



MASTER'S THESIS

Master of Science

THE EFFECTS OF
CROSS BORDER TRADE
IN THE NORWEGIAN ECONOMY

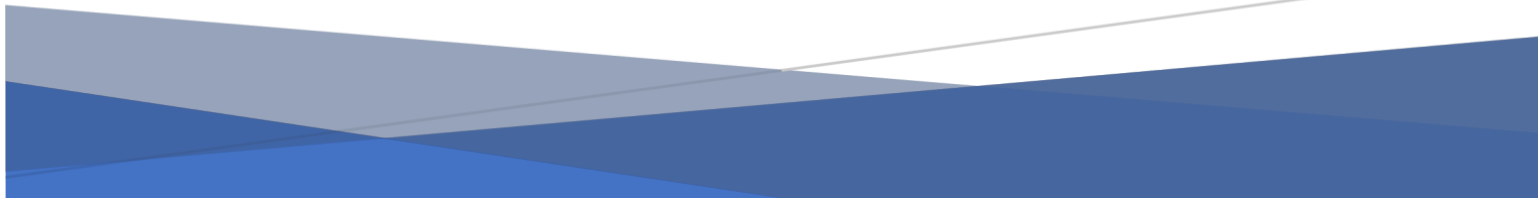


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FOREWORD

This master thesis is part of the Master of Science program in Business Administration with a specialization in Economic Analysis in the University of Stavanger.

The topic of Cross Border Trade, towards Sweden, have been further analyzed as the closed borders present a unique situation and an opportunity to research the consequences. Hence, if a change in Cross Border Trade sensitive products, is needed to reduce some of the colossal cash flows that Sweden acquires through the extensive shopping habits Norwegians have towards Sweden. To analyze this, the thesis has looked at the elimination of competition from Sweden as this have been an effect of covid-19 and compared price development to selected product groups in the months before and after the pandemic.

We would like the opportunity to thank our supervisor Torfinn Harding for a valuable collaboration and good guidance, and Maximilian Willem Pierre Thijssen for collaboration and guidance in *R studio*. In addition, we would like to thank Virke, SSB and our librarian Anne Brit Løland who has been more than helpful with data.

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Abstract

The analysis emphasizes on the importance of market competition, as seen when Covid-19 struck eliminating the competition over the borders of Sweden, displaying the effects this has on the Norwegian economy. The analysis shows, Covid-19 has caused an increase in 17.7% of tobacco alone and an increase of almost 9% in the price development of the sensitive products in total. Therefore, questioning if the CBT is bad for the consumers or rather if it is a good thing, the analysis shows that elimination of competition causes an increase in prices for the sensitive goods, which supports that competition is clearly in favor of the consumers. Thus, should be taken into account in the ongoing policy debate on CBT between Norway and its neighbors.

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1. INTRODUCTION

This chapter contains the introduction, motivation, research question and aim of the thesis to enlighten why Cross Border Trade is relevant, as well as its importance in the Norwegian economy.

Motivation for the Thesis is to contribute to the ongoing debate on Cross Border Trade, hereafter referred to as CBT, with a further discussion on the consequences and duties in Norway. The Covid-19 pandemic causes a reduction in competition as the borders are closed. Faced with lower competition, Norwegian firms may use the potential increase in market power to increase their prices. This would be reflected in higher prices for Norwegian consumers.

The *aim of the thesis* will therefore be to see how much competition affects price development and what consequences the large CBT have on the Norwegian economy. Moreover, if a decrease in duties of CBT sensitive goods¹ will have an effect in price development and reducing CBT towards Sweden. When testing this predicament, seasonally adjusted monthly CPI² data from Statistics Norway, hereafter referred to as SSB, have been used, with product groups from subgroup level 1³. Furthermore, a regression analysis with these data has been conducted, accompanied by a difference in differences approach, with fixed effects of the sensitive products and for the treated months.

Hence, the *Research Question* of the thesis have been formulated to answer how this unique opportunity which have been presented from the closed borders, can influence the Norwegian economy.

How the CBT Affects the Norwegian Economy, in the Form of a Competition Elimination from Sweden.

The results show that in the months after the borders closed, the price development of the sensitive groups has increased by almost 9% and tobacco alone at 17.7%. The increase of 9% in price development is empirically important as it gives an impression on how the grocery industry may be using the elimination of competition as an incentive to increase prices.

¹ Such as alcohol, tobacco, non-alcoholic beverages, chocolate, and sugar goods

² Consumer Price Index

³ The groups are divided as: All-Item Index, Division, Groups, Sub-group 1, Sub-group 2 and Item and item groups

2.BACKGROUND

This chapter will present more background information about the topics presented in this thesis.

2.1 Cross Border Trade

According to Andersen (2021), who is the director of Virke, an organization for the trade and service industry in Norway, the knowledge base about Norwegians cross border trade is weak. CBT can be *defined as trade of products and services with countries that have the same borderlines.*

Statistics Norway has a quarterly statistic for the CBT, which covers the Norwegians physical trades with day trips, and is published with total amount for shopping. Thus, displaying the change in CBT for 1 year, with the continued border closure the change in CBT is as of May 26⁴, 2021, at -97.7%⁵ (SSB, 2021c). To receive even more knowledge about the Norwegians CBT habits, the SSB also did a *pilot study* in 2019, which was published on January 8, 2020 (SSB, 2020). This pilot study also includes categories of the goods, to get a better look at what Norwegians buy.

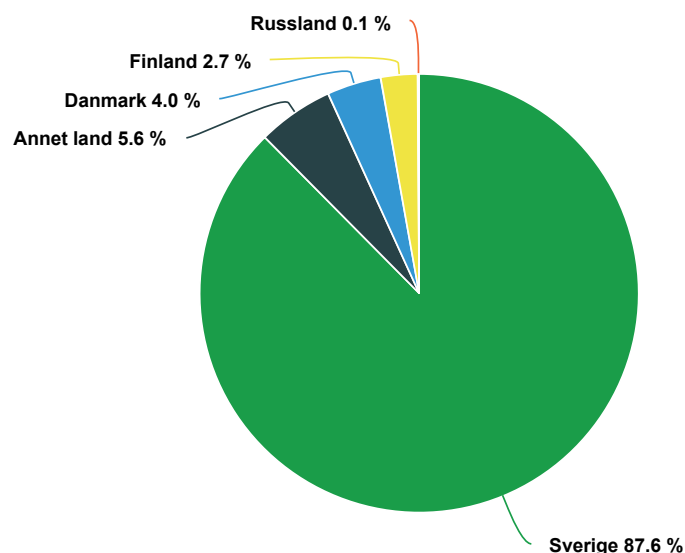


Figure 1: Land Distribution of Cross-Border Trade, September 2019, (Source: SSB, 2020)

Norway has borderlines to Sweden, Russia, and Finland, however, almost 90% of the Norwegian CBT is exchanged over the Swedish border (Menon, 2017), as *figure 1*⁶ shows.

⁴ Changes in CBT from 2. Quarter (Q2)2019-Q1 2020 to Q2 2020-Q1 2021.

⁵ Challenges with data Q1 2021. SSB has too few observations, due to very strict travel restrictions in Q1, therefore estimates of expenditure per trip based on previous quarters in the Covid-19 period are used combined with the data from Q1 2021. CBT amount must therefore be interpreted with caution.

⁶ Sweden 87.6%, Other Countries 5.6%, Denmark 4%, Finland 2.7%, and Russia 0.1%.

Moreover, in March 2020 the borders to and from Norway closed completely for the first time with the most intrusive measures has had in Norway in peacetime (Regjeringen, 2020). This made it possible to observe a more accurate picture of what is usually lost on revenues to the government and how many jobs that are lost due to CBT. Furthermore, SSB's pilot study shows that the Norwegians traded for 2 billion NOK in September 2019 alone. (SSB, 2020a) If this month is representative for the whole year, it will give an annual CBT of at least 24 billion NOK (Andersen, 2021). Furthermore, it showed that half of the goods Norwegians buy are taxable goods, which causes direct income loss for the Norwegian government. The high level of duties Norway has on CBT sensitive products are the main reason why Norwegians travel to Sweden, where they have none or low duties on the same products (Andersen, 2021).

Dietary development is often mentioned when discussing CBT and has long been the politicians excuse for the high level of duties in Norway. However, currently when conducting statistical analysis on Norwegian dietary development the data only include goods purchased in Norway, and if CBT was to be included the Norwegian dietary development would look quite different. Therefore, the knowledge base about CBT has to rise, as the goods that are being purchased abroad there is little data on, and because of the extensive taxes in Norway this may contribute to hoarding of unhealthy goods which in turn affects dietary development (Andersen, 2021).

Additionally, the consequences of CBT are more prominent than first believed as the pandemic has shed light on just how big the revenues lost in CBT are. These consequences are mainly the loss of jobs, employees, and duty revenue, thus, is the reason for debate and discussion on how this can be turned around.

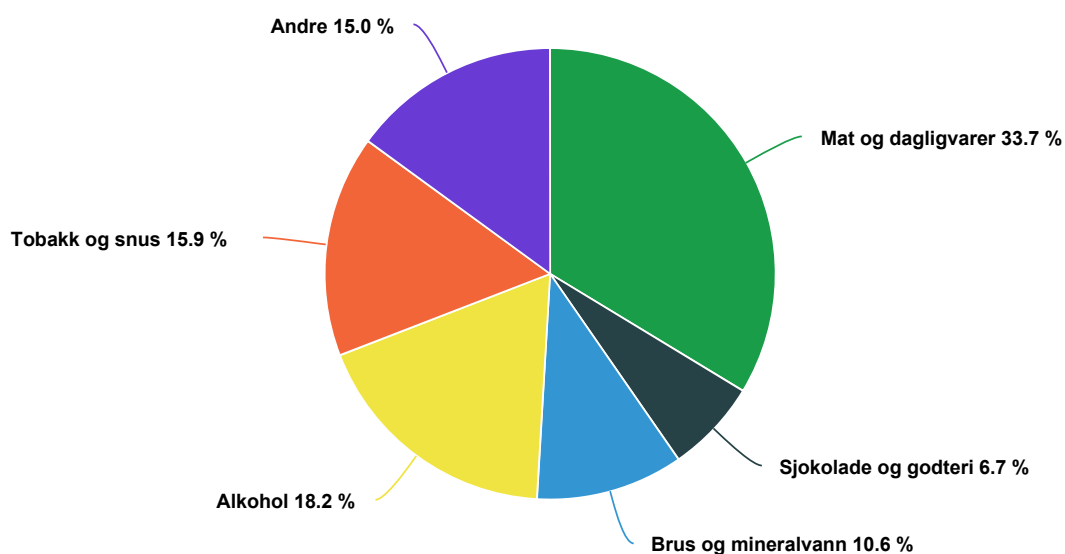


Figure 2: Share of Product Groups Bought in CBT, for September 2019, (Source: SSB, 2020, p. 11)

The share of product groups bought in CBT for September 2019, is shown in *figure 2* (SSB, 2020, p.11). CBT Sensitive Goods are mainly the highly taxed products in Norway, such as soda, candy, alcohol, and tobacco, when compared to Sweden (NHO, 2020a). The categories of non-alcoholic beverages and mineral water, alcoholic beverages, snus, and tobacco was 51% of the total CBT in 2019 (NHO, 2020a).

According to SSB there are four main categories of goods that Norwegians bought in CBT, these are groceries (33.7%), alcohol (15.9%), tobacco/snus (15.9%) and non-alcoholic beverages (10.6%), which is shown in *figure 2*. (SSB, 2020). Even though the main category is groceries, the sensitive goods that will be discussed further in the thesis are alcohol, tobacco, non-alcoholic beverages and chocolate and candy (6.7%), which also are significant. When Norwegians trade the CBT sensitive goods, they also buy other products like cheese, coffee, and others. This means that the Norwegian groceries- and beverages-businesses lose every day in the international competition (NHO, 2020a).

Geographical Differences According to analysis of Menon Economics (Menon, 2017) significant CBT are from all the different parts of Norway. Although almost 70% is from the population living in South-East Norway and in the regions of Oslo. Populations living in the Western and Northern part of Norway have the lowest part in the CBT of Norway. The reason for this difference is part of the distance to the Sweden border for the population in Western

part of Norway, and also of population density when compared to the Northern part of Norway. The population of the Western part of Norway does use a lot more capital on average compared to the Northern part of Norway and has therefore a larger part of the income compared to the amount of CBT trips (Menon, 2017).

The data collection for the quarterly statistics from SSB is collected by telephone-assisted survey, CATI, from a representative selection of 2000 persons from the age 16 to 79 years old. (SSB, 2020) This survey is also part of a bigger study, which covers different aspects of Norwegians travel habits. For the pilot study a different type of collection has therefore been used, where the data collection was done by web-assisted survey, CAWI.

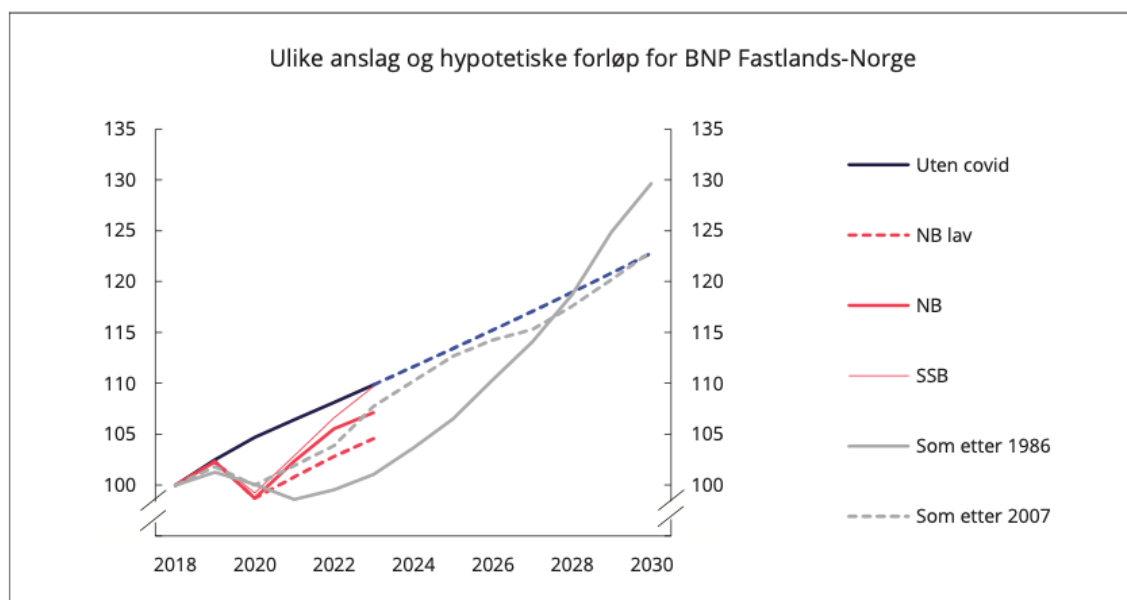
2.2 Consequences of Cross Border Trade

The consequences of the CBT are both indirect and direct, and includes loss of value creation, loss of income for Norway and for Norwegian businesses, and the loss of jobs for the Norwegian citizens. The closing of the borders in March 2020, have led to a more distinctive case for investigating the consequences of the CBT and to see how they affect the Norwegian economy, but on the other hand also the possibilities in changing some of the trading patterns for Norwegians and how it can upscale the Norwegian economy.

Publication from Menon Economics released in 2017 looked further into the effects of the increasing Norwegian CBT. Furthermore, building on this research Menon released a publication on the effects on the closing of the borders in August of 2020. Both with valuable analysis of the consequences of CBT. When several billions of incomes is moved over to Sweden the Norwegian tax policies lose their intended effect. (Menon, 2017)

The Loss of Norwegian Value Creation is one of the consequences of the CBT. Norway's largest industry with significant value creation and employment for the mainland economy is the land-based food- and beverage- industry. The high level of CBT Norway has lost this industry for both profitability and margins. Furthermore, it affects strategic and investment decisions (NHO, 2020a). The budget impulse in 2020 is estimated to be 4.5% of GDP-trend for Mainland

Norway, which is the highest ever. Compared to the financial crisis in 2009 where the budget impulse was estimated to 3% (NOU, 2021, p.34). *Figure 3* shows the different estimates and hypothetical courses for GDP Mainland Norway based on data and analyses from SSB and the Central Bank of Norway.



