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Master

Economic impact, recovery and lessons learned by the Spanish flu and Covid-19 in Norway

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Abstract

This thesis provides an analysis of the macroeconomic and socioeconomic impacts on Norway by two detrimental pandemics, the Spanish flu and Covid-19. This is accomplished through comparative analysis of GDP per capita, stock market indices, mortality, unemployment, and other key indicators. These metrics highlight the social and economic consequences of pandemics in Norway. By utilizing the IS-LM Model and insight from Keynesian economics, this thesis explores how fiscal and monetary policies influenced the recovery efforts and long-term economic outcomes. The study identifies patterns of vulnerability and resilience, and aims to contribute with evidence-based strategies in the face of future policy making and crisis management.

Examining the consequences of the Spanish flu and Covid-19 pandemics, insight emerges regarding the economic resilience and crisis management strategies. The Spanish flu brought considerable economic and social disruption, defined by the high mortality rates, industrial decline and reduced trade. In addition to the pandemic, the first world war exacerbated this disruption. The limited public health infrastructure and modest economic policies in Norway at the time led to a slow recovery and highlights the vulnerability of minimal government intervention during pandemics. Adversely, the Covid-19 pandemic showcased the evolved pandemic response capacity of the Norwegian government, where swift monetary and fiscal policies, such as the lowered interest rate stabilized the economy post the initial short term economic decline. These proactive measures and the robust healthcare infrastructure facilitated a quicker recovery compared with the Spanish flu. Lessons to draw from the research and response of the Norwegian government is the importance of governmental intervention, preparedness and adaptable public health infrastructure with enhancing resilience to future pandemics.

Preface

Global challenges such as pandemics have throughout history left lasting marks on societies, shaping the economic and social landscape. These pandemics were the Spanish flu in the early 20th century and the more recent Covid-19 in the early 21th century. The focus of research is narrowed into a Norwegian perspective with a selection of comparisons to Denmark and Sweden. The reason for studying the Norwegian perspective of these pandemics is to contribute with knowledge to a less researched field. There is an abundance of research into both pandemics at the European, global and national levels, particularly in countries like the United States. Through reviewing the literature we found a gap in the research concerning Norway's impact and recovery from these pandemics, especially regarding the Spanish flu. The thesis is therefore born out of a fascination with the interplay between resilience and crises, and how societies like Norway navigate through pandemics.

The two pandemics with a century between them both presented a global challenge with far-reaching consequences. By scrutinizing the Norwegian response to these crises we aim at guiding future attempts at mitigating economic and social fallout caused by pandemics. This exploration will not merely be retrospective but forward-looking, aimed at gaining insight into the future. The disruption caused by pandemics have historically been an instigator for innovation, societal transformation and adaptive strategies. Understanding Norway's experience will tell a story of how the country navigates the complexities of crisis, and emerges with new strategies and strengths. We invite the reader to join us with examining the Norwegian economic and social narrative through the Spanish flu and Covid-19. Seeking to understand the intricate relationship between pandemics and impact on Norway, drawing valuable lessons for the future.

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1. Introduction

In recent years the Covid-19 pandemic has affected living standards and economies internationally. It has altered social and cultural norms with quarantine and travel restrictions. The pandemic has also affected technological development, remote work and education practices (Agrawal et al., 2021; Kang, 2021). The Covid-19 pandemic is considered one of the most severe pandemics since the Spanish flu. An examination of these pandemics reveals ramifications beyond immediate health implications. There is historical evidence of disruptions in labor markets, trade and production cycles during pandemics, which led to economic downturns. In the case of the Spanish flu these implications caused prolonged recession, and impacted social structures as fear and uncertainty, altering societal function and interaction (Asquith, 2020). Post World War II in the contemporary era, globalization and increased interconnectedness has heightened the potential for widespread and rapid disease transmission during Covid-19 (Antràs et al, 2023). By exploring historical pandemics such as the Black death, Cholera, Spanish flu, Covid-19 and smallpox their complexities can be unraveled and provide insight.

The reason for studying pandemics in an economic and social context is because of the complex nature and implications behind these global health crises, and it is vital to understand how crisis management has evolved. This study aims at answering three main research questions. These being; *(1) How was Norway impacted economically and socially by the Spanish flu and Covid-19? (2) How did Norway recover from the pandemics? (3) What lessons can be learned from how Norway handled the Spanish flu and Covid-19?*. To answer these questions this research will examine macroeconomic impacts and interventions such as gross domestic product per capita, Norwegian stock exchange indices, government spending and debt levels. Social consequences will also be researched, including metrics such as population, unemployment, and mortality rates. The degree of fiscal policy, monetary policy and stimulus implementation in Norway will additionally be considered. These interventions are a vital aspect of pandemic relief and recovery efforts on the national scale, and both socio- and macroeconomic facets were influenced by the government and central bank.

Investigating how Norway recovered from such deadly pandemics, and what can be learned from previous experiences is important. Research into pandemics contributes with insights

into the interplay between public health, social and economic dynamics in promoting resilience in the face of similar challenges. Exploring both socioeconomic and macroeconomic metrics will contribute to forming a more complete picture of how pandemics have impacted societies through time. Leveraging high-quality data from reputable sources such as SSB and the Central Bank of Norway enables us to do empirical investigation and analytical considerations.

The Spanish flu emerged in 1918, contradicting its name, the virus origin is uncertain but researchers largely agree it originated in the United States (Fujimura, 2003). The outbreak of the Spanish flu devastated global socio-and macroeconomic conditions and remains one of the deadliest pandemics ever recorded (Aassve et al., 2021). The pandemic is generally considered to have come in three recognizable waves, although not entirely consistent on a global scale (Saunders-Hastings et al., 2016). The waves came in the spring, fall and winter of 1918, and diminished in the spring of 1919. The Spanish flu would likely have gone unnoticed if only the first and third wave occurred, as the second wave of the influenza pandemic was the most detrimental and caused the majority of the increased sickness and mortality (Humphries, 2014). The death toll of the pandemic has been revised through the years, where the most recent assumptions estimate that 50 - 100 million people lost their lives to the influenza virus (Humphries, 2014; Mamelund & Dimka, 2021). Further estimates observe that about one-third of the global population was infected at one point during the three waves (Berche, 2022). The pandemic had a profound impact on societies worldwide and particularly affected young and healthy adults, unlike typical flu strains that primarily impact infants and the elderly population (Gagnon et al, 2013).

The Spanish flu also ravaged through Norway in 1918 and 1919, where the pandemic had far-reaching impacts (Karlsson et al, 2014). The virus affected a substantial portion of the population which resulted in around 15,000 deaths, disturbing the economy and social conditions in the country (Mamelund, 1998). The Labor market faced challenges with the workforce, as widespread illness led to a temporary decline in industrial activity, trade and overall economic output (Mamelund, 1998). The pandemic also influenced government spending and resource allocation. Regarding the social aspects of impact, the pandemic caused changes in behavior and norms regarding health practices. The fear surrounding the virus also affected spending patterns and caused a temporary economic disruption (Antràs et

al, 2023). Covid-19 arrived a century later and similarly to the Spanish flu, the world fell into yet another crisis.

The Covid-19 pandemic emerged at the end of 2019 and evolved into a global health crisis in 2020. The coronavirus SARS-CoV-2, is an infectious disease characterized by mild to moderate respiratory symptoms (Muralidar, 2020). However, a subset of the vulnerable population became seriously ill and required medical attention, mainly elderly and individuals with underlying diseases (World Health Organization, 2022). The virus originated in China but spread rapidly across borders leading to widespread lockdowns and unprecedented strain on the public health sector worldwide (Hafner, 2020). The Covid-19 pandemic led to socio-economic consequences, including economic downturn, loss of jobs, businesses going bankrupt, and disruptions to supply chains (Usoskin, 2021). Social measures and support systems were crucial to avoid deepening socio-economic divides as small and medium sized businesses, low-income workers, and the vulnerable populations were significantly affected, exacerbating existing imbalances (Wang & Mao, 2021).

Since the first case of Covid-19 in Norway on the 26th of February 2020, the pandemic led to health sector disruption and demanding economic setbacks (Folkehelseinstituttet, 2022). The Norwegian government implemented early and strict measures to contain the virus, including lockdowns, testing, and physical distancing. The first national measures were introduced on the 12th of March 2020 and were the most invasive measures in Norway since the second world war (Regjeringen, 2020, March 12). Schools, universities and gyms had to close temporarily to fulfill the social distancing. The lockdown resulted in an immediate increase in unemployment and layoffs (Statistisk sentralbyrå, 2024). A large portion of the Norwegian population had to work or attend school remotely (Statistisk sentralbyrå, 2021). It became a new way of living, and individuals as well as companies existed without foresight. The swiftness of the implementation of lockdown measures taken in Norway further assert the gravity of the Covid-19 pandemic. These lockdown measures had extensive repercussions on the Norwegian economy, and led to an initial decline in GDP and index prices in the domestic market. During crises like pandemics, there is a need for comprehensive strategies and understanding the underlying economic dynamics are vital.

This study aims at exploring the relationship between real-world challenges and economic theories. Providing valuable insight and knowledge in how societies can effectively navigate disruptions such as pandemics. To provide this insight the research will use economic theories such as the Kindleberger model in understanding and visualizing how socioeconomic and macroeconomic conditions are altered due to contemporary challenges such as pandemics (Aliber & Kindleberger, 2015). Charles Poor Kindleberger (1910-2003) mainly rooted his theories in financial instability, speculative bubbles and financial crises emerging due to behavioral dynamics and systemic vulnerabilities. The model is particularly beneficial in this study due to its exogenous perspective, which allows for broad analysis of the mentioned external factors to the pandemics (Aliber & Kindleberger, 2015). Pandemics have different impacts on a range of sectors, from healthcare to finance. Insights from theory like Kindleberger as societies seek to recover and rebuild from pandemics offer perspectives for how to mitigate future crises and grow societal resilience. The IS-LM model and Keynesian economics also emerges as useful analytical frameworks in the analysis. With the model originating in Keynesian economics, it offers insights into how monetary and fiscal policies intersect to shape aggregate output, demand, and interest rates within an economy (Hicks, 1980). The goal becomes to understand how economic policies influenced recovery efforts, societal resilience, and long-term economic outcomes.

There exists a gap in the research especially regarding the Spanish flu in Norway, and therefore understanding the specific impact, recovery and lessons learned by these pandemics in the Norwegian context is the purpose of this study (Borza, 2001). The main gap in research regards the lack of comprehensive comparative analysis between the two pandemics. Therefore, this study will examine the Spanish flu and Covid-19 socioeconomic facets and macroeconomic indicators comparatively in the Norwegian context. While there is an abundance of existing literature that provides insight into the global trends, a more detailed examination concerning Norway is essential. The study should contribute to a deepened understanding of pandemic implications in the Norwegian context and create broader preparedness with evaluating strategies implemented by the government. Findings from this research can contribute to building a more resilient framework for future pandemics, ensuring that Norway is better equipped to navigate the complexities at play. We aim to uncover patterns and responses to reveal how these pandemics have shaped the Norwegian economic and social landscape.

The contribution from this research is the comparative analysis of socio- and macroeconomic conditions during the Spanish flu and Covid-19 in the Norwegian context. In contrast to other research papers mainly portraying a global or generalized approach to the same problem statement (James et al., 2022; Liang et al., 2021) . By delving into the Norwegian context, we aim to address gaps and limitations in previous literature surrounding analysis and comparisons of GDP per capita, stock indices, mortality, unemployment, and government response. By utilizing credible data from authoritative sources such as Norges Bank and SSB, they enable us to execute a nuanced and fulfilled analysis. Finding patterns, similarities and differences will provide an understanding of the complex nature of pandemics. This will shed light on the resilience and adaptive capacity in Norway facing global crises. A complete understanding of the impact, recovery, and lessons learned may be critical in making evidence based strategies and policies in the future. This research is important as it may offer researchers, policymakers and public health officials historical context facing ongoing challenges and identify vulnerabilities and strengths in Norway's response strategies to pandemics (Bolisani et al., 2021).

2. Literature review

Understanding the existing body of literature regarding pandemics is vital to advance knowledge in this field. This literature review will critically examine scholarly works relevant to our topic. By researching existing literature, this thesis aims at providing a comprehensive overview, identifying gaps and highlighting trends within the research. Through exploration of different theoretical perspectives, empirical studies and methodological approaches, this review aims at contextualizing our research within the broader academic discourse. Critically engaging with existing literature will lay the premise for our empirical research. Offering a foundation upon which to build new insights and contribute to the advancement of understanding the impact and recovery of pandemics.

2.1 Pandemics

The Neolithic Revolution converted the population from hunter-gatherers to agrarian societies which set the stage for larger scale spread of infectious diseases between humans (Dobson et al., 1996). Developing trade connections between communities has also increased human-animal interactions, providing a channel for zoonotic pathogens to transmit (Piret et al., 2021). Furthermore, expanding cities and trade territories with an increase in travel has raised the possibility for outbreaks of diseases, causing epidemics and in some cases pandemics. This expansion also increased the risk of disease spreading through water contamination (Gupta & Kar, 2020, p. 1-6).

The terms epidemic and pandemic are used to characterize the occurrence of a specific health condition with regards to its geographical spread and frequency. An epidemic is an outbreak of a disease that spreads through local regions, while a pandemic describes an epidemic that has global spread (Madhav, 2017). Throughout human history there have been several recorded pandemics. The most notable of these being the black death, cholera, Spanish flu and smallpox, and Covid-19 causing mass disruption (Akin & Gözel, 2020).

Table 1: Historical pandemics

Year	Pandemics	Pathogens	First case of transmission to humans
1347-1351	Black Death	Yersinia pestis	Fleas and wild rodents
1817-1875	4 waves of Cholera Pandemic	Vibrio cholerae	Contaminated Water
1918-1919	Spanish Flu	Influenza A/H1N1	Avian
1085 BC-1977	Smallpox	Variola virus	Unknown, Zoonotic
2019-Present	Covid-19	SARS-CoV-2	Bats

Note, data from Sampath, S., Khedr, A., Qamar, S., Tekin, A., Singh, R., Green, R., & Kashyap, R. (2021). Pandemics throughout the history. Cureus, 13(9), e18136.

Water contamination and zoonotic transmission to humans are the most typical cause of pandemic. Alterations in the pathogens of these viruses makes them unique in their ability to impact a diverse population (Gupta & Kar, 2020, p. 1-6). This inflicts a heavy strain on healthcare systems while also influencing the economic, social and political space of countries. At its core, pandemics can be considered a manifestation of the complex interplay between human behavior, the emerging contemporary society and pathogens. This interplay merged with infectious diseases creates a potential for sustained human-to-human transmission, setting the stage for a pandemic (Fouchier & Wang, 2017). This transmission mainly occurs through direct contact, respiratory droplets, or fomites (Akin & Gözel, 2020).

As diseases cross geographical boundaries, it poses new challenges to public health infrastructure and coordinated efforts to mitigate its impact effectively is required. Throughout history, pandemics have haltered the progression of societies, and several of these pandemics are presented in Table 1. One of the earliest recorded pandemics, the black death, ravaged through the 14th century, and altered the medieval power dynamic between labor and landowners as well as the economic landscape (Gottfried, 2010). Further, the Cholera outbreaks in the Indian subcontinent during the 19th century caused governments and societies to recognize the existence of a relationship between public health and economic stability, through reduced sickness. The economic disruption of the disease therefore caused innovation in public health practices (Akin & Gözel, 2020). The Spanish flu had major economic consequences beyond the health impact, as it arose in the aftermaths of the first world war, which in turn intensified the economic challenges (Boberg-Fazlic et al., 2021). Smallpox has fortunately been declared eradicated by the World Health Organization in 1977

(World Health Organization, 2022). Despite this, the highly contagious disease caused population decline and societal imbalance through three millennia due to the high mortality rate. Covid-19 also followed the trends of previous pandemics by triggering societal, economic, and supply chain disruptions (Siddiqui, 2020). Compared with the previous pandemics, Covid-19 occurred in the contemporary era where measures such as lockdowns, travel restrictions and medical advancements affected the crisis.

2.2 Areas of impact

Regarding the impact of the Spanish flu and Covid-19, there are many debates about the areas influenced and to which extent. Pandemics' effects on socio-and macroeconomic factors are varying between different countries and continents. This study will benefit from comparing aspects of foreign research with previous studies regarding Norway, while examining differences and similarities from a critical view.

When comparing Norway to other countries, it should be of a similar demographic. There has been research on both the Spanish flu and Covid-19 in Sweden and Denmark and is therefore suitable for comparison. When examining the Spanish flu, researchers found that the mortality shock in Sweden resulted in close to 38 000 deaths, representing about 1% of the population (Karlsson et al., 2014). The earnings/capita ratio in Sweden only saw a drop of 2-3% due to the Spanish flu. On the other hand, there was a strong and positive effect in poorhouse rates (Karlsson et al., 2014). The consensus is that the Spanish flu caused an economic setback, making research on the Norwegian outcome compelling. Research on the impact in Denmark claims elevated incidence on the mortality of younger population between 1 and 15 years old, with a peak mortality at age 20-34 (Kolte et al., 2008). Denmark also faced challenges economically with increasing unemployment rates during the Spanish flu, and decline in income per worker of 5% from 1917 to 1918 (Dahl et al., 2022). Considering research evaluating other countries, the general statement is that lockdowns caused by the Spanish flu led to severe economic harm (Asquith, 2020; Yanovskiy & Socol, 2022). The European Central Bank suggests that a typical country's real GDP per capita saw a 10-30% drop between 1918 and 1919 (De Santis & Van Der Veken, 2020). Countries of similar demographic tend to have socio-economic similarities (Hoffmeyer-Zlotnik & Wolf, 2003). Considering this, it is reasonable to assume that Norway can be linked closely to Sweden and Denmark.

Social factors are inherently interdependent with economic conditions. The vast mortality during the Spanish flu impacted the economy negatively. Social conditions were critical and between 50 and 100 million people died from the Spanish flu on a global level, which in comparison to Covid is enormous numbers as the SARS-virus has led to about 7 million deaths in total (Humpries, 2014; Mamelund & Dimka, 2021; Worldometer, 2024). The pandemic led to surging spending into the public health systems worldwide, because governments recognized the need for improved disease surveillance, and emergency response capabilities (Liang et al., 2021). Unlike other pandemics, the Spanish flu led to numerous deaths among the younger generations (Gagnon et al., 2013). The research by Gagnon et al used records from the US and Canada, and found evidence that age 28 was the mode for this region (Gagnon et al., 2013). Research conducted by Mamelund and the Centre for Welfare and Labor Research (SVA) claims that certain people were not as susceptible to the virus, and this applied to the elderly population (Mamelund et al., 2020).

Covid-19 has led to a significant drop in the world economy, and provided a global recession. Different sources recorded differing data and findings when calculating the accumulated economic loss from the Covid-19 pandemic. Einar H. Dyvik presents through his research that the pandemic resulted in a global decline in GDP of two trillion dollars in 2020 (Dyvik, 2024). The Norwegian economy also experienced declines, as the GDP in mainland-Norway reduced by 214 billion 2019 NOK between February 2020 and November 2021 (Brasch et al., 2021). However, the world economy did recover and showed positive growth levels already in later stages of 2021 (Dyvik, 2024). Researchers and economists still suggest there are further repercussions not yet experienced from the pandemic (Naseer et al., 2023). The pandemic caused labor disruptions as millions of workers faced job losses, and sectors like hospitality, tourism and entertainment faced difficulties. Research done on several European countries found that tourist accommodation in these countries saw a decline by more than 50% (Nagaj & Žuromskaitė, 2021).

On a global level, both the Spanish flu and Covid-19 led to severe mortality due to the diseases (Mamelund, 2021). There is a significant difference between the two pandemics due to medical and societal characteristics. Researchers found that the virus from Spanish flu had a more rapid transmission rate than the SARS-virus that caused the modern pandemic

(Agrawal et al., 2021). Additionally, there are several societal conditions causing the higher mortality during the Spanish flu compared with Covid-19. They include less developed healthcare systems and occurring in the aftermath of the first world war, making the virus spread during population movements and poor living standards (Simonetti et al., 2021). Researchers agree that both pandemics have caused significantly negative impact on the global economy (Liang et al., 2021; Usoskin, 2021). The Covid-19 pandemic led to significant psychological impacts, increasing stress, anxiety, depression, and other mental health issues (Kupcova et al., 2023). Education and learning was also impacted, as closure of schools and universities led to disrupted education systems (Lapon, 2022).

2.3 Recovery phase

Response and recovery are vital for returning to normal circumstances after pandemics. The first aspect of recovering is to respond to the critical challenges suffered during the pandemics. Challenges were economic instability, strain on health systems, and social structures. The Spanish flu swept across the globe in the aftermath of the first world war, staggering societies and causing social and economic disruption. Covid-19 caused similar disruptions, and it is therefore vital to investigate the recovery from these crises.

The recovery period from the Spanish flu began immediately following its peak in October 1918 (Humphries, 2014). It was a complex process to recover from a pandemic that led to such vast numbers of sickness and death. There were no medications or vaccines available during the Spanish flu, which exacerbated the devastation caused by the pandemic (Fouchier & Wang, 2017). Governments saw the need for new investments into key sectors including healthcare, transportation, and sanitation (Mamelund, 1998). The Spanish flu sent a shock through the labor market as widespread illness and mortality led to instability in the economy and a declining labor market. When it receded, the labor market slowly re-stabilized but with lasting effects on both workforce composition and wages (Mamelund, 1998). In the years following the Spanish flu and World War I, the United States experienced a boom in the economy (Bishop, 2020). The US experienced a 12% unemployment rate in 1920, but following the recession caused by the war and pandemic the country saw a rise in their conditions with the start of “the roaring twenties”.

In Europe there was relatively strong economic performance during the 1920s. This growth was mainly driven by increases in the total factor productivity (TFP), triggered by structural and technological advancement (Rosés & Wolf, 2008). This economic performance was not universal as northern Europe experienced economic stagnation in the 1920s, influenced by high unemployment and overvaluation of exchange rates in Scandinavia and Britain (Broadberry, 1984). Norway chose neutrality during the first world war, but economically sided with the allies and the UK through treaties. These treaties provided economic growth in Norway between 1915 and 1916 due to profits of the naval fleet, however the growth stagnated as Germany declared naval war in 1917 (Grytten, 2021). Norway lowered interest rates and increased the credit limit leading to high inflation and stock market boom between 1919 and 1920. From 1920 the depression hit Norway and GDP declined in 1921 exacerbated by the previously implemented inflationary policies and subsequent tight monetary policies (Grytten, 2021).

