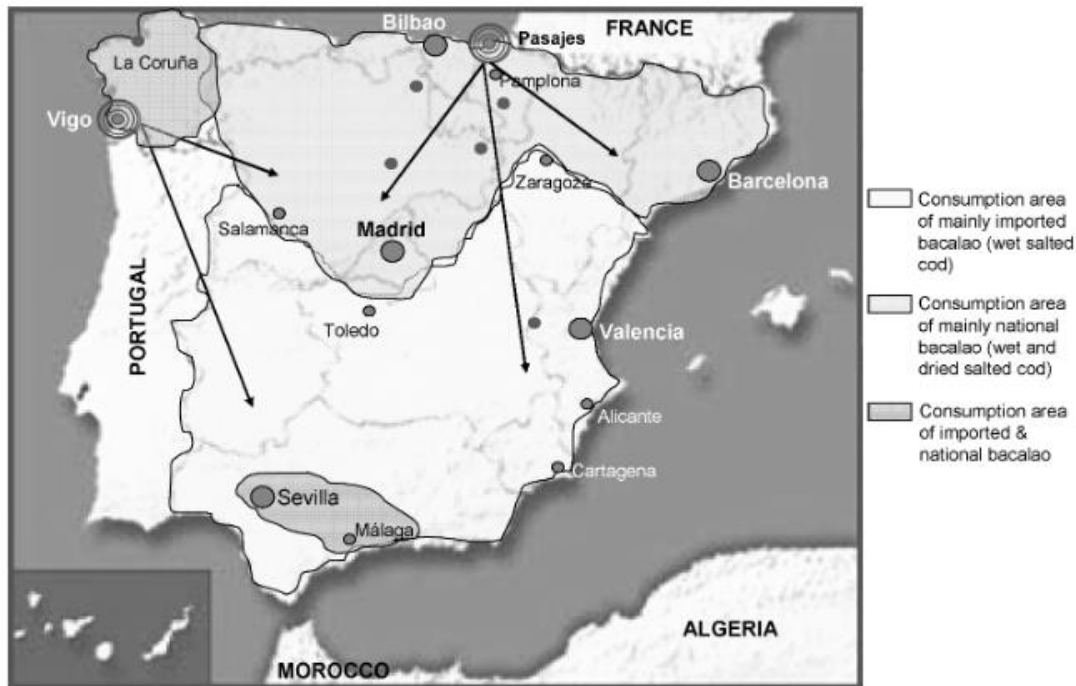


**Image 20** Skrei on Retail store (Own photo)



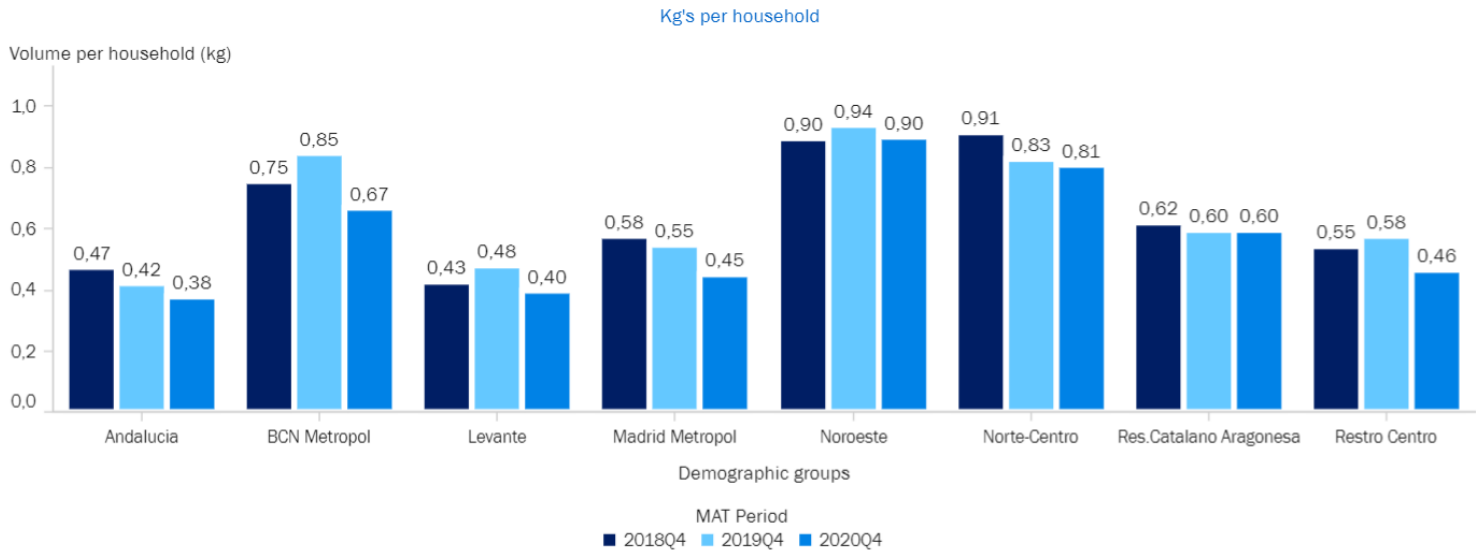
**Table 6.** Tonnes Salted cod exported to Spain 2019-2020 (Statistic Norway)

If we look at the salted cod it is a product with less effect, because the first weeks of February and until April there always imports to Spain from Norway. As it was said earlier, Spain is a country that has an important culture on salted fish. Looking at this map (Image 21) based on 1920-1980 show that the importation of salted cod was focused on the center, north and east of Spain, and we compare it with the Table 7 that has the data of the Kg per household on the different regions of Spain during 2018-2019-2020 is possible to say that consumption areas continue to be the same.



