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The impact of New Zealand's macroeconomic frameworks on living standards

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Introduction

Macroeconomic frameworks guide decision-making for monetary, macroprudential and fiscal policy. Among other goals, these policies aim to stabilise the economy to improve welfare.[1] The objectives of this note are to:

- examine the rationale, underlying assumptions, and goals of the current frameworks, with a focus on the macroeconomic stability objective, and
- assess how the current frameworks have supported macroeconomic stability and living standards to date.

This note is part of a broader work programme that is reviewing New Zealand's macroeconomic frameworks. The review aims to determine whether the frameworks remain fit for purpose and to identify if there are areas that could be adapted to improve their effect on macroeconomic stability and New Zealanders' living standards. This is an introductory paper that describes the rationale for, and performance of, the current frameworks in a non-technical manner, and it is intended to encourage debate and interest in the review. Other papers will be published in due course, including one that considers how we can enhance fiscal policy's role in macroeconomic stabilisation, while Riches (2022) looks at the effects of fiscal stimulus when monetary policy is constrained by the lower bound. Furthermore, the Reserve Bank's forthcoming advice on the Monetary Policy Committee remit, as well as their assessment of the formulation and implementation of monetary policy, will provide a detailed assessment of the current monetary policy framework.

This note starts by clarifying what is meant by macroeconomic stability and how it supports living standards. The subsequent section outlines the key features of our current macroeconomic frameworks, looking separately at fiscal, monetary, and macroprudential policy. Next, the performance of our macroeconomic frameworks to date is considered by looking at how successful they have been at achieving macroeconomic stability, as well as considering other ways in which they may have affected living standards.

[1] In addition to stability, fiscal policy also has structure and sustainability objectives (Barker et al., 2008).

Key points

- A stable macroeconomic environment improves certainty for households and businesses, supporting them in making economic choices that will improve their wellbeing. Macroeconomic stability can also improve the socio-economic outcomes for those at the lower end of the income or wealth distribution since they are less able to smooth their incomes when there are shocks. Macroeconomic stabilisation frameworks are therefore crucial to supporting living standards.

- New Zealand's **fiscal framework** is underpinned by principles of responsible fiscal management and transparency. Since they were introduced, fiscal sustainability indicators have improved. Fiscal policy has also become more counter-cyclical since the early 2000s and helped to support incomes and labour market attachment during the pandemic. However, a question that needs to be addressed is whether a focus on fiscal prudence has come at the expense of under-investment in infrastructure. More research is required in order to adequately answer this question. Some ways in which fiscal policy has affected inequality are explored, but a comprehensive assessment is outside the scope of this note and remains an area for future research.

- New Zealand's **monetary policy framework** has two main objectives, price stability and maximum sustainable employment. Price signals are integral to the allocation of goods and services in modern economies. Inflation can make it harder to discern these price signals, leading consumers and producers to misallocate scarce resources. The employment objective, which was formalised in 2018 with the introduction of a dual mandate, reflects the view that labour market outcomes should also be considered by the central bank in pursuing its price stability objective. Since the current monetary policy framework was introduced in 1989, the rate and volatility of inflation as well as output volatility have declined. The consensus in the international literature is that monetary policy frameworks have succeeded in lowering and anchoring inflation expectations. Inflation in New Zealand has averaged close to the 2% mid-point target over the 2002-2020 period and has more often than not been within the target range.

- **Macroprudential policy** is aimed at reducing risks facing the financial system. The financial system is integral to society's ability to exchange goods and services, and to save and invest. Moderating the risk of financial disruptions is intended to preserve this capability through time. As discussed in the body of this paper, there is research that shows that the use of loan-to-value ratio restrictions has been successful at improving New Zealand's financial stability. Monetary policy and macroprudential policy can also affect inequality through various channels, but there is no consensus in the literature yet on their net impact.

- Further research is required to understand the effectiveness and possible side-effects of the fiscal and monetary policy response to the pandemic, including the effect on asset prices and distributional outcomes.

What is macroeconomic stability, and how does it support living standards?

Fischer (1993) defines a stable macroeconomic framework as a policy environment that is conducive to economic growth. However, although a stable macroeconomic environment is needed for an economy to prosper, it is not enough on its own.[2]

But what exactly is meant by macroeconomic stability? It relates to the volatility in macroeconomic variables such as economic activity, prices (for example, consumer prices, interest rates, and the exchange rate), the current account, and labour market indicators. In turn, stability in these variables reflects the extent to which economic relationships are in balance over the long term. For example, if fiscal expenditure exceeds revenue, the government's budget will be in deficit and public debt will rise. If investment exceeds savings, the current account will be in deficit, also leading to an increase in the country's total debt stock. If domestic demand exceeds supply, consumer prices will rise.

A stable macroeconomic environment can still be attained without a perfect equilibrium if the imbalance is considered to be sustainable over the long term, which is reflected in how easily it can be financed and whether it presents risks to the economy's ability to respond to shocks and stresses (Ames et al., 2001). There will always be shocks that push the economy away from equilibrium; the role of macroeconomic stabilisation policy is to manage how these shocks affect different parts of the economy, and to steer it back towards equilibrium in an orderly fashion. Some variables also act as shock absorbers, with the exchange rate being a good example of this.[3] In other words, some variables need not be stable, and in fact their instability helps bring about equilibrium. For example, if the current account deficit becomes too large, it would lead to a depreciation in the exchange rate (all other factors equal), in turn encouraging exports and slowing imports, thereby helping correct the imbalance.