Figur 3.8 Ulike anslag og hypotetiske forløp for BNP Fastlands-Norge. Indekser 2018 = 100

Kilder: Banen «Uten covid» er basert på gjennomsnittet av Statistisk sentralbyrås og Norges Banks vekstanslag fra desember 2019, trendforlenget fra 2022 til 2030. «NB» og «NB lav» er hentet fra Norges Banks Pengepolitisk rapport 4/20. «SSB» er hentet fra Statistisk sentralbyrås Konjunkturtendensene 2020/4. Banen «Som etter 1986» viser utviklingen i BNP Fastlands-Norge fra 1986 til 1998. Banen «Som etter 2007» viser utviklingen i BNP for Fastlands-Norge fra 2007 til 2019.

Figure 3: Different Estimates and Hypothetical Courses for GDP Mainland Norway. (Source: NOU, 2021, p.35)

Changes in international division of labor can happen quickly. To be able to deal with those changes requires both competitive and investment-oriented industries and employers willing to do new things and the right skills to be able to do them (NOU, 2021, p. 61). Thus, it is important for Norway to keep and nourish the industries and the employers for these qualities and strengths.

The CBT causes Norway a *loss of revenue*, and as history over the years shows it has only been increasing. Because the prices in Norway are high, Norway loses a lot of income to CBT or to other countries, as its residents buy goods outside the borders. Higher prices in Norway seems to be a consequence of the high tax policies, although not limited to. Therefore, tax reduction seems to be a good reply to lower the prices of goods in Norway to keep a larger part of the lost income from CBT inside the borders.

If there will be a duty reduction Norway will lose income in tax fee per product, but nevertheless if this leads to an increase in items bought in Norway the total of income in duties will be larger and the repercussions can be of large positive effect for the Norwegian economy and all the residents. This might be even more important after the pandemic, to build us up after all the consequences.

It is important for Norway to have a tax system that contributes to a good resource utilization, high employment, and redistribution, to reduce some of the structural challenges Norwegian economy already saw before the pandemic, and which had only intensified during the pandemic. Including, but not limited to, low work participation, low productivity growth and the needs for new jobs and other tax incomes when the activity from the petroleum industry will lessen (NOU, 2021, p. 73).

Taxes and fees affect the behavior for the actors in the economy. Commonly taxes and fees lead to undesired behavior changes, which reduces the value creation and welfare. The high level of taxes and fees in Norway will affect the competitiveness for the Norwegian businesses, and how attractive it is to invest in Norway for investors (NOU, 2021, p.73-74). Though Norway has a high level of public spending, which demands a significant income of taxes and fees (NOU, 2021, p. 73).

Consequence of the CBT of a significant amount is also the *loss of jobs*. As the closing of the borders to Sweden, and all others, has shown. Strømstad, in Sweden, which usually has a lot of traffic from Norway has had a significant decrease in income and customers, leading to severely lower demand for employees. The unemployment rate in Strømstad has increased with 75% after the Norwegian borders closed (Solberg, 2020).

CEO of NHO⁷ Food and Drinks Norway, hereafter referred to as NHO, Petter Haas Brubakk, points out what a unique opportunity this is for Norway, and hopes that the politicians will do changes to keep the capital within the Norwegian borders also after the pandemic. The underlying reason for Sweden's problems around the CBT areas, with closed borders, is that they have gotten used to a strong growth from the Norwegian customers, so when this stop, they have too many jobs than what the municipality needs. Though closed borders are not

⁷ The Confederation of Norwegian Enterprise

wished upon, for Norway, a fairer competition with the Swedish businesses is desirable. Brubakk believes the CBT will go back to normal if Norway does not decrease the duties for products like alcohol, soda, tobacco, and sugar goods (Trodal, 2020). According to NHO if the duties for chocolate, sugar goods and non-alcoholic beverages is completely removed, and the duties for alcohol and tobacco is half off, calculations estimate this would lead to 3000 new employed for the food industry and 4800 new employed in retail (NHO, 2020a).

The comprehensive fiscal policy that Norway has is aimed at improving liquidity in the market. Thus, the biggest loss occurs if the unemployment rate gets stuck on higher levels than before the pandemic. (NOU, 2021, p.34) A panel of experts led by Steinar Holden has estimated that 1 percentage point higher unemployment rate leads to a lasting reduction in employment rate with 0.2 percentage point. (NOU, 2021) This has significant consequences, thus leading to just under 10 000 less employed, and giving a yearly loss in GDP for the mainland economy of almost 12 billion NOK (NOU, 2021, p.34).

Growth of Cross Border Trade has increased significantly over the years, as *figure 4* shows it has almost increased with twice the size in year 2019 versus year 2004. Although according to SSB's pilot study it can be concluded that the size of the CBT is of significant extent and with increasing growth, though its actual size is still unsure (Menon, 2020).

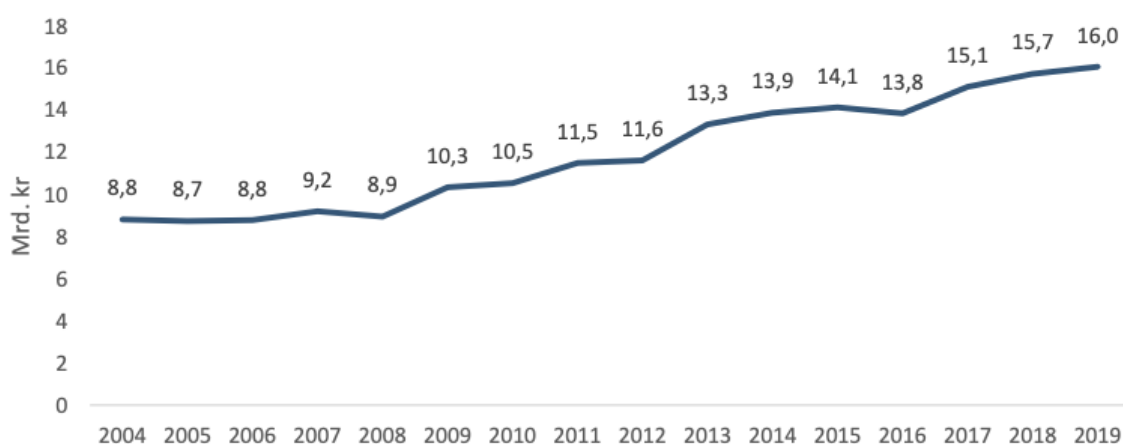


Figure 4: Annual CBT, year 2004-2019, in Billion NOK, (SSB/Menon (Menon, 2020, p.5)

Since 2009 the CBT has grown with over 55%, and the growth is seen largest in the group of goods with high duties in Norway (NHO, 2020a).

2.3 Duty Policy Norway

The duty policy in Norway has regular changes and adjustments as a result of political decisions. This causes the taxes to both be high compared to international measures and also characterized by unpredictability (NHO, 2020a). The price level in Norway is high and has several excise duties, in addition to other taxes like VAT, these excise duties will be elaborated further.

*Excise duty on chocolate and sugar goods*⁸ has been a tax in Norway since 1922. This is mainly a fiscal tax, which was introduced to provide the government/Norway income. The excise duty is on chocolate and other goods that have a certain amount of cocoa or chocolate coverage. It is also on sugar goods such as candy, caramels and chewing gum. This tax is also on several goods which do not contain sugar. Raw materials and goods which do not appear for direct consumption is exemption of the excise duty. Ice cream and baking goods, even though they can contain a lot of sugar and chocolate, are also exceptions to the duty. Thus, it could seem a bit random which goods are and are not included in the excise duty. This duty is normally index regulated yearly, in the budget of the government (NHO, 2020a).

*Excise duty on alcohol*⁹ has a purpose both to provide the government income and to limit the extent of the health and social problems caused by alcohol consumption. In 2000 the taxes for alcohol were collected to one, as it was previously separated into three different duties (NHO, 2020a).

*Excise duty on non-alcoholic beverages*¹⁰ has been a tax in Norway since 1924, as it was introduced as an excise duty on carbonated beverages. The tax was justified as the government needed income, and that these were not goods of necessity and could therefore be categorized

⁸ The excise duty on chocolate and sugar goods was removed as of January 1, 2021. (Virke, 2021b)

⁹ In December 2020 a reduction of 10% in the duties on beer and wine was agreed upon between FrP and the government parties, in discussions on the state budget for 2021. (Virke, 2021b)

¹⁰ As of June 7th, 2021, the excise duty on non-alcoholic beverages is being removed applicable from July 1, 2021. (Virke, 2021b)

as goods of luxury. Thus, a fiscal tax to increase the income to the government. The excise duty has been changed several times and has been extended to also include non-carbonated beverages. It includes non-alcoholic beverages that contain added sugar or sweetener, and beverages that naturally contain sugar are excluded. There is also a reduction in fee for beverages based on fruits, berries, or vegetables and that has no added sugar. Goods in powder and milk products with only a small amount of added sugar are excluded. This delimitation means some goods that seem similar are treated differently according to excise duty. Furthermore, the excise duty on non-alcoholic beverages is also normally index regulated yearly, in the budget of the government (NHO, 2020a).

Excise duty on beverages packages has two taxes, environmental tax and basic fee, which is calculated per package unit. Both with different purposes. The environmental tax has the purpose of preventing the material to be left in nature, and the tax is therefore based differently after which harm the different materials have on nature and also including if the package is part of a return system. If the package is part of an approved return system and the return share is 95 percent or higher, it is fully duty free. The other tax, basic fee, includes packages only meant for one time use, this meaning it cannot be reused in its original form. The exemption for this excise duty includes packages containing milk and milk products, cocoa and chocolate beverages, corn- and soya-based milk replacement goods, goods in powder, and breast milk substitute (NHO, 2020a).

*Excise duty on tobacco*¹¹ is a quantity duty, which is further categorized into six different groups. These groups are cigarettes, cigars, snus, hand-rolled smoking tobacco, chewing tobacco and cigarette paper. The products which do not contain nicotine are duty free. Furthermore, the excise duty on tobacco is also normally index regulated yearly, in the budget of the government. Calculations from the NIPH indicate that about 40 percent of consumption of cigarettes and snus for the Norwegian population do come from unregistered sources. The excise duty for cigarettes, cigars, and hand-rolled smoking tobacco, did increase with 5 percent in addition to the price adjustment in the years 2010 and 2011. For snus and chewing tobacco in the year 2008 to 2011 had an increase in addition to the yearly price

¹¹ In the state budget meeting in December 2020 it was agreed upon a reduction in the duties on snus with 25%. (Virke, 2021b)

adjustment (NHO, 2020a). To further see what the duties are for the different CBT sensitive goods, a table will be presented, *table 1*.

Table 1: Yearly Fee and CPI on CBT Sensitive Goods.

Yearly Fee and CPI on Sensitive Goods					
	Spirits	Wine	Beer	Tobacco	Sugar
2015	7,13	4,64	11,98	18,60	19,31
CPI	100,0	100,0	100,0	100,0	100,0
2016	7,31	4,76	12,28	19,04	19,79
CPI	102,3	103,3	101,3	105,0	102,1
2017	7,46	4,86	12,53	19,42	20,19
CPI	103,9	104,9	99,9	109,8	101,3
2018	7,58	4,94	12,73	19,74	36,92
CPI	105,4	107,0	101,5	112,9	105,5
2019	7,69	5,01	12,92	20,06	20,82
CPI	107,1	109,3	104,0	116,7	102,8
2020	7,84	5,11	13,17	20,44	21,22
CPI	109,7	114,2	106,2	119,3	106,0
2021	8,11	4,76	12,27	20,66	-*
CPI*	111,80	113,60	104,30	115,30	101,05
Price in NOK per	Liters	Liters	Liters	Kilograms	Kilograms

**The yearly fee on sugar has been removed as of January 1, 2021.*

Table 1 shows the yearly fee and the CPI on the sensitive goods; Spirits, Wine, Beer, Tobacco and Sugar, in the years from 2015 to 2021.

Duty Revenue Looking at monthly data from SSB the duty revenue from sensitive CBT goods can be displayed, and to further see if the months with Covid-19 have had any impact on the Norwegian government's tax revenue. Furthermore, also to see how large this income post is. *Figure 6* displays the duty revenue from the year 2000 to the first month in 2021. Here tax revenue data on the CBT sensitive goods were downloaded, such as alcohol, chocolate and sugar, tobacco and tax on non-alcoholic beverages.

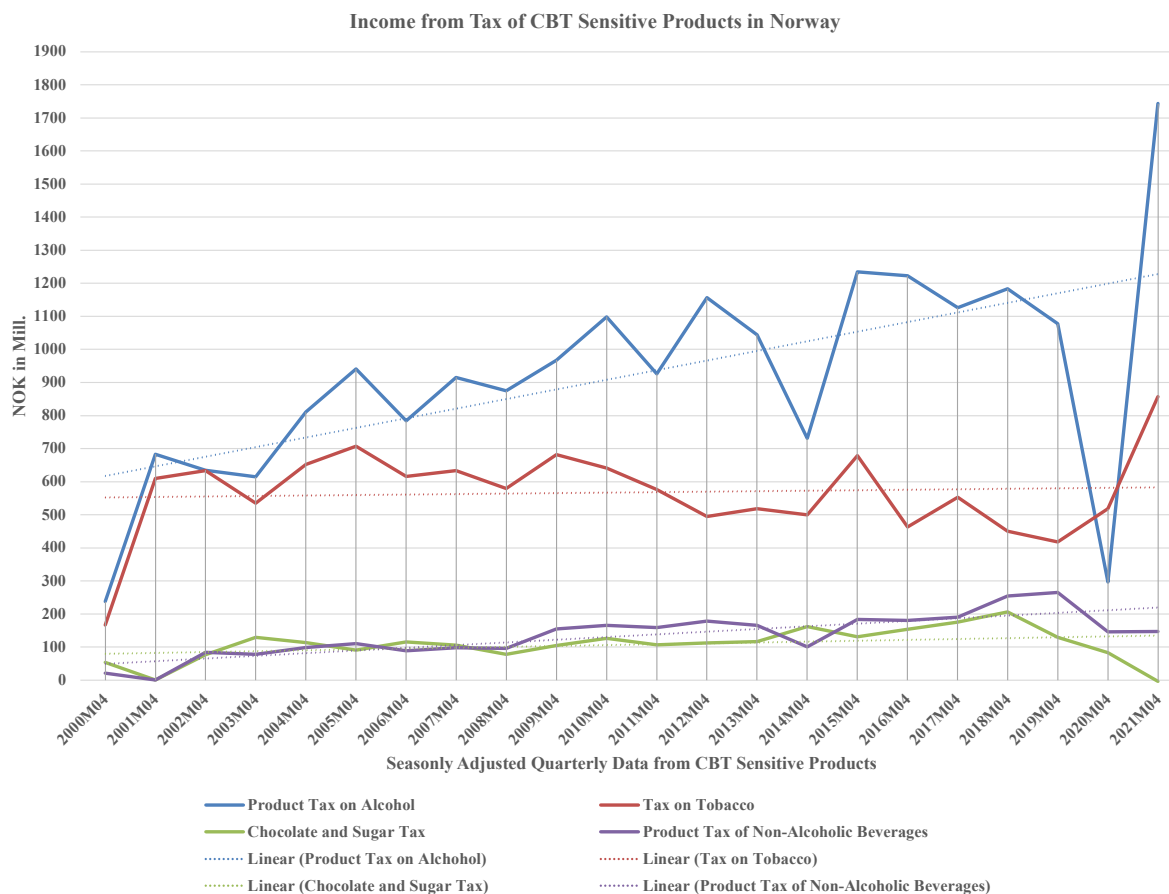


Figure 5: Income from Tax of CBT Sensitive Products in Norway. (Year 2000 to 2021)

As figure 5 shows there has been an increase in tax revenue, especially in the product groups of alcohol and tobacco, looking at the months from April of 2020 towards the first month in 2021. The increase in tax revenue for 2020 has been increased with 6 billion, compared with 2019 (Haugan et.al, 2021).

CEO of NHO Food and Drinks Norway¹², Petter Haas Brubakk, says the statistics¹³ reveals what the CBT causes of direct loss of duty revenue for Norway. When the borders do open again analysis shows that 9 out of 10 would still do CBT. This means the politicians need to understand that the duties need to be lowered. Brubakk also says that Norway needs to look at Denmark, who has reduced the duties to prevent their residents to CBT towards Germany. Tax reliefs do work (Haugan et.al, 2021).

