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The Impact of Covid-19 and the Lockdown on the UK Economy

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Abstract

This thesis analyses the macroeconomic impacts of Covid-19 and the lockdown on the UK's economy. GDP in the second quarter of 2020 fell by 19%, the largest quarterly decrease in GDP for the UK on record. Consumption and investment in this quarter decreased significantly resulting in the large decrease in GDP. The unemployment rate remained relatively low, for the large decrease in GDP, throughout the pandemic and only increased to 5.0% in December 2020. The effective Coronavirus Job Retention Scheme (CJRS) and the Self-Employment Income Support Scheme (SEISS) have kept unemployment low. The schemes have paid for 12.2 million workers' wages from the start of the pandemic to December 2020. Inflation decreased along with GDP to 0.5% in August 2020 and remind constant for the remainder of 2020. The UK therefore had deflationary pressure at the end of 2020 but inflation remained above 0%. The UK introduced multiple fiscal, monetary, and health policies that all impacted the economy during the pandemic. The UK's fiscal policy was very effective at protecting businesses and jobs and kept the unemployment rate low. Monetary policy had little effect on stimulating investment and consumption during the pandemic as the lockdown forced people to reduce their economic activity. But the quantitative easing program that has increased may prevent any deflation from occurring and stimulate the economy when the UK removes restrictions. The UK's health policy has had the greatest economic impact with the lockdown causing significant reductions in economic activity and GDP. However, the country's vaccination program is the path to stopping lockdowns and returning economic activity to pre-pandemic levels. To allow for quicker economic recovery it is important that the UK boosts consumption and keep unemployment levels low.

Keywords: UK, Covid-19, Lockdown, Macroeconomic

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Chapter 1: Introduction

In December, an outbreak of a new disease occurred in Wuhan, China called Covid-19. Since this outbreak, Covid-19 has caused a global pandemic that has shocked the world. To supress the health effects the United Kingdom introduced a national lockdown in March 2020 and restrictions, such as school and business closures. These restrictions will have detrimental effects on the economy. The lockdown forced people to stay at home and, therefore, reduced economic activity. The United Kingdom has been heavily affected and, currently, has the most deaths and infections in Europe.

The goals of this research are to analyse the macroeconomic effects of Covid-19 and those of the lockdown on the UK's economy, to discuss the measures deployed by the British government to support the economy and the policy prescriptions moving forward. Two main research questions are as follows: What are the economic costs of the pandemic on the British economy? Did the British Government introduce appropriate policies during the pandemic and lockdown?

With these goals and questions as the foundation, this paper will start with a review of the related empirical work and reports on what research has already been conducted on the topic. Chapter 2 will review the general literature on pandemics and their economic effect, previous pandemics and their economic effects, and the current literature on Covid-19. In Chapter 3, this thesis discusses how the UK has been effected by previous pandemics such as the Spanish Flu in 1918 and the Swine Flu pandemic in 2008. Chapter 4 analyses the three main macroeconomic indicators: GDP, unemployment, and inflation. Th analysis of GDP will be split into its four components namely, consumption, investment, government spending, and net exports. The purpose is to analyse why and how GDP has changed over the course of the pandemic. The next

sections of Chapter 4 will analyse the impact of unemployment and inflation and why these changes have occurred. Chapter 5 will assess and evaluate the effectiveness of the government policies and outline potential policies to be implemented to aid economic recovery. Chapter 6 provides the summary and conclusions.

Chapter 2: Review of The Related Empirical Work

2.1 Introduction

This chapter is an overview of the literature related to the goals outlined in the proposal of this dissertation. The literature review provides the theoretical knowledge of what happens to an economy during a pandemic. Also, it will outline what happened to the UK economy during previous pandemics such as the Spanish Flu in 1918 and the H1N1 (Swine) Flu in 2009, as well as the current Covid-19 pandemic's effect on the UK economy. To narrow down the literature to be reviewed, this section will focus on the literature that is deemed most relevant to the ideas outlined in the thesis.

Global pandemics have been a threat to the world throughout human history and such pandemics have been recorded as early as the 2nd century (LePan, 2020). But as time has gone on more has been documented on the effect on the economy as well as the epidemiological effects of pandemics. The economic effects can be evaluated on a microeconomic level, such as the effect on a household's income or individual economic behaviour. Or the economic effects can be evaluated on a macroeconomic level, such as the effect on a whole country's economic performance measured through its indicators of macroeconomic performance. As the focus of this thesis is to analyze the economic effects of the Covid-19 pandemic on the United Kingdom's economy, the literature that includes the effects on macroeconomic indicators will be reviewed. The main macroeconomic indicators are GDP, unemployment, and inflation. To best understand the literature and the effects of a pandemic on the UK macroeconomic indicators this literature review will be split into three sections: general economic theory of pandemics, historical pandemic literature, and literature on the Covid-19 pandemic. Section 2.2 will focus on academic literature that provides a general understanding of pandemics and their economic effect.

Highlighting the general theory will provide the foundation for this thesis and will allow for greater analysis and comparison. Section 2.3 will present a history of pandemics including the 1918 Spanish Flu pandemic and the H1N1 (Swine Flu) pandemic in 2009. To further understand the economic theory of pandemics, looking at previous pandemics is required. This will reinforce the theory and provide data and knowledge of how the UK's economy has previously reacted to pandemics. Section 2.4 will be a review of the most recent literature based on the recent Covid-19. This section is the most important to this thesis as it provides context to the main research goal outlined in the thesis. In doing so, it will also provide details on the current view researchers have on the economic effect of Covid-19 on the UK and global economy.

2.2 General Economic Theory of Pandemics

This section covers some of the general understanding of pandemics and the effect that poor health has on an economy. This will provide a basic knowledge of the burden pandemics cause economies both directly and indirectly. Direct effects are removing people from the labour force through illness and death and indirectly by intervention methods by governments forcing people to stay at home. Researchers such as Verikios et al. (2011) and Koegh-Brown et al. (2009) who were able to predict the outcomes of pandemics that have lots of variation. Pandemics vary in terms of lethality and infectivity, because they are all a new unique disease. Therefore, looking at literature that considers different scenarios of severity will gain a greater understanding of what happens to the UK economy during different types of pandemics. This will aid in the analysis of the economic impact of the Covid-19 pandemic on the UK economy.

A pandemic as defined by the WHO is "a worldwide spread of a new disease" (2020). A pandemic is a health shock that leads to lots of people suddenly becoming ill and can lead to

strains on health services and the economy. A new infectious disease can cause lots of early deaths in people aged 18-65, who provide most economic value because they are the labour workforce who earn an income and make and provide goods and services. Additionally, there could be deaths of children and the elderly which provides a big moral decision to protect. But the decision to protect all these groups of people has big associated economic costs. Because of this during a pandemic, a classic economic tradeoff between public health and the economy is created. Governments must choose whether to prioritise resources on public health or to maintain current levels of economic activity (Gans, 2020). According to Gans in his book *Economics in the age of Covid-19,* if a government chooses to forgo public health and hold the level of economic activity at pre-pandemic levels, then the previous level of public health cannot be achieved again in the near future (2020). This is because as a pandemic continues without the government taking measures towards stopping the spread of the disease, people begin to die and hospitals are at full capacity, which leads to more deaths leading to a drastic decline in public health. These associated deaths and increase in poor health mean that there is no longer a way to achieve the previous levels of public health. Increased deaths in an economy can lead to what Gans calls a 'dark recession' where the labour supply is reduced by deaths that, in turn cause a decrease in economic activity (2020). The decrease is caused by the permanent removal of people so there is a reduction in consumption and production as there are less people in the economy than before. A 'dark recession' tends to follow a natural disaster or a war where a significant portion of the population dies and, therefore, there is a significant decrease in economic activity. Therefore, a government should prioritise public health over the economy as there is no going back to previous levels of public health and this can lead to a dark recession in the future. Hence, we should expect to see polices enacted, such as non-pharmaceutical

interventions, such as social distancing measures and mandatory lockdowns, at the start of a pandemic, which would result in a drastic decrease in economic activity.

In general people being unhealthy is a burden on the economy. Unhealthy people are out of work, as well as using resources that could be used to increase economic output and productivity (World Health Organization, 2009). This is because there is an opportunity cost when having to treat someone who is unhealthy. The recourses used to treat the individual could be used to increase productivity in another sector of the economy. The study of the consequences of disease and injury on the economy has increased rapidly since the mid 1960s, when "cost-of-illness studies" were given a set framework (World Health Organization, 2009, p.2). This increase is due to the desire to determine the best policy to help tackle issues related to disease and injury. The World Health Organization states that disease leads to a reduction in consumption of market goods as consumers need to buy health related goods or are too ill to consume the markets goods (2009). Additionally, the WHO outlines the requirements for a successful macroeconomic analysis of diseases which includes pandemics. To provide a successful analysis a definite measure is required such as gross national product (GDP) or unemployment (World Health Organization 2009). If GDP is used, it is important to consider omitting expenditure on health-related goods and services because it will affect GDP as these goods and services are included in the total GDP of an economy (World Health Organization 2009). This is especially important during a pandemic as there will be a big increase in expenditure on health-related goods and services, and this expenditure will cause an increase in GDP. So, to understand the true effect on GDP, expenditure on health goods and services should be removed. From this measure of GDP that has omitted expenditure on health-related goods, a

study should then outline the best policy and practice to make resource allocation most effective at reducing the impact of a pandemic (Chisholm et al., 2010).

Globally, pandemics can cost the world $374 billon (US$) for a low severity pandemic and $7.3 trillion for a high severity pandemic (Pike et al., 2014). These huge global losses will have a greater impact for the United Kingdom as the world becomes more interconnected through globalisation. As globalisation increases, countries have a greater dependence on international trade and travel. As travel and trade increase, the economic effects of a pandemic increase exponentially (Pike et al., 2014). Increased international trade and travel have made it easier for infectious diseases to travel, by people or on surfaces, to different countries, making it easier to cause a pandemic. When a new infectious disease is discovered, travel restrictions are put into place. These have negative economic impacts not only for the country the disease is discovered in, but also for he countries that have the closest travel and trade links. To best reduce these costs, any policy aimed at protecting the economy and helping to combat a pandemic needs to be enacted immediately (Pike et al., 2014). With the increase of international travel and trade as well as a rapidly increasing global population, pandemics are likely to become more frequent (Whiting, 2020). It is, therefore, crucial to understand what specific economic policy is required to combat these disasters to protect the economy from collapse.

In the past century, the most common pandemic the world faced was an influenza pandemic. Since the start of the 20th century the world has had four influenza pandemics: the Spanish Flu in 1918, the Asian Flu in 1957, the Hong Kong Flu in 1968, and the H1N1 Flu in 2009 (LePan, 2020). Due to the recent history of influenza pandemics, most academic studies use the influenza virus to model what they predict will occur to an economy during a pandemic. There are many ways in which an influenza pandemic can affect an economy of a country since

influenza pandemics and non-influenza pandemics have lots of variation due to them being different diseases. Some of these diseases are more lethal or more infectious than others, therefore, and these degrees of severity change the effects that a pandemic will cause on the economy of a country. Hence, the reason why most researchers consider different pandemic scenarios when modelling them.

As previously mentioned in this section, when an influenza pandemic hits, spending on health expenditure increases and there is an impact on the labour supply. People are temporarily or permanently removed from the labour supply if they become ill or if they chose to stay at home to reduce the risk of infection or if they die (Verikios et al., 2011). Additionally, if schools are forced to close to combat the spread of an infectious disease, workers may have to take time off work to care for their children (Verikios et al., 2011). These factors remove workers from the labour supply during a pandemic and make the labour force less productive, resulting in a decrease in GDP. This reduction in GDP tends to be a short term economic effect of the pandemic because once the pandemic is over most workers will return to work and productivity will increase. Verikios et al.(2011) was able to predict the fall in global GDP during a pandemic for two different mortality levels. During a high mortality low infectious pandemic, the model predicts that in the first year the UK will see a decrease of 0.45% in GDP, whereas a low mortality but a high infectious pandemic the UK will see a decrease of 4.526% in GDP.

The greatest economic loss during a pandemic is attributed to loss of life as stated by Meltzer et al (1999), in which loss of life accounts for 83% of economic losses during a pandemic. Loss of life is a long-term effect of a pandemic because it includes economic value lost from premature death. As this thesis focuses on the lockdown implemented and its effect on

the economy, the economic value of life lost will not be considered because this study focuses on the short and medium term effects of the Covid-19 pandemic.

Consumption will be the economic variable that is the most effected. The closure of non-essential businesses is considered an essential tool to reduce contact with people to reduce the transmission of an infectious disease during a pandemic. This effects consumption as consumers cannot go out and spend their income on goods and services as they normally would. These non-essential businesses are in sectors such as leisure, transport, and clothes among other sectors (Keogh-Brown et al., 2009). Another factor that causes a change in consumption is that people change their behaviour during a pandemic to avoid infection even if they are healthy individuals. This is called prophylactic absenteeism and it can include not going into work or avoiding social contact (Smith et al., 2011). In avoiding social contact, people reduce their spending as they do not go out to hospitality businesses or retail out of fear of infection. This change in behaviour will cause a sudden drop in consumption in the United Kingdom's economy as well as globally. Whether people are forced to or not, they will "avoid making purchases in the areas of leisure, transport, furnishings, clothes, cars and tourism during a pandemic" (Keogh – Brown et al., 2009). The resulting drop in consumption will lead to many business closures if they are not supported by government policy, and will result in an increase in unemployment. Consumption is a contributing factor to economic growth and, a drastic change in consumption behaviour, whether forced or not, poses a big threat to the stability of the United Kingdom's economy and people's jobs during a pandemic.

In order to understand different scenarios that the UK may face during the pandemic, Koegh-Brown et al. (2009) used a COMPACT model to account for different scenarios, such as school closures during a pandemic and prophylactic absenteeism. Using data from previous UK

influenza pandemics and extrapolating these data with the use of aggregate variables, the COMPACT model was able to cover more extreme disease scenarios such as higher mortality rate (Koegh-Brown et al. 2009). Using the model, the authors predicted that in severe scenarios with no school closures or prophylactic absenteeism, in the first quarter of a severe pandemic, GDP will decrease by 5.49% in the first quarter of the pandemic, and for the first year of the pandemic GDP will fall by 1.55% (Koegh-Brown et al. 2009). The most extreme scenario is a where there is a quarter of school closures and four weeks of prophylactic absenteeism, and this resulted in a GDP decease of 21.25% in the first quarter and 4.45% GDP decrease for the first year (Keogh-Brown et al. 2009).

2.3 Literature Related to Previous Pandemics

This section will cover the literature that considers previous pandemics that effected the United Kingdom and the world and what occurred during those pandemics. Recordings of the economic impact of pandemics have been noted since the Plague of Justinian in the 6th century. During the pandemic, there was a big reduction in tax revenues due to deaths which led to poorer quality goal coins, copper coins becoming unstable, and famine (Meier, 2016). As economies have become more developed and interconnected through globalization, the economic effects have changed but there have always been economic impacts caused by pandemics.