Covid-19 took place within a more advanced and modern society in comparison to the Spanish flu, and had better healthcare systems, and more globalized societies. In contrast to the Spanish flu, vaccines were introduced and facilitated for a quicker recovery (Simonetti et al., 2021). Public health measures like social distancing, mask-wearing, and regular testing was an essential part in controlling the rapid transmission of the virus. Norway and Sweden have similar demographics, economies and governments but chose completely opposing approaches in handling the pandemic (Ludvigsson, 2023). To recover from the pandemic, Sweden chose an approach where they refused to enforce strict lockdown measures, but instead relied more on voluntary and sustainable mitigation recommendations (Björkman et al., 2023).

The difficulties posed on the economic conditions in Norway led to the government contributing with stimulus and support measures. The Norwegian government therefore spent 131 billion NOK in stimulus packages in 2020, and above 90 billion NOK in 2021 (Finansdepartementet, 2021). The government was obliged to intervene as firms had to shut down, and people lost their jobs. The Norwegian stock exchange plummeted in line with the rest of the financial markets as strict measures were introduced, it created uncertainty and fear. The OBX GR index was shocked by the pandemic and bottomed out in March 2020 (Euronext, 2024). The Norwegian currency moreover experienced a significant decline in

value against major currencies. It lost a quarter of its value against both the Euro and the USD between January and mid-March 2020 (Tradingview, 2024). Losing domestic value against other currencies has a negative effect for companies selling goods and services in NOK. Some Norwegian industries were less affected as exports sold in foreign currencies instead increased Norway´s trade balance (Dogru et al., 2019).

2.4 Lessons learned

Research into pandemics emphasizes the importance of early intervention and preparedness in containing the economic and socio economic impact of these crises. Doran et al. (2023) reviews 169 research papers regarding pandemics on a global scale. Through their research it is evident that socioeconomic factors exacerbate pandemic effects. The study highlights that pandemics have a disproportionate impact on the marginalized and lower income communities, echoing parallels between the Spanish Flu and Covid-19. Addressing these disparities is crucial for equitable pandemic response, as emphasized in the literature (Doran et al., 2023). The mortality of the pandemics further varies across countries, where India, Spain and the United States experienced considerable mortality rates due to factors such as population density, public health measures and healthcare infrastructure during the Spanish flu (Barro et al., 2020). With regard to the Covid-19 pandemic, India, the United States and Brazil were faced with significant mortality rates (Barro et al., 2020; James et al., 2022). India and the United States both suffering significant mortality rates from both pandemics indicate a recurrent theme in their societies, highlighting the importance and further development of healthcare capacity, preparedness, and response strategies.

Research committed by the European commission finds that there are detrimental effects of misinformation, hindering pandemic-containment efforts. Their research encompassed how modern advancement in technology and social media influenced the scale of misinformation during Covid-19 (Caceres, 2022). Although access to large-scale communication was limited during the Spanish flu. The pandemic also brought challenges with communication and misinformation. Despite the efforts of public health authorities, the spread of rumors and misinformation caused public confusion globally and hindered containment efforts (Parmet and Rothstein, 2018). Stressing the importance of clear, transparent communication from trusted sources.

During the 1918 pandemic the health care systems around the world were strained because of limited medical resources and infrastructure (Parmet & Rothstein, 2018). Similarly, Covid-19 exposed weaknesses in resource distribution and healthcare capacity, where less developed regions and countries were heavily affected (Filip et al., 2022). The pandemics also highlighted the socioeconomic problem areas with regards to support systems and societal resilience (Parmet and Rothstein, 2018; Barro et al., 2020).

The Spanish flu had a diverse effect on countries' economic activity. Countries that were involved in the first world war such as Germany, France, Great Britain, Russia, and the United States experienced disruptions in their economic output due to the war and pandemic impact on demand and labor supply in the late 1910s (Rockoff 2004; Lopez & Mitchener, 2018). Within the context of Covid-19, countries that revealed significant economic downturns were Italy, Germany, China and the United States. This downturn was caused by factors such as reduced consumer demand, financial market volatility, lockdowns and supply chain disruptions (Barro et al., 2020).

Examining the literature, researchers tend to agree that proactive public health responses are one of the most critical aspects of mitigating pandemics. South Korea, Taiwan, Singapore and New Zealand swiftly implemented effective public health measures during the Covid-19 pandemic, such as contact tracking, targeted lockdowns and widespread testing. These measures helped mitigate the spread of the virus and minimized the economic disruption within their countries (Kim et al., 2022; Summers et al., 2020). Historical accounts reveal that Great Britain, Japan and the United States were aware of the importance of early intervention and coordinated public health efforts with limiting the spread of disease and minimizing mortality during the Spanish flu (Barro et al., 2020 ; Tomes, 2010). Policymakers have been implementing various monetary and fiscal measures to limit and mitigate socio- and macroeconomic impacts of both pandemics. In the case of the Spanish flu, Great Britain and the United States implemented measures such as isolation, quarantine, and public health campaigns to combat the spread of the virus and reduce the pressure on healthcare systems (Barro et al., 2020 ; Tomes, 2010). These measures showed positive results and were therefore continued in future pandemics such as Covid-19. Canada, the United States and European countries implemented unemployment benefits, liquidity support to businesses and

stimulus packages to alleviate pressure on the economy and reduce economic and social fallout caused by the pandemic (Valla & Miguet, 2022).

2.5 Previous literature in the Norwegian context

Regarding Norway there is less literature to examine but some researchers are important to note. These being Svenn Erik Mamelund, Ola H. Grytten, and research into historical monetary statistics from Norges Bank. Research by Fredrik Moracchioli Lura, Tom Borza and the collective work of Ursin, Skjesol, and Tritter has also proved crucial with understanding the Norwegian context. The historical monetary statistics for Norway from 1819 to 2003, compiled and researched by Eitrheim, Klovland, and Qvigstad and the Maddison Project provide vital data for understanding the economic impact of the Spanish flu pandemic. These comprehensive studies allow for analysis of key economic indicators like stock index prices and gross domestic product (Eitrheim et al., 2004).

Fredrik Moracchioli Lura with Ola H. Grytten as advisor has written a master`s thesis regarding comparative analysis on the macroeconomic effects of the Spanish flu and the Covid-19 pandemic in Norway. His work suggests that the Spanish flu experienced a substantial loss of workforce due to high mortality rates, impacting the GDP negatively (Lura, 2022). Covid-19 resulted in comparatively fewer workforce casualties. The long-term consequences of governmental interventions during Covid-19, such as monetary, fiscal and social policies are expected to persist and halt the economic growth, according to Lura. As the Spanish flu continues to fade with time from Norwegian history, Covid-19's global impact and the pervasive influence of social media make a similar fate unlikely (Lura, 2022). His analysis further suggests that while deaths are inevitable, the measures taken to combat Covid-19 may prove more detrimental to the Norwegian economy in the years to come (Lura, 2022).

Sven Erik Mamelund´s research provides valuable insight into economic and socio economic conditions in Norway during the Spanish flu. His work includes various aspects such as mortality rates, societal response and the pandemic´s transmission (Mamelund, 1998; Mamelund, 2003). Parts of his literature explores how the pandemic affected regions differently in Norway, examining disparities in mortality and infection rates across rural and urban areas. By dissecting factors such as local healthcare infrastructure, socioeconomic status and population density, he shed light on dynamics that influenced the pandemic's

course. Mamelund further investigated the effectiveness of implemented public health measures, such as school closures, public gathering restrictions and quarantine. To evaluate the impact of these interventions on reducing mortality and spread of the pandemic he analyzed archival records and historical data. In addition to his empirical research, he engaged with research considering long-term consequences of the Spanish flu in Norway. He considered the implications for healthcare preparedness, societal resilience and public health policy, and how these offer important insights for efforts in combating infectious diseases. His study into the Spanish flu in Norway highlights the importance of timely and well enforced public health measures, and a strong healthcare system. (Mamelund, 1998 ; Mamelund, 2003; Mamelund, 2004).

Ola H. Grytten is a renowned economic historian and has extensively researched the economic history of Norway. His work primarily revolves around national accounts, economic growth, unemployment and business cycles (Grytten, 2021). Grytten's research has largely been used in this study to contextualize the economic impact of Spanish flu in Norway through unemployment (Grytten, 1995). The research into unemployment rates in the interwar period coincides with the Spanish flu pandemic. His key findings are that Norway faced severe economic challenges in this historical period, affecting the unemployment. Additionally the rates were influenced by domestic factors such as labor market inefficiencies and structural shifts in the Norwegian economy. Grytten highlights that government intervention, although limited, had a role in reducing unemployment. The overall economic conditions in Norway remained challenging in the interwar period affecting the population (Grytten, 1995; Grytten, 2021).

Tom Borza's research committed by the Norwegian medical association provides perspective on the Spanish flu impact in Norway. His studies are centered around historical accounts and epidemiological data and offer insight into the severity and spread of the pandemic in Norway (Borza, 2001). Borza's research examines similar factors to Mamelund, evaluating how Norway grappled with challenges posed by the Spanish flu and reinforces the findings of Svenn Erik Mamelund. Especially regarding the varied effectiveness of public health interventions and the need for a robust healthcare system. Ursin, Skjesol, and Tritter's recent study from 2020 investigates the Covid-19 pandemic impact on Norway, highlighting the policy response. Through their qualitative analysis the research explores how the social implications dominated the discourse surrounding Covid-19 policymaking. Their study

underscores the importance of considering the broader societal factors that shape pandemic responses and further emphasizes the importance of adaptive policy frameworks that targets healthcare and socioeconomic challenges (Ursin et al., 2020). By incorporating insight from these and other studies it enriches our understanding of the complex dynamics between pandemics, macroeconomics, public health and socioeconomic factors in the Norwegian context.

The literature review explores the varied impacts of the Spanish flu and Covid-19 in Norway, highlighting the pandemic's effect on the public health, economy and the society. Further it compares Norway to Sweden and Denmark, where disparities in economic downturns and pandemic responses are emphasized. Lessons learned through the literature review is the importance of early intervention, robust healthcare systems and strong pandemic responses. In the Norwegian context, researchers like Svenn Erik Mamelund, Ola H. Grytten and Tom Borza offer insight into the impact of the Spanish flu in Norway. Covid-19 studies by Fredrik Moracchioli Lura and Ursin, Skjesol, and Tritter reveal the pandemic's repercussions and policy responses. The literature review highlights the complex interplay between pandemics' effect on macroeconomics and socioeconomics, where researchers advocate for more interdisciplinary research and evidence-based policymaking to address future global health crises effectively.

3. Theory

Shocks to the economy during pandemics such as the Spanish flu and Covid-19 are exogenous to the economic system. These shocks originate from external factors that are outside the control of economic agents (Callegari & Feder, 2022). The following theory will serve as a foundational framework through which to understand the impact, recovery and lessons learned from pandemics in Norway, and its implications within the field of economics and crises. To answer our research questions there is a need for a comprehensive overview of existing literature, key theoretical perspectives and debates relevant to the study. Theoretical concepts, models and frameworks will therefore be discussed.

Economic theories through models and frameworks can be used to understand how economies work, and how they interact within different contexts (Gibbard, 1978). They are simplified descriptions of reality, outlined to yield hypotheses about economic behavior (Ouliaris, 2011). The theories are guiding economists in predicting outcomes and understanding the mechanisms that influence the economy. Economic theories are usually divided into several categories whereas Keynesian and neoclassical theory are the most common (Gintis & Bowles, 1982). In this study Keynesian economics will be incorporated to answer the research questions.

3.1 The Kindleberger Model

The model was developed by the American economist Charles P. Kindleberger. It is a theoretical framework used to explain and understand the dynamics caused by financial crises within a global economy. The model was established in his book “Manias, Panics, and Crashes: A History of Financial Crises”, and provides valuable insight into how speculative bubbles emerge, evolve and collapse as well as how economic disruptive events lead to financial instability (Aliber & Kindleberger, 2015). The Kindleberger model is also influenced by Human Minsky's theory regarding stability breeding instability in financial markets (Minsky, 1992). The model is usually presented in five stages: Boom, euphoria, crisis, revulsion and displacement.

The Kindleberger model proposes that financial crises are often preceded by periods of excessive credit expansion and speculative euphoria in asset markets (Aliber & Kindleberger,

2015). The mentioned euphoria is in most cases driven by factors such as favorable economic conditions, low interest rates and easy credit availability. As the market becomes oversaturated with investors, prices of assets detach from their intrinsic value. This is mainly driven by the expectation of assets to further increase in value rather than fundamental market factors. When this detachment happens it sets the base for the economic bubble to continue inflating and becoming more fragile. When the market becomes fragile any shock or shift in the market can trigger a panic. These shocks could be natural disasters, heath crisis or economic crashes. Investors will because of this panic be inclined to sell their exposed assets, leading to a decline in price. This loss of confidence often rings throughout the financial system, resulting in contraction of credit availability and a financial crisis. The model usually is represented by five stages, these being: Boom,euphoria, crisis, revulsion and displacement.

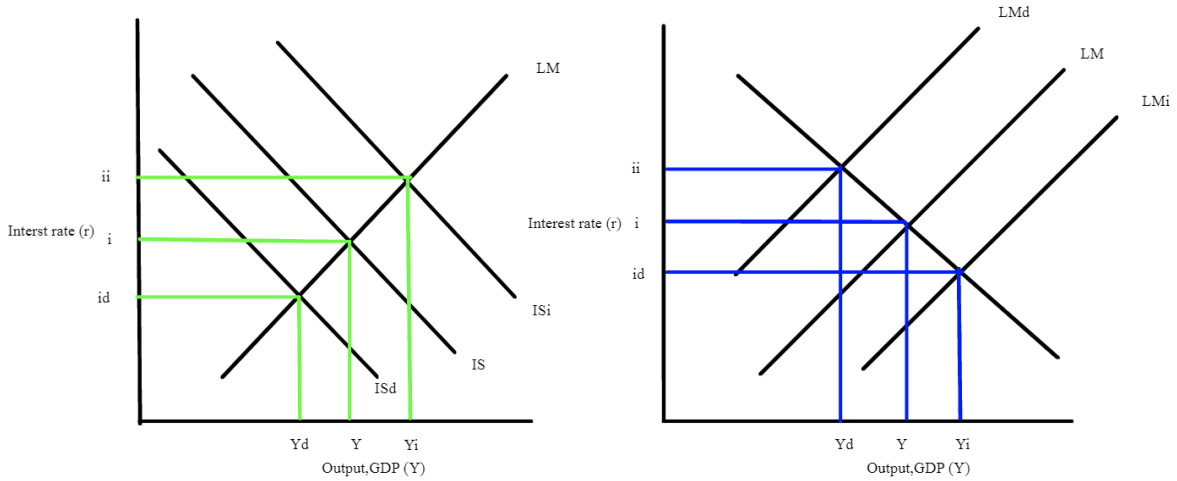
The Spanish flu and the Covid-19 inflicted uncertainty and fear which presented a shock to economies. This unpredictability of the future rapidly influences the stock markets and gross domestic products of countries. In contrast to the general theory of the Kindleberger model, the trigger was solely the health crises and not necessarily an oversaturated economy. In the face of uncontrollable health emergencies, investors tend to retain their investments (Dash & Maitra, 2022).

3.2 The IS–LM model

The Keynesian approach to macroeconomics, named after John Maynard Keynes (1883-1946), highlights the particular role of aggregate demand in terms of accelerating economic growth and employment levels. The IS-LM model is a fundamental element of Keynesian economic theory (Hicks, 1980). This model offers a structured framework in analyzing macroeconomic dynamics, in particular the aspect of short-term fluctuations in interest rates and output. The theory is rooted in concepts of aggregate demand and the equilibrium between investment-saving and money supply. Further, the model aims at providing insight into the dynamics between monetary and fiscal policies in shaping economic growth and stability. By using Keynesian economics and the components of the IS-LM model, it is possible to gain a more in depth understanding of how government policy and intervention impact aggregate demand, output levels and interest levels within a certain economy. The IS-LM model serves as a valuable tool in dissecting historic economic challenges, such as Covid-19 and the Spanish flu in Norway (Hicks, 1980; Romer, 2020). In

spite of complications and criticism surrounding the model's real-world application, it continues to be a valuable framework in analyzing and managing macro- and socioeconomic events (Colander, 2003).

Figure 1: Classic IS-LM model



Note. Representation of the IS-*LM* Model with an upward sloping LM curve. Own work.

In Figure 1, the traditional IS-LM Model is portrayed and represents the interaction between the goods market in the IS curve, and the money market with the LM curve. In the classic framework, the LM curve slopes upwards and reflects the positive relationship between interest rate levels and the level of income that equates the demand and supply of money in the market. Investment-Saving (IS) curve slopes downwards because lowered interest rates stimulate investment and leads to increased levels of income and output (GDP). The IS curve is derived from the equilibrium in the goods market and can be denoted as:

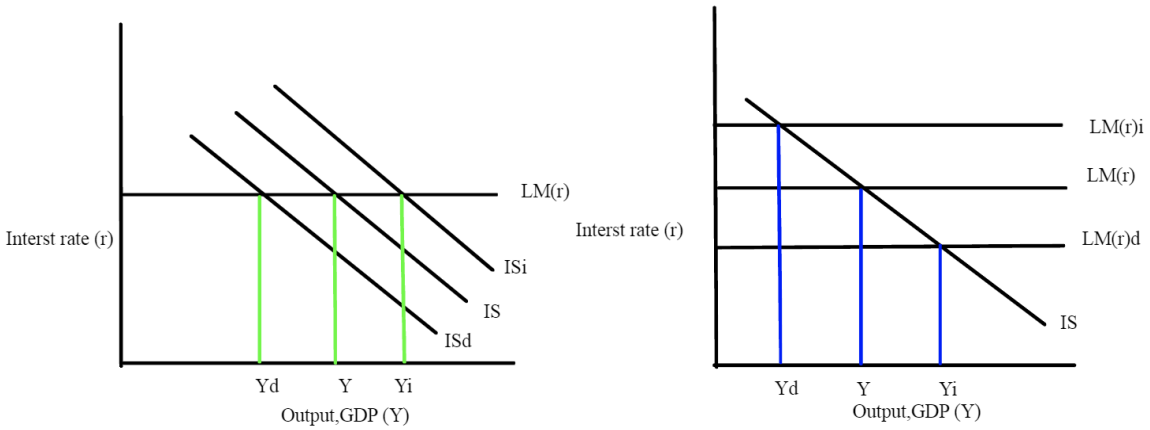
$$Y = C(Y - T) + I(r) + G + NX \quad (1)$$

Where (Y) is the GDP output given by the national levels of consumption $C(Y - T)$, investment $I(r)$, government spending (G) and net exports (NX). Liquidity preference-Money supply (LM) curve slopes upwards in the model to express how higher levels of income increases the demand for money. Leading to increased interest rates if the money supply is assumed fixed. The LM curve can therefore be denoted from equilibrium conditions in the money market:

$$M/P = L(Y, r) \quad (2)$$

The (M) is the nominal money supply and (P) is the price levels that equals the demand for money $L(Y, r)$. The LM equilibrium (L), further depends positively with the income levels (Y) and negatively with the interest rate(r). The equilibrium of the model is given by the intersection of the two curves and this point represents the level of interest rate and output where the goods and money market are in equilibrium.

Figure 2: Modern IS-LM model



Note. Representation of the IS-*L*M Model with a horizontal LM curve. Own work.

In Figure 2 the modern interpretation of the IS-LM model is presented with a horizontal LM curve. Oliver Blanchard and David R. Johnson details this evolved way of presenting the model in "Macroeconomics" (Blanchard & Johnson, 2013, pp. 40-108). The models in Figure 2 represent a scenario where the central bank fixes the interest rates and also adjusts the money supply to meet demand for money at this fixed rate. Using this approach, the interest rate is effectively decoupled from changes in the money market, and makes monetary policy a primary tool with stabilizing the economy. The LM curve is therefore denoted as $(r = r\ ^*)$ where $(r\ ^*)$ is the interest rate set by the central bank. By utilizing the modern and classic IS-LM model frameworks, this research aims at understanding the macroeconomic impacts of the pandemics and the role government intervention has in stabilizing the economy. Theoretical insight from the classic model will be applied to the Spanish flu, and the modern presentation of the model to the Covid-19 pandemic, due to the differing policy interventions and evolved theory.

4. Method

This chapter will introduce methodology used to label the research questions. Presenting the techniques for collection of data and what procedures and systems used to analyze the findings, it provides a comprehensive overview of the framework of the research paper. The research design, collection of data, validity and reliability, ethical considerations, and tools used to expand the research, are all crucial parts in the investigation of the research questions concerning the Spanish flu and Covid-19. By employing a vigorous quantitative approach, the research will provide precise insights, and form a credible and depthful analysis.

4.1 Research design

Our research design presents the framework of research methods and is a critical component of any scientific investigation (Ravitch & Riggan, 2016, p. 195). The design chosen should improve the research methods and align it with this subject by addressing research questions, and drawing valid conclusions. It encloses the overall plan and should ensure the validity, reliability, and generalizability of findings. This will enhance the paper's credibility and influence research outcomes.

The research objective has been to analyze and get an articulation of the interaction between socioeconomic and macroeconomic factors during two of the most detrimental pandemics since the 1900s. By examining impact, recovery, and lessons learned, we can analyze how all stages of the pandemics have affected Norway. It provides valuable insights into handling future crises. The research questions are leading lines to ensure the problem statement is answered. A quantitative approach is used to answer the research questions as it provides the research with data and metrics used in analyzing the impact and recovery of the Spanish flu and the Covid-19. Data from reliable sources has been programmed to be present in graphs. By programming the data, we are ensuring a research paper with a format presenting the findings effectively.

The sampling strategy for the research paper was finding the metrics significant to our research questions. In order to improve the research paper, the amount of metrics are limited to key statistics. Finding the most important metrics from both the socioeconomic and macroeconomic facets will make the paper more clear and orderly. Through this research we

examined data from the before, during and after the two pandemics primarily ravaged. Using the before and after as benchmarks for our findings. Data from other Scandinavian countries, such as Denmark and Sweden, has been included to make a comparative analysis of the key metrics. Benchmarking the Norwegian data with similar countries provides a more comprehensive scope of study.