¹² NHO Mat og Drikke

¹³ Statistics from Statsregnskapet, retrieved through <https://www.vg.no/nyheter/innenriks/i/dlqbnB/staten-tjente-seks-milliarder-paa-coronastengt-grense-krever-kutt-i-avgifter>

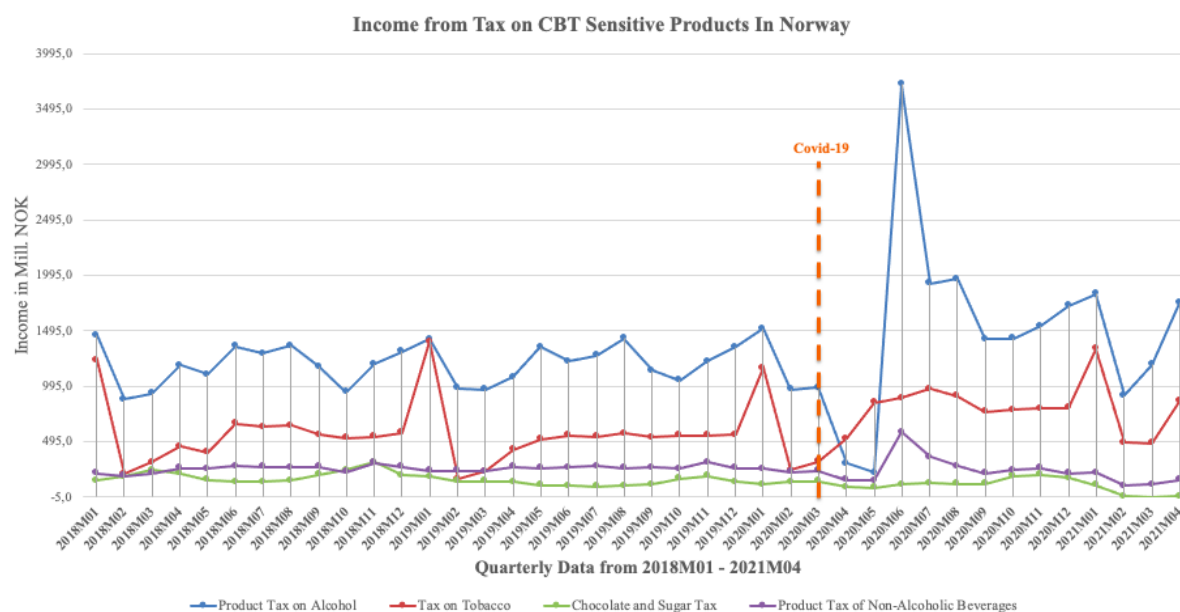


Figure 6: Income from Tax of CBT Sensitive Products in Norway, Year 2018 to 2021.

Moreover, to have a closer look on the tax revenue in the covid period and the months before, *figure 6* shows this from January of 2018 to April of 2021. As it shows there is a large increase in duty revenue for alcohol and tobacco. An increase in the tax revenue is also a result of the increased income in the grocery industry in 2020. This industry had an increase of 31.7¹⁴ billion NOK, which is a growth of 17.4% (Eisenberg, 2021).

To further see the difference in prices when the competition with Sweden is active, next the thesis will examine a comparison of the difference between Norway and Sweden in the categories of duty and prices. Keep in mind this comparison is when the borders are open, and the data is from 2019.

Comparison Norway and Sweden: Duty and Prices The duty policy in Sweden differs from Norway, with Sweden having lower excise duty on CBT sensitive products such as tobacco, snus, and alcohol. The VAT on groceries and beverages is also lower. Furthermore, there is no excise duty on chocolate and sugar, or on alcohol free beverages (NHO, 2020b). Looking at a Swedish report from HUI, the Norwegians did contribute to the Swedish economy, with the CBT, with 27.9 billion¹⁵ SEK¹⁶ in 2019. This also contributed to 7200 employees and a tax

¹⁴ 31 691 million. Total income of 213 584 million (Eisenberg, 2021)

¹⁵ For simplicity the value of NOK and SEK is set as equal since the difference is minor. As of June 6, 2021, 100.43 NOK is the same as 100 SEK.

¹⁶ Swedish Kroner.

revenue of 6.5 billion for Sweden (HUI Research, 2021). This confirms that the Norwegian CBT towards Sweden is much higher than first expected of SSB, which was only 16 billion¹⁷ NOK¹⁸ in 2019 (SSB, 2021a). The pilot study from SSB did indicate that the amount could be 24 billion if the month of September 2019 would hold for the rest of the year (SSB, 2020).

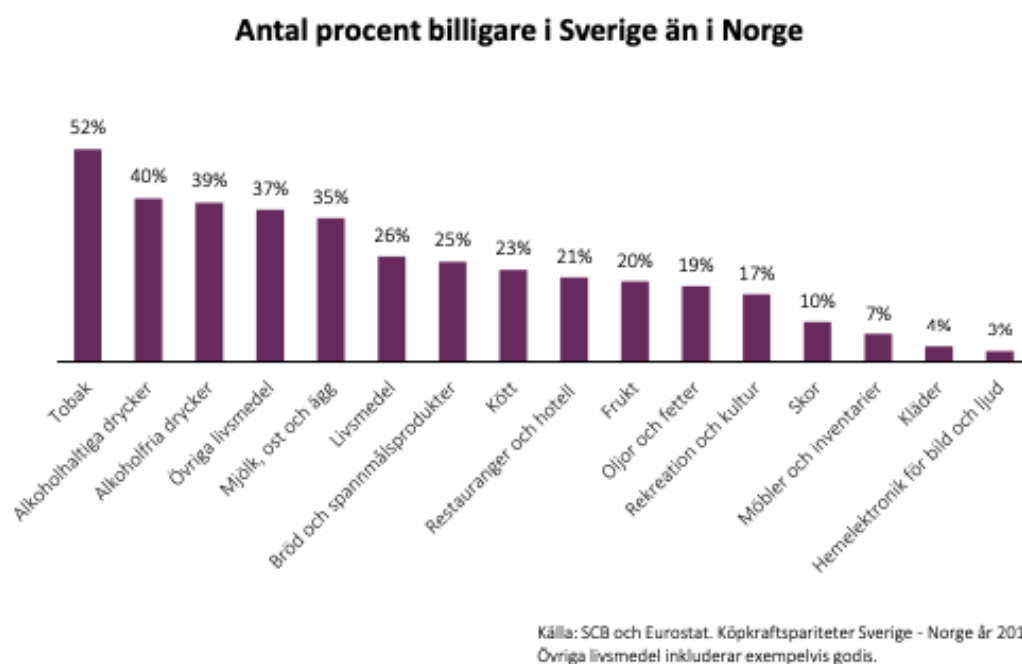


Figure 7: Price Difference from Norway to Sweden on CBT Product Groups. (Source: HUI Research, 2021, p.10)

Figure 7 shows the price difference from Norway to Sweden on CBT goods, where it can easily be seen that there is a large difference on several of the product groups. For the CBT sensitive goods, it shows that tobacco is 52% cheaper in Sweden, Alcohol is 40% cheaper and Non-alcoholic beverages is 39% cheaper (HUI Research, 2021). This is shown further in Table 2.

¹⁷ For simplicity the value of NOK and SEK is set as equal since the difference is minor. As of June 6, 2021, 100.43 NOK is the same as 100 SEK.

¹⁸ Norwegian Kroner.

Table 2: Price Difference from Norway to Sweden on CBT Product Groups

Price Difference from Norway to Sweden on CBT Product Groups	
Product Group	
Tobacco	52%
Alcohol Beverages	40%
Alcohol free Beverages	39%
Milk, Cheese and Egg	35%
Bread and Corn Products	25%
Meat	23%
Fruit	20%

Table 5 shows how much in percentage the product groups are cheaper in Sweden compared with Norway (HUI Research, 2021). This shows there might be a lot for Norwegians to save by buying these goods in Sweden and could be considered a large reason for the CBT existing with the large scale it has. The duties on each of the product groups do impact the price to the consumer, though it cannot be considered the only cause. The analysis shows how important competition is in a market, and that this may influence more than the debate and what the politicians do seem to focus on.

The difference in prices between Norway and the countries next to it is debated from time to time, with many consumers wanting to have a more similar price level. Though might not accept a wage level of similarity, as this also is lower (Røtnes, Virke 2021). Moreover, most Norwegians do not want a more centralization of the living structure around only the larger cities. Therefore, keeping a decentralization which do require several smaller businesses, and which are more expensive to operate than a smaller number of larger businesses (Røtnes, Virke 2021). Furthermore, to change the price level is more complex than just lowering the taxes. Though, according to Virke, the main reason for the difference in the price levels can be the effects of VAT, excise duties and commodity prices (Røtnes, Virke 2021). Virke elaborate, as much as 15-27% of the price difference on sugar goods, milk and meat can be explained by the VAT difference between Norway and Sweden. The excise duties can explain 28-33% of the price differences on a can of Coca Cola, 0.33L¹⁹, and a Lion King chocolate bar comparing

¹⁹ Liters

Norway and Sweden (Røtnes, Virke 2021). Thus, the analysis provides interesting findings with increased prices for these sensitive products during the Covid-19 pandemic.

2.4 Recent Changes

Since CBT and the discussion on reducing the duties is a large topic these days, and political parties and government, among others, are working on finding out what to do before the borders do open again, this will contain some of the latest updates. Though the thesis has throughout tried to stay as updated as possible, it is written while changes are actively discussed.

News as of June 7th, 2021, the *excise duty on non-alcoholic beverages* is being removed applicable from July 1, 2021. FrP, with support from Virke, got their demands met in agreement with the government parties, with a revised State budget. The revised budget will be adopted June 18, 2021 (Virke, 2021b). This is a new update after it was cleared this duty would be cut in half for the State budget 2021, agreed upon in December 2020.

On December 1, 2020, FrP and the other government parties did agree on a reduction on the excise duties for the total amount of 3.7 billion NOK, for the State budget 2021. Which is a historical measure towards CBT in the state budget. The idea is to reduce the price for the CBT sensitive goods which will lead income and jobs back to Norway (Virke, 2021b). The reduction that was agreed on was removal of the *chocolate and sugar duty*, applicable from January 1, 2021, which yearly contributes approximately 1.5 billion NOK in duty revenue. Cutting the duties on alcoholic beverages in half, giving a reduction of approximately 1 billion NOK yearly. Furthermore, a reduction of 10% in the *duties on beer and wine*, with approximately 800 million NOK yearly reduction in duty revenue. Moreover, there was also a reduction in the *duties on snus* with 25%, which is a reduction of 350 million (Virke, 2021b). The reduction on *beer and wine*, with 10%, is a step in the right direction, though the duties in Norway for these products is about 60% above the Swedish level. There is still a way to go, though this was the one of the most difficult discussions in the budget negotiations (Virke, 2021b).

According to Virke this breakthrough is historical. From budget to budget the excise duties have increased with the increasing of the CBT since the 1990's. Finally, the trend can be turned, after many years of work and with an extra effort in this pandemic (Virke, 2021b).

There have also been some *new releases of reports and analysis* of interest, indicating that increasing the knowledge of CBT is a work of progress. Some of these reports include, but are not limited to, a new report from Menon, which is an update from the last report²⁰ and on a mission for Virke. This was released in April of 2021 (Menon, 2021). This report analyzes the growth in six chosen categories of goods in the CBT area towards the growth in a control group outside of the border areas. The categories are alcohol, non-alcoholic beverages, frozen meat, fresh meat, snacks, and tobacco. The CBT areas in the report are the former counties of; Akershus, Oslo, Sør-Trøndelag, Vestfold and Østfold, towards Hordaland as the control group. Menon's analysis shows a *growth in revenue of 8.6 billion NOK*, for the six categories including Vinmonopolet in the CBT areas, which can be explained by the reduction of CBT in 2020. This is further divided into a growth of 5.8 billion for the grocery industry, and 2.8 billion for Vinmonopolet. *Tobacco was the largest contributor* to the growth in the grocery industry, with 2.4 billion NOK in increased revenue (Menon, 2021).

NIPH has also released a new report in May of 2021 with the topic of CBT and e-commerce, with the aim to look closer on what Norwegian do buy abroad (NIPH, 2021b). This is a further mapping of the relevant sources of information on CBT and e-commerce abroad, with results from a nationwide survey conducted in October 2020. It concludes that it is difficult to provide good estimates on the amount of chocolate, sugar goods and non-alcoholic beverages that are bought based on the existing data sources. Therefore, it has been decided this survey will be established as a regular annual survey. To better estimate the total amount of sugar intake in Norway, which can be especially relevant now as the changes in duties for chocolate, sugar and non-alcoholic beverages (NIPH, 2021b).

2.5 Covid-19

In March 2020 the consequences of the Covid-19 pandemic also hit Norway, as the numbers of infections increased, the Norwegian Government choose to close much of the economic activity. This was done to prevent further infections, collect more knowledge, and overall to be better prepared to handle the pandemic while also taking care of residents with other emergencies.

²⁰ (Menon, 2020)

Covid-19 is part of the coronavirus family, which can cause respiratory infection. The name of the virus that is causing the outbreak of Covid-19 disease is SARS-CoV-2. Some incidences cause only colds similar to influenza but can in some cases also cause more serious illnesses, and death. It is estimated that a person infected with coronavirus infects 2-3 others, whereas a person with influenza will infect 1-2 people (NIPH²¹, 2021a). This number will vary in both directions, higher and lower, with the difference in population density and infection control measurements in countries or cities worldwide. As has been seen worldwide since its outbreak, it can cause a lot of negative consequences. As of April 11, 2021 (08:14 GMT) 2.940.347 people have died so far from the coronavirus Covid-19 outbreak worldwide. (Worldometer, 2021) The fatality rate of the disease is still being assessed. There is also little knowledge about the long-term health consequences for Covid-19, as the disease is new. Update as of June 8, 2021 (10:12 GMT), 3.753.178 people have died (Worldometer, 2021). Thus, showing it is still an active and ongoing pandemic.

As this thesis is being written the pandemic is still ongoing and has developed different mutations which are more contagious, and therefore there are still restrictions and infection control measurements both in Norway and Worldwide. Different vaccine programs are also set in place, to try to diminish the infection. Although it is not sure what effect the vaccine will have on the mutations, as some fully vaccinated have been infected with mutations of the virus. Therefore, new vaccines for the mutations of the virus might be in need. Similar to the vaccine for influenza, with a new for each season. Keep in mind, as of writing this thesis there are still a lot of unknowns as it is still an ongoing pandemic, although a lot of resources all over the world are working hard to diminish the consequences and for a brighter future.

2.6 Norway's Part in the Pandemic²²

The first infection in Norway was announced in the media in the evening of February 26, 2020. *Figure 8* shows that this was the first of five significant events in the development of Covid-19 in Norway, this development worried the Norwegian population as the situation around the

²¹ NIPH Norwegian Institute of Public Health (FHI Folkehelseinstituttet)

²² The events discussed in this chapter are only some of the things that happened in Norway when Covid-19 hit and are divided/used for simplicity.

globe grew worse. After this several corporations instituted work-at-home policies and sent out redundancy warnings to their employees (Anundsen et al, 2020, p.7).

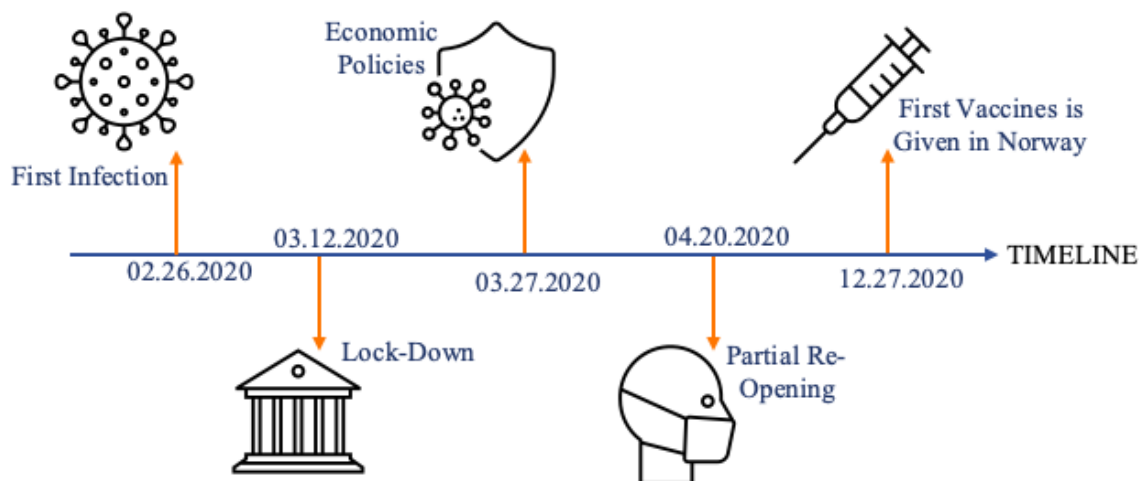


Figure 8: Covid-19 Timeline 2020

The second key date was on March 12, 2020, during this day the Norwegian government implemented a national shutdown, which led to even more fear and insecurity in the society (Anundsen et al, 2020, p. 8). People began to hoard everything from toilet paper to canned goods, and held their children away from school, which resulted in the shelves on the supermarket being empty for these products and pupils were to be homeschooled. Moreover, a few days after this nobody without a critical reason were allowed entry into mainland Norway, and the air traffic were closed.