The Spanish Flu in 1918 - 1919 was one of the worst pandemics the world has seen, killing between 40 and 50 million people globally (LePan, 2020). During this pandemic, there were many non-pharmaceutical interventions used by governments such as school closures, a ban on mass gatherings, and the staggering opening times of nonessential businesses (Correia et al., 2020). Because of this and people changing their behaviour to avoid infection, retail sales dropped by -2% in November and -6% in December in the US (Lars, 2006). However, Brainerd

and Siegler (2003) showed that there was a positive correlation between morality and economic growth after the Spanish Flu in the US. This is an unexpected correlation but there are many factors outside the pandemic that could have caused this increase in economic growth. Some of these factors are rising education and increase in industrialisation (Brainerd and Siegler, 2003) This is different to what happened to the United Kingdom whose GDP dropped by 6%, but this could be an effect of World War I as the two events occur one after the other (Milas, 2020). Since Sweden was not involved in World War I but was affected by the Spanish Flu. By looking at the economic effects of the Spanish flu on Sweden there will be a reduced economic impact from World War I. This is because Sweden did not have to increase borrowing to fight a war effort or exoirences a significant decrease in population due to deaths in the war. During the pandemic incomes in Sweden decreased mainly in the forms of stock and rent as there were high levels of uncertainty (Milas, 2020). As expected, the Spanish Flu caused negative economic effects for both the United Kingdom and Sweden, but there were positive effects for the US as they experienced GDP growth. One important factor to consider when researching the Spanish Flu is the influence of World War 1 on the data as this will have a big effect on economic growth and employment.

The United Kingdom's policy approach the Spanish Flu was nonexistent. The central government allowed for local councils and authorities to implement any policies, which lead to an unorganised and chaotic approach (Smith, 2020). The UK experienced three waves of infections one in the Spring of 1918, one in the Autumn of 1918, and one in early 1919. Surprisingly there was no mention of the Spanish Flu by the UK government until October 1919 (Hume, 2020). It is estimated that 228,000 people died in the UK After World War I, the UK entered a period of austerity and monetary deflation policy in order to reduce the big budget

deficits the UK built up in World War I as well as the high inflation that occurred during the war (Smith, 2020). Because of this in combination with the increased deaths from the Spanish Flu and the contractionary monetary and fiscal policy the UK economy stagnated in the 1920's and even experienced deflation in the early 1920's (Smith, 2020). Chapter 3 focuses more on the analysis of data from the period and as well as the policies used by the UK government.

The H1N1 influenza virus, or Swine Flu, was a new strain influenza that was discovered in 2009 and in the same year caused another global pandemic. Like the Spanish Flu, the H1N1 is a strain of the influenza virus, but it is considerably less lethal than the Spanish Flu. During the pandemic, which lasted from 2009 to 2010, the Swine Flu killed approximately 200,000 people globally (LePan, 2020). This is significantly less than the 40-50 million that died during the Spanish Flu. Additionally, there has been a lot of change to the global economy since the early 20th century, such as a greater reliance on global travel so, there is greater on the global and UK economy than during the Spanish Flu. According to Page (2012) the Swine Flu caused a loss of 1.6 million visitors to the UK from the first quarter of 2008 to the second quarter of 2009. This led to the Swine Flu causing a loss of £940 million in revenue for the tourism sector. However, due to the Global Financial Crisis and the low lethality, the literature based on Swine Flu is very limited and mainly focuses on the sector of tourism. The Swine Flu pandemic, however, led scholars such as Smith et al. and Keogh-Brown et al. to conduct research on the effects of potential future influenza pandemics, which have provided a core section of this literature review in section 2.2 (2011, 2009).

Severe Acute Respiratory Syndrome (SARS) is in the category of the coronavirus strain of viruses and is similar to Covid-19. In 2002, SARS was discovered in China and spread to other countries such as Australia, Brazil, Canada, China, Hong Kong, South Africa, Spain and

the USA (Keogh-Brown et al. 2008). Although there was not a major outbreak in the United Kingdom, SARS can still provide good insight into the economic effects of Covid-19 and the UK lockdown, as it is part of the same virus family. This similarity helps to provide a frame of reference to what may occur during the Covid-19 pandemic. The Asian Countries that SARS affected the most, such as China and Hong Kong, suffered "large, though short lived negative demand shocks" mainly caused by those trying to avoid infection (Brahmbhatt & Dutta, 2008). Most of the industries that were most effected were those that involved travel and high amounts of human interactions, such as restaurants, hotels, and public transport (Brahmbhatt & Dutta, 2008). It is estimated that China, Hong Kong, Singapore, and Taiwan combined had a GDP loss of $13 billion with only 7000 confirmed cases between them and 700 deaths (Brahmbhatt & Dutta, 2008). This is the effect that a small, but lethal pandemic can cause to a country's economy. These losses, however, were only short lived because the disease outbreak was short and consumer confidence returned shortly after the outbreak (Brahmbhatt & Dutta, 2008). While SARS impact on the world economy has been less significant than that of the Spanish Flu o COVID, it is still useful to understand for two reasons. First, SARS is a virus that belongs in the same family as Covid-19, and second, it provides lessons on how a relatively small outbreak can impact developed economies.

2.4 Current Literature on the Covid-19 Pandemic

At the time of writing this thesis, the Covid-19 pandemic is still ongoing and has caused many countries to go into a mandatory lockdown to reduce the transmission of the virus and help save lives. A big impact of Covid-19 is the closing of many nonessential businesses leading to a sudden drop in consumption in many sectors such as retail, hospitality, and tourism. Although it

is still ongoing, many researchers and academics are publishing literature to be able to comprehend the current economic situation and what policies are best suited to help the economy during the pandemic.

The current crisis is being labelled the worst economic downturn since the Great Depression in the 1930's. However, unlike the Great Depression and other economic downturns, this has not been caused by a decrease in demand, it has been caused by an "unavoidable consequence of measures to limit the spread of the disease" (Dell'Ariccia et al., 2020). With the sudden and unexpected action required to reduce transmission, economic activity also decreased dramatically. This has led to many governments having to take unprecedented action to help the economy, to provide households with income, to keep businesses and financial markets afloat (Gopinath, 2020). In order to help the economy and those most effected, grants and subsides need to be used to ensure household incomes are secure. Gopinath suggests that for economic activity to resume, healthcare services in the country must be able to cope with the disease (2020). This will allow for a balance between saving lives and protecting the economy and people's incomes.

The UK has been heavily affected by the Covid-19 pandemic along with the rest of the world. The first lockdown in the UK came into effect on March 23rd 2020 and was followed by the reopening of the UK starting on June 15th 2020 ("The UK's Coronavirus Timeline.", 2020). During this period, no nonessential businesses were allowed to open. These included retail shops, restaurants and hotels. Additionally, people were forced to work from home and told to not leave their homes for anything but essential reasons such as buying groceries or buying medication. Because of this big economic shock, the Bank of England predicted that GDP will drop by 25%

in the second quarter of 2020 (Brewer, M., & Gardiner, L., 2020). Data from the Office of National Statistics shows that GDP decreased by 19.86% from the first quarter of 2020 to the second quarter of 2020. The UK entered a second lockdown son November 3rd 2020 and lasted until December 2nd 2020. This lockdown was both shorted and less strict than the first UK lockdown. Schools were allowed to remain open, but all non-essential businesses such as retail and hospitality businesses had to shut. This is also going to cause a decrease in economic activity but no data is yet available from because at the time or writing this the UK

As reported by Leslie et al. (2020) a quarter of British businesses had temporarily closed by mid-April and 40% of businesses were reporting lower than average turnover. After previous pandemics, GPD has taken an average of three years to reach pre-pandemic levels because of the effects of loss of GDP such as deteriorating human capital and weaker global trade (Leslie et al., 2020). During the lockdown period, many policies were announced to help keep businesses afloat and people employed with an income and help to reduce the potential GDP loss. The UK announced the Coronavirus Job Retention Scheme (JRS) and the Self-Employment Income Support Scheme (SEISS) during the lockdown period. This is to ensure that workers have an income and relieve businesses of any payroll commitments in order to reduce unemployment and business closures (Brewer et al. 2020). The schemes helped the government pay for 80% of a worker's salary if they were furloughed by their employer. This accounted for up to £2500 a month and lasted for the duration of the lockdown period. The schemes helped to keep people employed, therefore reducing the level of unemployment, which was estimated to increase to 5.4% for a 3-month lockdown (Leslie et al., 2020). As for interest rates and inflation during this period, it has been important that they both stay low to stop conflict of goals such as public health, supporting firms and households, and the UK finical health (Leslie et al., 2020). Interest

rates would be expected to fall during the pandemic as consumer confidence falls, however it is likely that consumers will increase their savings for a safety net as there is increased risk of becoming unemployed. This will cause an even greater decrease in GDP as people reduce consumption and increase savings. (Leslie et al. 2020). Because of the increase in savings, we would expect inflation to also fall. However, there could be conflict between inflation and interest rates post crisis given the inflationary pressure that might occur in the post-crisis world as there could be fast paced economic growth as the economy opens and consumption start to return to pre-pandemic levels (Leslie et al. 2020).

In his book, *Economics in the age of COVID-19,* Gans discusses the requirements to remove restrictions to best help the economy recover whilst maintaining infections below the infection threshold of an economy (2020). This threshold is where the healthcare system can cope with the infection rate. The activities where restrictions should be removed first are those with high amounts of economic value and low potential for infection such as jobs in an office space where high levels of social distancing is possible or workers can work from home. These jobs tend to be of higher economic value and because of the easier implementation of social distancing would be considered as high value and low risk of infection. And the activities where restrictions should be removed last, have the lowest economic value and the high potential for infection (Gans, 2020). These economic activities can include hospitality or attending sports events which require a lot of social interactions and therefore pose high risk of infections for low added economic value from individuals. Gans additionally talks about the requirement for an innovative effort similar to the Manhattan Project during World War II, in order to produce a vaccine to not only aid public health but allow the economy to return to pre-pandemic activity levels (2020). Therefore, there should be a big increase in government spending and investment

by pharmaceutical companies during the pandemic to aid removing of restrictions with the aid of the vaccine.

The current literature of Covid-19 is on estimates based on previous pandemics and the start of the Covid-19 pandemic. It is therefore important to consider that not all pandemics are the same and can cause different economic effects. However, the estimates and previous pandemics will provide a foundation for the research as, although pandemics are different, there should be similarities in terms of polices that are used to combat the outbreaks. Additionally, at the time of writing this literature review, there are still lots of unknowns in regards to the long-term economic effects of COVID-19 and the United Kingdom's lockdown. These, unfortunately, will not be known until 5 or more years after the pandemic. With the ever-changing landscape of Covid-19 and the changing economic effects, it is important to update the current literature and use data, when available, and newly published articles to better understand the current pandemic.

Chapter 3: A Brief History of Pandemics That Have Affected the World and the UK

3.1 Introduction

An understanding of the economic impact of previous pandemics will aid in the analysis of the Covid-19 pandemic and the UK's economy. This section will show economic trends in previous pandemics such as the Spanish Flu and the Swine Flu. These trends will allow for more accurate predictions of what to expect during and after the Covid-19 and the UK lockdown. As previously mentioned in Chapter 2 there is a high variation between pandemics as each pandemic is its own unique disease. The three pandemics mentioned in this paragraph all had different levels of lethality. The Spanish Flu was the deadliest and is one of the worst pandemics to have affected the world, killing an estimated 50 million (Center for Disease Control and Prevention [CDC], 2019 March 20). The Swine Flu pandemic had a low mortality rate, killing an estimated 151,700 – 575,400 reported by the CDC (2019, June 11). Looking at economic data and policies during these pandemics will enhance the analysis of the Covid-19 pandemic and the lockdown on United Kingdom's economy.

3.2 The Spanish Flu 1918-1921

In 1918 as World War I was ending, Spain reported cases of a new influenza virus. Because Spain was the first country to report the virus, it was given the name The Spanish Flu. With soldiers leaving and returning home after the end of World War I the virus spread throughout the world and, in the end, was estimated to have caused the death of an estimated 50 million people (CDC, 2019, March 20). In the United Kingdom, there were three waves of infections. The first wave in the Spring of 1918, the second wave in the Autumn of 1918, and the third being early 1919. The second wave in Autumn was the deadliest (Hume, 2020). In total when the pandemic was over 228,000 people had died in the United Kingdom. The role of the

UK government was that of an advisor for local governments, who were responsible for any pandemic mitigation policies. Many areas of the United Kingdom have different policies such as required isolation if being ill, or the closure of elementary schools. However, some policies and advice local governments gave was useless such as asking people to clean their teeth regularly and to take deep breaths of cool air (Hume, 2020). Overall, the UK's policy response was disorganised and uncoordinated. Add in the effect of World War I, where half of the UK's doctors were on the front lines, the pandemic was able to burn through the country resulting in the high amount of deaths (Hume, 2020).

The Spanish Flu, with its extremely high death rate, will have had an influence on the macroeconomic indicators of the UK economy. However, due to World War I and the Spanish flu occurring at the same time, it is very hard to disentangle the economic effects of the two events. In 1919 after the outbreak of the Spanish Flu in the UK, GDP fell by 13% (Smith, 2020). Barro et al. (2020) suggest that the typical country saw a reduction in "real per capita GDP and consumption by 6.0% and 8.1%". Therefore, we can estimate that the Spanish Flu had a similar effect on GDP in the UK. For inflation, the UK experienced extremely high inflation rates with the years 1915 to 1920 recording above 10% inflation each year and, in 1917, inflation was recorded to be around 25% (Smith, 2020). After 1920, the UK experienced deflation of over 5% per year from 1921 to 1923 and deflation occurred every year up to 1934. Unemployment, during World War I reduced drastically to almost 0% as people were employed into the military or in factories for the war effort. However, from 1918 to 1921 unemployment rose above 10% and remained high for the rest of the 1920's (Smith, 2020). Using this as an estimate to the Covid-19 Pandemic we should expect to see high reductions in GDP and employment, as well as deflation occurring in the UK as Covid-19.

A pandemic that has led to the deaths of 228,000 people should prompt the introduction of policies to help handle the economic impact of those deaths and other related pandemic economic costs. These costs are related to absences from work and change in consumer behaviour to avoid infection. However, the UK government enacted no policy to help reduce the economic impact of the Spanish Flu. The government was more focused on transitioning from war time economy to a peace time economy and reducing the debt and budget deficit that had increased because of the war (Smith, 2020). The UK entered a period of harsh austerity after World War I to balance government budgets. Therefore, there was tightening of fiscal policy with an increase in taxation and a decrease in government spending. This has proven to be disastrous for the UK economy as explained in Chapter 2. At the same time, the decrease in consumption as well as people dying led to a dark recession materialized in significant reduction in economic activity. Therefore, without the help of the government, through government spending, businesses would close and jobs would be lost on mass. This is represented by the rise in unemployment and fall in GDP described in the previous paragraph.

