

Norwegian fiscal policy in the interwar period

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Abstract

This paper discusses evaluation of fiscal policy and what questions different indicators should be used to evaluate. The existing research on Norwegian interwar fiscal policy is then evaluated. Several lacunas are identified. To evaluate central governments fiscal policy, the discretionary policy changes are isolated. Then separate demand effects for central and local governments are calculated. The main views on fiscal policy are strengthened. Central governments effect on the economy, like the public sectors, was larger in the 1920s than in the 1930s, while local governments had a larger effect in the 1930s. The large effects on demand before 1925 were to a large extent the result of discretionary changes. The increases in expenditures after 1935 seem to have had little effect on demand until 1938, and there are no signs of discretionary policy changes reducing the budget surplus after 1935.

Introduction

Fiscal policy in the 1930s has mainly been addressed in two discussions in Norwegian economic history. The first being the paradigm shift in economic thought, the introduction of Keynesianism and counter cyclical fiscal policy, and whether this had any impact on fiscal policy in the period. The second the discussion of what promoted recovery from the depression in the beginning of the 1930s.

Two quantitative studies discussing these topics have been published. In 1958 Hermod Skånland published a study on the Norwegian credit market that includes calculations of treasury's liquidity effect.¹ In 1979 Helge Nordvik published his pioneering work where he quantifies the effectiveness of the public sector in stimulating overall demand in the economy within an IS-LM framework.² These two studies mainly form our understanding of the effect of Norwegian interwar fiscal policy.

The effect of fiscal policy has been little debated particularly relative to other topics and the effect of monetary policy in this period. That is probably related to the fact that it is considered to have had a quite small impact on the economy and economic development. Fiscal policy is not thought to have been expansive in the 1930s. Thus

¹ Skånland, Hermod, *The Norwegian credit market since 1900, SØS:19*. Oslo: Statistics Norway 1967.

² Nordvik, Helge W., *Finanspolitikken og den offentlige sektors rolle i norsk økonomi i mellomkrigstiden, Historisk Tidsskrift* 1979: 3.

fiscal policy is not considered important to recovery from the depression in the beginning of the 1930s. The paradigm shift in economic policy and Labour taking office is also thought not to have had any major effect on policy.

This paper has several objects. First, the paper discusses appropriate methods to evaluate fiscal policy and its effect. The existing research is evaluated in relation to this discussion, and the need of new research identified. In the last part of the paper a new indicator of central government discretionary fiscal policy is presented as well as calculations of central and local governments' impact demand effect.

The main conclusions reached by earlier scholars are strengthened. Central governments fiscal policy is shown to have had an even more retarding effect on the economy during the crisis in the 1930s than suggested by earlier scholars, however. There also appears to have been no discretionary policy reducing the budget surplus after 1935. The new calculations also show that fiscal policy had an even more contractive effect on the economy in the years 1924 to 1926 than suggested by earlier research and that it to a large extent was the result of discretionary policy. Surprisingly, the results also show that while the central government had a far larger impact on the economy in the 1920s, the impact by local governments was larger in the 1930s, when local governments had an expansive effect all years except 1932, 1933 and 1939.

The Norwegian economy and the persistent unemployment

World War One dramatically disrupted international trade and economic growth. During the war, convertibility of the Norwegian currency to gold was suspended, as in all western countries, and the money stock increased substantially. This expansion of credit and money had its origin in liquidity supply from the central bank and the treasury, and was a dominant feature in the period.³ Increased money stocks worldwide led to inflationary pressure, and the consumer price index for Norway tripled from 1914 to 1920. The value of the Norwegian currency was reduced to half of its gold value in November 1920.⁴ The increased money stock during this time of war, and reduced supply, led to a accumulated demand surplus. After the war this accumulated demand was released, and the international economy experienced a boom. In Norway this boom was based on increased imports, and Norway experienced a substantial negative trade balance from 1919 to 1921. The import surplus was in large part financed by loans taken abroad; hence debt grew both under and after World War I.

This boom, however, only lasted about two years, and a depression hit the European economy around 1920. In most countries the worst crisis was over in 1922 and the period 1925 to 1929 saw a significant boom in the international economy, particularly in the US. However, in Norway and the other countries returning to pre-war gold parity, like the UK, the Netherlands, Switzerland, Sweden and Denmark, the post-war depression was fuelled by the deflationary monetary policies aimed at restoring the pre-war gold parity of the currencies. The post-war depression thus hit these economies harder.

The pre-war gold parity was to be restored by a combined policy of increased interest rates, reduced credits and reduced prices. This policy had serious consequences to

³ Skånland, *The Norwegian credit market since 1900*, 134.

⁴ Nordvik, *Finanspolitikken og den offentlige sektors rolle i norsk økonomi i mellomkrigstiden*, 244-247.

the economy. Real interest rates increased dramatically, from being negative during the war and boom, reducing investments. The contraction in money stock also reduced demand and production and led to an increase in unemployment. Due to sticky wages, and also some nominal wages increasing in the beginning of the 1920s, real wages increased in the 1920s. Combined with the appreciating currency this reduced Norwegian competitiveness and Norway experienced a substantial negative trade balance most of the years in the 1920s. Both reduced terms of trade and increased real wages also contributed to increasing mass unemployment. The deflation in the 1920s and increased real wages also forced a transformation from labour intensive to capital intensive production. The unemployment from 1921 to 1933 was to a large extent the result of reduced demand of labour. In the 1930s the cost of labour did not increase relative to other input costs, labour intensive production thus increased resulting in increased employment. However, there was an excess increase in the supply of labour from an increasing work force and reduced possibilities of emigration, resulting in the unemployment rate still remaining high.⁵

The deflationary economic policy also increased the burden of debt, both to the public sector and to the private sector due to falling prices and increased interest rates while nominal debt remained fixed. This came on top of the nominal debt being increased dramatically during and after the war. Due to the debt crisis combined with reduced nominal income companies were not able to administer their payments, something which in turn resulted in banks becoming illiquid and a severe bank crisis in the beginning of the 1920s. The increased real debt also contributed to aggravate the problems in the agricultural sector, caused by overproduction and falling prices.

Due to crisis relief towards the bank sector, and the monetary policy not being deflationary enough to increase the value of the currency, the Norwegian economy experienced a temporary economic expansion from the autumn of 1923 to the autumn of 1925. This coincided with the beginning of the international economic upturn. From 1925 the external value of the Norwegian currency rapidly increased again, and gold redemption was officially restored in May 1928. In accordance with some Norwegian historians this was due to the deflationists' monetary policy finally becoming effective, in the meaning becoming more contractive than our trading partners,⁶ as well as positive market expectations and speculative buying.

At the same time a new recession hit the Norwegian economy. The UK and Denmark, also pursuing deflationary monetary policy had similar recessions and the crisis in the mid-1920s is therefore assumed to have been caused by domestic problems; the persistent deflationary policy in particular, as opposed to the two other crisis in the period who were international in origin. GDP did not fall significantly during this crisis, but investment did. In Norway the two crises in the 1920s resulted in persistently high unemployment the whole decade and the economic upturn started as late as in 1927. The improved economic situation in the last years of the 1920s was mainly due to good times internationally and to the fact that the currency had reached its pre war value and was back on gold. This meant the currency was no longer over-valuated, something which improved terms of trade. To the internal economy it meant it no longer had to suffer from the constraints of the deflationary monetary policy.

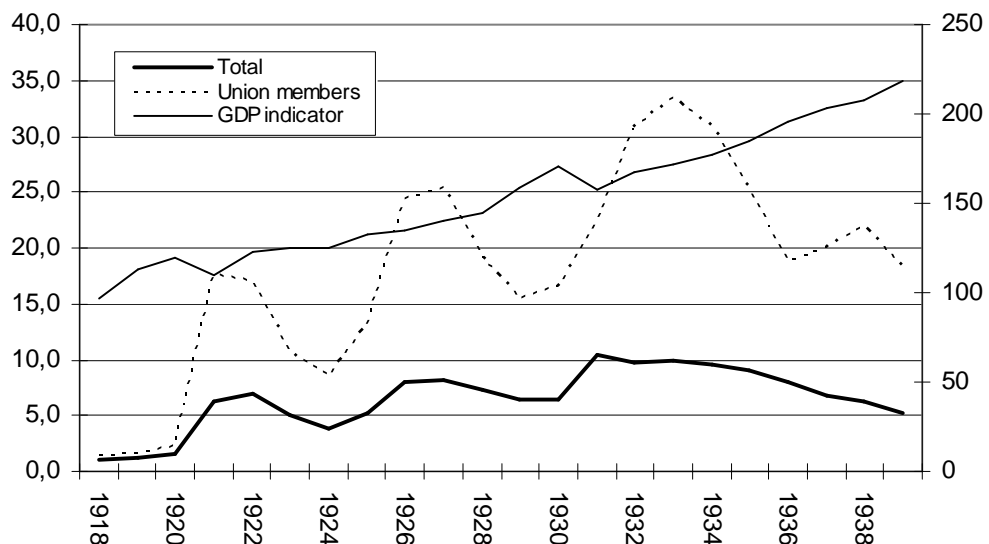
⁵ Hodne, Fritz and Grytten, Ola H., *Norsk økonomi i det 20. århundre*. Bergen: Fagbokforlaget, Bergen, 2002, 124-126.