4.2 Types of data

By collecting accurate data from reliable sources utilizing equivalent methodology, it is possible to make comparative analysis of GDP per capita, unemployment, stock market performance, and mortality metrics. Collecting data enables us to investigate similarities and differences between the two pandemics, and predict future trends. Though comparison is possible, it is important to acknowledge how the world has developed in the century between them.

The findings of the research are supported by secondary data serving as the empirical foundation. Secondary data is defined as data already collected through primary sources and made available for researchers. The sources of data are government-collected statistics, historians, researchers and health journals. Secondary data ensures a shorter collection time which enables spending more time analyzing the data and answering research questions. Sources of data are more accessible to retrieve from Covid-19 as the pandemic occurred in the modern time, while data from the Spanish flu originates from the early 20th century. This requires cautiousness and a critical view on the secondary data. Numerous sources from the Spanish flu tend to associate the data with the first world war, leading to significant overlap in the statistics.

Quantitative data are represented numerically, including everything given a numerical value, be counted or measured. In our data section, quantitative data will be provided in tables and graphs, and substantiate our findings for upcoming discussion and analysis. The quantitative data is transformed into datasets for modeling graphs and tables considering GDP per capita, stock indices, mortality, unemployment, and population. The research seeks to compare, quantify, and analyze the pandemics using numerical data. This enables the analysis to identify patterns, relationships, and trends in the different variables, and aid in discussing and comparing the Spanish flu and Covid-19.

4.3 Validity and reliability

Validity indicates the extent to which observations accurately represent true findings and is typically divided into two parts: Internal- and external validity (Sekaran & Bougie, 2016, p. 137). The internal validity is the degree of confidence that the causal relationship you are testing is not influenced by other factors. This validity is relevant as the first world war potentially influences the data regarding the Spanish flu. External validity is whether causal relationships can be generalized to different measures, persons, and times (Sekaran & Bougie, 2016, p. 172). The most important aspect when examining validity in research, is ensuring that it measures the phenomenon it is supposed to. To achieve this validity the research design has to be carefully selected.

Reliability in research refers to consistency, reproducibility, and stability of the outcomes of the study (Heale & Twycross, 2015). Consistency in measurement outcomes is essential for the research in terms of having accurate and precise data to provide trustworthy findings. To achieve the desired reliability, procedures are implemented to minimize sources of error in the research. This study requires source criticism in order to have our findings aided by valid and reliable data, as the Spanish flu occurred in a less scientifically advanced society.

Aligning the data with reliability and validity is essential when comparing different Scandinavian countries. The data is withdrawn from different national and regional sources. They tend to present the data in different ways and have different methodology, which makes the data-collection challenging. An example is mortality data from the influenza in Norway, collected by Mamelund, where the data also includes pneumonia (Mamelund, 1998). In comparison, Sweden and Denmark present influenza mortality by themselves. This can question if the validity of the data is at a respectable level. Another example is the life expectancy data in the different countries. Norway and Sweden have aggregated men and women, but Denmark separates men and women. Sweden and Denmark further provide data on life expectancy in five year intervals. Norway has dynamic life expectancy data, updated each year. For these reasons, the reliability of the life expectancy data can be questioned.

To ensure validity and reliability in our research paper we engaged several methods. Quantitative data were utilized to certify a clear data collection and analysis, resulting in replicable results. Sourcing data from government statistics and acknowledged historical

archives, ensures authenticity in the study. Collecting data across different time periods, our methodology has been notably consistent to exclude potential errors and biases. Furthermore, we enhanced the generalizability of our results, by utilizing comparative data from Sweden and Denmark to benchmark our findings. Additionally, we critically examined data, to be conscious of possible imperfections in historical recordings, and verified them with multiple references to ensure reliability. Finally, we integrated ethical considerations in the research for credibility and validity.

4.4 Ethical considerations

When conducting a research paper it is vital to implement moral standards. Ethical considerations in research papers is a term used in formulating the method, procedure, and perspective when analyzing complex problems (Resnik, 2020). These considerations are vital in our research to contribute knowledge, truth, and avoiding errors. Ethical standards such as trust and reliability in retrieving correct data, fairness in the development of graphs and tables, and presentation of the data is further considered to answer the research questions fairly. The research should additionally contain moral and social values such as responsibility.

In certain cases, periods of pandemic and major health crises are boosted by other disasters, such as wars and financial crises. During the Spanish flu the first world war influenced the socio- and macroeconomic conditions of the period. The weighings of these conditions are important and ethically required to discuss, especially when examining older data that may lack accuracy. These considerations are closely aligned with validity, and the target of this study is to stay within these guidelines.

There are several delimitations to this research, as the study acknowledges complexities of the subject and sets boundaries to narrow this scope. The study is therefore delimited to Norway, which will supply a nuanced comprehension of the impact and the recovery within its geographical setting. It provides us a detailed exploration of the socioeconomic landscape in Norway, considering the societal characteristics, unique economic structure, and public health system. Furthermore, the study is focused around Covid-19 and the Spanish flu, recognizing that each event carries its own specificities. The research seeks to identify factors and patterns that may transcend contextual boundaries. Nevertheless, the investigation acknowledges that

the findings may not be applicable universally and should be interpreted within the context of Norway.

4.5 AI Usage and tools

Artificial Intelligence (AI) has recently transformed research by making it more accessible and efficient. AI has therefore been used in this study to summarize large research volumes, aid in interpretation and acted as a personal writing assistant to enhance clarity and presentation of the research. Traditional literature reviews are time-consuming. By using AI powered tools such as ChatGPT, it can summarize large amounts of research data into shorter and more concise summaries, simplifying the process (OpenAI, 2024). These summaries contain key findings, methodologies and conclusions without the need to read extensive documents to derive information. AI has been further used to paraphrase and refine sentences to enhance the flow and readability of the research. By correcting grammatical errors and improving the linguistic quality as the research is written in a second language. The AI has also been a part of enhancing clarity and structure with giving suggestions on how to structure the research effectively, suggesting content organization, and highlighting key points of research to create better readability.

In addition, the reference management tool “Paperpile” has been utilized to streamline the citation process and manage our references consistently and efficiently. This tool additionally aided with generating the bibliography in APA 7th. The programming environment employed in this study is “RStudio”. This tool is a powerful integrated development environment (IDE) and has been used to analyze and visualize the data through figures. By capitalizing on the capabilities of programming software, we were able to convey our research findings more preferably.

5. Data and analysis

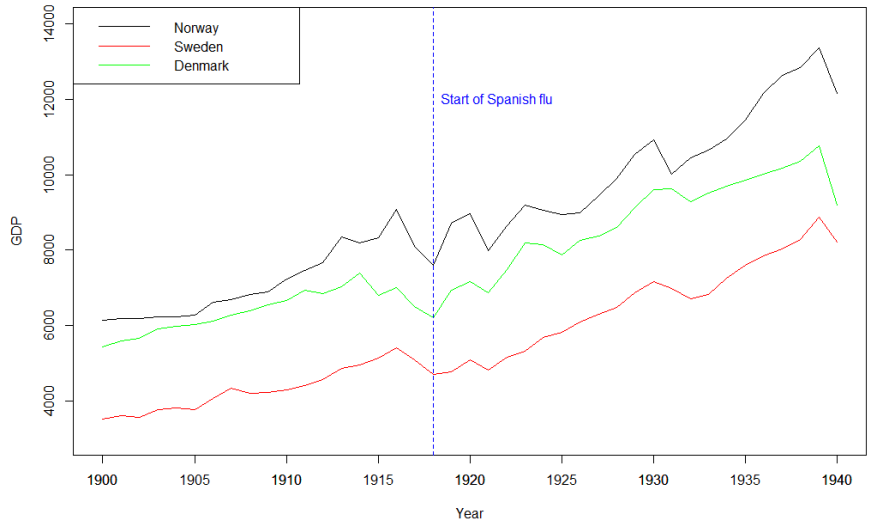
In this chapter data and findings will be presented regarding both economic- and social metrics. To substantiate claims about the different research questions, different variables such as GDP per capita, population, mortality, unemployment, stock indices, government debt and spending will be presented, and later analyzed, to answer the research questions. The data will be presented in tables and graphs, on the basis of which presentation is most suitable. All data will be described and further commented on in order to state the methodology used when collecting the secondary data.

5.1 Gross Domestic Product

The Norwegian Gross domestic product per capita (GDP) data has been gathered on an annual basis spanning from 1900 until 1940. To further acquire context, Denmark and Sweden have also been included in the dataset. All GDP per capita data in this period has been sourced by the 2018 edition of the renowned Maddison Project database. This database provides thorough insight into historical statistics such as GDP per capita and economic growth across countries. This further facilitates a more rigorous comparative analysis of the three nordic countries over an extended period. The Maddison Project is named after the economic historian Angus Maddison (1926-2010), and their goal is to provide a greater understanding of standards of living and economic performance globally on a long-term basis. The team behind the Maddison Project is the Groningen Growth and Development Centre (GGDC) from the University of Groningen. The team has since 1992 combined and harmonized historical data from primary and secondary sources. These include historical documents, national statistical offices and scholarly research (Inklaar et al., 2018).

Using a single database for all three countries, the comparisons become more robust as they are presented on the same scale. This scale being the real gross domestic product per capita, denoted in 2011 US dollars as the data benchmark. The Maddison Project has denoted this statistic as “rgdpnapc”. This statistic is suitable for a cross-country growth comparison because of the constant benchmark.

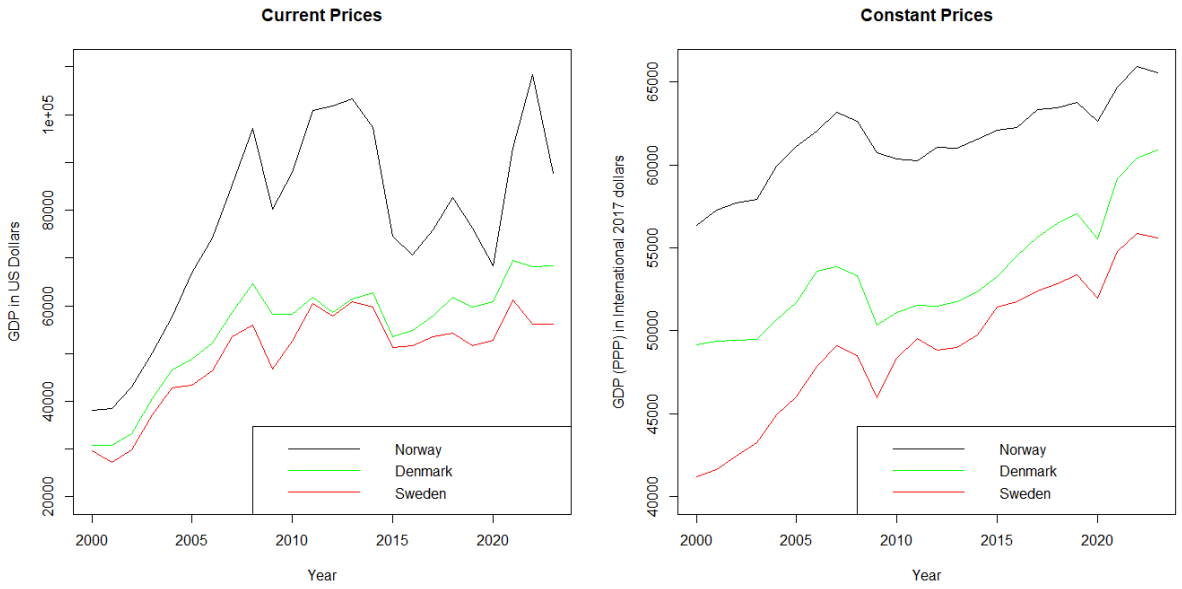
Figure 3: GDP per capita in Norway, Sweden and Denmark from 1900-1940



Note. Data from Inklaar, R., de Jong, H., Bolt, J., & van Zanden, J. L. (2018). Rebasing 'Maddison': new income comparisons and the shape of long-run economic development. (GGDC Research Memorandum; Vol. GD-174). Groningen Growth and Development Center.

The GDP per capita data presented to analyze Covid-19 has been gathered yearly from 2000 to 2023, and is given in constant and current prices. The constant prices data is given as purchasing power parity of 2017 international dollar units. This unit accounts for differences in price levels between countries and allows for accurate comparison of living standards and economic output. With 2017 as a base year, it eliminates the effects of inflation and real economic performance can be observed between the countries. The current prices are given in US dollars units. Both metrics are gathered from the International Monetary Fund (IMF) for Norway, Sweden and Denmark. The IMF was established in 1944 and is a world renowned institution within the financial landscape. The institution provides comprehensive statistics on global national accounts, these include inflation, trade, GDP and fiscal indicators. In addition, data on the percentage change of the GDP has been gathered to track trends in the country's economic growth. This to reflect the rate and direction of change in the national economic output. Using IMF data ensures reliability and accuracy as the institution is highly committed to data quality and transparency, making it a valuable asset to our research.

Figure 4: Gross domestic product per capita, current and constant prices, 2000-2023



Note. data from International Monetary Fund. (2024, April). *World Economic Outlook Database*.

When using both constant and current prices to gain insight into the economies, it is important to understand the objective of the two different metrics. When using constant prices the data is adjusted for inflation, and the value of goods and services produced in different years are measured using a fixed price, the 2017 international dollar. This allows for comparison of real growth of GDP per capita without bias caused by each country's general price level. This metric is mainly used to analyze trends in economic growth and economic performance over longer time periods. On the other hand, current prices describe the actual prices of goods and services in the year they were produced. This metric reflects the nominal value of GDP per capita without adjusting for inflation. Current prices are therefore useful in understanding current economic conditions, such as nominal growth rate and size of economy. Both the constant and current prices are presented in Figure 4. To draw findings from the GDP per capita data it is presented as growth rates percentages from the previous year, visualized in Table 2 and 3.

5.1.1 Findings and analysis

Before the Spanish flu pandemic struck Norway, the economy was experiencing negative growth rates of -10.75% in 1917. This economic contraction reflects an era of economic challenges in Norway leading up to the pandemic, hinting at underlying vulnerabilities. Similarly, Denmark and Sweden also experienced this economic decline in the follow up year to the Spanish flu. The largest culprit of the decline was the first world war. Even without direct involvement for either of the Nordic countries, the war attributed to the economic conditions with trade disruptions, resource scarcity, political and social unrest and global financial instability (Haug, 2016; Hornby, 2016; Qvarnström, 2014).

The height of the Spanish flu pandemic was in the autumn of 1918, it would be suspected that the decline in GDP per capita would continue to decrease. These expectations were correct and the GDP per capita continued the negative trend into 1918, with a decline of -6.17%. Instead of further decline, the economic growth turned positive in 1919 for Norway, Denmark and Sweden. The GDP per capita rebounded significantly for Norway and Denmark during this period with their respective growths being 14.46% and 11.59%. Sweden on the other hand saw a slower rebound with a growth of 1.53%. Following the height of the pandemic in the subsequent year, the GDP per capita growth stabilized for the countries between 2.93% - 6.35%, signaling aspects of economic resilience and recovery although the GDP per capita stagnated in Norway post pandemic as seen in Table 2.

Table 2: GDP per capita growth from previous year in Denmark, Sweden and Norway, 1917-1920

Year	1917	1918	1919	1920	1917-1918	1919-1920
Denmark	−6.99%	−4.37%	11.59%	3.44%	−11.11%	15.43%
Sweden	−6.07%	−7.58%	1.53%	6.35%	−13.20%	8.00%
Norway	−10.75%	−6.17%	14.46%	2.93%	−16.27%	17.75%

Note. Data from Inklaar, R., de Jong, H., Bolt, J., & van Zanden, J. L. (2018). Rebasing 'Maddison': new income comparisons and the shape of long-run economic development. (GGDC Research Memorandum; Vol. GD-174). Groningen Growth and Development Center.

The economic impact posed by the Covid-19 pandemic was felt across the globe in 2020, and Norway was no exception. When analyzing the GDP per capita at current prices, Norway

experienced a decline of -10.52% in 2020 from the previous year. This initial decline is contrasting from Denmark and Sweden where the GDP per capita growth continued at modest levels at around 2%. This substantial decline in Norway highlights the short term economic shock caused by the pandemic. Norway's divergence from its neighboring countries are due to a multitude of factors, including the fall in oil prices in 2020, the devaluation of the NOK and the composition of the national industry, impacting Norway's economy at a larger scale in the short term (Statistics Norway, 2022).

Table 3: GDP per capita growth from previous year in Denmark, Sweden and Norway, 2018-2022

Year	2018	2019	2020	2021	2022
2017 International dollar, Constant prices					
Norway	0.19%	0.50%	−1.79%	3.31%	1.87%
Denmark	1.42%	1.06%	−2.70%	6.53%	2.14%
Sweden	0.85%	1.02%	−2.66%	5.39%	1.99%
US Dollar, Current prices					
Norway	8.77%	−7.63%	−10.52%	36.15%	16.57%
Denmark	6.84%	−3.32%	2.09%	13.99%	−1.92%
Sweden	1.57%	−4.79%	1.96%	16.13%	−8.31%

Note. data from International Monetary Fund. (2024, April). *World Economic Outlook Database*.

When comparing the GDP per capita at constant prices it provides a different image of the real economic growth experiences, due to being adjusted for inflation. Using this metric, Norway still faced a decline in 2020, although less severe at -1.79%. Comparing Norway to Denmark and Sweden with constant prices reveal greater resemblance between the countries. This further suggests that the economic contraction seen in Norway with the initial impact of the pandemic was less pronounced in real terms compared with these countries, and indicates a degree of economic resilience. Viewing the current prices in Table 3, GDP per capita surged in Norway between 2020 and 2021. The 36.15% growth rate experienced between these years likely reflects factors such as government stimulus measures and the fiscal policy making in Norway. However, the large growth decelerated notably in the following year. This economic slowdown might be due to challenges regarding sustaining the effectiveness of the implemented governmental measures during the uncertainties caused by the pandemic. The positive growth of current prices GDP per capita still illustrates an expanding economy in Norway post the initial shock of the pandemic.

Denmark and Sweden experienced similar positive GDP growth rates of 13.99% and 16.13% in 2021. This growth indicates a relatively robust economic performance despite the initial disruptions of the pandemic. However, the growth turned negative for both countries in the subsequent year. Sweden saw the greatest decline with the 2022 growth being −8.31%, Denmark also saw a similar decline although not as great of -1.92%. Suggesting economic stagnation and contraction following their growth.

Further, examining the GDP per capita growth rates at constant prices in the recovery phase offers additional insight into the economic performance of Norway and the other nordic countries. In 2021 the GDP per capita increased in Norway by 3.31%, indicating real economic growth during the initial phase of the pandemic. The growth followed into 2022, although at a slower rate with the GDP per capita increasing by 1.87%. Denmark and Sweden experienced both relatively steady and similar growth in GDP per capita at constant prices during the 2021 and 2022 period. Demonstrating resilience in their ability to maintain positive economic momentum through the pandemic.

All three of the countries experienced economic contractions caused by the pandemic. Norway did outperform its counterparts in terms of current prices growth in the long term while having lower growth rates than both Denmark and Sweden in regards to constant prices during the same periods. Norway differing from the two neighboring countries in both the metrics may be due to multiple factors. Firstly, Norway has a robust social welfare system and a sovereign wealth fund that cushioned the effects of the pandemic on the economy. In turn enabling greater resilience in current price growth compared to Sweden and Denmark. Further, differences in economic structures and government policies could also explain some of the visible disparity. The Norwegian approach in managing the economic aspects of the pandemic, such as the stimulus measures and support for key sectors could have been more successful or customized to its economy. The structural variances of the macroeconomic makeup in each of the three countries may also have caused differences in the GDP per capita metrics. For instance the Norwegian oil sector saw an initial downturn during Covid-19, caused by the global decline in crude oil prices. While the demand for Denmark's vast pharmaceutical industry remained stable (OECD, 2024). Sweden`s industrial production and exports also aided with limiting the economic fallout (OECD, 2021). These dynamics are

examples of what could have influenced the countries respective growth trajectories in constant and current prices. While the significant growth performance seen by Norway in current prices appears superior. The disparity between this growth and the constant prices highlights the nuance in the economic situation of the countries.

5.1.2 Comparing the gross domestic product between pandemics

The Spanish flu occurred in Norway during a period of economic downturn that was influenced by the first world war's effect on trade and international financial stability. The GDP per capita in 1918 similarly to Covid-19 in 2020 also saw declines in the initial year of the pandemics. Both time periods experienced subsequent years of negative growth leading up to the pandemics, which may have exacerbated the effects on the Norwegian economy. The Norwegian GDP per capita as seen in Figure 3, experienced a gradual increase from 1905 to 1915, followed by a short-term decline between 1915-1918.

The gradual increase can be explained by a multitude of factors. Firstly, foreign capital in combination with the Norwegian natural resources laid a foundation for new industries to be formed, most notably the export industries. The developing export industries aided with constructing Norway's economic base and subsequently economic growth in the form of GDP per capita (Cappelen & Larsen, 2005). This period experienced a significant growth in regards to power production and development of waterfalls. With this new industry the working class in Norway grew and a new social structure was forming. (Cappelen & Larsen, 2005) Following the initial impact of the pandemic the economy surged and grew between 1919 and 1920. This growth was short lived and due to the economic challenges during the early 1920s the GDP declined in 1921.

In the years leading up to Covid-19, the Norwegian economy was also experiencing an economic decline in regards to GDP per capita, indicating that there were pre-existing vulnerabilities within the economy. When the pandemic struck in 2020 this negative trend was exacerbated. The decline expirenced in 2020 from the previous year suggests that the Norwegian economy responded negatively to the short term shock of the pandemic. From 2021 and onwards the nationwide measures implemented in Norway to address the pandemic's influence on the economic conditions proved effective as it injected liquidity into the economy. Further stimulating the economic activity and contributing to the experienced

growth in GDP per capita. In 2023 the Norwegian GDP per capita stagnated reflecting economic difficulties with maintaining steady growth post-pandemic. This decline illustrates how robust pandemic response measures can give way to more complex economic dynamics that temper and halter long-term growth.