Additionally, because of the high inflation that occurred during World War I, the government and the Bank of England enacted deflationary monetary policy. The Bank of England also had the goal of keeping the pound sterling strong in relation to other currencies and, therefore, it increased the interest rates from 5% to 6% in November 1919, and then again in April 1920 to 7% (Smith, 2020). Raising interest rates will have two main economic impacts. First, it will lead to a decrease in consumption as people are more incentivised to save money rather than spend money. During a time where consumer behaviour has changed to avoid spending to reduce the risk of infection, policy to reduce consumption even more will have disastrous effects for the UK's GDP. Second, raising interest rates increases the cost of

borrowing. Therefore, there will be a drop-in investment in a period when investment is needed more than ever. These two effects can be seen in the 13% reduction in the UK's GDP in 1919.

With the combination of a pandemic and the contractionary monetary and fiscal policy, the UK's economy suffered drastically with decreases in GDP, increases on unemployment, and deflation in the 1920s. Recovery from the initial drop in GDP in 1919 took until 1924 took to reach the same level of GDP as shown by Mitchell et al. in their study on GDP of inter-war Britain (2012). Therefore, to make sure the effects of the Covid-19 pandemic and the UK lockdown are reduced as well as increase the rate of recovery, expansionary fiscal and monetary policy are essential. This will enable businesses to stay open and protect jobs, which will both reduce decreases in GDP and employment as well as aid in recovery. This is because more people and businesses will be economically active than if there is contractionary monetary policy as more businesses will be open and more people employed. However, this may lead to increases in government debt and budget deficits, which could lead to future austerity in the future. Overall, it is vital that the UK government introduces polices that aid to stimulate the economy in a time of need, rather than policies that restrict the economy with austerity to reduce the economic impact of Covid -19.

3.3 The Swine Flu Pandemic 2008-2009

March 2009 both Mexico and the United States report cases of a new strain of influenza virus, which is similar to an influenza virus that is spread among pigs (CDC, 2020, June 11). From there, the virus rapidly spread throughout the world and with the World Health Organisation (WHO) declaring a Pandemic in June of 2009 (National Health Service [NHS], 2009). The resulting pandemic led to 540,000 cases in the United Kingdom and 138 deaths (NHS, 2009). Globally the Swine Flu pandemic is estimated to have caused 151,000 – 574,000

deaths (CDC, 2009 June 11). In August 10th, 2010, the WHO declared the pandemic over but the virus is still around today and circulates as a seasonal every year. This pandemic, compared to the Spanish Flu, is considerably less lethal and therefore lead to less intervention and non-pharmaceutical polices. In the UK, initially school children were advised to stay away from schools in April but this advice for school closures was shortly reverted and the government advised against school closures (Kelland, 2009). Instead the UK's approach was a containment strategy where antiviral medications were used extensively when treating people who had caught the virus or those who had come in contact with someone who had contracted the virus (Oliver, 2011). This changed in July to a treatment strategy where people who had the virus were given antiviral medications, along with the decision to buy 132 million doses of a vaccine. Overall, the total direct cost of the pandemic response was £1.2 billion (Wise, 2010). The Swine Flu pandemic was a low severity pandemic due to the low death rate, so did not prompt as extensive policies and interventions that occurred during the Spanish Flu and the Covid-19 pandemic.

Deducing the economic impact of the Swine Flu pandemic is difficult because of the effect of the Global Financial Crisis that occurred the in 2007 and 2008. At the time the Global Financial Crisis caused the biggest recession since the Great Depression and in 2009 the UK was in economic recovery. Using data from the Office of National Statistics (ONS), GDP increased by 0.3348% in the year of 2009 (May, 2020). Unemployment did rise from 7.1% in January 2009 to 7.9% in December 2009 and inflation, measured using the consumer price index (CPI), fell from 2.9% in January 2009 to 2.1% in December 2009. Therefore, from the data in 2009 we can see that the Swine Flu had little to no impact on the United Kingdom's economy.

Although the data suggests that the Swine Flu pandemic had little to no impact on the UK economy, the economic policies implemented to help the economy recover form the Global

Financial Crisis at the time, could negate any impact from the low severity pandemic. Interest rates by the Bank of England were cut from 5% in September 2008 to 0.5% in March 2009, which would have stimulated consumption as well as investment to aid in economic recovery (Edmonds, 2011). Additionally, the Bank of England conducted a policy of Quantitative Easing, where the Bank of England bought assets to increase the money supply in the economy increasing economic activity. In terms of fiscal policy, VAT was cut from 17.5% to 15% along with a £3 billion extra in government spending towards capital in order to increase economic activity. It is, therefore, possible that these expansionary measures implemented before the pandemic have negated the potential economic effect of the Swine Flu pandemic due to the low severity of the pandemic. According to a study conducted by Smith et al. (2011), a mild pandemic is likely to cause a decrease in GDP of 0.26%. It is possible that if the Global Financial Crisis had not occurred, the Swine Flu could have caused this decrease in GPD, as the extensive monetary and fiscal policies would have not been in place. However, this does show that expansionary extensive monetary and fiscal can negate the effects of a low severity and could have the potential to surpass a more serve pandemic such as Covid-19 and the Spanish Flu.

3.4 Lessons Learnt from the Spanish Flu and Swine Flu Pandemics

From the health related policies to the economic policies that were enacted at the time of previous pandemics, both provide many lessons on how to reduce the economic impacts of a pandemic. The most important outcome, from looking back at the two pandemics, is that the government is vital in suppressing the effects of a pandemic. By introducing the right policies, a government can negate the effects of a pandemic of a low severity and aid in recovery of a higher severity pandemic. As shown in the Spanish Flu pandemic the austerity measures implemented by the UK government worsened the effects of the pandemic and these effects

lasted for many years after the pandemic happened. Additionally, during the Swine Flu pandemic, the expansive monetary policy introduced before the pandemic potentially allowed for the economic effects of the pandemic to be negated. It is, therefore, vital that for the duration of the Covid-19 pandemic and the lockdown, that the UK government conducts expansionary monetary and fiscal policies. This will decrease the effect on economic activity, help businesses survive, and protect people's jobs. The economic outcome caused by the Covid-19 pandemic and the lockdown, therefore, relies heavily on the policies used by the UK government.

Chapter 4: Macroeconomic analysis of the UK during the Covid-19 pandemic and the Great Lockdown.

4.1 Introduction

Since the outbreak of Covid-19 in Wuhan, China, and the subsequent Covid-19 pandemic, the United Kingdom government has implemented many health and economic policies. The UK lockdown began on 23rd March and lasted until 4th July, when nonessential shops and schools could open, and people could meet others outside of their household. Although the United Kingdom has since lifted many restrictions in July, some limitations have remained in place, such as bans on mass gatherings such as concerts, sporting events, and theaters. Therefore, due to there still being some restrictions in place, the United Kingdom was not operating at pre-pandemic economic activity levels. Then on 3rd November 2020, the UK entered a second lockdown period that lasted until 2nd December 2020. This lockdown was less strict than the first lockdown, with schools allowed to remain open but nonessential businesses such as restaurants and retail industries were closed. This chapter will analyze the economic effects of the Covid-19 pandemic, as well as both lockdowns.

Section 4.2 of this chapter will include a snapshot of the macroeconomic indicators and how they have changed from March 2020 to the present day, followed by Sections 4.3 to Section 4.5, a comparative analysis of all macroeconomic indicators, GDP, unemployment, and inflation. To undertake this analysis, I will first look at estimates from institutions, such as the Bank of England and the Office of National Statistics (ONS), and researchers. Then, to analyze the UK economy's economic performance during the COVID-19 pandemic, I will use data from March 2020 to the present day. The analysis will allow me to see trends before the pandemic in the UK's economic performance, including the previous recession

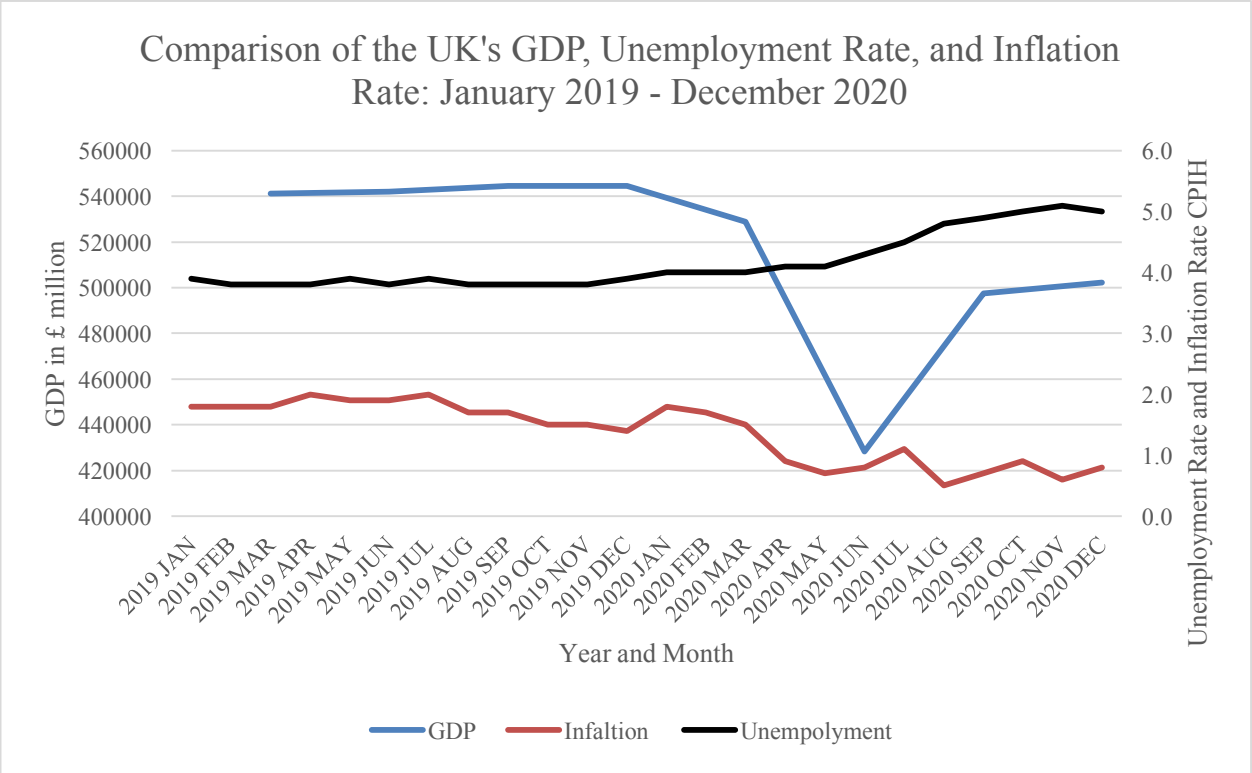
in 2008. This will be a cross-sectional analysis looking at yearly data from 2005 to 2019. For data in 2020, it will be essential to use quarterly data to show economic trends during and in between the lockdowns. The last section of this chapter, Section 4.6, will evaluate the UK's government policies' effectiveness in combatting the Covid-19 pandemic and the two lockdowns. To aid in evaluating government policies, I will use the analysis from Chapter 3 on previous pandemics that have affected the UK and the cross-sectional study from Sections 4.3 to 4.5.

4.2: Snapshot of indicators of macroeconomic performance between March 2020 and the present day.

Before the pandemic, the UK economy spent the previous decade recovering from the 2008 Global Financial Crisis, which caused the UK's last recession. As shown in Figure 1, at the end of the first quarter of 2020, the UK's GDP was £529,031 million, when the Covid-19 pandemic started and the United Kingdom's lockdown. In the second quarter, GDP fell by 19% to £423,807 million, and during this quarter, the UK experienced the peak of the first wave of Covid-19 cases and the strictest lockdown restrictions. During the third quarter, the UK relaxed some rules, such as allowing nonessential businesses to open. GDP started to recover and rose by 16.1% to £497,401 million. By the final quarter of 2020, GDP rose again by 1.0% to £502,253 million. Alongside this reduction in GDP, there has been a rise in the unemployment level in the UK. At the start of 2020, the unemployment rate in January was 4% and increased to 5% in December 2020, as shown in Figure 1. This is expected when GDP decreases, because firms will have to close, and workers will lose their jobs. However, unemployment has not risen at the rate expected, especially with the significant decrease in GDP. This is because the government's policies, such as the Coronavirus Job Retention Scheme, has helped protect jobs and businesses. In this scheme, the government paid workers wages if they could not work during the pandemic

but only if their employer kept them on their payroll and furlough. For each worker, the UK government would pay 80% of worker's wages up to £2500 a month if their employer put them on furlough. This was one of the central policies implemented by the UK government and kept people employed and gave them an income during the pandemic. Section 4.6 will go into a more in-depth evaluation of this policy and other government policies. As shown in Figure 1, at the start of 2020, the UK inflation rate, measured in CPIH, was at 1.8%. Then in December, the UK's inflation rate had fallen to 0.8%. This decrease in inflation is expected because when GDP decreases, a country is more susceptible to deflation pressure as there are contractions in consumption. Figure 1 shows that the UK economy has seen a significant decrease in GDP from the Covid-19 pandemic and the two lockdowns. However, unemployment and inflation rates have not experienced as significant. Changes compared to GDP. Sections 4.3 to 4.5 will go into a

Figure 1 Comparison of the UK's GDP, Unemployment Rate, and Inflation Rate from January 2019 to December 2020



Source: (Gooding, 2021; Leaker, 2021; McAuley, 2021).

deeper analysis of why each macroeconomic component reacted the way it did to the Covid-19 Pandemic. Chapter 5 will assess the impact and influence of government policies on these components and how they responded to the Covid-19 pandemic and the UK lockdown.

4.3.1 2020 Predicted Gross Domestic Product Growth During the Covid-19 Pandemic

This section of this paper will focus on the effect of the Covid-19 pandemic and the lockdown on the United Kingdom's Gross Domestic Product (GDP) in pound sterling (£). When the UK Government enforced the lockdown, there was an expected decrease in economic activity as people were ordered to stay home. During the first 30 days of the lockdown, economic activity was reduced by 15% (Miles et al., 2020). Economic activity is defined as any manufacturing, buying, or selling of a good or service. Therefore, a dramatic reduction in economic activity will be accompanied by a decrease in GDP as GDP is used to measure economic activity. As an estimate, the Bank of England expected GDP in the second quarter of 2020 to have fallen by 20% (Brewer et al., 2020). To analyze the effect on GDP, it is crucial to use quarterly GDP figures instead of yearly GDP figures because pandemics are very dynamic. Therefore, quarterly data is required to see how data responds to these changes.