Macroeconomic stability is considered to improve welfare. While there are good theoretical reasons for this, the empirical evidence is not unanimous.[4] This does not mean there is no relationship, just that it is difficult to prove. For example, severe downturns can have large negative impacts on welfare by persistently lowering an economy's potential economic growth rate via different channels, namely employment, the capital stock, and productivity.[5] Furthermore, having a stable macroeconomic environment removes a key element of uncertainty, making it easier to make spending and investment decisions and to plan ahead. Meanwhile, a stable financial system, which is the aim of macroprudential policy, is believed to help an economy to recover more quickly from downturns and reduce the risks of

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2 In other words, an economy is unlikely to grow sustainably if the macroeconomic environment is unstable, but other factors are also needed to boost economic activity. These include the amount and productivity of factors of production, the quality of institutions, technological advancement, openness to trade and innovation, and the quality of education. Macroeconomic stabilisation policies can therefore contribute to raising living standards by making sure that one of the necessary conditions for sustainable economic growth, macroeconomic stability, is in place.

3 According to the impossible trinity in macroeconomics, it is only possible to have two out of the following three: exchange rate flexibility, monetary independence, and capital account openness. This means that if a country wants to be able to set its own monetary policy and have free capital flows, the exchange rate cannot be fixed.

4 See Kneller and Young (2000), Martin and Rogers (2000), and Ramey and Ramey (1995) for reviews of the literature.

5 See Bannister et al. (2020), for a review of the literature.

recessions originating in the financial system, since firms and households are more resilient (Bascand, 2021, Acharya, 2015).

Macroeconomic stability can also help to improve income inequality.[6] For example, there is evidence that inflation affects lower income groups disproportionately.[7] This is because people in lower income groups have a higher percentage of their financial assets in cash, and so are less able to protect the real value of their incomes from inflation (Ames et al., 2001: 4). Therefore, having a low and stable inflation rate would benefit lower income groups in particular. Furthermore, vulnerable groups (for example those with lower education or income levels) are generally less attached to the labour market, and as a result tend to be more likely to lose their jobs during recessions and stay out of employment for longer, so a macroeconomic stabilisation policy that lessens the severity of cycles would benefit their wellbeing (Monastiriotis and Laliotis, 2019, BIS, 2021).

While recessions tend to increase inequality, inequality can also increase the severity and duration of recessions since low-income people are both more affected by downturns and have a higher propensity to consume (BIS, 2021). Furthermore, intergenerational wellbeing is also affected by labour market outcomes as new entrants to the labour market typically experience higher rates of unemployment than older workers (Quintini and Martin, 2006) and the pandemic has generally worsened labour market outcomes for youth workers (Lee et al., 2020).

Overview of macroeconomic stabilisation frameworks in New Zealand

Three policy frameworks are used to achieve a stable macroeconomic environment. **Fiscal policy** involves government decisions about taxation, spending and the balance sheet. **Monetary policy** refers to decisions taken about interest rates or the overall money supply in the economy. **Macroprudential policy** concerns decisions that influence the amount of risk taken on by financial institutions, households and firms, as well as their degree of financial resilience, which affects their ability to withstand downturns.

New Zealand's fiscal and monetary policy frameworks came about as a result of reforms implemented in the 1980s and 1990s in response to a period of macroeconomic instability – including double-digit inflation and rising public debt – and were revised further in later years. The macroprudential policy framework came later in response to the Global Financial Crisis (GFC). While the primary objective of macroprudential policy is to reduce risks in the financial sector and increase buffers to shocks, it can also act as a macroeconomic stabilisation tool by making financial market boom-bust cycles less severe (Brandao-Marques et al., 2020). As a result, the Reserve Bank considers the interaction between macroprudential and monetary policy when making decisions on either. Key aspects of the frameworks are discussed below.

6 See for example Breen and García-Peñalosa (2005).

7 See for example Easterly and Fisher (2001), Romer and Romer (1998), and Behrman, Birdsall and Szekely (2001).

Fiscal policy

New Zealand's fiscal policy framework is governed by the Public Finance Act 1989 (PFA).[8] Our fiscal framework is unusual in a global context in that there is no use of strict numerical targets; instead, the focus is on 'principles of responsible fiscal management' and transparency.[9] These principles reflect that a government's fiscal policy can support economic growth if it promotes economic **stability**, is **sustainable**, and has a favourable **structure** (Barker et al., 2008). Stability is about guiding the economy back to equilibrium following shocks; sustainability relates to the feasibility of funding new policies given the current tax structure; structure refers to "the composition of government expenditure, the structure of taxation, and the overall size of government" (Barker et al., 2008).

Initially, the focus of the PFA was on sustainability and not on macroeconomic stabilisation, in line with the consensus assignment[10] that monetary policy should largely be responsible for the latter, and also reflected the fact that public debt levels were relatively high. Four out of the five original principles related to sustainability, one to structure, while no principles related to promoting stability. During 2005-08, fiscal policy was arguably pro-cyclical, resulting in higher interest rates than would otherwise have been the case (since monetary policy was forced to be tighter in order to maintain price stability) (Brook, 2011). The PFA was amended in 2013, with three principles of responsible fiscal management added. One of the principles that was added related to economic **stability**, in particular that the Government must have regard to the interaction between fiscal and monetary policy. The intention of this principle was to incentivise governments to avoid pro-cyclical policy where possible – in other words, to encourage fiscal policy to be expansionary in a downward economic growth cycle, and contractionary in an upward cycle, and to help reduce the size of interest and exchange rate cycles.