⁶ Klovland, Jan Tore, Pengepolitisk historieskrivning, *Sosialøkonomen*, 2000: 5, 11.

In the beginning of the 1930s, a new economic downturn hit the international economy as the collapse of the stock market on Wall Street October 1929 was accompanied by mass unemployment as well as steep falls in production. In most countries the depression lasted until 1933. From 1934 to 1939 the international economy again experienced economic growth. In addition the US and the UK experienced a moderate setback in 1937-1938.

In Norway the international depression in the 1930s was fuelled by massive labour conflicts in 1931, and GDP per capita fell by 8.4 per cent that year.⁷ The interwar period experienced many conflicts between labour unions and employers. The first major conflicts came in 1920, and in May 1921 154 00 workers went on strike against proposed pay cuts. All in all there were 1900 conflicts between workers and employers in the interwar period, resulting in 26.3 million lost working days.⁸

Figure 1: Norwegian unemployment, union members and total workforce and GDP indicator (1917=100)



Source: Grytten (1995 a), table 1, NOS XII 245 (1969), table 57 and Madison (1995), 148-153.

September 27th 1931 Norway followed the UK and suspended convertibility to gold. According to Helge Nordvik this was not a respond to speculation or pressure towards the Norwegian currency, but it was a precautionary move after considering the consequences to the Norwegian economy, the export and shipping sectors in particular, from the British suspension.⁹ In fact during the depression in the 1930s Norway and most of the countries returning to the pre-war gold parity in the 1920s left gold early and experienced a faster recovery than the countries staying on gold, due to their currencies depreciating relative to the currencies still pegged to gold. This improved Norway's terms of trade and the export sector was less inflicted by the recession than the export sector of countries

⁷ Hodne and Grytten, *Norsk økonomi i det 20. århundre*, 93.

⁸ Hodne and Grytten, *Norsk økonomi i det 20. århundre*, 122-123.

⁹ Nordvik, Helge, Pengepolitikk, bank og kredittvesen og krisen i norsk økonomi på 1930-tallet in *Det som svarte seg best. Studier i økonomisk historie og politikk*. Festskrift til Stein Tveite, Ed. Hovland, Edgar, Even Lange and Sigurd Rysstad. Oslo: Ad Notam forlag 1990, 186-189.

staying on gold. Due to more expensive imports there was an extensive degree of import substitution as well. This reduced the severity of this depression in Norway and Jan Tore Klovland has dated the through point of the depression to as early as December 1932.¹⁰ The depression in the 1930s was also followed by problems in the bank sector, but this time a major crisis was avoided. Investments fell and unemployment also rose to a new peak level. Unlike other countries, however, unemployment in Norway had been almost as high in the 1920s as it was in the 1930s.

In the spring of 1933 Norway pegged its currency to the British Sterling. Due to the suspension of gold and the pegging of the currency towards Sterling Norway didn't get serious monetary problems in the 1930s.

This period experienced a shift in political power. Before the war politics was dominated by two large parties; the Liberals and the Conservatives. None of them had majority in the Parliament after 1918, and from 1920 to 1935 there were ten minority non-socialist governments. Labour became the largest political party in 1927 and manifested its position in the parliament in 1933 with an increase of twenty two representatives. They, however, only did not have a majority. In March 1935 Labour formed government with Johan Nygaardsvold as Prime Minister.

Despite the depressions the Norwegian economy experienced substantial economic growth in the interwar period. During the period as a whole, 1918-1939, the growth rate in GDP per capita was 2, 6 per cent.¹¹ The growth was, however, strongest in the last years of the 1930s.

Fiscal policy and the existing research

Since the Norwegian public sector was still quite small in the interwar period it has been assumed both that the government had small possibilities of conducting inflationary fiscal policy during the crisis, and that the effect on the economy was small.¹² During the war and in the 1920s the ability to lead a determined policy must also have been limited by the fact that most of the extraordinary expenses were held out of the budgets. Public budgets and public bookkeeping were also inconsistent and economic policy was poorly coordinated between the state and local governments and between government, parliament and the central bank. Thus, the decision makers clearly must have lacked the necessary insight and oversight regarding the economic policy.

In 1914 the government had received a general warrant from the parliament to implement necessary efforts to secure neutrality and the supply of necessities. The cost of this were to be limited to 15 million NOK, but the department of finance saw this as an warrant to finance all government involvement due to the war. Thus public expenditures increased dramatically during the war, with 9.6 percent yearly. Naturally, the expansion of government expenses was largest. Due to the extraordinary involvement, the fiscal deficit in the war years was 890 million NOK and both the state and local governments

¹⁰ Klovland, Jan Tore, Monetary policy and business cycles in the inter-war years: The Scandinavian experience, *European Review of Economic History*, 1988: 2, 309-344.

¹¹ Gyten, Ola Honningdal, Monetary Policy and Restructuring of the Norwegian Economy during the Years of Crises, 1920-1939, in *Economic Crises and Restructuring in History: Experiences of small countries*, Ed. Myllyntaus, Timo. St. Katharinen: Scripta Mercaturae 1998, 94.

¹² Nordvik, Finanspolitikken og den offentlige sektors rolle i norsk økonomi i mellomkrigstiden, 227-231.

accumulated great debt due to their extraordinary expenses during, and immediately after, World War I. Nominal government debt increased from 357 millions in 1914 to 1732 millions in 1925, while the municipalities' debt increased from 214.5 to 1500 millions in the same period. The real debt about tripled, and amounted to more than the double of treasury income.¹³

The large public debt accumulated during and in the years following the war came to be a heavy burden to the public economy. A large share of central governments expenditures went to interest on debt, both due to the large debt and high interest rates. In June 1928 the Parliament also passed a law to force payment of the public debt. Thus, from the budget year 1929/30 a larger portion of the budget went to instalments each year. Expenses in relation to the public debt were clearly the single largest expense in this period. Municipalities had also accumulated large debts. Thus interest and repayment on debt also accounted for a large part of local governments expenditures. Several municipalities experienced severe economic difficulties because of the large debt and high interest rate.

The increased debt reduced the public sectors room of manoeuvre and their ability to take on new tasks and lead a counter-cyclical policy.

Two quantitative studies have been published discussing the effects of fiscal policy. Hermod Skånland published a study on the Norwegian credit market that includes calculations of the treasury's liquidity effect in 1958¹⁴ and in 1979 Helge Nordvik published his pioneering work where he quantifies the effectiveness of the public sector in stimulating overall demand in the economy within an IS-LM framework.¹⁵ These two studies mainly form our understanding of the effect of Norwegian inter war fiscal policy today.

In the 1920s the aim was still to keep a balanced budget. That meant public expenditures were sought fitted to public income, and in an economic downturn expenditure would thus be reduced rather than increased to help recovery. However, due to automatic stabilisers in the tax and transfer systems the budget balance will deteriorate immediately during a crisis, while expenditures can only be reduced with a time lag. Thus, even with the government aiming to maintain balanced budgets, the public sector will tend to have a certain counter-cyclical effects initially in an economic crisis or boom. The total effect of the fiscal policy will thus depend both on these automatic stabilising effects and deliberate policy actions.

Helge Nordvik finds that fiscal policy had a strong inflationary effect in 1921-1922 and thus led to an increase of demand, and he explains this by increased public expenditures and reduced tax income, both due to the recession, thus automatic stabilising. In fact, the public sector showed a substantial deficit all years from 1917 to 1925. The public sector thus injected substantial amounts of money into the private sector all of the years in the beginning of the 1920s. In 1922, the year with the largest deficit, the total public deficit was 184 millions, or 23, 7 per cent of the total expenditures.¹⁶ This expansionary effect is also found by Hermod Skånland. He finds that the treasury had a deficit both before and after loans transactions all years until 1925, financed by foreign

¹³ NOS X 178, Statistical Survey 1948. Oslo: Statistics Norway 1949, table 221 and 225.