As previously mentioned in this section, GDP is expected during and after the lockdown in the UK to decrease drastically, with many government institutions predicting significant decreases. To provide context to the effect of the lockdown and the expected reduction in GDP, it is essential to look at what occurs if there was no lockdown. A study by Keogh-Brown et al. uses a computable general equilibrium model to understand the economic consequences of the Covid-19 pandemic on the United Kingdom and model three scenarios (2020). The first scenario is the direct health costs and includes no policy to reduce the spread of infections. In this scenario, they have variables that remove workers from the workforce by available sick leave,

hospitalisation, admission to intensive care units, and death (Keogh-Brown et al., 2020). Because of this, the model estimated that the UK's GDP loss would be £39.6 billion, which is 1.73% of GDP (Keogh-Brown et al., 2020). Most of the GDP loss is attributed to work absence from non-hospitalised cases costing £30.8bn in GDP. Fatalities cost £4.7bn in GDP, then hospitalisations cost £2.8bn in GDP, and then ICU admissions were the least, being £0.6bn in GDP (Keogh-Brown et al., 2020). From this data, it is clear that people being generally sick and having to be absent from work is the most significant cause of a drop-in GDP than fatalities. However, it is important to note that the total deaths are estimated to be 358,000, and this model does not include the broader economic cost attributed to these notable deaths (Keogh-Brown et al., 2020). These economic costs can be measured as a loss of potential future output, especially in those who die in 18-65.

The following scenario includes pandemic mitigation strategies for 12 weeks and consists of the direct health costs in the first scenario. These strategies include a household quarantine period of 14 days when someone in the house has tested positive, shielding people aged over 70, social distancing, and closure of schools and businesses (Keogh-Brown et al., 2020). The total economic cost of this scenario is £308bn, which is 13.5% of GDP, which is a large portion of the UK's real GDP and will lead to a deep recession (Keogh-Brown et al., 2020). The cost of the non-health-related policy was higher than that of health-related policies. The cost of non-health-related policies is £264.1bn, whereas health-related policies cost the UK £53.1bn (Keogh-Brown et al., 2020). The two biggest economies in the non-health-related are school closures, costing £66.1bn for 12 weeks of schools being closed, and business closures, costing £200.9bn for 12 weeks of business closures (Keogh-Brown et al., 2020). According to the model, the policy of pandemic mitigation for 12 weeks has increased the economic costs drastically, increasing the

economic cost by 777%. However, the policies did lead to a reduction in death by a third. As previously mentioned in the first scenario, this model does not include the wider economic costs of death.

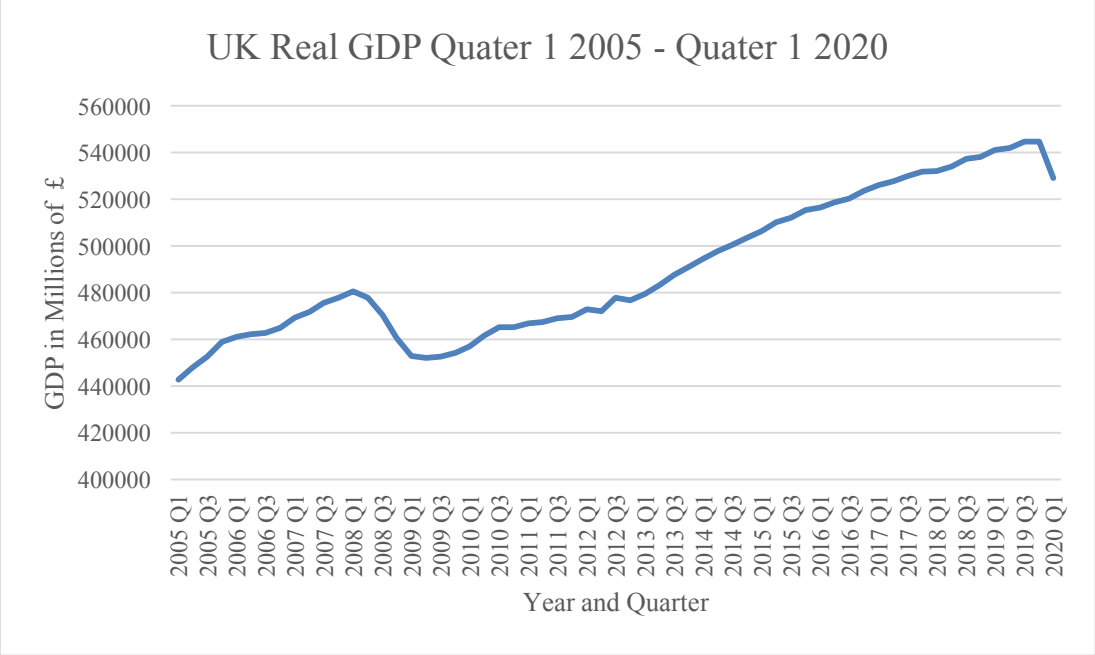
The third and last scenario is defined as direct health costs and pandemic suppression. This scenario includes the pandemic mitigation scenario's policies. It includes that policies may need to be enacted for longer than 12 weeks and may be used and not used multiple times throughout 2020 as there may be more than one wave of infections (Keogh-Brown et al., 2020). This scenario assumes that the policies from March 2020 to the end of the year will be in place for 74% of the time, which amounts to 207 days (Keogh-Brown et al., 2020). This scenario has caused an economic cost of £668.4bn, which is almost a sustainable amount of the United Kingdom's GDP (29.2%) (Keogh-Brown et al., 2020). Again, in this scenario, the cost of non-health-related policies is much greater than that of health-related policies. The model estimates that GDP loss from non-health-related policies is £632.9bn and that school closures account for £166.2bn in GDP loss and business closures account for £386.6bn in GDP loss. With the same amount of lives saved during this scenario, it is clear from this model that the longer policies are enacted, the more detrimental it is to the UK's GDP and, therefore, the UK economy's overall health.

Using this study as a reference, we would expect the UK to observe a reduction in GDP between 13.5% and 29.2%. This is because the UK has enacted policies longer than 12 weeks since March but also has not kept schools and businesses closed for 74% of the time since March. However, at the time of writing this, the United Kingdom has just emerged from a second lockdown on the 2nd December 2020, which last for the whole of November 2020, where businesses were closed, but schools remained open. Therefore, the economic cost of this

lockdown will not be as great as it did not have as long of a duration or as strict measures as the first lockdown. From this study, it is crucial to recognize that school and business closures are the two most significant non-health-related policies that cause the biggest loss in GDP. School closures cause a considerable reduction in GDP because workers have to take time off work to provide care for their children, so there is a drop in economic activity. These people have to sacrifice their careers to care for their children. Additionally, the closure of businesses causes a reduction in economic activity as people are buying and selling fewer goods and services.

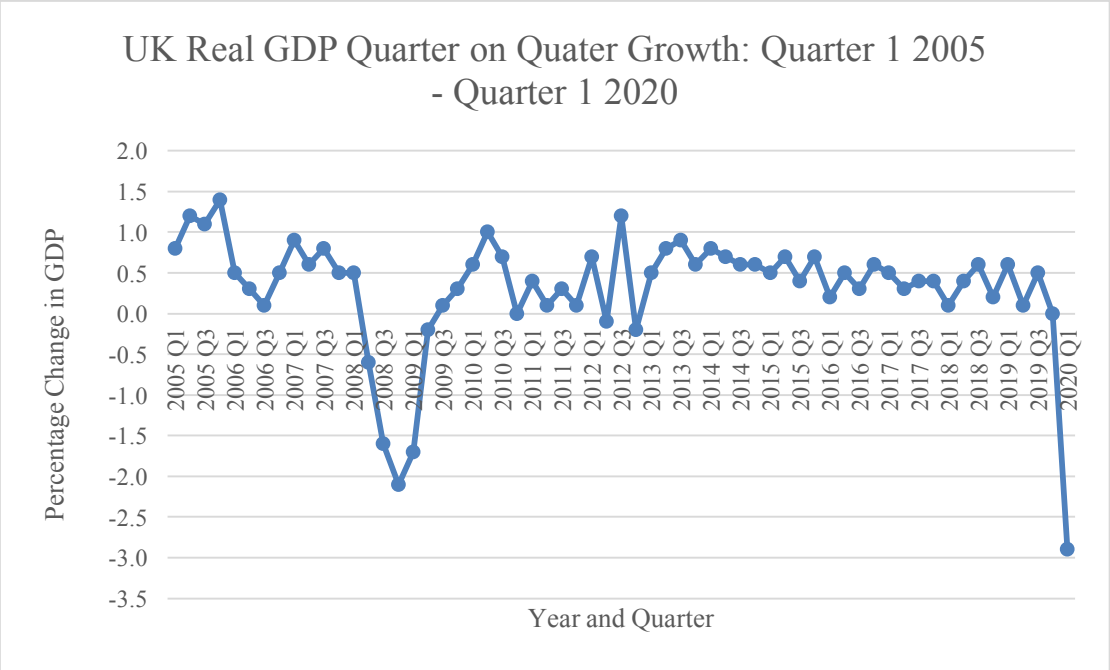
4.3.2 GDP Analysis from 2005 to March 2020 (Pre-Pandemic)

Figure 1 UK Nominal GDP Quarter 1 2005 - Quarter 1 2020



Source: (McAuley, 2021).

Figure 3 UK Real GDP Quarter on Quarter Growth: Quarter 1 2005 - Quarter 1 2020



Source (McAuley, 2021)

To understand the state of the UK economy before the pandemic, an analysis needs to be conducted of the macroeconomic indicators in the years before the pandemic. This analysis will provide a reference to how the UK has performed before the pandemic, and

will be able to make predictions based on discovered trends from the analysis on how the UK would have performed without the Covid-19 pandemic. Therefore, we will show how much of an impact the Covid-19 pandemic has had on the UK's GDP. The data used in this section were retrieved from the Office of National Statistics (ONS) from their publicly available data sets.

Figure 2 displays the value of GDP per quarter and is calculated by the summation of the value of all goods and services produced in the UK. Figure 3 represents the percentage change in GDP from quarter to quarter. From Figure 2, the UK had sustained GDP growth from the first quarter of 2005 up until the first quarter of 2008. This is supported by Figure 3, which shows that the UK maintained low but steady levels of economic growth during these quarters, with an

average increase of 0.71% every year. After the first quarter of 2008, the UK experienced the worst recession since the Great Depression caused by the Global Financial Crisis. GDP decreased from £480523 million to £452063 million from the first quarter of 2008 to the second quarter of 2009. From the third quarter of 2008 to the fourth, GDP decreased by 2.1% after having fallen by 1.6% from the previous quarter. Due to the Global Financial Crisis, interest rates were slashed to 0.5%, and the Bank of England implements quantitative easing to stimulate the UK economy and aid in economic recovery.

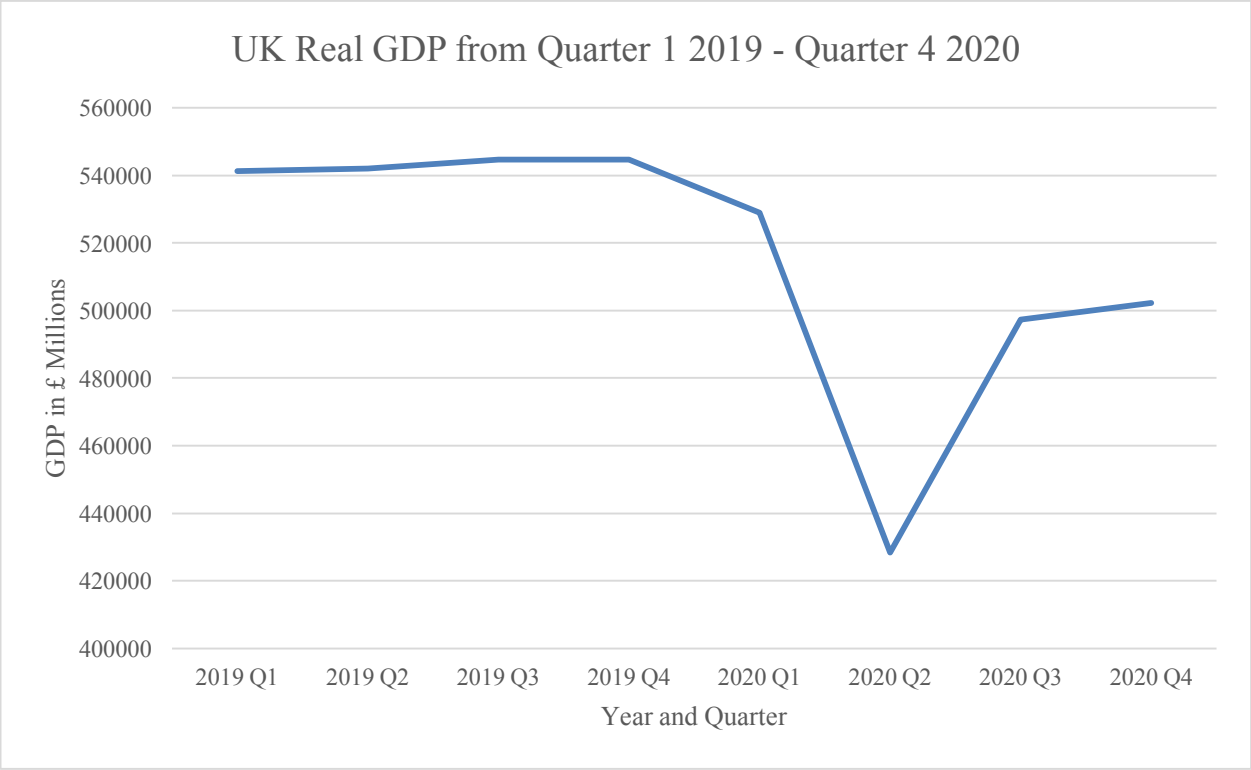
In the second quarter of 2013, the UK's GDP had reach pre-recession GDP levels. From this quarter until the fourth quarter of 2019, the UK once again experienced linear GDP growth, as shown in Figure 2. Figure 3 supports this with average GDP growth of 0.5% per quarter with a slight out deviation from this average. The first quarter of 2020 is the start of the Covid-19 pandemic and the UK's restrictions to limit the spread of Covid-19. As previously mentioned, this included business closures and mandatory stay-at-home orders. GDP from the fourth quarter of 2019 to the first quarter of 2020 decreased significantly, with a decrease of 2.9%, as shown in Figure 3. The next section of this thesis will analyze the effects of the GDP from the first quarter of 2019 to the fourth quarter of 2020.

From Figure 2, we can see that economic recovery from the 2008 Global Financial Crisis took five years to recover. From that point, the UK performed well, with six years of sustained economic growth to the end of 2019. With this trend of economic growth, we would predict that the UK throughout 2020 would have low levels of sustained. 2019 also marked a change in fiscal policy approach after years of austerity, where the UK government increased public spending (Giles, 2019). Public spending is a component of GDP, so it would have caused GDP to grow as public spending increased. Additionally, an increase in public spending on capital could lead to

advancements in GDP because of increases in efficiency and productivity. One major event that occurred at the end of 2020 was the UK finally leaving the European Union. Brexit has caused a great deal of uncertainty about the future of the UK. This could have led to a drop in the level of investment and consumption, and therefore a reduction in GDP as uncertainty rises. Without the pandemic, it is expected that the UK would have a stable economic year in 2020 with low but constant economic growth.