From an economic perspective, **sustainable** fiscal policy means that policies are able to be financed over the medium to long term without making significant changes, for example without the need for a substantial increase in taxes at some point in the future (The Treasury, 2015). Originally, the PFA had the following principles related to sustainability:

- the Government must achieve and maintain prudent public debt levels (although the exact level is not defined)
- operating expenses should (on average) not exceed revenues
- net worth must be high enough to act as a buffer against shocks, and
- fiscal risks must be managed prudently.

Another principle was added with the 2013 amendments, namely that the Government must also consider the likely impact of its fiscal strategy on future generations, thereby broadening the concept of sustainability.

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8 For more details on the evolution of New Zealand's fiscal policy framework, refer to Janssen (2001).

9 Among OECD countries, only New Zealand, Australia, Canada, and Norway do not have legislated numerical fiscal targets.

10 According to the consensus assignment in macroeconomics, monetary policy was deemed to be best placed to respond to high inflation and stabilise the business cycle, while fiscal policy should be focused on more long-term issues – the appropriate size of government, and an efficient tax system.

The **structure** dimension of responsible fiscal policy relates to the composition of government spending and revenue, and whether it is in line with the Government's priorities. The original principle in the PFA relating to structure was that the Government must pursue policies that are consistent with reasonably stable and predictable tax rates. This principle was reformulated in 2013, noting the Government must have regard to efficiency and fairness matters when formulating its revenue strategy, including the stability and predictability of tax rates. In 2013, another principle was added – that the Government must ensure that the Crown's resources are managed effectively and efficiently, which relates to both the structure and sustainability dimensions.

Governments may depart from these principles temporarily so long as they set out their reasons for doing so and their plan to return to the principles. This gives governments the **flexibility** to use fiscal policy to respond to economic shocks. The principles themselves also attempt to provide flexibility for governments to determine a fiscal path consistent with their objectives. New Zealand's fiscal framework rests on a judgement that a government that has flexibility to choose a responsible fiscal strategy – subject to the principles outlined above – is more likely to own and deliver on that strategy (The Treasury, 2015).

Monetary policy

New Zealand's current monetary policy framework came about through reforms in the 1980s, culminating in the Reserve Bank of New Zealand (RBNZ) Act 1989.[11] The country's experience with high inflation in the 1970s and 1980s made its costs to society clear: it increased the cost of living,[12] encouraged speculative investments, discouraged savings, and created distortions. As such, the Act aimed to bring about price stability and improve the credibility of monetary policy.[13] It also aimed to increase the Bank's independence and to hold it accountable in its pursuit of the price stability objective. Today, the Bank has two main objectives, price stability and maximum sustainable employment, as formulated in the RBNZ Act 2021, as well as a number of secondary objectives. These are discussed in turn below.

Price stability

Originally, the Act set the Reserve Bank's sole objective as achieving and maintaining stability in the general level of prices. Since 1989, the general approach has evolved from a relatively strict inflation targeting regime, to a more flexible approach (Reddell, 1999).

The inflation target range, specified in terms of the consumers price index (CPI), was widened from an initial 0% - 2% to 0% - 3% in 1996 and then to 1% - 3% in 2002, while a focus on the mid-point of 2% was made explicit in 2012. The gradual increase in the mid-point of the inflation target reflected concerns that having a target that was too low meant that the cost of maintaining inflation at that level was too high for the real economy, as it required a relatively aggressive monetary policy stance.

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11 For more details on the evolution of New Zealand's monetary policy framework, refer to Reddell (1999).

12 On average, real wages increased slightly in the 1970s, but since this is an average measure, the cost of living may still have risen for some people. In the 1980s, real wages declined on average (Briggs, 2003).

13 At the time, consumer price inflation was in double-digits, peaking at close to 19% in the June quarter of 1987.

A lot of research has been done on the theoretical optimal rate of inflation. The Friedman rule, for example, implies an optimal inflation rate that is negative (Friedman, 1969), but this is at odds with observed positive inflation targets of around 2% in developed countries and 3.5% in emerging countries. There are a number of reasons why a low or negative inflation target may be undesirable in practice, including:

- *The effective lower bound*. A low or negative inflation target would limit the central bank's scope to stimulate the economy via negative real interest rates if nominal interest rates fall towards zero. A reduction in neutral interest rates would increase the risk of hitting the effective lower bound (Le Bihan et al., 2019).

- *Measurement bias*. It is impossible to accurately measure inflation. New Zealand's CPI is believed to have overestimated the true cost of living by 1% p.a. between 1984 and 2001 (Gibson and Scobie, 2010). This implies that a CPI inflation rate of 1% would be needed to maintain true price stability. However, the authors note that the CPI's upward bias as a measure of the true cost of living is trending downwards. Stats NZ currently reweights the CPI every three years, which should help to limit the upward bias by regularly reflecting the effects of commodity substitution.[14]

- *Wage rigidities*. Wages may not adjust freely downward, which can affect labour market adjustment. A positive inflation rate may enable a real fall in wages when required. Though the international empirical evidence for downward wage rigidities is weak, Armstrong and Parker (2016) find strong evidence of this in New Zealand.[15] In this study, most firms reported no link between minimum wage legislation and wage setting, though with notable variation across industry and firm size.