There were declines in GDP per capita preceding both pandemics indicating existing vulnerability. Both the Spanish flu in 1918 and Covid-19 caused further economic downturn. Although, in response to the crises, measures were implemented to stimulate the economy leading to short-term growth. Considering the Spanish flu, sustaining this growth long-term proved challenging as the GDP stagnated. The current economic situations in Norway from the aftermath of Covid-19 show similar signs, with a flat development into 2023 indicating ongoing economic challenges.

5.2 Mortality

Collecting mortality data regarding the Spanish flu has been done through one of Mamelunds studies of the pandemic (Mamelund, 1998). His sources include “Det Civile Medisinalvesen” (DCM) from 1918 until 1928, SSB, and different Norwegian historians. DCM was a register for key health figures in Norway, such as influenza and mortality. The different historians sourced in his papers have studied their local communities and Mamelund further inquired about data regarding the pandemic with all 547 historical societies in Norway. Other data included in Mamelunds paper comes from SSB and his research has been used in this study to examine Norwegian mortality. To contextualize the study, numbers from Sweden and Denmark are included in the Appendix. Comparing with other Scandinavian countries provides a more comprehensive overview over the effectiveness of governmental measures as the countries have similar demographics. The Danish data is retrieved from Danmarks Statistik while the Swedish data is sourced from previous research and Statistika Centralbyrån (Danmarks statistik, 1918-1926; Holtenius & Gillman, 2014; Statistiska Centralbyrån, 1918-1929).

The data about the Spanish flu in Norway is presented as a table, effectively conveying the statistical essence (Table 4). It contains annual data on population, total mortality, influenza-related mortality, death rate per 100 000 from influenza, and life expectancy. These key mortality metrics, provide a clear and precise presentation of the social impact of the

Spanish flu. To ensure a comprehensive outline, data between 1915 and 1925 are applied, allowing for benchmarking both prior and post the pandemic. Utilizing the death rate per 100 000, facilitates comparisons with Sweden and Denmark, as population is differing between the countries. The death rate from influenza is based on the number per 100 000 of the total population - not just those infected by the flu. Including the entire population supplies us an absolute idea of the pandemic´s impact. Aligning the life expectancy development along with the mortality rates, enables us to draw conclusions on how the mortality affects the life expectancy.

When collecting historical data there are certain challenges. It may be less accurate and reliable in comparison to modern data (Keenan & Walker, 2018). Reasons behind this are errors and inconsistencies in recording due to technological limitations regarding both accuracy and efficiency (Keenan & Walker, 2018). Data was additionally collected manually and may have suffered from human errors. The documentation could be incomplete due to loss of recordings and failure in maintaining the data. Mamelund has in his paper used several sources as mentioned previously, because data from a single source is not comprehensive enough to reliably portray the mortality.

Table 4: Spanish flu mortality rates in Norway

Year	Population	Total Mortality	Mortality Influenza	Death rate per 100 000	Life expectancy
1915	2 486 269	33 425	1 874	75	58.08
1916	2 509 263	34 910	2 055	81	57.21
1917	2 535 092	34 699	1 726	68	57.73
1918	2 565 994	44 218	12 012	466	50.30
1919	2 589 463	35 821	3 993	153	56.73
1920	2 616 274	33 634	2 112	80	58.96
1921	2 653 054	30 698	1 187	45	61.51
1922	2 682 680	32 484	2 009	75	60.71
1923	2 707 000	31 534	1 750	65	61.74
1924	2 719 233	30 850	1 327	49	62.00
1925	2 738 298	30 481	1 254	46	62.39

Note. Data from Mamelund, S.-E. (1998). *Spanskesyken i Norge 1918-1920: Diffusjon og demografiske konsekvenser*. Department of Sociology and Human Geography, University of Oslo.

When retrieving the data from the Covid-19 pandemic, all data is collected from FHI (Folkehelseinstituttet, 2022). Calculations of mortality and excess mortality are based on

weekly updates from SSB from 2020 till 2022, in addition to information from the National Population Register, Norwegian Cause of Death Register, and Norwegian Immunization Registry (SYSVAK). FHI reported mortality data from Norway, Sweden and Denmark during the Covid-19 pandemic from 2020 till 2022 in their report (Folkehelseinstituttet, 2022). To make the Norwegian numbers comprehensible, it is compared to Sweden and Denmark.

The data from the Covid-19 pandemic are presented in descriptive tables to compare. The years in the table are divided into 2020, 2021, 2022, and one column showing total numbers (2020-2022). The table includes actual mortality, expected mortality, excess mortality in numbers and percentage, actual mortality and expected mortality per 100 000. By including several variables describing the mortality data, Table 5 is created to showcase these statistics.

Table 5: Covid-19 Mortality rates in Norway, Sweden and Denmark

	Year	Actual mortality	Expected mortality	Excess mortality
Norway	2020	41 204	40 938	266
	2021	41 920	40 550	1 370
	2022	45 560	40 878	4 682
	2020-2022	128 684	122 366	6 318
Sweden	2020	98 124	91 621	6 503
	2021	91 958	90 198	1 760
	2022	94 737	91 660	3 077
	2020-2022	284 819	273 479	11 340
Denmark	2020	55 478	55 415	63
	2021	57 041	551 27	1 914
	2022	59 271	56 086	3 185
	2020-2022	171 790	166 628	5 162
		Excess mortality(%)	Actual mortality (per 100 000)	Expected mortality (per 100 000)
Norway	2020	0.06	766	761
	2021	0.034	775	750
	2022	0.115	835	749
	2020-2022	0.052		
Sweden	2020	0.071	962	885
	2021	0.02	878	866
	2022	0.034	898	874
	2020-2022	0.041		
Denmark	2020	0.001	951	950
	2021	0.035	974	941
	2022	0.057	1 004	950
	2020-2022	0.031		

Note. Data from Folkehelseinstituttet (2023). *Dødelighet i Norge under koronapandemien 2020-2022*. Folkehelseinstituttet.

To facilitate the comparison of the Spanish flu and Covid-19 in Norway, Table 6 contains the mortality rates from Covid-19. This enables for contextual analysis, comparing the impact on death rates between the two pandemics. The table consists of data on population, covid associated deaths, and death rate per 100 000 from Covid-19, between 2020 and 2023. Presenting the death rate per 100 000 from Covid-19, enables us to compare it with the corresponding metric regarding the Spanish flu.

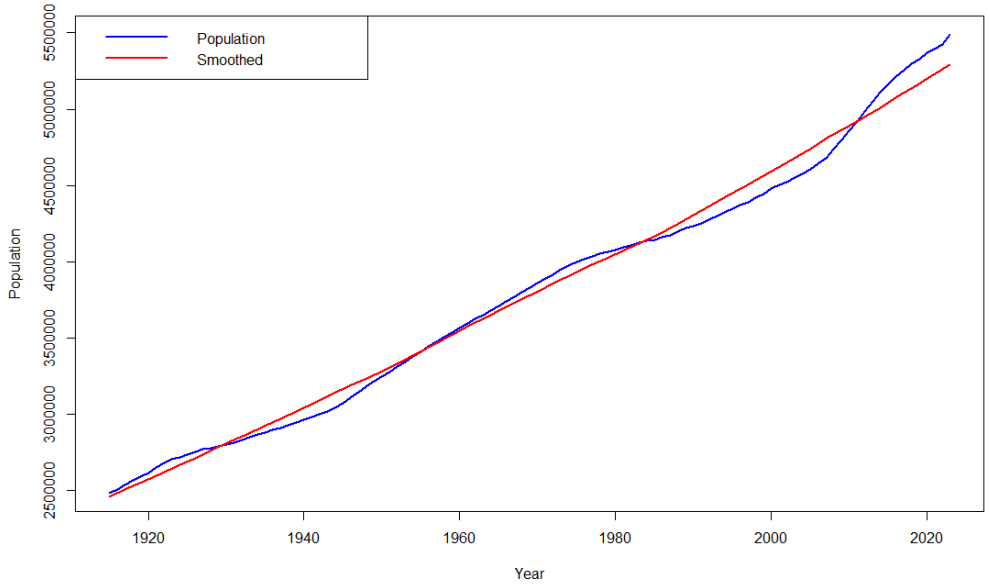
Table 6: Covid-19 mortality rates in Norway

Year	Population	Covid associated deaths	Death rate per 100 000
2020	5 367 580	477	8.89
2021	5 391 369	967	17.94
2022	5 425 270	3 499	64.49
2023	5 488 984	1 534	27.95

Note. Data from Folkehelseinstituttet (2023). *Dødelighet i Norge under koronapandemien 2020-2022*. Folkehelseinstituttet.

The pandemics impact on population growth is visualized in Figure 5, where neither Covid-19 nor the Spanish flu affected the population numbers to a clear extent. The growth between 1918 and 1920 remains the same as previous and later years. Similarly, the Covid pandemic did not affect the population metric clearly. The growth in population remained somewhat constant even though it is recognized as a critical pandemic. The population data is retrieved from SSB, as they have reliable data spanning the entire scope of study. Population is in this case the least demanding data to produce and analyze, because of its simplicity.

Figure 5: Population in Norway, 1914-2023



Note. Data from Statistisk sentralbyrå (2024). *Population.*

5.2.1 Findings and analysis

One of the most significant social factors to consider from pandemics is mortality. The Spanish flu and Covid-19, mortality rates provide the possibility to analyze and contrast the different pandemics. It demonstrates how deadly they were, and how much they affected the population. Which part of the population who led the mortality is also a significant topic: Was it the elderly or the active workforce? The age distribution is often varying depending on the virus. By understanding the biological, social, and economic dynamics, it is possible to analyze how mortality made different societies suffer.

Pandemics usually lead to a vast number of deaths, and the Spanish flu and Covid-19 are no exceptions. Analyzing the mortality data from the Spanish flu, higher mortality rates are observed compared with Covid-19. The Spanish flu caused numerous pandemic-related deaths in Norway and Sweden, while Denmark had lower rates. The total number of influenza-related deaths between 1918 and 1920 was 18 117 in Norway (Table 4), and Sweden had 37 573 presented in table 14. Denmark, on the other hand, only had 8 919 even though the population was close to Norway´s, shown in Table 13. To compare the mortality between countries we use the death rate from influenza per 100 000. In Norway, the mortality rate went from 68 in 1917 to 466 in 1918, at the start of the Spanish flu. That equals almost

seven times as many deaths from influenza after the Spanish flu started. Numerically, that means the influenza-related mortality equalled 12 012 in 1918, compared to only 1 726 the previous year. The death rates from influenza-mortality went from 7 to 139, and 4 to 471 in Denmark and Sweden, respectively. Influenza viruses were present through the early 1900s, and the increase in influenza reveals the significant impact of the Spanish flu. In the following years, the mortality rates were still higher than pre pandemic levels. In Norway, the death rate from influenza per 100 000 was 153 in 1919, while it was 80 the following year. It confirms the enormous impact the pandemic had on population and social conditions in Norway. During the early stages of the pandemic, little to no measures were taken and the pandemic ravaged all over the world and took an enormous toll on human life in Norway.

Having such an impact on the mortality in Norway, it led to a decrease in life expectancy. In 1915 the life expectancy in Norway was 58.08 years, while three years later, the pandemic forced it down to 50.30 - decreasing the expectancy by 8 years or 13%. This drastic decrease is a clear indicator that the Spanish flu took the lives of the younger generations and the workforce. In 1924-1925, life expectancy had increased by 12 years from the low in 1918. Sweden presented their life expectancy in 5 year-intervals, and because of rapid transmission, the data was not affected as much as Norway due to the long intervals when averaging the life expectancy. Still, the 1925-1929 number showed an increase to 61.93 from 56.43 in the previous interval, 1920-1924 presented in Table 12. Denmark during similar time intervals to Sweden, and also experienced an increase in life expectancy after the Spanish flu for both men and women, whereas men had 4.5 years increase in life expectancy after the Spanish flu, women had 3.8 (Table 13).

An interesting factor for the increase in mortality is the low number of doctors and nurses during the Spanish flu in Norway. There were 1 100 doctors in 1918 distributed over a population of 2.6 million, equalling 0.4 doctors per 1 000 (Borza, 2001). In comparison to modern times in the year 2000, Norway had 2.4 doctors per 1 000. Six times as many doctors in the start of 2000, in comparison to 1918. Despite the low number of doctors, Ramberg claims that their efforts were valuable (Ramberg, 1969).

The 7 million deaths globally caused by the Covid-19 pandemic demonstrated the impact of modern pandemics, despite advanced medical expertise. The expected mortality in 2020

before considering Covid-19 was 40 938 in Norway, and the excess mortality at year's end was 266, resulting in an excess mortality of 0.65%. The excess mortality was 3.40% and 11.50% in the following years, 2021 and 2022. That amounts to 1 370 and 4 682 in excess mortality cases. The average excess mortality rate between 2020 and 2022, was 5.20% in Norway. This metric aligning with Covid-19 development in Norway therefore explains the rising excess mortality. Norway has a total amount of 6 680 deaths associated with Covid-19 from 2020 until week 15 in 2024. In the same period Sweden's deaths amounted to 27 416 – a significant difference from Norway. Comparatively, Denmark accumulated 9 626 deaths associated with Covid-19 – all countries up until week 15 in 2024. Comparing Norway with these countries reveals slight variations between them. Norway has the lowest number of deaths each year, but to adjust the number for population size, death rate per 100 000 is used. This metric still portrays Norway having a lower death rate from Covid-19 than its neighboring countries. This is seen throughout the data, apart from Denmark´s 2023 figures, which are relatively similar to Norway. It can therefore be concluded that Norway experienced a milder impact on mortality statistics, and may be due to clearer and stronger restrictions and policies than its peers, especially Sweden. Comparing it globally, Norway continues being at the low-end of the scale despite the increase (Msemburi, 2023).

5.3 Unemployment

Unemployment rate is a crucial metric when examining macro- and socio economic conditions, as it provides an understanding of the general health of the economy. Changes in unemployment affect several aspects of societies. From a macroeconomic perspective, a high unemployment rate can indicate a downturn in the economy, recessions, and generally low economic activity. Socioeconomics are also influenced by the unemployment metric. High levels of unemployment will eventually lead to disparities and potential social exclusion. High unemployment rates are additionally closely aligned with poverty and promote the importance of safety nets like welfare support. Unemployment data has been gathered in Norway from 1904 to 1967 through SSB, where the statistic is based on the percentage of unemployed union members (Søbye, 2022). There are two periods of missing and non-existent data, these being from 1942-1945 due to the second world war and 1958-1959.

Table 7: Percentage of yearly unemployment based on union membership, 1904-1968

Date	Unemployed union members	Date	Unemployed union members	Date	Unemployed union members
1904	3.9	1926	24.3	1948	2.7
1905	4.4	1927	25.4	1949	2.2
1906	3.2	1928	19.1	1950	2.7
1907	2.5	1929	15.4	1951	3.6
1908	3.7	1930	16.6	1952	2.4
1909	5	1931	22.3	1953	3.3
1910	2.9	1932	30.8	1954	2.2
1911	1.9	1933	33.4	1955	2.5
1912	1.3	1934	30.7	1956	3.1
1913	1.6	1935	25.3	1957	3.2
1914	2.4	1936	18.8	1958	N/A
1915	2.1	1937	20	1959	N/A
1916	0.8	1938	22	1960	2.5
1917	0.9	1939	18.3	1961	2
1918	1.4	1940	23.1	1962	2.1
1919	1.6	1941	11.4	1963	2.5
1920	2.3	1942	N/A	1964	2
1921	17.6	1943	N/A	1965	1.8
1922	17.1	1944	N/A	1966	1.8
1923	10.6	1945	N/A	1967	1.2
1924	8.5	1946	3.6	1968	1.4
1925	13.2	1947	3.1		

Note. data from Søbye, E. (2022, April 21). Statistikk over arbeidsledighet 1903-2022: Hvordan Arbeidskraftundersøkelsen ble til. *Statistisk sentralbyrå*.

After 1968 the Norwegian Labor and Welfare Administration (NAV) began measuring unemployment in Norway and launched a different measurement of unemployment. This measurement started in 1972 and consists of monthly observations of the unemployed in the workforce. To encompass the Covid-19 pandemic our dataset consists of unemployment observations from February 2014 to January 2024. SSB and NAV classify unemployment as individuals that do not currently hold employment, actively seek job opportunities and are available and prepared to commence working if offered a job opportunity (Statistisk sentralbyrå, 2024). A crucial note to this statistic is that students, retirees, pupils and those with disability leave are not included as they do not meet the mentioned criterias. The metric offers more detailed insight than previous measurements on the proportion of Norwegians who are willing and able to work but are currently without work (Statistisk sentralbyrå, 2024).

Table 8: Monthly unemployment based on % of workforce, Feb 2014- Jan 2024

Date	Unemployed of workforce	Date	Unemployed of workforce	Date	Unemployed of workforce	Date	Unemployed of workforce	Date	Unemployed of workforce
2014-02	3,8	2016-02	5	2018-02	4,1	2020-02	3,9	2022-02	3,2
2014-03	3,8	2016-03	5	2018-03	4,1	2020-03	3,9	2022-03	3,2
2014-04	3,7	2016-04	5	2018-04	4,1	2020-04	4,2	2022-04	3,1
2014-05	3,7	2016-05	4,9	2018-05	4,1	2020-05	4,7	2022-05	3,1
2014-06	3,7	2016-06	4,9	2018-06	4,1	2020-06	5,3	2022-06	3,2
2014-07	3,7	2016-07	4,9	2018-07	4,1	2020-07	5,4	2022-07	3,2
2014-08	3,8	2016-08	4,8	2018-08	4,1	2020-08	5,5	2022-08	3,2
2014-09	3,9	2016-09	4,8	2018-09	4	2020-09	5,3	2022-09	3,3
2014-10	4	2016-10	4,7	2018-10	4	2020-10	5,3	2022-10	3,3
2014-11	4	2016-11	4,7	2018-11	3,9	2020-11	5,2	2022-11	3,3
2014-12	4,2	2016-12	4,7	2018-12	3,9	2020-12	5	2022-12	3,4
2015-01	4,3	2017-01	4,6	2019-01	3,9	2021-01	5	2023-01	3,4
2015-02	4,3	2017-02	4,6	2019-02	3,8	2021-02	4,9	2023-02	3,4
2015-03	4,4	2017-03	4,6	2019-03	3,8	2021-03	4,9	2023-03	3,5
2015-04	4,5	2017-04	4,5	2019-04	3,8	2021-04	5	2023-04	3,5
2015-05	4,6	2017-05	4,5	2019-05	3,8	2021-05	5	2023-05	3,5
2015-06	4,7	2017-06	4,4	2019-06	3,9	2021-06	5	2023-06	3,5
2015-07	4,7	2017-07	4,4	2019-07	3,9	2021-07	4,5	2023-07	3,5
2015-08	4,8	2017-08	4,3	2019-08	3,9	2021-08	4,2	2023-08	3,6
2015-09	4,9	2017-09	4,2	2019-09	3,9	2021-09	3,8	2023-09	3,6
2015-10	4,9	2017-10	4,2	2019-10	4	2021-10	3,8	2023-10	3,6
2015-11	4,9	2017-11	4,2	2019-11	4	2021-11	3,6	2023-11	3,7
2015-12	5	2017-12	4,1	2019-12	4	2021-12	3,5	2023-12	3,7
2016-01	5	2018-01	4,1	2020-01	3,9	2022-01	3,3	2024-01	3,7

Note. data from Statistisk sentralbyrå. (2024). *Arbeidsledighet i Norge*.

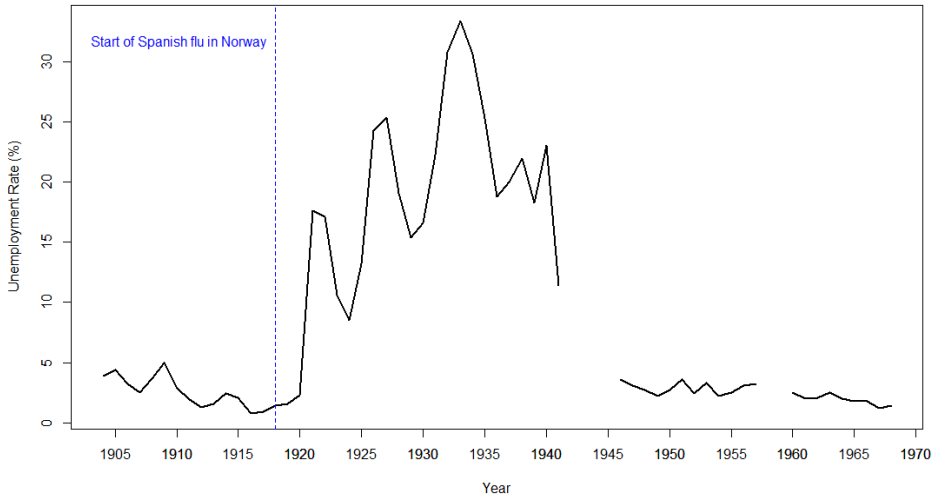
During the Spanish flu the unemployment-data were less systematically recorded and influenced by the first world war (Grytten, 1995). Along with the change in 1972 to monthly observations, it further complicates the analysis and comparison of the pandemics. Although there are inconsistencies, investigating the development in unemployment rates during the pandemics provides valuable insights. Although, considering the methodological distinctions are crucial to abstain from misleading conclusions.

5.3.1 Findings and analysis

By analyzing the unemployment rates during the different pandemics, conclusions can be drawn regarding the impact on the workforce and population. Through researching unemployment, the objective is to find and analyze distinctions from the general rates. This can reveal aspects concerning socioeconomic and general economic consequences caused by the pandemics. An increase in unemployment rates indicate a reduction in the labor-market and economic consequences such as widespread job losses, reduced consumer spending, and economic downturns. Socioeconomic consequences to unemployment are individuals' financial instability and a reduction in the general well-being of the population. A vital aspect of unemployment during pandemics is that parts of the population may choose to remain home and unemployed out of fear and uncertainty, influencing the statistics.