Furthermore, the third event happened in the aftermath of the lockdown and on March 27, 2020, another economic policy package was introduced, the package included but is not limited to relief packages to businesses that had lost thirty percent of their revenue and the monetary policies were to be reduced in the central bank's policy rates such as the key interest rate drops to 0.25% (Anundsen et al, 2020, p.8).

Moreover, on April 7 a partial re-opening of Norway was announced to be on April 20, 2020. After this Norway has been in and out of small lockdowns in the most infected areas, and there has been a great deal of restrictions and regulations, and after a long year Norway received its first dose of the vaccine, on December 27, 2020.

Regulations and Restrictions were issued throughout the pandemic by the government, including but are not limited to, entry to Norway, social distance, masks, and infection control measures, these national regulations and restrictions in its entirety is found in the appendix 9.2.

Unemployment Rate and Layoffs Despite the economic policy packages the unemployment rate rose significantly, and the pandemic had major consequences for the economy and the labor market. The national shutdown led to a peak in registered unemployment and the biggest fall in GDP for mainland Norway in peacetime (NAV, 2021, p. 46), s shown in *figure 9*, which

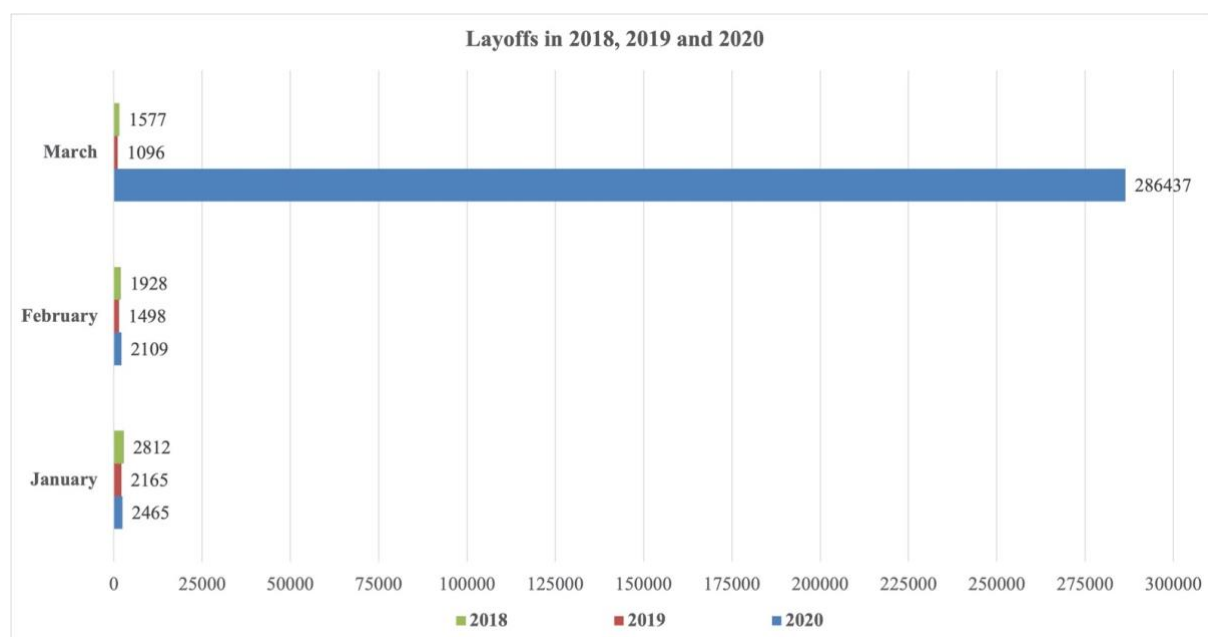


Figure 9: Layoffs in 2018, 2019 and 2020

shows unemployment measured by the labor force survey. However, the survey has disadvantages such as the definition of redundancies. In the labor force survey, they are defined as *employees who are absent temporarily from work for three months* and are not considered unemployed before the three-month mark (NAV, 2021, p. 49). Therefore, the numbers seen in *figure 10* might not be the full picture of the situation in 2020, however, the expansion in the amount of working hours shows the proportion of redundancies, and according to the International Labor Organization (ILO), the decline in global working hours in the first and second quarter of 2020 correlate with about 550 million less full-time positions than in the last quarter of 2019, before Covid-19 began (NAV, 2021, p. 49). On the other hand, the International Monetary Fund, IMF, states that unemployment in Norway will gradually decline

towards 2025, while several other countries including but not limited to the Eurozone²³ (NAV, 2021, p. 48), UK and Sweden unemployment will continue to rise in 2021, compared to the US where it would decline already by 2021. Nevertheless, the unemployment rate will slowly return to what it was before the pandemic hit, and researcher believe that by 2025 the unemployment in the eurozone will be about the same level as in 2019, while in the UK, Sweden, and the US it will probably still be higher than before Covid-19 (NAV, 2021, p. 50).

Cross Border Trade Before and After the Pandemic has also forced changes in how one travels, communicates, consumes, and works, and some of these changes are prone to also have an effect in the future. Investments made to pace the economy after the crisis will likely be in sustainable industries (NAV, 2021, p.50). Furthermore, as seen in *figure 10* before the pandemic hit there was an upgoing trend in both number of daytrips and trade in Sweden to Norway, even though there have been regressions in the economic market, in this timeline it is not noticeable when looking at the bigger picture.

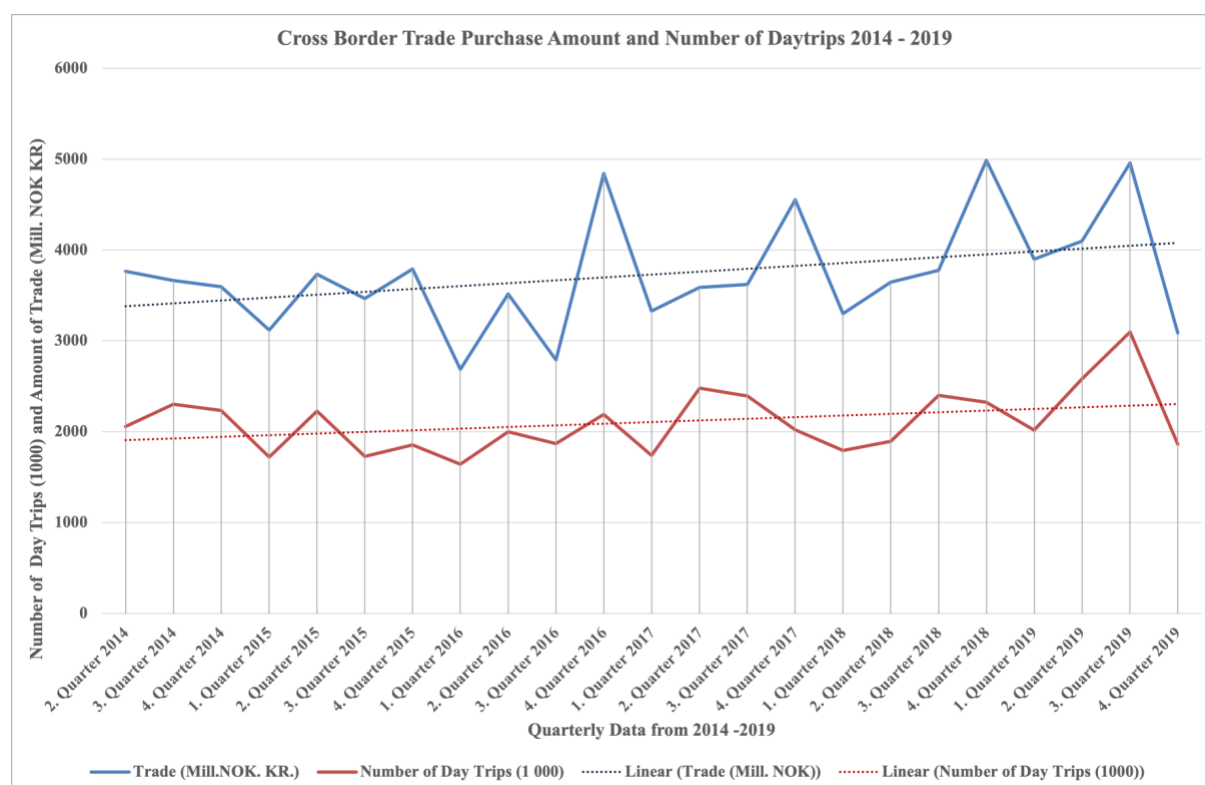


Figure 10: Border Trade in Norway from 2014 - 2019

²³ The Eurozone includes Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland.

However, after the pandemic hit, the trend is declining because of the closed borders, displayed in *figure 10*. Therefore, the CBT is also prone to be affected in the aftermath of the pandemic, and the possibilities to take back some of the CBT are larger now than before, because of the new information and numbers that have come to light during the pandemic.

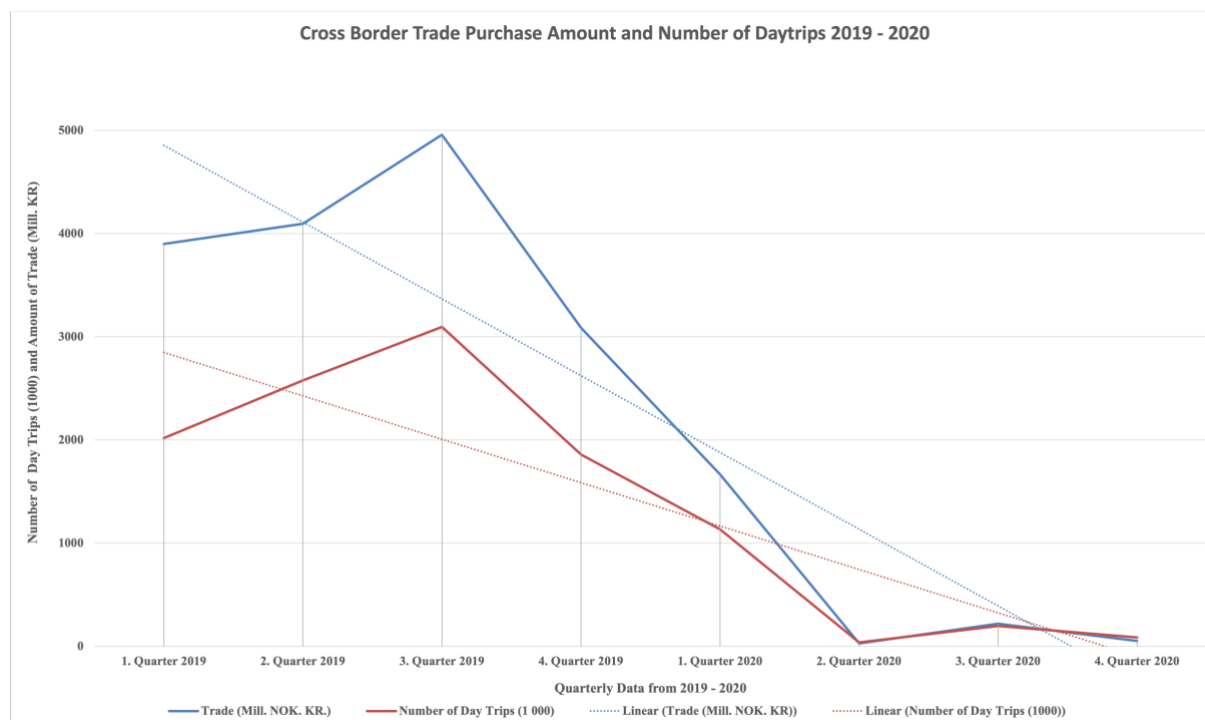


Figure 11: Border Trade in Norway from 2019 - 2020

Figure 11 shows, with new information and numbers referred to the drastic shock, as discussed before, that the actual numbers of CBT²⁴ were much higher than first believed. Though, these numbers are just for the CBT that is registered however, with the dark figures that are not being reported because of smuggling of goods etc. the numbers would be even higher.

More Knowledge is Needed. The pandemic has caused CBT to become an even more relevant and interesting topic. As of writing this thesis more and more information, reports, analysis, and discussions have surfaced. This is an interesting time to look further on the CBT, since closing of the borders gives unique opportunities, to require more knowledge about the CBT and if measurements should be taken to prevent or change some of the habits it has shown the Norwegians have had, and to further see which consequences CBT have on the Norwegian economy.

²⁴ See 2.1 Cross Border Trade and 2.2 Consequences of Cross Border Trade

2.7 Observations from Denmark

Traditional CBT in Denmark is mainly towards Germany (Skatteministeriet, 2019, p.125). Denmark has already done a tax reduction to delimit the CBT to Germany and has been able to cut the CBT in half. Thus, is often fronted as an example for the success of the measures with removal or lowering the duties having a wanted effect on CBT.

When looking at the traditional CBT in Denmark from the year 2000 to year 2018 it has a declining trend, seen from the total amount of 16 billion to 8 billion²⁵ DKK²⁶ (Skatteministeriet, 2019, p.118). Thus, showing a decline of half the amount. This declining trend and the reduction of the CBT in half can be seen in *figure 12*.

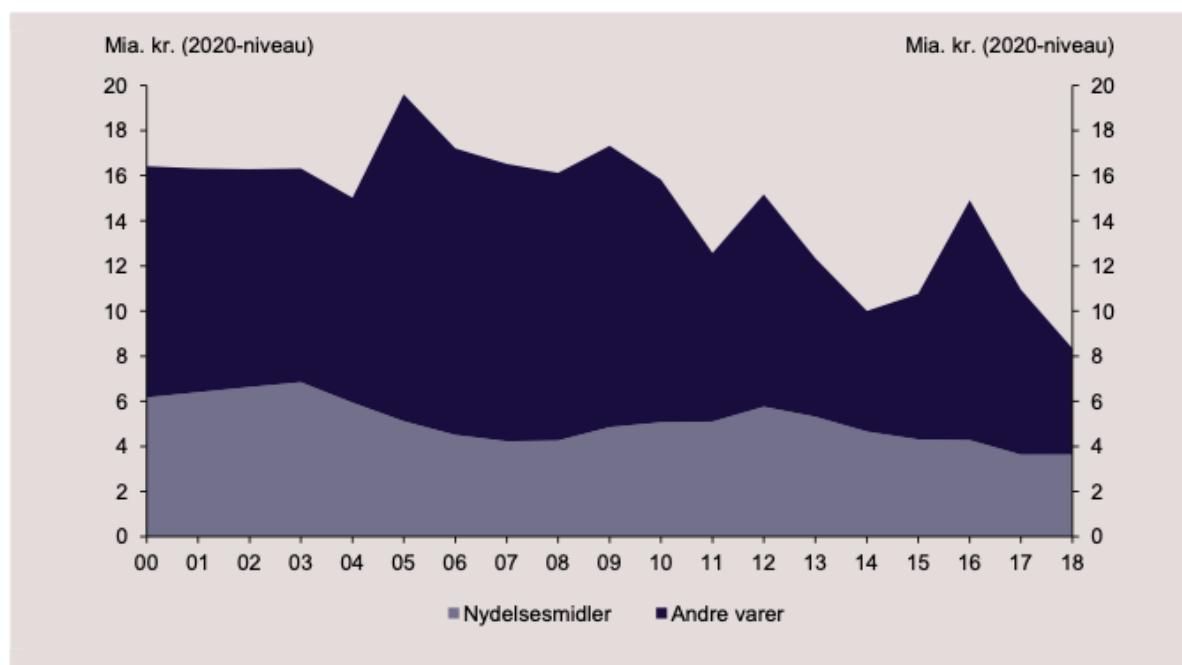


Figure 12: Total Traditional CBT for Denmark, year 2000-2018. (Source: Skatteministeriet, 2019, p.118)

The main category that is still a big part of the CBT towards Germany is for chocolate, as Germany, as well as Sweden, do not have any sugar tax fee like Denmark and Norway have. The three main categories in CBT Denmark for stimulants²⁷ are chocolate, beer, and soda (Skatteministeriet, 2019, p.120). As *figure 13* shows the trend for CBT in Denmark for stimulants also has a declining trendline.

