Learnings from The New Zealand Economic History of Shocks

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Learnings from The New Zealand Economic History of Shocks

Unexpected shocks to the New Zealand economy are endemic. The numerous small ones have been dealt with by the local initiatives inherent in the market economy and by common sense.

However, there are a few big shocks where national action has been necessary. Sometimes those actions have been reasonably successful, sometimes they have been less so. There are lessons to be learned from these experiences.

The most salient is that every economy is unique and, indeed, that uniqueness changes over time.

Among the particular features which characterise the New Zealand economy is that it is small, geographically isolated and has an economic structure different from most comparable affluent economies. Its political arrangements tend to be thinner, which can enable a more flexible response but which, however, often lack the depth of comparable polities. Size means its intellectual resources are thinner.

Isolation has been beneficial in the past – for instance, slowing the arrival of pandemics – but with the increasing global connectivity that insulation is diminishing. Nowadays, overseas crises can arrive very quickly – financial crises overnight – and there will be less time to react. However, the disadvantages of isolation – including being at the far end of physical supply chains – remain.

Sometimes the experience of other economies can be used with little adaptation; sometimes the experiences and theories that are internationally available need considerable adaptation to be applied to New Zealand. On occasions, New Zealand has failed to adapt such theories when it has been necessary; too often the analysis has been overly imitative of the United States experience. At the very least, New Zealand economics needs to pay more attention to the experiences of other small open affluent economies.

Thinking About Shocks

It may be useful to divided shocks into three categories:

- Category 1 (unimportant unknowns): small shocks which require little policy response, if any;
- Category 2 (known unknowns): medium shocks which may require some policy response, but can be largely prepared for, including designing potential policy responses;
- Category 3 (unknown unknowns): large novel shocks which require innovative policy responses.

The implicit criterion is the type of policy response. It arises out a concern that shocks generate a tendency to pressure the government to overreact – partly as a consequence of public pressure to do something.

Overreaction was endemic in the 1970s, to the point that it could be wondered whether there were any shocks in Category 1 once they came to public attention. This was partly because there were so many interventions that private responses were muted and partly because the public attitude was that given how common were the interventions, the public always expected more. Many of these interventions were abandoned in the 1980s and 1990s – arguably including some appropriate ones – and the public has become more accepting that standard market responses can be sufficient.

For example, up to the late 1970s, involuntary redundancy was rare and, almost invariably, was seen to require a policy response. Very often the policy response was to attempt to reverse the redundancies even when they were due to structural change. Today such redundancies are much more familiar and there are, often clumsy, public mechanisms to ease any transitions. The proposed Social Unemployment Insurance Scheme would provide more automatic responses in line with the general spirit of what is discussed below.

Category 3 Shocks: Unknown Unknowns

Large shocks tend to be novel – that is, each exhibits features different from previous ones. For example:

- the Canterbury and Kaikoura/Culverden earthquakes were different (and had quite different economic impacts);
- the Global Financial Crisis (GFC) was different from the Great Depression;
- the Ukraine invasion is different from the Second World War (but also of a different magnitude);
- the 1966 wool price collapse was not simply the reverse of the temporary hikes of the wool prices in 1950 and 1972. It was a structural change;
- although both the 1966 wool price collapse and the 1973 oil price hike reduced New Zealand’s terms of trade, the way the economy and policy responded was quite different;
- the first (1973) oil price hike and the second (1979) oil price hike were different. The first was structural; the second was temporary;
- the GFC was different from the 1987 international share market collapse and the 1928 Wall St crash;
- the Covid pandemic was different from the Sars pandemic and the 1918 influenza pandemic.

Such novelty means that it is not possible to plan for the next shock. Instead the shocks can be prepared for, systems can be designed to ameliorate the shocks and there may be measures taken to respond to the shocks after they happen.

Much of the rest of this paper focuses on Category 3 shocks, together with improving the automatic mechanisms needed for responding to Category 2 shocks which will ease, but not eliminate, the need for specialised responses to novel Category 3 shocks.