Figure 6 visualizes the unemployment based on union memberships in the 1900s. The rates were greatly fluctuating in the interwar period (Grytten, 1995). In 1916 and 1917 the unemployment rates were respectively 0.8% and 0.9% which is the lowest in the data gathered. Eventually the Spanish flu came to Norway in 1918, but the pandemic had no immediate effect on employment. During the years of the pandemic, 1918-1920, the unemployment rates were 1.4%, 1.6%, and 2.3%. There are several reasons for this. The primary reason being that the later and ending stages of the first world war created a boom in the Norwegian economy and resulted in low unemployment in this period. Secondly, as the pandemic significantly impacted the younger population, it can reasonably be assumed that the labor market became undersaturated and the remaining portion of the population absorbed the demands. In 1921 the rates rose to 17.6% and remained high until the second world war, with the peak in 1933 with 33.4% unemployed union members. The high unemployment in the interwar era was due to the industrial changes, economic shocks and declining prices, production and investment (Lange, 2015).

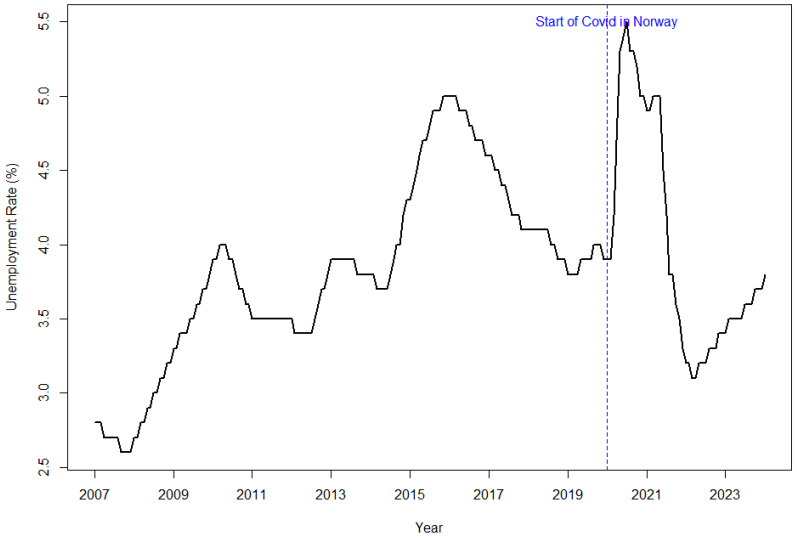
Figure 6: Unemployment based on union membership, 1904-1968



Note. data from Søbye, E. (2022, April 21). Statistikk over arbeidsledighet 1903-2022: Hvordan Arbeidskraftundersøkelsen ble til. *Statistisk sentralbyrå*.

In recent years, unemployment has experienced a greater degree of stability compared to the interwar and Spanish flu periods. The unemployment rates are affected by global factors, however modern pandemics do not destabilize economies to the same extent as historical pandemics. The Norwegian unemployment rate has had some degree of volatility since the financial crisis in 2008 and further increased by Covid-19. In 2019, the year prior to Covid-19, the rates stayed between 3.8% and 4% (Figure 7). The pandemic then struck Norway in February 2020, interestingly the unemployment did not significatly increase during the first months of the pandemic. This was due to the government measures and business strategies used to combat the economic and subsequent effect on unemployment. Strategies such as work-from-home agreements and measures including wage compensation and support packages for businesses and individuals. The unemployment rates remained virtually unchanged until May where it began increasing and in August 2020 the unemployment peaked at 5.5% indicating a 41% increase from the first month of 2020. In the start of 2021, it was at 5%, and gradually reduced to 3.3% at the start of 2022. The unemployment has since April 2022 steadily increased to 3.7% in January 2024. After analyzing the data regarding both pandemics, the Spanish flu can be considered to have had a greater impact on the labor market despite fluctuations during both.

Figure 7: Unemployment based on % of workforce, 2007-2024



Note. data from Statistisk sentralbyrå. (2024). Arbeidsledighet i Norge.

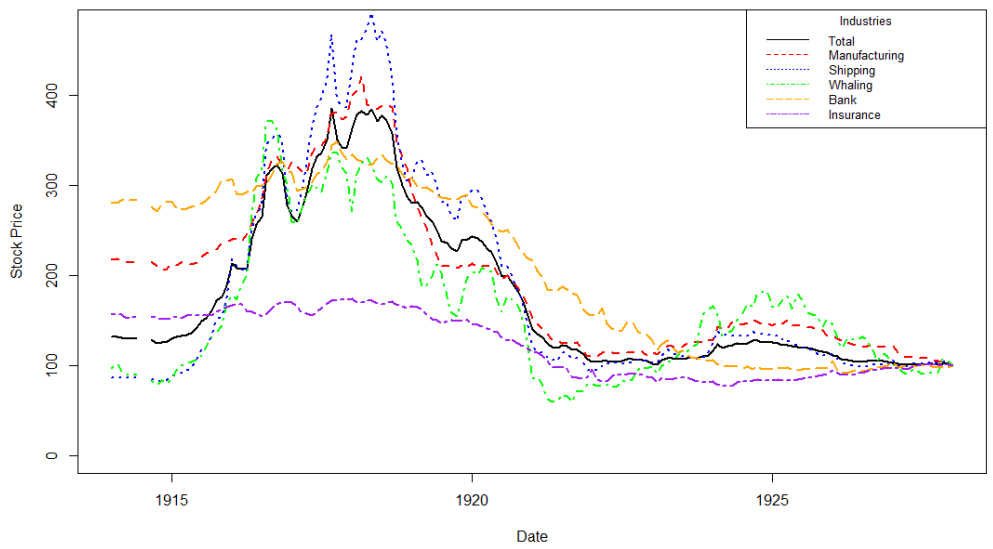
Covid-19 led to Norway experiencing high unemployment, and provoked notable economic challenges, requiring the Norwegian government to implement safety nets. They provided support to individuals and businesses through stimulus packages securing continuation of social functions among the widespread pandemic. The safety nets implemented include stimulus packages to businesses, ensuring future viability in the traveling industry and hospitality. The Norwegian stock exchange indices experienced a decrease similarly to employment in the initial phase of the Covid-19 pandemic.

5.4 Stock prices

Drawing information from the historical stock price indices within Norway will ascertain a foundation for further economic study. The historical data regarding the Spanish flu has been drawn from records kept by Norges bank and presented in "Historical Monetary Statistics for Norway 1819-2003". In specific Jan Tore Klovland`s work within this publication provided a comprehensive overview of stock market dynamics during the period of interest (Eitrheim et al., 2004). His work outlines changes in market structure over time where he implemented a semi-logarithmic base scale of 100 in January 1928. Utilizing this scale increases the accuracy of the data and analysis, as altering the scale may manipulate it.

The historical indices will provide insight into what extent sectors of the Norwegian economy were affected by the pandemic. To encapsulate the Spanish flu implications on the Norwegian macroeconomy the period of study spans from January 1914 to January 1928. The sectors included in this study are key sectors of the time such as; Manufacturing, Whaling, Banking, Shipping and Insurance. The data consists of monthly average index prices of the sectors and encompasses a total of 169 observations within each sector (Figure 8). The data is respectively not fully complete as the Norwegian exchange closed at the start of the first world war between August and October, 1914. It is important to note that in the early days of the Norwegian stock exchange, indices were prone to technical deficiencies. Including factors such as floating of new shares and stock splits which may have influenced the indices without being fully accounted for. Despite efforts to address these challenges, it remains unclear to what extent these factors were considered in the construction of the indices by Norges Bank (Eitrheim et al., 2004).

Figure 8: Stock price indices Norway, adjusted mean (January 1928 = 100), 1914-1928

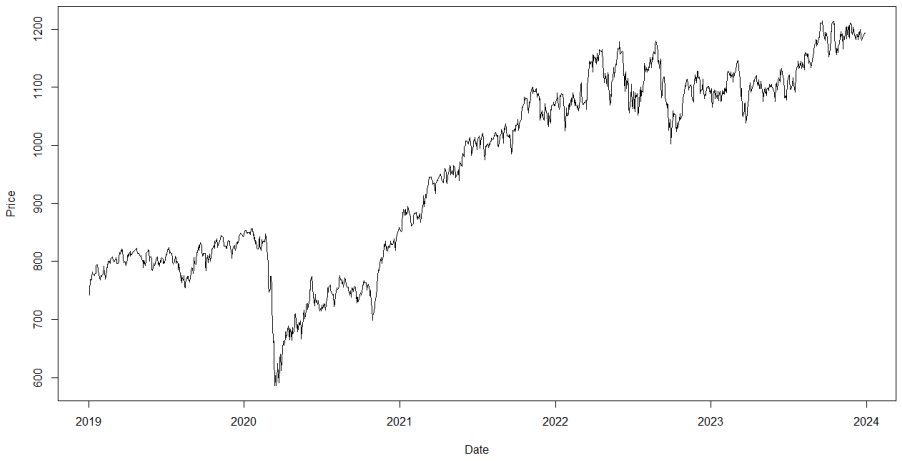


Note. Data from Eitrheim, Ø., Klovland, J. T., & Qvigstad, J. F. (Eds.). (2004). Historical monetary statistics for Norway 1819–2003 (Occasional Papers No. 35/2004).

Daily average index price data spanning from January 2019 to January 2024 is the basis for analyzing the Norwegian stock prices in the context of Covid-19. This timespan will capture the evolution of key sectors before, during and after the Covid-19 pandemic. The data is

sourced from Oslo Børs and contains all OBX indices. To simplify our data gathering the sectors included are of the growth (GR) classification. Representing a diverse range of critical industries vital to the modern Norwegian economy; Telecommunications, Healthcare, Financials, Technology, Consumer Discretionary, Consumer Staples, Industrials, Basic Materials, Utilities and Energy. Each of these sectors contain 1256 daily observations with no gaps in the data, which will provide an understanding of sectoral performance and market dynamics within the context of Norway portrayed in Figure 10 and 11. Additionally, the OBX GR Total index (Figure 9) is used to represent the stock market in its entirety, and has been gathered similarly to the sector indices.

Figure 9: OBX Total Index in average daily price, January 2019 - January 2024



Note. Data from Euronext. (n.d.). *OBX index*. Euronext Live

To ensure greater accuracy in the analysis of Covid-19 across the sectors, the average daily price data has not been transformed similarly to the stock prices analyzing the Spanish flu. As the financial sector has evolved and the data has become more accurate without the need for benchmarking and semi-logarithmic base scaling. By dissecting the movement and fluctuations of the index values over time, patterns of volatility, resilience and recovery may be visible. Shedding light on the broader macroeconomic conditions in Norway within pandemics.

5.4.1 Findings and analysis

Examining multiple macroeconomic factors in Norway is key in this study to dissect the implications of pandemics. The analysis of Norwegian stock sectors ranges from

manufacturing to insurance, and will highlight the different impacts the pandemic caused on the different segments of the Norwegian economy. Dissecting the data and grouping similarly performing sectors, will illuminate and explore the economic repercussions caused by the pandemics. To convey accurate movement of the indices during the Spanish flu, Table 8 demonstrates the growth percentage between the months January 1918 to December 1919. These months are chosen to encompass prior and after the majority of the Spanish flu.

Table 8: Sectoral index growth from Spanish flu

Sector	January 1918, Price	December 1919, Price	Growth Percentage
Insurance	173.9	150.3	-13.57102%
Manufacturing	399.2	209.5	-47.52004%
Shipping	427.2	288.2	-32.53745%
Whaling	271.2	197.6	-27.13864%
Bank	333.2	289.3	-13.17527%
Total	362.5	240	-33.7931%

Note. Data from Eitrheim, Ø., Klovland, J. T., & Qvigstad, J. F. (Eds.). (2004). Historical monetary statistics for Norway 1819–2003 (Occasional Papers No. 35/2004).

As seen in Table 8, all sectors experience contraction with a negative growth, although at different rates. The banking and insurance sectors experienced a greater amount of resilience in their stock prices. Banking, with a decline of -13.18% potentially benefiting from governmental policies and interventions that aimed at stabilizing the financial system. Similarly, the insurance sector experienced a decline of -13.57%, indicating its essential role in the economy even during times of crises. Further, the most severely struggling sectors under the pandemic were manufacturing and shipping. Manufacturing saw the largest decline of -47.52%, indicating that the pandemic caused reduced demand, disrupted supply chains and labor shortages. The shipping sector also contracted with a downturn of -32.54%, likely due to the decline of manufacturing and restrictions on international trade and travel. As the first world war caused turmoil in Europe and the post war economy of European countries influenced Norwegian sectors (Haug, 2016). The decline in stock prices across the sectors highlights the varied and clear impact of the Spanish flu on the different sectors in the Norwegian economy. Although, parts of the decline can be attributed to external factors such as the war.

To analyze the performance of sectoral indices during Covid-19 in Norway, the percentage change from February 1, 2020 to the lowest price in 2020 is gathered. Similarly to the analysis of the Spanish flu, a pre-pandemic date is used as the foundation for measuring index movements, as the pandemic entered Norway in late February. Contrasting the analysis completed of the Spanish flu the lowest index price experienced in 2020 is measured opposed to the after price levels. The date of which the stock indices reached February 1, 2020 prices are further gathered and labeled as "Date of recovery" in Table 9. Lastly, the growth from pre pandemic levels until January 1, 2022 is collected due to the nature of the stock index movements. As the pandemic caused a visible crash in the market contrary to the Spanish flu which makes investigating prior, during and after the severest part of Covid-19 impact crucial. Opposed to the prior and after assessment of the Spanish flu influence on the stock market.

Table 9: Sectoral indices during Covid-19

OBX GR Sectors	February 1, 2020 Price	Lowest Price in 2020 (Date)	Percentage Change from February 1, 2020	Date of recovery	Growth from February 1, 2020 - January 1, 2022
Technology	270.38	168.8 (2020-03-18)	-37.57%	2020-05-18	528.05 (95.29%)
Telecommunications	1689.13	1272.96 (2020-03-16)	-24.64%	2020-07-21	1760.96 (4.25%)
Health Care	640.92	392.23 (2020-03-16)	-38.80%	2020-04-29	1055.55 (64.69%)
Financials	2112.84	1287.75 (2020-03-17)	-39.05%	2020-12-28	2951.11(39.68%)
Real Estate	156.81	98.75 (2020-03-19)	-37.03%	2020-11-24	198.72(26.72%)
Consumer Discretionary	688.46	401.03 (2020-03-19)	-41.75%	2020-05-20	629.95(-8.49%)
Consumer Staples	3150.95	2493.66 (2020-03-27)	-20.86%	2021-02-22	3249.17(3.11%)
Industrials	453.32	329.67 (2020-03-23)	-27.28%	2020-05-26	800.82(76.66%)
Basic Materials	519.97	406.59 (2020-03-18)	-21.81%	2020-06-03	1020.64(96.29%)
Utilities	1817.31	1350.72 (2020-03-23)	-25.67%	2020-04-14	2327(28.05%)
Energy	792.92	434.32 (2020-03-18)	-45.23%	2021-06-01	946.68 (19.39%)
OBX Total	821.87	585.76 (2020-03-16)	-28.73%	2020-11-24	1068.63(29.95%)

Note. Data from Euronext. (2024). *OBX GR indices*. Euronext Live

The greatest resilience was seen in the consumer staples and basic materials sectors. These two sectors experienced declines of -20.86% and -21.81% respectively. Although these sectors had similar percentage declines in index price, their time to recovery differed significantly. With basic materials rebounding by June 3, 2020 it took consumer staples 9 more months to surpass the pre pandemic price.

The severest declines were observed in the health care, consumer discretionary, financials, technology, energy and real estate sectors and experienced a decline ranging from 37.03% to -45.23%. Making them the most implicated sectors and reflects the severity of the Covid-19 pandemic on the Norwegian economy. The health care sector faced challenges with increased expenses related to the pandemic. Consumer discretionary industries suffered significantly from social distancing and the lockdown measures implemented in Norway. The financial sector posed challenges due to the economic uncertainty and the low interest rates. Oil and gas prices plummeted amidst the pandemic and caused great ripple effects on the Norwegian energy sector, due to its reliance on fossil fuels. Businesses reduced their office space requirements as the workforce was forced to work from home and the residential real estate market was influenced by the economic uncertainty and job losses, causing the real estate sector to suffer (Zhang et al., 2022). Although there was a global positive trend in the technology sector, Norway's sector suffered heavily and crashed 37.57% from February 1 to March 18, 2020.

Although the stock market experienced an initial decline during Covid-19, similarly to the GDP per capita the Norwegian stock market resurged quickly. As seen in Table 9 almost all sectors experienced growth from pre pandemic levels until January 1, 2022. Where technology, health care, industrials and basic materials had the greatest growth. On the other hand, consumer staples, consumer discretionaries and telecommunications experienced stagnated growth and in the case of consumer discretionaries a negative growth.

The stock market was impacted differently between the Spanish flu and Covid-19 pandemic. For instance, the market crashed similarly between the sectors during Covid-19, but at varying degrees. Where the lowest price of every sector was experienced between March 16, 2020 and March 27, 2020, only 11 days apart. On the other hand, the sectors during the Spanish flu exhibit less obvious similarities in their trends, and there was no apparent market

crash caused by the pandemic. The sectoral impact therefore varied between the pandemics, and reflects the differing nature of the economic conditions at the time.

5.5 Governmental response

Governmental response is critical in shaping economic and social resilience and recovery during pandemics. By examining the strategies implemented by the Norwegian government it provides insight into the effectiveness of their actions in addressing the immediate challenge of pandemics and also the long-term stability. This section will explore vital fiscal and monetary measures adopted by the Norwegian government during the Spanish flu and Covid-19.

Retrieving data regarding interest rates during pandemics offers insight into the health of the economy, consumer and business behavior, debt sustainability and borrowing costs. Yearly data from 1910 to 1930 has been gathered in the form of nominal and real interest rates. The data is collected from Jon Petter Holters research on interest rates from 1820 to 1999 in Norway and was published by Norges Bank (Holter, 2000). The nominal interest rate represents the actual rate of interest in Norway without considering the effects of inflation. The real interest rate reflects the changes in purchasing power due to being adjusted for inflation or deflation. Therefore, the real interest rate may provide a more accurate picture of the Norwegian economy by measuring the true cost of borrowing or the real return on savings, as this measurement accounts for changes in the value of money (European Central Bank, 2016).

Table 10: Nominal and real interest rates in Norway, 1910-1930

	Nominal	Real		Nominal	Real
Dates	Interest rate	Interest rate	Dates	Interest rate	Interest rate
1910	3.99	1.03	1921	5.29	8.29
1911	4.04	- 0.28	1922	4.92	16.54
1912	4.30	0.12	1923	5.20	9.85
1913	4.39	1.61	1924	5.40	3.47
1914	4.39	- 1.96	1925	5.10	5.81
1915	4.69	- 6.36	1926	4.90	13.94
1916	4.64	- 12.89	1927	4.77	17.15

1917	4.87	- 18.28	1928	5.00	13.23
1918	5.07	- 15.11	1929	4.97	9.72
1919	4.96	- 12.83	1930	4.60	8.77
1920	5.60	0.67			

Note. Data from Holter, J. P. (2000). Historisk Rentestatistikk 1820-1999.

To analyze the Covid-19 pandemic the policy interest rate has been gathered monthly from January 2019 to March 2024. This rate was introduced in June 1993 and is a key monetary policy tool used by Norway's central bank. The policy rate represents the interest rate at which other banks can deposit funds up to their independent quotas at Norges Bank (Norges Bank, 2020).

Table 11: Interest rate in Norway, January 2019 to March 2024

Date	Interest rate	Date	Interest rate	Date	Interest rate
2019-01	0.75	2020-10	0	2022-07	1.25
2019-02	0.75	2020-11	0	2022-08	1.45
2019-03	0.82	2020-12	0	2022-09	1.89
2019-04	1	2021-01	0	2022-10	2.25
2019-05	1	2021-02	0	2022-11	2.47
2019-06	1.08	2021-03	0	2022-12	2.62
2019-07	1.25	2021-04	0	2023-01	2.75
2019-08	1.25	2021-05	0	2023-02	2.75
2019-09	1.33	2021-06	0	2023-03	2.82
2019-10	1.5	2021-07	0	2023-04	3
2019-11	1.5	2021-08	0	2023-05	3.21
2019-12	1.5	2021-09	0.06	2023-06	3.39
2020-01	1.5	2021-10	0.25	2023-07	3.75
2020-02	1.5	2021-11	0.25	2023-08	3.86
2020-03	0.99	2021-12	0.36	2023-09	04.07
2020-04	0.25	2022-01	0.5	2023-10	4.25
2020-05	0.05	2022-02	0.5	2023-11	4.25
2020-06	0	2022-03	0.55	2023-12	4.37
2020-07	0	2022-04	0.75	2024-01	4.5
2020-08	0	2022-05	0.75	2024-02	4.5
2020-09	0	2022-06	0.87	2024-03	4.5

Note. Data from Norges Bank. (2024). Changes in policy rate.

Moving on from interest rates, analyzing the governmental debt and spending percentages of GDP levels during pandemics is of interest. These metrics can provide critical insight into the fiscal response of the Norwegian government. The governmental debt as a percentage of the GDP indicates the level of national debt in relation to the economic output in the country during a given year. This metric therefore reveals insight into the extent of borrowing during the pandemics to finance emergency measures. The governmental expenditure as a percentage of GDP reflects the scale of public spending in relation to the economy. Analyzing the expenditure reveals the Norwegian government's commitment with funding healthcare, social support and the economic recovery efforts. The debt levels during Covid-19 has been sourced from CEIC Data, while the data regarding the Spanish flu was gathered from the International Monetary Fund or IMF. The governmental expenditure data regarding both pandemics has also been sourced from IMF.

Table 12: Governmental debt and spending in percentage of GDP during the Spanish flu and Covid-19

Date	Debt % of GDP	Spending % of GDP	Date	Debt % of GDP	Spending % of GDP
1917	10.15	5.21	2018	38.9	48.5
1918	14.59	9.94	2019	39.9	51.1
1919	16.27	9.99	2020	45.2	57.6
1920	15.06	8.64	2021	41.4	47.1
1921	21.85	13.69	2022	36.5	38.3
1922	25.74	11.75	2023	44.29	46.5

Note. data from CEIC Data. (2023). *Norway government debt (% of nominal GDP).;* International Monetary Fund. (2024). *Gross debt position of general government.*

5.5.1 Findings and analysis

Examining interest rates may serve as a vital lens to understand the economic impact, policy responses and recovery trajectories in Norway caused by pandemics. During the Spanish flu that spanned from 1918 to 1920, there were visible differences between the nominal and real metrics of the interest rates. The nominal interest rates were relatively stable at 5 % during the pandemic years only fluctuating between 5.07 - 5.60 %. This would indicate a consistent cost of borrowing and economic stability if inflation was low as it is not considered in the metric. On the contrary, real interest rates exhibited significantly greater volatility. Where in 1918 and 1919 the real interest rates reached far into the negatives of -15.11 % and - 12.83%. This

indicates that the inflation in Norway outpaced the nominal interest rates. This negative interest in turn decreases the purchasing power of money even with increased earnings on savings and investment because inflation erodes the value faster than the interest is growing. A negative interest rate usually incentivizes borrowing but is also a signal of economic instability (Severo, 2016). The observed negative real interest rate during and leading up to the Spanish flu suggest an increased inflation where saving is discouraged and spending or investment may provide greater returns. From the end of the pandemic in 1920 the real interest increased significantly reaching 0.67%, and reached new heights post-pandemic of 16.54% in 1922. This change constrained the economic recovery and activity as borrowing became more expensive, savings became more attractive and consumer spending decreased.