²⁵ To compare the amount of CBT more accurately both numbers are at 2020 price level. (Skatteministeriet, 2019)

²⁶ Danish Kroner. As of June 11, 2021, 100 DKK is equal to 135.56 NOK

²⁷ Stimulants: beer, wine, alcohol, cider, tobacco, chocolate and such, soda and mineral water

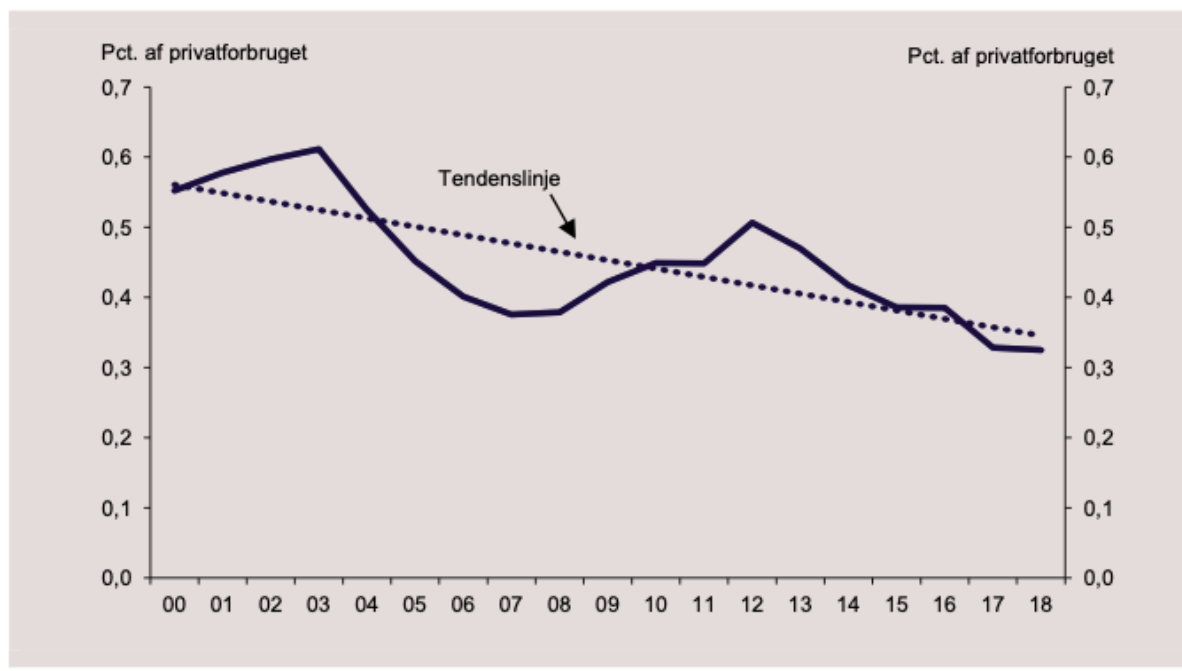


Figure 13: Declining Trend of CBT in Denmark, year 2000-2018. (Skatteministeriet, 2019, p. 119)

There is also more data collection of the CBT in Denmark, compared to statistics throughout the years in Norway. The Danish Skatteministeriet has since the beginning of the year 2000 prepared detailed statistics over the development in CBT (Størksen et al, 2019). Denmark wanted more knowledge about what caused the high CBT they had and see what could be done to contribute to more Danish consumers to do more of their purchases in the home country. This to further contribute to value creation, employment, and tax income in Denmark (NHO, 2020a, p. 8). In Denmark it concludes that it is problematic if duty policies differences between countries is the drive behind CBT. This since the Danish government loses income from VAT and excise duty, and the industry loses income and consumer welfare reduces (NHO, 2020a, p. 8).

Learning from Denmark The Danish approach to the CBT issues has led to a more knowledge-based debate about the causes of CBT and its consequences for society and the industries (NHO, 2020a, p. 8). The measures Denmark did take was reduction of the excise duties to reduce the CBT. As the CEO of NHO, Brubakk, says, Norway needs to look at Denmark, who has reduced the duties to prevent their residents to CBT towards Germany, as tax reliefs do work (Haugan et.al, 2021).

2.8 Measures to Reduce the Cross Border Trade

The aim for the measures presented from NHO is to increase the food and beverages industry's competitiveness, reduce climate emissions caused by daily trips with cars to Sweden and to contribute to the Norwegian government's goal for a healthier diet for the Norwegian population. Furthermore, to increase the value creation, profitability and the employability for the food and beverages industry towards the international competition market (NHO, 2020a).

The report from *NHO presents six measures to reduce the CBT*, (NHO, 2020a, p. 5), these will be elaborated further:

1. *Thorough review of the CBT* to get more knowledge about the CBT, and the consequences it has on, including but not limited to, public health, consumer behavior, transport, climate, smuggling and other crimes.
2. *To Remove taxes on non-alcoholic beverages, chocolate and sugar goods* is suggested as Sweden does not have any taxes on these products. Moreover, Norway has one of the highest taxes on these products in the world.
3. *Reduce taxes on alcohol, snus and tobacco* as Sweden has lower taxes than Norway on these goods, and since taxes on these goods are a large contribution to the CBT.
4. *Incentive tax for beverages packages* should be suggested, that could replace the taxes on the disposable packages which Norway have today.
5. *Cease automatic price adjustment* as Sweden does not have an automatic price adjustment each year, as Norway does. Thus, increasing the gap of higher taxes in Norway each year compared to Sweden, making it even harder for businesses in Norway to compare to Sweden.
6. *Plan for downsizing of the taxes*, after the model from Denmark, is suggested to give predictability for both the government and the businesses in Norway. The aim for this plan needs to be a better alignment between the tax levels of Norway and Sweden

The Political Point of View does display some difference in opinions from the different political parties in Norway, when discussing the CBT and duties on goods. The Progress Party²⁸ (FrP) fights for lowering the duties in Norway. FrP did deliver an alternative to the state budget with a CBT Political Package, in November of 2020, on how to achieve a lower CBT. The leader of

²⁸ Progress Party (Norway) is called Fremskrittspartiet in Norwegian, referred to as FrP.

that time²⁹, Siv Jensen³⁰, said that the closing of the borders caused by the pandemic has reduced the CBT to a bare minimum. She continues, this shows that it is possible to create several jobs in Norway because less CBT causes larger demand in Norway (FrP, Redaksjonen, 2021a).

The Political Package from FrP, fighting to reduce and remove several duties to bring the CBT sensitive goods to a Swedish price level, suggest these measurements (Virke, 2020):

- *Remove the duty on chocolate and sugar goods*
- *Remove the duty on alcoholic beverages*
- *Remove the basic fee on beverages packages*
- *Reduce the duties on alcohol on beer and wine to a Swedish level*
- *Reduce the duty on snus to a Swedish level*

Virke supports FrP on this topic and is happy that the party has taken CBT seriously with demanding duty reductions that will increase the income and give more working places for Norway. Virke suggests the government parties to accommodate FrP's demands (Virke, 2020).

Furthermore, Virke suggests that the level of duties need to be more harmonized with our cross countries. Moreover, competition-based duties such as basic fee for one-time packages need to be removed. This should rather be replaced with a system that supports reuse of environmentally friendly plastic, as the industry has suggested. Virke also suggests that the knowledge level of CBT needs to be increased. Today there is little knowledge about what Norwegians actually buy abroad. Thus, impacts the knowledge of what effect the high duties do have on the dietary. It can be of concern that the high duties might contribute to hoarding of unhealthy goods, which can impact dietary development in a negative way. (Virke, 2021b)

The ongoing debate on reducing the CBT is focusing on the reduction of the duties, though displaying the perspective the analysis showed questions if this is the right path to take to achieve the goal in mind. To look at reduction in the duties to cause the same effect in prices for the consumers might be to simplify the market with its supply and demand effects. Moreover, it seems to forget *the importance of market competition*. The analysis shows that the

²⁹ As of 2021 FrP has changed their leader. Siv Jensen was the leader for several years before.

³⁰ Siv Jensen was FrPs leader from 2006 to 2021, and also Minister of Finance from 2013 to 2020. She is now a Member of Stortinget. (FrP, 2021)

prices for consumers rather increase with changes in the market as this Covid-19 shock has presented, when competition is reduced. CBT sensitive goods were almost 9% higher in the Covid-19 months and Tobacco were the product group with most significance showing an increase of 17.7% in the price development during these months. The question will then be if the effect of reduction of the duties will also cause the price to be lower for the consumer, and to have the intended effect.

3. THEORY

This chapter will present the relevant theories such as willingness to pay, price elasticity, market competition and previous research to enlighten the research questions and hypotheses.

3.1 Willingness to Pay

When pricing products and services hardly anything is more important than ensuring that they are appropriately priced. If the price is too low you lose potential income, that could have been used to expand the business, refine offerings, and grow the team. On the other hand, if the price is too high potential customers might go to your competitors. Whether an entrepreneur is on the verge of launching a new product or service or the business is determining the pricing strategy, it's crucial to understand how much customers are willing to pay for said product or service (Stobierski, 2020).

Willingness to pay, hereafter referred to as WTP, is the maximum price a customer is willing to pay for a product or service. Keep in mind that potential customers are probably willing to pay less than their WTP, however, they will not pay a higher price, and the WTP can differ significantly from consumer to consumer. Moreover, this is often caused by differences in population and are referred to as either *extrinsic* or *intrinsic* (Stobierski, 2020). **Extrinsic** differences are observable and are factors that can be identified without asking them such as gender, age, education, income and living location. **Intrinsic** distinctions on the other hand, are characteristics of the consumer that would not be observable without interacting with them, often these distinctions are hard to observe and are therefore often referred to as unobserved differences. These include but are not limited to risk tolerance, passion level of a given subject and the desire to fit in with others are some examples that might impact their WTP. However, this is not static and in addition to the extrinsic and intrinsic differences are a multitude of factors that can cause a WTP to fall or rise. The reason for this is simple, price is not the only feature that matters, some examples include but are not limited to brand, legality, packaging and even surpluses and shortage of products (Stobierski, 2020).

When looking at what effect the cross-border trade has on Norwegian economy the WTP on CBT sensitive goods is important because it presents a picture of why Norwegians would want

to travel over the border to purchase products and what they would be willing to pay to purchase these products or services in Norway instead of Sweden. Therefore, this thesis will look at the price elasticity of the Norwegian people towards sensitive CBT products such as alcohol and tobacco.

Price Elasticity According to economic theory, the demand for a service or good (E_V) depends on the price of the good and service (P_V), the price of competitive goods and services (P_A), the availability of goods (T), the consumer's individual budget (B), product marketing (M) and other factors (A). The demand function seen in *equation 1* defines demand as a function of the factors mentioned above, however does not describe the way in which demand depends on the various factors.

Equation 1: The Demand Function

$$E_V = f(P_V, P_A, B, T, M, A)$$

To easier see how much of the consumption of goods and services depends on each of these factors a demand curve can be created, such as the one in *figure 15* below.

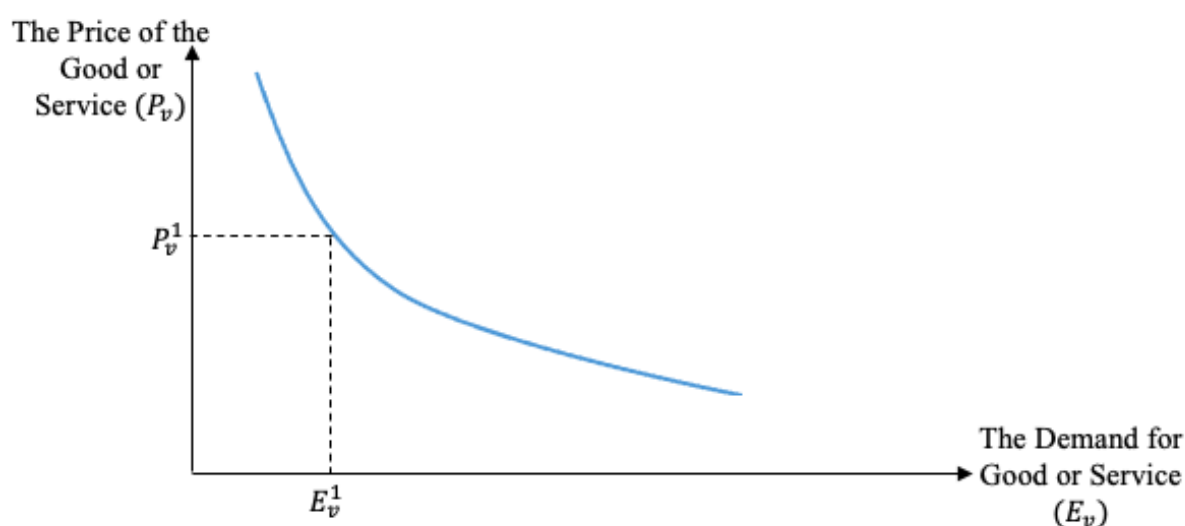


Figure 14: The Demand Curve

In *figure 14* for each point on the curve, the slope indicates how demand responds to price changes, a “steep” demand curve means that the goods are not price sensitive, and therefore a price change has little or no effect on demand, this is typical for “*Normal goods*”. A “flat” curve on the other hand, will be sensitive to price changes, and are often related to “*Inferior goods*” (Sander, 2019). Where an **Inferior good** will have decreasing demand when a consumer's level

of income rises, which may occur when a good has more expensive substitutes, because consumers are willing to spend more when income rises. However, Inferior does not mean quality but simply affordability, therefore conversely the demand increases when income decreases, and the inferior goods become more affordable substitutes. An example of an inferior good is McDonald's coffee versus Starbucks coffee, when consumers have low income, they tend to go for the cheaper product hence McDonald's coffee and give these up when income rises for more expensive items. A **Normal good** on the other hand, is often referred to as necessary goods and is the opposite of an inferior good. These goods do not refer to quality as the inferior good does, but rather to the level of demand for the good when income changes.



Figure 15: Inferior Good versus Normal Good

Furthermore, the goods get an increase in demand when consumers income increases and conversely a decrease when income decreases as seen in *figure 15*. Some examples of normal goods are but are not limited to milk, shoes, pasta, and clothes.

Equation 2: Inferior versus Normal Goods

$$\frac{\partial y}{\partial M} < \text{Inferior Good}$$

$$\frac{\partial y}{\partial M} > \text{Normal Good}$$

This relationship between price and demand may also be expressed as elasticity and are displayed in *equation 2*. The price elasticity is an indicator on how many percentages the demand for a product changes as a result of a one percent change in price. In other words, the price elasticity tells us whether the product or the service is price sensitive or not. Furthermore,

there are three categories within elasticity: *elastic, neutral and inelastic*. Demand is **Elastic** if the result is *less* than -1, **Neutral** if the product is *exactly* -1 and is **Inelastic** if the result is *between* -1 and 0. How elastic or inelastic the demand is for a given product depends on how far from the neutral number (-1) the results are (Sander, 2019).

These calculations of elasticities are desirable because they might change over time if consumers change behavior. Which may be the case when the pandemic hit in 2019 and because it is still upon us. There are several factors that may suggest changed consumer behavior, these include but are not limited to rise in income, rise or fall of alcoholic beverage taxes, availability of alcohol or consumption has risen or fallen. According to Holder and Edwards (1995), a study from Finland which calculated a change in price elasticity from 1955 to 1980, found a decreasing elasticity, and described this as an example of alcohol has become more of a commodity instead of a necessity and the trend of price elasticity tends to fall with an increase in income and living standard in society.

3.2 Market Competition

Competition is defined as a situation when several economic actors seek to achieve the same goal and is usually used for relations between manufacturers (suppliers and sellers), however, there is also competition on the consumer's side (SNL³¹, 2021). In economic theory, there are different distinctions of types of competition, including but not limited to *perfect competition, oligopolistic and monopolistic*. Where **perfect competition** is when the market itself is pareto-optimal³² and therefore no intervention in the market can improve the welfare of some consumers without deteriorating it for others. This may emerge in classic economic models if the following conditions are met³³ (SNL a), 2014).

1. All goods are normal³⁴ and without external effects.
2. Producers and consumers are of a considerable amount and none of them have market power.

³¹ Store Norske Leksikon

³² Pareto-Optimality is when it is not possible to redistribute the benefits in such a way that at least one person gets increased welfare without others getting their welfare reduced (SNL, 2017).

³³ See Appendix 9.1 for full list and explanations.