**Image 21** Spanish salt fish market: Supply and consumption areas (Lindkvist et al., 2008)

Looking into the areas that consume more kg per household, (Table 7) the north-center, and northeast were the highest. Next on the scale are Barcelona and the Catalano-Aragonesa Region. This compared with the map are the same zones in Spain that continued demanding Salted cod. Is possible to correlate that the importations were stable during 2019 and 2020, due to the cod consumed on houses in Spain was more or less stable during these years and also the consumption areas but there is a consumption decrease through the years so more information is needed to determine if this is an effect of Covid-19 or other factors, to understand if the changes on the imports are due to the Covid or other reasons.



**Table 7.** Household kg per region Spain 2020 (NSC)

Referring to the Lightly salted cod, there is no possibility of having data because is a product too specific that is not separated on the statistics, neither on the NSC or the Norway Statistic have information about this product, that could be also interesting to use in this thesis to compare the effects caused by Covi-19 on the imports to Spain during 2020.

## **1.7 Research question**

Cod is an important product for Spain and is, as the data has shown, consumed in large quantities. The intention of this work is to see how Covid-19 has affected sales of cod in Spain compared to before the pandemic (2019), and what kind of measures have been taken to avoid the effect of Covid-19. Finally, this work will see what has been learned from this situation to better handle similar situations in the future. The work will focus on the most important products imported from Norway to Spain, the fresh cod, the lightly salted cod and the heavy salted cod. These three are the most important cod products and the ones with the highest value on the Spanish market. Our import data has shown that Spanish imports were slightly different in 2020 compared to 2019, especially regarding the Skrei and the fresh cod. Furthermore, Spanish consumption of salted cod has changed in 2020 compared to 2019 in terms of volume.

It is important to know and understand these effects on the consumption while the lockdowns were established, and how companies have adapted to the lockdowns and Covid-19 measures, both in the short and long term.

Taking into account this, the research questions of this thesis are:

1. How has the Covid-19 influenced Spanish imports of fresh cod lightly salted cod and salted cod?
2. How has the impact of Covid-19 on cod consumption been handled by the Spanish cod supply chain?
3. What are the potential solutions to reduce the impact of Covid-19 or similar crisis in the future?

To answer these questions, I interviewed a processing seafood company to analyze the effect of Covid and also, took part in a seminar to understand the effects of Covid on retail.

## **2. Methodology**

### **2.1 Methodology Choice**

The research design of this thesis is based on primary data and secondary data.

#### **Primary data**

The primary data is the one that is learned during the process, observations during the interviews and what is learned while the texts are studied, the ideas collected through all the process. These documents help to understand and have a global idea of the information that is going to be exposed on the thesis, all these documents that were read during the process.

#### **Secondary data**

Secondary data is the one that is collected from primary data that can be relevant, reports and statistics are taken from the Norwegian Seafood Council are an example of this, this one gives important lines about the preference of Spanish consumers towards seafood.

#### **Qualitative and Quantitative research**

The different methods used to collect the data are qualitative and quantitative. Qualitative methods are the ones used to explore and understand the meaning of a social or human problem, and this is normally made because during the study emerge data that needs to be asked through the interpretations of the researcher. If we look into the Quantitative method, this is normally used to test theories that can be measured in numbers and quantities and normally is analyzed using statistical procedures (Creswell JW, 2018)

In the case of this thesis, the qualitative method used for this work is the interview and this will help to give information about the main influence of Covid in the cod market. With this, we will be able to know the main factors that affect the cod in Spain for a company like the one that is interviewed, this experiences and opinions extracted of the interview is the most important thing. According to Creswell (2018) this analysis interpretation, the collection of open-ended data, the analysis of the text that is made during this thesis are qualitative methods. With this qualitative interview, we try to extract views and opinions from the participants, explore and understand the problem.

To study the effects of Covid on fish consumption, a qualitative research methodology was used in this thesis, questioning a processor factory that is focused on fresh/frozen products, that their sales are based on retail and Horeca sector, asking about the amount of cod on their sales to determine how cod has behaved during the pandemic. To know how the pandemic treats the retail sector, a seminar was used.

An interview guide was developed and used during interviews with the commercial part of the company to understand how Covid-19 has influenced their products and sales. This will provide readers an idea of how the Cod situation has been in Spain. The meetings were at the head office and the two informants were carefully selected because of their knowledge of the sector. The data extracted from the seminar is going to be useful to understand how Covid has influenced the seafood retail sector.

According to Creswell (2018) quantitative methods were helpful because a statistical analysis and a statistical interpretation of the norwegian cod has also been carried out using data from Statistic Norway to determine quantities exported to Spain.

## **2.2 Data collection**

### **Semi-structured Interview**

First, an interview guide was made based on the review of the different impacts of the Covid-19 pandemic situation on the industry of frozen and fresh cod. According to Noor, (2008) the semi-structured interview questions are designed to provide adequate answers of the research, and the respondents, in this case, are selected on the basis that they could provide the necessary information need for the research, that in this case is based on the impact of Covid-19 on the company in short-term and medium-to-long-term. During the interview, some notes were taken. A semi-structured interview was also chosen because the use of open-ended questions, provides the opportunity to discuss in more detail the topics that are on questions, furthermore with this type of interview, the researcher can make questions on the off as the interview progress (Mathers et al, 2000).

This is important, because using a structured interview the person interviewed can not answer opened responses, due to the closed and fixed questions, and also using an structured interview



is not good because is normally used to compare across samples and the answer are pre-coded due to the close questions (Mathers et al, 2000).

