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# Boosting Growth in Crisis: Evaluating the Role of Fiscal Stimulus in Sweden's Pandemic Recovery

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**Abstract:** The Covid-19 crisis presents an opportunity to evaluate the effectiveness of fiscal policy by investigating how fiscal stimuli aided recovery from the pandemic in Sweden. As Covid-19 have led to increased concerns of unsustainable debt levels, questions of how government spending has affected the economic rebound and fiscal sustainability arises. To tackle these questions, I evaluate pre-existing literature on fiscal multipliers and perform a debt sustainability analysis. Based on Sweden's prevailing macroeconomic conditions, its existing sovereign debt status, and its internationally unique response to the pandemic, the result finds that Sweden had the ideal conditions for implementing fiscal stimuli, allowing for a fiscal multiplier above one. The debt dynamics formulae estimates that fiscal policy did not offset Swedish fiscal sustainability. Hence, fiscal stimuli played an important role in the economic recovery and should be considered again in the future if the central bank is constrained from stimulating the economy at large because of ZLB interest rates.

Keywords: Covid-19, fiscal policy, fiscal multipliers, government debt sustainability, debt dynamics, Sweden

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# List of Abbreviations

GDP	Gross Domestic Product
GFR	Great Financial Crisis
SEK	Swedish Krona
ZLB	Zero Lower Bound
US	United States
IMF	International Monetary Fund
OECD	The Organisation for Economic Cooperation and Development
NIER	National Institute of Economic Research
WHO	World Health Organisation

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# 1 Introduction

On the 11<sup>th</sup> of March 2020, Covid-19 was declared a global pandemic by the World Health Organisation. What had started as a flu in China at the end of 2019, quickly spread to the rest of the world. Following the statement from WHO, countries began closing borders and implemented both restrictions and lockdowns in attempt to stop the disease from spreading and to save lives. Consequently, both export markets and supply chains were disrupted and shut down. The drastic decline in global demand put pressure on governments to avoid the pandemic turning into something worse than a financial crisis (Swedish Fiscal Policy Council, 2021). To assist people but also economies, large fiscal stimulus was implemented in most countries. This spending has been debt financed, resulting in large deficits all around the world. In 2020, total global debt amounted to 257% of GDP, reaching its highest level in decades. In 2021, increased growth and inflation led to a decline in global debt levels to 247 percent, being the largest decline seen in the last 70 years (Kose, Nagle, Ohnsorge & Sugawara, 2021; Perrelli, Kiendrebeogo, Singh, Wei, Womer & Zhang, 2022).

Nevertheless, at the end of 2021 total global debt was still 19% higher than prior to the pandemic (Perrelli et al, 2022; Gaspar, Medas & Perrelli, 2022). These high levels of government debt "... have rekindled the interest in fiscal consolidation" (Balasundharam, Basdevant, Benicio, Ceber, Kim, Yang, Mazzone, Selim & Yang, 2023, p.4). Similar occurred during the Great Recession of 2008-9 when politicians implemented measures of austerity to control rising debt and deficits. Today, we know that the actions significantly impeded growth and economic recovery (Krugman, 2015). As such, there has been little obsession with debt and deficits, until now. The extensive spending during the pandemic have led worries of the past to resurface. The IMF are encouraging countries having received their loans to undertake measures of austerity (Oxfam, 2021). In the US, politicians disagree whether they should cut government spending or face a sovereign default in case they cannot increase their debt ceiling (The Economist, 2023). Even countries with low levels of government debt, such as Sweden, are facing increased polarisation between people that favour fiscal sustainability over welfare benefits and public services, and those believing that spending should continue even if the result is rising debt and deficits (Ares, Burgisser & Häusermann, 2021). This begs the following



questions, to what extent has fiscal spending contributed to economic recovery in Sweden from the pandemic and what are the implications for fiscal sustainability? Is Sweden facing unsustainable debt levels because of the pandemic, as many other countries in the world? Should policymakers in Sweden also consider fiscal consolidation? (Balasundharam et al, 2023). The aim of this paper is therefore to evaluate the effectiveness and the consequences of expansionary fiscal policy during the pandemic in Sweden. The paper will hopefully contribute to increased understanding of the achievements and shortcomings of fiscal policy by examine its use in the past and during Covid-19 in Sweden. Following research question have been formulated;

**Research question:** How has fiscal stimulus aided the economic recovery from the Covid-19 crisis in Sweden, given prevailing macroeconomic conditions, its existing sovereign debt status, and its internationally unique response to the pandemic?

This paper hypothesises that conditions in Sweden during the pandemic were ideal for implementing fiscal stimulus without giving rise to unsustainable sovereign debt levels. This will be explored using debt sustainability analysis and through a examination of whether the following conditions in Sweden during the pandemic were meet; (1) the recession was severe, (2) interest rates were at or near the zero lower bound, (3) monetary policy accommodated expansionary fiscal policy, (4) demand and supply was not greatly impacted by restrictions, and (5) the country had medium term debt sustainability. These conditions have been drawn up from existing literature on fiscal multipliers during crises and their related theories. From this basis, it has been found that Sweden fulfilled the required conditions and should as such have seen a multiplier above one as a result of the government spending during the pandemic. Using a standard equation on debt dynamics it is found that fiscal stimulus did not lead to unstainable levels of government debt. This finding is strengthened through an estimation of future debt sustainability, indicating that debt levels continue to be stable in Sweden. Consequently, the impact fiscal spending had on debt in Sweden have differed in comparison to many other countries, which can be related to the amount of fiscal space available prior to the pandemic.

## 1.1 Research Purpose and Relevance

The purpose of this paper is not to calculate the fiscal multiplier resulting from government spending during the pandemic, but to evaluate within which range it is expected to fall based on the conditions that have been found. This is partly because there is yet not enough data to make an accurate estimation of its size. Another reason is that the use of different calculations when estimating the size have led to various outcomes leading to an unresolved debate regarding the effect of government stimuli (Ramey, 2019). As such, this paper has taken a different approach from conventional methods and hope to contribute to the literature on fiscal multipliers during the pandemic. Considering increased polarisation regarding government spending during Covid-19 in Sweden, it is important that the effect of fiscal spending is analysed (Ares, Burgisser & Häusermann, 2021). The findings could potentially provide guidance for policymakers in the future as this paper evaluates which conditions that are ideal for making government spending as effective as possible.

## 1.2 Delimitations

This paper does not consider the effect the Ukrainian War has had on interest rates, inflation or debt levels during 2022 (United Nations, 2023). This is because of limited data and the scope of the paper. Moreover, there are other conditions than those mentioned in this paper that tend to affect the size of the multiplier. For instance, the paper does not investigate the effect of following factors; exchange rate, openness to trade and level of development (Ilzetzki, Mendoza & Végh, 2013). This is mainly because these factors are easier to evaluate. Moreover, due to the scope of the paper, the multiplier effect stemming from government expenditure in Sweden is only investigated and not the effect discretionary spending has on investments or taxes.

## 1.3 Outline of the Thesis

The structure of this thesis is as follows. Section 2 provides information of the use of fiscal policy throughout history. Section 3 reviews existing literature on fiscal multipliers related to times of crisis. It is followed by section 4, that considers existing theories ascribed to the literature from which a theoretical framework is created, setting up the conditions for larger multipliers during the pandemic. Section 4 outlines the methodology, explaining the debt dynamics formulae. In section, 5, the result is presented, allowing for an analysis of how fiscal spending has contributed to economic growth and fiscal sustainability in Sweden. Section 7 provides a discussion and conclusion to the research question.

## 2 Background

### 2.1 Fiscal Policy during the Great Depression and the Great Recession

“When beset by a crisis, we are prone to look for precedents in judging what kinds of policies are likely to be effective” (Eskander, 2017, p.2). In the US, The Great Depression was different from the Great Recession in terms of severity and recovery. The Great Depression persisted for 43 months whereas recovery was seen after 18 months during the Great Recession (Burtless, 2017). This difference is ascribed to the way monetary and fiscal policy responded to the crisis. In 1929, monetary policy in the US responded to the economic crisis by being contractionary. What could have been a recession quickly turned into a depression. During the crisis of 2008-9, authorities had learned their lessons from the Great Depression and responded with both expansionary monetary and fiscal policy. This had great implications for the economic outlook during the GFC, which is visible through the difference in contraction of real GDP and the increase of unemployment (Crafts & Fearon, 2010). According to calculations by Crafts and Fearon (2010) real GDP fell with 16.7 percentage points between 1929 and 1932 in advanced countries. Recovery began slowly in 1933 but it was not until 1936 that real GDP had recovered. This can be compared to the fall in real GDP during the GFC which fell between 2008 and 2009 with 3.2 percentage points. In 2010, the rate had almost recovered to its initial level before the crisis (Crafts & Fearon, 2010). Moreover, during the Great Depression unemployment levels rose from 7.2 percent in 1929 to 31.4 percent in 1933, being an increase of 24.3 percentage points. In 1933, unemployment began to decrease but only modest and slowly (Crafts & Fearon, 2010). In 1938, unemployment was still 9.3 percentage points higher than prior to the crisis. This can be compared to the change in unemployment during the Great Recession which increased from 5.7% in 2007 to 8.4% in 2010, amounting to an increase of 3 percentage points. Consequently, advanced countries experienced a much less severe economic downturn during the crisis of 2008-9 compared to during the Great Depression which is largely attributed to the use of both expansionary fiscal and monetary policy (Crafts & Fearon, 2010).