³⁴ See definition of *Normal Goods* in 3.1 Willingness to Pay, Price Elasticity

3. Completely identical products are produced by producers, and it does not matter for the consumer who produced the goods.
4. Economic rational behavior among all market participants is assumed.
5. Every market participant has full knowledge of all prices and relevant conditions.
6. Market price is determined in an interaction between buyers and sellers without the intervention of any external instances such as authorities.
7. Market participants can enter and exit the market free of charge.

Models such as Neoclassical models based on perfect competition have been dominant in economics and are therefore often used as a starting point in socio-economic analysis (SNL a), 2014). Moreover, **monopoly** is a market situation where only one company acts on the supply side, therefore the seller can determine the price so that the profit is as large as possible. These suppliers have the opportunity to exploit the market by keeping prices high and implementing price discrimination³⁵. The lack of competition can create a motive for streamlining production to disappear, in contrast it may also make competition costs redundant and simplify production and distribution (SNL b), 2014). **Oligopoly** on the other hand, is an example of imperfect competition and is a term for numerous market types that comes from the transition between perfect competition and monopoly and are a market where the predominant part of the products and services are distributed from a few large companies, which in turn gives them market power (SNL b), 2014). Each corporation has to take into account how the competitors react, for example regarding pricing of advertising etc., this is because if a company decreases prices, it can be expected that competitors do the same so that the company that first lowered their prices does not increase market share. This also applies to the game theoretic theory “*race to the bottom*”.

This theory describes a competitive situation where a corporation, state or nation attempts to undercut the competition’s prices by sacrificing quality standards, employee safety or reducing labor costs. However, it may also occur among regions, an example of this is when a jurisdiction reduces regulations or cuts taxes in an attempt to attract new investments such as building a new corporate office or factory (Chen, 2020). Although there are more legitimate ways to compete for investments and business the term race to the bottom is used to distinguish retaliation competition that has crossed ethical lines and therefore could be

³⁵ Price policy that involves keeping different prices to different groups of buyers in order to take advantage of differences in demand.

destructive for everyone involved. Moreover, when businesses engage in this the impact is beyond immediate participants, and damage can be done to the environment, the community, employees and shareholders (Chen, 2020). In addition, consumers' expectations of constantly lower prices may mean that the winning business finds profit margins permanently squeezed, resulting in market dry up. Moreover, one can compare the Covid-19 pandemic with a market monopoly, because of the elimination of competition from Sweden as a result of closed borders. When this happened, it could be seen as a extreme situation, where the shock of the Covid-19, was a large increase in duties in Sweden, and how this may have impacted the consumers to change their behavior and reducing the CBT. It could also be seen as if one of the largest participants of the Grocery Industry in Norway became the only provider, thus having a monopoly.

3.3 Behavioral Economics

The study of psychology in relation to the economic decision-making process of institutions and individuals is defined as behavioral economics³⁶, and there are two questions in this field that are significant.

1. Are economics assumptions of profit or utility maximization good estimates of real people's behavior?
2. Do consumers maximize subjective expected utility?

Consumers will always make optimal decisions that provide the greatest satisfaction and benefits in an ideal world. Economic rational theory on the other hand, states that when presented with various options under the conditions of insufficiency, the consumers would choose the option that maximizes their individual satisfaction (Kenton, 2020). Therefore, given their constraints and preferences consumers are capable of making rational decisions by weighing the costs and benefits of every option available, and the final decision made, will consequently be the best choice for the individual. With that in mind a rational consumer has self-control and is indifferent by external factors or emotions, hence knows what is best for themselves. Moreover, behavioral economics explains that people are not rational and are incapable of making good decisions and draws on psychology and economics to study why consumers make irrational decisions (Kenton, 2020).

³⁶ Often related with normative economics (Kenton, 2020)

Heuristics are one application of this theory, which is the use of mental shortcuts or rules of thumb to make quick decisions. Conversely, when the decisions made leads to blunder heuristic may lead to cognitive bias. Another application is *behavioral game theory* where experiments are used to analyze consumers' decisions to make rational choices (Kenton, 2020). Correspondingly, an example is a soap manufacturer who produces the same type of soap but markets them in two different packages to appeal to multiple target groups. where one package is labeled “sensitive skin” and another “for all soap users”. The first target group may not have purchased the product if the package did not specify that the soap was for sensitive skin, they would have chosen the sensitive skin soap even though there is exactly the same product in both packages (Kenton, 2020).

As a result of the corona pandemic changes in consumers behavior, lifestyle, shopping, and work habits has emerged. The question is which changes are temporary and which are becoming permanent? Previous experiences and patterns from economic crises may tell a lot about how behavior will or can change in the future, as no one knows how challenging today's situation will be and when we can return to “normal” (Virke, 2021a, p.41).

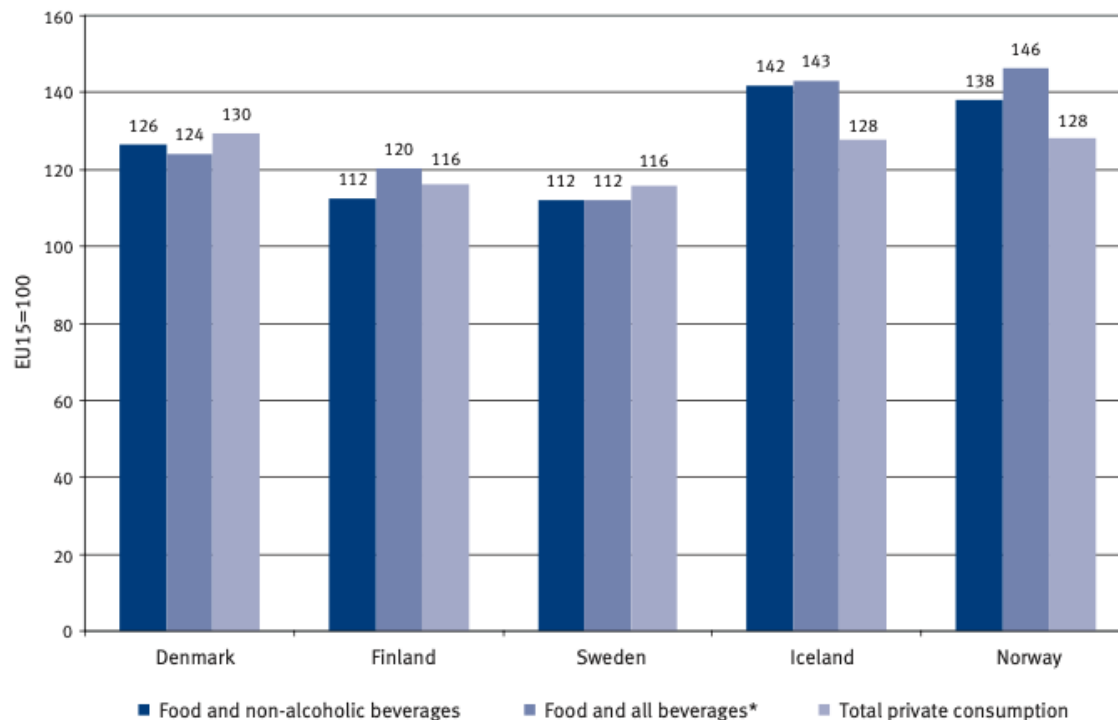
3.4 Market Development

While globalization brings increased transport of goods, faster spread of technology, ideas, knowledge, more trade, cheaper goods, culture, and general economic growth. It also may assist in more consumption which in turn can be a burden to the environment, traveling across border lines might lead to faster spread of epidemics and large international companies gain significant power which in turn may be a democratic problem because the elected political parties representing the people gain less power. Furthermore, traditionally trade was regulated between two nations through bilateral agreements, and for many countries this meant that the customs walls were high. However, free trade emerged in Britain in the nineteenth century which has dominated western thinking ever since. Therefore, after WW2 multilateral agreements such as GATT³⁷ and WTO³⁸ have sought to create a globally regulated trade

³⁷ General Agreement on Tariff and Trade.

³⁸ World Trade Organization.

structure, even though no country can meet all the needs of its people, every country participates in international trade (Amadeo, 2021).



Source: Eurostat and the Working Group's own calculations

Note *: Beverages, i.e. soft drinks and beer

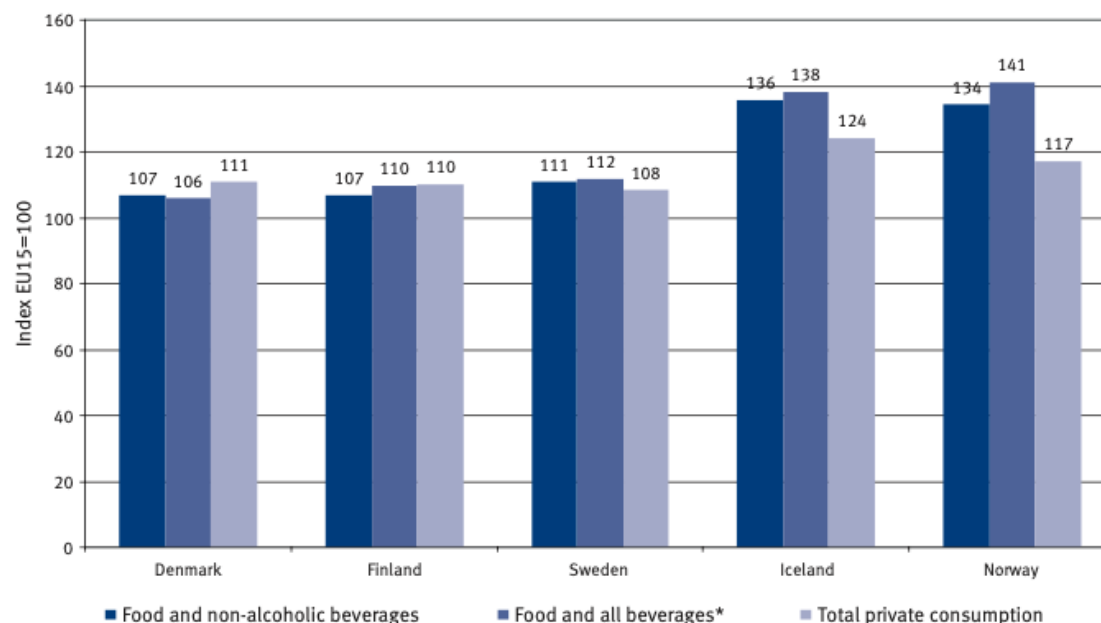
Figure 16: Gross Food and Beverages Prices, 2004. (Source: NCA, 2005, p.7)

Furthermore, the price of goods and services have to be in favor of the consumer, meaning it is not only the tax that have to decrease, but consumers also have to see a difference in shelf fronts as a consequence of tax reductions, to make this happen manufacturers or farmers must be allowed to make products cheaper so that the price of etc. groceries goes down. The road from the supplier to the grocery chain is complex, and to understand how groceries are priced the grocery chains receive the same basic price but negotiate with each supplier about which and how large discounts are deducted. These discounts include but are not limited to wholesale, product line, collaboration bonus, joint marketing, campaign support and merchandising³⁹ (Konkurransetilsynet, 2019).

³⁹ See https://konkurransetilsynet.no/wp-content/uploads/2019/11/Rapport-om-innkjopsbetingelser_2019.pdf point 2.2 for explanations.

However, compared to the EU the price level of Norwegian food is high, and one of the reasons for this is the high prices of Norwegian agriculture regulations. Moreover, according to Eurostat (2004) figures for 2004, consumers in the Nordic region paid an average of 12% and 46% higher than the European average for groceries and beverages as seen in *figure 16*.

These price differences lie in the tax level that is on sale and production of food, were VAT and excise duties on beverages etc. are higher in the Nordic countries, however, another consideration is campaigns with temporary price cuts which are being used more extensively by supermarkets in the Nordic countries⁴⁰ especially in Denmark⁴¹ compared to Germany or France etc. These price cuts are generally not fully included in Eurostat's collection of prices (NCA, 2005, p.8). Moreover, if VAT, taxes, and price campaigns are deducted from the price in *figure 17*, the net different prices would be reduced to six to twelve per cent for food and beverages and seven to eleven percent on food and beverages exclusive alcoholic beverages.



Source: Eurostat and the Working Group's own calculations

Note *: Beverages, i.e. soft drinks and beer

Figure 17: Net Food and Beverage Prices (excl. Taxes), 2004. (Source: NCA, 2005, p.8)

However, the average prices in Iceland and Norway are still 38% to 41% higher than the European average as seen in *figure 17*. Nevertheless, the main reason for the high food prices in these countries compared to the other Nordic regions and Europe is that Norway and Iceland are not members of the EU and therefore maintain tariffs and tariff-free quotas on agricultural

⁴⁰ Denmark, Finland, Sweden, Iceland and Norway.

⁴¹ The deduction of price campaigns is only done for Denmark.

products that have been produced domestically⁴². Even though the system is not identical the effect is the same in practice; imports are kept low to ensure sales of domestic production which are of strategic importance (NCA, 2005, p.9)

⁴² There are growing quotas for import without tariff (NCA, 2005, p.8).

4.METHOD

This chapter will present the methodical approach for this thesis.

4.1 Methodical Approach

To answer the research question, data has primarily been gathered from SSB and NHO, furthermore, looked at which groups have the largest revenue beyond the border and which typical entice offers that run the CBT. Additionally, a regression with difference-in-difference on these products was executed to compare them and the pandemic to get a clearer picture of how much they affect each other. Therefore, the configuration of the method is as stated in figure 18 below.

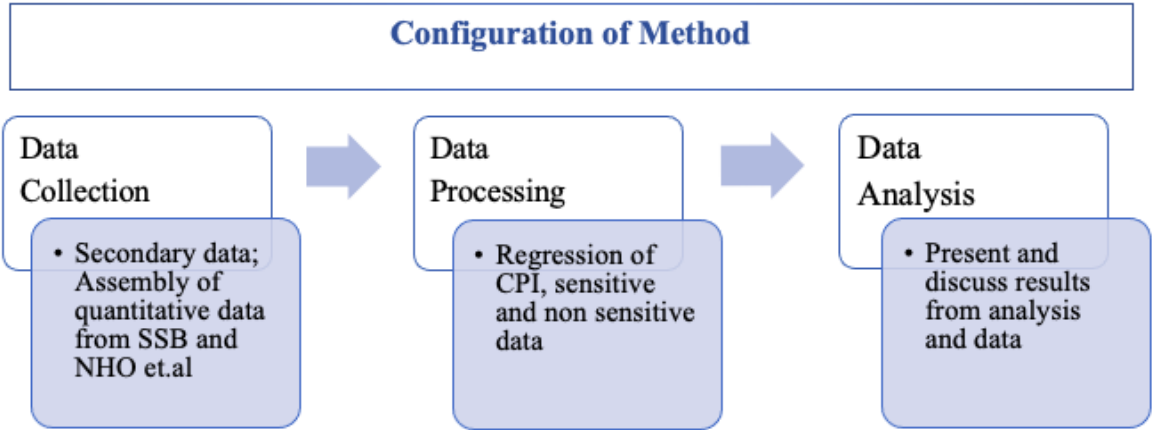


Figure 18: Empirical Model

Quantitative data is used instead of qualitative, with a regression analysis which shows how the dependent variable is affected by one or more independent variables (Smith, 2021). Where, the dependent variable is of Covid – 19 and independent variables of the sensitive and non – sensitive product groups.

When using this method, a broader analysis can be made, on the basis of enabling generalization of results as well as involving more subjects while staying accurate and objective with few variables. This allows for a macroeconomic view, from larger samples that may be generalized and comparatively, as well as the estimation of multiple data sets can be done at once more rapidly and accurately. However, there are some disadvantages with using quantitative methods including, but are not limited to, blind spots for variables of reality that have not been included

and the possibility that these variables can affect the outcome, the possibility for alternative hypothesis which may affect results, difficulty in optimization of phenomenon for example; how to measure commitment in the business, and how experiments performed in controlled environments might not be prone to be transferred to a natural environment.

Secondary data analysis, which is utilizing existing data for research, is becoming more prevalent as the technological advantages have led to large amounts of data being collected, compiled and archived by researchers all over the world, and with easy access for research. Furthermore, secondary data analysis is analysis collected by others for another primary purpose. Thus, can provide a viable option for researchers who have limited time or resources. This type of research method is still an empirical exercise that applies the same basic research principles as studies utilizing primary data (Johnston, 2017, p. 619). Further it is important to define secondary data analysis as a systematic research, as the availability of previously collected data is increasing. Though there is a shortage in literature, as there are only few frameworks to guide researchers of this method (Johnston, 2017, p. 620).

