Macroeconomic Policy for A Modern New Zealand Economy:
Theory and Empirics from the post-1984 Era

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Abstract

The international macroeconomic context of the past 50 years has been marked by the shift to a broadly free-floating fiat currency system, financialisation, and the regression of fiscal policy relative to the growing dominance of monetary policy in macroeconomic management. This period of macroeconomic history has been strongly influenced intellectually by the neoclassical/New Keynesian paradigm despite empirical evidence of its shortcomings. New Zealand makes for an interesting case study of this. Whilst being a keen adherent to this paradigm, New Zealand has demonstrated economic outcomes which are detrimental to the health and wellbeing of both the community and the economy. This paper presents both an analysis of New Zealand's macroeconomic landscape during the post-1984 era and a theoretical framework through which to view New Zealand's macroeconomic dynamics and policy prescriptions during this era. The framework is presented through three separate distinctions from the conventional monetarist paradigm. The framework consists of a new perspective on the scope of fiscal and monetary policy during the fiat currency era, inclusivity of the role of credit to the non-financial sector in macroeconomic analysis, and the use of complex systems modelling. The paper aims to stimulate discussion on heterodox economic thinking and affirm intellectual pluralism in New Zealand economics, while providing a sound theoretical framework through which to analyse New Zealand's post-1984 macroeconomic history.

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Introduction

The international macroeconomic context of the post-Bretton Woods era has been largely defined by the shift to a broadly free-floating fiat currency system, financialisation, and the diminishment of fiscal policy relative to the growing dominance of monetary policy in macroeconomic management. These empirical shifts have been guided intellectually by the adoption of the 'neoliberal' paradigm. The neoliberal paradigm consists of an amalgamation of the monetarist, neoclassical, and 'New Keynesian' economic disciplines, hereafter referred to as the 'mainstream' paradigm. Subsequently, the theoretical stipulations of these economic disciplines have largely guided policy decisions by policymakers in polities globally. Importantly, the dominance of the mainstream macroeconomic paradigm has marginalised other schools of economic thought thereby diminishing the scope of alternative analyses of economic dynamics and potential policy prescriptions.

New Zealand is a notable adherent to the mainstream paradigm. The adoption of the neoliberal political economic framework in New Zealand can be illustrated to have resulted in macroeconomic outcomes which are detrimental to the health of both the community and economy. Some of these outcomes include paradoxically stagnant productivity growth despite concentrated attempts at improvement (New Zealand Productivity Commission, 2021, p. 14), socioeconomic deprivation, extraordinary increases in house prices during the post-2008 era, degradation of New Zealand's critical infrastructure, a mental health crisis, and increased stratification between geographical regions.

This work presents a broadly qualitative perspective on New Zealand's macroeconomic history and presents a new framework through which economic dynamics and policy can be analysed. The intention of this less-intensive approach is to present readers with an introductory yet theoretically grounded understanding of the concepts presented within this paper. The paper begins with a brief assessment of New Zealand's macroeconomic history after the adoption of neoliberalism by the Fourth Labour Government in 1984. In order, topics for analysis include monetary and fiscal policy in New Zealand after 1984, persistent labour unemployment and underutilisation in New Zealand, and New Zealand's productivity paradox.

The second section provides a macroeconomic framework through which to analyse New Zealand's macroeconomic dynamics and policy prescriptions of the post-1984 era. Moreover, this framework will be utilised to provide brief analyses of New Zealand's macroeconomic dynamics of the post-1984 era. This framework is what I refer to as the 'tripartite foundations of heterodox economics'. It consists of a new perspective on the scope of fiscal policy for 'currency issuers' within the fiat currency system, inclusivity of the role of credit to the non-financial sector in analysis of macroeconomic dynamics, and utilisation of complex systems

analysis to model macroeconomic dynamics. The individual aspects of the 'tripartite foundation of heterodox economics' will be elucidated, with the insights of the framework being used to analyse dynamics within New Zealand's economy.

The central aim of this paper is twofold. The first aim is to stimulate discussion on heterodox economics, namely its viability in understanding macroeconomic dynamics which elude the analytical strictures of conventional macroeconomic theory. Second is demonstrating the applicability of its insight to New Zealand during the post-1984 era. In affirming a pluralistic perspective through provision of an alternative macroeconomic framework, the scope of possible policy prescriptions inherently becomes more varied. This enables policymakers to consider different perspectives when tackling policy issues which thereby strengthens the outcome of the policy response.

1

New Zealand's post-1984 Macroeconomic History

New Zealand's post-1984 macroeconomic history has been defined by the paradigm shift from the social democratic welfare state underpinned by Keynesian macroeconomic principles of the Bretton Woods era to neoliberalism in 1984. This paradigm shift was instigated by the Fourth Labour Government and is largely attributable to the then incumbent Finance Minister Roger Douglas. This spawned the colloquialism 'Rogernomics'. The Rogernomics paradigm consisted of a broad deregulatory programme including deregulation of the financial sector and labour market, and the removal of trade barriers. Moreover, this involved the float of the New Zealand Dollar in May 1985. The objective of this sweeping regime change was to modernize New Zealand's economy and free it from the state-led market structure evident during the post-World War II era. Market forces would therefore determine New Zealand's economic performance with monetary policy becoming a preeminent tool in maintaining low inflation necessary for the efficient market allocation of resources within the economy.

1.1: Monetary Policy in New Zealand post-1984

New Zealand's strict adherence to the principles of the mainstream paradigm are clearly demonstrated through continued dominance of monetary policy in determining macroeconomic dynamics and adherence to the principles of 'sound finance' with regard to fiscal policy. Whitwell (1990) refers to the beginning of this era as the 'Rogernomics-Monetarist Experiment'. Whitwell notes that '[t]he central motivation for the wholesale deregulation of the New Zealand financial sector was the official desire to run an effective monetary policy' (1990, p. 102). The monetarist synthesis claims that 'deregulation will foster the degree of price flexibility in the product and labour markets that is necessary for monetary policy to contain inflationary pressures with only transitory effects on real variables' (1990, p. 103). As such, the RBNZ adopted a monetary policy which resembled that of the Bank of England in the early 1970s whereby the RBNZ would attempt to control the expansion of the monetary base which included primary liquidity. Remarkably, the RBNZ omitted currency held by banks or by the non-bank private sector from its definition of primary liquidity that,

according to Whitwell, 'damped out much of the externally-sourced disturbances to its unique monetary base concept' (1990, p. 114).

However, Whitwell notes that there was a high degree of intellectual failure by the RBNZ from the outset of its new policy regime. This was demonstrated by the RBNZ's ad hoc definition of the monetary base and fallacies in the policy transmission framework it had adopted. The RBNZ had assumed that it could control monetary aggregates and therefore inflation through the control of the monetary base. However, empirically observed relationships between primary liquidity and monetary aggregates proved 'difficult to substantiate' (1990, p. 107). As such, the RBNZ conceded that 'credit was essentially demand determined' and opted for the adoption of an ad hoc interest rate policy designed to influence the demand for credit through influencing the 'price' of money through the interest rate. This continues to be the preferred method of inflation control in New Zealand. However, and mirroring what has been observed empirically during the financialisation era, the preeminent impact of interest rates has been to inflate asset prices at the expense of investment in productive resources. Whitwell notes that in the late 1980s 'the Government had created a financial environment that was openly hostile to real productive investment spending. In fact, the Bank of New Zealand now estimates that total capital formation, measured as a percentage of Gross Domestic Product, has fallen from 29 per cent in 1985 to 21 per cent in 1989' (Whitwell, 1990, p. 115). The latest data from the World Bank indicates that total capital formation is at 22.4% of GDP (World Bank, 2022).

The 'Rogernomics Monetarist Experiment' was therefore an abject failure of the application of the monetarist ideology to an empirical context. The theoretical assumptions of the monetarist paradigm, as adopted by the Reserve Bank and the wider New Zealand government, broke down almost immediately upon the implementation of the new economic framework. Distressingly, the theoretical and supposed empirical stipulations of the monetarist and other 'neoliberal' assumptions on the operation of the economy have been broadly accepted within New Zealand's academic and policy circles without critical engagement with these ideas. As such, the RBNZ continues to adhere to these principles with little or no dissenting opinion from the academy or public.

1.2: Fiscal Policy in New Zealand post-1984

The conduct of fiscal policy during the post-1984 era is a key component of New Zealand's macroeconomic history. The paradigm shift from broadly Keynesian economic principles to Monetarist/Neoclassically aligned principles instigated by 'Rogernomics' resulted in a marked change in how the state interacts with the economic and social dimensions of New Zealand.

The reforms to the welfare state implemented by the Fourth Labour and National Governments represented a marked shift from the welfare state established by the First Labour Government during the 1930s. The essence of the welfare state was captured by Langstone (1939), who described that '[a]n adult person, without the income necessary for his support, becomes a social outcast. If he cannot find someone to employ him, and thus give him an income, then he

must join the ranks of the unemployed. All this demands that in all civilised countries, the supreme authority, Parliament and the General Government, must in some way make financial provision to meet the needs of the present day society – common honesty, humanity and social justice demand this' (1939, p. 26). The adoption of neoliberalism in New Zealand was a marked shift from the strong welfare state established by the First Labour Government to the 'market discipline' enforced during the post-1984 era.

The preeminent example of this change was the 'Mother of All Budgets' implemented by the Fourth National Government in 1991. The 1991 Budget was strongly reflective of neoliberal tendencies illustrated by what Dean (2015) refers to as 'market thinking'. Market thinking is indicative of the desire for market forces to incentivize the behaviour of citizens to perform actions. For instance, an unemployed person would be 'incentivised' to attain work as a result of diminishing welfare payments and lowered taxes. Douglas and others place this belief at the core of their policy prescriptions with Ruth Richardson herself noting that the 'reform of the welfare system will provide greater incentives on New Zealanders to move off welfare and into work' (Richardson, 1995, p. 218). Elements of market thinking dominate all political disciplines within New Zealand. Most notably, the Green Party's former co-leader Russel Norman opined on the topic of sustainability that 'markets are a really good solution to the big problems we're facing in sustainability. You just need to get the prices right, get the incentives right' (Dean, 2015, p. 4).