The Federal Reserve had begun lowering interest rates already in 2007 due to increased financial instability. Entering 2008, the Lehman Brothers declared bankruptcy which led the Fed to further depress interest rates and take extraordinary measures in attempt to keep the economy afloat. By ensuring liquidity and keeping interest rates close to zero, United States prevented the recession from becoming any worse. However, the low interest rates proved ineffective in further stimulating growth and consumption (Burtless, 2017). Consequently, the central bank implemented quantitative easing and the government, fiscal stimulus packages. Pursuing both expansionary monetary and fiscal policies was uncommon, but interest rates at the zero bound could not allow for recovery from the recession. As such, most countries used expansionary fiscal policy to stimulate the economy. The exception was the Eurozone that instead pursued measures of austerity which reduced government spending as a response to the economic downturn. This was a result of increasing concerns regarding high budget deficits which shifted the focus from the need to restore employment rates to the need of rebuilding government surpluses and control government debt (Burtless, 2017; Krugman, 2015). In the US, Americans began questioning the fiscal stimuli due to the belief that it was used to rescue the banks that essentially had created the crisis. This was not entirely true, but it had an implication for the size of the stimuli as fiscal policy is determined through politics. In 2010, while the economy was yet to recover, Republicans gained control. Being concerned with accumulation of debt, they reduced the fiscal stimuli and turned to a more conservative fiscal policy. As the economy had not recovered, with high unemployment levels and insufficient aggregate demand, the recovery slowed down (Burtless, 2017).

## 2.2 The Rise and Fall of Austerity

In 2010, market interest rates on government debt in Greece had increased proportionately from 2009 and the country was made an example of what would happen if fiscal spending was allowed to continue. Consequently, people who favoured austerity gained support (Krugman, 2015). Ideas of Keynesianism was replaced with austerian ideology, believing that cutting government spending would boost consumer confidence. Fiscal retrenchment, preventing higher levels of government spending was seen important for maintaining the country's credibility, arguing that a high government debt increased the risk of a new financial crisis. Instead, it was believed that

the recovery in economic growth and employment only could be ensured by a reduction in deficits and debt (Krugman, 2015). As such, economists and policymakers neglected macroeconomic theory stating that a decrease in government spending in a depressionary economy, with low interest rates, would enhance the downturn because of no room to offset the cut in spending (Krugman, 2015). This is what happened in Europe, with both increasing debt and stagnation leading to the end of the policy (House, Proebsting & Tesar, 2017; Krugman, 2015). It has been estimated that about one third of the European governments that allowed for austerity policies, saw a net reduction in GDP between 2009 and 2014. Estimations by House, Proebsting and Tesar (2017), show that if austerity had not been implemented in Greece, Italy, Portugal, Spain and Ireland, the output loss should have amounted to 1 percent compared to the estimated 18 percent. Moreover, their projections showed that the same countries experienced an increase in debt-to-GDP ratio with 20 percentage points by implementing the policies. The findings show a strong negative correlation between austerity and economic growth. It turned out that countries with most stringent austerity measures, experienced the weakest economic growth. Consequently, the austere ideology vanished both in the political and economic arena during 2010 (House, Proebsting & Tesar, 2017; Krugman, 2015).

## 2.3 Policy during Covid-19 and Fiscal Multipliers

Faced with the Covid-19 pandemic, countries all around the world had to implement various policy measures to mitigate the economic consequences. Almost all governments applied fiscal stimulus to the economic shock, which on average amounted to 11% of GDP at the onset of the pandemic. Most central banks tried to lower the already low interest rates further and provided substantial amount of liquidity to banks (Bergant & Forbes, 2022). Other measures such as quantitative easing and foreign exchange intervention were used to a lesser extent. What differed from policy measures during earlier crises was the reliance on fiscal stimuli despite the already high levels of government debt. This had earlier, as for instance during the Great Recession, affected the size of the stimuli. As such, fiscal space was not a determinant of government spending during Covid-19 (Bergant & Forbes, 2022). In Sweden, around 400 billion SEK was spent by the government during 2020 and 2021, with an additional 1000 billion in loans and guarantees. Similar to other countries, fiscal policy played a larger role in Sweden

during the current crises compared to past ones (Government Offices of Sweden, 2021). The efficacy of the fiscal stimuli during Covid-19 can be evaluated based on the literature on fiscal multipliers (Bergant & Forbes, 2022). Fiscal multipliers measures the effect government spending has economic output and is as such "...defined as the ratio of a change in output ( $\Delta Y$ ) to a discretionary change in government spending or tax revenue ( $\Delta G$  or  $\Delta T$ )" (Batini, Eyraud, Forni & Weber, 2014, p.2). Consequently, governments can justify increased government spending during periods of lower aggregate demand as it might stimulate private consumption through the multiplier effect (Batini et al, 2014).

## 3 Literature Review

### 3.1 Fiscal Multipliers During Recessions and Lower Bound Interest Rates

As the Covid-19 pandemic led to a deep recession, it could be useful to understand how fiscal multipliers are affected in such times. The main empirical literature focusing on fiscal policy during recessions show that fiscal stimulus during an economic downturn allows for larger fiscal multipliers compared to in ‘normal’ times (Auerbach & Gorodnichenko, 2012; Auerbach & Gorodnichenko, 2013; Fazzari, Morley & Panovska, 2015; Ilzetzki, Mendoza & Végh, 2013; NIER, 2021). By estimating fiscal multipliers during recessionary and expansionary periods in the United States, Auerbach and Gorodnichenko (2012), find that the effect of fiscal stimulus is considerably larger during recessions. Their estimates show that the fiscal multiplier for government expenditures ranged from 0 to 0.5 during expansions but reached between 1 to 1.5 during recessions. They support these findings in a following paper which estimates historical fiscal multipliers for the OECD countries (Auerbach & Gorodnichenko, 2013). In accordance with the results for the United States, they find greater fiscal multipliers for government expenditure during economic downturns when there is large amount of slack in the economy. These findings are supported by Fazzari, Morley and Panovska (2015) who argue that the size of the multiplier depends on the effect fiscal stimulus has on output, which in turn responds to the state of the economy. If there is a low utilisation of economic resources as consistent with times of recessions, output will respond positively to government spending. They find that great amount of slack leads to twice as high increase in consumption compared to times of no slack. This is important because it demonstrates that the state of the economy determines the impact of fiscal stimulus (Auerbach & Gorodnichenko, 2012, Auerbach & Gorodnichenko, 2013; Fazzari, Morley & Panovska, 2015).

Nevertheless, there are still some studies that challenge the view that fiscal multipliers are larger during recessions (Ramey & Zubairy, 2018, Ramey; 2019; Hjelm & Stockhammar, 2016). In the paper by Ramey and Zubairy (2018), the authors use a different method to calculate fiscal



multipliers compared to for instance Auerbach & Gorodnichenko (2013) and find significantly lower multipliers. Their estimation shows multipliers below the value of one independent of the amount of slack in the economy. As such, they question the effectiveness of government spending during recessions, which illustrates that the findings are to some extent dependent on the method used for calculations. However, Ramey (2019) came to agree that interest rates at the ZLB are associated with higher fiscal multipliers and finds that multipliers after a financial crisis could be higher because of it. Several papers highlight the importance lower bound interest rates and monetary accommodation has on the size of fiscal multipliers. It is found that lower bound interest rates and accommodating monetary policy are associated with larger multipliers (NIER, 2021; Coenen, Erceg, Freedman, Furceri, Kumhof, Lalonde, Laxton, Lindé, Mourougane, Muir, Mursula, De-Resende, Roberts, Roeger, Snudden, Trabandt & Veld, 2012; Christiano, Eichenbaum & Rebelo, 2011). A study by the NIER (2021), find that government spending allows for larger multipliers during times of accommodating monetary policy. This means that interest rates are being kept low by the central bank to make fiscal stimulus as expansionary as possible. The study also demonstrates that during times of no monetary policy accommodation, fiscal stimulus was more effective when interest rates were at the zero lower bound. This is because an increase in government spending when interest rates are the ZLB, boosts expectations of inflation which essentially reduces the real interest rate further (Ramey, 2019). A lower real interest rate boosts output through increased consumption and investment by making borrowing less expensive (Christiano, Eichenbaum & Rebelo, 2011). However, the study by the National Institute of Economic Research (2021) suggests that accommodating monetary policy is more important for the size of the fiscal multiplier than lower bound interest rates. The study estimates that the fiscal multiplier for government spending is 1.16 when there is no accommodating monetary policy. The multiplier increases to 1.81 if there is one year of accommodating policy and reaches 2.33 during two years of accommodation.

## 3.2 Fiscal Multipliers during the Great Financial Crisis of 2008-9

The Great Financial Crisis of 2008-9 was different from the Covid-19 crisis mainly due to the former one being caused by a banking failure and the latter one, a disease. Nevertheless, there are similarities between the two crises of for instance low interest rates, amount of slack and the composition of fiscal stimulus (Wilson, 2020). As such, there is the question of whether fiscal stimulus and its respective multipliers during the GFC can contribute to the analysis of government spending during the pandemic. Wilson (2020) analyses fiscal stimuli during the Great Recession and finds that stimulus packages and fiscal relief during Covid-19 and the GFC in the US, was to large extent similar. As such, it is suggested that research on government spending and multipliers during the GFC could have important implications for understanding its impact during and after the pandemic. If this is the case, Wilson (2020), argues that the fiscal stimulus during Covid-19 will have a large positive impact on GDP, but that this depends on how fast consumption is able to return to sectors in the economy impacted by social distancing. The author also points out that the government spending during both crises share the important characteristic of being implemented during times when interest rates were near the zero lower bound. As such, monetary authorities had limited ability to stimulate the economy both during the GFC and the Covid-19 pandemic as interest rates could not be lowered any further (Wilson, 2020). In respect to these similarities and by referring to the study by Ramey and Zubairy (2018), he suggests that government spending during Covid-19 is likely to result in a fiscal multiplier close to one or above.

However, as Payun and Rhee (2015) state there is a lack of consensus regarding the effectiveness of expansionary fiscal policies implemented during the GFC. Consequently, the debate on the size of fiscal multipliers is still not determined. Nevertheless, they contribute to the limited but existing literature on fiscal multipliers during the GFC by estimating fiscal multipliers for 21 different OECD countries during that time. Their findings show that the fiscal multiplier in the countries studied was higher than one during the crisis (Payun & Rhee, 2015). These estimations are supported by Huidrom, Kose, Lim and Ohnsorge (2020) who find that fiscal stimulus in Europe during the Great Recession was associated with a fiscal multiplier

above one. However, a lot of data that finds that government spending was able to boost consumption through fiscal multipliers during the GFC, are based on data from the U.S (Huidrom, et al, 2020). For instance, Faria-e-Castro (2017) finds that fiscal spending in the U.S boosted aggregate consumption by around 50 percent. Europe, on the other hand, had consolidative fiscal policy through which multipliers effect output differently. Blanchard and Leigh (2013) find fiscal multipliers above one during the beginning of the crisis for Europe. Their estimates show that when one percent of GDP was directed towards fiscal consolidation, there was a one percent decrease in output. As such, the outcome of fiscal spending is dependent on whether fiscal policy is contractionary or expansionary.