4.3.3 GDP Analysis from Quarter 1 2019 – Quarter 4 2020

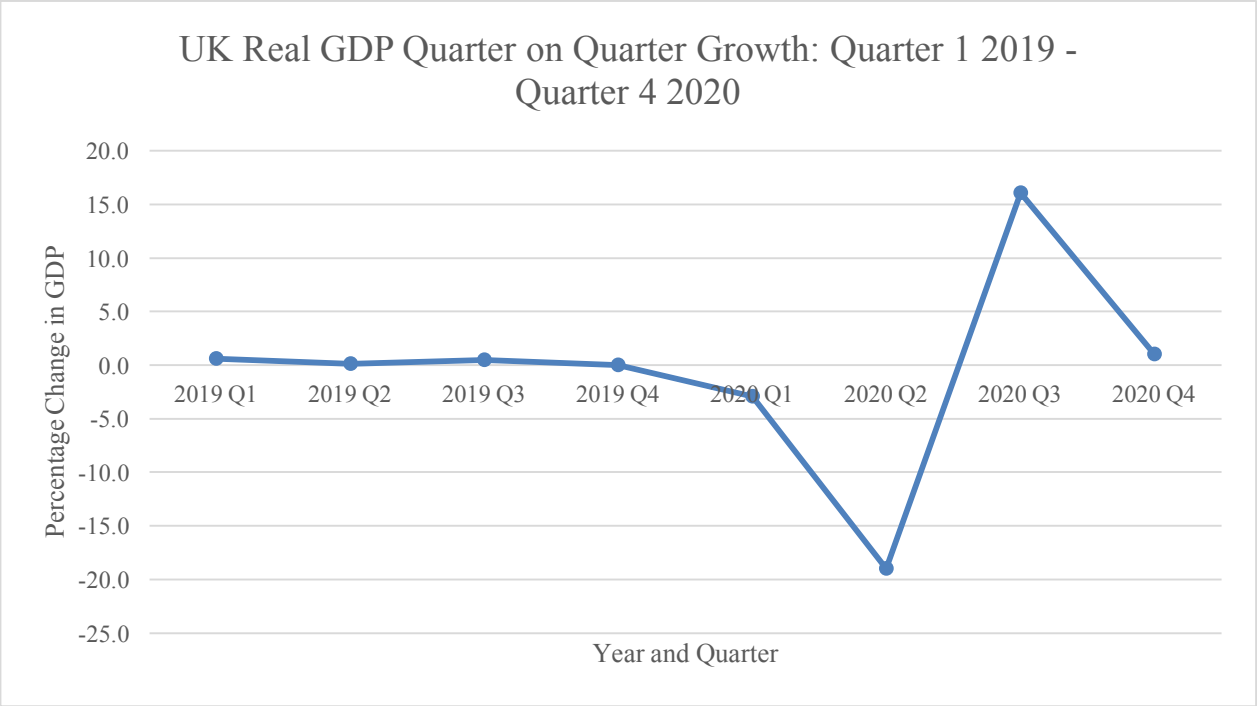
Figure 4 UK Real GDP from Quarter 1 2019 - Quarter 4 2020 Chart Title



Source: (McAuley, 2021)

This section will analyze the effects of the Covid-19 pandemic and the restrictions put in place on GDP. The following four sections will examine the components that makeup GDP: consumption, investment, government, and net imports. As mentioned in Section 4.3.1, it is

Figure 5 UK Real GDP Quarter on Quarter Growth: Quarter 1 2019 - Quarter 4 2020 (McAuley, 2021).



Source: (McAuley, 2021).

predicted that the UK's GDP will decrease from around 13.5% to 29.2% in 2020 due to the pandemic and restrictions.

Because of the Covid-19 pandemic and the complimentary restrictions, the United Kingdom has experienced the biggest decrease in GDP on record. As shown in Figure 4 GDP, GDP decreased from £544773 million in the fourth quarter of 2019 to £428307 million in the

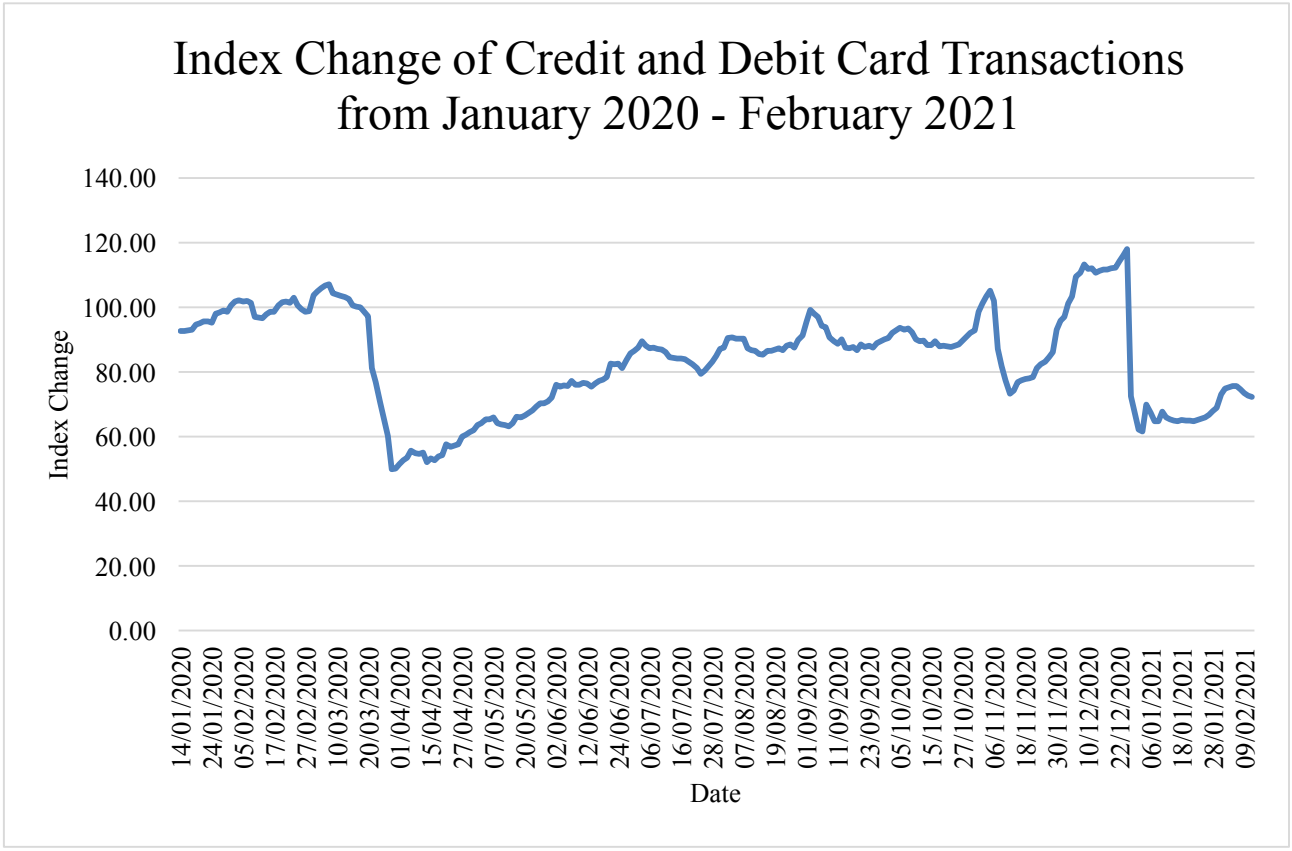
The second quarter of 2020. The percentage decreases from the fourth quarter of 2019 to the first quarter of 2020 GDP decreased by 2.1%. From the first quarter of 2020 to the second quarter, GDP fell by a record 19.0%. GDP then started to rebound after the second quarter of 2020 as the UK began to ease restrictions and economic activity increased as a result. These restrictions included allowing people to go back to work and for certain businesses to reopen, such as retail and hospitality businesses. (Later in this section, analysis of consumer spending will show the extent of the change in economic activity during this period). As a result, GDP increased to

£497401 million in the third quarter of 2020 with a percentage increase of 16.1%, which is the biggest quarterly increase in GDP from the Office of National Statistics data set. Then, GDP increased again in the fourth quarter of 2020, with a percentage increase of 1.0%. This slowdown in GDP is due to the UK's increase in restrictions as Covid-19 cases rose in November.

4.3.4 Consumption Analysis from January 2020 – February 2021

To further understand why GDP has had high amounts of variation during 2020 and the Covid-19 pandemic, this next part will analyze the components of GDP. Consumption will be examined first because it is the most significant contributing factor to GDP. Data from the Office of National Statistics will be used to see how consumption has changed, an index showing the change in credit and debit card transactions from January 2020 to February 2021. The base

Figure 6 Index Change of Credit and Debit Card Transactions from January 2020 - February 2021



Source: (Davis, 2021).

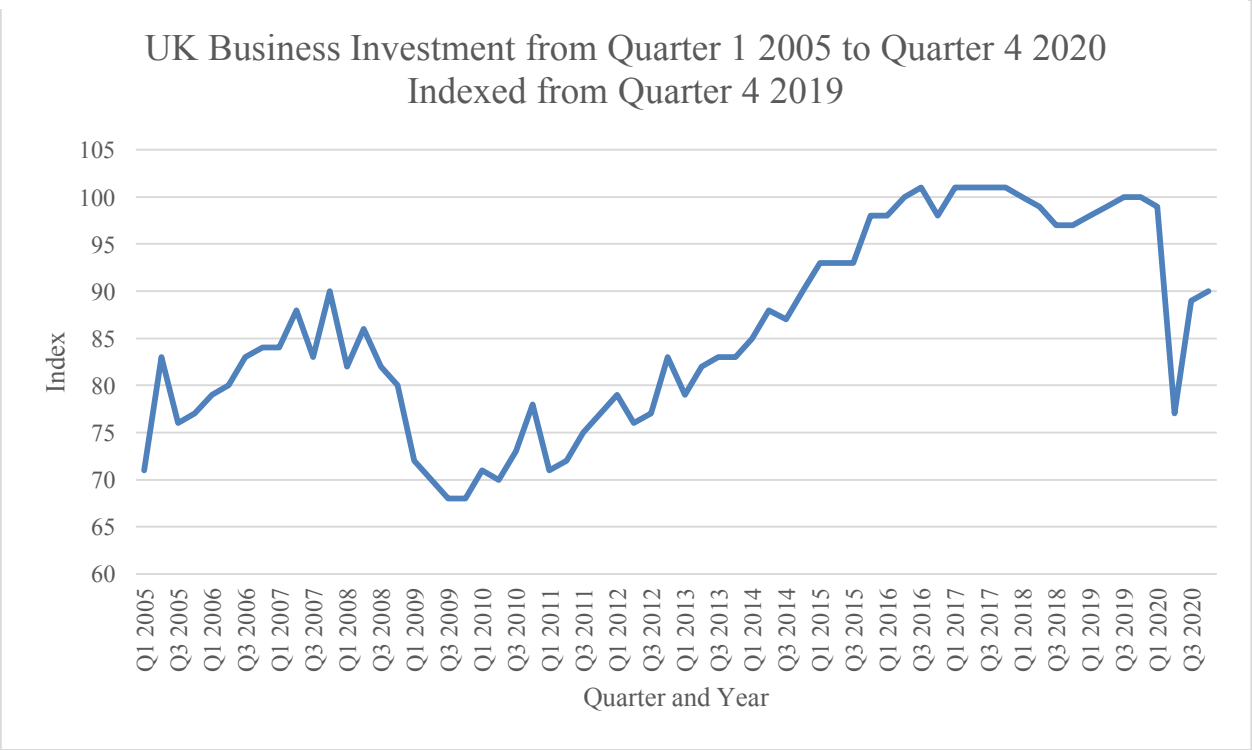
index is 1st February 2020, and the data includes an aggregate of all uses of credit and debit cards. These uses can be for work-related purchases or social purchases. However, other payment methods, such as cash, are used in transactions; however, most people now use debit and credit cards for most of their purchases. This movement away from cash has been observed over the past decade, with Covid-19 intensifying this (Caswell et al., 2020). This is because the handling of cash could cause someone to contract Covid-19, and because of the increase in online shopping. Therefore, using data that only looks at credit and debit card use will show the overall trend in consumption.

Figure 6 is a representation of credit and debit card use in 2020. The figure shows that from January to the middle of March, the use of credit and debit increased. Then from 19th March to 30th March, credit and debit card use decreased by 50% as the UK entered a national lockdown. Because of this, people stayed at home and did not go out and consume as they usually would, and many businesses were forced to close. From 30th March to 2nd September, credit and debit card use increased, with 2nd September having the same levels of credit and debit cards used at the start of February. Comparing this change in credit and debit card use with the GDP data from Figure 4 shows that the significant decrease in consumption level caused GDP to decrease significantly. Additionally, as consumption levels increase, GDP also increased. We can see both relationships from the GDP levels in the second quarter of 2020 and the third quarter of 2020, which shows that GDP decreased significantly as the lockdown measures were introduced and when the restrictions were eased. Then, from the 4th November to 12th November, credit and debit card use decreased again as the UK entered the 2nd lockdown, resulting in a GDP only growing by 1% in the last quarter of 2020. Therefore, comparing both Figure 4 and Figure 6

shows that the significant decrease in consumption caused by the Covid-19 restrictions led to a substantial drop in GDP as GDP and consumption have a linear relationship.