A key consideration of fiscal policy during the post-1984 era, and especially in the period after 'the Mother of All Budgets' has been the strong adherence to 'fiscal responsibility'. These principles can be referred to as 'sound finance', where the state attempts to 'finance' its expenditure from its tax and bond 'revenue'. The notion of fiscal responsibility has been enshrined into New Zealand Law through the Public Finance Act of 1989 and the Fiscal Responsibility Act of 1994.[2] The imposition of these Acts came as a result of prolonged fiscal deficits and rising public debt to GDP during the 1970s (Buckle, 2018). As such, the preferred fiscal position is a fiscal surplus. A fiscal surplus, it is said, enables the government to 'save for a rainy day', ensure the availability of credit within the banking system by avoiding 'crowding out', avoiding inflationary pressures by curtailing public spending, and avoiding insolvency risk. Moreover, the lack of government 'intervention' avoids distortionary impacts on the economy, thereby enhancing economic efficiencies. These perspectives are drawn from a wealth of literature symptomatic of the dominant monetarist/neoclassical paradigm era and are reflective of the Government Budget Constraint (GBC).

New Zealand's pursuit of a fiscal surplus, adherent to the principles of fiscal responsibility, has been relatively successful during this era. The OBEGAL balance between 1994 and 2021 averaged 0.4% of GDP. However, the relatively successful pursuit of numerical values has belied funding deficiencies for public goods and services in New Zealand. Persistent underfunding of the public health system during the 2009-2017 period has resulted in decreases in the availability of health staff as a result of pay differentials between New Zealand and other

[2] A critique of this notion of fiscal responsibility will be undertaken in Section 2.1.2.

states and ill-maintenance of health facilities. Moreover, accounting practices have served to differentiate poor performing public entities from the whole of government accounting framework. Thus, elevated levels of debt maintained by state owned enterprises (SOEs) would not enter into equations determining the government's debt level, enabling the government to reach its fiscal sustainability objectives to the detriment of those SOEs (Newberry, 2020).

1.3: New Zealand Unemployment, Labour Underutilisation and Mental Health

A notable symptom of New Zealand's post-1984 macroeconomy has been persistent levels of labour unemployment and underutilisation. This can be attributed to two preeminent factors. The first is the adoption of the 'full employability' framework. Second is the imposition of a degree of structural unemployment with the objective of tempering inflationary pressures.

The adoption of the broadly neoliberal economic paradigm in New Zealand entailed the adoption of the 'full employability' framework and the abandonment of the full employment framework of the Bretton Woods era. The 'full employability' framework is defined by Mitchell and Muysken (2008) as one where 'individuals should be willing to adapt to changing circumstances and individuals should not be prevented from doing so by outdated regulations and institutions. The role of government is then prescribed as one of ensuring that individuals reach states where they are employable' (2008, p. 4). The OECD Jobs Study (1994) provided the policy basis for the shift to the full employability framework by tacitly blaming existing government regulations for labour market 'rigidities'. The Jobs Study therefore provided an 'agenda for labour market deregulation, including increased flexibility of working time, making wage costs more flexible by removing restrictions, reducing employment security provisions, and scaling down unemployment benefit systems' (Storm & Naastepad, 2012, p. 10). In New Zealand, this has been actioned through the adoption of the Employment Contracts Act of 1994 and the Employment Relations Act of 2000. These Acts were designed to ensure the primacy of employers in determining labour market 'flexibility' adherent to the full employability framework.

The level of structural unemployment is adherent to the non-accelerating inflation rate of unemployment (NAIRU) framework. As such, it is said that if unemployment is to exceed the NAIRU, then it is claimed that inflationary pressures would be exacerbated through heightened wage demands resulting in an increase of aggregate demand. As such, the onus on fiscal authorities to maintain sufficient levels of employment was shifted to the central bank where the interest rate would act to influence employment dynamics. The shift in focus of employment policy, from fiscal to monetary authorities, seemingly exonerated governments of responsibility over adverse outcomes in the labour market. It was argued that deregulation of labour markets would enable the market to adjust to new structural parameters, such as the rate of inflation, more efficiently. Whitwell (1990) notes that politicians of the Fourth Labour Government in New Zealand during the late 1980s were quick to adopt this perspective, noting that 'New Zealand politicians were quick to endorse the operation of monetary policy from this perspective [as] it would effectively acquit them from any charge that their policies were directly responsible for the rise in unemployment' (1990, p. 110). It can be inferred that politicians during the ensuing period continued to adhere to this philosophy, with the Sixth

Labour Government updating the Policy Targets Agreement (PTA) with the RBNZ to include of 'maximum *sustainable* employment' in 2018.[3]

The persistence of unemployment and underutilisation in New Zealand is a disappointing failure of policy and a wastage of both human and economic potential. It is also a strong negative indictment of the efficacy of monetary policy to influence sufficient employment levels. Unemployment and underutilisation has been particularly evident in ethnic minorities, such as Māori and Pacific Peoples. This is evident in underutilisation data for ethnic minorities. In labour underutilisation data between Q12009 and Q12022, Māori underutilisation has averaged 22.2%. For Pacific Peoples, underutilisation has averaged 20.9%. For New Zealand Europeans, underutilisation averaged 10.7% (Statistics New Zealand, 2022a). This is depicted in Figure 1. The picture becomes more sobering when disaggregating between sexes. Female Māori underutilisation has averaged 26%, while female Pacific Peoples underutilisation has averaged 25%. While trending down during the sample period, these figures are still markedly higher than New Zealand European female underutilisation which averaged 12% (Statistics New Zealand, 2022a). These are depicted in Figure 2. The Youth Not in Employment, Education or Training (NEET) rate also conveys sobering statistics on the plight of young people in the labour market. This is especially prevalent in regions, where regions demonstrate persistently higher NEET rates when compared to suburban centres (Statistics New Zealand, 2022b).

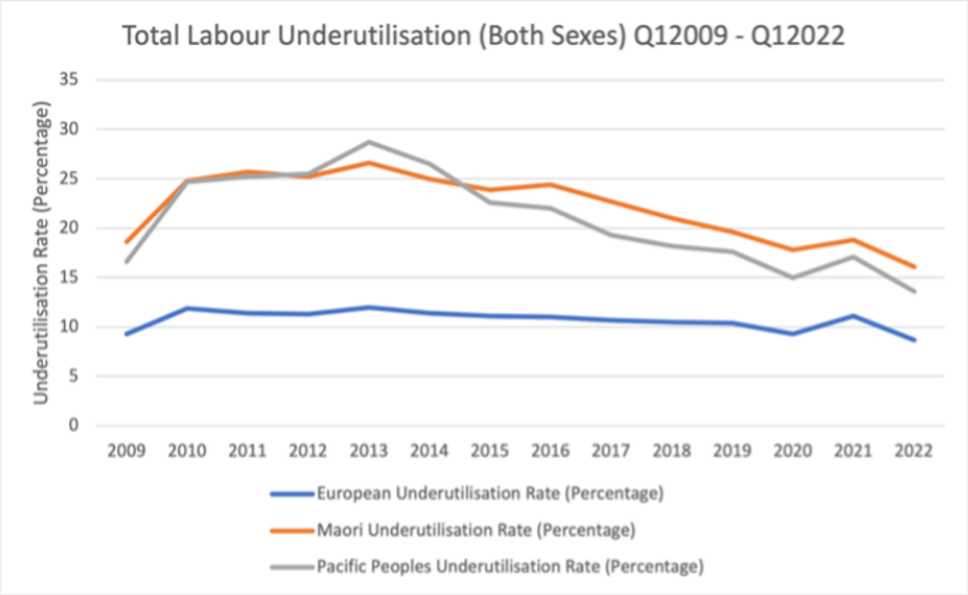

Figure 1: Total Labour Underutilisation (Both Sexes): Q12009 to Q12022 (Statistics New Zealand, 2022a)

[3] See Storm and Naastepad (2012) and Mitchell and Muysken (2008) for a detailed discussion on the fallacies of the NAIRU and the notion of maximum sustainable employment.

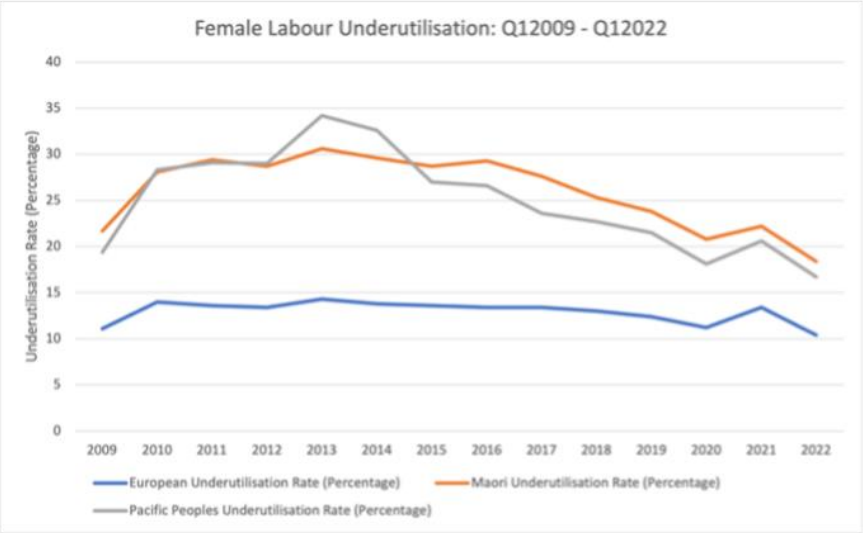

Figure 2: Female Labour Underutilisation: Q12009 to Q12022 (Statistics New Zealand, 2022a)

An important yet distressing byproduct of New Zealand's persistent unemployment and underutilisation is New Zealand's mental health crisis. While the mental health crisis can be attributed to a variety of factors, employment is an important determinant of public health and thus an individual's mental and physical health. Employment is described by the National Health Committee (1998) as 'enhancing social status and improves self-esteem, provides social contact and a way of participating in community life and enhances opportunities for regular activity, which all help to enhance individual health and well-being' (1998, p. 8). Conversely, unemployment is 'detrimental to both physical and mental health and unemployed people in New Zealand report poorer health status than people who are employed' (1998, p. 8). New Zealand's persistently high unemployment, and particularly underutilisation, present lost income opportunites for New Zealand's populace. This leads logically to a degree of mental distress by wage earners who do not earn enough to support themselves and their families.

These dynamics, coupled with high unemployment and underutilisation within Māori and Pacific communities can also serve to partially explain the higher prevalence of mental health morbidity within these communities. The mental health crisis is especially prevalent within Māori and Pacific Island youth. Menzies, et al. (2020) detail that a determinant of adverse mental health is 'bleak futures and climate change' (2020, p. 4), to which persistent difficulty in attaining employment can be attributed. Moreover, intergenerational trauma is also determined to be a factor in these adverse mental health outcomes which is in part influenced by both material hardship and persistent unemployment and underutilisation. Importantly, notable inequities are evident between Māori and Pacific youth and their Pakeha counterparts where 'rangatahi Māori have higher reported rates for symptoms of depression than their Pākehā counterparts' (2020, p. 3). These inequities between ethnic groups are reflected in NEET data. The NEET rate for Māori and Pacific Peoples between Q12009 and Q12022 has averaged 20.9% and 17.9%, respectively (Statistics New Zealand, 2022c). As such, adverse mental health outcomes can at least be partially attributed to the prevalence of youth unemployment adherent to the health and socioeconomic benefits of employment described earlier.