### 3.3 Fiscal Multipliers during Health Crises

The general literature on fiscal stimulus and multipliers during health crises and the current pandemic are very limited. For instance, it would be expected that the Spanish flue could provide lessons for the Covid-19 pandemic, but this has proved difficult. This is mainly because the economy has changed a lot from 1919 until today (Bishop, 2020). Besides lack of economic statistics during the era of the Spanish flue, Bishop (2020) points out that government transfers were different then compared to today. During the flu, governments provided support in the likes of food and clothing compared to today's cash transfers. This has a different impact on the output in an economy, and we are today able to postpone our consumption compared to then. Bishop (2020) argues that these kinds of difficulties has proven it hard to use historical records on pandemics as a guide for today. Nevertheless, some studies have been published that examine fiscal multipliers from government spending during the Covid-19 pandemic. Although being written recently, they can prove useful for evaluating the fiscal stimulus in Sweden during the pandemic. Auerbach, Gorodnichenko, McCrory and Murphy (2022), find that the fiscal stimulus during the pandemic had a different impact than it normally would during recessions. Customer spending and employment that otherwise would respond well to increased government spending is instead seen to be affected by lockdown polices and restrictions. As such, it is suggested that safety measures restricting the demand-side can reduce the effect of fiscal stimulus (Auerbach et al, 2022). They did find that employment multipliers from government expenditure was higher for cities that was not subjected to lockdown policies, but

that consumer consumption stayed indifferent. They argue that households increased their savings during the pandemic regardless of being subjected to lockdown policies or not. This is usually uncommon during recessions due to tight credit conditions which makes households respond positively to fiscal stimulus. As such, Auerbach et al. (2022) conclude that restrictions negatively affected the effectiveness of government spending, leading to lower fiscal multipliers. They also emphasize that while there is much data on the impact of fiscal stimulus during recessions and to some extent for the GFC of 2008-9, there is little known about its effectiveness when restrictions are in place.

Other studies that have tried to estimate the outcome of government spending during the Covid-19 pandemic find positive multipliers resulting from the stimulus (Bayer, Born, Luetticke & Müller, 2023; Muraraşu, Anghelescu & Grecu, 2023; Kinda, Lengyel & Chahande, 2022). In the study by Bayer et al. (2023), the authors show that fiscal multipliers for targeted transfers in the US were around 1.5 during the pandemic and they argue that these transfers were able to prevent an output loss of 5 percentage points. Muraraşu, Anghelescu and Grecu (2023), also find positive fiscal multipliers for government spending in Bulgaria, Czechia, Hungary, Poland, and Romania. Their estimations show that within the first quarter of the spending being implemented, Poland had a fiscal multiplier of 0.61. The authors argue that in the medium term, all countries except for Bulgaria saw multipliers of one or higher from government expenditure. It is suggested that the fiscal stimulus led to a lower contraction and allowed for a faster recovery during 2021 (Muraraşu, Anghelescu & Grecu 2023). Their findings are supported by Kinda, Lengyel and Chahande (2022), which estimate that the fiscal multiplier one year after fiscal stimuli during times of no health crisis would amount to 0.4, for advanced countries. This can be compared to their estimate during the pandemic which reached almost one. They do however agree with Auerbach et al. (2022), that factors such as uncertainty, supply bottlenecks and suppressed demand could impact the size of the multiplier. Nevertheless, they predict that the fiscal stimulus during the pandemic will have a longer effect on growth than one would expect. This indicates that it is still too early to fully comprehend the outcome fiscal stimulus during Covid-19 has had on output.

### 3.4 Fiscal Multipliers and Government Debt

Since the Great Financial Crisis of 2008-9, many countries have suffered from high levels of government debt (Auerbach & Gorodnichenko, 2017). Entering the Covid-19 pandemic, these countries had to pursue extensive fiscal stimulus to save the economy and lives of their citizens. This has led to large deficits in government budgets and added to the already high level of debt in many countries (Balasundharam et al, 2023). Consequently, there is the question of whether high levels of government debt have impacted the size of fiscal multipliers. Extensive research analysing the relationship between government debt and fiscal multipliers find that multipliers are impacted by the country's fiscal position. The general agreement is that high levels of government debt significantly reduce fiscal multipliers (Sutherland, 1997; Perotti, 1999; Nickel & Tudyka, 2014; Huidrom et al, 2020; Ilizetzi, Mendoza & Végh, 2013). In the paper by Huidrom et al. (2020), the authors study how private consumption is affected by the fiscal position and how the level of government debt affects the size of the multiplier. Their findings suggest that an economy operating from a weak fiscal position will experience reduced private consumption up to four years after having implemented fiscal stimulus. If the economy instead operates from a strong fiscal position, their findings show that there will be an increase in private consumption up to two years after having implemented the same stimulus (Huidrom et al, 2020). When studying the impact different levels of government debt have on the size of the multiplier, the authors find it to be 0.2 at low levels of debt. When the debt is high, their result finds the fiscal multiplier to be essentially zero. When studying how this impacts the size of the multiplier over time, the authors estimate that the multiplier increases to 0.9 during low debt levels and to 0.5 during high debt levels (Huidrom et al, 2020). These findings are supported by those of Ilizetzi, Mendoza and Vegh (2013). Studying the long-term size of fiscal multipliers, they find the multiplier to be positive if debt-to-GDP ratios amount to 40 percent. If the government debt is greater than 60 percent of GDP, their estimations show a negative fiscal multiplier. This is important because the debt threshold in the Maastricht Treaty is at 60 percent which could be because a debt ratio higher than that would not result in favourable fiscal multipliers (Ilizetzi, Mendoza & Vegh, 2013).

Other studies emphasise the effect that government debt has on growth and how this impacts fiscal multipliers. Nickel and Tudyka (2014), argue that fiscal stimulus should be evaluated

based on its overall impact on real GDP. They find that this depends on to what extent the increase in government spending causes the debt-to-GDP ratio to rise. If for instance, the spending causes the ratio to increase then it is suggested that the overall impact on real GDP will decline sooner. Similar to the findings by Ilzetiki, Mendoza and Vegh (2013), the authors suggest that as long the debt-to-GDP ratio is around 35 percent, the overall impact on real GDP will be positive. Contrary, if the debt ratio is very high with a debt-to-GDP ratio of 105 percent, Nickel and Tudyka (2014) find that it will only take two to three years for the stimulus to instead have a negative impact on real GDP. In contrast, Auerbach and Gorodnichenko (2017) find that expansionary fiscal measures for economies with weak fiscal positions are not correlated with higher debt-to-GDP ratios and that it does not either result in higher borrowing costs. They find that this is because countries can maintain different debt-to-GDP ratios by acknowledging that Japan historically has been able to sustain a high debt ratio (Auerbach & Gorodnichenko, 2017). Nevertheless, there is a general agreement that policymakers in the future should approach fiscal stimulus packages with caution due to the elevated levels of debt since the Great Financial Crisis, making it uncertain how countries in the future will react to fiscal stimulus (Nickel & Tudyka, 2014; Auerbach & Gorodnichenko, 2017). For instance, it is pointed out by Auerbach and Gorodnichenko (2017), that the high levels of debt could affect the effectiveness of future fiscal stimuli as it could raise concerns about government's ability to repay debt. As such they state that "...it is critical to establish how government spending shocks influence not only output and prices but also indicators of fiscal sustainability such as the debt-to-GDP ratio and interest rates on public debt" (Auerbach & Gorodnichenko, 2017, p.22-23).

## 4 Theoretical Review

Research has not been able to completely agree on the size of fiscal multipliers stemming from government fiscal spending and as such there is no encompassing theory for it. Depending on different models and variables used when aiming to calculate multipliers, studies have reached different conclusions of its size (Ramey, 2019). Until this day, there is still a debate regarding the magnitude of the fiscal multipliers during the Great Recession. However, there are certain conditions and circumstances that are associated with stronger or weaker fiscal multipliers that the general literature finds an agreement on. Factors such as the state of the economy, the rate of monetary policy and debt levels are found to play an important role on the impact of fiscal stimulus and thus the effect of the fiscal multiplier.

### 4.1 State of the Economy

The state of the economy is essential for the outcome of fiscal stimuli. During a recession, consumer spending tends to fall because of increased economic uncertainty which leads to lower demand. According to Fisher (1933), this causes the velocity of money in the economy to decrease which in turn increases the value of it. Consequently, debt will become more expensive which leads to cuts in production and thus rising unemployment. This leads to a decrease in supply and investments which results in output falling below potential level. The result is increased pessimism and less confidence, causing deflationary expectations to develop. Consequently, there will be hoarding of money if there is no attempt to increase price levels. As a result, money in circulation will further decrease which will cause the nominal interest rate to fall whilst the real interest rate increases. Higher real interest rates, further suppress investment and consumption, thus creating a deflationary spiral (Fisher, 1933). However, if the government instead interferes in the economy and takes advantage of the slack, then the government could stimulate the economy through demand-sided policy according to Keynesian economists (Auerbach et al, 2022). During a recession, it is suggested that the supply side becomes more sensitive to increased demand. If the government boosts its expenditure while

other spending factors remain unchanged, the overall output will grow. Likewise, households constrained by borrowing limitations during the recession would raise their consumption due to the additional income provided by the government (Auerbach et al, 2022). As such, government spending would increase the marginal propensity to consume, which would generate higher growth in GDP through the Keynesian multiplier effect. According to Keynesian economists, the increase in GDP due to the government spending could be greater than the size of the initial fiscal stimulus (Batini et al, 2014; Auerbach & Gorodnichenko, 2012).