Some argue in favour of a higher inflation target to offset these limitations, with Blanchard et al. (2010) and Krugman (1998, 2021), for example, suggesting a target of 4% or higher. However, some of the commonly noted costs of inflation such as menu costs (the costs associated with having to change prices regularly) and shoe leather costs (the cost of time and effort associated with holding less cash) rise with the rate of inflation, and higher inflation also tends to be more volatile. A higher inflation rate may also lead to higher house prices at a time when they are already at elevated levels, owing both to the general price level being higher and an increase in tax distortions (due to capital gains and imputed rent not being taxed comprehensively). More generally, higher inflation would lead to increased tax distortions across all capital income tax settings.

Most developed countries have an inflation target of close to 2%, although there has recently been a trend towards a more flexible approach, such as the introduction of average inflation targeting in the United States. The RBNZ's forthcoming remit review will consider the appropriate inflation target and other related issues in more detail.

Maximum sustainable employment

In 2018, the first phase of reforms to the RBNZ Act made several changes to the monetary policy framework. Notably, a dual mandate was adopted by adding "supporting maximum sustainable employment" to the economic objectives of the Reserve Bank. Maximum sustainable employment refers to the highest level at which employment can be maintained

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14 https://www.stats.govt.nz/reports/analytical-retrospective-superlative-index-based-on-new-zealands-cpi-2020

15 See for example Elsby and Solon (2019) for international evidence.

without putting pressure on resources and therefore inflation. Although the Bank cannot directly or permanently influence employment levels, it has to consider the impact its policies may have on the labour market. Arguably, the Bank had been doing this even before the dual mandate was adopted. The output gap (the difference between the level of economic activity and the maximum potential level of economic activity) is monitored closely in order to ascertain where in the cycle the economy finds itself (above or below potential), and this correlates closely with the employment gap.

Prior analysis comparing New Zealand's experience with that of the United States suggests the two central banks generally responded similarly to changes to inflation and economic activity, despite one having a dual mandate and the other not (Jacob and Wadsworth, 2018). This was ascribed to the flexibility of the RBNZ's inflation targeting approach. Given that most central banks take employment outcomes into account whether or not they have a dual mandate, making the focus on employment outcomes explicit is believed to improve the transparency of monetary policy (Friedman, 2008). Jacob and Özbilgin (2021) find that stabilising employment improves social welfare, but due to difficulties associated with measuring sustainable employment, they note that a pure inflation targeting regime remains an appealing alternative framework.

Secondary objectives

Secondary objectives have been added to the Reserve Bank's remit, reflecting the desire to have a more flexible framework as well as for monetary policy to have regard to wider socio-economic objectives, namely to:

- have regard to the efficiency and soundness of the financial system[16]
- seek to avoid unnecessary instability in output, interest rates, and the exchange rate
- discount events that have only transitory effects on inflation, setting policy with a medium-term orientation, and
- assess the effect of its monetary policy decisions on the Government's Economic Objective, which currently includes an effective functioning housing market.

While the Bank must have regard to these secondary objectives, it does not have enough tools to pursue all of them at the same time, especially if they are in conflict.[17] As a result, it is likely that in practice the primary objectives will take precedence when trade-offs are involved.

Macroprudential policy

Following the GFC, as in many other countries, New Zealand started using macroprudential policy in order to reduce systemic risks facing the financial system. While the New Zealand banking system weathered the crisis well, it did expose some key vulnerabilities (Darbar and Wu, 2015). New Zealand's macroprudential framework was formalised in 2013 through a memorandum of understanding (MOU) between the Minister of Finance and the RBNZ, which sets out the objectives, tools and consultation requirements for macroprudential policy. This MOU was updated in 2021 to provide for additional debt serviceability restrictions.

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16 This was also a requirement in the RBNZ Act 1989 and was repeated in the remit.

17 According to the Tinbergen rule, the number of achievable policy targets cannot exceed the number of policy tools.

The Bank has the following macroprudential policy tools at its disposal:[18]

- the countercyclical capital buffer
- adjustments to the core funding ratio
- adjustments to sectoral capital requirements
- quantitative restrictions on the share of high loan-to-value ratio (LVR) loans to the residential property sector, and
- debt serviceability restrictions (DSRs).

The new RBNZ Act 2021 modernises the RBNZ's institutional and governance frameworks. The new Act also provides for an updated financial stability objective, which requires the Bank to protect and promote the stability of New Zealand's financial system. This objective will be tied to the statutory purposes of the proposed Deposit Takers Act (DTA), which is expected to significantly strengthen the framework for regulating and supervising deposit takers. With regard to macroprudential policy, prudential standards (which include lending standards such as LVRs and DSRs) will eventually replace the MOU framework once the DTA comes into force.

There is still a lot that we do not know about the impact and effectiveness of different macroprudential policy tools. International research on macroprudential policy continues to grow and will help shape the future direction of the types of tools and how they are used to promote financial stability.

How have New Zealand's frameworks performed?

A range of factors affect living standards via various domains, as illustrated in the Treasury's Living Standards Framework (LSF).[19] Macroeconomic stability can affect these domains and in that way impact living standards, but there are also other channels that are outside the scope of this note. In this section, the performance of New Zealand's macroeconomic frameworks is assessed by considering 1) how they may have impacted living standards via their impact on macroeconomic stability, and 2) how they may have impacted living standards via other channels.