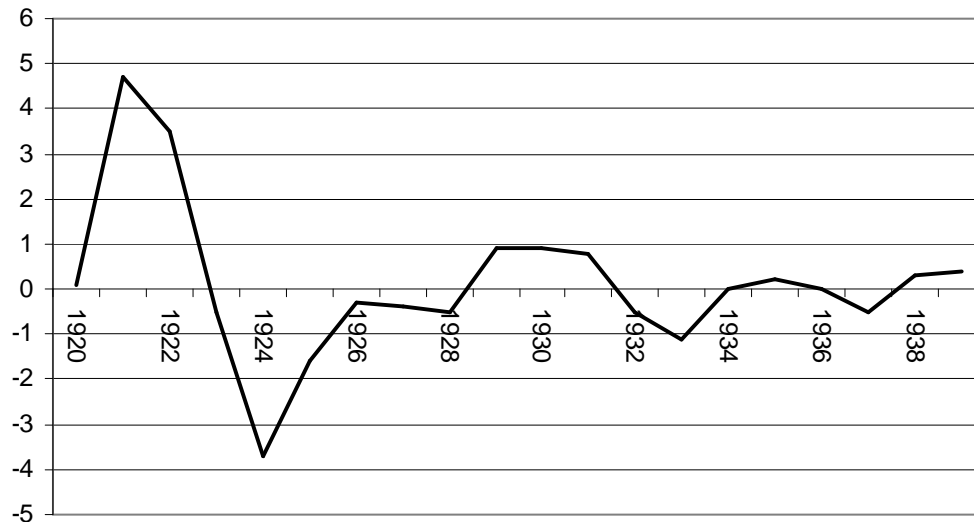
¹⁴ Skånland, The Norwegian credit market since 1900.

¹⁵ Nordvik, Finanspolitikken og den offentlige sektors rolle i norsk økonomi i mellomkrigstiden.

¹⁶ NOS XI 143, National Accounts 1900-1929, Oslo, 1953, 118-123.

lending, something that had an expansive effect on the economy. He concludes with both the treasury and the central bank for the most part not conducting a contractive policy.¹⁷

Figure 2: The effect of fiscal policy on demand calculated by Helge Nordvik



Source: Nordvik, *Finanspolitikken og den offentlige sektors rolle i norsk økonomi i mellomkrigstiden*, column 9, 234.

Both the government, and the public sector as a total, withdrew liquidity all the years from 1925 throughout the period. According to Hermod Skånland this was due to the economic policy more clearly aiming at the deflationary goal necessary to return to pre war gold parity from 1925. There was thus a change towards a contractive effect of the treasuries dispositions in 1926.¹⁸ Nordvik also finds fiscal policy in 1924 and 1925 to have had a strong deflationary effect on demand. This was partly due to a reduction in public expenditures and partly due to a reduction in subsidises to private consumers. On that basis Nordvik concludes that the fiscal policy in 1924 laid the foundation for the appreciation of the NOK in 1925.¹⁹

During the Great Depression public income was reduced once more, and according to the principle of balanced budgets, the expenditures had to be reduced accordingly. The treasury still maintained a surplus in these years. The Norwegian economist Leif Johansen therefore claim that fiscal policy contributed to fuel the crisis.²⁰ The surplus was, however, significantly smaller in 1931 and 1932 than in the previous years, something which should have had a stimulating effect on the economy. Skånland even finds that treasury supplied liquidity in the crisis year 1931, as seen in figure 3. The expansive effect was also noticeable in Nordviks calculations, although the expansive effect in the beginning of the 1930s, were small compared to the effect in the beginning of the 1920s. He, however, concludes that it is not likely that the public sector stimulated

¹⁷ Skånland, *The Norwegian credit market since 1900*, 150-161.

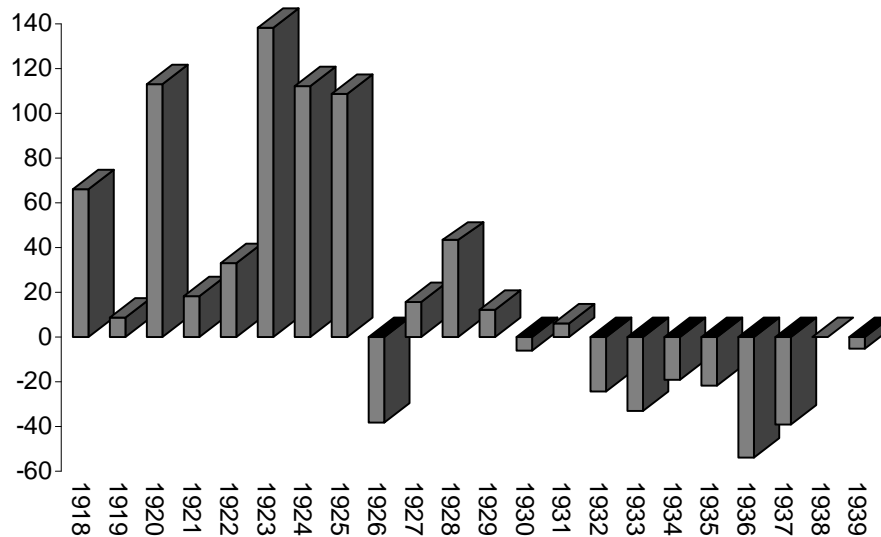
¹⁸ Skånland, *The Norwegian credit market since 1900*, 150-161.

¹⁹ Nordvik, *Finanspolitikken og den offentlige sektors rolle i norsk økonomi i mellomkrigstiden*, 235.

²⁰ Johansen, Leif: *Offentlig økonomikk*. Oslo: Universitetsforlaget 1967, 73.

demand in the recovery after the depression in the 1930s. His results suggest that the public sector had a retarding effect on the economy in 1933 when the economic expansion started. The municipalities had a deficit both in 1930 and 1931. Even so, fiscal policy is considered not to have had a major part in the recovery of the depression in the 1930s.

Figure 3: Liquidity effect by the Treasury 1918-1939. In nominal millions NOK.



Source: Skånland, H.: table 34, p. 136-137, table 37, p. 150-151, table 41, p. 164-165 and table 45, p. 172-173.

Central government ran a surplus and withdrew liquidity all years from 1932. According to Skånland this was not the result of intentional policy, but the result of the economic development. The surplus was used to pay foreign public debt. Public expenditures were increased from 1935, but these increases were financed by increased taxes, and the public sector thus continued to withdraw liquidity. Particularly the central government saw increased growth in the 1930s. Their average annual growth was 6.5 percent while local governments grew by 4.1 percent annually.

Skånland concludes that the fiscal policy even in this latter part of the interwar period was based on cautious principles, and that the public sector only increased its expenses after incomes had started to increase, and therefore did not lead a counter-cyclical policy. So even though public expenses were increased, Labour did not pursue an inflationary fiscal policy, financed by loans, to stimulate demand in the 1930s, but chose to implement balanced budgets like its predecessors. The expansion of the public sector in the latter part of the 1930s is thus believed to have had virtually no effect on aggregated demand due to being financed by increased taxes. Nordvik only found a small expansive effect on demand in 1938 and 1939.

The increased expenditures also had an inflationary effect on the economy in its own, even though they were fully financed by increased taxes, and Skånland states that the situation after 1935 allowed for an increase in expenses that could have an stimulating

effect on activity without the public sector needing to reduce saving or payment of foreign debt.²¹

It has been argued that there was a paradigm shift in economic thought and Norwegian economic policy in the 1930s. This is either related to new fiscal policy in the aftermath of the depression or Labour gaining governmental power in 1935. The existing empirical work, however, present no evidence of a shift in the effect of Norwegian fiscal policy in the 1930s. Quite to the contrary, Nordvik in fact concludes that the public sector had less impact on the economic development in the 1930s than in the 1920s and that the public sector had an approximately neutral effect in the 1930s.²²

Fiscal policy in the interwar period is seen as having a limited, and to some extent pro-cyclical, effect on the economy. When it seems to have had an impact, it is to a large extent seen as due to automatic adjustment, not policy. However, in 1924 and 1925, both Nordvik and Skånland claim the contractive effect of the policy to be intended, aimed at returning the currency to its pre war gold value. Surprisingly the data also suggest that fiscal policy had a larger impact on the economy in the 1920s, and particularly prior to 1925, than in the 1930s. There is thus no evidence of the paradigm shift in economic thought in the period resulting in expansive fiscal policy, in fact fiscal policy is rather seen as retarding the recovery from the crisis.

Evaluating fiscal policy

Evaluating fiscal policy is not an easy and straight forward task. Many quantitative indicators and models have been developed and used to evaluate fiscal policy, from the simplest, the budget balance, to complicated indicators and macroeconomic models. Not only do these different calculation methods vary in their sophistication, they may also not be appropriate to answer the same questions.

Fiscal indicators can help answer four sets of questions. First, an indicator can shed light on what part of the changes in the fiscal position is due to changes in the economic environment and what part is due to policy. Second, it can indicate whether the current course of fiscal policy is sustainable. Third, the aggregated demand impact effect of fiscal policy can be evaluated. Fourth and last, indicators can be used to determine allocation consequences of fiscal policy. In the beginning of the 1990s OECD published three working papers on fiscal indicators, and they all argue that “no single indicator can give even rough answers to all those questions”.²³

Following the discussion about Norwegian interwar fiscal policy above, it is clear that there are several main assumptions about policy in this period. Fiscal policy is generally thought to have had a small impact and partly have worked to reinforce economic trends because of the aim of balance budgets. The increased expenditures in the 1930s are also not thought to have had an expansionary effect by either of them. Also both Nordvik and Skånland discusses the effects on the budget by automatic stabilisers, which Nordvik claim were the reason behind the strong inflationary effect he finds in 1921. On other occasions they both discuss discretionary changes. In 1924 Nordvik concludes that the contractive policy laid the foundations for the appreciation of the

²¹ Skånland, The Norwegian credit market since 1900, 171-178.