1.4: New Zealand's Productivity Paradox: Employment Relations and Trade Policy

New Zealand's stagnant productivity growth during the post-1984 era has been the topic of much attention. The New Zealand Productivity Commission (2021) describes that New Zealand's productivity growth has lagged behind its OECD peers. This is despite efforts to bolster growth in productivity which has resulted in a 'productivity paradox', where policies designed to bolster productivity have largely failed. The productivity paradox has occurred despite the belief that 'an open economy, reduction of competition barriers and in particular, decentralised bargaining and employer driven flexibility would deliver higher productivity growth' (Rasmussen & Fletcher, 2018, p. 81). As a result, many observers in both academia and policy have been perplexed by lack of productivity gains during this era.

Figure 3: New Zealand Capital and Labour Productivity: 1996-2021 (Statistics New Zealand, 2022d)

New Zealand's adherence to free-market discipline has enabled an environment where the interests of profit have prevailed over the desire to invest with the objective of increasing productivity. Rasmussen and Fletcher (2018) detail this occurrence in the context of New Zealand's employment reforms and their impact on the lack of productivity gains experienced in New Zealand. Employment relations reforms, namely the Employment Contracts Act of 1994 and the subsequent Employment Relations Act of 2000, are implied to have incentivised employers to employ low-wage migrant workers. The New Zealand Productivity Commission noted that there was evidence that a large majority of migration during the pre-2016 era was comprised of low skilled workers. Notably, the Commission detailed that 'within industries, migrants tend to be relatively poorly paid and migrant employment has increased strongly in some lower-productivity industries such as hospitality and tourism, retail trade, support services, and primary' (Conway, 2016, p. 66). As such, 'during [the period after the early 1990s] high unemployment, then rising labour force participation followed by high net inward migration contributed downward pressure on wage growth, lessening incentives on employers to invest in productivity enhancements' (Rasmussen & Fletcher, p. 86).

It is important at this juncture to briefly analyse New Zealand's trade policy during the post-1984 era and the implications for productivity growth. New Zealand's trade policy, as with

many other economies within the global economy, is predicated upon the theory of comparative advantage. This has resulted in New Zealand's relative lack of diversity within its industrial base which has resulted in a lack of high complexity goods production. New Zealand's lagging productivity growth can therefore be inferred to be symptomatic of New Zealand's trade policy which is strictly adherent to the principles of comparative advantage. While comparative advantage continues to be a prominent component of international economics, numerous studies of the theory have proven its ineffectiveness at explaining real world dynamics and producing significant economic benefits (Leontief, 1953; Rodriguez & Rodrik, 1999; Keen, 2017).

This perspective is adherent to the Economic Complexity Index (ECI) produced by Harvard University's Atlas of Economic Complexity. Namely, the ECI is comprised of combining the measures of ubiquity and diversity of a country's industry. Diversity refers to how diversified a specific country's industry is, while ubiquity refers to the number of countries that make a specific product. The Atlas of Economic Complexity defines the ECI as '[a] rank of countries based on how diversified and complex their export basket is. Countries that are home to a great diversity of productive know-how, particularly complex specialized know-how, are able to produce a great diversity of sophisticated products' (Atlas of Economic Complexity, 2022). The ECI directly contradicts the notion of comparative advantage. While comparative advantage posits that a country should specialise its productive base thus implying both low diversity and ubiquity, the logic of the ECI posits that countries should diversify their industrial base in order to achieve economic benefits, implying low ubiquity and high diversity. As such, it is no surprise that countries such as Japan, Switzerland and Germany which currently comprise the top three countries on the ECI rankings are not only producers of high-complexity goods, but also demonstrate some of the most diversified and productive economies in the world.

This insight is implied by the New Zealand Productivity Commission. The Commission notes that 'New Zealand's economic complexity ranking has fallen over recent years. It has fallen more than other SAEs (while larger developing countries such as China, India and even Vietnam have overtaken New Zealand)' (New Zealand Productivity Commission, 2021, p. 30). Currently, New Zealand places 49th in the ECI rankings. New Zealand's industrial base, and thus its core export base, is comprised largely of agriculture and tourism. Despite the implication, the New Zealand Productivity Commission does not mention the potential for gains from diversification and thus the positive benefits for productivity and living standards. Further, diminishing Government investment in research and development has hitherto impeded the prospect of developing high-complexity export products. Thus, reliance on low-wage industries has continued to entrap the New Zealand economy in a low-wage/low-productivity spiral.

1.5: Summary

This brief overview has encompassed four preeminent factors of New Zealand's post-1984 macroeconomic history. These factors have included how fiscal and monetary policy have evolved during this era, the persistence of labour unemployment and underutilisation and the link to the mental health crisis, and New Zealand's stagnant productivity growth and the

implications of trade policy on this. This overview has conveyed that the extensive economic reforms undertaken in New Zealand have resulted in economic outcomes that have not served to significantly enhance New Zealand's economic and social prosperity. This is despite belief that these reforms would have enhanced New Zealand's economic efficiencies thereby resulting in enhanced economic prosperity. While one cause cannot be attributed to the economic ills detailed here, it can be inferred that the underlying theory which has guided policy creation and analysis has been a significant causal factor in New Zealand's largely disappointing economic performance of the post-1984 era. In essence, the dominance of monetary policy relative to the retrenchment of fiscal policy adherent to 'fiscal responsibility' has resulted in an inability to sustain adequate support for the non-governmental sector in producing sufficient employment utilisation as well as opportunities for productivity growth. As such, the theoretical assumptions of the mainstream synthesis must be called into question. This is especially pertinent given the purported 'inflection point' that the COVID-19 Crisis has presented (Greenaway-McGrevy, et al., 2020).

2

A New Framework for Macroeconomic Analysis and Policy

Despite the dominance of the mainstream paradigm within both the academy and policy circles, alternative theories of macroeconomics exist. These theories, while often maligned by the dominant paradigm, offer useful insight into the function of the macroeconomy. This section presents the 'tripartite foundation of heterodox macroeconomics'. The three pillars of this framework include a new perspective of fiscal policy in the fiat currency era, inclusivity of the role of private credit in determining macroeconomic dynamics, and the utilisation of complex systems analysis to model macroeconomic dynamics.

2.1.1: A New Perspective of Fiscal Policy in the Fiat Currency Era

The first pillar of the tripartite foundation of heterodox macroeconomics is a new perspective on the scope of fiscal policy during the post-1973 fiat currency era. In New Zealand, this lens is applicable to the period after May 1985 when the New Zealand Dollar was floated freely on international foreign exchange markets. This new perspective accounts for the dramatic paradigm shift evident from the fixed exchange rate regime present under the Bretton Woods system, where the preeminent concern of government was attaining full employment and defending the exchange rate, to the fiat currency era. Moreover, this perspective reasserts the primacy of fiscal policy over monetary policy as a determinant of macroeconomic dynamics.[4]

The key to understanding the complexities of state finance in the fiat currency era is to have a sound theory which accounts for the paradigm shift from fixed exchange rates to floating exchange rates. Here, the often maligned Modern Monetary Theory (MMT) presents itself as

[4] The apparent success of monetary policy internationally during the past 40 years can be attributed to a convergence of factors inimitable in economic history. See Annex B for further, albeit brief, discussion on this.

a sound candidate for examining the post-Bretton Woods fiat currency era. MMT constitutes an analytical lens which can be utilised to analyse the policy actions of governments which demonstrate 'currency sovereignty'. MMT postulates that in the absence of a fixed exchange rate regime and where states float their currencies freely on international foreign exchange markets, governments face no intrinsic financial constraints. Instead, governments which meet these requirements face real resource constraints in the currency they issue. Moreover, a government can still 'crowd out' investment through overutilisation of resources in an economy. States that meet these criteria are referred to as 'currency issuers'. Figure 4 depicts the constraints on currency issuers compared with currency users. Therefore, conventional theories and conceptions of the government 'running out of money' and questions regarding the sustainability of government finances can be interpreted as being largely false and misleading when using the MMT lens. Of course, explaining these phenomena requires a high degree of nuance and full consideration of the economic context of a respective government's fiscal position.

Constraints on Government	Is the Economy Fully Employed?	
	Yes	No
Currency Issuer	Real	None
Currency User	Real/Financial	Financial

Figure 4: Constraints on Currency Issuers and Currency Users

For the purposes of providing context for use of the MMT lens, it is imperative to explain the sequence of government expenditure. Understanding the correct sequence of government expenditure in a fiat currency system establishes the validity of the forthcoming assessment. It should be noted that institutional arrangements differ between states, but the spending process is largely similar. As has been implied, government spending occurs first in the causal chain where the government spends the money required to perform its day-to-day operations. This is undertaken through the treasury and central bank, where the treasury's account at the central bank is credited the requisite funds. The treasury then spends this money by issuing payments through the commercial banking sector. It is only at this stage where taxation and bond issuance enters the scene. Taxation enters through being both a policy mechanism and requisite to ensure the demand for the state's currency it issues. Bond issuance acts as an important asset for the financial sector, measured through the provision of risk free income for the financial sector and relatedly as an important component of capital adequacy macroprudential frameworks. Moreover, government bonds act as a mechanism to determine market interest rates at varying maturities. Berkeley, et al. (2022) detail this process in the context of the United Kingdom, noting that the description suggests that 'four of the main purported constraints on government spending are not valid, namely: lack of money (liquidity risk), default risk, bond market discipline and the necessity to repay debt' (Berkeley, et al., p. 2). We can therefore apply the MMT lens to this observation in order to better understand the operations and capacities of a currency issuing government within the fiat currency system.[5]

[5] A model of this assessment is provided in Annex A.

2.1.2: Framing the Fiscal Space of the State

The MMT lens raises important distinctions on the framing of ideas and the use of language in the context of post-Bretton Woods era fiscal policy. The economic context of the fiat currency era has inherently complex nuances which are not captured by mainstream macroeconomic theory. This implies a reframing of macroeconomic concepts in order to better grasp these nuances. The most important nuances relevant to both public and academic discourse on governmental policy, include those related to government fiscal deficits and debt. Connors and Mitchell (2017) describe that '[e]conomic concepts such as the government fiscal deficit contain nuances that make unambiguous assessment of their meaning difficult. One cannot conclude, for example, that a deficit equal to 2 percent of GDP signals a more expansionary fiscal stance by government than a deficit of half the size. These complexities are lost to the public but are fundamental to an accurate understanding of the issues' (2017, p. 239).