Impact of current frameworks on macroeconomic stability

Fiscal policy

Fiscal sustainability indicators have improved

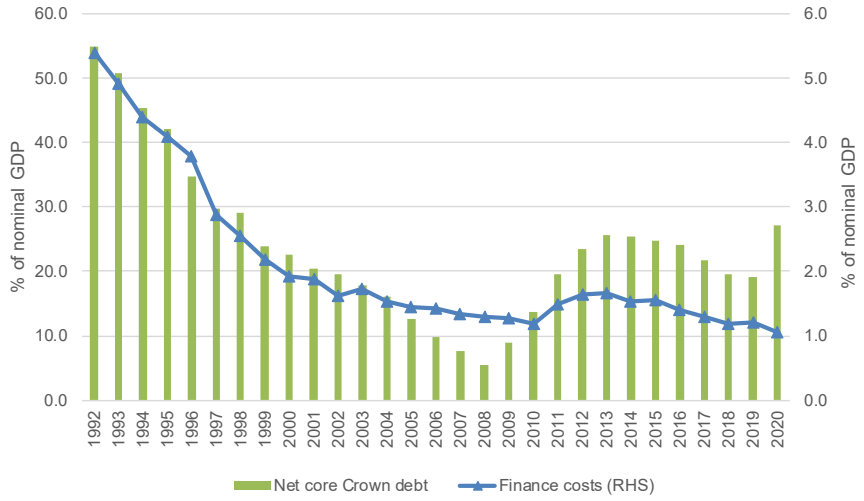
Since the introduction of the principles of responsible fiscal management in 1994, government debt and finance costs to GDP have declined (Figure 1). Total Crown operating balance before gains and losses (OBEGAL) was an average *surplus* of 0.5% of GDP between 1994 and 2019. Net worth increased from -4% of GDP in 1994 to 47% of GDP in

[18] For more information on these tools, refer to Reserve Bank of New Zealand (2013).

[19] https://www.treasury.govt.nz/sites/default/files/2021-10/tp-living-standards-framework-2021.pdf

2019.[20] The fiscal responsibility principles are believed to have been successful in promoting a sustained multi-party commitment to fiscal prudence by acting as a powerful commitment device to entrench fiscal discipline into New Zealand's budget processes (Gill, 2019). In recent years, a sustained decline in interest rates has also helped improve fiscal sustainability indicators. Fiscal sustainability is important for living standards, as it ensures that future governments will be able to spend, tax and borrow and that they will be capable of sustaining necessary spending as well as responding to future shocks (Hughes, 2021).

Figure 1: Net government debt and finance costs as a percentage of GDP (June years)



Source: The Treasury

Fiscal policy has become more counter-cyclical

Fiscal policy in New Zealand is believed to have been pro-cyclical[21] during the economic boom period in the 2000s (see Brook, 2011 and Parkyn and Vehbi, 2013), with this resulting in reforms made to the PFA in 2013 that required the government to have regard to the interaction between fiscal and monetary policy. Subsequent analysis suggests that fiscal policy has since become counter-cyclical. In particular, Bernstein et al. (2021) find that fiscal policy was on average counter-cyclical over the 2005 to 2019 period, both in upturns and downturns. Fiscal policy was also strongly counter-cyclical during the initial pandemic-induced downturn in 2020, though it is not directly comparable with other recessions due to the unique nature of the shock, and the counter-cyclicality has since arguably diminished. Counter-cyclical fiscal policy can improve living standards by providing income support, reducing uncertainty and volatility, and supporting monetary policy in lessening the severity of the business cycle.

20 OBEGAL was in deficit in 2020 reflecting spending pressures associated with the pandemic, which resulted in a deterioration in net debt and net worth.

21 Fiscal policy is said to be pro-cyclical if it is, on average, expansionary during expansions and contractionary during contractions. On the other hand, counter-cyclical fiscal policy is expansionary during recessions and contractionary during expansions, thereby potentially lessening the severity of the cycle.

Fiscal policy was an effective stabilisation tool during the pandemic

New Zealand's fiscal response during the pandemic relative to the economy's size was one of the largest in the OECD.[22] A large part of the fiscal response was a Wage Subsidy Scheme, aimed at lowering the risk of people losing their jobs as a result of restrictions on economic activity. The success of the policy, combined with an effective health response, is evident in labour market statistics: New Zealand's unemployment rate peaked at 5.3% in the September quarter of 2020, 1.2 percentage points higher than in the December quarter of 2019, but much lower than initially forecast. In comparison, the average OECD unemployment rate increased by 2.4 percentage points to 7.7% over the same period. Since then, New Zealand's unemployment rate has fallen below pre-pandemic levels. The benefit of this is potentially significant considering the large societal and economic costs that would have been associated with having a larger number of unemployed people. Further research is required to more fully understand the overall effectiveness of the fiscal policy response to the pandemic.

While the Wage Subsidy Scheme was particularly successful in terms of its timeliness, proportion of the labour force covered by the scheme, and promoting attachment to the labour market, the income-replacement rate was lower than in other countries with similar schemes such as Australia and Canada (Law, 2020). The Government is currently looking at introducing a social unemployment insurance (SUI) scheme. This policy may help address gaps in income support for people who lose their jobs. In addition to smoothing people's income when they lose their jobs and promoting macroeconomic stability by acting as an automatic stabiliser, SUI is expected to lower the extent of 'wage scarring' (a permanent reduction in wages after re-employment), which is estimated to be higher in New Zealand than in most other OECD countries (OECD, 2017). On the other hand, there is also a risk that it could worsen labour market outcomes by reducing the incentives of the unemployed to look for a job or to accept a job offers that are below their insurance income.