The translations into Spanish were made from me and all the answers were approved by the respondents once the interview was over, according to Seidman (2006) each word of the informant reflects his or her consciousness. So, some data extracted from the interviews give an extra point of view that would be helpful to write the discussion part.

The research questions made for the interviews were about the impact of Covid on the company, how the company has reduced this impact, which ones are the impacts and how can be reduced. The answers were reflections of the interviewed and would be possible to have an overall understanding of how Covid-19 affect Cod market on the company. This company began focusing only on the development and processing of products, now has become a reference company in the sector, its turnover has increased year by year. Being a company that works with retail and foodservice will help us to understand which were the market segments most affected by Covid.

Looking into the retail section due to the lack of time and the no possibility of making an interview, the data used is going to be extracted from a seminar, imparted by a Spanish retailer that gives an idea of how Covid has influence the seafood section on retail.

An interview guide was made in advance, to have the questions prepared to ask the processing company informant. The questions asked were related to the effect of Covid and can be read in the next paragraph:

**1. How the Covid-19 impacted your company?**

- a. How has covid-19 affected the cod market in general? How has the covid-19 affected fresh cod?
- b. According to import data from Norway, there was an increase of imports of frozen cod in 2020. Do you know why?
- c. For fresh cod, there was a reduction in general, but during the weeks of the pandemic there was a growth in exports. Can you indicate what you think was the cause?
- d. For skrei, 2020 imports rise from 873 to 973, do you know why?

- e. In the week of the lockdown (week 11) there was a high import of Skrei. However, after this there was no imports until week? Can you tell us why do you think it was?
- f. Do you observe a change in demand for cod in 2021t? (If they ask for the price, the availability)
- g. Did you change your strategy for the different cod products in 2021 because of Covid-19? How? What was the effect?

**2. How has the impact of Covid-19 on cod consumption been handled by your company?**

- a. HORECA sector was most affected, how you deal with that?
- b. The consumption of salted cod is maintained in the same areas over the years, do you think it will continue to be so or will there be any change in this trend? Didn't this decrease??

**3. What are the potential solutions to reduce the impact of Covid-19 or similar crisis in the future? (Related on the Cod market in Spain)**

- a. What do you think rest of 2021 is going to be in sales of cod?
  - i. Fresh cod (wild)
  - ii. Frozen cod

### **2.3 Analysis of data**

The interviews are one of the most important parts of the thesis because the discussion will be based on the answers of the two respondents. To ensure that the answers were kept, during the interviews, notes were taken on paper to facilitate the transcription later. Is important to understand that when the transcription is made, the intention is to recreate the verbal and non-verbal material, to the reader understand the answer that they give. This generate an amount of text that must be selected by the researcher, with an open attitude, seeking what emerges as important through the text (Seidman, 2006).

This took some time, to have everything clear once the notes were studied a few times to have clear all the answers. It was also necessary to insert on the thesis some data that was given at the same time that the interview was made to understand with graphs what was explained.

The seminar that I took part from was in October 2020 and the way used for study it was taking notes of what I consider more important during the seminar, trying to expose the idea of the informant.

## **2.4 Quality of data (validity and reliability)**

Shenton (2004) said that the credibility of qualitative research methods is questioned, but different researchers use their own descriptions to said that is credible what they write. For this quantitative study the terms of credibility and reliability are going to be used to validate the thesis.

According to Shenton (2004) there some points that can be followed in order to promote validity on the research done, in the case of this thesis, the adoption of research methods are well established, because a good way to understand what happened in the market is to ask to the ones that sell to that market. If we are referring to the develop a familiarity with the participating organization, this is also done, due to the previous dialogues that I have with the informants in order to ask if they want to participate in this thesis.

During the interviews, is necessary to understand and interpret what is said by the informant, and once the interview is ended is important to compare what the informant said with the real data, to trust the sources.

According to Joppe (2000) if the results are consistent and can be represented over time the study is reliable. In this case some data is difficult to confirm due to the recent effects of the pandemic, some answers will be answered differently if they were asked in different moments of 2020. In this case the results are not consistent because the data is obtained only by asking one company and if the questions were asked to different companies the results may be different.

Shelton says *“The concept of confirmability is the qualitative investigator’s comparable concern to objectivity”* confirmability is also named reliability and in this case the information given by the informants is good because all the studies made before the meetings have sense compared with some of the answers that the informant gives. But the consistency is again in doubt because if the questions are asked to different companies the results may vary.

## **2.5 Data quality Issues**

Is important to cross-reference between what is written in the thesis and the results of the interviews. In this case, data can be contrasted with the answers that the informants give but the consistency of the data, from my point of view, is a weakness due to the only possibility of asking one company about what happened in the sector, this cannot be represented over time. In the case of the HORECA sector was impossible to interview because of the restrictions of the covid. To overcome this problem of quality, one of the solutions that can eradicate this weakness is to do more interviews with different companies and also on the retail and HORECA sector.

As well as some data that is confidential for the company that they prefer not to confirm numbers because that can compromise their competence on the market.

### **3. Results**

This chapter is going to be divided in three sections, these sections are going to be the different research questions: (1) How has the Covid-19 influenced Spanish imports of fresh cod lightly salted cod and salted cod? (2) How has the impact of Covid-19 on cod the Spanish cod supply chain consumption been handled? (3) What are the potential solutions to reduce the impact of Covid-19 or similar crises in the future? These three questions were developed in more focused questions as can be seen in the data collection. The questions are going to be answered in this section, some of them are going to be answered together and others one by one.

The informant from the processing company explained at first the different types of cod that are used in the company. Cod is divided in natural frozen cod, this one is processed into lightly salted that and goes to the retail sector, refreshed and goes fresh to the retail. Another category is the lightly salted cod fillets that arrive frozen and it is cut to make portions that goes to Horeca and the other type of cod that is used is the Skrei.