According to theory and the literature reviewed, the government spending multiplier could be near or greater than one during times of economic slack compared to its effect during times of economic stability. For instance, during periods of little slack, government spending is instead argued to crowd out private investment and thus result in smaller fiscal multipliers (Fazzari, Morley & Panovska, 2015; Auerbach & Gorodnichenko, 2012). Consequently, theory and literature predict that recessions allow for larger positive fiscal multipliers as a response to fiscal stimulus (Fazzari, Morley & Panovska, 2015; Auerbach & Gorodnichenko, 2012; NIER, 2021). As suggested by theory, fiscal stimulus during the pandemic should be very effective due to high unemployment levels and excess capacity in the economy (Auerbach et al, 2022).

## 4.2 Monetary Policy Rate

The literature predicts that fiscal multipliers are larger during periods of accommodating monetary policy or during times when interest rates are at the zero lower bound (NIER, 2021; Christiano, Eichenbaum & Rebelo, 2011). Research finds that positive fiscal multipliers are correlated with accommodating monetary policy as it means that interest rates are kept intentionally low which helps to boost growth (Coenen et al, 2012). This is because low interest rates stimulate increased private consumption and investments by making borrowing less expensive. The focus of the central bank would otherwise be to control the inflation rate, which is likely to increase during expansive fiscal policy (NIER, 2021; Coenen et al, 2012). Without monetary policy accommodation, the central bank would presumably pursue contractionary measures and increase the interest rate in attempt to lower the inflation rate. Higher interest



rates would decrease the money in circulation, making it more expensive to borrow money. This makes it more profitable to invest money in the country for other countries, which consequently leads to an appreciation in the currency. This is because the demand for the currency increases, appreciating its value, and thus the exchange rate. Eventually, this will lead to a lower demand for exports, seeing that the currency has become too expensive in relation to other currencies. Less exports, decreases the domestic output and thus reduces the effect of the fiscal stimuli. Consequently, no monetary accommodation during expansionary fiscal policy will crowd out private investments (NIER, 2021; Pyun & Rhee, 2015).

On the other hand, if monetary policy is accommodative during fiscal stimulus, the central bank will not be able to increase the interest rate as a response to the government spending. This will instead lead to the exchange rate depreciating and with a less expensive currency, exports, private consumption, and investment will rise (NIER, 2012; Pyun & Rhee, 2015). It is followed that unemployment levels will fall as heightened demand requires more labour. Consequently, output will increase, allowing for higher fiscal multipliers as a response to government spending. In accordance with the literature and macroeconomic theory, fiscal multipliers are higher during accommodative monetary policy due to lower interest rates (Coenen et al, 2012). This demonstrates the importance interest rates has on consumption and investment decisions of economic agents. As such it is proposed that if interest rates increase after fiscal stimulus, then the overall effect of the stimulus will be lower than it otherwise would have been. This emphasises the importance of expansionary monetary policy supporting expansionary fiscal policy in order to avoid crowding out and getting higher fiscal multipliers (NIER, 2021; Coenen et al, 2012; Pyun & Rhee; 2015).

Literature also suggests that zero lower bound (ZLB) interest rates have an important implication for the size of the fiscal multiplier. At the ZLB, the interest rate is low which means that monetary policy is expansionary, thus stimulative for the economy. If government spending increases at the ZLB, then output, expected inflation and marginal cost would increase. As the real interest rate equals nominal interest rate minus inflation, the increase in inflation expectations would lower the real interest rate. This would in turn increase spending, leading to even higher output, expected inflation and marginal cost which will push the real interest rate

further down. As such, increased government spending at the ZLB will lead to a large increase in output. This essentially relates to the theory of debt deflation by Fisher (1933), by showing how intervention by governments at the ZLB counteracts the deflationary spiral by changing expectations (Christiano, Eichenbaum & Rebelo, 2011). It has been found that the longer the lower bound binds, the more effective is the fiscal stimulus. This is seen to be correlated to depth of the economic downturn and how close interest rates are to the lower bound at the onset of the recession. If the recession is modest or if interest rates are high above the ZLB when downturn begins, this could cause the economy to leave the ZLB earlier. This in turn would have negative implication for the size of multipliers (NIER, 2021).

### 4.3 Government Debt Levels

Government debt is seen to impact the effectiveness of fiscal stimuli. In accordance with traditional Keynesian arguments, the literature finds that the level of debt has an important implication on expectations of private agents. It is found that fiscal spending will have an expansionary effect at moderate levels of debt as expectations of future debt stabilisation programs are low. Consequently, private agents will not see it as necessary to cut spending because of the increased government consumption (Sutherland, 1997). However, if the debt level of a country is high, fiscal stimuli will cause expectations of debt stabilisation in relative near future. With the belief that the government will raise taxes in the future, consumption will decrease. As such, expectations will cause fiscal stimulus to be contractionary instead of expansionary (Sutherland, 1997). In theory, high debt levels also affect interest rates as a weak fiscal position could make investors question the country's ability to meet its loan obligations. This could in turn have implications for the sovereign credit risk and such concerns could lead to a rising risk premia. This could in turn increase the cost of borrowing. If this happens, private consumption and investment would be expected to be crowded out, which in turn would lead to a lower multiplier (Huidrom et al, 2020).

The literature also indicate that government spending can have a positive effect on the debt-to-GDP ratio during poor financial times. This is because increased spending has the potential to generate more output relative to debt through for instance automatic stabilisers. As such, the

denominator of debt-to-GDP could increase relative to the numerator if growth can be restored. There is also the possibility of shrinking the numerator as public revenues could be generated through the multiplier effect which could be used to pay off debt (Auerbach & Gorodnichenko, 2017). According to literature, this prospect is greatest during times of low interest rates and financial difficulty as increased government spending during periods of financial stability is more likely to add to the debt level as it does not have as large impact on output. Relating to Keynesian theory, it is suggested that countries with a weak fiscal position can increase growth through fiscal stimuli and that this growth has the ability to reduce the debt-to-GDP ratio (Auerbach & Gorodnichenko, 2017). As such, high debt does not necessarily result in lower fiscal multipliers due to the potential of increasing GDP through government spending relative to debt. However, it is stated that if the debt levels are high enough to make economic agents sceptical regarding the governments' ability to repay the debt, then the spending could backfire and neither generate growth nor positive fiscal multipliers (Auerbach & Gorodnichenko, 2017; Nickel & Tudyka; 2014; Sutherland, 1997; Huidrom et al, 2020)

## 4.4 Formulation of Theoretical Framework

Through the review of existing theory and literature examining the impact of fiscal stimulus, this paper has developed a theoretical framework on fiscal multipliers during the Covid-19 pandemic. The framework suggests that fiscal stimulus would effectively have increased output during the crisis if following conditions were met; (1) the recession was severe, (2) interest rates were at or near the zero lower bound, (3) monetary policy accommodated expansionary fiscal policy, (4) demand and supply was not greatly impacted by restrictions, and (5) the country had medium term debt sustainability.

# 5 Methodology

## 5.1 Research Design

This paper will employ the case study method because of the research question and the purpose of the paper. The method is favourable to use when the question involves a ‘why’ or a ‘how’ of a real-life contemporary event bounded by a specific time-period, which the researcher has no control over (Yin, 2003; Creswell, 2014). The case study method is valuable as it enables detailed exploration of an event, allowing for examination of the cause-and-effect relationships. (Yin, 2003). The researcher uses prior research and theoretical propositions to determine what data is needed to be collected and analysed. As such, the study does not choose between quantitative or qualitative data but uses a mixed method based on the data needed to be analysed. The case study method is therefore very useful when analysing a complex issue or question, allowing the researcher to contribute to existing findings (Yin, 2003; Idowu, 2016). Compared to other research strategies, there is a lack of predetermined research designs to employ for case studies (Yin, 2003).

To investigate how government spending has contributed to economic recovery from the pandemic in Sweden, prior research and theoretical propositions on fiscal multipliers and their impact during different conditions have been examined. Based on this information, a theoretical framework has been constructed, stating which conditions that would have allowed for larger multipliers during the Covid-19 pandemic. This have determined which variables that should be examined and consequently, what data points that should be collected. The quantitative data have been analysed using descriptive statistics, together with a basic equation on debt dynamics. The results are further analysed using qualitative data on multipliers.

## 5.2 Data Collection Method

Secondary quantitative data has been collected from several statistical databases, both governmental and non-governmental. The forecast database by the National Institute of Economic Research has been used to collect data for fiscal variables for the following years, 2011-2024. The database is used in conjunction with their publications on forecasts of the Swedish economy. The database consists of historical data for different macroeconomic variables, but also has projected data for the future. From the database following variables has been used for the debt dynamics equation – the general government’s revenues and expenditures, real GDP growth rate, inflation rate, annual average monetary policy rate and general government consolidated gross debt. The projected estimates for 2023 and 2024 are based on their own calculations. The reason this paper employs data between 2011 until 2022, is because it allows the data to be put into a larger context. This in turn, results in a better understanding of how fiscal sustainability has evolved over time and allow for patterns to be identified. Similarly, data on the monetary policy rate has been collected from 2005 from the Swedish Riksbank, to demonstrate how it has developed over time and how long it has been at the lower bound.

Data on quarterly GDP was also collected from the NIER database, and employment rates was collected from the OECD database. Quarterly household spending was gathered from Statistics Sweden. This data has been constructed from the first quarter of 2019 until last quarter of 2022. This is because WHO declared Covid-19 as a pandemic in March of 2020 and it lasted until February 2022 in Sweden, when the last restrictions were removed (Public Health Agency of Sweden, 2022). This allows for a comparison in data before, during and after the pandemic. Data reflecting amounts of government spending have been extracted from documents provided by the government and councils. The qualitative data used to evaluate changes in the quantitative data was gathered from an extensive number of secondary sources, primarily academic papers by renowned authors on the subject. As such, the qualitative data was used to analyse and contextualise changes and trends in the quantitative data.

### 5.3 Data Analysis

This paper assesses quantitative data through the analysis of descriptive statistics and using an equation on debt dynamics. The descriptive figures and tables have been constructed using Microsoft Excel and Word.