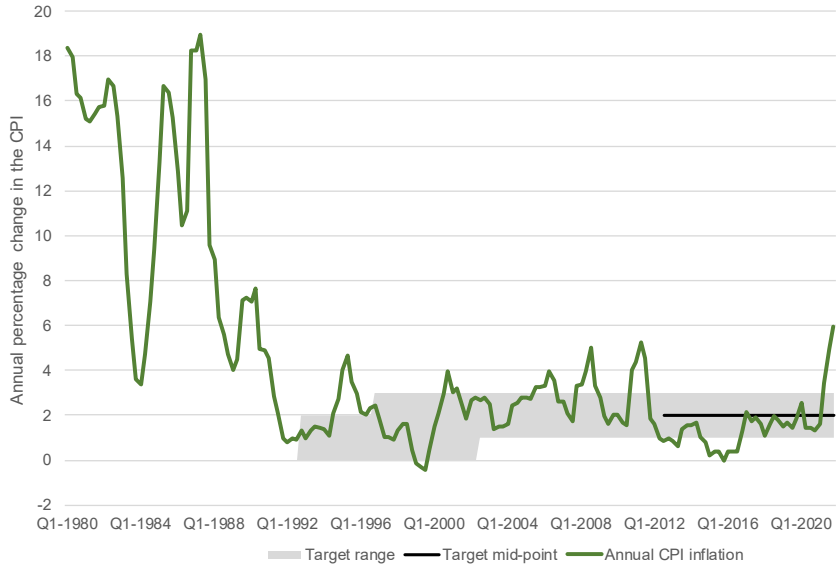
Monetary policy

The rate and volatility of inflation has declined

Since the introduction of the current monetary policy framework, both the rate and volatility of inflation (as measured by the CPI) have come down (Figure 2), while output volatility has also declined. A key question is to what extent this moderation can be attributed to the policy framework. The New Zealand experience of reduced instability was in line with the experience of other developed countries, called the 'Great Moderation'. Apart from policy, two other reasons have generally been cited for this: structural change and good luck (Bernanke, 2004). Structural changes refer to technological advancements and changes to the economy's structure and business practices that have led to an improved ability to cope with shocks, for example a deepening in financial markets and improved inventory management. Meanwhile, according to the 'good luck' argument, macroeconomic instability has declined due to shocks hitting the economy becoming smaller and less frequent over the mid-1980s to 2007 period.

22 https://www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19

Figure 2: Annual CPI inflation in New Zealand



Source: Stats NZ

The consensus in the literature is that the reduction in inflation and inflation volatility can generally be attributed to improved monetary policy frameworks that have succeeded in permanently lowering and anchoring inflation expectations (see for example Stock and Watson, 2002 and 2003, Ahmed, Levin and Wilson, 2004, and Cogley and Sargent, 2005). On output volatility, the literature is more divided, but the balance of evidence leans towards the 'good luck' argument. However, according to Giannone et al. (2008), the role of good luck has been overstated mainly due to key variables being omitted from the models used to estimate the effects, and that changes in economic structure may have been relatively more important than suggested in the literature.

The inflation target has mostly been met

Since the last change was made to the inflation target in the September quarter of 2002, the actual annual inflation rate was within the 1% - 3% target range in 48 out of the 78 quarters. However, core CPI was mostly within the target range, only rising above it for the four quarters of 2008 and more recently in the December 2021 quarter.[23] In the 2000s, headline CPI inflation was on average higher than target, followed by a period after the GFC when it was mostly below target. Over the 2002-2020 period, CPI inflation averaged roughly 2%. More recently, CPI inflation has risen above the Bank's target, partly driven by pandemic-induced supply chain issues. In formulating its monetary policy response, the Bank has to disentangle transitory and more persistent price changes and ensure that long-term inflation expectations remain anchored at the target.

[23] This is according to the RBNZ's factor model measure for core inflation, available here: https://www.rbnz.govt.nz/statistics/m1. Generally, core CPI measures remove the most volatile components from the CPI in order to eliminate unnecessary 'noise' from the data. For technical information, see Giannone and Matheson (2006).

Maximum sustainable employment

There is limited evidence about the effect of the addition of employment to the RBNZ's mandate. Unlike the price stability objective, the MPC does not have a numerical target for employment and is instead required to 'support' maximum sustainable employment, which is assessed using a range of labour market indicators. The level of maximum sustainable employment is influenced by a range of structural factors, including the skill composition of the workforce, job mobility, and the efficiency with which employers and job seekers can find one another. It is also not a static number, but instead can vary with structural changes in the economy, including preferences for work. This makes it difficult to assess whether employment is at its maximum sustainable level and for this reason the Bank considers a range of indicators to determine whether there is slack in the labour market.

The effectiveness of monetary policy

The aftermath of the GFC, which was characterised by a sustained period of lower inflation and interest rates, does not appear to have led to a significant change in monetary policy's effectiveness in New Zealand. Culling et al. (2019) found that a one-time 25 basis point cut in the Official Cash Rate (OCR) had equivalent impacts on GDP growth and inflation as before the crisis.