#### **3.1 General impact of Covid-19 to Spanish cod market**

The informant presented sales statistics that showed a decrease of 40-50% on the sales that they have on all the products related to natural cod. The company sales statistics showed that in the same period in 2019 and 2020 there was a similar sales trend during the same period of the year, summer and Christmas, had both peaks in sales. The amount of fish that in 2019 the company sells is significantly big compared with 2020, the numbers show that is almost double the tonnes that were not sold this year.

Talking about the lightly salted, in this case, was most influenced because this fish normally is used in the HORECA sector. The informant of the processing company adds that the losses, in this case, were up to 60 % because the Horeca sector during the Covid situation was closed, so there was an important loss on this sector. The statistic that is showed to me, reflects the lightly salted cod sales in 2019 and 2020. Occurs the same with the peaks during summer and Christmas as in the natural cod but the quantities in the lightly salted are not the same, obviously are lower. The informant explains that for fresh cod, was different because fresh cod is sold by

the fishmongers in the supermarkets and during Covid, supermarkets were always open, so the sales there were totally different.

The informant from the retail sector says that they were not prepared for what happened, at first, people only buy food to have something in their fridges. The informant added that, supermarkets have problems in order to have goods on their shelves and maintain the supermarket with food enough for consumers.

When things started to calm, consumers start to buy less compulsively and they started to buy things to cook and enjoy doing the meals at home.

The food counters during the pandemic were considered a Red Spot (see Image 22). This is because, people normally wait for being attended stand up near each other. It was necessary to take some measures, in order to keep the security distance.

Related with fresh products, the fishmongers in the supermarkets, started to notice that there was a rise on sales. The sales did not increase quickly because, during the pandemic situation supermarkets were perceived as a dangerous place to go. So, people wanted to go there, shop as fast as they could, and leave.

### **3.2 Impact of covid-19 on sales of frozen cod products**

Processing company informant says that Norway does not use cod for made lightly salted, it is only sold for fresh and salted so, his opinion is that all that frozen increase is related with the increased sales of frozen cod in the supermarkets.

Retail informant says that the retail sector realizes that there was a change in the behaviour of the consumers during the first weeks and months of the pandemic. Due to this, people wanted to buy fish *“fast and in a hygienic way”*. This caused an increase in the sales of pre-packed products such as:

- Frozen fish
- Fresh fish packed on the store or prepacked from their suppliers
- Smoke salmon.



**Image 22** *Pre-packed seafood examples (Own elaboration)*

The processing company informant also said that frozen fish also go to the supermarkets to make packs or prepacked fish.

**3.3 Impact of covid-19 on sales of fresh cod products**

Processing company informant said that the moment of Covid was at the same time as the peak season of fresh cod imports. At that moment people buy everything in the supermarkets, and the fish on counters also was something that was at its peak in the supermarkets.

Retail informant also told that in the food counters, there was a slower increase (10-20%) because there was a change from out-home consumption to in-home consumption due to the lockdowns.

### 3.4 Impact of covid-19 on the Skrei sales in Spain

The Skrei questions that were asked to processing company informant were accompanied with Table nº 5 of this thesis in order to explain the peaks of imports that were on that time of the year and the decrease of sales that occur in the lockdown period.

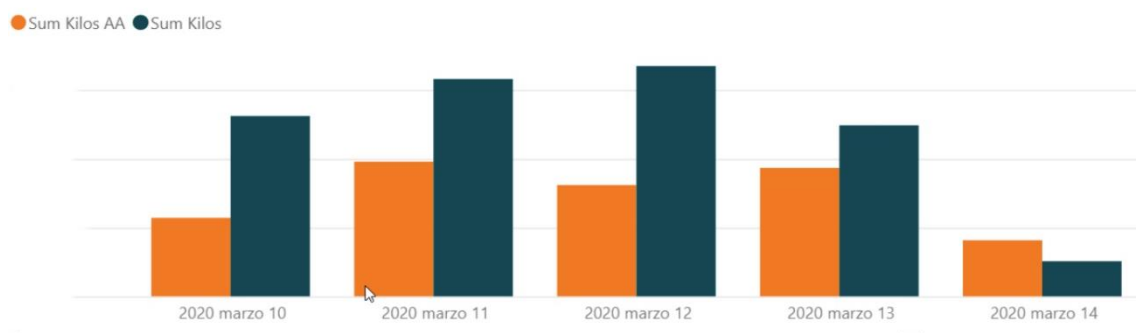
For the processing company informant, one of the points is that Skrei is an important selling point in the fresh fish, normally is sold on the retail but also in the Horeca sector.

He said that Skrei normally appears on the menus of the restaurants but, due to the closure of the restaurants, there was a change on the sales and there was a lot of sales in the supermarkets.

The processing plant informant said that despite the Covid-19, Skrei was sold in similar volumes as 2019 in Spain. During week 11 Spanish people had to stay in their homes and in week 12 in the statistics of Table 5 there are no imports.

The reason for this given by the respondent is that the data can be wrong. This is because in the company sales data of that year (Image 13) there were sales on that week so, the informant believes that can be that all the data of this weeks, is registered on the previous week.

Looking at Image 23, comparing the orange columns (2019) and blue columns (2020) is possible to see that the sales were bigger in 2020 than the year. Looking at the week of the lockdown there were sales in those weeks.



**Image 23** Processing company Skrei sales (Own Elaboration)



The informant tells that the zero imports in the data (Table 5) are not real in terms of the sales in Spain. Due to the low volume, it could be that the exports went through Denmark (Padborg) and this does not count as export to Spain, but Denmark in the Norwegian data.