A key component of understanding these nuances is to reframe the state as its own entity akin to a bank that can operate in a negative equity position, rather than to view it as a household adherent to the stipulations of the Government Budget Constraint (GBC). Therefore, popular phrases such as 'the government is maxing out its credit card' are not applicable to a government which issues its own currency. A more accurate reframing of the limitations of government expenditure would be to emphasise resource constraints in goods and services valued in the currency the state issues. These views are reflected by Samuelson (1995) who stated that 'I think there is an element of truth in the view that the superstition that the budget must be balanced at all times [is necessary]. Once it is debunked [that] takes away one of the bulwarks that every society must have against expenditure out of control. There must be discipline in the allocation of resources or you will have anarchistic chaos and inefficiency'. Use of the MMT lens does not advocate wanton expenditure as is often incorrectly claimed. Rather, it postulates that expenditure must be reflective of the economic context, namely the availability of real resources.

The MMT lens raises important questions regarding the political attainment of fiscal sustainability and the political structures designed to ensure this. Use of the MMT lens stipulates that government legislation and related fiscal compacts such as the Budget Responsibility Rules in New Zealand and the UK Labour Party's Fiscal Credibility Rule (FCR) which limit the scope of government expenditure are merely political creations. That is, they are established with ideological adherence to the mainstream paradigm and its stipulations on 'fiscal responsibility'. For instance, Article 1(A) subsection 2(b) of New Zealand's Public Finance Act (1989) stipulates that the Act specifies the 'principles for responsible fiscal management in the conduct of fiscal policy' (New Zealand Parliament, p. 13). The principles for responsible fiscal management are provided in Section 26(G)(a-h). Notable principles include 'reducing total debt to prudent levels; maintaining those levels by ensuring that, on average, over a reasonable period of time, total operating expenses do not exceed total operating revenues; [and]; when formulating fiscal strategy, having regard to its likely impact on present and future generations' (New Zealand Parliament, p. 57).[6] As will be discussed in Section 2.2.2, responsible fiscal management is not dictated arbitrarily by the government.

[6] The specific subsections of Section 26(G) mentioned here are Section 26(G)(a, b, and g).

Rather, fiscal responsibility is dictated by the interactions of the governmental sector with the non-governmental and external sectors, where fiscal policy maintains desired spending levels and ensures supply of resources. This often results in a fiscal deficit being the optimal fiscal position given the propensity of the non-governmental sector to save. Prima facie, this results in subsection(s) a through h being unfit for ensuring fiscal responsibility as viewed through the MMT lens.

Despite the persistence of conventional wisdom regarding bond issuance enabling greater 'fiscal space' for the government, it can be demonstrated that government bond issuance does not in fact increase the ability of the government to spend.[7] This presents new implications for conceptions of fiscal policy when viewed through this lens. To understand this claim, it is important to understand the dynamics of money and monetary transactions which create money in an economy. Every economic transaction is recorded twice. One is on the asset side, the other on the liabilities side. Since most money in a modern economy is the sum of banks liabilities/equity, any action which increases both bank liabilities and equity thereby creates money. Conversely, any action which increases only one side of the ledger represents a shift of money between accounts which does not constitute the creation of money (Keen, 2020). Government bonds are universally accepted to be an asset of the non-governmental sector. Therefore, it is conventional wisdom to assume that the sale of bonds to the non-governmental sector enables the government to 'finance the [government's] fiscal deficit'. However, the sale of government bonds to the financial sector represents an increase of the assets side of the ledger only, rather than an increase in both liabilities and equity which creates new money. Simply, the purchase of government bonds by the financial sector is an asset swap between 'dormant' reserves at the central bank with relevant financial institutions (i.e. primary dealers). Thus, no money is created through this transaction as the money has already been created by the government through its expenditure. Thus, government bond obligations are always able to be met and pose no insolvency risk to a currency issuing government.

This sentiment was ironically captured by the Sydney Futures Exchange (SFE) in their submission to the Australian Commonwealth Government Securities (CGS) Review in 2002. The SFE Submission detailed that the proposed changes to the issuance of CGSs risked '[removing] or make even scarcer the ultimate domestic 'safe haven' security during periods of extreme volatility in financial markets, producing an economy with a higher risk profile that is more vulnerable to financial panic'. That is, ceasing the issuance of government bonds during periods of fiscal surpluses would result in adverse economic outcomes. Moreover, the submission detailed that changes to CGS issuance would also 'deny superannuants an A$ denominated (default) risk free investment for their retirement planning at a time of an ageing population and in a mandatory superannuation environment' and 'deny the beleaguered insurance and annuity industries a domestic risk free asset of long dated maturity to match the long dated nature of their natural liability profiles' (Sydney Futures Exchange, 2002, p. 5).

An important component in the analysis of governmental economic policy is the role of taxation. As we have discussed, a government which maintains currency sovereignty is

[7] Note that this is not an application of the MMT lens. Rather, it is a description of the role government bonds play in a fiat currency system adherent to neochartalism and the insight provided by Berkeley, et al.

financially unconstrained in its ability to spend but faces strict resource constraints. The money it spends is simply credited to the accounts of relevant departments or institutions. Further, as shown, government bond issuance represents an asset swap and not an increase in the ability of a government to spend. However, where does the role of taxation fit into this? A currency issuing government does not need to tax in order to spend. As stipulated by neochartalism, a government must spend *first* in order for taxes to be collected as the tax obligation forms the basis of the relationship between the government and non-governmental sectors (Bell, 2001). Through the MMT lens, taxation represents an important policy lever through which the government can influence spending propensities in the non-governmental sector (Mitchell, et al., 2019, p. 323). Ruml (1946), when commenting on the currency issuer status of the United States during World War II, notes that the introduction of central banks which issue the state's currency and gold inconvertibility resulted in economic conditions which render taxes for revenue as obsolete.

2.1.3: Government Expenditure and the Spending Behaviour of the Non-Governmental Sector

An important component of conventional macroeconomic theory involves the interface between public bond issuance, taxes, and the spending propensities of the non-governmental sector. The preeminent theoretical contribution to this is Barro (1974) in what was later dubbed 'Ricardian Equivalence'. Barro's work was produced amidst the nascency of the neoliberal counter-revolution alongside Lucas (1972; 1976), Black and Scholes (1972), and others. Ricardian Equivalence postulates that 'rational economic agents' will forgo spending in the future if the government's 'debt' is presently high in the belief that taxes will inevitably rise in the future to pay back the debt. Thus, the more prolonged the fiscal deficit is and the more bonds that are issued to 'finance the deficit', the higher taxes will need to be in future in order to finance repayments on the interest and principal of the government's debt. Relatedly, it is also claimed that the more government 'debt' there is, the less credit there is available in the banking system for private investment. This is owing to the 'loanable funds' based belief that the issuance of bonds 'crowds out' private investment owing to the limited pool of 'credit' available within the banking sector.

This begs the question, how does government expenditure impact on the non-governmental sector? The answer lies in the sectoral balances. Adherent to accounting logic, the sectoral balances dictate that for every sectors' surplus (deficit), the opposing sector must have a deficit (surplus) of an equal magnitude. The sectoral balances equation is given as:

$$1: (S - I) = (G - T) + CAB$$

Where S denotes saving, I denotes investment, G denotes government expenditure, T denotes taxation, and CAB denotes the current account balance. If $G - T > 0$ and $CAB > 0$, then the non-governmental sector can accumulate assets and is able to net save overall. If $G - T < 0$ and $CAB < 0$, then the non-governmental sector has to dissave in order to accumulate assets which undermines their financial position. Expression 1 can be rewritten as:

$$2: [(S - I) - CAB] = (G - T)$$

Where the expression on the left hand side of the equation denotes the financial balance of the non-governmental sector relative to the government sector on the right side of the equation.

In a bi-sectoral (government and non-governmental sector) sense, the government surplus will be offset by a non-government deficit in order to fill the spending gap created through the lack of expenditure represented through the surplus, and vice versa. National Accounts data for New Zealand between 1987 and 2021 indicate the basic insights of the sectoral balances logic. Figure 5 gives a visual representation of this data. A regression analysis returns a correlation coefficient of -0.79, indicating a strong inverse relationship between these two variables.

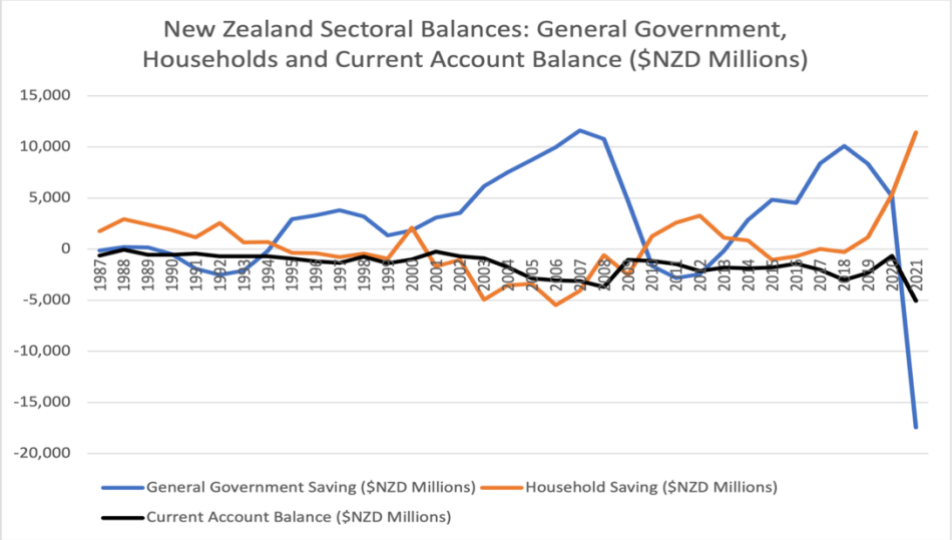

Figure 5: New Zealand Sectoral Balances: 1987-2021 (Reserve Bank of New Zealand, 2022)

2.1.4: New Zealand and Modern Monetary Theory

The MMT lens has invoked an often-hostile response from New Zealand's financial press, academia and politicians (Chaudhuri, 2020; Bishop, 2020). This response, however, is largely unwarranted as these 'critiques' frame MMT as an ideology or set of policy principles, or misrepresent the lens entirely. MMT accounts for the paradigm shift from the fixed exchange rate regime of the Bretton Woods era to the free-floating fiat currency era of the post-1971 era. The core proposition of MMT is not that 'countries able to borrow in their own currency can finance as much real government spending as they want by creating money' (New Zealand Initiative, 2022). Rather, MMT is a lens which one can apply to 'currency issuing' governments in the post-Bretton Woods era, or after 1985 in New Zealand's case. Its core proposition is that a government which issues its own currency and floats it freely on foreign exchange markets face no intrinsic financial constraints, but still faces strict resource constraints in the currency they issue. Moreover, accurate use of the MMT lens is inherently apolitical. People from the right or left of the political spectrum can utilize the MMT lens to inform their analysis on the operations of government.