Preparing for a Shock

Among the actions available to prepare for a shock are:

- simulation exercises by relevant agencies;
- developing public understanding;
- maintaining a research capacity about potential shocks. (The research needs to be about domestic issues but in the context of the international paradigms; historical experience has a role here.);
- developing international cooperation. This includes maintaining a high reputation, actively participating in relevant agencies and working with overseas equivalents (such as disaster teams).

After every Category 3 shock (and perhaps also the largest of Category 2 shocks), a report needs to be prepared as a matter of routine with the objective of identifying learnings from the experience.

As a general point, when thinking through and reporting on unknown unknowns – the novel Category 3 shocks – there is a need for New Zealand to appoint committees comprised of a diversity of views which generate vigorous internal debate by suitably qualified people. This debate needs to both respect dissent and seeking consensus. The focus of the any report needs to avoid being to a narrow and having only a short-term focus. Successful examples of such committees and reporting include those from the Treasury under Henry Lang and conversations within the public health profession in New Zealand.

Designing the System to Ameliorate a Shock

Critical for dealing with small shocks is the market system itself, which is continually accommodating them. Policy in New Zealand has moved from responding rapidly to external macroeconomic shocks – minibudgets, 'fancy footwork' and 'fine tuning' – to a more cautious approach of 'steady does it' and 'touching the tiller'. (Automatic response mechanisms may reduce the need for interventions.)

Further measures include:

- developing more resilient structures and redundancy in the connectivity systems, in preparation for physical shocks;
- maintaining reserves to moderate supply chain disruptions;
- diversification of export destinations and products, and of import sources;
- increasing local self-sufficiency, although if local production is significantly dependent upon overseas-sourced inputs, this may be ineffective (current practical possibilities include moving to greater energy self-sufficiency and greater domestic savings);
- insurance, which moderates the distributional impact of shocks;
- preparing the institutions for the response measures, below;
- maintaining the fiscal capacity by low public debt. (In my opinion, this is a basic reason for targeting a lower public debt to GDP ratio than similar; high offshore private debt strengthens this case.)

Designing the system to respond better to shocks may add to economic costs in the short run, but it reduces the costs of shocks when they occur in the long run.

Measures to Respond to a Shock

The market system rarely copes well with large shocks where there is high inelasticity of short-term responses with significant distributional impacts. Non-market interventions are likely to be used. There is a need to maintain a capacity to introduce them quickly and efficiently. Potential interventions include:

- border restrictions;
- lockdowns;
- rationing;
- requisitioning;
- subsidies;
- tax and benefit changes.

The latter two measures shift the short-term cost off the private sector by increasing public debt.

While the government may be able to legislate quickly, implementation can often take longer because the administering agency is not prepared.

A History of New Zealand Economic Shocks: Learnings and the Measures to Become More Resilient

This report is commissioned by the New Zealand Productivity Commission for its inquiry into the resilience of the New Zealand economy to supply chain disruptions, the purpose of which is to identify policies and interventions that can enhance the resilience of New Zealand's economy and living standards to persistent medium-term supply-chain disruptions.

In particular the purpose of this work is threefold:

- to describe how New Zealand has attempted to improve economic resilience over its economic history;
- to outline how a sectoral and/or industry perspective might provide insights about the growth process, policy choices or path dependence; and
- to outline key learnings from the past that can be applied in future policy.

The report covers a wider history than the supply chain disruptions in the Productivity Commission's Terms of Reference. This not just because significant supply chain disruptions (or shocks) have been rare in New Zealand's history. More fundamentally, every significant shock involves learnings and responses designed to improve resilience. Most will be relevant to dealing with supply chains.

The focus on significant shocks arises because any economy is continually subject to a myriad of shocks. For instance, New Zealand experiences 400-odd earthquake shocks a day, but only a handful are usefully covered in the hundred-year narrative.

Generally, there is sufficient resilience in the economy to accommodate most of the small shocks it is experiencing. The ways in which it responds could be listed but they are better illustrated by tracing the responses to the larger, more readily identifiable shocks.

The history mainly covers the last century only. There were earlier shocks but conscious management of the New Zealand economy only becomes really significant from the 1930s. 'Significant' here means large enough to learn something from, although such learnings may be repeated.