²² Nordvik, Finanspolitikken og den offentlige sektors rolle i norsk økonomi i mellomkrigstiden, 235.

²³ Blanchard, Olivier J., Suggestions for a new set of fiscal indicators, *OECD Working Paper*, 1990: 79, 2.

currency in 1925. Also Skånland claim fiscal policy more clearly aimed at the deflationary goal.

Even though both Nordvik and Skånland discuss the effects of automatic stabilisation versus discretionary policy changes, neither of the studies make an attempt to separate their impact. However, Nordvik discusses the importance of separating these effects. Thus, in order to evaluate fiscal policy, the discretionary changes need to be isolated and evaluated apart from the effect on the budget balance by the economic development. That would give more information about whether fiscal policy was pro- or counter-cyclical and about the increased expenditures in the 1930s.

Also Nordvik include both central and local governments in his calculations. His argument for doing so is that local governments were of about the same size as the central government in this period. They indeed were, and if the aim is to determine the demand created by the public sector, this is of course appropriate since the local governments clearly must have had a large impact on the economy. Fiscal policy was, however, even in that period, mostly conducted by the central government. The municipalities to a large extent governed them selves and were only somewhat committed by central government policy. Regarding the tax rates, municipalities for example had some room of manoeuvre, but maximum rates were determined centrally. Increasingly local governments also received transferrals from the central government, so including these in central government expenditures would capture the effects of these policy changes. The local governments are therefore not representative for fiscal policy, and should not be included if the aim is to evaluate the effect of fiscal policy. The most appropriate thing would be to calculate the effect of both separately. Since Nordviks calculations include both, it is wrong to interpret his result as the effect of central governments fiscal policy. Nordvik himself states that the aim of his analysis is limited; “*to determine the macroeconomic effect of the public sector on the economic development*”.²⁴

Skånlands study calculates the liquidity effect of central governments budget each year. It thus gives an indication of the effect treasury had on the economy, but in evaluating the effect of fiscal policy it is not sufficient.

Thus, further research is needed in order to evaluate the interwar fiscal policy. To fully evaluate the interesting aspects of the policy, several indicators and models should be constructed. The most important in order to evaluate fiscal policy would be an indicator separating discretionary from automatic stabilisation, for the central government alone, and calculating the demand effect of central government. Local government’s impact could be established by estimating such an indicator for them separately. Fiscal policy in the 1930s should also be examined more thoroughly.

Most of the quantitative research focuses on the *ex post* effect of policy. It does therefore not necessarily say anything about the *ex ante* intended effect. The quantitative calculations here will also focus on the *ex post* effect of policy. However, to really shed light on some of the issues related to fiscal policy in this period, the development of the public sector, both its expenses and the financing and the intended effect of policy should be examined as well. Such a quantitative analysis could provide insight into the important questions like if fiscal policy in 1924 and 1925 were intended contractive in order to help the currency back to its pre war gold value and whether or not there was a change in

²⁴ Nordvik, *Finanspolitikken og den offentlige sektors rolle i norsk økonomi i mellomkrigstiden*, 223.

policy following the Labour government. However, such an analysis can not be conducted within the limits of this work.

This paper will focus on fiscal policy defined as central government revenues and expenditures, and particularly aim at identifying the discretionary policy changes. The separate effects of central and local governments on demand are also calculated.

It should be noted though that the importance is not to find a single number for the effect in a given year, but to be evaluate the development. Estimation using different methods will also give differing results. This discussion also shows that when drawing conclusions about policy from empirical research, it is necessary to know the estimation method in order to evaluate whether it is appropriate to the question at hand.

Isolating central governments discretionary policy

The budget balance is defined as $B \equiv T - G$ where B is the budget balance, T government revenue and G government expenditure. A balanced budget thus means that G should not exceed T .

The budget balance can be seen as the simplest indicator of fiscal policy, but is not a very specific one. The budget balance tells us whether the government runs a surplus or deficit, but a change in the budget balance don't necessary indicate a change in policy since it also reflects variations in economic activity. Automatic stabilisers in the budget cause the budget balance to be influenced by the economic development through taxes and expenditures. In an economic crisis the fall in income will deteriorate the budget balance automatically, without relation to the policy. The ex post budget balance thus, in addition to the budgets influence on the economy, also include the economy's influence on the budget.²⁵ To evaluate governments' discretionary policy, the automatic stabilisers must be removed. Several methods can be used to achieve this. Here the constant budget balance is calculated.

The concept of the constant budget balance was developed to isolate the effect of discretionary policy.²⁶ *"The full employment surplus was developed to tell what the deficit would be, were the economy at full employment. In an extension of that original question the CAB is used as an indicator of discretionary changes in fiscal policy, of those changes which are due to policy rather than to the economic environment."*²⁷ That is also the questions such indicators should be used to evaluate.

The constant employment budget balance is defined as the budget balance that would have prevailed if the activity level in the economy, and thus unemployment, were held constant, at a low level (or at full employment). Economic growth is assumed not to deviate from its trend, which means that the constant budget balance is not affected by the development of the economy. The effect of discretionary fiscal policy is thus isolated.

²⁵ Middleton, Roger, The Constant Employment Budget Balance and British Budgetary Policy 1929-39, *The Economic History Review*, New Series, Vol. 34, 1981: 2, 266.

²⁶ This concept was developed all ready during the Second World War in the US. Several significant papers were published using this method from the 1950s; with one of the most significant being Cary Browns study from 1956. The full employment surplus was the antecedent to the cyclical adjusted budget balance (CAB) used by amongst others the OECD today.

²⁷ Blanchard, Suggestions for a new set of fiscal indicators, 5.

The fiscal stance is defined as $B^*/Y^* = t \cdot Y^* - G^*/Y^*$. Here B^* is the budget balance at constant employment, t the overall tax rate, Y^* the constant employment level of GDP and G^* the value of central government expenditure at the constant employment level of incomes. Changes in the ratio B^*/Y^* indicate a discretionary change in fiscal policy, with an increase indicating more restrictive policy.²⁸

The level of an indicator like the constant employment surplus or the cyclical adjusted budget balance will provide information on how much of a budget surplus/deficit a year was due to automatic stabilisations and how much was due to discrete changes in policy. It thus indicates to what extent fiscal policy contributes to stabilising the economy beyond the automatic stabilisers. It can also be used to evaluate whether discrete policy changes were working pro- or counter cyclical, and it can be useful to analyse the reaction of authorities to changes in the economic environment. The changes from one year to another can also be calculated, indicating the evolution of policy.

The calculated value of Y^* , the constant employment level of GDP and B^*/Y^* , the constant employment budget balance, will depend on the rate of unemployment used. Since we are looking at the yearly changes, the level of unemployment chosen, however, has little impact.²⁹ The years 1920 and 1939 are selected as base years, since unemployment were at low points in these years. Ola H. Grytten has calculated the total unemployment rate in these years to 1.6 and 5.3 percent respectively.³⁰ Both years were also peak years of economic activity. The actual series for GDP at constant factor cost were interpolated between these two base years assuming that the growth of Y^* was the same as that of Y between our two base years.³¹

Government expenses other than those related to unemployment insurance, public works and poor relief are assumed exogenous. The unemployment related expenses are calculated onto their constant employment level by $G_U^* = G_U \cdot (U^*/U)$. The constant employment unemployment rate is set to 3.45 percent, the average unemployment in 1920 and 1939.

Government revenues were divided into five groups; tariffs, taxes on expenditure, taxes on income, national insurance contributions and miscellaneous revenue. The miscellaneous revenue mainly consists of revenue from property sales, capital gains and transfers from local governments and is treated as autonomous. Elasticity's were calculated for the other four categories relating their yield to changes in GDP.³²

²⁸ Middleton, The Constant Employment Budget Balance and British Budgetary Policy 1929-39, 266-267.

²⁹ This is illustrated by Middleton in footnote 10 on page 268.

³⁰ Grytten, Ola H., The Scale of Norwegian Interwar Unemployment in International Perspective, *Scandinavian Economic History Review*, 1995: 2, 245.

³¹ GDP at constant factor cost grew by 81.7 percent between 1920 and 1939. That is equivalent to an annual trend growth of 3.2 percent. An index was calculated of Y^* at constant factor cost using this annual growth rate. This index is given in Table 1 in the appendix, column 2. The deviations between Y^* and Y , termed the ratio, is used to adjust the series of actual GDP in current prices to achieve a measure of the constant employment level of GDP.