In New Zealand's case, the government is constrained by the availability of real resources available in New Zealand Dollars. Thus, the New Zealand Government cannot 'finance as much government spending as it would want' given the impact that this would have on aggregate supply and thus price dynamics within the New Zealand economy. For instance,

shortages of building materials are a constraint on the provision of affordable housing by the Government. Moreover, emigration of highly skilled nurses, doctors and other health staff are resource constraints on the provision of public healthcare services. These constraints are much different than politically constructed financial constraints adherent to 'fiscal responsibility' and the stipulations of the GBC. Use of the MMT lens accentuates the 'balancing act' between provision of government services, public goods, and the spending propensities of the non-governmental sector. The weighting of each respective variable will be different dependent on the ideological leanings of the user of the MMT lens. For example, a member of the ACT Party could acknowledge the lack of financial constraint on a currency issuing government, but still desire a fiscal surplus given the ideological disposition towards the primacy of the private sector in determining macroeconomic dynamics. However, given the sectoral balances, this would result in enhanced financial instability and precarious household balance sheets.

2.2.1: Inclusivity of the Role of Private Credit in Determining Macroeconomic Dynamics

The second pillar of the 'tripartite foundation of macroeconomics' is the inclusivity of the role total credit to the non-financial sector plays in influencing macroeconomic dynamics. Debt (credit) is an important component in the determination of aggregate demand within an economy. In order to understand this, it is integral to properly understand the process of credit creation. In an advanced financialised economy, the credit creation process occurs when consumers (non-banks) interact with financial institutions. Thus, money is created by banks simply through an accounting entry in the non-bank's account (McLeay, et al., 2014; Bundesbank, 2017). This is performed through the process of double-entry bookkeeping, where the bank marks up the account of the debtor while simultaneously marking up its own side of the ledger. This theory is known as 'endogenous money', where the credit creation process is an internally determined, or inter-agent, outcome. Moore (1988) illustrates that 'banks, after all, are essentially in the business of selling credit. Agreed? Bank assets and liabilities both expand whenever there is an increase in the total quantity of bank earning assets. Agreed? Bank assets are predominantly bank loans. Agreed? As a result it is no surprise that changes in monetary aggregates are closely explained empirically by (or at least closely associated empirically with) changes in total bank loans' (1988, p. 373). Figure 6 below illustrates this process. In the Figure, Agent I receives a $10 loan from the bank and spends it on Agent III. Agent I pays 10% interest on the loan to the bank which is then used by the bank to maintain the deposits of Agents II and III at the bank.[8] Through this lens, banks do not act as intermediaries adherent to the mainstream macroeconomic paradigm. Rather, banks act as credit generators where the creation of new credit (debt) is limited both by demand for credit (debt) and regulatory stipulations.

[8] The '-$200' illustrates Agents I, II and III spending $100 on each other Agent in their respective rows.

Expenditure & Income	Agent I	Agent II	Agent III	Bank
Agent I	-(200)+10-1)	100	100+10	+1
Agent II	100	-200	100	
Agent III	100	100	-200	
Bank		+0.5	+0.5	-1

Figure 6: Logic of Endogenous Money Theory

Unlike public 'debt' where the currency issuer is unconstrained in its ability to meet payment obligations, private debt is constrained by the financial ability of the debtor and their ability to meet payments to their respective creditors. Here it is important to establish the differentiation between debt and credit. Debt is defined as the stock of outstanding money owed to financial institutions. Credit is defined as the flow of debt, the annual change in the stock of debt. This is a simple distinction to make, but it is equally simple to get it wrong. Importantly, incorrect differentiation between debt and credit can lead to woefully inaccurate assessments of credit and debt dynamics and thus subsequent macroeconomic outcomes. Ohanian (2010) is an example of such a mistake. From Figure 7 given below, Ohanian infers that 'bank credit relative to nominal GDP rose at the end of 2008 to an all-time high. And while this declined by the first quarter of 2010, bank credit was still at a higher level at this point than any time before 2008' (2010, p. 59). Firstly, while being correct in his inference of the line on the graph, what Ohanian's graph is actually showing is *debt* to GDP. Following from this, as debt is the stock, the decline Ohanian refers to signals a massive deleveraging by the non-financial sector. Ironically, it is this very decline that can be attributed to 'why economic weakness continued for so long after worst of the financial crisis passed' (2010, p. 59). A final point regarding Ohanian's misinterpretation of credit/debt is on the vertical axis of the graph itself. We note that the y-axis depicts the 'ratio of bank credit to GDP'. However, given that credit is the flow of debt, this would indicate that credit was increasing above 1.2x GDP per year.

Figure 4
Ratio of Bank Credit to GDP, 1978-Q1 to 2010-Q1

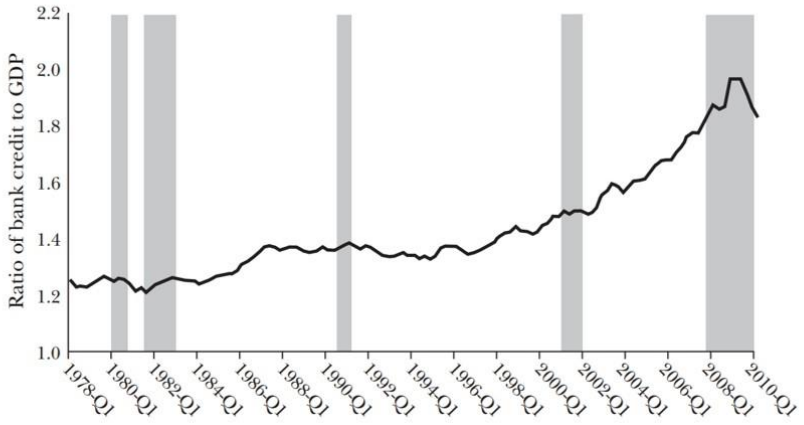

Figure 7: Ratio of Bank Credit to GDP, 1978-Q1 to 2010-Q1 (Ohanian, 2010)

As stated, credit is demand driven and not determined by the *supply* of deposits within the banking system adherent to the loanable funds model. This is an integral aspect of macroeconomics that is misunderstood by conventional economic theories. Instead, conventional theories adhere to the logic of loanable funds or the interrelated money multiplier model. In this conception, credit is extended from money already deposited in financial institutions. With this logic therefore, credit is represented as a mere transfer between savers and borrowers with banks acting as intermediaries. Bernanke (2000) refers to credit as 'no more than a redistribution from one group (debtors) to another (creditors). Absent implausibly large differences in marginal spending propensities among the groups, it was suggested, pure redistributions should have no significant macroeconomic effects' (Bernanke, p. 24).

2.2.2: Private Debt, Economic Dynamics and Government Policy

Private debt is an integral component of macroeconomic dynamics and thus guides the role of government economic policy. This is adherent to Minsky's (1992) 'financial instability hypothesis' (FIH). The FIH is an integral component of post-Keynesian theories of economic crisis and is a useful lens through which to view macroeconomic dynamics. The FIH posits three distinct relations between creditors and debtors which evolve over time. The transition between these three stages of relationship implies the movement towards financial and thus economic instability. As such, Minsky developed the FIH as an intellectual response to the Great Depression with respect to its causes and aftermath. Moreover, it draws inspiration from Fisher's (1933) Debt Deflation Theory of Great Depressions and Keynes' analysis of the financial system in the *General Theory*. These relationships envisaged by Minsky are dubbed hedge, speculative, and Ponzi, respectively. Hedge relationships refer to those 'which can fulfil all of their contractual payment obligations by their cash flows' (Minsky, 1992, p. 7). Speculative relationships are those that 'can meet their payment commitments on "income account" on their liabilities, even as they cannot repay the principle out of income cash flows' (1992, p. 7). Finally, Ponzi relationships are those where 'the cash flows from operations are not sufficient to fulfil either the repayment of principal or the interest due on outstanding debts by their cash flows from operations' (1992, p. 7). The 'Ponzi' relationship ultimately results in a financial and economic crisis followed by a period of deleveraging before returning to 'hedge' conditions.

The FIH explicitly stipulates the cyclical nature of a capitalist economy. This represents an important dilemma for the role of governmental economic policy. For an economy to grow, money needs to be spent. However, a surplus within the governmental sector necessarily means that either the non-governmental or external sectors must be in deficit.[9] For the government to run this, then the non-governmental sector must be in deficit (debt) to a greater degree than the government sectors' surplus to ensure expenditure and thus economic growth. Given the insights of the FIH however, forcing the non-governmental sector into deficit is tantamount to

[9] The other condition is that the external sector is running a surplus. This would enable income for the non-governmental sector. However, having all states running trade surpluses is an unattainable goal within the international economic system given the logic that for every surplus, there must be a deficit of equal size somewhere else.

ensuring an economic and financial crisis at some point in the future. The optimal fiscal position in many circumstances is therefore a deficit.

2.2.3: The Role of Credit as a Significant Determinant of House Prices in New Zealand

House prices in New Zealand have been a source of consternation for both policy makers and the general public. For policy makers, namely those at the RBNZ and the Treasury, house price dynamics are an integral component in the determination of financial stability and economic activity. For the general public, a house is a significant 'first rung on the wealth ladder' (Symes, 2021). Thus, ever increasing house prices are making this first rung increasingly harder to reach with notable implications for intergenerational equity and wealth inequality. House price dynamics in New Zealand have been subject to numerous forecasting errors. Conventional analysis focuses on the supply of housing in New Zealand. While it is indeed true that New Zealand faces supply constraints in its housing supply, demand is also an important component in house price dynamics. While house prices in general are determined by a multitude of factors, a key determinant is that of credit to the non-financial sector. Notably, this is largely ignored when analysing house price dynamics in New Zealand. Given that we have established credit as an endogenously determined variable, demand for credit (debt) results in an elevated propensity to invest. In this case, continued growth in credit (debt) aggregates enables continued investment in housing. This enables continued growth in house prices given an increased propensity to consume.