### **3.5 Strategies followed to handle the effect of Covid-19 on demand of cod**

Referring to the questions about the demand of cod from the clients, the processing plant informant said that during Covid-19 there was a stop in customer demands because they need to adjust their stocks and they didn't need to buy fish until they had sold what they had in the cold storage.

The different strategies followed against Covid in order to maintain their sales of cod and the effect that this made on their business. The informant of the processing plant tells that, in factories they normally work with 4 months stocks of frozen fish and now they need to work with stocks of one month. The informant adds that in frozen they must reduce to? 25 % of their stock. What is important now is to try to sell the same quantities as in previous years, basically, try to sell the same amount as before. Reducing the stocks, is a consequence of not buying products in the case of this company, doing that, they avoid the risk of having on stock more fish than the one is needed.

The informant also added that focus on retail is another of the ways that they use in order to try to sell more cod products because there is where consumption increased. Design products, based on the retail sector was another different way to fight Covid.

The questions about the salted cod and consumption over the years, where there is a decrease of consumption but the places where it is consumed are the same through the years. The processing plant informant agreed to the statistics in Image 21 and Table 6, that the sales declined. In the short term, the informant said that will continue like that due to the cultural aspects, but the consumption is going to continue falling because nowadays, the product that is replacing the salted cod is the desalted. To explain this, the informant use the phrase "*my mother had time to desalt, my wife does not have time to defrost*" The informant believed that the future on salted fish goes will be the frozen desalted fish, but in the case of the company interviewed they say that for the moment they will not enter on this sector.

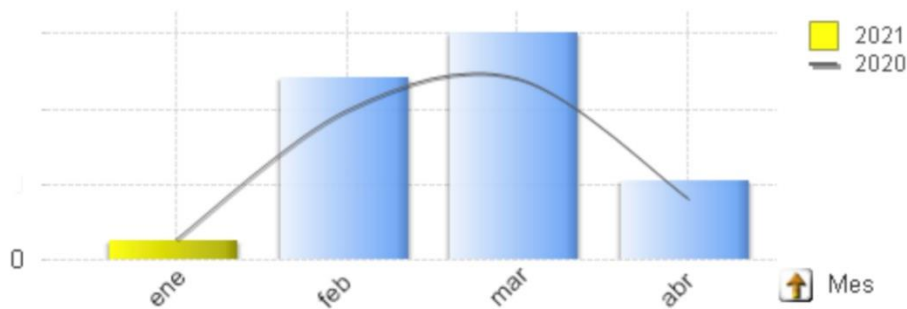
Related to the development in salted cod consumption the retail respondent said that salted cod became something that more age groups consumed during Covid. Normally the salted cod is bought by older people. However, during covid-19, younger people started to buy salted cod. The informant believes that this trend will continue in the future.

Related to the opportunities of salted cod in Spain, the retail informant says that the salted cod market in Spain has changed towards desalted cod, so the Norwegian producers must prepare products and campaigns to get people to know more about the salted cod from Norway.

### **3.6 Potential solutions to reduce the impact of Covid-19 or similar crisis in the future**

The processing plant informant said that diversification is important, to have different categories of fish, not only focus on one product and expand consumption because people want all type of fish. Before Covid-19, cod products accounted for 70 % of the company's product portfolio of white fish. Now cod only account for 40 %. To avoid this issue in the future the company wants to decrease its focus on only cod. By doing that, it is possible to avoid problems during crises, if you have more products is possible to sell different products and by doing that it is easier to avoid financial problems.

If we look at the answer of the informants to the last question referred about the sales in 2021 and their thoughts of, where they are going to be (frozen and fresh). Processing plant informants referred to fresh cod, that their sales have increased by 25 % in these months of 2021. So, the future for fresh cod in the opinion of the processing plant informant is good. This can be seen on Image 24, where there is a black line that is 2020 sales and blue columns are 2021 sales, and as can be seen these first months of the year for the fresh cod on this company has been good.



**Image 24** *Fresh cod sales in April 2021*

Referred to the Frozen, processing plant informant says that 2021 will be higher than 2020, because in 2020 there was a lockdown and the Horeca were closed, but in 2021 it will get better because, the lockdowns will be less severe and the effects on Horeca are not going to be so bad, and there will be sales on that sector.

Cod is a fish that is not cheap and in the Horeca sector the cod is used on dinner menus, so the volume is in this sector. Now the sector starts to open again and must be better than 2020 but not the same as 2019 because it starting and need to stabilize in order to reach the same peaks of volume as 2019.

Thinking on the future of fresh and frozen, the retail informant says that this was a difficult situation for all the sectors, but the consumption will change due to the lockdowns, people that stays at home, will save more money, so they will buy more products, not caring about the price, but there will be promotions for wild seafood to promote, and invest in promotion in cod and Skrei. This is because they want to take advantage of that to get more sales and try to maintain their position on the market.