³² The elasticity's were calculated on the basis of the pre-war data, taking the changes in nominal revenue from the different taxes against the change in GDP between 1913 and 1905. For national insurance contributions the period 1905 to 1910 were used. These years were chosen since there were few changes in the taxes and the economy was stable.

Table 1: Elasticities of taxes with respect to GDP

Tax	Elasticity
Tariffs	0.84
Taxes on expenditure	1.70
Taxes on income	1.13
National insurance contribution	1.66

Using the elasticity's the actual yields were then adjusted to a constant employment basis by applying the ratio $T^* = T \cdot (Y^*/Y)^\epsilon$, where ϵ is the elasticity. The results are shown in table 2.

Table 2: The constant employment budget balance

	T/Y	T*/Y*	G/Y	G*/Y*	B/Y	B*/Y*	Budget indicator
	Nominal	Constant employment	Nominal	Constant employment	Nominal	Constant employment	
1918	10,2	10,6	11,3	9,6	-1,1	1,0	
1919	9,4	9,4	10,2	10,0	-0,8	-0,6	-1,6
1920	7,6	7,5	7,9	8,1	-0,4	-0,6	0,0
1921	8,9	9,3	10,8	9,3	-1,9	0,0	0,6
1922	8,4	8,4	11,2	10,2	-2,8	-1,9	-1,9
1923	7,7	7,6	10,5	9,7	-2,8	-2,1	-0,2
1924	7,4	7,3	8,7	7,8	-1,3	-0,5	1,6
1925	8,0	7,8	8,1	7,5	-0,2	0,2	0,8
1926	9,4	9,2	9,0	8,1	0,4	1,0	0,8
1927	10,1	9,9	9,5	8,7	0,6	1,2	0,2
1928	10,0	9,7	9,5	8,8	0,5	0,9	-0,3
1929	9,5	9,3	9,2	9,1	0,3	0,2	-0,7
1930	9,5	9,3	9,0	9,2	0,5	0,0	-0,2
1931	10,4	10,0	10,2	9,3	0,1	0,6	0,6
1932	10,3	9,9	10,0	9,3	0,3	0,6	0,0
1933	10,8	10,4	9,8	9,0	1,0	1,4	0,8
1934	10,7	10,4	9,6	8,7	1,2	1,7	0,3
1935	10,9	10,4	9,6	8,9	1,3	1,5	-0,1
1936	11,3	10,9	9,8	9,4	1,6	1,5	0,0
1937	11,4	11,0	9,6	9,4	1,9	1,6	0,1
1938	12,0	11,5	10,3	10,0	1,7	1,5	-0,1
1939	12,9	14,0	11,3	11,2	1,6	2,8	1,4

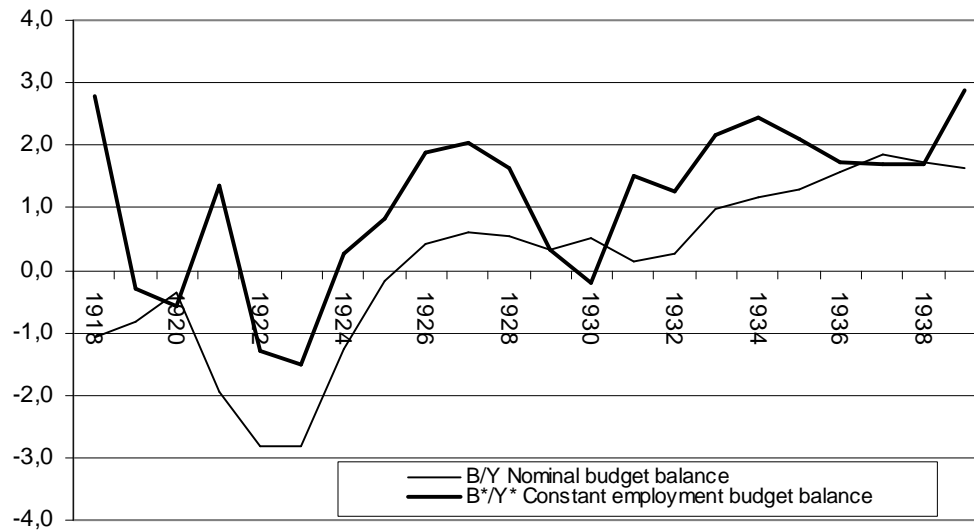
Source: Numbers for 1918-1929 from: NOS XI 143, table 10 and 11, numbers from 1930-1939: NOS XII 163, table 27A and 49 and Grytten (1995a), table 1.

Both public expenditures and revenues were higher as a share of GDP most years than they would have been at constant employment. Government revenues would have been higher in 1918, 1921, 1936 and 1939. The expenditures would have higher in 1920 and 1939. This illustrates the effect of automatic stabilisations.

The constant employment budget balance shows a different pattern than the nominal budget balance as seen in figure 4. The constant employment balance was positive in 1918 and 1921, when the nominal budget balance showed a deficit. The deficit in these years was thus the result of the economic development. The deficits in 1922 and 1923, on the other hand seems to have been caused both by discretionary policy and automatic stabilisation. These calculations also confirm the statement from the earlier research of the surplus from 1924 being the result of discretionary policy. The constant employment budget balance shows a considerable deficit in the years 1925 to 1928. A tight fiscal policy thus coincided with the currency's return to gold parity. These

calculations also show that the budget would have showed a larger deficit in the crisis years in the 1930s were it not for the automatic stabilisers. The thesis that fiscal policy did not contribute to recovery is thus strengthened.

Figure 4: The nominal and constant employment budget balance

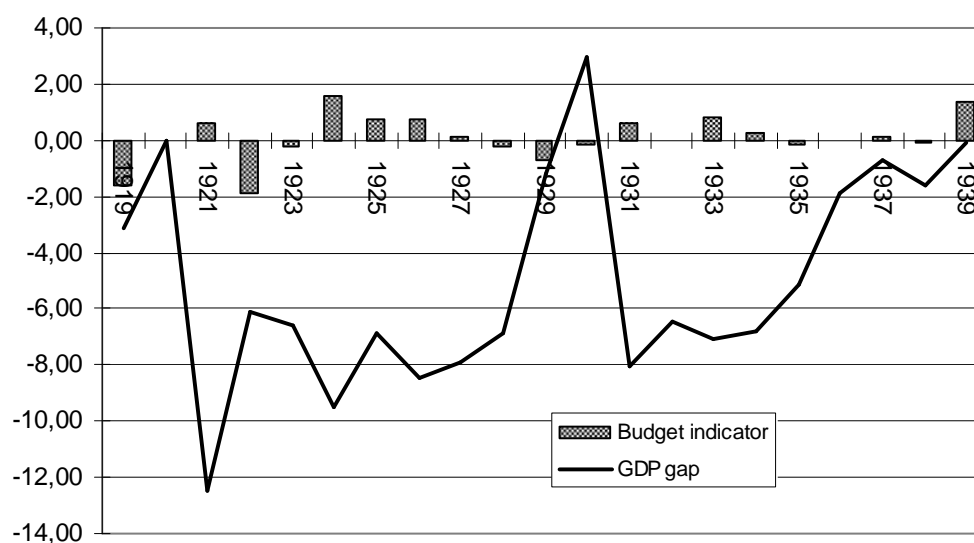


Source: Table 2.

A change in B^*/Y^* between two periods indicates a discretionary policy change. The yearly change in B^*/Y^* is referred to as the budget indicator. A budget indicator above zero represents an increase in the budget surplus. Figure 5 shows the budget indicator and the GDP gap.³³ Actual GDP were lower than constant employment GDP most years in the period. The discretionary changes were smaller in the 1930s than in the 1920s. Also discretionary changes increased the surplus in both 1931 and 1933; something which further supports the view that fiscal policy retarded the recovery from the crisis. There is also little support of Labour leading a less restrictive policy than its predecessors in these results. However, both T and G increased as share of GDP after 1935, as seen in table 2.

³³ Calculated as $(Y-Y^*)/Y^*$.

Figure 5: The GDP gap and the budget indicator



Source: table2 and appendix table I.

Indicators like the constant employment budget balance, can give a rough indication of fiscal policy's counter cyclical effect, but is not intended as a complete measure of the effect on demand and the activity level.³⁴ Describing policies as expansionary if these indicators decrease and restrictive if they increase is misleading. Firstly, these indicators only look at discretionary changes, thus they do ignore the effect of automatic stabilisers to aggregate demand. Secondly, public spending changes versus tax changes have different demand impacts since the marginal propensity to consume is less than one. To establish the effect policy, calculations should account for their different effects on the economy. These indicators also implicitly assume that the trend growth would have been more desirable, something which is not necessarily so.

The impact effect of fiscal policy on demand

When testing the impact effect of the fiscal policy on the economy I use a linear IS-LM-model similar to the one Helge W. Nordvik used.³⁵ The model look at year to year changes in the economy and economic policy, and it is therefore a model concerned with short term adjustment and effects.³⁶

³⁴ Dyvi, Yngvar, Erlandsen, E. and Kongsrud, P. M., *Finanspolitiske indikatorer, Sosialøkonomen*, 1999:6, 15.