Government debt reacts to changes in government spending, being the government's primary balance measuring the difference between revenue and expenditure. It also responds to interest rates and inflation. As such, the effect government spending has on fiscal sustainability can be examined using equation 1, where  $d$  denotes government debt,  $b$  denotes the government budget deficit/surplus,  $r$  denotes the real interest rate and  $g$  the real growth rate (Kenny, 2016; Crafts, 2016).

$$1. \Delta d = -b + (r - g)d$$

Fiscal sustainability is analysed by estimating the primary budget a country would require maintaining to keep the current debt-to-GDP ratio stable. As such,  $\Delta d$  is set to 0 which provide formula 2 where  $b^*$  equals the deficit or surplus that is needed to keep debt at its current ratio. This is the primary budget balance that the country needs to maintain (Kenny, 2016; Crafts, 2016).

$$2. b^* = (r - g)d$$

As the real interest rate equals the nominal interest rate minus the inflation rate,  $\pi$ , the equation can be further derived.

$$3. b^* = (i - \pi)d - (g)d \rightarrow b^* = (i - \pi - g)d$$

The equation illustrates that government debt can increase by large deficits or be reduced by high inflation if interest rates stay low. It also shows that if the real interest rate is higher than the growth rate, then the government debt will increase. Seeing that the growth rate,  $g$ , is negative in the equation means that it can reduce the debt ratio if it is higher than the nominal interest rate minus inflation (Kenny, 2016). This is often referred to as the interest rate-growth differential and it is important for determining the sustainability of government debt. If the real interest rate,  $r$  is higher than the real growth rate,  $g$ , then the differential is greater than 0 which

implies that the government have to run a budget surplus to keep the debt from rising. Conversely, if growth rates are higher than the real interest rate, then the interest rate-growth differential will be less than zero and as such negative. A negative differential is uncommon in conventional theory but has been more prominent due to the low interest rates since the GFC. This has an important implication for government debt, as it allows debt to be reduced or kept stable even if the government runs a deficit (Checherita-Westphal & Semeano, 2020).

A country's debt sustainability is determined by the actual budget position versus the surplus or deficit that can be runed without increasing the debt. This can be demonstrated by the primary gap which measures "...the difference between the actual primary budget deficit  $b$  and the required primary budget balance  $b^*$ " (Kenny, 2016, p. 4). This is displayed by the following equation:

$$4. \Delta d = -b + b^*$$

Using debt dynamic analysis, the impact fiscal space has had for fiscal expansion in Sweden during the pandemic will be examined and its effect on Swedish fiscal sustainability will be evaluated.

## 5.4 Validity and Limitations

Case study as a research method have received critique regarding its implications on validity and reliability. The most prominent critique is that it is non-replicable and provides subjective non-generalisable conclusions. Other concerns revolve around the lack of robustness and as such questions the scientific rigour of the research strategy (Yin, 2003; Idowu, 2016). A limitation with this paper and the applied research method could as such be its generalisability. However, the goal for this paper is not to apply the conclusion on different contexts but to expand the theoretical proposition and make that more generalisable. Other limitations could be that the qualitative data on fiscal multipliers does not consider all variables that affect its size and that more variables should be considered (Ramey, 2019). Moreover, the analysis does not consider to what extent interest rate-growth differentials can be seen to have reduced

government debt or if the reduction was mostly attributed to the budget surplus or residual components (Crafts, 2016).

The quantitative and qualitative data has been collected from governmental sources, statistical databases and academic journals that are considered reliable. The exception is the data provided by working papers as they are yet to undergo a rigorous peer-review process. This means that the content and methodology of the research may not have been thoroughly assessed by experts in the field, leading to potential flaws or biases in the analysis.



# 6 Results and Analysis

## 6.1 The State of the Swedish Economy during Covid-19

### 6.1.1 Recession

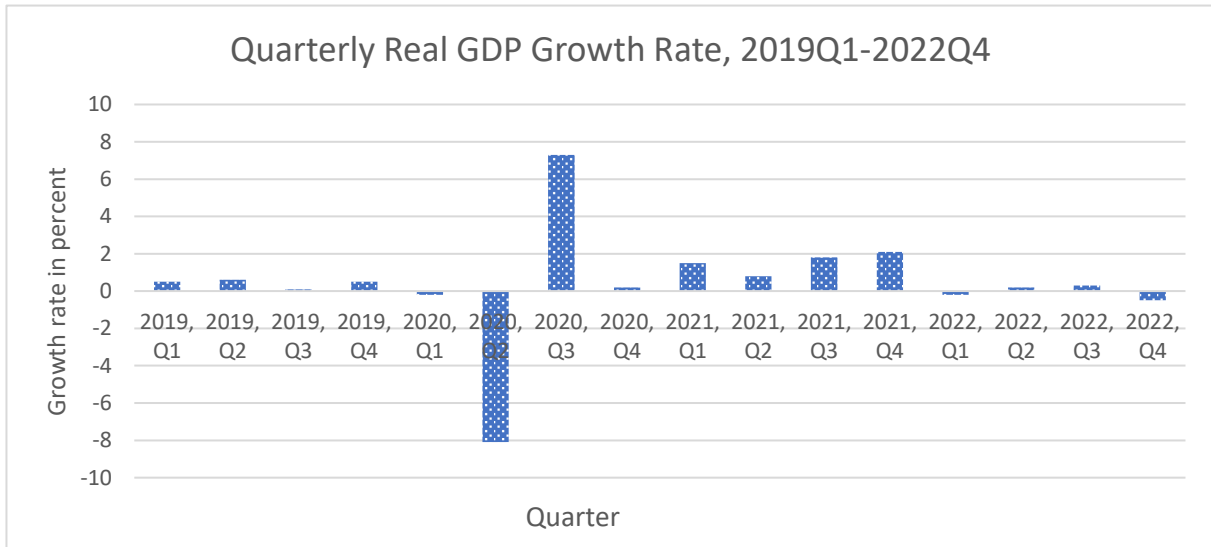


Figure 1.1. Change in Quarterly GDP Growth Rate from the First Quarter of 2019 until the Last Quarter of 2022.

Note: Quarterly GDP, constant prices

Source: NIER (2023a)

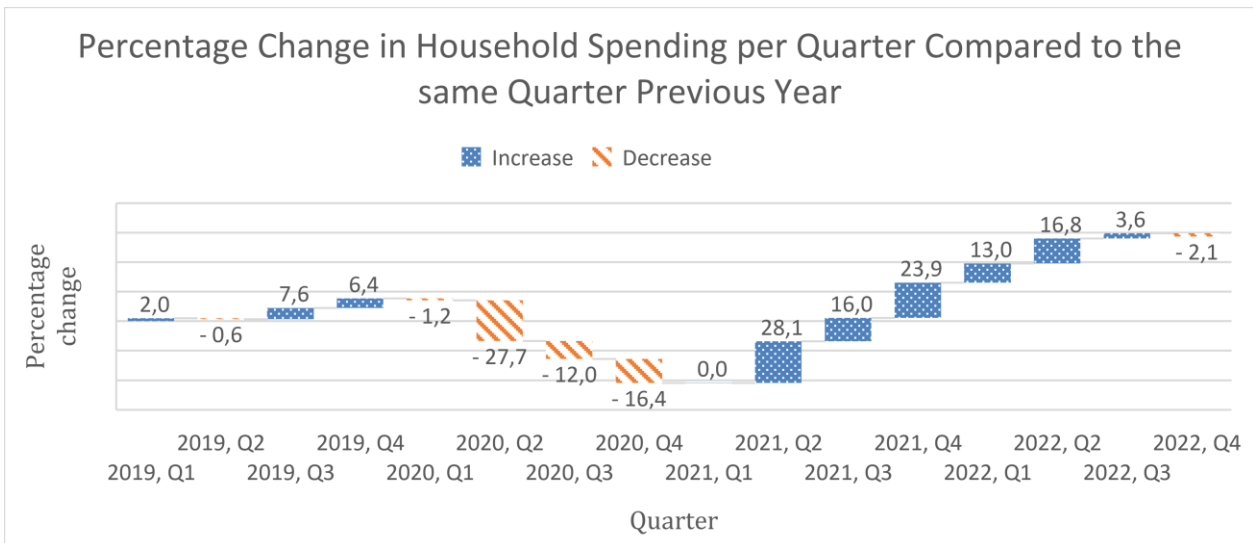


Figure 1.2. Percentage Change in Household Spending per Quarter Compared to the same Quarter the Previous Year (from first quarter of 2019 until last quarter of 2022)

Note: Percentage change compared to the same quarter the previous year – fixed prices, calendar corrected values

Source: SCB (2023)

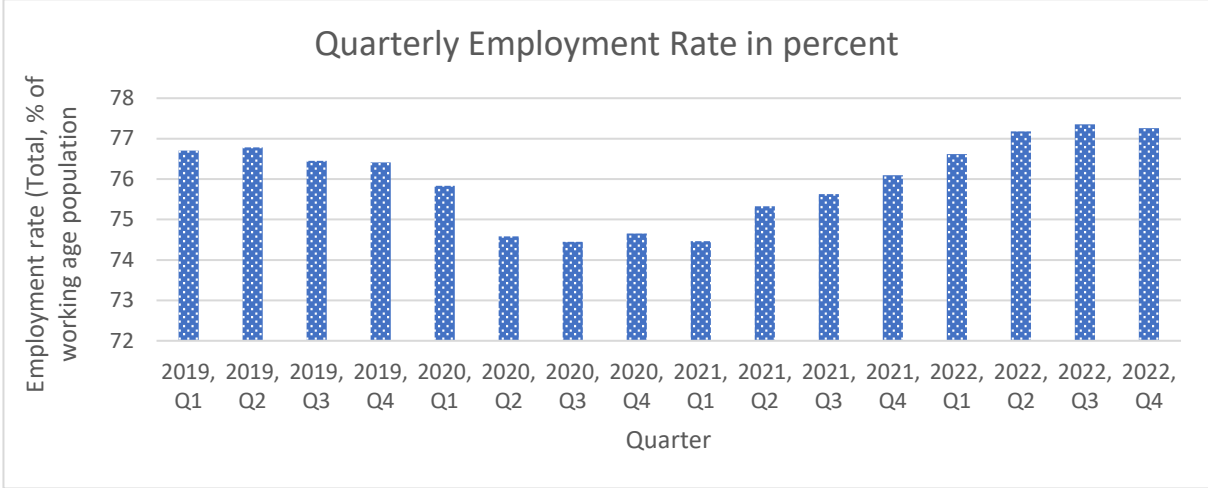


Figure 1.3. The Employment Rate from the First Quarter of 2019 until the Last Quarter of 2022.