Interest rates have evolved from being greatly determined by market forces, and influenced by international wars and trade to a mandated policy rate controlled by central banks. Norway followed this transition from relying on nominal and real interest rates into utilizing a folio policy rate. This change has made the interest rate a vital tool in the modern approach to monetary policy, providing a more direct and targeted tool for Norway's central bank to regulate the Norwegian economy within an evolving financial landscape and times of crises. The pre-pandemic policy rate was 1.5% in January 2020, however as the pandemic unfolded the economic impact became obvious and the central bank implemented aggressive monetary policy measures to mitigate the decline of the Norwegian economy (Nicolaisen, 2021). In April 2020 the policy rate was set down to 0.25% and subsequently dropped to 0%, a historic low in mid 2020. The policy rate remained at zero or near zero until late 2021 in attempts to stabilize the economy. In the cooldown of the pandemic the policy rate has gradually increased in Norway, in efforts to normalize the monetary policies implemented to address the mounting inflationary pressure.

The policy tools played an important role in shaping the response to the pandemics in Norway. The policy rate was used as a vital tool for monetary policy adjustments during the Covid-19 pandemic, reflecting the evolution of modern central banking practices. In contrast, the effectiveness of the monetary policy tools available to authorities during the Spanish flu were constrained and limited their ability to implement targeted and swift actions to combat the crises. While both the pandemics caused significant challenges to the Norwegian economy, the differences in interest rate dynamics highlights how important historical context

and policy flexibility can be within the context of navigating crises and advancing economic recovery. Highlighting the evolution of monetary policy tools is an important aspect of addressing how policymaking has adapted to face economic challenges.

Policy measures such as lowering interest rates to combat crises do come at a cost. The governmental debt and expenditure is influenced by these policy responses due to cheaper governmental borrowing, and servicing of this debt in the short-term. As interest rates eventually have to be increased to manage inflationary pressures this accumulated debt becomes more expensive to address in the long-term. The governmental debt and spending increased significantly in 1918, when the Spanish flu pandemic hit Norway. Where debt-to-GDP increased from 10.15% to 14.59% and spending-to-GDP increased from 5.21% to 9.94% in the previous year. The debt levels in Norway continued to increase even post-pandemic, signaling sustained fiscal strain. The spending levels after the initial hit of the pandemic until 1922 had a more stable growth compared to the debt, as it ranged between 9.94% and 13.69%. Although, there were limited national measures implemented by the Norwegian government to combat this pandemic. The debt and spending increase are attributed to the difficult post-war and pandemic economic conditions.

During the Covid-19 pandemic similar traits of increased debt and spending were seen from 2019 to 2020. Where the debt-to-GDP ratio increased from 39.9% to 45.2%, and spending-to-GDP from 51.1% to 57.6%. This illustrates the extensive borrowing and spending of the Norwegian government to finance their policy and economic stimulus measures. Compared to the earlier pandemic the debt and spending levels in Norway during and after Covid-19 move symbiotically. Where the spending and debt levels decreased after the initial year of the pandemic 2020 until 2022. In 2023 the spending and debt levels resurged with the gradual increase of interest rate the acquired debt from containing Covid-19 may cause difficulties for the Norwegian government long-term . This turbulence indicates an ongoing struggle with adjusting to the post-pandemic economic reality. The magnitude of the increase in both debt and spending was more pronounced during the Covid-19 pandemic in Norway. The contemporary era exists with more extensive economic and social safety nets. Longer duration of economic interventions are also required to sustain crises now compared to the early 1900s.

During the Spanish flu pandemic, Norway did implement some measures to address the pandemic. These were primarly social measures like quarantine for infected individuals and restrictions on public gatherings. These interventions varied in their implementation and enforcement across Norway's different regions(Mamelund, 1998; Mamelund, 2003). In comparison, the Covid-19 pandemic saw a greater degree of coordinated governmental intervention, including widespread testing, lockdowns, contact tracing, vaccination campaigns and fiscal measures.

6. A Keynesian analysis

Keynesian economics is built upon government interventions and management of economic cycles through fiscal and monetary policies (Jahan et al., 2017). The theory suggests that increasing governmental public spending and reducing taxes stimulates demand during economic struggles. While reducing spending and increasing taxes mitigates inflation during economic upswings. Applying Keynesian models to historical and contemporary crises, such as the Spanish flu and Covid-19. It demonstrates how excessive economic disruption is managed. With examining how macroeconomic movements and interventions shift models such as the IS-LM model, insight can be gathered regarding impacts on aggregate demand, interest rates, output and economic stability.

6.1 The Spanish flu in the IS-LM Model

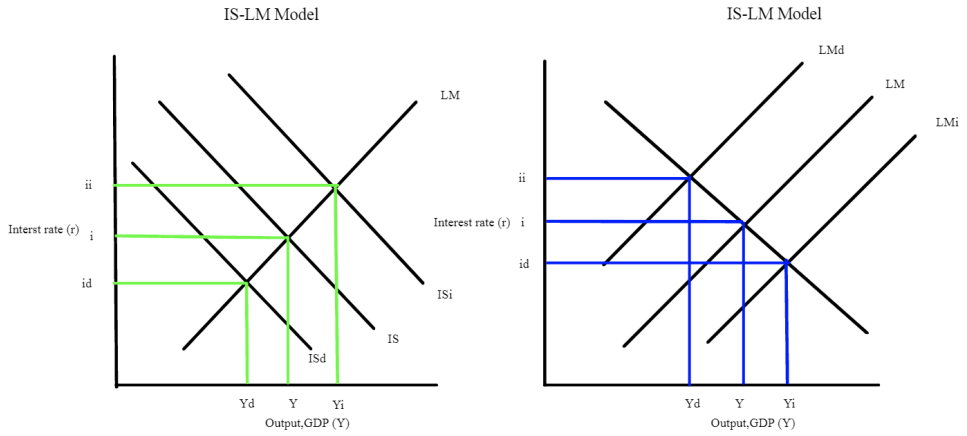
Analyzing the macroeconomic effects of the Spanish flu using the classic IS-LM model framework, assesing how the pandemic influenced the components of the IS (goods market) and the LM (money market) curve is required. The Spanish flu caused high mortality and illness in Norway. This considerably reduced consumer confidence and spending at the time. When households and businesses reduce their consumption due widespread sickness and subsequent loss of income it decreases national consumption and shifts the IS curve to the left (ISd). Investment also decreased due to uncertainty and a reduced demand for goods and services caused by the Spanish flu pandemic and the first world war. The decline seen in the Norwegian stock indices further contributed to declining investment, as the lower stock prices reduced the investor confidence and available capital in Norway to expand businesses and the economy. These investment and consumption factors combined shifted the IS curve leftwards (ISd) due to the decrease in aggregate demand.

The Norwegian government's spending increased between 1917 and 1918 although there were minimal economic rellief measures implemented due to the effects of the Spanish flu. Still, Keynesian economics underscores that increased government spending is crucial with offsetting declines in the private sector demand. With the government injecting funds into the economy the aggregate demand is sustained and the severity of the economic downturn may be mitigated. Despite the lack of economic tools during this time period the increased spending and borrowing is consistent with Keynesian principles. An increase in government

spending shifts the IS curve rightwards (ISi). This theoretical rightward shift would represent an increased aggregate demand and lead to higher output, GDP.

The increased government expenditure did to a limited degree counteract the negative impacts on consumption and investment, but not substantial enough to completely counteract it. As the gross domestic product per capita rebounded after the initial decline seen before and in the initial year of the Spanish flu in 1918. This rebound did not grow the GDP per capita, but stabilized it post-pandemic, where growth beyond pre pandemic levels was not seen until 1924. Thus, the overall effect of the government spending still reflects a leftward shift in the IS curve (ISd), although the government spending provided some mitigating support. The Spanish flu and the first world war also disrupted the global and Norwegian trade leading to a decline in export and imports. As seen in Table 8 the manufacturing and shipping sectors experienced a substantial decline during and after the pandemic and war. This disruption in trade contributed to contracting economic activity, and reinforcing the leftward shift of the IS curve (ISd).

Figure 1: Classic IS-LM Model



Note. Representation of the IS-*LM* Model with an upward sloping LM curve. Own work.

During the Spanish flu the real interest rate exhibited prominent volatility, suggesting economic instability which influenced the LM curve. In 1918 and 1919 the real interest rate in Norway was high into the negatives, resulting in a rightward shift of the LM curve (LMi). Mainly due to the negative relationship between the interest rate and output and the increased money supply relative to demand. As the output, GDP per capita (Y) rebounded post pandemic the demand for money increased. This in turn pressured real interest rates to rise,

which it did in 1920. This increase in real interest rates reflects a reduced money supply relative to demand in Norway, and typically shifts the LM curve leftwards (LMd), indicating a greater cost of borrowing further restraining consumption and investment. The modest recovery seen in Norway's GDP per capita during and after the Spanish flu and the real interest rates remaining high post-pandemic, are likely due to the persistent demand for money and the fixed money supply in a difficult historical period. As the market determined the interest rates during the early 20th century and not the central bank, further leading to sustained high rates.

Combining this analysis of the IS and LM curves it presents two clear equilibriums between level of income and interest rates in the Norwegian economy, these being the initial impact and the recovery phase. The Spanish flu induced several shifts in the curves but from the initial impact the IS curve was shifted leftwards due to the drop in GDP and investment. Additionally, the LM curve shifted from right to left due to the increased interest rates. In the recovery phase where the GDP per capita rebounded and government spending increased, some of the initial leftward shift of the IS curve would be counteracted. The LM curve would shift back towards the right as the demand for money continued rising with the increased output. However, the persistent high interest rates reflect ongoing economic adjustments in the market making this rightward shift prolonged.

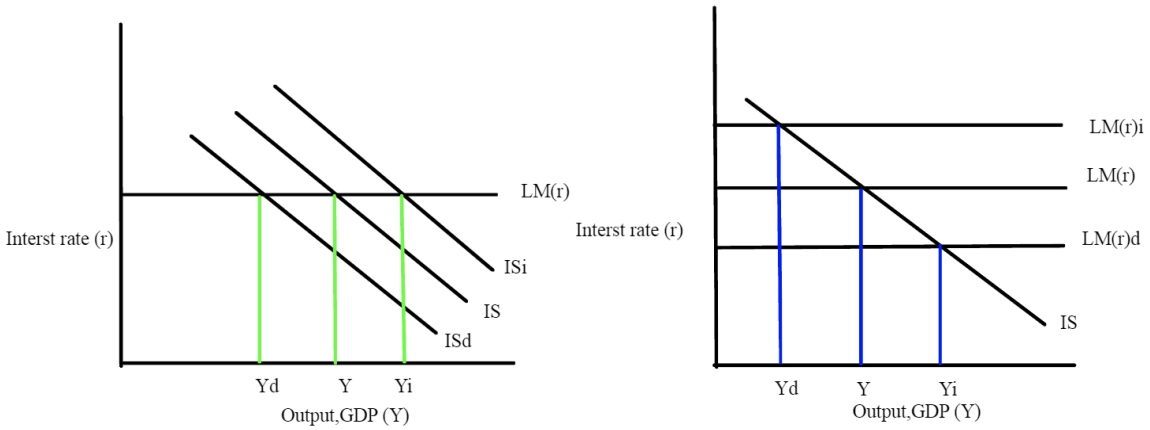
6.2 Covid-19 in the IS-LM Model

The Covid-19 pandemic prompted significant policy responses in Norway which influenced both the IS and LM curve of the model. The modern way of displaying the IS-LM Model with a horizontal LM curve revolves primarily around governmental policy discussions compared with the classic model (Blanchard & Johnson, 2013, pp. 40-108). Where the model mostly centers around measuring the effectiveness of monetary policy tools such as interest rate, fiscal stimulus and monetary supply policies with managing macroeconomic movement. The immediate shock in GDP per capita and Norwegian stock indices in the first half of 2020 reflects the initial economic decline. The economic activity contracted sharply and businesses closed in this period, and both investment and consumption fell, initially shifting the IS curve leftwards (ISd) as seen in Figure 2.

However, the robust and swift implementation of policy responses by the central bank and government countered this downturn swiftly. Several key measurements were implemented during Covid-19 in Norway, significantly impacting the modern IS-LM framework. The most notable monetary policy being the lowering of the interest rate to zero percent by the central bank. The policy aimed at mitigating the pandemics effect on the Norwegian economy and stimulating economic activity by making borrowing cheaper. Encouraging further consumption and investment. In the IS-LM model displayed in Figure 2, a reduction in the interest rate would shift the LM curve downwards to (LM(r)d) and result in higher equilibrium output, GDP.

The increase from 39.9% to 45.2% in debt-to-GDP and 51.1% to 57.6% spending-to-GDP from 2019 to 2020 highlights the extensive borrowing and spending by the Norwegian government during the initial year of Covid-19. This increase illustrates Keynesian principles in action and are designed to stimulate demand and support economic recovery. This fiscal support to businesses and households shifts the IS curve to the right, and reflects an increased aggregate demand (ISi). This shift indicates a higher output level at the given interest rate, and helps with counteracting the recessionary pressure caused by the Covid-19 pandemic. The Norwegian central bank further intervened in the market through money supply policies. The objective with these policies was to address liquidity issues and stabilize the Norwegian financial market. On March 12, 2020 just two weeks after the first confirmed Covid-19 case in Norway a 3-month F-loan was introduced. This allowed banks to borrow unlimited amounts for 3 months at the policy rate against collateral, seeking to enhance the liquidity in the credit market (Olsen et al., 2020). In the modern IS-LM model this increase in money supply is consistent with a horizontal LM curve, where the central bank supplies the money demanded at the fixed interest rate.

Figure 2: Modern IS-LM model



Note. Representation of the IS-*L*M Model with a horizontal LM curve. Own work.

Despite the significant challenges posed by the crisis, such as the increased unemployment, mortality and consumer uncertainty the GDP per capita saw positive growth after the initial shock of the pandemic. This growth can be credited to the effective fiscal and monetary policies implemented, which helped mitigate a prolonged economic downturn, support the recovery efforts and facilitated a reversal in the IS curve movements. As consumer confidence and economic activity resumed the curve shifted back to the right (ISi). The lowered horizontal LM curve further highlights the commitment to maintain low borrowing costs and liquidity by the Norwegian government and central bank. Norges Bank's ability to control the interest rate and adjust the money supply in Norway is crucial. The Norwegian government's ability to introduce fiscal measures to increase aggregate demand reinforces this effectiveness, and together these interventions played a vital role in stabilizing the economy during the pandemic.

6.3 Comparing the models and pandemics

Notable differences appear when comparing the macroeconomic effects of the Spanish flu and Covid-19 through the classic and modern IS-LM models. During the Spanish flu Norwegian governmental response was constrained by the limited tools and relied primarily on increased spending. Although not spesifically directed towards pandemic relief and recovery efforts. The Covid-19 pandemic response contrasts the Spanish flu. During this contemporary crisis an extensive array of fiscal and monetary policies were employed in Norway. These include

interest rate reduction, monetary supply adjustments and fiscal stimulus. The IS or goods market curve diverged between the pandemics as well. Where the Spanish flu shifted the curve leftward due to the reduced investment, consumer spending and trade disruption. In comparison, during Covid-19 the IS curve initially shifted leftwards followed by a rightward shift, signaling an increased aggregate demand and output. The negative inital real interest rate seen during the Spanish flu shifted the LM curve rightwards, but as the interest increased the LM curve moved leftwards. The lowering of interest rate during Covid-19 stabilized the Norwegian economy, and is represented by the downward shift of the horizontal LM curve.

The equilibriums between the pandemics further differ. The Spanish flu experienced an initial recession followed by limited recovery, whereas Covid-19 introduced effective policies and the GDP per capita grew post the initial economic shock. Therefore, it can be concluded that the equilibrium of the model had a more favorable output during Covid-19 compared with the Spanish flu. The classic model emphasizes a limited use of fiscal measures and movement led by goods and money market forces. Comparatively, the modern model employs a combination of strong fiscal and monetary policies and monetary stimulus. Reflecting the advancement in policy tools and economic theory.

7. Discussion

With finding and analyzing socio- and macroeconomics metrics, the study has provided a foundation to answering the research questions: *(1) How was Norway impacted economically and socially by the Spanish flu and Covid-19? (2) How did Norway recover from the pandemics? (3) What lessons can be learned from how Norway handled the Spanish flu and Covid-19?*. The three research questions comparatively studies three vital stages of pandemics. Learning from historical crises creates a foundation for better policy making to secure economic stability and social wellbeing in the event of future crises. It will highlight the crucial role of public health infrastructure, monetary and fiscal policy in controlling pandemic outcomes.

The first research question is "how was Norway impacted economically and socially by the Spanish flu and Covid-19?". The Spanish flu and Covid-19 both caused significant challenges to the Norwegian economy, and led to social disruption. There was a significant economic decline in the initial year of the Spanish flu. The GDP per capita experienced a sharp decline of 6.17% in 1918, reflecting the immediate negative impact of the pandemic. Additionally, the Norwegian stock market suffered during this period. Highlighting the economic instability from the pandemic. These economic disruptions were compounded by pre-existing vulnerabilities due to the first world war. As the war had already strained the Norwegian economy with resource scarcity and trade disruption in the years leading up to the pandemic. The increase in governmental debt and spending as well as a negative interest rate in 1918 reflects the severe economic conditions and the critical monetary and fiscal interventions required to stabilize the economy.

The Covid-19 affected millions of Norwegians and caused the unemployment in Norway to rapidly rise in 2020, but the governmental policy making eased the economic impact and confidence in the market during the pandemic. These fiscal and monetary measures introduced by the Norwegian policymakers led to an increase in GDP per capita from 2020 to 2022. Although there was a short term GDP per capita decline in 2020, the economy rapidly rebounded (Blytt et al., 2022). The lowering of the interest rate to 0% in 2020, and remained at low levels until 2022 stimulated borrowing and investment in Norway. Supporting consumer spending, business activity and overall economic growth. Simultaneously the

Norwegian government implemented further fiscal and social policies to counteract the effects of Covid-19 in 2020. These include an increase in government spending on healthcare and support for businesses and individuals. The increase in government spending and debt in 2020 indicate that the measures implemented counteracted the GDP per capita decline, as the GDP grew from 2020 to 2021.

The decrease in the Government debt percentage of GDP in 2021 and 2022 was facilitated by the low interest rates and fiscal measures. The low interest rates reduced the cost of servicing the government debt and provided a fiscal space where increased borrowing would not have a significant impact on debt sustainability. The fiscal stimulus measures and low interest rates implemented to support the economic activity in Norway continued to contribute to the GDP growth even with decreasing government spending in 2021 and 2022.

The Norwegian OBX indices saw significant short term drops, with the OBX GR Total index experiencing a decline just short of 30% in the first quarter of 2020, as seen in Table 9. The market bottomed as early as in mid-March, with some differences between sectors. This initial reaction suggests high levels of speculation and low confidence in the Norwegian market in the early phases of the Covid-19 pandemic. The market quickly rebounded from the initial crash where resilience was especially evident in the technology, healthcare, energy, financials, industrials and basic materials sectors on the Oslo Stock Exchange. The upward trajectory of these OBX indices reflects investor optimism and confidence in the resilience of the Norwegian economy and businesses. Despite the uncertainties surrounding the pandemic the proactive policy responses by the government and strength seen in certain sectors reassured investors. All these factors contributed in realizing the economic growth seen in Norway.

The examination of mortality during these two lethal pandemics provides valuable insights into the impact of global health crises. The Spanish flu ravaging in the early 1900s is recognized for its unusually high mortality among younger people, proving a considerable divergence from Covid-19. The Spanish flu expedited a substantial surge in mortality in Norway, and the amount of influenza-related deaths soared from approximately 1 700 in 1917 to over 12 000 in 1918, close to a 600% increase. Examining Table 4 reveals the severe increase in death rate, illustrating a vast fluctuation in influenza-related deaths. Comparing

the mortality between the pandemics in death rate per 100 000 the Spanish flu dominates with 466 in 1918 against 64.49 in 2022. The deaths of young, healthy people contributed to a subsequent reduction in life expectancy during the Spanish flu. Declining from 57.73 to 50.30 years and reflecting about a 13% decrease from 1917 to 1918. Such a drastic reduction underscores the medical challenges posed by the pandemic. The Spanish flu impacted the death rates to an unusual extent and compared with Covid-19 the severity was more extensive in Norway - but also in Sweden and Denmark. The death rate per 100 000 from Covid-19 surged in 2022, two years after the virus reached Norway. This rate was more than six times higher in 2022 compared with 2020, indicating a resurgence following the reopening of social activities. Not only were the rates lower during Covid-19, but the disease affected the elderly part of the population and resulted in a comparatively lesser impact on the workforce in Norway.

Unemployment rate is a vital macro- and socio economic metric, as it interacts with both social and economic factors. Before the Spanish flu started, Norway had a strong economy. The unemployment rates based on union memberships were low the years prior to the pandemic (Table 7). Norway remained neutral in the first world war and the unemployment was largely unaffected between 1914 and 1918. As the first year of the Spanish flu coincided with the end of the first world war, the unemployment rates were unaffected, while the mortality soared. Members of the workforce dying may be a factor to why the unemployment remained low, as the demand for labor increased due to this mortality. The unemployment rates did not increase until the economic recession in the early 1920s Norway (Table 7). The unemployment rate rapidly reached 17.6% in 1921 and similarly the GDP per capita also started declining this year, impacting the Norwegian economy and the unemployment.