³⁵ Nordvik (1979), pp. 231-232.

³⁶ The IS-LM model is a static model of an economy on an aggregated level, looking at adjustment in general equilibrium. The model is based on several assumptions, the first being free capacity in the economy. The interwar period was a period with persistently high unemployment and total production lower than production capacity. The assumption of $Y < Y^*$ where Y is GDP and Y^* is potential output, the level of GDP that secures full employment is therefore unproblematic. The model also assumes no price changes, and thus the price level in the home country is normalised to one. Both p^* , the price level abroad, and E , the exchange rate, are also normalised to one in the model since the price level abroad is assumed to be exogenous, while the exchange rate in principal can be regulated by the authorities. This is a more problematic assumption dealing with a period experiencing large price changes. Price changes are however incorporated through the deflation of the nominal series.

The economy is assumed to be open. Total demand thus includes imports in addition to national production. This is given by $K = Y + Q$, where K is total demand, Y national production, GDP, and Q imports. Fiscal policy is defined as changes in public expenditures and taxes. The effect of fiscal policy on total demand is given by

$$\Delta K = \Delta(Y + Q) = \frac{\delta K}{\delta G} \Delta G + \frac{\delta K}{\delta T} \Delta T .$$

Here ΔG is the change in expenditures from year $t-1$ to year t . Likewise ΔT is the change in net taxes from year $t-1$ to year t . $\delta K/\delta G$ and $\delta K/\delta T$ are the multipliers giving the effect of changes in public expenditures and net taxes on demand respectively. These multipliers can mathematically be expressed as

$$\frac{\delta K}{\delta G} = \frac{1 + q_1}{1 - c_1 + q_1} \quad \text{and} \quad \frac{\delta K}{\delta T} = \frac{-c_1(1 + q_1)}{1 - c_1 + q_1}$$

Here c_1 is the marginal propensity to consume and ranges between zero and one. The marginal propensity to consume thus gives a share of an income increase that will be spent on consumption. The rest is assumed saved. The marginal propensity to import, q_1 , is between zero and one, and gives the share of an income increase spent on imports.

In this model, as well as the Keynesian thinking about fiscal policies ability to stimulate demand and thus economic growth, the multiplier are important. The reasoning behind the multiplier is that increasing public expenditures will increase total demand in the economy more than the sole public increase. The initial increase creates a multiplicative effect due to the marginal propensity to consume being somewhere between one and zero. An increase in taxes would also result in such a multiplicative effect, but it is assumed in theory that this multiplier is smaller than the multiplier for public expenditures. In that way increases in the public sector can increase economic activity even when it is fully financed by increased taxes, like in the latter years of the 1930s.

The marginal propensities are found from the mathematical relations of equations $C = c_0 + c_1(Y - T)$ and $Q = q_0 + q_1Y$. Here C is private consumption and $(Y - T)$ is private disposable income. The marginal propensity to consume, c_1 , in the interwar period was 0.71, while the marginal propensity to import, q_1 , was 0.27. An increase in private disposable income of 100 NOK thus increased consumption with 71 NOK in this period and imports with 27 NOK.³⁷

These marginal propensities are then used to calculate the multipliers. I find that the multiplier for public expenses, $\partial K/\partial G$, was 2.27. Increasing public expenditures by

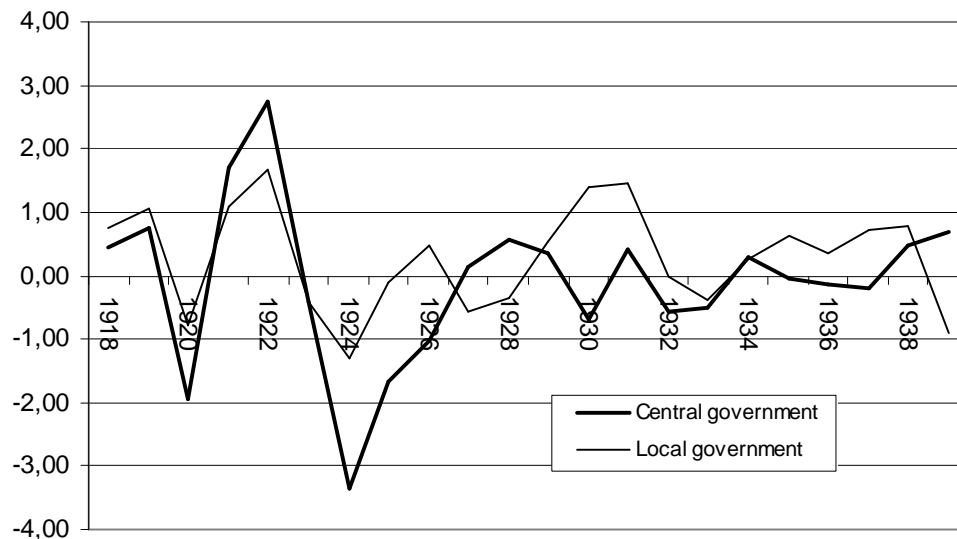
³⁷ Nordvik didn't calculate the marginal propensities himself. He used the marginal propensity to consume calculated by Arne Amundsen. Amundsen also calculated the marginal propensity to 0.7 (Amundsen, 1957). Nordvik could, however, not apply Amundsen's marginal propensity to import, since the import function, on which Amundsen's calculations were based, was not at linear function depending on GDP, but on consumption, investment and exports. Nordvik used 0.4 as an estimate of the import propensity, but did not give any empirical basis for this estimate. He however argued that this did not seem like an unreasonable estimate, and that this estimate was not obviously either too high or to low.

one million increased demand by 2.27 millions according to the model. The multiplier for taxes, $\partial K/\partial T$, are calculated to -1,67. An increase in taxes of one million thus reduced demand by 1.67 millions in the period. In comparison the multipliers calculated by Nordvik were 2.0 and -1.4. These differences in the multipliers will result in some difference in the calculated effects.

The multiplier for public expenditures is substantially higher than the multiplier for net taxes. A balanced budget increase thus had an inflationary effect on demand in this period, something which is in accordance with Keynesian assumptions.

With the calculated multipliers the effect on demand from changes in public expenses and taxes can now be calculated. The demand effect calculated as a percentage of GDP both for central and local governments are shown in table 3. The demand effects of the total public sector and the demand effect calculated by Nordvik are shown as well.³⁸ Detailed results are reported in table 5 and 6 in the appendix.

Figure 6: The effect of central and local government fiscal policy on demand in percent of GDP



Source: Table 3.

³⁸ Real GDP is calculated from the volume index in NOS XII 163, table 53 using nominal GDP in 1930 found in table 49. Nominal public tax income and nominal public subsidises is found in NOS XI 143, table 9 (local) and 10 (central). The implicitly given price index for GDP from NOS XII 163, table 52, is used to deflate these data. Government expenditures are also found in NOS XI 143, table 9 (local) and 10 (central). The price index for public consumption found in table 52, NOS XII 163 is used to deflate these data. Private consumption and import is calculated from the volume index in NOS XII 163, table 53 while nominal import in 1930 is found in table 49. Nominal private consumption is found in table 24 in NOS XII 163 and in Juul Bjerke: "Langtidslinjer i Norsk økonomi", table 7, since these data for the 1920s are somewhat revised from the publication of NOS XI 143. The nominal data are deflated with the price index for private consumption from NOS XII 163, table 53.

Table 3: The effect of central and local governments fiscal policy on the economy 1918-1939 and the demand effect calculated by Nordvik in percent of GDP

	Demand effect Central government	Demand effect Local governments	Demand effect Public sector (total)	Demand effect calculated by Nordvik
	$\Delta K_C/Y*100$	$\Delta K_L/Y*100$	$\Delta K_P/Y*100$	
1918	0,44	0,76	1,20	
1919	0,75	1,06	1,82	
1920	-1,93	-0,78	-2,71	0,1
1921	1,69	1,09	2,77	4,7
1922	2,75	1,66	4,41	3,5
1923	-0,40	-0,42	-0,82	-0,5
1924	-3,35	-1,31	-4,66	-3,7
1925	-1,66	-0,10	-1,75	-1,6
1926	-1,01	0,46	-0,55	-0,3
1927	0,15	-0,56	-0,41	-0,4
1928	0,57	-0,34	0,23	-0,5
1929	0,36	0,55	0,91	0,9
1930	-0,70	1,40	0,69	0,9
1931	0,42	1,45	1,88	0,8
1932	-0,57	-0,03	-0,60	-0,5
1933	-0,50	-0,37	-0,87	-1,1
1934	0,28	0,25	0,53	0
1935	-0,05	0,63	0,58	0,2
1936	-0,13	0,36	0,23	0
1937	-0,18	0,71	0,53	-0,5
1938	0,47	0,77	1,23	0,3
1939	0,69	-0,91	-0,21	0,4

Sources: NOS XI 142, table 1, 7, 9, 10 and 11 and NOS XII 163, table 4, 24, 27A and 27B, 52 and 53 and Bjerke, *Langtidslinjer i Norsk økonomi*, table 7.