## **4. Discussion**

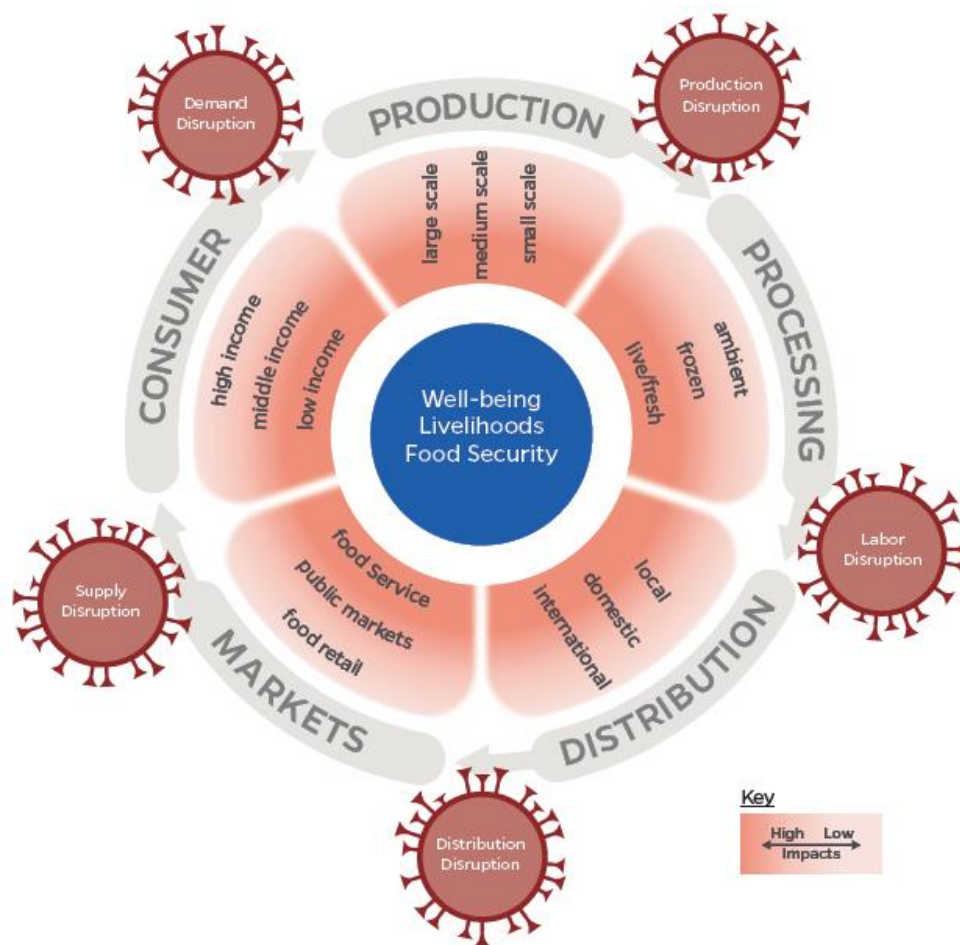
During the previous chapters, it is possible to get an idea of the challenges that Covid-19 put on the economy and the companies of Spain. Now is important to look to the questions, what has been written trough the thesis and the answers of the informants and establish connections between them, to have a better understanding of the influence of Covid on the seafood sector.

### **4.1 General impact of Covid-19 to Spanish cod market**

Throughout this thesis, it can be read that cod is an important fish for Spanish society and culture. It is consumed in the most important regions of the country and is rooted in gastronomy and typical dishes.

This can also be seen in the quantities that are imported from Norway, the data confirms the large quantities of cod arrived in Spain every year. During the interviews, is possible to read the types of cod products that are produced in Spain, fresh, Frozen, and salted cod. All three products continue to be among the most imported into Spain, both for processing and retail sector.

The impact of Covid is something that was everywhere, there is no sector on the economics that was not affected by the pandemic. The world economy faced a lack in supply stock, and because of this some factories were forced to shut down (Chowdhury et al., 2020). The lockdowns that were imposed by the governments affected the sales of the companies, because there was a disruption of the normal activities. These disruptions affect transport, production, distribution of the goods, and if one of this is affected the entire supply chain is affected.



**Image 25** Covid 19 Disruptions on seafood supply chains (Love et al., 2020)

As can be seen in Image 25, Covid caused global disruptions in the seafood supply chains. In the case of Spain Horeca was severely affected, because of this connection through the supply chain, a lot of wholesalers, processors, distributors that heavily relied on Horeca were affected by this issue.

The retail segment became more important during Covid because the lockdowns forced consumers to go to the supermarkets to buy food because they did not know how long they would stay under the lockdown. This also made consumers buy food in big quantities. During the interviews the informants told that the Horeca sector was the one that was most affected in Spain. According to the processing company respondent, the turnover in Horeca decreased by 60%, because a lot of restaurants and hotels were closed during months and there were no movements in this sector. Their response to this was to focus on the retail and develop new products. This showed that the company was able to adapt to the changes in the market. In the

interview, the processing company and retail, confirm that there was a change in the products that were sold, there was an adaptation to the demand from the consumers. For example, to avoid queues at the fishmongers in the supermarket, cod was sold in pre-packed bags.

#### **4.2 Impact of covid-19 on sales of frozen cod products**

Frozen cod was benefited by the Covid-19 because there was a rise on the imports to Spain. According to the interviews this was because the retail consumption of frozen products increased. Consumers bought frozen fish because it was easier to take than other products, they arrive on the supermarket, they take it, and they leave, supermarkets on that time, were Red Spots, so consumers need to enter and go out as fast as they can, also is important to add that frozen fish, can stay longer on the fridge, so, sales on frozen food increase easily due the facility for buying this type of products.

#### **4.3 Impact of covid-19 on sales of fresh cod products**

The fresh cod sales during 2019 and 2020 (pandemic year) was roughly the same. The processing company informant said that the sales were normal until the lockdown because the moment that Covid appears on the statistics was the same time as the peak season of fresh cod imports.

According to these results the reason that Covid-19 did not influence imports of fresh cod was that during peak consumption season of fresh cod, people bought everything in the supermarkets. This was due to the change on the out-home consumption to in-home consumption during lockdowns. This was a good opportunity for the retail sector to sell more because there were no more places where people can consume fresh fish, they only can buy it on the stores.