This insight is captured in New Zealand house price and total credit to the non-financial sector data between Q41989 and Q32021. Figure 1 depicts the New Zealand House Price Index (HPI) and Credit to the Non-Financial Sector for this time period. The data indicate that as credit to the non-financial sector has grown, so too has the HPI. This is particularly evident during periods of elevated credit growth between 2001 – 2007 and 2019 through to the present day. This is corroborated through a statistically significant correlation coefficient of 0.97 between the HPI and credit to the non-financial sector. While correlation is not causation, the theoretical stipulations of endogenous money and thus the role of credit give added weight to the analysis presented.

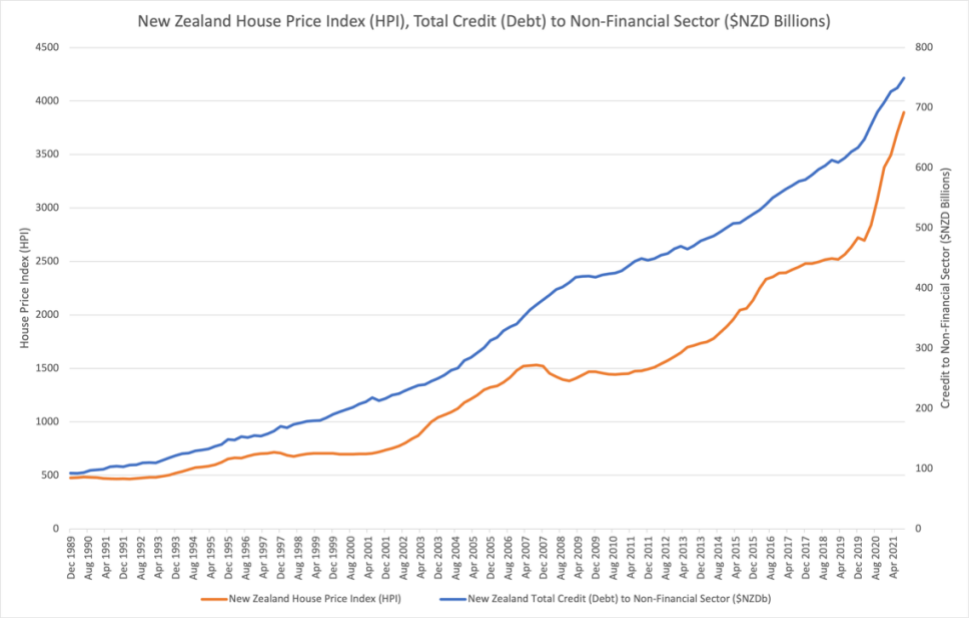

Figure 8: New Zealand House Price Index and Total Credit (Debt) to Non-Financial Sector Q41989 - Q12021 (Reserve Bank of New Zealand, 2022b; Bank for International Settlements, 2022)

While simplistic in nature, the insight that credit and therefore demand is an important determinant of house prices gives powerful insight into house price dynamics. Moreover, it may give insight into why the 'professional estimates' of economic policymakers are inaccurate. By way of example, estimates of house price dynamics performed by the RBNZ in the New Zealand Structural Inflation Model (NZSIM) are 'determined by a 'Phillips-curve' type relationship in which past prices and expectations of future price increases drive current house price inflation' (Austin & Reid, 2017, p. 9). Inherent non-linearities in house price dynamics are missed by conventional macroeconomic models such as NZSIM and the Treasury's Matai modelling framework.

2.3.1: The Utilisation of Complex Systems Analysis

The third pillar in the 'tripartite foundation of heterodox economics' is the use of complex systems analysis in modelling macroeconomic dynamics. Complex systems modelling contains two preeminent stipulations which differentiate it markedly from existing macroeconomic modelling techniques. The first is its accounting for the interactions of subsystems within the model. The interaction of different subsystems within the system creates entirely new systemic dynamics. These dynamics can be dubbed 'emergent properties'. This is noted by Anderson (1972), who describes that '[t]he behaviour of large and complex aggregates of elementary particles, it turns out, is not to be understood in terms of a simple extrapolation of the properties of a few particles. Instead, at each level of complexity entirely new properties appear' (1972, p. 393). The second stipulation is that complex systems are inherently non-equilibrating.[10] The tendency of a system to disequilibrium is demonstrated through the Pomeau – Manneville

[10] Note here that Fisher (1933) stated that 'it is as absurd to assume that, for any long period of time, the variables in the economic organisation […] will stay put for in perfect equilibrium, as to assume that the Atlantic Ocean can ever be without a wave' (1933, p. 339).

Route to Chaos. Pomeau and Manneville (1980) posit that '[b]elow a critical value *r* […] measurements show well behaved and regular periodic oscillations. As *r* becomes slightly larger than r^t the fluctuations remain apparently periodic during long time intervals (which we shall call "laminar phases")' (1980, p. 189). In other words, the system appears to tend towards an equilibrium state. However, this apparent tendency toward equilibrium is 'randomly and abruptly disrupted by a "burst" on the time record. This "burst" has a finite duration, it stops and a new laminar phase starts and so on' (1980, p. 189). Thus, complex systems analysis derives its analysis from the systemic level, as opposed to aggregating analysis from the micro level.

This is opposed to the workhorse Dynamic Stochastic General Equilibrium (DSGE) modelling used in the workaday world of macroeconomics. DSGE models are microfoundational, where economic activity is based upon the economic engagements between representative agents (RA) of varying sectors. This was born from the observations of Lucas, who opted for a more microfoundational basis of macroeconomic modelling. Solow (2003) notes that '[t]he preferred model has a single representative consumer optimizing over infinite time with perfect foresight or rational expectations, in an environment that realizes the resulting plans more or less flawlessly through perfectly competitive forward-looking markets for goods and labor, and perfectly flexible prices and wages' (2003, p. 1). In this sense, RA DSGE models mirror what Anderson refers to as the 'constructionist hypothesis'. On this, Anderson reflects that '[t]he ability to reduce everything to simple fundamental laws does not imply the ability to start from those laws and reconstruct the universe. In fact, the more [we are told] about the nature of the fundamental laws, the less relevance they seem to have to the very real problems of the rest of science, much less to those of society' (Anderson, p. 393). In a sense, these criticisms of the constructionist hypothesis and the implicit criticisms of RA DSGE modelling are corroborated by Carroll (2017). Carroll notes that RA DSGE modelling resembles Ptolemaic astronomy. That is, RA DSGE modelling is predicated on cyclic observations akin to how Ptolemy postulated that the Sun, Moon and stars orbit the Earth. As such, when new dynamics are observed, more epicycles are added to the model to enhance its explanatory capabilities.

2.3.2: Complex Systems Analysis in Demonstrating Empirical Observations

The utilisation of complex systems modelling is thus akin to astrophysics relative to the Ptolemaic astronomy of RA DSGE models. In the context of macroeconomic modelling, accounting for interactions of different subsystems such as the government, banking and household sectors produces results which reflect those observed empirically. Moreover, utilisation of complex systems modelling can more accurately reflect the impact of monetary dynamics on economic activity. Presently, DSGE models do not include money in their analytical frameworks, thereby eschewing an important determinant of economic activity. Examples of these results include capturing the cyclic nature of capitalist economies and the emergence of economic crises (Keen, 1995; Keen, 2020). The interaction of these subsystems produces what are dubbed 'emergent properties', where new systemic dynamics appear which change the dynamics of the model entirely. In a macroeconomic context, emergent properties include the emergence of asset bubbles and the onset of financial crises. In this sense, complex

systems modelling can produce insights into macroeconomics which standard macroeconomic models are incapable of producing. Keen (1995) utilises complex systems modelling to model the impact of debt fuelled euphoria. Keen's modelling reproduces the essential insights of Minsky's Financial Instability Hypothesis covered in Section 2.2.2. Simply, an advanced financiailised capitalist economy will demonstrate 'an endemic tendency toward euphoric expectations [which] will generate both cycles and a secular trend of rising debt, leading ultimately to a debt-induced crash' (Keen, p. 614).

Keen (2020) expands upon the insights of Keen (1995), modelling macroeconomic dynamics based upon strictly true macroeconomic definitions. These definitions are that '[t]he employment rate will rise if economic growth exceeds the sum of change in the output to labour ratio and population growth, […] the wages share of output will rise if the total wages grow faster than GDP, and the private debt to GDP ratio will rise if private debt growth exceeds the rate of economic growth' (2020, p. 345). The interaction of these dynamics and thus economic growth is determined by the level of investment. Investment is an endogenous variable, determined by the demand for credit as implied by endogenous money theory. A lower propensity to invest results in convergence to a 'good' equilibrium, where the system stabilises over a number of cycles. With a higher propensity to invest, the system converges to a 'bad' equilibrium where the system tends toward a stable equilibrium before entering a systemic breakdown.[11] From these definitions and systemic postulates, Keen derives a macroeconomic model which demonstrates the qualitative characteristics of the post-1973 international economic system. That is, an initially unstable system demonstrates an initial systemic tendency toward stability before succumbing to a debt fuelled economic and financial breakdown. This systemic behaviour is reminiscent of the Pomeau-Manneville Route to Chaos, where the system tends to stability (a laminar phase) before transitioning to turbulence.

[11] For a full overview of the models presented by Keen, which includes model parameters and graphical representations, see pages 344-347 in Keen (2020).