New Zealand reached the effective lower bound for the first time in the early stages of the COVID-19 pandemic, which prompted the use of additional monetary policy (AMP) tools (that is, tools other than the OCR). These tools also aim to bring down interest rates, but in addition they can augment forward guidance by acting as a commitment device. In particular, if a central bank is conducting asset purchases, the market will deem it unlikely that it will raise interest rates, as doing so would expose it to potentially significant losses on its balance sheet.

At this stage, there is limited New Zealand-specific evidence on the effectiveness of AMP tools and their potential side-effects. The Large Scale Asset Purchase (LSAP) programme, whereby the Reserve Bank purchased New Zealand Government bonds during 2020-21, is estimated to have resulted in a reduction in long-term yields, while the Funding for Lending Programme succeeded in lowering both lending and deposit rates (Kengmana, 2021). However, these tools may have been less effective than a cut in the OCR (had it been possible) would have been. Generally, LSAPs are deemed to be more effective when there is financial market dysfunction. Further research is required to understand the effectiveness and possible side-effects of the monetary policy response to the pandemic.

Impact on asset prices

Interest rates are an important determinant of the level of asset prices, including housing. This is an important transmission mechanism for monetary policy, since an increase in asset prices can lead to higher private consumption via wealth effects. However, both conventional (OCR changes) and unconventional monetary policies (like LSAPs) can also have unintended effects. Notably, New Zealand's house prices have risen to very high levels, with this having been driven by a decline in interest rates in the context of unresponsive land supply, as well as by rapid population growth prior to the pandemic via increased immigration, and insufficient housing supply. As a result, existing homeowners have benefited at the expense of renters and aspiring homeowners (Symes, 2021).

Macroprudential policy

LVR restrictions are the main macroprudential policy tool used by the RBNZ to affect household balance sheets, and in turn moderate financial stability risks from this source. These restrictions limit the amount that banks can lend to more highly leveraged borrowers. LVR restrictions were first introduced in October 2013 owing to concerns about an unsustainable increase in house prices. According to Lu (2019), LVR restrictions have been successful in improving New Zealand's financial stability by limiting household indebtedness and lowering the severity of potential future corrections in house prices.

On the other hand, the temporary removal of LVR restrictions in the early stages of the pandemic, on top of monetary policy stimulus, may have played a role in the large increase in house prices. LVRs were subsequently reimposed and tightened for investors in March 2021. Although this led to a fall in investor activity, house prices continued to increase. Restrictions on high LVR lending to owner-occupiers were further tightened in November 2021, and at the time of writing the RBNZ was consulting on the introduction of debt serviceability restrictions. As mentioned earlier, the use of macroprudential policy tools is still evolving and will likely be adjusted as more is learnt about their impact on financial stability.

Impact of current frameworks on other factors

While the primary objectives of New Zealand's frameworks relate to macroeconomic stability, they can also have impacts on other outcomes that affect living standards. In this section, we look at some of these factors, in particular focusing on investment levels and distributional outcomes.

Infrastructure and investment levels

In addition to contributing to macroeconomic stability by maintaining prudent debt levels, fiscal policy can also affect present and future living standards in other ways, for example via its structure (in other words, the composition of government expenditure or revenue), as well as decisions about the accumulation of capital stocks (Hughes, 2021).

If fiscal responsibility rules are rigidly adhered to and overly focussed on maintaining prudent debt levels, there is a risk that investment in infrastructure will be lower than optimal, thereby affecting the living standards of both present and future generations. According to a report commissioned by the New Zealand Infrastructure Commission, there is currently an infrastructure shortfall of $104 billion.[24] However, New Zealand's fiscal framework does not define a specific level of debt considered to be prudent. Therefore, if the Government expected the benefits of additional spending to offset the cost of the increase in debt, such a fiscal strategy would still be consistent with the PFA. That said, even though there is no numerical target, it is possible that self-imposed debt targets are treated as a hard limit in practice, possibly resulting in overly prudent policy.

The cost-benefit analysis of taking on additional debt is complicated by the fact that it is not possible for governments to know what the needs and preferences of future generations will be, as well as by a high degree of uncertainty about the future benefits from investment and the nature and extent of future costs, especially those related to climate change. There are also offsetting impacts; for example, higher levels of government debt would, all else equal,

[24] https://www.tewaihanga.govt.nz/strategy/reports/new-zealands-infrastructure-challenge/

result in higher interest rates, which would in turn deter private investment. The key question is whether New Zealand's current fiscal framework provides governments with sufficient flexibility to fully reflect the opportunity cost of not investing in infrastructure or to prepare adequately for the challenges that will be posed by climate change and demographic shifts, while maintaining resilience to sustainably respond to shocks.

Distributional impacts

According to Ball and Creedy (2016), income inequality in New Zealand deteriorated from the mid-1980s to the early 1990s and has remained roughly constant since then. There is evidence that inequality reduces welfare (see for example Gruen and Klasen, 2008). In addition, 'unfair inequality', in other words, inequality that relates to opportunities rather than efforts, is considered unjust, and the eradication thereof could be beneficial for social cohesion.