The exposition is in roughly narrative order, although some instances, such as earthquakes, are grouped. Additionally, the responses to other shocks, such as the Great Depression of the 1930s and the Second World War, evolved together and are grouped.

The Meaning of Resilience

The NZ Productivity Commission’s issues paper defines economic resilience as a capacity to anticipate, prepare for, absorb, recover, and learn from disruptions. The Commission further specified its definition as:

- the capacity of *industries and associated communities* to anticipate, prepare for, absorb, recover, and learn from disruptions (NZPC 2023: 9), which reflects the mutual dependence of local industries and communities in many areas of New Zealand. The Commission argued that the link to communities reflects its wellbeing mandate, the emphasis of the inquiry’s Terms of Reference on the resilience of living standards of communities, and ensures that those relying on an industry exposed to supply chain disruption get supported, not just blamed for their lack of ex-ante resilience.

During the drafting process, the Commission discussed specifying several elements of this definition further by applying the following concepts:[1]

- essential industries - those that are neither non-essential (limited impacts on the economy and living standards if their supply chains get disrupted) nor critical (strategic and national security issues addressed by dedicated policies). However, the Commission opted to focus on eight industries after considering the complexities of identifying essential industries in trade data and the practical difficulty of distinguishing them from non-essential industries encountered during the Covid-19 lockdowns (NZPC 2023: 21).
- generic resilience to supply chain disruptions – discussions of supply chain disruptions tend to focus on relatively predictable short-term disruptions that can be addressed by preparing for specific scenarios. However, the medium-term focus of the inquiry implies a higher level of uncertainty about the nature of disruption. This led the Commission to emphasise the role of collaborative institutions that can embed resilience to a multitude of plausible shocks and pressures (NZPC 2023: 26).
- price shocks as a common yardstick for impacts of all types of disruptions that exceed the usual fluctuations and result in dramatic price shifts or a market collapse. This understanding of disruptions is applied to modelling distributional impacts (NZPC 2023: 19).

The essence of resilience is that economies experience (unexpected and external) shocks to which they adapt or otherwise, and that policy can improve the ability to adapt.

There are many such shocks. For instance, while 14-15,000 earthquakes occur in and around New Zealand each year, most are too small to be noticed; only around four a week are large enough to be felt.[2] With a few exceptions – the big ones – the

economy responds reasonably well. We do not measure the number of other shocks to the economy but almost certainly they are as numerous, and generally the economy automatically copes reasonably well.

One of the problems of assessing a shock is the degree to which it is temporary – noise over a long-term trend – and the degree to which it is permanent. This will be illustrated in the section on the wool price collapse.

The research strategy has been to write a narrative about the significant shocks to the New Zealand economy over the last, roughly, century focusing on how the economy adapted and policy responded.

Earthquakes (and other natural disasters)

Even the larger of the 14-15,000 earthquakes which occur in and around New Zealand each year some – say those up to magnitude 6 in rural areas – may impact only locally. The locality may struggle with supply issues for a short while perhaps with temporary shortages using alternative – less efficient – connections; sometimes the government may take actions such as using the military (e.g. a naval vessel providing alternative supply). Note this applies also for other natural disasters.

Longer term response to local outages include redesign of structures – more robust structures built following the 1846 Wellington Earthquake (magnitude 6.0) probably reduced mortality from the 1855 Wairarapa earthquake (8.2). Sometimes such events have led to building alternatives which provide redundancy in the connectivity system – a factor justifying Transmission Gully as an alternative to the very vulnerable coast road. (Connectivity includes the energy, transport, wireless and broadband sectors.)