4.3.5 UK Business Investment Analysis from Quarter 1 2005 – Quarter 4 2019

Figure 7 UK Business Investment from Quarter 1 2005 to Quarter 4 2020 Indexed from Quarter 4 2019



Source: (McCrae, 2021)

Investment is another component that affects GDP in terms of spending on investment and its benefits in the future. Such as increased efficiency and productivity that investment can create. Investment levels are also an indicator of future economic outlook because if businesses are uncertain of what is going to occur in the future, they are less likely to invest. Therefore, uncertainty affects the level of investment in an economy. Figure 7 represents the UK business investment from the first quarter of 2005 to the last quarter of 2020. This index shows the level of investment, and it is indexed from the fourth quarter of 2019. The figure shows two significant decreases in business investment levels from the second quarter of 2008 to the third quarter of

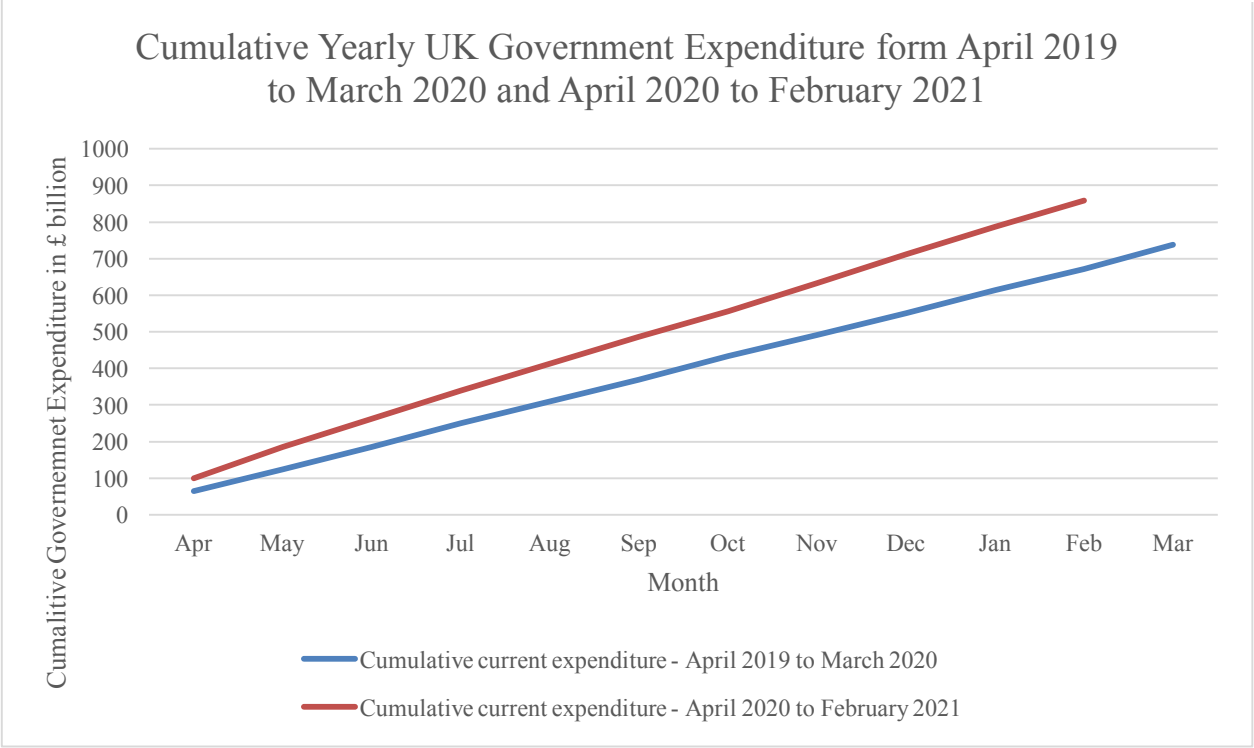
2009. The second decrease was from the first quarter of 2020 to the second quarter of 2020. The 2008 Global Financial Crisis caused the first decrease, and referencing Figure 3 shows that GDP decreased every quarter while investment levels decreased. This relationship is expected because of the linear relationship investment and GDP have. The second decrease is caused by the Covid-19 pandemic and the restrictions put in place by the UK government. Comparing Figure 7 to Figure 5, the reduction in 22 index points from Quarter 1 2020 to Quarter 2 2020 in Figure 7 is similar to the 19% decrease in GDP from the first to the second quarter in 2020 in Figure 5. In periods where investment levels decrease, we expect a reduction in GDP, which Figure 5 and Figure 7 represent. Therefore, the decrease in investment during the first UK lockdown contributed to the decline in GDP.

4.3.6 Analysis of UK Government Expenditure from April 2019 – February 2021

Government spending is another component of GDP and usually has a linear relationship. With all else being equal, an increase in government spending should cause an increase in GDP. Due to the nature of the restrictions, the UK government was responsible for helping people and businesses affected by the Covid-19 pandemic and the subsequent regulations, so it is expected for government spending to be higher. Additionally, as GDP decreases, government spending increases due to the resulting increase in unemployment creating an increasing demand for state welfare and benefits. Figure 8 shows the difference in UK government expenditure from April 2019 to March 2020 and April 2020 to February 2021. At the time of writing, this data is not available for March 2021, so the data for this financial year is incomplete by one month. However, the data can still be used because there is a noticeable difference in expenditure in the two financial years. The type of expenditure counted in Figure 8 is government spending on

providing goods and services such as health care and education, payments of social benefits, and payments of interest on government debt (Munro, 2021).

Figure 8 Cumulative Yearly UK Government Expenditure form April 2019 to March 2020 and April 2020 to February 2021



Source: (Munro, 2021)

As seen in Figure 8, government expenditure in the UK is higher in the financial year starting in April 2020 than in the financial year beginning in April 2019. From April 2019 to March 2020, the UK government spent £738.6 billion compared to £859.3 billion in the year from April 2020 to February 2021. This is a 16.34% increase in the total yearly government expenditure, and the parentage increase will be more significant once data from March 2021 is available. The average monthly government expenditure in the financial year starting in April 2019 was £61.55 billion a month compared to £78.12 billion in the financial year beginning in April 2020. This is an increase of 26.92% on the average monthly government expenditure. Because the data is linear, the data can be extrapolated to estimate the total government expenditure for the financial year of April 2020 to March 2021. After extrapolating the data, the

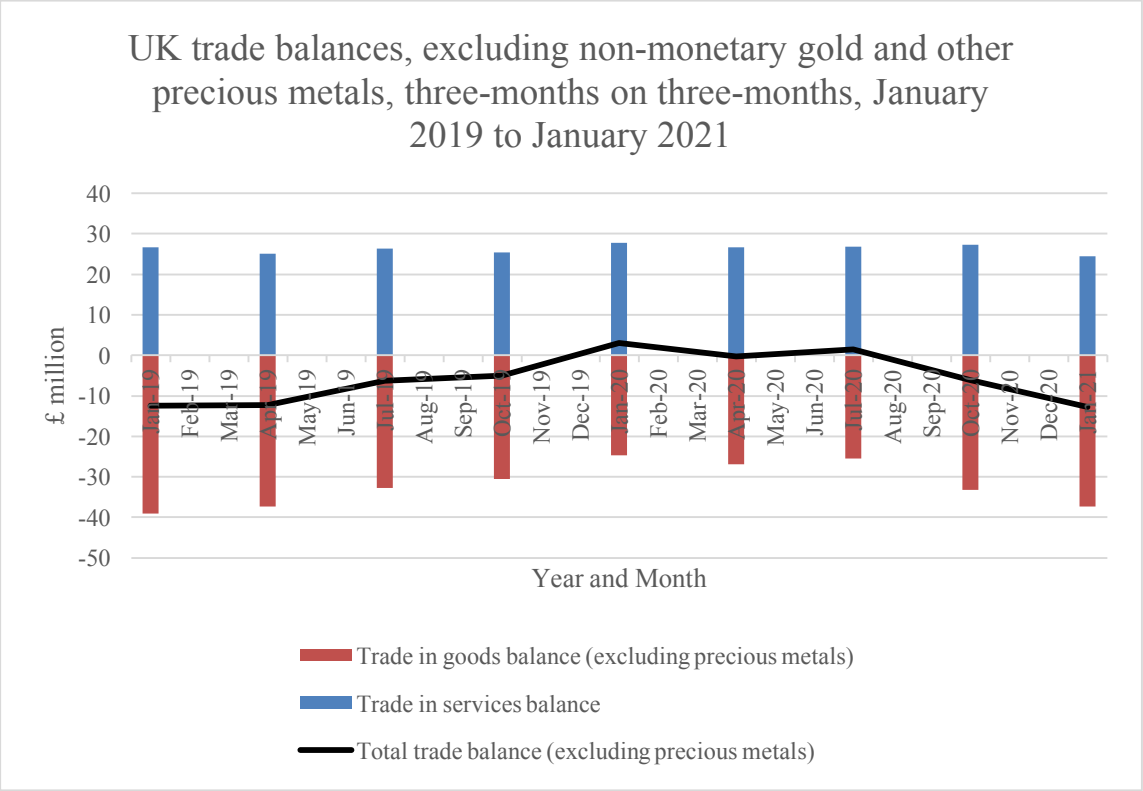
estimated total government expenditure for April 2020 to March 2021 is £937.42 billion, which is an increase of 26.92% from the previous financial year.

Before accounting for the Covid-19 pandemic, government expenditure is expected to increase by 3.8% per year from 2019 to 2022 (HM Treasury, 2020). However, the data show that the Covid-19 caused government expenditure to increase significantly more than the expected 3.8%. It is estimated the UK government spent an additional £280 billion in response to the Covid-19 pandemic. This increase in spending has the main goals of controlling the virus's spread, increasing support to public services, and supporting jobs and businesses (HM Treasury, 2020). The effectiveness of this spending will be further analyzed in Section 5.

Although the government increase spending through fiscal expansion, GDP still increased significantly. However, without the government increasing its expenditure, the reduction in GDP could have been more significant, and the second to third-quarter recovery in 2020 may not have been as significant. But the expansionary fiscal policy was not effective enough As previously mentioned, the government spending goals were to control the virus, support public services, and support jobs, not to impact economic output directly. However, supporting jobs, businesses, and public services during the pandemic will likely aid in the economic recovery of GDP because job losses and business closures should be reduced. This will be further analyzed in Section 4.4, where unemployment will be analyzed, and Section 5, where the UK's government policies effectiveness will be discussed. It can be concluded that the initial increase in government spending was ineffective at countering the reduction in GDP.

4.3.7 Analysis of the Trade Balance from January 2019 to January 2021

Figure 9 UK trade balances, excluding non-monetary gold and other precious metals, three-months on three-months, January 2019 to January 2021



Source: (Casey, 2021)

The last component of GDP to be analyzed is the difference in the value of exports and imports. Covid-19 caused many disruptions to international trade and travel as countries tried to limit the spread of Covid-19 internationally. Globally, both air and sea cargo decreased in March and April of 2020, so, it is expected that trade volumes for the UK will also fall in terms of exports and imports. However, during the pandemic, demand for personal protective equipment (PPE) increased, and most countries, including the UK, had to look internationally for PPE supply. Therefore, imports and export levels may remain similar but will have changed in terms of what goods are imported and exported. Figure 9 shows the net trade in services, the net trade in goods excluding precious metals, and the total trade balance for quarterly measurements.

Figure 9 shows that the UK exports more services than it imports and imports more goods than it exports. During this period, the UK had an average quarterly trade deficit of £5.64 million, with only the last quarter of 2019 and the second quarter of 2020 having a trade surplus of £3.1 million and £1.4 million, respectively. For the first two quarters of 2020, the UK had a very balanced level of trade with a deficit of £0.3 million in the first quarter and £1.4 million in the second quarter. In the last two quarters, the trade deficit increased from £6.1 million in the third quarter and then again to £12.8 million in the fourth quarter. As shown in Figure 9, the trade balance in services remained consistent throughout 2020, but the trade in goods and services changed. In the first two quarters, the net trade deficit was £26.9 million and £25.4 million for quarters one and two. This increased to £33.2 million in the third quarter and £37.3 million in the fourth quarter in 2020. One reason for this is that there were significant decreases in consumption when the UK lockdown started in March 2020, shown in Figure 6. This decrease in consumption caused a reduction in the demand for all goods, including imports, therefore explaining why the trade balance in goods decreased (Casey, 2021). There is more complexity to explaining why the trade deficit increased in the last two quarters of 2020 because of the implication of Brexit with the UK officially leaving the European Union on 1st January. But a reason for this increase in deficit could be because the UK lockdown caused a buildup in unfulfilled demand; therefore, when restrictions eased, it caused imports to increase significantly to satisfy this demand. The two main factors that caused this increase are the increase in consumption after the lockdown had ended and Brexit-related reasons.

Based on the trade balance, assuming everything else remains equal, it is expected that GDP will increase slightly for the first two quarters of 2020, and for the last two quarters of 2020, GDP will decrease. Figure 4 shows that this trend is not followed, as GDP decreases

significantly in the second quarter of 2020 and recovers and increases in the third and fourth quarters of 2020. Therefore, we can conclude that net exports, in this case, are not as significant as the other components of GDP at influencing a change in GDP.

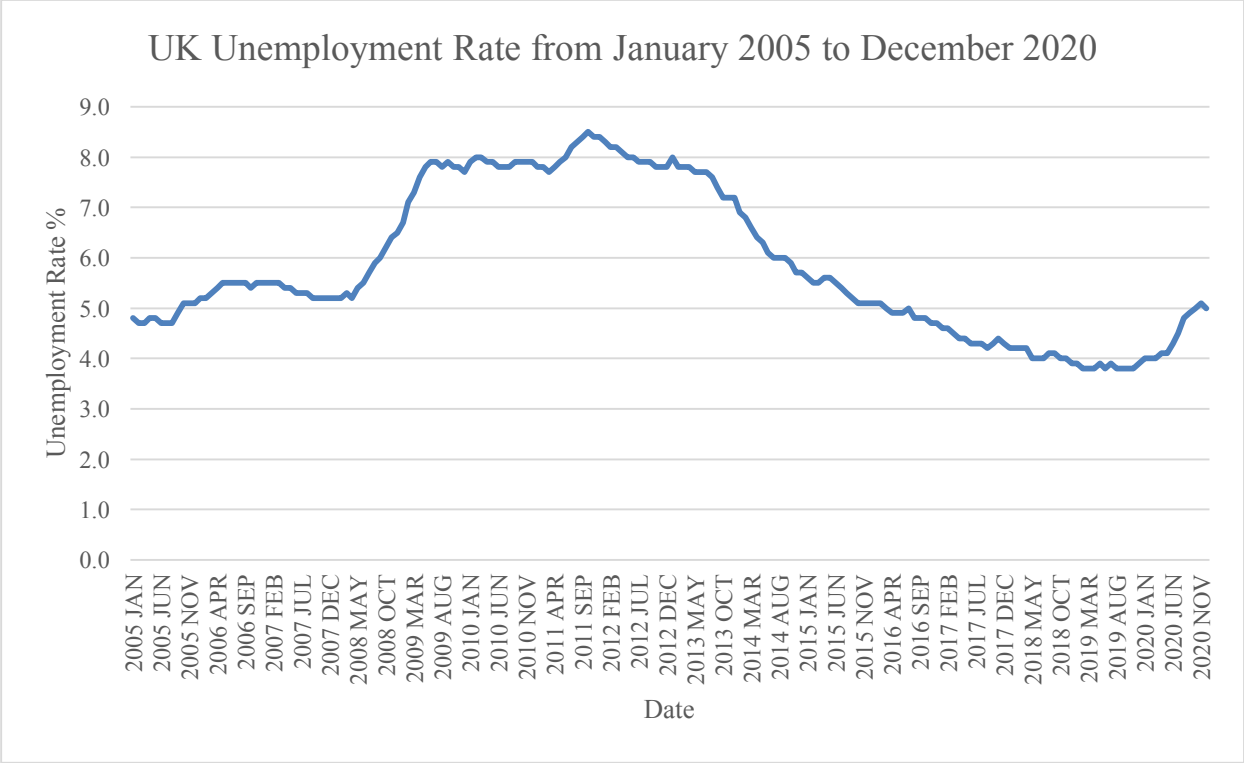
4.3.8 Conclusion of GDP Analysis

As shown in the previous sections, GDP has been heavily affected by the Covid-19 pandemic, with a 19% decrease in GDP from the first to the second quarter of 2020. The reasons for this decrease stem from the significant reductions in consumption and investment as analyzed in Sections 4.3.4 and 4.3.5. Government spending was aimed at supporting jobs and businesses, aiding public services, and control the spread of Covid-19. Government spending, thus, prevents mass unemployment so that economic recovery is more manageable. This will be assessed in Section 4.4, where unemployment is discussed, and Section 5, where government policy is assessed. For imports and exports, they also had no significant effect on GDP as GDP increased when the trade balance worsened. Overall, the main determining factors in causing GDP to decrease were the force decrease in consumption caused by the lockdown and the uncertainty caused by the Covid-19 that discouraged investment.