Note: The term "working age" is used to describe individuals between the ages of 15 and 64, and the rate is determined by calculating the proportion of employed individuals in relation to the total working population.

Source: OECD (2023)

During the first quarter of 2020, Covid-19 had spread to Sweden as seen by the initial decrease in GDP visible in Figure 1.1. In the following quarter, GDP continued to fall and reached -8,1%. This was the worst economic contraction in Sweden since 1980 (Swedish Fiscal Policy Council, 2021). The dramatic decline in GDP shows that Sweden entered its recessionary stage in 2020, supported by Figure 1.2 and 1.3. In accordance with Auerbach (et al, 2022), both consumer spending and supply tend to fall during a recession which is confirmed by the figures. The coronavirus led people and society at large to take precautionary measures of for instance working from home, avoiding crowds and public gatherings in attempt to avoid the disease. As economic transactions at large take place where people meet each other, consumption fell. During the second quarter of 2020 people consumed 27.7% less compared to the previous year. The falling demand became a problem for companies that started to struggle paying wages, rent and interest rates. Consequently, many people were laid off at the start of 2020 as seen in figure 1.3 (Coronakommissionen, 2022). During March of 2020, around 42 000 people in Sweden lost their job. This was twice the number of layoffs compared to the worst month during the GFC.

Two months later, the number of people having lost their jobs due to Covid-19 was approximately 87 000. Consequently, the Swedish government expected GDP to fall significantly during 2020, as seen in Figure 1.1 (Swedish Fiscal Policy Council, 2021). With both declining output, employment, and household spending during the first and second quarter of 2020, Sweden was in a recession.

The state of the economy is important for the effect of fiscal stimulus as described by Auerbach and Goronichenko (2013) as well as Fazzari, Morley and Panovska (2015). When there are high levels of unemployment as indicated by Figure 1.3 and excess capacity in the economy as indicated by Figure 1.1 and 1.2, fiscal stimulus should be very effective (Auerbach et al, 2022). The economic downturn in Sweden during 2020 implies that there should have been great amount of slack in the economy. According to the authors this allow for larger fiscal multipliers from the government spending. Seeing that Auerbach and Goronichenko (2012) estimate that fiscal multipliers during recessions amount to between 1 and 1.5, and that Fazzari, Morley and Panovska (2015) find that private consumption is twice as high during slack, Sweden would presumably have experienced multipliers greater than one. Faria-e-Castro (2017) also found that fiscal stimuli during the GFC allowed for a significant boost in aggregate consumption and Figure 1.2 indicates that similar occurred in Sweden. From the second quarter of 2021 until the third quarter of 2022, household spending was consistently higher compared to the same quarter previous year, albeit the ongoing pandemic.

However, as pointed out by Auerbach et al. (2022), restrictions such as lockdown policies and stay-at-home orders seem to have led to smaller fiscal multipliers, at least in the US. In contrast to other countries, Sweden did not employ any strict restrictions or lockdown policies. Instead, the country relied on individual responsibility. This has been measured by the Covid-19 Stringency Index, that estimates how strict countries restrictions were. According to the Index, Sweden had fewer and less extensive restrictions compared to the rest of the world (Regeringen, 2022a). The effect can be seen in Figure 1.1 that demonstrates an increase in output during the second quarter of 2020, attributed to the low infection rates at the time which led to an increase in consumption (SCB, 2020). Wilson (2020) argued that fiscal stimuli is likely to have a positive impact on GDP as seen during the GFC depending on how quickly consumption returns to

sectors affected by social distancing. In Sweden, household consumption fell greatly during the second quarter of 2020. Due to restrictions and self-distancing, consumption of services was most negatively affected. However, a slow recovery in consumption of services was seen already during the third quarter of 2020, which can be attributed to Sweden's fewer rigid restrictions (SCB, 2022). This recovery did not level off in Sweden compared to in neighbouring countries, which should have had an important implication for the fiscal multiplier as suggested by Wilson (2020). Moreover, household saving rates increased during the pandemic and combined with extra income from the fiscal stimulus, this should have boosted household consumption after the pandemic, allowing for higher output (SCB, 2022).

Seeing that government stimuli helped businesses to stay afloat during Covid-19 through financial support, supply could quickly respond to demand which would have been important for the speed of the economic rebound (Swedish Fiscal Policy Council, 2021). Export levels did also recover fast in Sweden, reaching its pre-pandemic level during the last quarter of 2020. This indicates that Sweden's decision to keep the economy relatively open with comparably little restrictions, allowed demand to be more responsive to the fiscal stimulus. This in turn should have had a positive impact on multipliers in accordance with the literature. (SCB, 2022; Auerbach et al, 2022). The decision to prioritise the state of the economy did have consequences for the number of people getting infected and essentially dying from Covid-19. Compared to other countries in the Nordic region, Sweden had the most people dying from the coronavirus (SCB, 2022).

### 6.1.2 Zero Lower Bound Interest Rates

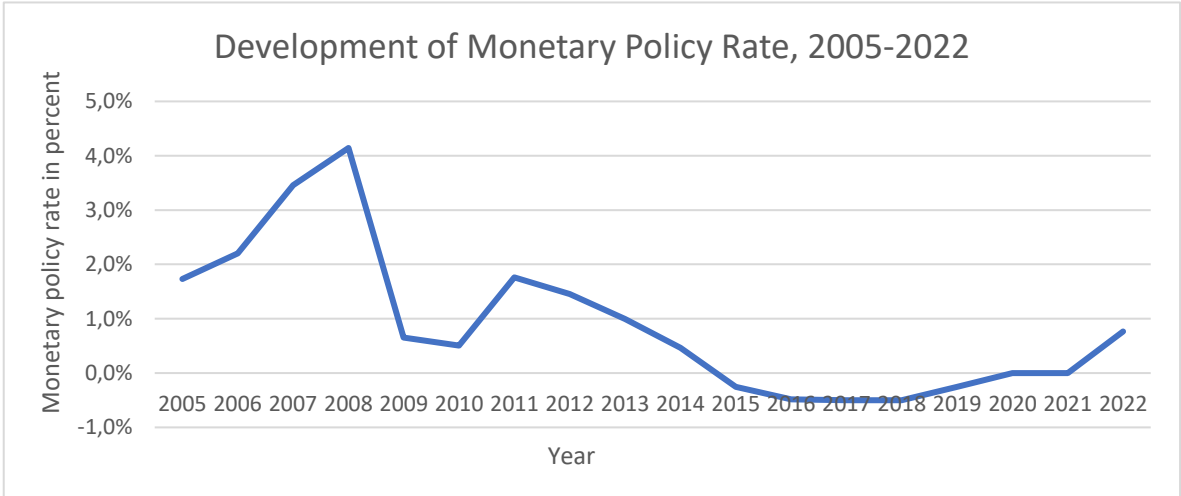


Figure 2. Development of Sweden’s Monetary Policy Rate between 2005 to 2022.

Note: annual average monetary policy rate

Source: Riksbanken (2023)

Figure 2 demonstrates that the central bank was able to stimulate the economy during the crisis of 2008-9 by having space to lower the interest rate significantly. This allowed the Swedish Riksbank to slash the interest rate, providing a stimulative effect. However, when the pandemic hit, interest rates were already at the ZLB which prevented monetary policy from stimulating the economy to a larger extent. Instead, the Swedish central bank ensured that the monetary policy was accommodative to the fiscal stimulus (Swedish Fiscal Policy Council, 2020). During March of 2020, Riksbanken implemented different measures to ensure liquidity to banks and made sure that interest rates were kept low. As such, the monetary policy was conjunctional with fiscal policy, keeping interest rates at the zero lower bound throughout the entire pandemic as visualised in Figure 2 (Coronakommissionen, 2022). Accommodating monetary policy is according to NIER (2021) and Coenen et al. (2012) particularly important for the size of the multiplier. Seeing that Sweden have had accommodating monetary policy throughout the crisis, should have led to larger fiscal multipliers. The length of the period of accommodating monetary policy is also important for the size of the multiplier. NIER (2021) simulated that two years of accommodative monetary policy resulted in a fiscal multiplier of 2.33. This can be compared to when the policy was only simulated to be accommodative for one of the two years, leading to a multiplier of 1.81. This has an important implication for Sweden seeing that monetary policy was accommodative during the entire period of fiscal stimulus. As Sweden

had consistent fiscal stimulus during 2021 and 2022, with accommodating monetary policy during both years, the fiscal multiplier could have reached 2.33 according to the estimates.

Having interest rates at the ZLB also enhance the outcome of the fiscal stimulus as emphasized by Christiano, Eichenbaum and Rebelo (2011) They found that the longer interest rates are kept at the ZLB, the greater are the chances of government spending being effective due to potential policy lags. Sometimes due to inefficiencies it can take time for the government spending to take place, and if interest rates have been kept at the ZLB for a longer period it increases the chance of it taking effect at the lower bound. As Sweden have had negative interest rates since 2015 but also accommodative monetary policy preventing the interest rate from rising, government spending took place when interest rates were at the ZLB. This should according to the literature have allowed for larger multipliers. Based on the effect ZLB interest rates had on output during the GFC, Wilson (2020) argued that fiscal spending during Covid-19 should allow for similar stimulative impact. He predicted that the fiscal multiplier should amount to between 1 and 1.5 due to the state of the economy and the ZLB interest rates. This is supported by Payun and Rhee (2015) who found fiscal multipliers higher than one for 21 different OECD countries after the GFC. A fiscal multiplier of 1, means that fiscal spending equivalent to 1 percent of GDP will increase output by 1 percent. Government spending during 2020 and 2021 in Sweden reached 389 billion SEK (Swedish Fiscal Policy Council, 2022) which amounted to approximately 7.1% of GDP, estimated using the GDP for 2021 in current prices (SCB, 2022b) (own calculation). A fiscal multiplier of 1 would as such increase GDP with 7.14% and a multiplier of 1.5 would amount to a 10.71% increase. Nevertheless, other factors are seen to impact the multiplier as pointed out by NIER (2021). Government spending is found to be positively correlated with the depth of the recession and how close interest rates are to the lower bound at the onset of the decline in economic activity. Seeing that GDP declined with 8.1% during the second quarter of 2020, the recession was classified as deep by NIER (2021). Additionally, interest rates during 2019 were negative and held at the ZLB at the onset of the pandemic which satisfies the condition for large multipliers.