Monetary, macroprudential, and fiscal policies can all affect the distribution of income and wealth, either intentionally or unintentionally, though fiscal policy is arguably the best discretionary tool to address inequity issues as it has a wide range of tools and the mandate to do so. It is important to note that, even in the absence of any macroeconomic stabilisation framework, shocks to the economy would still have distributional outcomes, but the way the frameworks help manage the economy back to equilibrium can affect the socio-economic outcomes of different groups in different ways, and in that way affect the income distribution.

Fiscal policy involves decisions about spending and taxes and since these affect different income groups in different ways, they affect the distribution of income. The PFA also requires that equity issues must be considered by the Government when formulating its revenue strategy. New Zealand's income tax system is progressive, meaning that people with higher incomes have higher average personal income tax rates. However, measuring progressivity is difficult and should be considered across the whole system including taxes, transfers and other government spending. Other issues, such as looking at impacts across lifetimes and economic incidence can also significantly affect how progressive a system looks. Available measures appear to indicate that New Zealand's tax and transfer system redistributes less than the average OECD country and that our level of redistribution has been falling since the late 1980s.[25] However, it is difficult to make strong statements about progressivity from these measures as they are heavily affected by measurement issues and can be misleading.

Monetary policy can affect income and wealth inequality via various channels (see for example Colciago et al., 2019), as illustrated in Table 1. Most of the existing research focusses on the effects of conventional monetary policy (that is, interest rate changes), while research on the effects of unconventional policies, such as asset purchases, is more limited. The results from the research are inconclusive and they depend on the sample period, methodology, economic structure, and existing levels of inequality. There is some evidence that expansionary monetary policy has worsened wealth inequality in advanced countries via its impact on asset prices – see for example Bank of England (2012) and Domanski et al. (2016).

[25] See for example Section 5 in: https://taxworkinggroup.govt.nz/sites/default/files/2018-03/twg-subm-bgrd-paper-mar18.pdf

Table 1: Channels through which monetary policy can affect income and wealth inequality

Channel	Description	Impact on inequality
Savings redistribution	Monetary easing benefits borrowers at the expense of savers due to decline in interest rates	Depends on distribution of savings and debt
Unexpected inflation	Higher-than-expected inflation benefits borrowers at the expense of lenders because the value of money used to repay debt is worth less than when initially borrowed	Depends on distribution of debtors and creditors
Interest rate exposure	Lower real interest rates boost financial asset prices	Interacts with the 'portfolio composition' channel
Portfolio composition	Households hold different shares of their wealth in different assets	Higher equity prices tend to benefit high-income households more, while the impact of higher house prices depends on the distribution of home ownership
Income composition	Low-income households are more reliant on government transfers, middle-income households on wages, and high-income households on capital income	Ambiguous
Earnings distribution	High-income households are more affected by changes in hourly wages, while those at the lower end are more influenced by hours worked and the unemployment rate	Ambiguous

Empirical research on the impacts of monetary policy on inequality in New Zealand is limited. Chipeniuk et al. (2021) find that the savings redistribution and income composition channels are strong in New Zealand, while the earnings distribution channel is relatively weak. They find that a cut in the OCR leads to a persistent *fall* in wealth inequality, mainly owing to a reduction in interest income received by the top quintiles. However, the study does not include the portfolio composition channel, meaning the effects on asset prices are not considered. Nolan (2021) investigates the savings redistribution channel and finds that a reduction in interest rates results in a net increase in household income, with the gains to mortgage holders more than offsetting losses to others. However, the bottom three income deciles experience a decline in income, which suggests that income inequality may worsen (although this may not be reflected in the Gini coefficient). Symes (2021) finds that higher house prices in New Zealand are associated with a reduction in wealth inequality as measured by the Gini coefficient. This is because the majority of households (around 64%) are homeowners. However, even though aggregate wealth inequality declines, wealth inequality rises between owners and non-owners, with the latter group more likely to be poor.

The distributional effects of **macroprudential policy** have not been studied extensively. This is because macroprudential policies only became widespread after the GFC (hence the sample period is limited), the tools are varied, and it is difficult to disentangle the effects from monetary policy (Colciago et al., 2019). Some studies find that by limiting access to credit, macroprudential measures may worsen income inequality but improve wealth inequality by lowering household indebtedness.[26] Initially, LVR restrictions in New Zealand were found to have disproportionately affected first home buyers, but policy recalibrations since then have shifted more of the burden to investor demand (Lu, 2019).

[26] See for example Zinman (2010), Frost and van Stralen (2017) and Carpantier et al. (2017).

Conclusion

The aim of this paper was to examine the rationale, underlying assumptions, and goals of our current macroeconomic frameworks and to assess how they have performed to date. Macroeconomic frameworks aim to stabilise the economy and limit the fallout from shocks. The channels through which a more stable economy improves economic growth and therefore living standards are reasonably well documented. New Zealand's macroeconomic frameworks have generally served us well over the years, as witnessed by sustainable public debt levels and generally low and stable CPI inflation and output volatility.

Macroeconomic policies may have other impacts on living standards as well, including distributional effects and the country's stock of infrastructure. These impacts are less well researched, more uncertain and are an area for future research. In particular, we need a better understanding of:

- the effectiveness and unintended consequences of AMP tools
- the effectiveness and unintended consequences of macroprudential policy tools
- the effectiveness, costs, and benefits of the fiscal and monetary policy response to the COVID-19 pandemic
- whether our current fiscal framework allows governments enough flexibility to sufficiently invest in infrastructure, and
- the impact of fiscal and monetary policy on income and wealth inequality.

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