4.4.1 Predicted Changes in Unemployment during the Covid-19 and the UK Lockdown

As is the case when and economies experience a significant decrease in GDP, there is a substantial impact on the unemployment rate. It is expected that unemployment will also rise as GDP decreases because of a lack of demand, the closure of businesses, and cuts to job vacancies. Therefore, with a significant decrease in GDP of 19% in the second quarter of 2020, it is expected that unemployment rates will significantly increase. Additionally, it is estimated that a lockdown that last three months in the UK is estimated to cause unemployment to increase to

Figure 10 Unemployment Rate from January 2005 to December 2020.



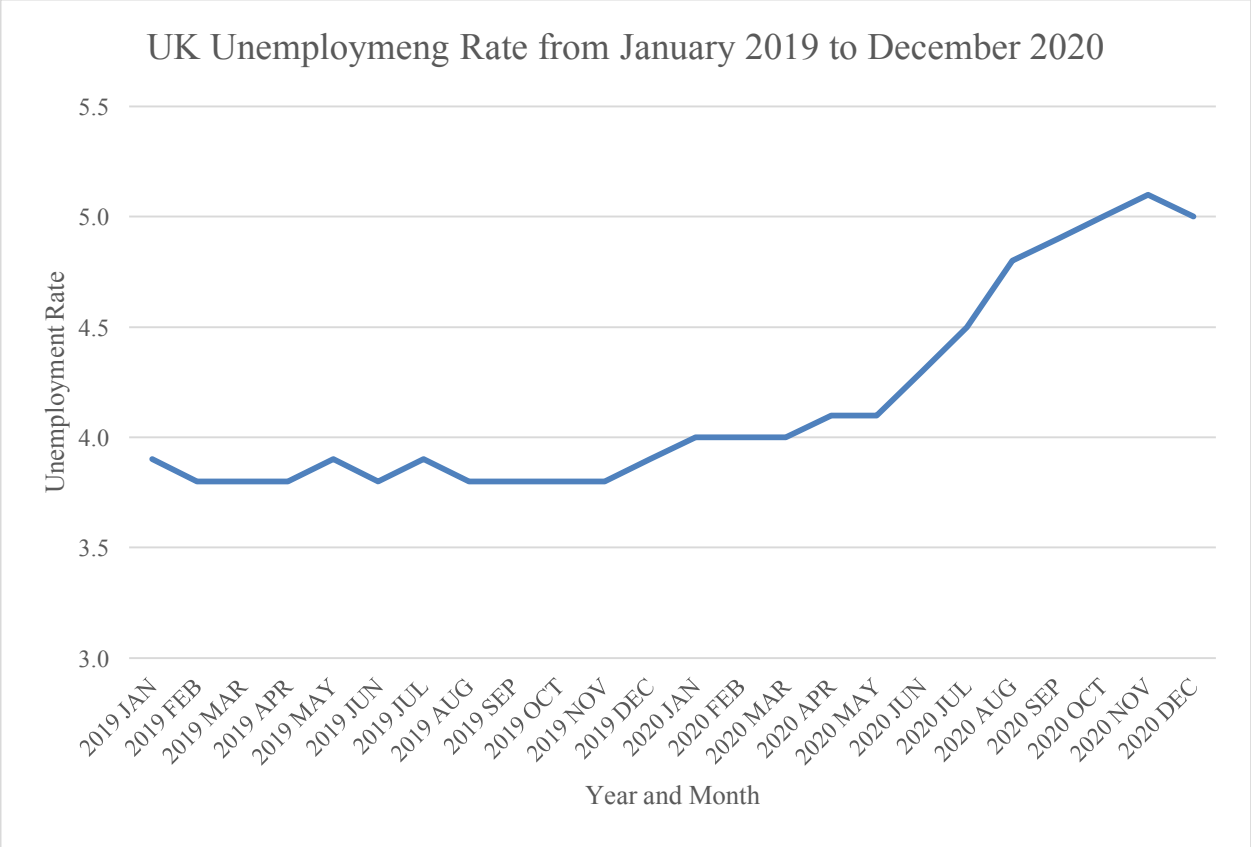
Source: (Leaker, 2021)

people aged 16 and over from January 2005 to December 2020 published by the Office of National Statistics. To be classed as unemployed, the worker needs to be actively looking for work for four weeks, and able to start employment within two weeks (Leaker, 2021). Comparing Figure 10 to Figure 3 at the time of the 2008 Global Financial Crisis, when the last recession occurred, unemployment rose from 5.3% in April 2008 to 7.9% in June 2009. During this period, the UK experienced 5 quarters of negative growth with an average decrease of 1.24% every quarter and a maximum decrease of 2.1% in the last quarter of 2008. Compared to the 19% decrease in GDP caused by the Covid-19 Pandemic and the lockdown in the second quarter of 2020, as shown in Figure 5, the GDP decrease caused by the Global Financial Crisis is significantly smaller. Therefore, a significantly larger increase in unemployment from March

2020 to December 2020 is expected compared to that during the last recession in the Global Financial Crisis.

4.4.2 Unemployment Analysis during the Covid-19 Pandemic and the UK Lockdown

Figure 11 UK Unemployment Rate from January 2019 to December 2020



Source 2: (Leaker, 2021)

In 2019, the year prior to the Covid-19 pandemic, the unemployment rate was stable and constant with each month in 2019 having an unemployment rate in the range of 3.8% to 4.0%. When the Covid-19 pandemic and the UK lockdown started in March the unemployment rate was at 4.0% and by December 2020 had risen to 5.0% as shown in Figure 11. In November 2020, the unemployment rate was at its highest point at 5.1%. Considering that the GDP in the second quarter of 2020 decreased by 19%, this increase in unemployment is very low and has not

played an important role in the fall of GDP. During the Global Financial Crisis, unemployment rose from 5.3% to 7.9%. During the pandemic, the UK experienced greater decrease in GDP but unemployment only rose from 4% to 5% from the start to the end of 2020. Therefore, unemployment was better managed during the pandemic then the Global Financial Crisis. To understand why unemployment has not been impacted significantly, it will be important to understand what government policies were and are in place to prevent the unemployment from falling during the pandemic. While Chapter 5 is dedicated to policy assessment, given the insignificant impact of Covid-19 on unemployment in the UK, it is appropriate to discuss policies regarding unemployment here.

The Coronavirus Job Retention Scheme (CJRS) and Self-Employment Income Support Scheme (SEISS) are two of the main policies that the UK implemented to help keep people employed and supplied workers with an income during the pandemic. The CJRS and SEISS were both introduced at the start of the UK lockdown to support jobs while in lockdown. For the CJRS, the government would pay the wages of workers who are furloughed by their employers without work to do (Brewer et al., 2020). The scheme paid 80% of workers' wages who were furloughed up to £2,500 pounds a month. By December 2020 the wages of 9.6 million people had been paid for the duration of the scheme and in 2020 cost the UK government £34.08 billion (HM Treasury, 2020). The SEISS is the same policy but for those who are self-employed, and this program had led to 2.6 million self-employed workers being supported by the government (HM Treasury). To put into context how extensive this scheme is the total UK labour force is 34,707,922 people with both schemes paying a total of 12.2 million worker's wages (World Bank, 2021). Therefore, throughout 2020 34.57% of the UK's work force had their wages paid for by the UK government whilst on furlough. These schemes were therefore very effective at

keeping the unemployment rate relatively low for the increase in GDP. If they were not in place the unemployment rate would have been significantly higher as employers would not have been able to pay workers' wages due to the decrease in economic activity. These schemes will be discussed in more depth in Chapter 5.

4.4.3 Conclusion of Unemployment Analysis

The unemployment rate in the UK during the Covid-19 pandemic and the lockdown has increased. However, it has increased much less than expected for a significant decrease in GDP of 19% in the second quarter of 2020. The effective government policies, the CJRS and the SEISS, have helped to protect jobs and incomes for many workers throughout the pandemic. Without these policies, the UK unemployment rate would have increased to much higher levels than it is currently. With 12.2 million workers' wages being paid by the government, it is possible that a significant portion of these workers would have been made unemployed in 2020. Keeping the unemployment rate low will aid economic recovery post Covid-19, as people are already in jobs rather than seeking them, and therefore productive in the economy. However, issues may arise once the CJRS and SEISS policies end, which will be further examined in the Chapter 5.

4.5.1 Predicted Changes in Inflation during Covid-19 and the UK Lockdown

Inflation and GDP tend to have a linear relationship. When GDP decreases, inflation decreases and vice versa. This is due to decreases in consumption and demand when GDP falls and therefore inflation also falls. When GDP increases, so do consumption and demand and therefore inflation. As seen in Section 4.3 GDP fell by 19% in the second quarter of 2020 so a decrease in inflation is expected. Because the GDP decrease is so significant the UK could even experience deflationary pressures where the inflation rate falls below zero. The pandemic has

caused a shift in consumer behaviour and patterns with food and medical supplies being demanded more than ever. Additionally, there were disruptions to supply chains at the start of the pandemic (Ebrahimy , 2020). Both factors will cause an increase in prices of these goods but the effect on inflation will depend on the weightings in Consumer Price Index (CPI). Because of the change in consumer behaviour caused by the Covid-19 Pandemic and the lockdown it is important to analyze the basket of goods that CPI is measured from. This is because there could be changes to the basket of goods during the pandemic and the lockdown and therefore could influence the inflation rate. It is expected that the Covid-19 pandemic and the UK lockdown that the inflation rate will decrease and that inflation has the potential to be less than zero.

4.5.2 Consumer Price Index and the Basket of Goods during the Covid-19 Pandemic and the UK lockdown

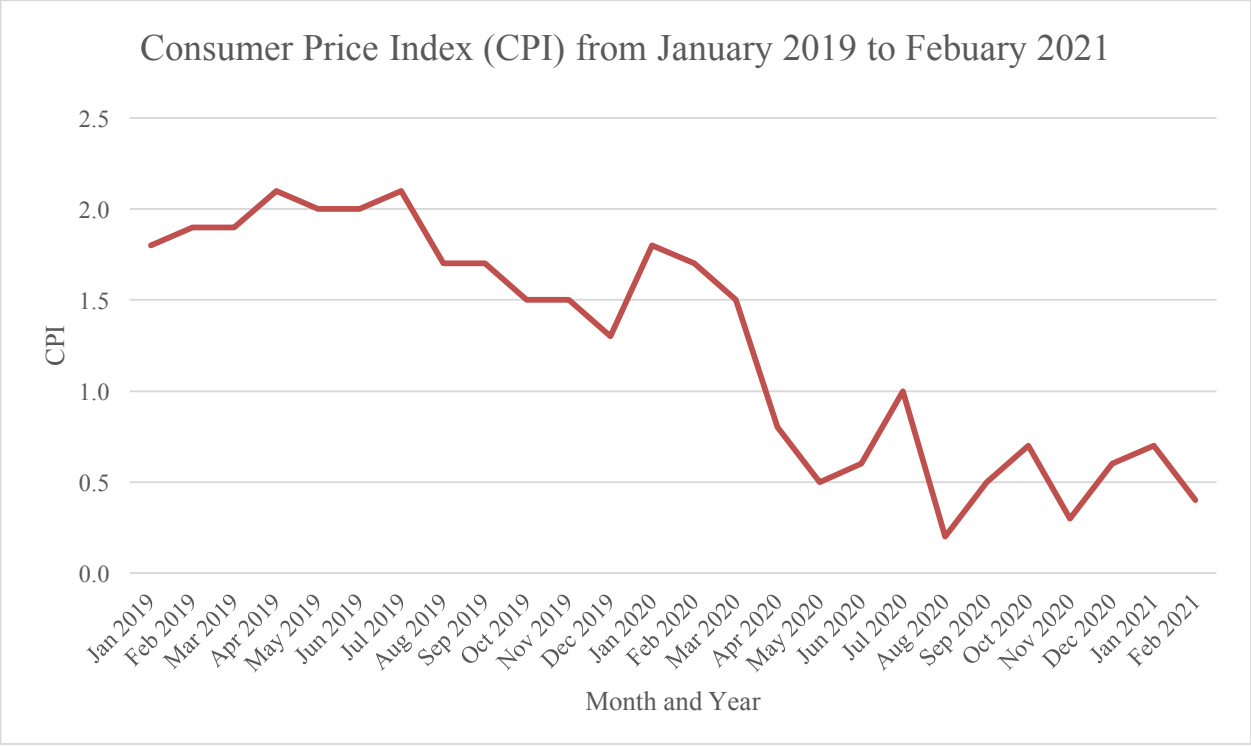
As mentioned in the previous section, consumer behaviour changed drastically in short period of time because of the Covid-19 pandemic and the lockdown. Because of this many of the weightings in the CPI may lead to an over or under estimation of inflation. Purchases in food and housing will be understated whereas purchases in transport, clothing, recreation, and hospitality will be overstated for pre-pandemic CPI weightings (Reinsdorf, 2020). Therefore, weightings should have been changed while the UK was in the lockdown to get more accurate measures of CPI. During the first few months of the pandemic and UK lockdown it is probable that CPI is underestimated. This is because the weightings will not reflect the true consumer patterns as well as the fact that food prices rose faster than CPI globally and transport costs fell in a lot of regions (Reinsdorf, 2020).

The Office of National Statistics decided that it was important to maintain the fixed basket of goods concept with reweighting of the basket of goods occurring ever year (Keane,

2020). Therefore, the main differential in the change of inflation would be the prices of the goods and not the changes in the consumption of goods. Additionally, changing the weights monthly to match changes in consumer behaviour can lead to "chain-drift" (Keane, 2020). This is where the measures differ from an equivalent measure and this can accumulate to a point where comparison cannot be made between the official and reweight measures. Chain-drift can lead to the inflation being influence by price movements that are unrelated to the inflation rate (Keane, 2020). Therefore, the weightings used by the Office of National Statistics are not changed monthly even throughout the pandemic.

4.5.3 Inflation During the Covid-19 Pandemic and The UK Lockdown

Figure 12 Consumer Price Index from January 2019 to February 2021



Source: (Gooding,2021)

During 2019, the inflation rate was at a normal and acceptable level. The Bank of England has a target monthly inflation rate of 2.0% that it uses monetary policy mechanisms to

achieve. This target means that there is little risk of deflation and does not allow inflation to get to large which could cause high inflationary pressure. The average monthly inflation rate during 2019 was 1.8% which shows that in terms of inflation the UK economic was performing well. Additionally, the inflation rate was constant from January to July in 2019 which shows constant price increases every month. This indicates that the UK economy was stable during this period. From July to December 2019 the inflation rate started to decrease but did not decrease to levels which raise concern of deflationary pressures.