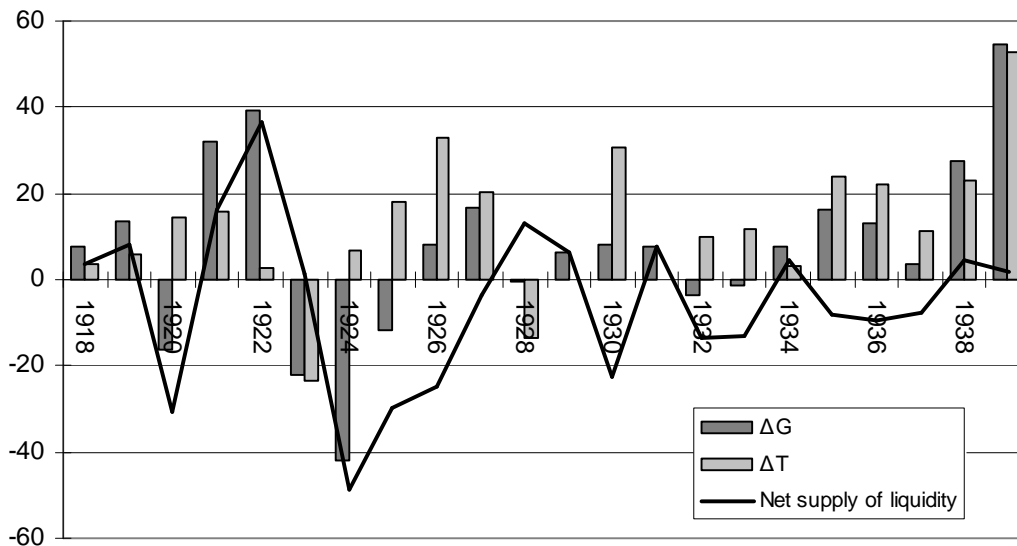
The subscripts C and L are used to indicate that these calculations are made on basis of central government and local governments' data respectively. The subscript P represents the public sector in total, which is calculated as the sum of the effects of central and local governments.

A positive number here indicates an expansive effect on the economy.

Central governments fiscal policy clearly had a larger impact on demand in the beginning of the 1920s than in the 1930s. This is seen in figure 6. The strong expansive effect of the public sector in 1921 and 1922 and strong contractive effect in 1924 found by Nordvik is seen here to mainly result from the central governments fiscal policy. From figure 7 we see that the supply withdrawal in 1921 and 1922 came from a large increase in expenditures, while net taxes increased less. From the calculations of the constant budget balance we see that the tax revenues in 1921 also failed due to the crisis while expenditures increased both years. There were also discretionary increases in the expenditures. In 1923 there was a balanced reduction of the budget, while the larger liquidity withdrawal in 1924 stemmed from a large reduction in the expenses while net

taxes increased. In addition the central government had a clear contractive effect on the economy in 1920 due to reduced expenses and increased taxes.

Figure 7: Central governments changes in revenue and the net taxes and net supply of liquidity



Source: Appendix, table 5.

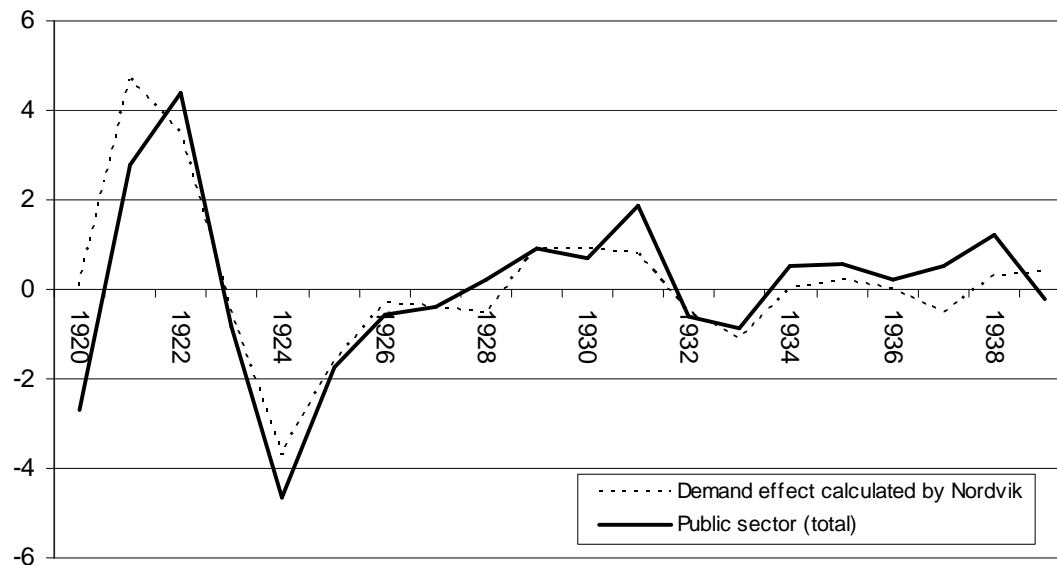
The effect on demand after 1925 was small, between 0.13 and 0.70 percent. The direction of the influence mainly followed that calculated by Nordvik for the public sector. In 1930, however, central governments budget had a contractive effect on the economy. Interestingly these results also show that local government had a larger impact on demand and contributed most to stimulating the economy in the 1930s. In 1939 on the other hand local governments had a contractive effect while central government stimulated the economy. In the 1920s central government also had a much larger impact on demand than local governments.

Discussion and concluding remarks

Summing up the effects calculated for central and local governments I get approximately the same effect for the public sector as calculated by Nordvik. Some years show slightly differing effects though as seen in figure 8.

Nordviks concluded that the fiscal policy had a strong inflationary effect in 1921 and 1922. This effect is found in the new calculations also and most of the impact effect is identified as coming from central governments fiscal policy. The demand increased due to increased public expenditures while public tax income failed due to the recession. In these years the Norwegian economy experienced the first wave of economic crisis and unemployment. In these first years of crisis, from 1921 to 1922, the funding for crisis relief was increased. In the same period the support for the unemployment insurance was increased. In this period the government clearly tried to relieve the situation, and in 1922 discretionary policy seems to have increased the supply of liquidity.

Figure 8: The new calculations compared to Nordviks earlier calculations



Source: Nordvik, *Finanspolitikken og den offentlige sektors rolle i norsk økonomi i mellomkrigstiden*, column 9, 234 and table 3..

In the years 1924 and 1925 Nordvik finds that the fiscal policy had a strong deflationary effect. He concludes that the fiscal policy in 1924 laid the foundation for the appreciation of the NOK in 1925. The new calculations show an even larger deflationary effect of the fiscal policy in 1924. Again it was caused by central government policy which had a clear contractive effect on the economy in the years 1924 to 1926. The budget was tightened by discretionary policy and public expenditures were particularly cut in 1924.

While serious attempts had been made to support the unemployed during the first years of the crisis, the support was reduced to protect the budget when the crisis proved to be as persistent as it did. The central government aimed a lot of energy towards reducing these expenses. They particularly tried to reduce their expenses for support of foreign workers. Crisis relief was somewhat increased again from 1933, but in the period from 1924 to 1933, which experienced the most difficult problems, nothing much was done from the central governments part to relief unemployment. In fact, relief was rather reduced as the difficulties increased.³⁹

Nordviks results also suggest that the fiscal policy had a minor inflationary effect in 1929-1931. The new calculations show that this inflationary effect was the result of expansive policy by the local governments. Central governments had a contractive effect on the economy in 1930.

The conclusions that the public sector had less impact on the economic development in the 1930s than in the 1920s and that the public sector had a significantly more neutral effect in the 1930s than in the 1920s are still valid. It is also particularly the central government that shows reduced fluctuations in its liquidity supply and effect on the economy. The new calculations, however, shows a somewhat more expansive effect in the 1930s. This is mainly due to the local governments.

³⁹ Pettersen, Per Arnt, *Linjer i Norsk sosialpolitikk*. Oslo: Universitetsforlaget 1982, 87-177.

According to Nordvik it is not likely that the public sector stimulated demand in the recovery after the depression in the 1930s. Nordvik's results suggest that the public sector had a retarding effect in 1933. The new calculations suggest that the central government had an even more retarding effect during this crisis than earlier believed; it had a contractive effect in 1930, 1932 and 1933. Local governments on the other hand seem to have stimulated the economy in the crisis years 1930 and 1931. Local governments also had an expansive effect in 1934 to 1938.