The unemployment statistics included in this research to measure Covid-19 describes fluctuation rates between 2014 and 2020. As in 2016 the unemployment reached 5% due to reduced demand from the petroleum industry (Røv, 2023). From 2016 the unemployment in Norway has been decreasing until 2020. When Covid-19 reached Norway the unemployment rates reached figures not seen since the early 2000s. After the lockdown in March 2020, the unemployment rate in Norway went from 3.9% to 5.5% in August which was the peak. The primary reason for this increase is the lockdown, and businesses were forced to close and lay off their workers. When practically a whole country locks down, business owners are forced

to act quickly. People were forced to isolate themselves in their homes and minimize large gatherings, including home office in preference of a shared office and home school with streamed lectures. Norway aditionally closed all cultural services like concerts, cinema, nightlife, and anything that potentially would provoke transmission of Covid-19. Additionally there was a temporary stop in all sports throughout the country. When the Covid-19 virus spread rapidly, fear was a major issue.

Modern unemployment from the 21st century is reliable and valid as the metric is retrieved from national statistics organizations. While the data from the early 20th century is less accurate and reliable as sourcing data from this period provides challenges. Due to limited statistical infrastructure, inconsistent methodologies, along with limited technological resources. The unemployment data used to examine the Spanish flu in this research applies “unemployed union members”, while the newer data to measure Covid-19 uses “unemployment based on workforce”. Given this difference, it is reasonable to assume that the figures during the Spanish flu were likely higher than recorded, and there may be an underrepresentation of what percentage of the actual workforce was unemployed .This provides us with an methodology-issue regarding the comparison of two different statistics. The validity can be questioned when the background for the data is incompatible.

By reviewing theoretical frameworks, it can serve as a roadmap for developing explanations for the ramifications of the pandemics. According to the Kindleberger model, these two public health crises are external shocks that test the resilience of the economies, highlighting the cyclical nature of financial stability (Aliber & Kindleberger, 2015). When connecting the Kindleberger model to a pandemic it is not the typical speculative bubble that forms the disaster, although they are closely aligned. The sudden disruption in trade, labor shortages due to illness and death, and the uncertainty and fear caused by the Spanish flu and Covid-19 aligns with Kindleberger's concept. This concept being that external shocks tests the resilience of economies. In both of the cases, the overconfidence that usually precedes such crises was seen in the initial period of the pandemics. Norway was not prepared or resourceful enough during either of the pandemics, and led to governments and businesses underestimating the severity of the pandemics. In the case of the Spanish flu the economic recession lasted longer compared with Covid-19, due to external sources.

The medical, political and technological advancements available during Covid-19 the overconfidence can be attributed to the past success with handling health crises such as the swine flu, the perception of a strong healthcare system, trust in government response and the stability of the economy. This overconfidence was followed by panic as the full scope of the crisis became clear. Further resulting in market volatility, economic contraction and increased unemployment. The recovery process in Norway also incorporates aspects of the Kindleberger model. Governmental monetary policies and fiscal stimulus measures had an important role with stabilizing the economy and rebuilding confidence.

Our second research question, *"how did Norway recover from the Spanish flu and Covid-19?"*, is primarily based upon governmental interventions. Examining the economic recovery from the Spanish flu, the GDP per capita stagnated in Norway in the 1920s. The Norwegian stock market slowly stabilized after the pandemic, but also experienced stagnation without considerable growth. Reflecting an era of cautious investor confidence and an inflated degree of uncertainty in the market. The government spending stabilized post-pandemic while the government debt increased notably, suggesting Norway struggled with recovering from the increased spending during the pandemic and the increase seen in real interest rates. The increase in real interest rates post pandemic also reflects tighter monetary policies in the Norwegian banks to manage inflation and stabilize the economic conditions.

The Covid-19 pandemic gradually calmed down in the later stage of 2022, and Norway was now confronted by new challenges with long-term recovery efforts (World Health Organization, 2022). With the Covid-19 pandemic being so recent there is limited quantitative post Covid-19 data. Despite the earlier stimulus efforts, the GDP growth in Norway stagnated between 2022 and 2023 with a slight decline. There are several factors that may be contributing to this economic slowdown. The gradual withdrawal of fiscal stimulus measures and the government's attempts at normalizing the monetary policy, leads to higher interest rates and a reduction in government spending. This attempt at normalizing governmental policy to pre pandemic levels implies that the Norwegian government is required to increase the interest rates, to combat variables such as the growing inflation. An increased interest rate raises the borrowing costs for the government, businesses and individuals and impacts investment and consumption negatively.

Without governmental interventions the supply chain disruptions, changed consumer behavior and uncertainties surrounding international trade became more apparent and turned the economic growth into stagnation. These constraints limited the Norwegian government's ability in providing support and growing the economy. The government debt and spending percentage of GDP in Norway increased in 2023, and suggests the government continued to borrow and spend in attempts to address the long-term economic challenges. This increased government debt and spending highlights the fiscal pressure facing the Norwegian government and how important the process of withdrawing policy measures efficiently is post crisis. The Norwegian stock market also has stagnated after 2022 as seen in the OBX Total index, Figure 9. Indicating a drop in investor confidence and optimism in Norwegian compatines post pandemic.

At the time of the Spanish flu, the government faced challenges due to the limited understanding of the virus. Usually, interventions during pandemics are divided into pharmaceutical and non-pharmaceutical. There were no vaccines or other effective pharmaceutical treatments during the Spanish flu (Fouchier & Wang, 2017). There were available supportive treatments to handle the symptoms, but no curative medical care. One of the medications used as supportive treatment was Aspirin which was used to reduce fever and pain, but the early 1900s were characterized by a lack of medical knowledge in comparison to the 2000s (Simonetti et al., 2021). Limited understanding of the virus led to difficulties in the development of functional drugs. The fact that there were 0.4 doctors per 1 000, and few nurses between the municipalities is not a reassuring factor for the recovery. Comparing the healthcare during the two pandemics can provide some answers to why the Spanish flu were more difficult to handle. In 2021, Norway had 27 924 actively-working doctors, equalling 5.18 doctors per 1 000. This is almost 12 times the amount of doctors contributing actively with their knowledge and health care practices in the recovery of Covid-19 in comparison with the Spanish flu.

Like many countries in 1918, Norway was decentralized, and the primary responsibility for health measures fell on the municipalities themselves. The non-pharmaceutical measures were similar between the two pandemics, but researchers claim that we have a greater understanding of non-pharmaceutical interventions today (Beach et al., 2022). There was a strong debate about how preventive measures should be used to recover from the pandemic,

and what measures would be most beneficial. Some municipalities closed schools and other assembly points, but the effectiveness was varying. The lockdowns during the Spanish flu proved to work in sparsely populated areas, but in the cities it was more difficult to obtain an effective degree of social-distancing (Mamelund, 1998).

Our third research question, "*What lessons can be learned from how Norway handled the Spanish flu and Covid-19?"*. This research question is a crucial aspect of the research as the objective behind the study is to provide a comprehensive perspective of pandemic impact and recovery. To create a foundation for favorable decision-making and preparation for future crises. All metrics analyzed in this research paper exhibit distinct characteristics from which valuable insights can be derived. Preparing for the future is done through addressing past crises and deriving lessons from them. Analyzing Norway's handling of the Spanish flu and Covid-19 pandemics reveal a multitude of socio- and macroeconomic trends and lessons. A vital component of recovering from pandemics is concise and decisive governmental action. Where Norway swiftly implemented social distancing measures and financial support programs during Covid-19 to contain the virus and stabilize the economy. Compared to the Spanish flu era the approach was vastly different, and the less structured and fragmented approach led to a prolonged period of economic difficulties. The lesson drawn here is the importance of robust governmental structure to ensure swift and effective crisis management.

The implementation of a policy interest rate plays a significant role in cushioning economic fallout during crises. As the Norwegian central bank can stimulate the economy and encourage borrowing and investment with reducing interest rates. During the Spanish flu, this monetary instrument was not yet implemented and interest rates fluctuated greatly. These fluctuations create economic instability and uncertainty. Lessons drawn from analyzing interest rates is that the implementation of responsive monetary policies controlled by the central bank are crucial. The central bank can adapt the policies to unique challenges and ensure support for economic growth and stability. The Norwegian government increased their debt and spending levels during both initial pandemic years. These experiences highlight the need for Norway to be prepared to increase public spending during crises. Effective management of public finances are essential with mitigating the economic impact of future pandemics, and deploying fiscal support.

The GDP per capita trends during the pandemics showed decline leading up to and in the initial years, followed by recovery. The GDP during the Spanish flu gradually recovered post pandemic although it did not grow, demonstrating economic stagnation in Norway with the limited policy interventions. The recovery from Covid-19 has largely been driven by aggressive monetary and fiscal policies, displaying the modern approach to crises with comprehensive support measures. The growth seen during the early 1900s suggests that economic recovery can happen without the implementation of large scale economic policies. Although, the active crisis management in the modern era by the Norwegian government creates a greater degree of control and subsequently a smoother economic recovery. The Norwegian stock market also reacted during these pandemics and provides valuable lessons. The Spanish flu did not trigger a crash in the Norwegian market but experienced a prolonged decline, reflecting slower economic recovery and the post-war uncertainties. In comparison, the Norwegian market did experience an initial shock in 2020 due to Covid-19 but was followed by a period of significant growth and recovery during the pandemic until 2023. This recovery was largely driven by investor confidence in the market and the incentives given by the strong governmental interventions. The lesson therefore is the important role of fostering investor confidence during pandemics and having supportive economic policies to stimulate the economy.

The two pandemics have resulted in different mortality numbers and varying outcomes upon the specific circumstances and contexts. Doing a comparative analysis can provide insight to whether Covid-19 resulted in lower mortality due to discernible human factors, or if it was coincidental reasons. Firstly, the significance of a strong healthcare system can not be understated. Norway went through the Spanish flu without effective medicines and vaccines and was additionally haltered by shortages of medical professionals. In contrast, Norway during Covid-19 prioritized health and safety through non-pharmaceutical practices like social distancing, but also through researching and distributing vaccines. On a global level, researchers concluded that already in the first year of the vaccine being introduced, 19.8 million deaths were avoided (Watson et al., 2022). It is reasonable to conduct a thought experiment considering the avoidable outcomes during the Spanish flu if the pharmaceutical industry had been as developed as during Covid-19. The comparisons of mortality during the two pandemics proves the importance of advancements in medical science, despite other factors influencing varying mortality rates.

There are several lessons to be learned from the development in the unemployment rates, and first and foremost is the importance of social safety nets. Rising unemployment rates results in lost income for families, and signals a downturn in the economy, due to lower business-activity. Governmental interventions have been a necessity to counter these trends. Examples of such safety nets are stimulus payments as direct financial assistance to both individuals and businesses. These stimulus packages included aid to students who lost their part-time jobs, and business-support for small and medium sized businesses (Hoel-Holt & Einarsdottir, 2023, p. 42; Regjeringen, 2020, August 17). Norway also changed the rules for layoffs, and paid 100% of wages for persons who were laid off for the first 20 days, up to 600 000 NOK. All these measures were implemented as safety nets during Covid-19. Obtaining insights from Covid-19 versus the Spanish flu is particularly advantageous, due to the fact that we have recently navigated through it, and new research is required to learn from it.

Through examination of the Spanish flu and Covid-19, critical insights into socioeconomic and macroeconomic factors have been provided to further influence future crisis management strategies. A prominent lesson learned is the importance of public health infrastructure and rapid government intervention. The Spanish flu highlighted the burden of limited government intervention and low-scale public health resources. This resulted in lengthened recovery time, in comparison to the immediate and comprehensive response to Covid-19. The measures included during Covid-19 were early lockdowns, extensive testing, vaccination, and fiscal and monetary policies, which revealed positive results. The study emphasizes the importance of adaptability and preparedness in public health systems to mitigate the influence of future health crises. Furthermore, the research punctuates the significance of valid data and critical examination of historical statistics to confirm precise analysis and educated decisions. Aligning governmental policies with strategies supported by empirical evidence, enhances the navigation through complexities of potential upcoming crises. For shaping sustainable policies and measures to address future pandemics, these lessons are critical.

8. Conclusion

To conclude, the socioeconomic and macroeconomic impact, recovery and lessons learned from the Spanish flu and Covid-19 pandemics in Norway provides insight into advancements made in crisis management and economic resilience. In the early 20th century the Spanish flu pandemic led to economic disruptions characterized by considerable decline in the industrial activity, trade and a high mortality rate. The health care system was strained and the long term stock market decline stressed the economic stability. The Norwegian GDP per capita did rebound from this pandemic due to the growing export industry and a developing energy sector. The rebound in GDP per capita was slower compared to Covid-19 and growth beyond 1916 pre pandemic levels was not seen until 1926. The recovery was slow during the Spanish flu due to the limited public health infrastructure, less complex economic policies and the effects of the first world war. This highlights the vulnerability with minimal government intervention on public health and the economy during times of crises.

In comparison the Covid-19 pandemic showcased the evolution of Norway's economic and public health response capacity. As the pandemic hit Norway in February 2020 the GDP per capita and stock market both initially declined. The aggressive monetary policies that were swiftly enforced by the Norwegian government played a vital role with stabilizing and growing the economy post the initial decline. These policies included reducing the interest rates, increasing government spending, support packages, and an array of comprehensive fiscal measures. The measures aided with mitigating an extended period of economic decline and high unemployment, as well as maintaining business growth and consumer confidence in Norway. With the modern healthcare system and fast implementation of free vaccines, Norway was successful in containing this health crisis more effectively. Ultimately leading to a more robust and quicker recovery compared to the early 20th century Spanish flu pandemic.

Comparing these two pandemics from different historical periods provides insight into several essential lessons. First of all, having a robust and adaptable public health infrastructure is vital for containing pandemics. Where rapid deployment of medical resources and investment into healthcare systems are a crucial aspect of managing health crises. Second, government intervention is vital. During times of crisis, efficient fiscal and monetary policies can considerably cushion the economic impact, aid in the recovery and preserve social stability. Finally, being prepared and ready to adapt to a crisis is key. Continued learning from past

experiences and continuously monitoring and improving crisis management strategies to enhance Norway's resilience to future pandemics.

Further research in this field should delve deeper into the monetary and fiscal policies, social impact and inequality, and comparative international analysis to create a foundation of what are preferable pandemic responses. Researching the long-term implications of swift fiscal and monetary measures especially seen during Covid-19 on the inflation, debt levels and the economic growth in Norway would be valuable. Research regarding social inequality caused by pandemics could highlight vital aspects and guide policymakers in developing inclusive policies. Understanding the differential pandemic impact on various demographics based on age, income, occupation can help shape better governmental interventions to support the vulnerable population and the long-term social repercussions caused by crises.

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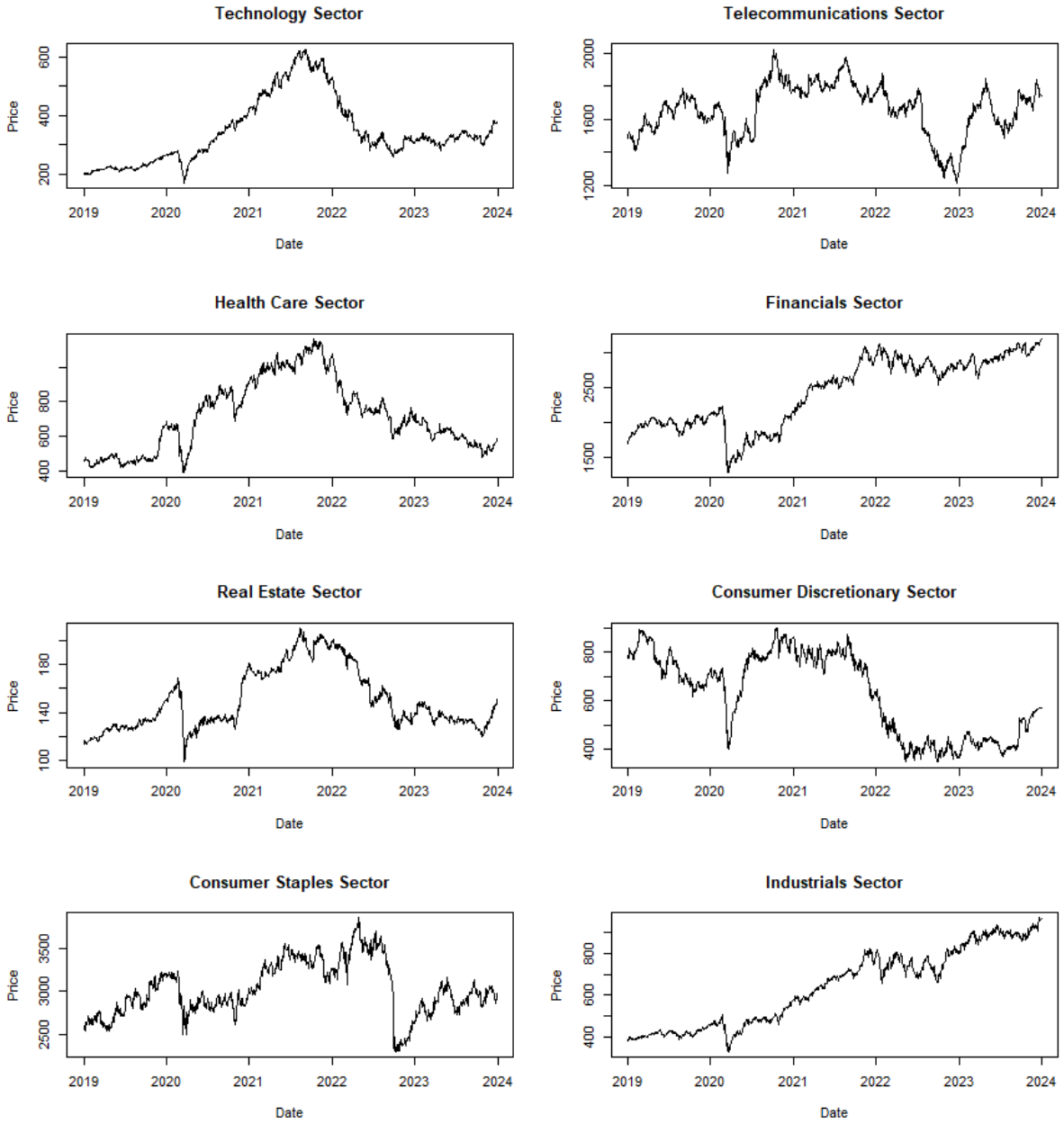
10. Appendix

10.1 Tables and Figures

Figure 10: Sectoral indices of the OBX daily average price, January 2019 - January 2024



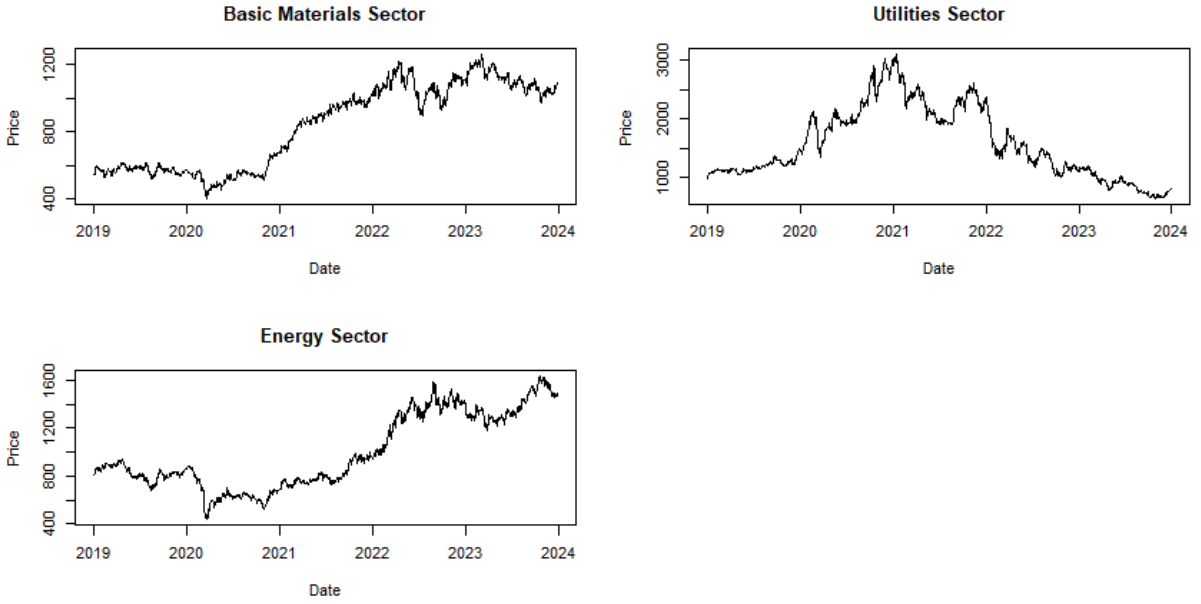


Figure 11: Stock price indices Norway, adjusted mean (January 1928 = 100), 1914-1928

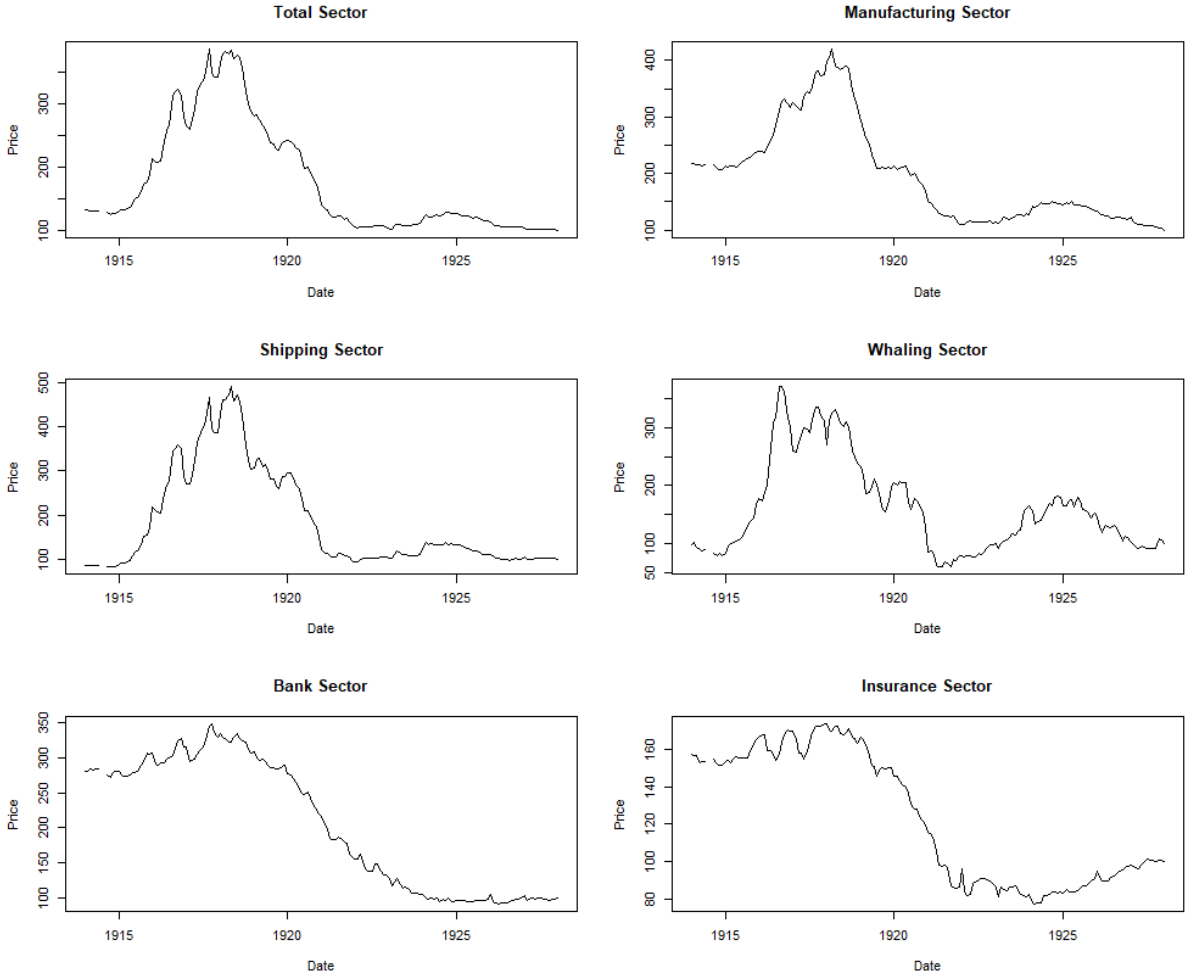


Table 13: Spanish flu mortality rates in Denmark

Year	Population	Total Mortality	Mortality	Death rate per 100 000	Life expectancy men	Life expectancy woman
1915	2 885 800	37 174	235	8	56.2	59.2
1916	2 921 400	39 265	179	6	55.8	58.1
1917	2 957 700	39 224	199	7	55.8	58.1
1918	2 991 300	39 038	4 150	139	55.8	58.1
1919	3 027 100	39 590	1 769	58	55.8	58.1
1920	3 061 300	39 841	3 000	98	55.8	58.1
1921	3 264 500	36 215	161	5	60.3	61.9
1922	3 305 700	39 452	1 547	47	60.3	61.9
1923	3 339 700	37 903	719	22	60.3	61.9
1924	3 372 500	38 091	644	19	60.3	61.9
1925	3 405 700	37 083	N/A	N/A	60.3	61.9

Note. Data from Danmarks Statistik. (1918, 1919, 1920, 1921, 1922, 1923, 1924, 1925, 1926). *Statistisk Årbog.* Det Statistiske Departement.