From January to March in 2020, the inflation rate was again at an acceptable level with the inflation rate being 1.8% in January, 1.7% in February, and 1.5% in March. Therefore, before the pandemic and the lockdown the UK economy was handling inflation well and there was little to no concern of inflationary of deflationary pressure. However, when the UK imposed lockdown restrictions during the Covid-19 pandemic and when GPD decreased so did inflation to very low levels of inflation. In May 2020, the inflation rate had decreased to 0.5% then rose to 1% in July of 2020 as the economy reopened and people began spending again. In August, the inflation rate fell again to 0.2%. The inflation rate has remained low from this point and until February 2021 where inflation has not risen past 1%. During this period, however the UK entered a second and a third national lockdown, so inflation is expected to be low as economic activity is once again restricted. Therefore, the UK has an issue with low inflation which means the UK has the risk of deflation. Deflation can lead to even less spending as prices fall which will impede any post Covid-19 economic recovery. The prices of many goods and services decreased in the UK because of the pandemic with clothing and footwear seeing the largest decrease in price along with recreation and culture, and restaurants and hotels (Gooding, 2021). These are some of the main sectors that were forced to lockdown during the UK lockdown as

they were deemed nonessential. Therefore, prices decreasing in this sector is expected. However rising transport and food costs kept inflation rate above 0% preventing any deflation (Gooding, 2021).

4.5.4 Conclusion of Inflation Analysis

During the pandemic, the inflation rate in the UK has behaved as expected with the inflation rate decreasing when the UK was put into lockdown and when GDP decreased. The main concern with a significant decrease in GDP is the risk of deflation which the UK has currently avoided. If the UK had experienced deflation during the Covid-19 pandemic and the lockdown, stimulating consumption would be difficult as consumers save their income when prices have fallen. By having low levels of inflation shows there is still a risk of deflation however as the economy opens inflation could rise as consumption increases. Another issue that could arise is high levels of inflation as the UK economy removes restrictions and the pent-up demand is used. Therefore, controlling inflation after the Covid-19 pandemic will be crucial for the Bank of England. Overall, deflation has been avoided so far, which is important in ensuring that consumption increases when restrictions are removed and allowing for an easier economic recovery.

4.6 Conclusion of Macroeconomic Analysis

The Covid-19 pandemic has had a detrimental effect on the UK economy. GDP decreased by 19% in the second quarter of 2020. This is the largest quarterly decrease in GDP the UK has recorded. The compounded effects of significant reductions in investment and consumption are the main causes of this decrease. Government spending increased in response to the pandemic but was not significant enough to counter the reductions in consumption and investment. Additionally, the trade surplus that the UK had gained in the second quarter of 2020

had no impact on GDP. Unemployment was the best performing macroeconomic indicator. Unemployment increased from 4.0% in January of 2020 to 5% in December of 2020 after a significant contraction in GDP. The effective implementation of the Coronavirus Job Retention Scheme (CJRS) and the Self Employment Income Support Scheme (SEISS) has kept unemployment relatively low. Without these policies unemployment could have increased to significantly higher levels. Inflation in the UK decreased from 1.8% in January 2020 to 0.2% in August 2020 and remained low during the remiander of 2020. Therefore, the risk of deflation in the UK was high during the course of the pandemic, however it did not occur. This will aid in economic recovery as deflation causes consumers to save their incomes rather than spend it. It is likely that the inflation will remain low throughout the pandemic as the resilience of global supply chains has led to limited inflation in traded goods and services as well as the increase in automation has kept wages above prices (Gopinath, 2021). The risk of high inflation arises with economic recovery, when the release of pent-up demand could cause rapid economic growth and therefore prompt a high inflationary risk (Gopinath, 2021). Overall the UK has been heavily affected by the Covid-19 pandemic and the lockdown with decreases in consumption and investment being the main causes of this. The goals of government policy have meant that GDP has contracted significantly while unemployment has remained relatively low. The next chapter of this paper will further analyze the effectiveness of government policy as well as policy implementation to aid in post Covid-19 economic recovery.

Chapter 5 Policies Implement by the British Government and Their Effectiveness Against the Economic Impact of Covid-19 and the Lockdown.

5.1 Introduction to UK Policies

Over the course of the pandemic, the British government implemented many policies to negate and surpass the economic effects of the Covid-19 pandemic and the lockdown. The main approach taken by the government was a fiscal in nature with increases in government spending as well as cuts in taxes and deferrals. As stated in the government's "Spending Review" published in December 2020, the goals of these fiscal policies were to control and suppress the virus, increase support to public services, and support jobs and businesses (HM Treasury, 2020). While in Chapter 4 we have shown that these policies prevented unemployment from rising too high, this chapter will further evaluate their effectiveness. Additionally, the Bank of England's Monetary Policy Committee introduced new interest rates and updates to its quantitative easing program to help the economy during the pandemic (House of Commons, 2021). The UK government also implemented extensive health policies to help stop the spread of Covid-19. While this thesis will not discuss their effectiveness in preventing the spread of Covid-19, it will show how they affected the economy while in place. Therefore, the purpose of this chapter is to evaluate the government response to the Covid-19 pandemic and the lockdown, as well as to provide an economic outlook given the current policies in place. Based on the current literature pertaining to government policies during COVID-19, some policy suggestions to aid in the economic recovery will also be provided.

5.2 Fiscal Policy during the Covid-19 Pandemic and Lockdown

As discussed in Chapter 4, two of the main policies implemented were the Coronavirus Job Retention Scheme (CJRS) and the Self-Employment Income Support Scheme (SEISS). The

schemes paid 80% of workers' wages up to £2,500 a month who were placed on furlough or unable to work during the pandemic (HM Treasury, 2020). The aim of these policies was to support businesses and keep people employed and with an income. These policies were very effective at keeping people employed and helped support a total 12.2 million workers' wages (HM Treasury, 2020). A significant portion of these workers could have become unemployed and, therefore, the unemployment rate would be significantly higher than it currently is. When restrictions are eased and removed, economic recovery will be more efficient as people are employed and will have incomes to spend. Without these schemes, there would have been higher amounts of unemployment and many workers would be seeking a job or would be even economically inactive therefore prolonging economic recovery. However, there is a major concern with the CJRS, which pays the most workers' wages, that once it is supposed to end in September 2021 that there will be a high number of workers being made unemployed. Many businesses have seen reduced revenue because of the pandemic and lockdown and will be unable to pay workers' wages when they can no longer get government support. Therefore, the UK could potentially face an unemployment crisis when the two schemes end. To prevent this the government may have to pay a smaller percentage workers' wages while they are able to work until their employer is able to fulfil their wage bill. During the crisis, these schemes have been highly successful at keeping people employed and supplying workers with an income. However, to fully determine their effectiveness, once the schemes have ended, evaluation will be required. Especially, the unemployment rate needs to be observed to see if the end of the schemes leads to a spike in unemployment.

Additionally, the government introduced extensive support for businesses with loans, tax deferrals, and grants. A total of £11.6 billion has been granted to small businesses during the

pandemic (HM Treasury, 2020). Without these loans, many more businesses would have been forced to close and therefore the many more workers would have been made unemployed. If more businesses had closed and therefore more people are unemployed, these factors will prolong any economic recovery and therefore it is important that these businesses remain open and people employed. For those that have unfortunately become unemployed the government has expanded its benefit and welfare system. The Government has increased the Universal Credit by £20 a week and reduced the income floor from which people can claim Universal Credit (HM Treasury, 2020). Lastly, the government has increased funding for public services to £113 billion to make sure they have the funds to provide their services (HM, Treasury). This increase in funding has been used to aid health care services as well as provide funds for testing and tracing programs and vaccination programs.

The government has, therefore, made substantial efforts to ensure people are employed and businesses stay open, as well as expanding the government safety for those who do become unemployed. Additionally, it made sure that vital public services, such as healthcare services, are adequately funded to provide their services during the pandemic. However, there are criticisms of these policies. One criticism is that these policies do not go far enough in their support of jobs, businesses, and public services. The unemployment rate has increased throughout the pandemic and the support for those who are unemployed is viewed to not be adequate for people to pay their required payments. Universal Credit has increased to £409.89 a month from £317.82 a month, but when one consider that the median weekly wage in April 2019 was £585 then this benefit is far from enough to support people who become unemployed (HM Treasury, 2020; Smith, 2019). With all expansionary fiscal policies, there is concern of widening budget deficits and increasing national debt. The UK's national debt during the Covid-19 pandemic has

increased by £333 billion with national debt as a percentage of GDP being 97.5% at the end of February 2021 (Munro, 2021). The issue with a high national debt caused by the pandemic is that austerity measures may be introduced after economic recovery or the UK could potentially experience a debt crisis in the future. In order to fully evaluate the effectives of these policies long term effects need to analyzed, which cannot yet be undertaken due to these policies having only been in place for one year. Using Chapter 2 to highlight the differences between the 1918 Spanish Flu and Covid-19, the UK was a lot more effective in their policy as the approach was expansionary monetary policy, rather than contractionary. Therefore, this helped keep workers employed unlike the 1918 Spanish Flu.

5.3 Monetary Policy During the Covid-19 Pandemic and Lockdown

The Bank of England's Monetary Policy Committee (MPC) is in control of the UK's monetary policy. In response to the pandemic and the lockdown the MPC cut interest rates to 0.1% in March 2020, which is the lowest interest rates have ever been. Also, they expanded their quantitative easing program initially by £200 billion, and throughout the pandemic the MPC has agreed to a further £250 billion increase in quantitative easing (House of Commons, 2021). In total the MPC has increased their quantitative easing program by £450 billion during the pandemic and lockdown.

By cutting interest rates the MPC hopes it will provide some boost to consumption to help stimulate the economy during the pandemic. This is because saving is less valuable as savers get lower interest so are influenced to spend their income rather than save. However, this policy was rather ineffective because of the mandatory lockdown and that interest rates were already relativity low at 0.75% so a decrease to 0.1% is not significant (House of Commons, 2021). As shown in Chapter 4, GDP decreased by 19% in the second quarter of 2020 and

consumption fell by 50%. Therefore, this cut in the interest rate did not stimulate the economy. Hence the lockdown was too significant to overturn for a cut in interest rates. However, borrowing would be cheaper and so, more businesses and people could have taken out loans to help them make payments that would otherwise miss. Overall, the cut in interest rates was ineffective at reducing the impact on GDP and there is the issue that if interest rates are to be cut again, they will have to go to negative interest rates.

Expanding quantitative easing will increase the money supply in the UK in a bid to stimulate the economy. The increases in quantitative easing of £450 billion are to be completed by the end of 2021 (House of Commons, 2021). Initially this program has struggled to stimulate the economy for the same reasons as interest rate cuts. The lockdown has had a much larger impact on consumption and therefore GDP than any increase in the money supply could have negated. However, as the UK economy starts to reopen in 2021 and the quantitative easing program is still happening then this could help stimulate the economy post Covid-19 and aid in economic recovery. Additionally, increasing the money supply will lead to inflation. But in this case when GDP has fallen very significantly then the quantitative easing program could have prevented deflation from occurring. The prevention of deflation means that once the economy opens consumers will spend their income instead of saving it. This is because prices are rising instead of falling so consumers are encouraged to spend their income. Therefore, this will aid in post Covid-19 economic recovery. To see the full effectiveness of the increase in quantitative easing long-term analysis will be required in years to come.

5.4 Health Policy's Impact on the Economy During the Covid-19 Pandemic and Lockdown

The UK enacted major non-pharmaceutical health policies to suppress the Covid-19 pandemic and, as shown in Chapter 4, had major economic impacts. This section will analyze the

effectiveness from an economic perspective. The pandemic has highlighted the interconnectedness of health policy and economic policy and that both policies have implications on each other. For example, if the economy remains open, infections may rise and so will deaths and vice versa.

The UK lockdown and implementation of social distancing has had the biggest economic effect of all the health policies used. These policies lead to significant decreases in consumption and investment and therefore a significant decrease in GDP. This all occurred because businesses were forced to close and people were told to stay at home. Lockdowns are therefore shown to not be healthy for the economy but can suppress the health effects of a pandemic. This shows that there is an economic trade off with lockdowns between public health and economic health. It is important that during a pandemic government policy both aids economic health and public health to ensure both are protected to best of the government abilities. Vaccinations are the main health policy that can aid and help the economy. As people are protected with vaccinations economies can open and allow for economic activity to resume as the risk of infections and hospitalisations are significantly lower. Therefore, the most effective health policy in an economic sense is a comprehensive vaccination program.

5.5 Future Economic Outlook for the UK and Policy Suggestions Moving Forward

The UK economy is currently at a vital point in terms of economic recovery. As UK economy starts to reopen throughout 2021 and economic and health policies come to end, it is vital that the UK government focuses on two objectives. The first objective is that the unemployment rate must stay relativity low. With the current schemes unemployment has performed much better than expected but there is potential for a big wave of unemployment once these schemes end. By keeping the unemployment level low the UK will have closer to pre-

pandemic levels of consumption once the schemes end and the economy reopens fully and therefore economic recovery will be shorter.

Another important objective is to encourage workers who have saved more of their income due to reductions in consumption to spend their savings. According to the Bank of England, savings for high and middle-income households have increased (Bank of England, 2020). These households did not see their income affected by the Covid-19 pandemic and, therefore, with the restrictors in consumption saved the portion of their incomes they would have otherwise spent. A major issue is that it is reported that most of these households that have increased their savings will not spend their savings once the UK economy reopens (Bank of England, 2020). Therefore, policies need to be introduced to encourage people to use their savings. With interest rates currently at 0.1%, negative interest rates could lead to people spending their money instead of saving it as they will lose money as they save. Additionally, reductions in VAT that are passed onto consumers could lead to increases in consumption and consumers spending their increased savings. If the UK government manages to keep unemployment low and encourages households with excess savings to spend them could result in the shortest recovery from the Covid-19 pandemic and UK lockdown.

Chapter 6 Conclusion

The Covid-19 pandemic and the UK lockdown have caused the largest quarterly decrease in GDP on record. GDP was the worst performing macroeconomic indicator during the Covid-19 pandemic. Unemployment performed best with only a slight increase in the unemployment rate. This is due to the comprehensive policies such as the Coronavirus Job Retention Scheme (CJRS), which has kept many workers employed and supplied with an income during the pandemic. Without this scheme, unemployment would be significantly higher, and the UK economy could, potentially, have an unemployment crisis with high levels of unemployment. The inflation rate has decreased, along with GDP, to low levels that raise the concern of deflation. However, avoiding deflation, will encourage consumers to increase spending once the UK economy reopens.

Economic policy throughout the pandemic has been implemented to protect businesses, jobs, and incomes. With these goals in mind, the policy implementation has been successful so far. There is potential for increases in unemployment when these schemes end, which will prolong economic recovery. Additionally, the increase in quantitative easing throughout 2021 can stimulate the economy with the increase in the money supply once the UK government removes restrictions, hence, reducing the time required to grow GDP back to pre-pandemic levels. The combination of health and economic policy have placed the UK in a situation where economic recovery can be relatively short. The current vaccination program should prevent the need for any more lockdowns and the low levels of unemployment the UK should experience a shorter recovery than expected and a return to pre-pandemic economic activity. However, to fully evaluate how the UK economy performed throughout the pandemic and how effective the

policy response is long term macroeconomic analysis is required. Once the pandemic is over and so are the restrictions, the full effectiveness of the UK policy response can be evaluated.

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