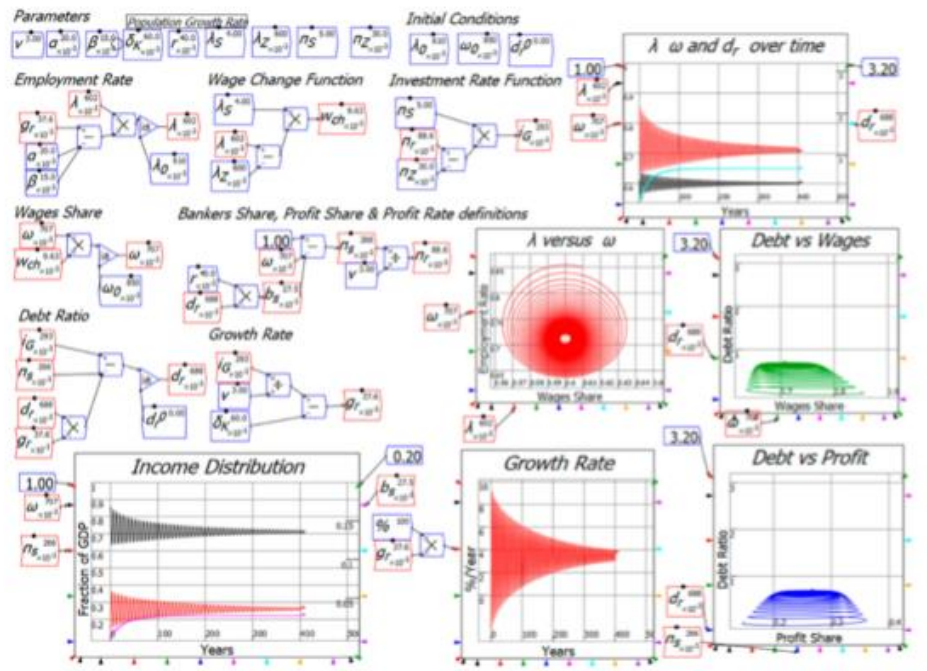

Figure 9: Macroeconomic Complex Systems Model: Investment = 5, convergence to 'good' equilibrium (Keen, 2020)

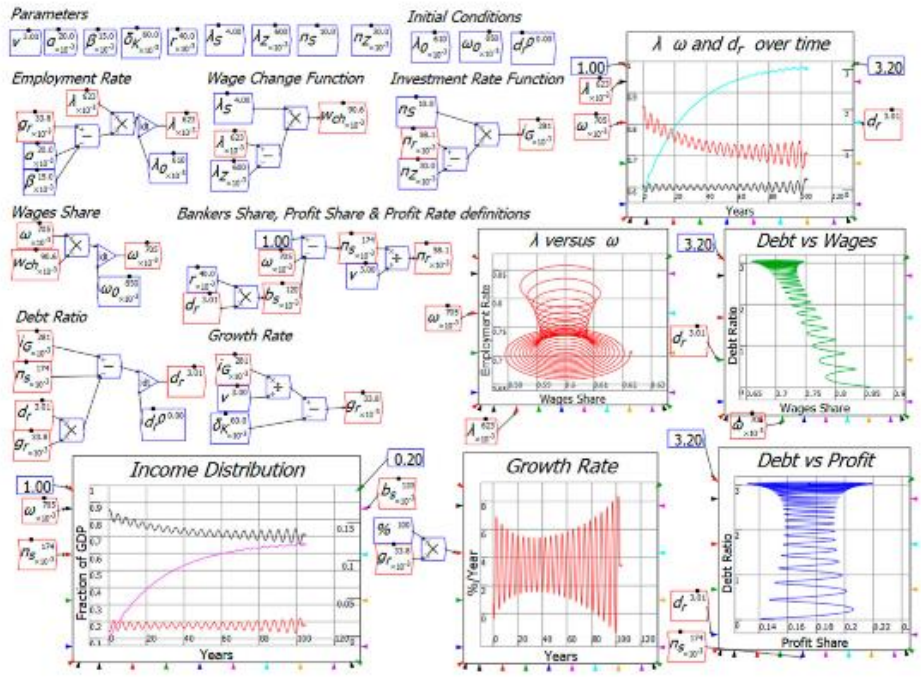

Figure 10: Macroeconomic Complex Systems Model: Investment = 10, instability and 'bad' equilibrium (Keen, 2020)

2.4.1: Summary

This second section has elucidated a new framework which can be utilised to analyse macroeconomic dynamics and policy. This was presented through three seperate distinctions from the conventional mainstream synthesis, referred to as the 'tripartite foundations of heterodox macroeconomics'. These distinctions included a new perspective of fiscal policy for countries which exhibit 'currency issuer' status, inclusivity of the role of private credit in

determining macroeconomic dynamics, and the use of complex systems analysis to analyse macroeconomic dynamics. When utilised in tandem, these three aspects can serve to provide greater insight into macroeconomics than what is presently offered by use of the mainstream synthesis which presently guides policy making and analysis. Moreover, in demonstrating that these heterodox approaches are applicable to an empirical context, the insights presented here affirm the viability of heterodox economics as an alternative to the existing mainstream synthesis.

Conclusion

This paper has presented both a precis of New Zealand's macroeconomic history of the post-1984 era and a new framework of macroeconomics consisting of three counterpoints to the conventional macroeconomic paradigm.

This paper began with an analysis of New Zealand's macroeconomic history during the post-1984 era. The post-1984 era saw the imposition of the neoliberal ideology on New Zealand's government institutions and society which represented a marked paradigm shift in New Zealand's economic and social history. The analysis of New Zealand's macroeconomic history began by detailing the monetary and fiscal policy shifts which have dominated economic policy making during the post-1984 era. Analysis of monetary policy in New Zealand made extensive use of Whitwell's critical assessment of the RBNZ's initial intellectual failure in its imposition of the monetarist ideology. The 'Rogernomics-Monetarist Experiment' gave way to the imposition of the ad hoc interest rate policy employed today, which forms the basis of macroeconomic management in New Zealand. The analysis of fiscal policy in New Zealand during the post-1984 era began with analysis of the imposition of 'market thinking' to the welfare system in the aftermath of the 'Mother of All Budgets' in 1991. As such, New Zealanders would be incentivised, by changes in the welfare system and tax rates, to leave the welfare system and search for work. Secondly, the strict adherence to fiscal responsibility was analysed. This analysis conveyed that the adherence to fiscal responsibility has been enshrined in law by the Public Finance Act of 1989 and the Fiscal Responsibility Act of 1994. This perception of fiscal responsibility was juxtaposed with persistent underfunding of vital public goods and services and use of accounting practices employed by the Government to attain an operating surplus, resulting in operational difficulties for some SOEs.

Focus then shifted to the persistent labour unemployment and underutilization evident in New Zealand after 1984. This was attributed to the adoption of the 'full employability' framework favoured by the OECD which served to eliminate labour market 'rigidities' in order to incentivize participation in the labour market and adherence to the NAIRU which enforced a level of structural unemployment with the goal of taming inflation. Secondly, persistent unemployment and underutilization within New Zealand was examined. This examination demonstrated that Maori and Pacific Peoples have experienced persistently higher levels of unemployment and underutilization. Moreover, when disaggregating between males and females, female Maori and Pacific Peoples were demonstrated to have experienced persistent

underutilisation with roughly one fifth of female Māori and Pacific Peoples being underutilised in the labour market. These insights were applied to New Zealand's mental health crisis.

New Zealand's productivity paradox was then briefly elucidated. Analysis presented here focussed on the impact of employment relations and New Zealand's trade policy on stagnant productivity. Changes in New Zealand's employment relations legislation were demonstrated to have contributed to the productivity paradox by enabling the primacy of profit over investment in productivity enhancing measures. This was exemplified through the incentivization of industries to hire low-wage migrants which has dampened wage growth, lessening incentives to invest in productivity enhancements. New Zealand's trade policy, adherent to the principles of comparative advantage, was also illustrated to have contributed to the productivity paradox. This analysis was adherent to the ECI, which refutes the principles of comparative advantage. Namely, adherence to comparative advantage was demonstrated to have perpetuated the low-wage dynamic through inability to enable a diversified export base. This lack of diversification has stifled New Zealand's ability to expand productivity enhancing, high complexity products.

The 'tripartite foundation of heterodox economics' presented a new framework through which to view New Zealand's macroeconomic history. Summed in one sentence each with the intention of forming a usable heuristic for readers, the new perspective of fiscal policy in the post-Bretton Woods/1985 fiat currency era stipulates that governments which are 'currency issuers' face strict resource constraints but no intrinsic financial constraints; inclusivity of credit in macroeconomic analysis enables greater insight into the determinants of macroeconomic dynamics, and; complex systems analysis enables a greater appreciation of how subsystems interact and create entirely new systemic dynamics.

Much more could be said about New Zealand's post-1984 macroeconomic history and the 'tripartite foundations'. Omitted topics include income inequality, material hardship, the prevalence of child poverty, climate change, and the plight of the health system. Despite these omissions, this paper has provided both basic insight into aspects of New Zealand's post-1984 macroeconomic history and a new framework through which to analyse macroeconomic dynamics and policy. The provision of an alternative lens to view macroeconomic dynamics affirms the applicability of heterodox economic perspectives to New Zealand's macroeconomic context. Pointedly, it does not claim to be able to 'fix' New Zealand's issues detailed here. However, an alternative macroeconomic framework, such as the one provided here, enables a greater depth of analysis when analysing policy issues and economici dynamics.

Annex A: Modelling the Operational Structure of a Currency Issuing Government

A critique of Modern Monetary Theory (MMT) levelled by Palley (2014) is that no model exists which demonstrates its operation. Simply, MMT is a lens which by definition means one cannot produce insights into its operation. The lens is applied to the operations of a currency

issuing government. Moreover, critiques of MMT raise the Government Budget Constraint (GBC) and risk of exacerbating inflationary pressures adherent to the quantity theory of money and loanable funds in an attempt to belittle its analytical insight (Mankiw, 2019). The GBC can be illustrated to be erroneous for a currency issuer as the government is not reliant on tax and/or revenue to finance its spending. In fact, the spending occurs independently of tax and bond 'revenue'. Thus, it is the operational structure of a currency issuing government that needs to be modelled. We can account for the operational structure of a currency issuing government which can enable readers to understand how the MMT lens can be applied to a currency issuing government while combating assertions made by Palley and Mankiw. The economic model presented here, albeit simplistic, accurately depicts both the operations which enable a currency issuing government to operate and the centrality of government finance in influencing monetary dynamics.[12] Note here that this model depicts the purely financial operations of currency issuing governments.

The model consists of four-sectors.[13] These are the Treasury, Central Bank, Banking, and Public Sectors. The model presented here details the interactions between these four sectors and the implications for government (Treasury) expenditure on the other sectors. At the centre of the model is money. Money is defined as the sum of deposits within the banking sector and bank equity. Moreover, GDP is defined as velocity of money multiplied by the existing stock of money. Finally, equity in the context of the model is defined as the sectors' respective claims on other sectors. The Treasury spends on and taxes the Public Sector while spending, taxing and issuing bonds to the Banking Sector. The Treasury issues bonds to the Banking Sector equal to the deficit which earn interest. Moreover, the interest paid on these bonds also increases bank equity realised through banks' claims on the Treasury. The Central Bank finances interest on bonds issued by the Treasury. Moreover, reserves in the Banking Sector are liabilities at the Central Bank. The Banking Sector purchases bonds from the Treasury with the money created through the government's expenditure. Reserves are assets for the Banking Sector. The purchase of bonds represents an asset swap from non-interest-bearing reserves at the Central Bank to interest bearing assets issued by the Treasury. The Public Sector's assets are deposits within the Banking Sector.

The model is depicted visually below using the Minsky software. Figure 11 depicts the rise in GDP and Money over 10 periods with intitial conditions of 0. With government spending at 4 and taxation at 2, then the government is running a deficit of -2. Bonds issued to the Banking Sector are equal to deposits and the interest paid on the bonds results in bank equity which has accrued over the 10 periods.