4.2 Methods of Analysis

As mentioned above the thesis will conduct a regression analysis containing a dependent and independent variable to see whether Covid-19 has made a change in the estimated price development. To do so, incompatible products have been through a careful selection process to find the two groups; sensitive and non-sensitive CBT products that the regression is based on. Where sensitive products are products that are typical entice offers which can be compared to a inferior good⁴³, used to attract Norwegians over the border to buy groceries or normal goods and are in theory not affected by the pandemic as much as the price sensitive group when considering price sensitivity.

These groups together with total CPI have been compared to see if there is a correlation between them and Covid-19, and furthermore to get a picture of if the groups would have continued on the same path if the pandemic had not materialized to the world. Additionally, a graphical

⁴³ See 3.1 Willingness to Pay, Price Elasticity

analysis has also been made to get a clearer picture of what the regression looks like graphically, this is done for simplicity when comparing the periods before and after the pandemic.

To evaluate the quality of the research *validity and reliability* is used to indicate how well a technique, test or method measures the topic in question. Where *Reliability* on one hand is measured by consistency and *Validity* on the other hand is measured by accuracy. These assumptions are to show the extent of how the results can be reproduced when the research is repeated under the same conditions and to which extent the results measure what they are intended to measure.

All data sources used in the thesis are gathered from reliable sources such as SSB, where the data is public and therefore available to reproduce. However, because the pandemic is still ongoing, the data gathered do not include the entire dataset from the pandemic. Moreover, when working with large datasets such as CPI for each month over a twenty-year period the data may suffer from endogeneity, however, the omitted variable bias is removed with the use of fixed effects. Nevertheless, if one were to reproduce the analysis after Covid-19 is under control, with the new data, one would probably get different results to a certain degree as one sees the entirety of the data on a different level. Furthermore, the significant levels used for the regression, which have been used for simplicity, and if these levels were different the results of analysis would change.

5.DATA

This chapter will contain information about the data used in the thesis.

Since the thesis has been written during a still ongoing pandemic, and there have been uncertainties regarding data collection and interviews, the base of the thesis is gathered from information and statistics available digitally. Furthermore, the pandemic has caused businesses to close operations, while others became bankrupt and as a result of this workers were temporarily laid off. Therefore, the thesis has collected data from SSB as the primary source.

The delamination for the thesis would be that data retrieved only focus on physical CBT, thus, not focusing on e-commercial trade or duty-free sales in Sweden, as 90% of Norwegian CBT are towards Sweden (Andersen, 2021). Therefore, the price development in the grocery industry was tested with a focus on selected sensitive CBT products such as *alcoholic beverages, tobacco, and sugar*. As these products are products that individuals tend to buy across the borders due to the duties in their own country, which have been compared with a control group containing products such as milk, cheese, and eggs.

Description of Data The data used in the regression are taken from SSB's table: *03013: Consumer price index, by consumer group (2015 = 100) 1979M01 - 2021M04*, where data have been selected for *sensitive and non-sensitive* CBT products taken from subgroup level 1, to get a validated starting point in both groups. Where the groups are divided as All-Item index, Division, Groups, Sub-group 1, Sub-group 2 and Item and item groups. The Consumer Price Index (CPI) is the development in consumer prices for goods and services demanded by private households living in Norway. In addition, the sensitive products are categorized as the treatment group, the non-sensitive as the control group and treatment as Covid-19. As explained before, the treatment can be seen as a result of extremely high tax on ordinary borderline products from the Swedish government, or that the Norwegian government has taken extreme measures with removing all the taxes for the same products. Thus, dropping the CBT to an almost non-existing trade as the Covid-19 pandemic has caused.

Moreover, after careful consideration the *CBT sensitive goods* are *Spirits, Wine, Beer, non-alcoholic beverages, Tobacco, Chocolate, and sugar goods*, because these products are considered enticing products that Norwegians usually buy when traveling over the borderlines. Furthermore, the control group had to have equal or similar price development before the treatment and have different price development after the treatment. Thus, to be comparative enough to make a regression to compare price changes before and after Covid-19 to describe the relationship between a dependent and one or more independent variables. Therefore, the non-sensitive goods are milk, cheese, and eggs, which have been conjoined into the group of non-sensitive products. Before concluding that the products in the non-sensitive category were best fitted for the regression other categories such as bread, meat, fruit, vegetables and coffee etc. were tested. The results of these regressions had considerable variations before the pandemic in relation to the treatment group, therefore these were excluded in favor of the selected variables.

After separating the two groups, linear regressions were made, in the program R studio, where several *dummy variables* or binary variables were created. Dummy variables are commonly used in statistical analysis, and this creates one column with the value of 1 when a categorical event occurs and 0 when it does not occur (Kaplan, 2020). In the thesis model the dummy variables, *Sensitive goods, non-Sensitive goods, and Covid-19* were used to separate the treated group and control group, and CPI for these groups was used as the dependent variable as this shows the price development for the consumers goods. It was further tested with the fixed effects of the factors *YearMonth* and *ProductGroups*, in a difference in differences analysis. The analysis with discussion and interpretation of the results required after using the data is all explained and displayed further in *Chapter 6, Analysis, 6.2 Examination of Data*. One of the regression models used in this thesis are presented in *equation 3*.

Equation 3: Regression Model

$$CPI_i = \beta_0 + \beta_1 SENSITIVE_t + \beta_2 COVID19_t + \dots + \varepsilon_i$$

Where,

t = Representing the month

CPI_t = Monthly CPI of the product groups.

β_0 = The constant.

$\beta_1 - \beta_t$ = Regression coefficients that denote the strengths of each factor's impact.

$SENSITIVE_i$ = Dummy variable representing the presence or absence of sensitive goods.

$COVID - 19_t$ = Dummy variable representing the presence or absence of months affected by the pandemic.

ε_t = The error term.

However, the regression has as stated earlier used differences in differences with fixed effects to compare the changes in the results over time, between the treatment group and the control group, this regression is presented in *equation 4*.

Equation 4: Regression Model with Fixed Effects

$$CPI_i = \beta_0 + \beta_1 SENSITIVE_{it} + \beta_2 COVID19_i + ProductGroup_i + YearMonth_{it} + (SENSITIVE_i \cdot COVID19_i) + \dots + \varepsilon_{it}$$

where the fixed effects are the $ProductGroup_i$ and the $YearMonth_{it}$, these are parameters that are fixed for non-random quantities, and the and the ε_{it} are the residual term. To elaborate, the data may suffer from endogeneity bias, because of the omitted variables, as the non-sensitive products are omitted, therefore, the data may not be dependable. Moreover, when using multiple observations such as monthly CPI for each product group and looking at the effect on price development within each group, the pernicious effect of the omitted variable bias is removed, which is the intention behind adding fixed effects to the regression.

When presenting the data in graphs, to look at the trend for the two groups after and before the pandemic hit Norway, the mean data of CPI from all the product groups considered sensitive or non-sensitive for each month was used to compare the two groups. Furthermore, a smoothed average, which gives the new mean data a more equal weighting compared to the old data. These calculations do not refer to a fixed period but rather assemble all available data series into account. In this thesis $i = 5$ was used, to make the hard peaks of the graph more presentable, when doing so the *equation 5* presented below was used.

Equation 5: Smoothed Average of Data

$$Y_i = \frac{(X_{t-2}) + (X_{t-1}) + (X_t) + (X_{t+1}) + (X_{t+2})}{i}$$

where X is the *CPI* for the month being smoothed, t indicates the time period, and $t - 1$ is the month before X . To elaborate, if X is *CPI* for 2015M01, $t - 1$ will be 2014M12 and $t + 1$ is 2015M02.

The significant levels used for the regression is $*p < 0.1$, $**p < 0.05$, $***p < 0.01$, meaning that the variables that have the significant level of 0.01 have a 99.9% explanatory power of the dependent variable. These levels have been used for simplicity, as these are the most common to use when running a regression, however, if these levels were different the results of analysis would change.

The Limitations of the monthly price development is how the data is gathered because there is no data on the regions in Norway, but on the country as a whole. The thesis could not compare the price development between regions that are close to the borders and control regions that are further away. Further, it could be interesting to look at price development in regions that are more affected by the competition elimination from Sweden, compared to Rogaland etc., so see if there are considerable differences. However, data gathered are collected by a reliable third party and thus highly relevant, one problem is the lack of data as this is a condemnatory event, and therefore all the data from the whole period is not collected when this thesis are being written, and will therefore, surely see a great abundance of research in the near future. Another is that the data is in quite reduced form as the total effect of reduced competition are more complex than just the pandemic, and therefore, can other factors be bearing on the results.

6. ANALYSIS

This chapter contains the analysis of the research, including discussions and interpretations of the findings.

6.1 Examination of Data

The pandemic Covid-19 gives a unique opportunity to measure and further examine the effect CBT has, hence, the border closure causing an elimination of this competition. Therefore, the months before and during the Covid-19 pandemic within the two product groups is examined further. For the different groups price development, CPI, is used as a reference, as this provides the opportunity to look at data with a monthly perspective. Furthermore, these groups are divided into subgroups to better separate the sensitive and non-sensitive goods. Price development is also a good measure as it can be assumed that elimination of competition can be expected to further impact prices. To analyze this the competition for the Norwegian Grocery Industry towards Sweden with the CBT, a comparison of CBT sensitive and non-sensitive goods has been made.

The idea behind examination of the price development, was to test if the two groups changed their direction in development when the pandemic Covid-19 hit, and the following months after, with the expectation that the sensitive goods had a larger increase than what would be expected without closing of the borders. Thus, showing the effect of elimination of the competition over the borders. CPI for the different groups tested was all the years from 2000. To visualize the CPI development for the two groups graphs were made focusing on the year 2015, as this is the reference year as of 2017 for CPI.

It was important to find a control group which was similar during the years before Covid-19 compared with the sensitive goods, and that would be expected to have further similar paths if the pandemic did not hit. To elaborate, when the borders closed this could be seen as an extreme situation, where the shock of the Covid-19, was a large increase in duties in Sweden, and how this may have impacted the consumers to change their behavior and reducing the CBT. It could also be seen as if one of the largest participants of the Grocery Industry in Norway became the only provider, thus having a monopoly. The comparison of the two product groups is seen further in *Figure 19*.

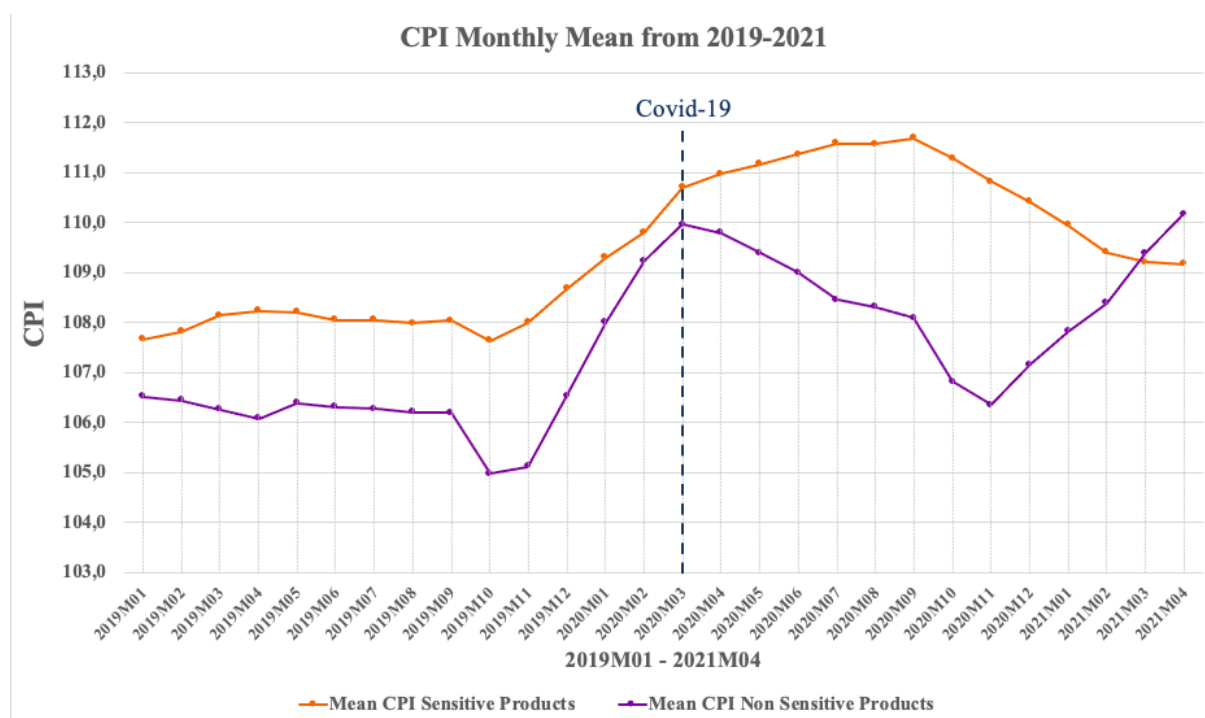


Figure 19: Monthly CPI Mean from 2019 to 2021, for CBT Sensitive and Non-Sensitive Product Groups

Figure 19 shows the monthly data of mean CPI from the year 2019 before the pandemic and the months after ranging from 2020M03 to 2021M04. The orange line is for the sensitive group and the purple is for the non-sensitive groups, and the blue line is where the Covid-19 pandemic hit Norway in March of 2020, at the point of 2020M03. Starting with a graph showing a narrow timeline to first examine the periods before and after the pandemic, to have a clearer view of the change between the two groups.

As figure 19 shows, the orange line, sensitive goods, has had a slight increase after Covid-19 hit Norway, but has a turning point in 2020M09. Comparing it to the purple line, non-sensitive goods, it seen the same changes only opposite, where after Covid-19 it has a decline before it flattens out in 2020M07 to 2020M09 and then sinks even more before it increases again in 2020M11. Additionally, exactly one year after the pandemic hit Norway, 2021M03, both lines meet, before changing in opposite directions once again. The two groups seem to be parallel in the periods before the pandemic, as figure 20 will show further with data from 2015. It is seen a switch before the pandemic hit indicating the groups were not as similar or were headed at different trends. Though it is interesting, because this shows the non-sensitive group, purple line, with a steeper increase. Thus, making the results with increased price development for the

sensitive group a more naturally a result of the lack of competition, closing of the borders, and not an expected trend that could be expected to happen without the pandemic. However, there might be some differences between the groups even without border closure, and the findings should therefore be looked at in light that these groups are not perfectly parallel. However, there is a chance that these changes may had occurred for other reasons than covid-19, including but not limited to increased demand for the selected groups, increased production costs, decreased supply, considerable changes in exchange rate or the fact that the price-hunting scheme was abolished in 2020. Though, the results can still be of value as it shows the importance of market competitions, and how complex pricing is with several factors impacting, this can also be seen in the shift in the opposite direction before the pandemic, and after the turning point with an even larger decrease. Thus, giving an interesting view in contradiction to the debate with lowering the duties is in focus, especially for the politicians.

To further show the parallel trend between the two groups *figure 20* displays this better, having data from 2015. Where, *figure 20* shows the development of mean CPI from the year 2015 to 2021, providing a more complex result of the two groups as they seem to be parallel though not perfectly parallel. Though seemingly parallel enough to provide valuable analysis, the results need to be interpreted with the thought that there could have been differences between the groups without the closing of the border. Nevertheless, the data used, are collected from SSB,

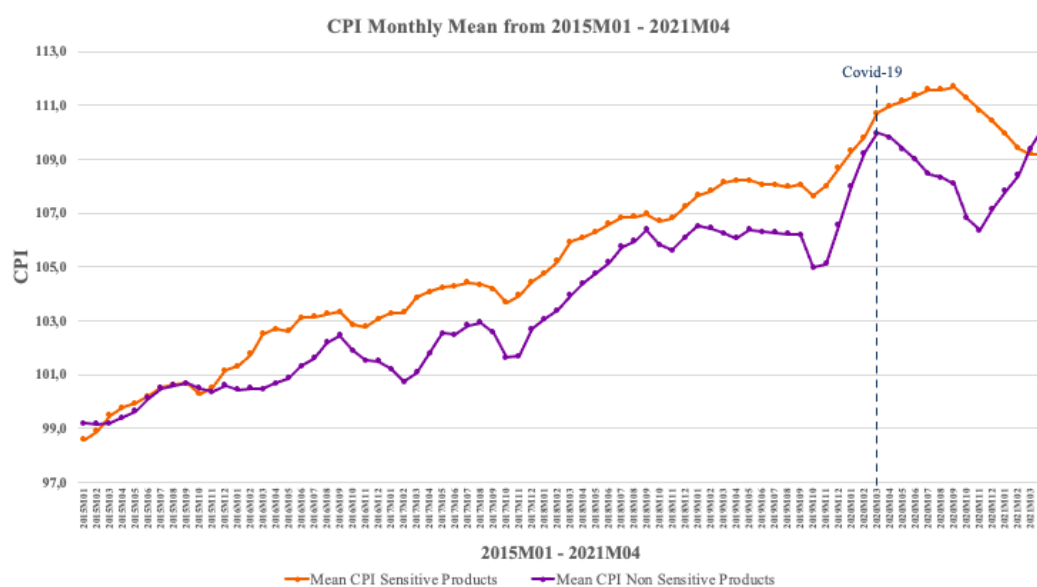


Figure 20: Monthly CPI Mean from 2015 to 2021, for CBT Sensitive and Non-Sensitive Product Groups

and are seasonally adjusted, leaving out the effect on seasonal changes. Therefore, even with some peaks in the same periods each year, the data have been adjusted for holidays etc.