Based on the depth of the recession, accommodating monetary policy and persistence of ZLB interest rates, government spending should have led to fiscal multipliers higher than 1 and at

least 1.5 according to the literature. Estimations on fiscal multipliers in countries across the Baltic Sea during Covid-19 by Muraraşu, Anghelescu and Grecu (2023) support these findings as they found multipliers of one or higher in the medium term. As seen in Figure 1.1 it could be argued that the extensive fiscal stimulus did successfully increase output quickly and allowed for employment to recover fast by making sure that the fiscal stimulus reduced harmful effects on business and household, which protected income and employment. The accommodative monetary policy and ZLB interest rates can be seen to have increased the effectiveness of the fiscal stimuli. This emphasises the importance interest rates have on consumption and investment decisions of private agents. As such, it could be argued that the expansionary fiscal spending in conjunction with expansionary monetary policy prevented the crisis from developing into an even deeper and prolonged recession.

## 6.2 Dynamics of Government Debt

It is not only the state of the economy, interest rates or accommodating monetary policy that determines if fiscal multipliers will be large or not. The literature has also found a relationship between government debt and fiscal multipliers. Consequently, it is important to evaluate Sweden’s fiscal position (Auerbach & Gorodnichenko, 2017; Sutherland, 1997). Seeing that fiscal spending during Covid-19 has led to worries of increased debts and deficits, it is important to evaluate how fiscal stimulus have affected fiscal sustainability in Sweden. Especially, due to the resurgence in beliefs favouring fiscal consolidation (Ares, Burgisser & Häusermann, 2021; Balasundharam et al, 2023). If people become sceptical regarding the government’s ability to repay debt, there is a risk that the fiscal stimulus will backfire and not generate positive fiscal multipliers (Auerbach & Gorodnichenko, 2017; Sutherland, 1997). As such, debt dynamics in Sweden is analysed.

*Table 1. Fiscal Sustainability Data, Sweden 2011-2022*

	$b$	$i$	$\pi$	$g$	$d$	$b^*$	$gap$
2011	-0.35	1.75	2.96	3.20	37.20	-1.64	1.29
2012	-1.12	1.45	0.89	-0.30	37.50	0.32	-1.44

2013	-1.47	0.99	-0.04	1.20	40.30	-0.07	-1.40
2014	-1.53	0.47	-0.18	2.80	45.00	-0.97	-0.56
2015	0.00	-0.25	-0.05	4.30	43.70	-1.97	1.97
2016	1.00	-0.48	0.98	1.80	42.30	-1.38	2.38
2017	1.41	-0.50	1.79	2.80	41.00	-2.09	0.68
2018	0.78	-0.50	1.95	2.00	39.20	-1.74	2.52
2019	0.56	-0.25	1.78	2.00	35.20	-1.42	1.98
2020	-2.77	0.00	0.50	-2.40	39.50	0.75	-3.52
2021	0.03	0.00	2.16	5.30	36.30	-2.71	2.74
2022	0.56	0.75	8.37	2.70	32.50	-3.35	3.91

*Note:*  $b$  is the primary surplus/deficit to GDP ratio,  $i$  is the yearly average monetary policy rate,  $\pi$  is the rate of inflation,  $g$  is the real GDP growth rate,  $d$  is the general government consolidated gross debt as a share of GDP and  $b^*$  is the required primary budget surplus to GDP ratio. (Different interest rates can be used in the debt dynamics formulae; this paper uses the policy rate)

*Source:* NIER (2023a)

From Table 1, it is clear the Sweden's debt levels have been relatively low throughout the period of 2011 to 2022. According to the fiscal framework adopted by the Swedish government, the country should aim for a gross domestic debt around 35% in the medium term (Swedish Fiscal Policy Council, 2020). With debt-to-GDP levels ranging between approximately 33% and 45%, the ratio is being kept comparatively close to the benchmark. This is important because it allows debt to function as a shock absorber, meaning that the debt have room to increase substantially and does not have to be urgently reduced (Swedish Fiscal Policy Council, 2020). Low debt levels also have significance for fiscal multipliers. As explained by Huidrom et al. (2020), high debt ratios result in lower fiscal multipliers which is partly why the Maastricht Treaty have a criterion stating that the debt-to-GDP ratio should not exceed 60%. Ilzetiki, Medoza and Vegh (2013) found that debt ratios higher than that has a negative effect on fiscal multipliers. They identified that ratios of 40% will lead to a positive long-term multiplier and Nickel and Tudyka (2014), found that debt ratios of 35% will have an overall positive effect on real GDP. Seeing that Sweden's debt levels have ranged around these levels implies that government spending should have generated positive fiscal multipliers. As such it can be argued that the Swedish



economy operates from a strong fiscal position which according to Huidrom et al. (2020) allows private consumption to increase up to two years after having implemented fiscal stimuli. This concur with Figure 1.2 that demonstrates that spending during 2022 continued to increase, being higher than during 2021. This is supported by Sutherland (1997) as well as Nickel and Tudyka (2014) who found that low debt levels led to more effective stimulus. Although Sweden can be considered to have low levels of debt based on the Maastricht Criteria, it does not indicate whether the debt levels are sustainable or not. Moreover, as stated by Auerbach and Gorodnichenko (2017), countries can sustain different amounts of government debt and as such the fiscal sustainability needs to be evaluated.

Debt sustainability is important for the size of fiscal multipliers as it affects expectations of private agents (Sutherland, 1997). If the belief is that the Swedish fiscal stimulus has led to unsustainable debt levels, then agents could lower their consumption. This is because they anticipate an increase in future taxes due the need of debt stabilisation and as such government spending will have a contractionary instead of an expansionary effect. Consequently, fiscal sustainability has to be assessed to evaluate how debt ratios have affected the outcome of government spending. From Table 1, it is evident that the primary gap has been positive from 2015 until 2022, except for during Covid-19. This implies that Sweden would have been able to increase its spending without causing the debt ratio to increase. The positive primary gap also illustrates that government debt has declined over the years which is attributed to  $b^*$  being greater than the actual primary budget balance,  $b$ . For instance, during 2022 Sweden had a budget surplus of 0.56% of GDP while there was space to run a deficit of -3.35% without having the debt ratio increase. As such, for most years Sweden had the fiscal space to run deficits instead of surpluses. However, between 2012 and 2014, the country had a persistently negative primary gap which illustrates that debt was accumulating. This can be seen to be because of the inflation rate reaching almost 3% in 2011 which had the central bank increase nominal interest rates in attempt to reduce it. These consolidating measures resulted in lower growth, leading to less revenue and in turn increased deficits, as visible in Table 1.

When Covid-19 hit the economy in 2020, Sweden experienced a budget deficit again. This was the result of extensive government spending which led to a deficit of -2.77% of GDP. To keep

the debt ratio from rising, the government would have needed a surplus of 0.75%. As seen by the negative primary gap during that time, the Swedish government debt increased which also is confirmed by a positive interest rate-growth differential. This means that interest rates were higher than the growth rates and consequently, the government needed to run a surplus to keep the debt from rising. Seeing that Sweden had a budget deficit instead of the required surplus, debt increased. According to Auerbach and Gorodnichenko (2017), fiscal stimuli in a country with a weak fiscal position can allow for increased growth which then can reduce the debt-to-GDP ratio. This is because increased spending has the potential to generate more output relative to debt through for instance automatic stabilisers. Consequently, higher debt does not necessarily result in lower fiscal multipliers due to the potential of increasing GDP through government spending relative to debt. As such, the poor financial situation during Covid-19 as indicated by the recession and accumulation of government debt should not be seen to have negatively affected the size of fiscal multipliers. Seeing that Sweden went from a deficit and a negative growth rate during 2020 to a surplus and high growth during 2021, whilst having a continued spending due to the pandemic, indicates that the fiscal multiplier from government spending was high during 2020. As Sweden has larger automatic stabilisers than the average country this also impacts the amount of stimulus that has to be implemented. Batini et al. (2014) found that larger automatic stabilisers reduced the effect fiscal spending had on GDP because how transfers and taxes automatically responds. For instance, if wages declines then taxes will automatically decrease for the ones suffering from the cut. Nevertheless, Maravelle and Rawdanowicz (2020) estimated that countries with large automatic stabilisers does not have to implement as much fiscal stimulus to mitigate an economic shock. By studying automatic stabilisers in 23 OECD countries, they found that it offset about 60% of the impact from an economic shock, up to one year. Through the need of less extensive discretionary spending due to large automatic stabilisers and loose restrictions, it could be argued that Sweden was able to maintain lower levels of debt and a better fiscal sustainability than other countries, consequently experiencing larger multipliers.

The analysis of Sweden's fiscal sustainability shows that increased government spending during Covid-19 had limited effect on rising debt and deficits. As mentioned, the decrease in government debt between 2020 and 2022 could have been attributed to increased growth, inflating the denominator of the debt-to-GDP ratio. The larger the fiscal multiplier, the larger

the output and consequently reduction in debt. However, negative real interest rates and relative high growth rates would have had a debt reducing effect in accordance with theory on negative interest rate-growth differentials (Checherita-Westphal & Semeano, 2020). Using data from Table 1 for 2021, the real interest rate equals -2.16% and with a relatively high growth rate of 5.30%, the interest rate-growth differential amounts to -7.46%. In 2022, the inflation rate was significantly higher which attributed to a higher negative real interest rate of -7.62%. This had an important implication for debt reduction seeing that the growth rate was not as high during 2021, amounting to 2.70%. As such, the interest rate-growth differential for 2022 was -10.32%, which can be seen to have helped debt reach a record low rate. Consequently, the large negative interest rate-growth differential for both 2021 and 2022, allowed for debt reduction without any need for the government to take contractionary measures. The low debt levels in accordance with the findings by Ilzetki, Mendoza and Végh (2013) have important implications for fiscal multipliers, showing that there has been no need for private agents in Sweden to be concerned with debt and deficit levels, neither during the pandemic or after it.