Earthquakes with nationwide impacts since the 1920s have included the 1931 Napier Earthquakes (7.4, 7.3) – the smaller 1942 Wairarapa Earthquakes (6.9, 6.8, 6.0) which concentrated the policy mind because of their impact on Wellington City – the 2010-1 Canterbury Earthquakes (7.0, 6.1, 5.9, 6.0) and the 2016 Culverden/Kaikoura Earthquake (7.8), which heavily impacted on Wellington City.[3]

As well as increasing regulation of structures and alternative backups, starting with the 1944 Earthquake and War Damage Act, there has been a considerable effort to provide insurance cover for disasters. The details are outside the remit of this paper, but the general lesson is that the government may have to shape and regulate private insurance. There is a public tendency for the uninsured to expect the government to provide for them after a disaster – well illustrated following the Canterbury Earthquakes. If the government is not going to totally reject such demands, it is reasonable for it to take actions before disasters occur, like requiring compulsory private insurance.

Insurance points to another issue. Households and businesses are willing to pay to reduce their exposures to risks. This is a rational decision but is an ongoing issue in providing other kinds of resilience. Economists recognise a tradeoff between the costs and the gains from reducing the risk. It is not clear that the engineering standards introduced since the Canterbury Earthquakes have paid as much attention to this tradeoff as economists would assume.

Among the other responses there has been an increasing effort to understand the geology behind earthquakes and related natural disasters (slips, tsunamis and volcanoes). To this outsider the geological research has become one of the jewels in New Zealand's research crown.

There has also been considerable effort to design more resilient structures and to encourage people to take actions before a disaster and to prepare them after a disaster in order to minimise its impact.

Learnings (with caveats and comments)

The major measures to increase resilience in regard to earthquakes and other natural disasters have been:

- encouraging and regulating for more resilient structures (but not enough attention may be paid to the tradeoff between risk reduction and cost);
- redundancy in the connectivity systems (but not enough attention may be paid to the tradeoff between risk reduction and cost);
- insurance (there is an issue between the balance between voluntary private and compulsory and between private and public provision);
- research;
- public education;
- whatever public measures are taken, at least for a short period there may be disruption which a properly designed private sector can reduce.

The Great Depression and the Second World War [4]

The Great Depression of the early 1930s and the Second World War of the 1940s were different sorts of shocks but the policy responses to the two – important for almost half a century – were so intertwined so they are treated together here.

And additional complication to the entanglement is that, over the half century following the 1930s, New Zealand was undergoing structural change from a farm/rural dominant economy to one where the farm sector was not as prominent – although it continued to be the major exporter – and where the urban sector – especially the main centres – became more dominant.

As if these structural changes were not complicating enough, it is important when describing policy responses to appreciate that economic growth did not become the preoccupation that it is today until the 1960s – the set of measures available, such as the national accounts, hardly existed before then. Previously, the major policy concern was employment and unemployment, although, of course, there was always the constraint of there being sufficient exchange from export revenue and net borrowings to fund the imports necessary to maintain high economic activity and, hence, employment.

(Note that the following narrative is necessarily limited. It tries to draw attention to differences in thinking between the past and today. Indeed, the standard criticism of the policy process of the earlier period which, perhaps, began in the 1960s, not only benefit from hindsight but overlooked the particularities of the issues which the policy makers of past times faced.)

The Great Depression

The New Zealand experience of the Great Depression differed from the financial crisis which occurred at the American-British-European Centre. Being on the margins of the international economy, the crisis was transmitted to New Zealand by a collapse in its terms of trade (the price of exports relative to the price of imports) and by an inability to cover the substantial foreign exchange deficit by offshore borrowing.

It is unnecessary to detail the immediate domestic measures which took place, nor the hardships. However longer-term conclusions were drawn about resilience – although then the issue was framed in terms of ‘vulnerability’.

The dramatic fall in the terms of trade was because New Zealand exported farm products. While manufacturers can cut back production when there is a market downturn, farming cannot reduce output so easily, and the resulting market surplus drives down export prices and the terms of trade.

This was seen to be exacerbated by New Zealand’s dependence on what amounted to a single export market of Britain and a few export products (from sheep and cows – processed grass). Had there been more market diversity, the aggregate export prices may not have fallen so dramatically.

We need to take some care with this conclusion. It relies on the assumption that the market and products have demands which are not correlated. Often, they are. For instance, it is generally accepted that today New Zealand exporting is overexposed

to the Chinese economy. However, a number of other economies where New Zealand has strong sales – those in East and South East Asia including Australia – are strongly connected to China. Were the Chinese economy to falter, they would also falter so that exporting to them would also suffer. This is not to argue against the case for diversification, but to point out that the kind of diversification – including to whom – matters.