[12] I intend to augment this model with the addition of loans from the banking sector to the public sector, adherent to the endogenous money logic.

[13] This model was created by Keen (2021). For greater detail on the model view https://www.youtube.com/watch?v=XGSROwnAPQ4

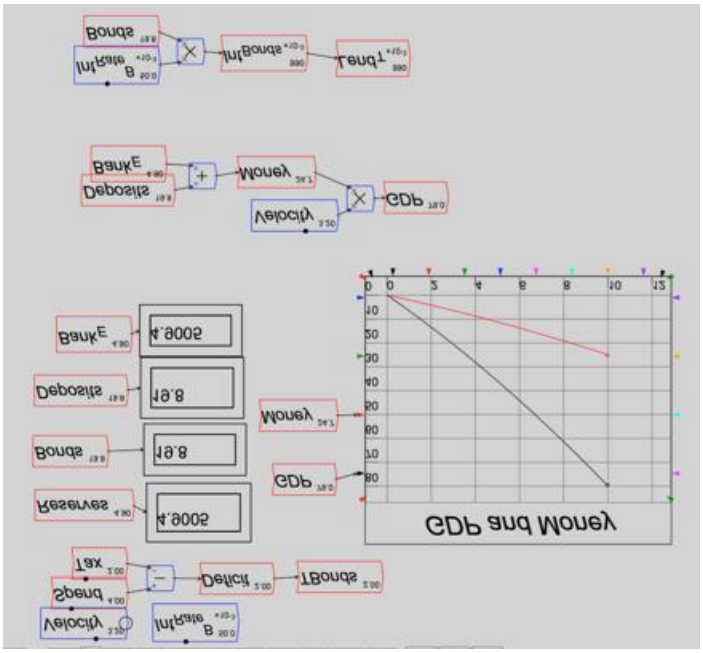

Figure 11: GDP and Money at Period 10

Figure 12 provides a graphical representation of the ledgers of each respective sector. The government is on the left side, while the non-governmental sector is on the right. The model is adherent to the strictures of double entry bookkeeping where the sum of each row is 0. Notably, the equity of the Public Sector is opposite to the equity of the Treasury. That is, the spending performed by the Treasury. Positive equity for the Treasury results in negative equity for the rest of society. The implication of this is that the government, in this case the Treasury, can operate in negative equity but not become insolvent as a bank would. Spending undertaken by the Treasury also increases the equity of the Banking Sector given the accumulation of bonds and interest on them as well as the resulting increase of deposits available within the Banking Sector. The latter further increases the equity of the Public Sector. Conversely, taxation decreases the equity of both the Public and Banking Sectors but increases the equity of the Treasury. Importantly, bonds issued by the Treasury are purchased by the Banking Sector by trading non-interest-bearing assets, reserves, held at the Central Bank. As noted prior, this money was initially created through government depositing the money in the Banking Sector in the first place.[14]

[14] This explains the high prevalence of settlement cash within New Zealand's banking system when government expenditure increased markedly at the onset of the COVID-19 Crisis in 2020.

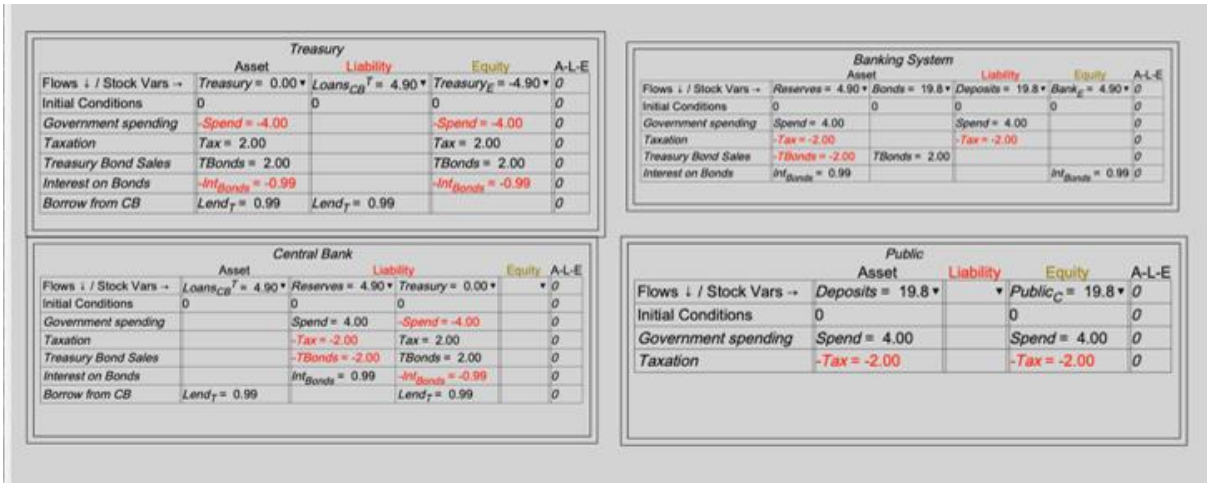

Figure 12: Sectoral Spreadsheets at Period 10

The model depicts that government expenditure is the precipitous factor in 'kickstarting' a monetary economy. Through its expenditure, the government enables the money necessary for monetary dynamics to occur. Moreover, this renders the traditional GBC equation invalid given government expenditure is independent of taxation and bond issuance. Moreover, the purported inflationary impacts of the central bank financing the interest payments on government bonds as noted by Mankiw are already inherent within a modern economy. if taxation is equal to expenditure, then no money is created. This leads to stagnant GDP, bank reserves and bank equity. When taxation exceeds expenditure, a fiscal surplus, then the economy declines given the diminished equity of the banking and public sectors. If spending exceeds taxation, a fiscal deficit, then GDP grows. I concede that with the omission of the financial sector, comprehensive macroeconomic dynamics akin to Keen (2020) cannot be ascertained through this model. However, the basic logic which underlies it is strictly true.

Annex B: Inflation Dynamics During the post-Bretton Woods Era

Inflation is not the sole product of an increase in monetary aggregates as stipulated by the quantity theory of money. Moreover, strict adherence to the Phillips Curve and the assumed trade-off between unemployment and inflation cannot be claimed to be foolproof. The latter has resulted in senior officials and literature from the Federal Reserve proclaiming both the 'lack of a theory of inflation dynamics that works sufficiently well to be of use for the business of real-time monetary policy-making' (Tarullo, 2017, p. 2) and the 'death of the Phillips Curve' (Ratner & Sim, 2022). Rather, inflation or deflation – an increase or decrease in the general price level – is determined by a contextual confluence of factors. While the primacy of monetary policy has been attributed to the arresting of inflationary dynamics, this can be regarded to be a 'happy coincidence' of underlying structural macroeconomic factors. Most importantly however, is the fact that inflationary dynamics are determined by aggregate supply and demand within an economy.

The arresting of inflation during the mid-1980s through until the present day can at least be partially attributed to the growing influence of credit to the non-financial sector on

macroeconomic dynamics and the growth of international trade after the signing of the Plaza Accord in September 1985. The growth of credit enabled an expansion of aggregate demand in the non-governmental sector, which enabled increased demand for consumer goods which could be supplied through international trade – an increase in aggregate supply. This newfound stability in the dynamics of demand and supply resulted in the ensuing 'Great Moderation', demarcated by low inflation and the stability of economic output (Bernanke, 2004). From this, we can also derive a correct theory of inflation commensurate with empirical observations which eschews both the quantity theory of money and the spurious link between wages and the determination of the general price level. Primarily, the increase or decrease in the general price level is a function of aggregate supply and demand. Generally, if aggregate demand outweighs aggregate supply resulting in a decreased availability of real resources, then price increases are to be expected. If aggregate supply outweighs aggregate demand, then price decreases are to be expected. If the two are equal, then it can be assumed that there will be stability in the general price level. The stable inflation of the 'Great Moderation' era can therefore be attributed to the relatively equal expansion of international trade and credit to the private non-financial sector.

Analysis of data pertaining to merchandise trade, credit to the private non-financial sector, and CPI inflation for the G5 signatories of the Plaza Accord corroborate this insight. Beginning with a simple regression analysis, CPI inflation growth between 1985 and 2008 was strongly linear. This is indicated twofold, through high *r* squared values and low standard deviations within the data. The G5 signatories of the Plaza Accord all demonstrate strongly linear CPI growth, with broadly stable inflation growth as measured through its standard deviation. Namely, the standard deviation of CPI inflation for all G5 economies is 0.01%. Relatedly, correlation coefficients between merchandise trade and credit to the private non-financial sector are greater than 0.93 for all G5 economies, with the exception of Japan.[15] The United States exhibits a correlation coefficient of 1, Germany 0.93, France 0.98, and the United Kingdom 0.98. Similar results are drawn from a regression analysis on CPI inflation data and credit to the private non-financial sector.

New Zealand has also demonstrated similar trends during the 'Great Moderation' era, which roughly coincides with the neoliberal reforms, namely the liberalisation of the financial sector, instituted by the Fourth Labour Government. CPI inflation as measured through its standard deviation measures 0.04% for the 1985 to 2008 period. The slight elevation relative to the G5 can be attributed to the higher levels of CPI inflation at the beginning of the 'Great Moderation' period. Similar to the G5, New Zealand exhibits a 0.98 correlation coefficient between merchandise imports and credit to the private non-financial sector.

While correlation is not causation, the underlying theory that stability in the general price level, in this case measured through the CPI, is a result of equal supply and demand factors is corroborated by the data surveyed for the 'Great Moderation' era. As such, diminished demand

[15] Japan exhibits a correlation coefficient of 0.40 for the 1985 – 2008 period. This is indicative of the significant economic challenges during this period, driven by the excessive expansion of credit to the private non-financial sector in the aftermath of the Plaza Accord through to 1992. Notedly, the correlation coefficient for the 1985 – 1992 period is 0.92.

evidenced through low growth in credit to the private non-financial sector during the post-2008 era can be attributed as a preeminent factor in the 'deflationary puzzle' for Advanced Economies (AE) globally. Recent inflation can be attributed to adverse aggregate supply dynamics exemplified through supply chain disruption. The efficacy of interest rate manipulation is fundamentally determined by the willingness of the non-financial sector to take on higher levels of debt. Thus, downward movement of interest rates are only efficacious *if* the 'animal spirits' of the non-financial sector permit higher debt levels. Likewise, upward movement of interest rates risks a rapid destabilisation of the financial and economic systems through increasing the interest costs to debtors. As such, the impact of the manipulation of interest rates is ambiguous.

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