### 6.3 Debt Dynamics in the Future

Due to accumulating government debt and deficits during the Great Financial Crisis, policymakers were advised to be careful implementing future stimulus packages as it was unsure how the economy would react (Nickel & Tudyka, 2014; Auerbach & Gorodnichenko, 2017). Consequently, it is important to predict how fiscal stimuli during the Covid-19 crisis have affected indicators of fiscal sustainability in the longer run. If the current belief is that government spending has led to unsustainable debts and deficits, then future use of fiscal stimuli could be affected.

Table 2. Fiscal Sustainability Data, Sweden 2022-2024

	$b$	$i$	$\pi$	$g$	$d$	$b^*$	$gap$
2022	0.56	0.75	8.37	2.70	32.50	-3.35	3.91
2023*	-0.06*	3.37*	8.80*	-0.40*	31.20*	-1.57*	1.51*

2024*	-0.54*	2.80*	2.11*	1.30*	32.10*	-0.20*	-0.34*
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*Note:*  $b$  is the primary surplus/deficit to GDP ratio,  $i$  is the yearly average monetary policy rate,  $\pi$  is the rate of inflation,  $g$  is the real GDP growth rate,  $d$  is the general government consolidated gross debt as a share of GDP and  $b^*$  is the required primary budget surplus to GDP ratio. (Different interest rates can be used in the debt dynamics formulae; this paper uses the policy rate)

*Source:* NIER (2023a)

NIER (2023a) have projected future economic variables for 2023 and 2024 based on current macroeconomic conditions, the actual fiscal outcome during 2022 and key assumptions. They make forecasts for the coming two years but does also provide ‘scenarios’ for the next five years. Seeing that it is difficult to make accurate predictions five years ahead of time, their two-year forecast has higher reliability. Nevertheless, NIER updates the data four times per year with next publication published in June which can alter the currently projected variables. These variables are estimated based on the government budget, the fiscal space, predicted demographic changes, all of which are adjusted for business cycle variations (NIER, n.d). Based on this and prevailing macroeconomic conditions, NIER (2023a), have forecasted that output will decrease during 2023 due to both higher interest rates and inflation. This can be visualised in Table 2, with the interest rate reaching 3.37% and the inflation rate amounting to 8.80%, attributing to the fall in growth rate with 2.3 percentage points from 2022 to 2023. NIER (2023b) has predicted that the inflation rate will fall in July of 2023, meaning that the central bank will cease to increase the interest rate. Nevertheless, it is expected that the inflation rate will continue to be high during the remainder of 2023 (NIER, 2023b). In 2024, the inflation rate has been estimated to fall to 2.11% which is much lower compared to in 2023 but still higher than the target level of two percent. Nevertheless, the lower inflation rate will allow the central bank to reduce the interest rate. Lower inflation rate in conjunction with lower interest rate, can be seen to have a stimulating effect on growth as indicated by the increase in growth from -0.40% in 2023 to 1.30% in 2024. As such, the lower inflation rate will be crucial in preventing deflationary pressures from taking place, seeing that the high interest and inflation rates during 2023, is expected to erode the disposable income of households, consequently increasing pessimism (NIER, 2023b).

The high inflation rate during 2023 is expected to have a deteriorating impact on government finances. This can be seen in Table 2, which demonstrates a decreasing primary gap from 2022

until 2024. This is expected to be attributed to the high inflation, resulting in a higher price level. Consequently, government spending has become more expensive whilst growth have declined, thus allowing for less revenue. The deteriorating government finances are supported by the fiscal space becoming smaller. The situation becomes worse in 2024 as seen by  $b > b^*$ , resulting in a negative primary gap. As seen in Table 2, debt is consequently expected to increase during 2024. A low nominal interest rate, in conjunction with a low inflation rate and growth rate, will have an important implication for the interest rate-growth differential which is estimated to be -0.61% in 2024. Although it has risen much from 2023 when it amounted to -5.03%, the differential is still negative and low in 2024. This means that the higher debt remains sustainable. Moreover, the interest rate-growth differential is important for reducing debt and found to have greater impact on debt reduction than surpluses (Crafts, 2016). According to Crafts (2016), the importance the differential has on debt reduction has not been emphasised enough throughout history. As such, it is important that real interest rates are kept low while growth increases. Crafts (2016) also emphasised that price deflation should be avoided at all costs as it leads to higher interest rates, making debt more expensive. Based on the estimations by NIER, it is expected that the government will be able to avoid deflationary pressures for establishing through a reduction in nominal interest rates in 2024. The lower interest rates in conjunction with lower inflation will stimulate growth. This growth will hopefully continue in 2025, reducing the deficit and lower the debt-to-GDP ratio.

In case the central bank fails to lower real interest rates enough in relation to the growth rate, the interest rate-growth differential may become positive. This will, however, only have a negative effect on debt sustainability if the small, but positive differential persist over the *long run* according to Barrett (2018). Table 3 demonstrates that the differential, in general, has been consistently negative between 2011-2022, and expected to be so in 2023-2024 as well. Even so, positive differentials have only persisted for maximum a year at a time between 2011 and 2022. Based on this, a potential increase in the differential should not be expected to have any worrisome implications for debt sustainability in Sweden.

*Table 3. Interest rate-growth differential for 2011-2022 and projected for 2023-2024*

	$r$	$g$	$r - g$
2011	-1,21	3,20	-4,41
2012	0,56	-0,30	0,86
2013	1,03	1,20	-0,17

2014	0,65	2,80	-2,15
2015	-0,20	4,30	-4,50
2016	-1,46	1,80	-3,26
2017	-2,29	2,80	-5,09
2018	-2,45	2,00	-4,45
2019	-2,03	2,00	-4,03
2020	-0,50	-2,40	1,90
2021	-2,16	5,30	-7,46
2022	-7,62	2,70	-10,32
2023*	-5,43	-0,40	-5,03
2024*	0,69	3,20	-0,61

*Note:* \* denotes estimated future values for 2023 and 2024.  $r$  is the real interest rate,  $g$  is the real growth rate,  $r-g$  is the interest rate-growth differential

*Source:* NIER (2023a)

Consequently, there is no need to worry for increasing debts and deficits in Sweden, neither during nor after Covid-19 because of initial favourable fiscal conditions. Based on the current estimations by NIER, Sweden will most probably continue running sustainable debts.

## 7 Conclusion and Discussion

To sum up, this paper takes a different approach from conventional methods trying to calculate the size of the fiscal multiplier. Seeing that economists are yet to reach a consensus regarding the size of fiscal multipliers during the Great Recession due to the use of different calculations and variables, this paper has evaluated a large share of the most prominent literature on the subject. Through the review, this paper found that fiscal stimuli during Covid-19 would have resulted in a larger multiplier if following conditions were met; (1) the recession was severe, (2) interest rates were at or near the zero lower bound, (3) monetary policy accommodated expansionary fiscal policy, (4) demand and supply was not greatly impacted by restrictions, and (5) the country had medium term debt sustainability. These conditions were examined for Sweden, from which it is evaluated that the government spending during the pandemic should have resulted in a fiscal multiplier above one. The economic recovery seen in Sweden from Covid-19 can as such be argued to have been largely attributed to ideal conditions, making fiscal stimulus as effective as possible. Additionally, high initial fiscal sustainability was found to be very important for the response of debt to increased government spending. Budget surpluses since 2015, in combination with favourable macroeconomic variables such as low real interest rates in relation to the growth rate allowed the fiscal space to increase. Consequently, entering the pandemic, the available fiscal space resulted in debt increasing very limited, allowing for continued low debt levels. This will have an important implication for the continuation of future sustainable debts levels as seen in Table 2 in the paper.

Although, government spending during Covid-19 have not led to unsustainable debts and deficits in Sweden, it has in many other countries (Perrelli et al, 2022). This can be seen by the fact that the US is facing sovereign default if not able to increase the debt ceiling or drastically decrease government spending. There is also increasing concerns from IMF that countries have become too heavily indebted after the pandemic (The Economist, 2023; Oxfam, 2021). The high debt levels are concerning, but it can be questioned whether measures of austerity are the right path to follow. Precedents in history has shown that austerity policies do not age well. Sweden on the other hand, is not facing these high debts levels and estimated future fiscal sustainability show that debt will continue to be stable. As such, it should be emphasised that

the increasing debts and deficits Sweden faced in response to the pandemic were not worrisome because of good initial fiscal conditions. Even in prospect that government debt is expected to increase in 2024, although by relatively little, debt sustainability is continued high. Consequently, when argued that fiscal spending during Covid-19 lead to unsustainable debt levels, it has to be remembered that it does not apply for Sweden, nor does the need for fiscal consolidation. This is important as history tend to repeat itself, seeing that there was retrenchment from fiscal policy both after the Great Depression and the Great Recession. This could potentially occur in the future, seeing that many countries are facing increasingly unsustainable debt levels. A retrenchment from the use of fiscal policy could have a negative impact for future crises, seeing that central banks may be prevented from stimulating the economy again. Consequently, it is important that fiscal spending during Covid-19 in Sweden is remembered for its contribution to the restoration of economic growth, allowing for a swift recovery.

The exact size of fiscal multipliers continues to be an unresolved debate and as such there are great prospects for future research. Researcher should attempt to calculate the fiscal multiplier during the pandemic, seeing that there is limited knowledge regarding fiscal multipliers during health crises. An attempt to estimate long-term effect of fiscal spending would also be interesting as it is projected by Kinda, Lengyel and Chande (2022), that multipliers after the pandemic will have a longer effect then conventionally assumed. Additionally, when aiming to calculate the multiplier, researcher should separate the effect fiscal spending has had on sustainability and debt during 2022 and onwards, from Covid-19 and the War in Ukraine.

To conclude, Sweden had ideal conditions for pursuing expansionary fiscal policy without affecting debt sustainability negatively, which should have allowed for a fiscal multiplier above one. As such, fiscal policy in Sweden was important for the economic recovery from the pandemic, especially considering that the central bank was limited from stimulating the economy further given ZLB interest rates.



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