#### **4.4 Impact of covid-19 on the Skrei sales in Spain**

Skrei sales were at the same level as the year before; Skrei is an important selling point on Spain, is a fish that is really deep on the market and is too difficult to move out the market, the numbers on the tables can certify this affirmation. The response was that despite of the table

shows a 0 on the weeks of the lockdown they say that they sold fish on that time of the year, so the idea of the Skrei is a fish that has good sales is true and was confirmed during the interviews.

Skrei is sold at hotels and it is on the menus of restaurants, but during Covid the sales on this sector were zero, because of the lockdowns but this doesn't affect into the general number of importations.

The success of this product during Covid, was that when the lockdowns start, it was on the middle of the campaign and it was difficult to stop the sales to 0 on a product that import 120 Tn per week.

#### **4.5 Strategies followed to handle the effect of Covid-19 on demand of cod**

One of the most important things is to solve the problems that Covid-19 has caused. The disruptions that appear in the supply chains due to the lack of goods, means that companies must find solutions to remove these problems. Their response to this was to work with less months of forecast, they normally work with 4 months of stock for frozen products and now they manage to work with one, to avoid have goods in cold store more time than is needed.

According to these results companies in the same situation must reduce their stocks and sell what they have. Also, they must take notes on the changes that the retail sector made on the frozen products, like the prepacked bags and the individual packages of frozen cod.

Also happen the same in the fresh products that are on the food counters of the fishmongers on the supermarket, with these prepacked bags, it was easier for the consumers look which one they would like to take and leave the supermarket. These changes helped to consumers and also helped retail to do things well during Covid, in order to maintain the hygienic rules and also, maintain their sales.

#### **4.6 Potential solutions to reduce the impact of Covid-19**

During 2021 no one known what was going to happen or how long it would last, society started to use to living with the pandemic, thanks to that, consumption of cod was gradually rising because people start to know how to deal with Covid-19, so the focus on the retail, as it was stated in the interviews, helped to maintain turnover.

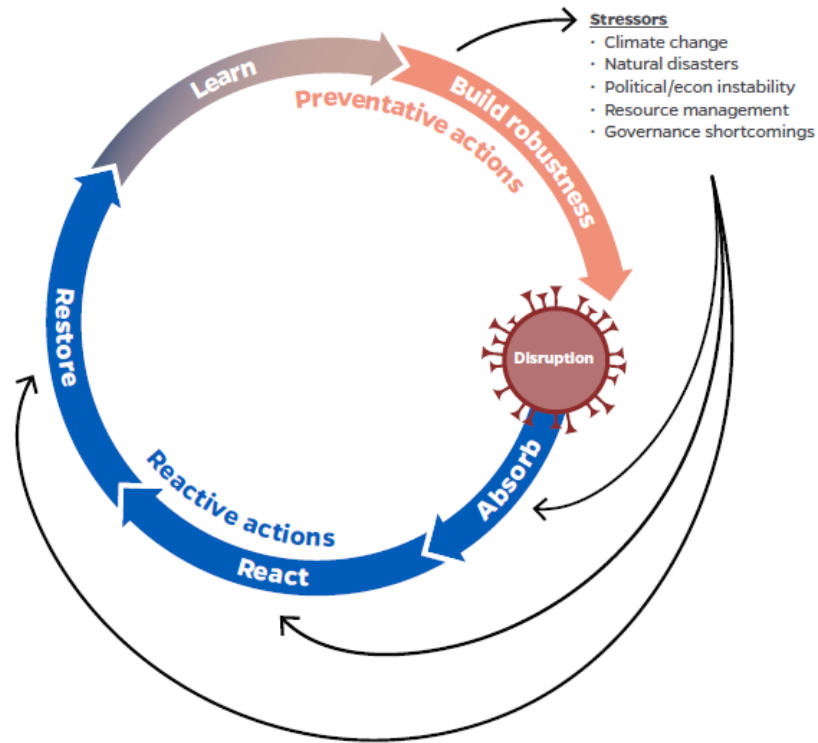
According to these, companies in similar situations, needs to diversify. They must have different categories of fish, and not only focus on one product. If you have more than one category of fish, would be easier to sold more fish, because you have more variety. This can also be applied to other food products such as poultry or beef.

However, have a portfolio of different products it is a solution, but it important to keep an eye on the stock, through this crises companies learned to work with different months on their forecast. This also helps to have controlled the stock and to know how the market is going, to know when they need to buy in small steps, doing this they can prevent a problem if there is a disruption on the supply chain.

To help companies to maintain their sales, in crisis like Covid they must focus on the sector that is more beneficiated, in this case, retail. Try to start working with them or try to made products that the retail wants. Change the products into what the consumer or customer want, in the case of Covid and seafood, the solution was the use of prepacked products, because it was more hygienic that the fishmonger in the supermarket touching the fish that you want to take home.

In general terms Covid-19 has showed the deficiencies that the food system has, the inequalities between countries has increased and the health care system of some countries has been questioned. (Love et al., 2020) To avoid this type of deficiencies, is important that countries must copy and adapt between them everything that they do, to avoid any impact or disruption in the seafood sector doing this it would be easier to build resilience and make adaptive responses to events like this.





**Image 26** Resilience action cycle. (Love et al., 2020)

The majority of the countries has the same respond to the virus, they were affected by the Covid and they react against that disruption. Doing it that way, countries learn how to build robustness against these problems that were affecting society. This can be seen on image 26.

## **5. Conclusion**

Throughout this thesis, the effect of Covid-19 along the supply chain was studied, starting with quantities fished, and continue the process, observing the importations to Spain from Norway and finally looking how much importations were affected during Covid-19.