Furthermore, testing the effect of elimination of competition, a regression analysis with differences in differences and fixed effects were conducted to compare the changes in the results over time, between the treatment group and the control group. After running the regression, these differences in price development between the two groups are even clearer, as seen in *table 2*.

Table 3: Results from the Regression, CBT Sensitive Goods Excluding Meat

	Dependent Variable: CPI			
	(1)	(2)	(3)	(4)
CBT sensitive	-5.025*** (0.601)	-6.513*** (1.137)	-5.025*** (0.326)	-6.513*** (0.544)
Covid-19	17.777*** (1.819)	17.777*** (1.755)	32.437*** (3.651)	32.437*** (3.111)
CBT sensitive(Covid-19)	8.651*** (2.572)	8.651*** (2.482)	8.651*** (1.393)	8.651*** (1.187)
N	2048	2048	2048	2048
Adjusted R²	0.151	0.209	0.751	0.819
Product Group FE	NO	YES	NO	YES
Months FE	NO	NO	YES	YES

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Nevertheless, the regression has included the same variables used to make the graphs in *figures 19 and 20*, which also addresses dummy variables such as *CBT sensitive*, *Product Groups* and *Covid – 19* to filter out the months and product groups needed to estimate how the price development has been before and after the pandemic. *Table 2* shows the results excluding the variable meat from the data, as after analyzing the data this variable differs too much from the others, in the sensitive group, mainly because of the duties the other variables have within the price. *Table 3* will show these results with meat for comparison.

Table 2 shows there is a change in the price development, with an increase of 8.7% for the sensitive goods during the Covid-19 months. This indicates that the price level was almost 9%

higher for the CBT sensitive goods in the months of the pandemic, making the point about reducing the duties questionable. Since reducing the duties often is thought of as a way to contribute to a lower price for the consumers, as the ongoing debate discuss. The analysis might show a different perspective, as it shows that eliminating the competition towards Sweden will increase the prices for the consumers, and not lessen it. Thus, showing the importance of market competition to provide the best prices in the favor for the consumers. The results of the regression analysis including the variable meat is listed in *table 3*.

Table 4: Result from Regression, CBT Sensitive Goods Including Meat

	Dependent Variable: CPI			
	(1)	(2)	(3)	(4)
CBT sensitive	-2.524*** (0.563)	-6.306*** (1.082)	-2.504*** (0.326)	-6.306*** (0.597)
Covid-19	17.777*** (1.794)	17.777*** (1.672)	32.437*** (4.051)	32.437*** (3.238)
CBT sensitive(Covid-19)	4.882*** (2.406)	4.882*** (2.243)	4.882*** (1.548)	4.882*** (1.238)
N	2304	2304	2304	2304
Adjusted R²	0.119	0.235	0.635	0.767
Product Group FE	NO	YES	NO	YES
Months FE	NO	NO	YES	YES

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 3 shows the result of increased price development for the sensitive group of 4.9% in the months after the pandemic occurred. Though a lower increase than excluding the category meat, it still shows us there is an increase. These findings are interesting as this indicate that it has been more expensive for consumers to buy the sensitive goods during the pandemic. Thus, underlying the importance for market competition for the consumers.

Furthermore, alternative explanations for the results of the increased price development are examined and discussed. One of these being the alternative explanation for an increased price development as the demand in Norway has been higher during the Covid-19 months. Or because there has been less to use money on, as many places have been closed down, travel restrictions, in addition to the use of home offices. This could cause a higher demand which could push the prices higher. However, then there should have been a shift in the non-sensitive

groups as well. It would have then been expected that the two groups would have continued to the path more similarity and be more parallel during the pandemic. Moreover, if this alternative explanation was the cause of the effect, then it would not have been this separation between the two groups as *figure 19 and 20* shows in the months after Covid-19 struck. The same could also be explained as another cause of the effect for increased prices, which could be the case if it would become more expensive to deliver the goods, that it might not have been as easy during the pandemic. Another reason is production costs have gone up under these months because it might be more expensive to produce, with the need to use more employees. Since this does not further explain why there should be a further separation between the groups of sensitive and non-sensitive, the explanation of reduction of competition causing the increase in the price development may hold. Showing that the sensitive goods have become more expensive for the consumers due to the lack of competition for the Norwegian Grocery Industry.

This is a natural experiment, and the analysis indicates this to have an effect on the prices, that the reduction of competition towards Sweden show. Though, there is a lot of changes that happen in the market, the empirical design the analysis has with comparison between the groups, with the control group with non-sensitive goods, across time, and with high frequency data, the analysis assumingly provides valuable results that is robust.

Additionally, a heterogeneity analysis was made, with further separation of the effect across sub-groups, to see which groups that *drive* the effect. There was conducted another regression analysis to see how correlated each product group variable was with the dummy variable *Covid – 19*, where the reference product group was Beer. The results are shown in *table 4*, and as can be seen, Sugar has decreased in price, which can be explained by the sugar duties being applicable from January 1, 2021. This may be a challenge as the reduction in duties only happens in the treatment group, but the data without this fee are only in 4 out of 72 months so the results should not differ that much with the fee included. Thus, this could be of interest as a recommended future research to examine this effect further.

Table 5: Regression with Covid-19 and Product Groups

Regressions with Covid-19 and Product Groups

Dependent variable: CPI		
	Estimate	Std. Error
Covid-19	21.524***	(3.493)
Covid-19:Bread & Cereals	-1.597	(4.940)
Covid-19:Milk, Cheese & Eggs	-1.343	(4.940)
Covid-19:Spirits	-0.156	(4.940)
Covid-19:Sugar, Yam, Honey, Chocolate & Confectionery	-12.435**	(4.940)
Covid-19:Tobacco	17.650***	(4.940)
Covid-19:Vegetables	0.389	(4.940)
Covid-19:Wine	2.125	(4.940)
N	2032	
Adjusted R²	0.217	

*p<0.1, **p<0.05, ***p<0.01

However, as seen in table 4 the variable *Covid* – 19 does have an effect on price development as the analysis of each group show the results of 21.5%. Furthermore, the regression analysis with *Covid* – 19 and the different product groups, displays significance results for the product group of Tobacco and for Sugar, which both are variables in the sensitive product groups. Though, these are seen with opposite directions, where Sugar is seen with a 12.44% decrease in the months with Covid-19, whereas Tobacco is the product group with most significance in the Covid-19 months, with an increase of 17.65%. This means the group of Tobacco has become significantly more expensive for the consumers during this pandemic and that it is tobacco that drives the effect of the price development done in this thesis. Indicating that the producers have increased the prices due to the lack of competition in the current market, with a shift on the supplier's side.

Moreover, as explained before the increase in price development with a 9% for the sensitive group, and 17.7% for the sub-group level 1 Tobacco might be traced back to the fact that the

competition from Sweden has been eliminated, but there may be other reasons why the prices have increased. These include but are not limited to increased demand for selected products, increased production costs, decreased supply, considerable changes in exchange rate or the fact that the price-hunting scheme was abolished in 2020. However, the thesis' analysis to test what the competition has to say on the Norwegian Grocery Industry, with the natural example of the pandemic the results indicates that the competition with Sweden does have an effect on the Norwegian Grocery Industry, and for the consumer this may cause the prices for sensitive goods to increase, when elimination competition. Which means that competition is also intuitively in favor of the consumer, and that the concept behind supply and demand is more complex, than just decreasing the duties on these products to reduce the CBT.

Besides, if the duties on sensitive products were reduced to Danish levels, reducing the CBT from 16 billion to 8 billion, who are the ones that emerged victorious from it and who bears the burden? One may argue that the consumers are in favor of it, because the duties on sensitive products have decreased and therefore, the products would be more affordable. However, the discovery in this thesis indicates it is not that straight forward, and the duties on these products are not the only factor when looking at price development, and the competition between producers is a larger variable than one might think. Therefore, as stated earlier the question of who actually bears the burden is complex, and as the analysis done in this thesis suggests even though competition from Sweden has been eliminated, the price development has increased. Which shows that it is not necessarily the producers but rather the consumers, who bears the burden, while producers receive large cash flows. Therefore, one could argue that if the government reduces duties, the manufacturers will increase prices and the consumer will end up paying the same price regardless of a reduction. Therefore, competition is essentially positive for the market and especially for the consumer, and the duties on products in Norway may be disciplining for producers.

7. CONCLUSION

This chapter will contain the conclusion of the research and analysis, with a recommendation for future research on behalf of the limitations seen throughout the process.

Cross Border Trade is of concern and a relevant topic as the Covid-19 pandemic has shown Norway a unique opportunity to further examine the topic, and its consequences. The concern is mainly focusing on what the consequences for having a CBT of this size might cause, with the loss of jobs, employees, and duty revenue for Norway. Thus, is the reason for debate and discussion on how this can be turned with a large focus on lowering the duties in Norway on the sensitive goods. Furthermore, the interesting part is that the analysis done in this thesis focusing on the price development might provide a different perspective to the debate.

The analysis shows the importance of competition in a market, as seen when Covid-19 struck, eliminating the competition over the borders of Sweden, displaying the effects this has on the Norwegian economy. Therefore, changes to the price development in Norway is more complex than one might expect when listening to the debate, as a reduction in duties is presented as the solution to lowering the price levels on several of the sensitive goods to compete more fairly with the Swedish goods.

Moreover, as the analysis shows, Covid-19 has caused an increase in 17.7% of tobacco alone and an increase of almost 9% in the price development of the sensitive products as a whole during these months. These findings show the effect of competition eliminations with a change on the supplier's side, which further causes a shift in the supply and demand curve. Thus, the question of who bears the burden of the tax; the consumers or the producers, is more complex than reducing the duties alone. Therefore, questioning if the CBT is bad for the consumers or rather if it is a good thing, the analysis shows that duties actually could discipline producers from increasing the prices of groceries, which supports that competition is clearly in favor of the consumers. Thus, should be taken into account in the ongoing policy debate on CBT between Norway and its neighbors.

Recommended Future Research for the topic of this thesis, is new examinations of gathered data as the pandemic develops and when the borders do open again. It would be of interest to look at the data for the whole period with elimination of competition when the pandemic is over. Furthermore, it could also be of interest to look at the data for the two different groups in the years after the pandemic, and to examine its paths more closely. Further, it could be interesting to look at price development in regions that are more affected by the competition elimination from Sweden, compared to Rogaland etc., so see if there are considerable differences. This, as it would be ideal to have high frequency price data for several regions, such as the analysis does not have to be defined only at product level, but additionally also at regional level. However, at the time the product groups used in this thesis do not have this data available.

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9. APPENDIX

9.1 Classic Economic Conditions

Classic Economic Models: Conditions

-
1. All goods are normal and without external effects. This means that consumers have a full overview of their preferences (complete consumer sovereignty) and that there are no disturbances in the market such as the bandwagon effect, snob effect or the wobble effect.

 2. There are a large number of producers and consumers and none of them have market power. This means that none of the players are so large that their decisions about consumption or production can affect the price - they are quantity adjusters. If a producer increases production, it means so little that there are no brands in the market. This means that both buyers and sellers perceive the price as given in industry.

 3. The producers produce completely identical products and for the consumers it does not matter who has produced the good.

 4. One assumes economically rational behavior among all market participants. This means that producers aim to maximize profits, consumers aim to maximize their own benefit.

 5. All market participants have full knowledge of all prices and about all relevant conditions. This assumption means that both buyers and sellers know just as much about the quality of the goods sold and there is no form of asymmetric information. This is often not the case. For example, someone who sells a used car usually has greater knowledge of the quality of the car than the buyer.

 6. The price in the market is determined in an interaction between buyers and choices without the intervention of any external bodies such as the authorities. Various price-regulating measures on the part of the authorities mean that there is no perfect competition.

 7. Market participants can enter and exit the market free of charge. There are no establishment barriers for new manufacturers and buyers also have no forms of ties.
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Source: SNL a), 2014

9.2 Restrictions in Norway (25 of March to 14 of April 2021)

[Coronavirus | Covid-19]
National measures
 Last updated 22 January 2021

These are national measures that apply to everyone.
 Check your local municipal website for local rules.

Most importantly of all:
 [Keep your distance. Wash your hands. Stay at home if you are unwell. Limit the number of people that you meet.]



Social contact

Everyone should limit social contact. It is recommended that meetings with other people take place outdoors, and to avoid visits of more than five guests in addition to those who are already living together. If all of the guests are from the same household, more visitors are permitted, however, the number of visitors must allow for physical distancing.
 Children in day-care facilities and primary schools may receive visits from members of their own cohort.



Shops

All shopping centres and shops must introduce limits on the number of customers permitted inside and control access to the premises in order to enable social distancing.



Restaurants, cafés, bars

Alcohol will only be served to persons also being served food.
 Licensed sales of alcohol will not be permitted after midnight, guests will not be admitted after 22.00.
 A distance of at least 1 metre must be maintained between guests not from the same household.
 All guests must be seated and alcohol will only be available by table service.
 Guest contact details must be recorded - subject to the guest's consent.



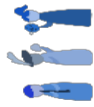
Arriving in Norway

All persons arriving in Norway must take a Covid-19 test at the border.
 Persons arriving from abroad must also provide proof of a negative test taken no more than 72 hours prior to entering Norway.
 All persons arriving in Norway must register prior to crossing the border.
 All persons arriving in Norway must quarantine for a period of ten days.
 It is possible to end quarantine as of day seven if the person entering Norway tests negative for Covid-19 on two occasions following their arrival.
 Persons who do not have a permanent home (rented or owned) or suitable quarantine accommodation in Norway must remain in a quarantine hotel. Confirmation of the availability of suitable accommodation issued by an employer or the party placing the accommodation at the traveller's disposal must be presented upon arrival in Norway.
 (Some groups are exempt from these rules, including those with society-critical jobs and children under the age of 12)



Travel

Avoid domestic and international travel unless essential.
 Travel to a place of study may be deemed necessary travel.
 Stays in cabins in Norway with members of your household remain permitted, but you must comply with local advice and applicable regulations.



Events

Most events should be postponed or cancelled. *If an event must be held in spite of this recommendation:*
 A maximum of ten individuals may attend private gatherings outside their own home, such as a birthday celebration in rented premises, if the private gathering is taking place outdoors, the limit is 20 attendees.
 A maximum of ten people may attend indoor events, while the limit is 200 people for events at which all members of the audience are seated in fixed seating. Up to 50 individuals are permitted to attend funerals, even if the seating is not fixed.



Sport and leisure activities

Children and young people under 20 years of age may train and participate in leisure activities as usual, and may be exempted from the recommendation of one-metre physical distancing when this is necessary for the activity in question.
 Children and young people may train both indoors and outdoors with their team or club, but matches, cups, tournaments, etc. for children and young people should continue to be postponed.
 Adults are not recommended to engage in organised activities indoors. Adults may participate in exercise outdoors if it is possible to maintain sufficient physical distancing.
 Elite sports are recommended to postpone all fixtures for two weeks.



Schools and kindergartens

Kindergartens and schools are currently ranked yellow.
 Municipalities may continue to rank lower and upper secondary schools as red until the end of this week, if they need to prepare for a transition to yellow, or they make a local decision to remain at red due to the infection situation.



Higher education

All universities, university colleges and vocational schools should use digital instruction where this is possible.
 All planned events should be digital and larger lectures and gatherings should be avoided.
 Students in areas without high rates of infection should have the option of in-person instruction at least once a week where it is possible to implement smaller groups and in accordance with infection control guidelines.



Workplaces

Working from home is advised for everybody who is able to do so.