When Labour formed government with Johan Nygaardsvold as Prime Minister in March 1935 it was with the support of the Agrarian party. As a result crisis relief was increased with about 30 millions, from 34 to 76 millions, of which about 5 millions went to reducing duty calculated into the budget by the Liberals. Also the reforms proposed by the Liberals were dropped. The Agrarians, however, refused to finance the increases through loans. They were the fiercest defendants of the balanced budget doctrine in this period. The result was the introduction of a purchase tax yielding 17.5 millions and increased direct taxes of 13 millions.⁴⁰

In addition to increased public expenditures, and an important feature of the latter part of the inter war period was the expansion of the social security system. Labour had appointed a committee to look at social laws when they took office, and a public pension was implemented in 1936. Public unemployment insurance was implemented in 1938.⁴¹ Expenses to social purposes and public health also increased clearly the last years of the 1930s.

Even so, the central government did not show an expansive effect until 1938 and 1939. There is also no indication of a more expansive policy in the budget indicator after 1935. The contractive effect of the increased taxes thus seems to have off set the expansionary effect of increased expenditures. Thus the view that Labour did not lead an expansionary policy is strengthened.

⁴⁰ Bull, Edvard, Kriseforliket mellom Bondepartiet og Det Norske Arbeiderparti i 1935, *Historisk Tidsskrift*, 1959-60: 39, 133.

⁴¹ The Norwegian System of Taxation 1958, SØS: 7. Oslo: Statistics Norway 1958, 21-22.

Appendix

Table 4: Actual and Constant employment GDP Norway 1920-1939

	GDP at constant factor cost			GDP at current prices (mill NOK)	
	Actual	Constant employment	Ratio	Actual	Constant employment
	Y	Y*	Y*/Y	Y	Y*
	(1)	(2)	(3)	(4)	(5)
1918	80,1	93,9	1,172	5048	5916
1919	93,8	96,9	1,033	6195	6397
1920	100,0	100,0	1,000	7500	7500
1921	90,3	103,2	1,143	5448	6226
1922	100,0	106,5	1,065	4980	5304
1923	102,7	109,9	1,070	4997	5348
1924	102,7	113,4	1,105	5576	6161
1925	109,0	117,1	1,074	5633	6051
1926	110,6	120,8	1,092	4646	5074
1927	114,8	124,7	1,086	4218	4581
1928	119,8	128,7	1,074	4221	4531
1928	131,2	132,8	1,012	4345	4397
1930	141,1	137,0	0,971	4377	4251
1931	130,0	141,4	1,087	3842	4177
1932	136,5	145,9	1,069	3862	4128
1933	139,9	150,6	1,076	3866	4161
1934	144,9	155,4	1,073	4068	4364
1935	152,1	160,4	1,055	4362	4600
1936	162,4	165,5	1,020	4850	4944
1937	169,6	170,8	1,007	5581	5621
1938	173,4	176,3	1,017	5827	5924
1939	181,7	181,9	1,001	6253	6258

Sources: NOS XI 143, table 1 and NOS XII 163, table 49.

Table 5: The effect of central governments fiscal policy on the economy 1918-1939 in million NOK and per cent.

	1	2	3	(1+3)-2=4	2-3=5	6	7	6+7=8	9	10
	ΔG_c	ΔS_c	ΔE_c	ΔFSc	ΔT_c	$\delta K/\delta G * \Delta G_c$	$\delta K/\delta T * \Delta T_c$	ΔK_c	$\Delta FSc/Y * 100$	$\Delta K_c/Y * 100$
1918	7	34	30	4	4	17	-6	11	0,15	0,44
1919	14	17	11	8	6	31	-9	22	0,27	0,75
1920	-16	-25	-39	-30	14	-37	-23	-60	-0,98	-1,93
1921	32	16	0	16	16	73	-26	47	0,58	1,69
1922	39	-9	-12	37	3	90	-5	85	1,18	2,75
1923	-22	-27	-4	1	-23	-50	38	-13	0,04	-0,40
1924	-42	-13	-20	-49	7	-96	-11	-107	-1,54	-3,35
1925	-12	17	-1	-30	18	-27	-29	-56	-0,88	-1,66
1926	8	38	5	-25	33	19	-53	-35	-0,72	-1,01
1927	17	30	9	-4	20	38	-33	5	-0,10	0,15
1928	0	-2	12	13	-14	-1	22	21	0,36	0,57
1929	6	4	4	6	0	15	0	15	0,16	0,36
1930	8	35	5	-22	31	19	-49	-31	-0,51	-0,70
1931	8	6	6	7	0	17	0	17	0,18	0,42
1932	-3	14	4	-13	10	-8	-16	-24	-0,32	-0,57
1933	-1	17	6	-13	12	-3	-19	-22	-0,30	-0,50
1934	8	11	7	5	3	18	-5	13	0,10	0,28
1935	16	30	6	-8	24	36	-39	-2	-0,17	-0,05
1936	13	39	16	-9	22	30	-36	-6	-0,18	-0,13
1937	4	19	8	-7	11	8	-18	-10	-0,14	-0,18
1938	27	33	10	4	23	63	-37	25	0,08	0,47
1939	55	69	17	2	53	125	-85	39	0,03	0,69

Sources: NOS XI 143, table 1, 7, 10 and 11 and NOS XII 163, table 4, 24, 27A, 52 and 53 and Bjerke, *Langtidslinjer i Norsk økonomi*, table 7.

Here ΔG denotes changes in public expenditures, ΔS changes in public tax revenue and ΔE changes in public subsidies. These changes are summarized in column four, and ΔFS thus give the change in supply of public liquidity in real terms. Column five give net taxes, ΔT , which is arrived at by subtracting changes in public subsidies from changes in tax revenue ($\Delta S - \Delta E$). In column six and seven ΔG and ΔT are multiplied by the appropriate multipliers to find their effect on demand. Total effect on demand is summed in column eight. Column nine shows the change in supply of public liquidity as a percentage of GDP while column ten show the change in demand as a percentage of GDP. The subscript C is used to indicate that these calculations are made on basis of central government data.

Table 6: The effect of local governments' fiscal policy on the economy 1918-1939 in million NOK and per cent.

	1	2	3	(1+3)-2=4	2-3=5	6	7	6+7=8	9	10
	ΔG_L	ΔS_L	ΔE_L	ΔFS_L	ΔT_L	$\delta K/\delta G * \Delta G_L$	$\delta K/\delta T * \Delta T_L$	ΔK_L	$\Delta FS_L/Y * 100$	$\Delta K_L/Y * 100$
1918	21	27	9	3	18	49	-30	19	0,12	0,76
1919	39	25	-10	3	35	88	-57	31	0,12	1,06
1920	0	5	-10	-15	15	0	-24	-24	-0,48	-0,78
1921	43	46	4	1	41	97	-67	30	0,05	1,09
1922	42	26	-1	15	27	95	-44	52	0,48	1,66
1923	-15	-15	-2	-2	-13	-34	21	-13	-0,06	-0,42
1924	-33	-22	-1	-13	-20	-74	33	-42	-0,39	-1,31
1925	8	16	4	-5	13	17	-20	-3	-0,15	-0,10
1926	33	46	10	-3	36	74	-58	16	-0,10	0,46
1927	3	23	6	-14	17	7	-27	-20	-0,38	-0,56
1928	-12	-6	3	-3	-9	-27	14	-13	-0,08	-0,34
1929	8	6	8	11	-3	18	4	22	0,26	0,55
1930	20	4	14	30	-10	45	17	61	0,68	1,40
1931	29	9	5	25	4	65	-6	59	0,61	1,45
1932	1	10	8	-1	2	2	-3	-1	-0,03	-0,03
1933	-7	3	3	-7	0	-16	0	-16	-0,16	-0,37
1934	1	-6	-1	6	-5	3	8	11	0,14	0,25
1935	9	-5	0	15	-5	21	9	30	0,31	0,63
1936	6	-4	-2	9	-2	14	4	18	0,17	0,36
1937	8	-3	10	20	-13	17	20	37	0,38	0,71
1938	32	37	17	13	19	72	-31	41	0,23	0,77
1939	-5	27	2	-30	25	-11	-40	-51	-0,53	-0,91

Sources: NOS XI 143, table 1, 7 and 9 and NOS XII 163, table 4, 24, 27B, 52 and 53 and Bjerke, Langtidslinjer i Norsk økonomi, table 7.

Here ΔG denotes changes in public expenditures, ΔS changes in public tax revenue and ΔE changes in public subsidises. These changes are summarized in column four, and ΔFS thus give the change in supply of public liquidity in real terms. Column five give net taxes, ΔT , which is arrived at by subtracting changes in public subsidises from changes in tax revenue ($\Delta S - \Delta E$). In column six and seven ΔG and ΔT are multiplied by the appropriate multipliers to find their effect on demand. Total effect on demand is summed in column eight. Column nine shows the change in supply of public liquidity as a percentage of GDP while column ten show the change in demand as a percentage of GDP. The subscript L is used to indicate that these calculations are made on basis of local governments' data.

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