The importance of cod in the Spanish supply chain of cod has been confirmed, because, for the companies that have been interviewed, cod is one of their strong points of sales, and during this epidemic although their sales have fallen (due to closures and lockdowns), sales of cod has maintained the same trends, but with less quantity consumed.

### **5.1 The influence of covid-19 on Spanish imports of fresh cod, lightly salted cod and salted cod**

In Spanish culture and gastronomy, cod is an important fish. During Covid-19 the quantities sold, in some cases have been, up to 40-50% for the company that was interview. One of these reasons, is the dependence on the Horeca sector, which is important in Spain due to tourism and its high value in the Spanish GDP.

Lightly salted was the most affected because is the one related with Horeca, in this case the loses were very significative. Looking into the frozen and fresh, it is possible to say that they were the most beneficiated, as can be seen frozen cod have more sales during Covid, because it was the preferred one on the retail. Something similar occur with the fresh cod, it is a product that it is really adapted on the Spanish market and despite there was a crisis, the sales were very similar as previous years.

For other companies I expect a similar effect because this type of markets are very stable in the terms of consumers, if you have a costumer that is used to go to the supermarket and buy your product, you must try to keep these consumers offering what they want. If there changes during this process like, avoid to go to supermarket so often because of the Covid, the idea is trying to change things on the way you serve it to make them to come to the supermarket to pick it.

People wanted fish that could be stored for a long time, so they bought frozen and they keep it until they come back to the supermarket to buy more, and referring to fresh, when the lockdowns start, the fresh cod was on the middle-end of the campaign (in the case of the Skrei) and it was not too much affected in terms of quantities.

Also is important to remember the influence that Covid has produced on the companies that only sells to Horeca, these ones were the most affected on this pandemic, because this sector was totally closed during the lockdowns, only a few restaurants can open to serve food to take-away, and this really affect to this companies that suffer decrease on prices, decrease on sales.

## **5.2 Ways of handling the impact of Covid-19 on cod consumption in the Spanish cod supply chain**

If we look into an industrial level, diversification in the market and the creation of new products guarantees companies a sufficient workload to maintain their sales at pre-pandemic levels. This modernization of production processes, innovation and new proposals will help companies to continue to have the support of consumers when the pandemic is over.

During Covid-19 the Horeca sector was the most affected causing the companies to focus on the retail sector. This is also reflected in the changes in the behaviour of consumers, that bought more cod in retail. It also influenced:

- New packaging of products.
- Online sales
- People start to cook more at home

This is important in terms of adaptability, because companies must adapt their goods to what is demanded by costumers an increase their focus on their responsibility to adapt to the changes that are positive for the society and build resilience.

According to FAO (2020) this outbreak produced by Covid-19 was handled around the world in the same way, the demand of packaged and frozen products suffer an increase, the same happen with the non-perishable food. The demand on the species that are important for the Horeca sector has been reduced according to this study.

These changes, adapted to the uncertain times, forced the companies to guarantee the quality, service and food safety that they always had been serving, and knowing how to make decisions and adapt to these changes has allowed them to stop the fall in demand caused by Covid-19.

### **5.3 Potential solutions to reduce the impact of Covid-19 or similar crisis in the future**

Which ones could be the solutions for similar crisis, is difficult to answer. Depending on how severe it is the impact of the pandemic the solutions can be different, but in this case, the ideas of how needs to be managed, are very similar.

What companies must do in this case is think about what they have at that moment on their stock, and adapt their sales to that, it is important to clean what they have on stock and not think in buy more fish to sell. Once they look at what they have, is important to how the market is going, companies should analyze where they are and start a plan of what they must focus on. They must take care of political decisions and how the sanitary situation in order to manoeuvre in one direction or another, this would help to find stability and come back to the pre-covid situation.

Another thing that can be learned for this crisis that would help to reduce the impact, is not being dependent on one supplier, if companies diversifying suppliers, they could have more control on the supply chain. Doing that it possible to have more control on the fish, and the traceability would be better and companies would not have any problem and they probably could reduce costs.

Working close and ensure that all countries have the same opportunities facing this type of crisis would be better in order to facilitate the good movement of the seafood economy, this can be made prioritizing the crew members of the boats, the workers on the processing plants, the workers on the retail sector etc... Communication is also a good point; governments must help each other's to avoid disruptions and promote consumption to help fisheries of all the countries.

All the consequences that Covid-19 has arisen on the economy could make us think that are similar as others crisis, like the financial crises of 2008, but this is not true, basically because in 2008 the crisis start with the financial sector and Covid-19 was a global stop on the economy due to a sanitary emergency. In 2008 the problem was an amount of imbalance on many economies that ended with the explosion of the financial sector and real-state sector, this ended with the bankruptcy of many companies and others fall into debt.

In this case of Covid, is because something unexpected appears and we know the origin of the problem, Covid-19. Also, the economy and the financial system was healthier than 2008 and the debts of the families were less.

Covid-19 start with a supply problem in the factories in China, but when the pandemic was expanded around the world, there was a demand problem, because when the lockdowns appear there was no consumption, so the unemployment appear, and this was something that effects on both crises.

The outlook for 2021 is good for the fish sector, a return to normality is expected thanks to the vaccines and the end of the lockdowns. The seafood sector is a sector that will emerge strengthened from the Covid crisis.

#### **5.4 Limitations and future research**

Given the limitations of this study, it would be advisable for other studies to delve deeper into the role of Covid-19 in the fishing sector and its influence on the supply chain, because once the pandemic has passed, the real extent of the economic effects produced can be seen. For example, future studies should study more companies in different levels of the value chain.

Future studies could be done when the pandemic is over to compare the real numbers of Covid-19, because they may wish to incorporate new sectors and segments to understand the real effects.



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