Table 14: Spanish flu mortality rates in Sweden

Year	Population	Total Mortality	Mortality	Death rate per 100 000	Life expectancy average
1915	5 712 740	83 587	1 018	18	57.99
1916	5 757 566	77 771	314	5	57.99
1917	5 800 847	77 385	213	4	57.99
1918	5 813 850	104 591	27 379	471	57.99
1919	5 847 037	84 289	7 341	126	57.99
1920	5 904 489	78 128	2 853	48	56.46
1921	5 954 316	73 536	479	8	56.46
1922	5 987 520	76 343	2 235	37	56.46
1923	6 005 759	68 424	224	4	56.46
1924	6 036 118	72 001	458	8	56.46
1925	6 053 562	70 918	669	11	61.93

Note. Data from Statistiska Centralbyrån. (1918, 1919, 1921, 1923, 1925, 1927, 1929). Döodsorsaker. *Boktryckeriet P. A. Norstedt & Söner.*

10.2 International Discussion

Discussion Paper on "Impact of Pandemics on Norway: A Comparative Study of the Spanish Flu and Covid-19" in Relation to International Trends and Forces

Vegard Wilhelmsen

1. Presentation of the Thesis

The thesis investigates the social and economic impacts of two of the most brutal pandemics in recent history, the Spanish flu and Covid-19 in Norway. With comparing the outcomes and response to the pandemics, the study identifies differences, patterns and lessons learned that can inform future public health and economic policies. The research aims to answer these three research questions: *How was Norway impacted economically and socially by the Spanish flu and Covid-19?(1), how did Norway recover from the pandemics?(2), and what lessons can be learned from how Norway handled the Spanish flu and Covid-19?(3)*. In answering these questions the immediate economic impact, long-term economic recovery processes and and the social consequences and adaptations necessitated by these pandemics will be revealed.

The thesis employs a historical comparative approach. Where archival data, economic reports and scholarly articles are used to draw comparisons between the two pandemics. The quantitative data is used to assess the economic and social impact through GDP and stock growth rates, government spending, unemployment and mortality rates. Through this comparison the research found that both pandemics caused significant disruptions to the Norwegian economy. The Spanish flu led to workforce shortages due to the deadliness of the flu on the younger population, decreasing productivity and growing unemployment. On the other hand Covid-19 resulted in an instant rise in unemployment and a temporary economic downturn. The Spanish flu and the first world war led to an extended period of economic

recession in Norway. The latter pandemic was also profound due to the global nature of modern economics. Further the significant social measures such as lockdown and quarantine exacerbated the economic decline.

The social impact during the Spanish flu includes increased uncertainty and fear due to less knowledge about pandemics. Together with the high mortality rates and a limited governmental social support system the impact was detrimental to the Norwegian population. For Covid-19 on the other hand, many aspects of the social consequences were mitigated by comprehensive social safety nets and the advanced healthcare system. This pandemics also highlighted aspects of social inequality in Norway. The lessons learned from these pandemics is the importance of timely governmental interventions, effective public health infrastructure and adequate fiscal and monetary policies and measures. Lastly, it is vital to have resilient and prepared social and economic systems in place to withstand future pandemics.

In conclusion, the comparative research of the Spanish flu and Covid-19 reveal that while pandemics frequently affect economies and populations, the extent and nature of these effects vary greatly depending on the context and response. The findings of the thesis provide important lessons for policymakers and public health authorities as they prepare for and manage future health crises.

2. Relation to International Trends and Forces

The study of pandemics such as the Spanish flu and Covid-19 inherently ties into the concept of “international” due to the global nature of these health crises. The very term pandemic even stands for; “an epidemic that has spread over several countries or continents, impacting many people. Pandemics typically happen when a new virus spreads easily among people who—because the virus is new to them—have little or no pre-existing immunity to it” (Katella, 2020). Therefore, the thesis can readily be discussed with international trends and forces in mind. Further this section will discuss how the thesis relates to international trends and forces. Globalization, international health governance, global economic interconnectedness, and advances in healthcare and communication technology are all factors to consider.

The initial research questions addressed in the thesis: *How was Norway impacted economically and socially by the Spanish flu and Covid-19?(1).* The thesis concludes that both the Spanish flu and Covid-19 caused disruptions to the Norwegian economy, although through different mechanisms due to the difference in global context between the pandemic periods.

Globalization has set the foundation for rapid spread of disease and viruses across country borders. Both pandemics analyzed in the thesis spread globally within a short time period, significantly impacting Norway. The Spanish flu spread to Norway despite being less influenced by modern globalization. The flu still moved quickly internationally due to ships in the first world war, trade and movements of troops. As written in the national library of medicine (NLM) by Carol R. Byerly; " The war fostered influenza in the crowded conditions of military camps in the United States and in the trenches of the Western Front in Europe. The virus traveled with military personnel from camp to camp and across the Atlantic, and at the height of the American military involvement in the war, September through November 1918, influenza and pneumonia sickened 20% to 40% of U.S. Army and Navy personnel" (Byerly, 2010) . With Norway's neutrality in the war, the flu entered through the international ports where significant economic disruption, mortality and unemployment were experienced (Grytten, 2021: Grytten, 1995). The spread of Covid-19 was on the other hand exacerbated by modern globalization. Global trade networks and international travel played a vital role in the rapid spread of the virus around the world. Norway being a part of these networks faced challenges in controlling the spread like many other countries. The growing globalization is a key reason for the accelerated spread of Covid-19. Modern challenges require modern solutions, international cooperation is a necessity with controlling and monitoring disease outbreaks. There is a need for effective international travel regulations and swift warning systems (Zhang, 2023).

Global economic interdependence, causes economic disruptions in one nation can have far-reaching impacts internationally. Direct economic impact caused by global interdependence was contained and limited during the Spanish flu due to the less interconnected national economies compared to modern standards. Further the economic consequences to Covid-19 were global and affected trade, investment and supply chains (European Central Bank, 2021). The Norwegian economy being highly reliant on

international trade and oil exports in particular, led to global economic disruption entering Norway. This comparison highlights the vulnerability of the modern globally interconnected economy.

Further the second research question: *How did Norway recover from the pandemics?(2)* is more considered with the recovery process and the social consequences. The thesis findings regarding this research question is that governmental intervention and policies played a vital role with stabilizing the Norwegian economy. Extending the scope of study to the international level these findings were greatly influenced by the international context. These factors being the evolution of health governance, international governmental social and economic collaboration and technological advancement (Hameed, 2022).

Organizations such as the World Health Organization (WHO), is key in the face of pandemic response. International health governance plays a crucial role with coordinating and informing the global response to pandemics. During the Spanish flu response was largely managed on the national level, and international health governance was almost non-existent (Kamradt-Scott, 2012). Norway's response was therefore primarily domestic, with limited coordination between nations, and based on the pre existing public health practices and medical knowledge. In contrast, the Covid-19 pandemic had significant involvement from international health organizations (Hameed, 2022). The guidelines and recommendations given by WHO were crucial with shaping the national responses. This contemporary pandemic highlights the importance of international health organizations in guiding global efforts with managing pandemics and facilitating information exchange internationally. This illustrates that the evolved international health governance improves cooperation and response globally and domestically with managing health crises effectively. Norway following the WHO guidelines and participating in the international health initiatives are key examples of this trend (Saunes et al., 2020).

Extending beyond organizations such as the WHO, there was significant collaboration between Norway and other countries with recovering and combating the pandemics. Despite the limited international health governance during the Spanish flu, some countries did engage in information and resource sharing between them. These collaborative efforts were to a large

degree informal during this era but still contributed with some knowledge regarding response coordination and collective learning (Liu, 2018).

During the Covid-19 pandemic, Norway formally and actively participated in international collaborations and initiatives. An example of this participation is the joint vaccine agreements with other European countries through the international partnership EU. Norway also engaged in other aspects of collaboration such as research partnerships, mutual aid agreements and information sharing with other countries facing the challenges of Covid-19(Hameed, 2022; Saunes et al., 2020). Governmental economic cooperation with alliances and trade agreements between Norway and other countries aided with stabilizing the supply chains and helped the economic recovery during the Spanish flu and Covid-19, although the economic cooperation was at a substantially greater scale during Covid-19. The participation in organizations like the The World Trade Organization (WTO) and EU in the contemporary era enabled Norway to be a part of a central collective in addressing the economic challenges. This collective decision making and resource mobilization provided financial assistance from countries that remained economically stable during Covid-19 to support the global recovery. Having these organizations in the modern era compared with the Spanish flu is vital with promoting resilience and financial stability against international crises.

The technological advancements made in communication, data analysis and healthcare have become vital with managing pandemics on the international scale. During the Spanish flu there was a lack of medical technology and swift international communication was difficult (Simonetti et al., 2021). This led to less study and knowledge regarding the flu and each nation had to derive their own research and measures to combat the pandemic. The technological advancements made since the Spanish flu has played a crucial role with managing Covid-19. Where the international scientific community and health organizations largely collaborated with developing vaccines, digital contact tracing, data analysis and effectively distributing the vaccines. Norway leveraged these advancements and enhanced its public health response in the face of Covid-19. International collaboration with sharing and developing new technology is therefore also a vital component of the modern pandemic management.

The third and final research question: *What lessons can be learned from how Norway handled the Spanish flu and Covid-19?(3)* is addressed in the thesis to analyze the implications of

future policy-making in the face of pandemics. Learning from the superior international practices and experiences is crucial with enhancing the national response in Norway to pandemics. Evidence of this is seen during Covid-19 as global sharing of strategies and information provided insight and facilitated better decision making by governments internationally. Policy coordination on an international scale is also essential with managing pandemics. The Covid-19 pandemic highlighted that counties learn from each other's policies and interventions, and therefore collaborative efforts in economic policy, social support systems and public health is of the utmost importance to recover from pandemics (Hameed, 2022; Zhang et al., 2023).

3. Summary

The comparative discussion done with international trends and forces in mind of the Spanish Flu and Covid-19 in the Norwegian context highlights the importance of considering the historical context of pandemics as these pandemics took place 100 years apart. Research demonstrates that while the pandemic posed substantial challenges both economic and societal, the intervention and response strategies played a critical role in mitigating their impacts. In regards to Norway the lessons drawn are the importance of effective public health infrastructure, social safety nets and effective governmental intervention. Further, this discussion highlights the significance of cooperation on the international scale with managing pandemics, because modern health crises are global by nature. Collaboration between nations and organizations such as the World Health Organization are crucial with coordinating resource and information sharing to respond to the impact of pandemics.

This discussion paper also underscores the vital role of modern global technological advancement in pandemic management. Especially with regards to data analysis, health care and communication. Norway can leverage these international collaborations and advancements and better their response capabilities and preparedness, as demonstrated by the way Covid-19 was managed in contrast to the Spanish Flu.

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10.3 Responsible Discussion

1. Presentation of the Thesis

Together with my colleague, Vegard Wilhelmsen, I have written a master thesis called "economic impact, recovery, and lessons learned from the Spanish flu and Covid-19 in Norway". It is a thesis exploring the macroeconomic and socioeconomic impacts of two of the most detrimental pandemics in a Norwegian context. We analyze historical data, including GDP, unemployment, population, stock prices, government spending, and mortality rates – from both pandemics. After collecting the necessary data, we have used economic models such as the Kindleberger model and the IS-LM model to compare the two crises in the light of two key economic theories. We have three research questions, *(1) How was Norway impacted economically and socially by the Spanish flu and Covid-19? (2) How did Norway recover from the pandemics? (3) What lessons can be learned from how Norway handled the Spanish flu and Covid-19?* By analyzing economic and social factors, the thesis will be an in-depth comparative analysis. Our thesis has been divided into an introduction, a literature review

focusing on previous studies, a theoretical paragraph including the Kindleberger model and IS-LM model, and a method-chapter describing research design, validity etc. In addition to that, we have a data and analysis chapter where we present all the data and results, followed by discussion and conclusion.

To create full-fledged research, including enough metrics are compulsory. By analyzing the data, we retrieved findings on the impact on the desired metrics, the recovery period, and the lessons learned from the Spanish flu and Covid-19. In the early 20th century, the Spanish flu triggered economic disruptions characterized by a vast decline in economic activity. A long-term stock market decline led to economic instability. The mortality rates soared simultaneously, as the death rate per 100 000 from influenza went from 68 in 1917 to 466 in 1918, resulting in almost seven times the number of influenza-related deaths. The health care system in Norway was lacking, containing a significantly lower number of doctors and nurses in comparison to modern times. Post-pandemic, the GDP per capita recovered because of the growing export industry. The recovery from the Spanish flu was slow; reasons are effects of the first world war, more decentralized societies leading to less complex policies, and lacking public health infrastructure.

The Covid-19 started in 2019 and emerged into a global health crisis in 2020 – during a more modern and globalized period. The data retrieved were more accessible and current data from government statistics is credible and reliable to utilize. Our findings highlight the evolution of Norway´s public health infrastructure as well as the economy. As a result of the lockdown in March 2020, the Norwegian stock market index dropped more than 30%, along with significant drops in the Norwegian currency, and GDP per capita. This time, the Kindleberger model was triggered solely by the health crises and not necessarily an oversaturated economy (Aliber & Kindleberger, 2015). shows how Various monetary fiscal policies enforced by the Norwegian government stabilize the economy post Covid and pave the way for further growth. Examples of interventions by the government were reducing the interest rates, support packages for businesses, and increased government spending. As Covid-19 increased the unemployment rate in Norway to above 5%, the measures assisted in diminishing the long-term decline of the economy, reducing the unemployment to a respectable level. In

contrast to the Spanish flu, vaccines were introduced, and the Norwegian healthcare system contributed free vaccines to the population as a part of the measures. The outcome of the various measures was a swiffer recovery than the Spanish flu.

By creating a comparative analysis of the two pandemics, it enables for finding lessons learned. Comparing insights into the Spanish flu and Covid-19, provides us a confirmation of the importance of various measures considering macroeconomy and public health from the Norwegian government. The research finds that employing strategies of evidence-supported measures are key to handling the viruses. It is impossible to change historical responses and measures, but we can derive lessons from the past experiences, ensuring better preparations for mitigating potential upcoming public health crises.

To give a summary of our theses, the research paper examines the impact, recovery, and lessons learned from the Spanish flu and Covid-19. It showcases the cruel mortality rates, the disruption of the economies, and the crucial utility of governmental interventions. Public health infrastructure and government spending are pivotal for challenging the pandemics. The Norwegian government was important in counteracting the forces from the pandemics, with the health interventions including lockdowns and social distancing, in addition to the economic measures including stimulus packages and aid for students etc. Aligning governmental policies with strategies supported by empirical evidence, enhances the navigation through complexities of potential upcoming pandemics and health crises.

2. Relation to “responsibility”

Attaching the term “responsible” to the “Economic impact, recovery, and lessons learned from the Spanish flu and Covid-19 in Norway” provides the opportunity to include several aspects of “responsible”. Moral responsibility is a key factor of thesis writing and is defined as making judgements about whether a person is morally in charge of the actions and consequences (Stanford Encyclopedia of Philosophy, 2019). This thesis relates to the term “responsible” in primarily two ways; Our writing and manufacturing of the thesis, as well as how Norway navigated through the Spanish flu and Covid-19. Examining Norway during the

two pandemics, it will be vital to include societal moral responsibility, governmental moral responsibility, and ethical considerations in crisis management.

Firstly, the responsibility of writing this study requires ethical considerations and accurate presentation of historical data. Conducting research demands ensuring reliability, validity and integrity in the methodology. Validity indicates the extent to which observations accurately represent true findings and reliability in research refers to consistency, reproducibility, and stability of the outcomes of the study (Sekaran & Bougie, 2016, p. 137; Heale & Twycross, 2015). When researching, you are responsible for presenting the comparative analysis in a clear, respectful, and objective manner. Further, the study aims to contribute with knowledge in the specific field, to provoke findings where it contains academic gaps. It is also worth mentioning the importance of proper citations to avoid plagiarism. The master thesis builds upon the fact that we do the research ourselves, and usage of other sources should be cited according to APA 7th.

Further, the moral responsibility should serve as a lead through the master thesis and be a basis for our findings. The academic integrity is mainly about two things: avoiding plagiarism and proper citation The master thesis builds upon the fact that we do the research ourselves, and usage of other sources should be cited according to APA 7th. In the thesis, we have literature review as one of our prominent parts, and when proceeding to our own findings and analysis it is important to not be suspended in previous literature, but rather focus on our own findings aligning it with our research questions. On the other hand, the literature review is an important background for the study, as it provides an empirical foundation.

When writing a master thesis about previous pandemics and historical data related to this, there are several aspects to mention in terms of moral responsibility. Writing about pandemics and historical data requires us to focus on objectivity, transparency, contribution to knowledge, and social responsibility. In addition to this, the Norwegian government had to retain moral responsibility regarding both pandemics. During the Spanish flu, the limited public health interventions and lack of economic policies underscores the moral failing in preparedness for potential health crises (Mamelund, 1998). One of the reasons for the lack of

intervention can be the aftermath of the first world war. On the other hand, during the Covid-19 pandemic, we saw the result of strategy preparation and knowledge about mitigating the effects of a pandemic. The response from the Norwegian government exemplified a proactive approach, including monetary and fiscal policies (Grytten, 1995). Examples of those were stimulus packages, and reduction of interest rates.

Another aspect of responsibility in the sight of the research paper is societal moral responsibility. Protecting vulnerable populations during the most challenging crises is an obligation. Enormous mortality rates during the Spanish flu along with disrupted economies affected the working-class communities internationally, but also in Norway (Karlsson et al., 2014; Mamelund, 1998). Shortcomings in social support as governmental interventions, highlighted the societal vanquishing of the most vulnerable groups, worsening their recovery.

Compared to the Spanish flu, Covid-19 promoted a more united societal response in Norway. The swift shift for the societies to comply with the implemented measures like lockdown, social distancing, and introducing free vaccines to the population, demonstrated a moral responsibility among the Norwegian inhabitants. Curbing the spread of the virus was vital to protect public health. The government contributing with measures for the small- and medium businesses helped mitigate disparities in the economy. Societal moral responsibility emphasizes the principal aspects of solidarity towards the population, and the protection of vulnerable societies.

Ethical considerations in the management of public health crises are linked to the term “responsible”. There are several key issues, transparency, equity, and public welfare prioritization. During the Spanish flu, ethical failure of inadequate information because of the lacking communication. The Covid-19, a more modern pandemic, struggled with the opposite of the Spanish flu, with the spread of misleading information about the virus (Caceres, 2022). This indicates the differing ethical considerations regarding communications of the viruses.

3. Summary

To conclude, this study examines the macro- and socioeconomic impacts of the Spanish flu and Covid-19 in Norway. By analyzing the metrics on population, GDP per capita, unemployment, government spending, and mortality, we were able to compute a comparative analysis, utilizing the Kindleberger- and IS-LM model. Looking at the recovery and lessons learned, the research highlighted the importance of government measures and public health infrastructure.

The research paper intended to provide valuable insights into strategies for future crisis preparations and policy making, stressing the responsibility of accurate and precise research and ethical considerations.

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