Not much attention could be given to export destination diversification. The Second World War was looming and it was assumed that Britain would take all New Zealand's surplus. Alternative export markets were not considered particularly feasible at the time because most countries imposed high barriers to pastoral imports – usually higher than the then stiff ones for manufacturers. Moreover, the provisions of the 1932 Ottawa (trade) Agreement limited the possibility of trade deals with other countries.

With hindsight, the case for diversifying away from the British market was more about its sluggish performance. Some years ago, an Australian study of export performance found that its exports lost market share in each market, while New Zealand's increased their share. Yet Australia's overall exports grew faster than New Zealand's because they were exporting to faster growing markets, an illustration of the adage that it is better to back faster horses.[5]

This concern was prominent from the 1950s. The Prebisch-Singer Thesis argued that the price of agricultural commodities had fallen and would continue to fall relative to manufactures because of the differing ways they were produced.[6] Better, it was argued, to get onto the fast horse of manufacturing. (Even so, if productivity growth in the farm sector was substantially higher in the manufacturing sector, that might substantially offset any decline in the commodity terms of trade.) As it happened, the commodity terms of trade for farm products generally declined throughout most of the twentieth century, probably for the reasons the Raoul Prebisch and Hans Singer identified. However, from the 1980s the expansion of manufacturing in East Asia changed the mode of manufacturing towards low-wage but hungry workers. Since then New Zealand's primary export prices have been on a rising secular trend – faster than the price of its imports.

As much as export product diversification was desirable, the alternatives were not obvious. The one significant exception was the timber becoming available from the Central North Island forest which led to the pulp and paper mill at Kawerau in the 1950s. (The big export diversification was in the 1970s.)

Instead of external destination and product diversification, New Zealand turned towards self-provision – import substituting – as an attempt to reduce dependence upon pastoral exports to the British market.

There was a structural factor contributing to this strategy. A growing challenge for the New Zealand economy was job creation, given burgeoning working-age population

growth. Farm sector employment would hardly expand while the service sector employment would not grow sufficiently fast either at the time. (It did towards the end of the twentieth century and is now the largest source of jobs). So the manufacturing sector needed to expand to maintain high employment. (In the 1920s, a public works program financed by borrowing had been used to absorb surplus labour but it was limited by the available lending and, in any case, infrastructure did not directly generate or save foreign exchange nor fund debt servicing.)

Curiously, while some attention was given to export destination diversification, little was given to import destination diversification. Among the reasons were that it was not seen as a problem, while New Zealand's trade arrangements (especially with Britain and the Sterling area) had a tacit assumption of near bilateralism in international trade. Additionally, import licensing tended to lock in traditional supply sources.

The Second World War

These issues were being pondered throughout the 1930s after the Great Depression – although not as necessarily in the same way as they were in the 1950s (we report here mainly the 1950s approach). But such contemplations were swept aside by the outbreak of the Second World War. The full economic story is complicated. Here it is confined to the production side of the adjustments.

First, there was the diversion of production to war purposes. Clothing illustrates the general issue. During the first year, the armed forces wanted 100,000 pairs of blankets, over a quarter of a million socks, and comparable quantities of shirts, underpants, vests, trousers and battle dress. (New Zealand's population was about 1.6 million.) Civilian clothing was soon in short supply, despite the clothing factories working to full capacity. By 1942 there was 'austerity clothing'. Trousers could not have cuffs, pleats or extended bands or ankle widths exceeding 20 in. (A manufacturer said that the regulations would enable him to increase his output by 6 percent, while reducing his price by 7.5 percent.) Women's clothing faced similar limitations although home dressmaking could ease the drabness.

Second, there was a need to divert home production for British consumers and American soldiers, so there was rationing of such things as butter and cheese. Petrol, sugar, tea, clothing, footwear, household linen, eggs, bacon and ham and other meats were among other items which were rationed. While some of the rationing was for domestically supplied products, others – notably petrol, sugar, tea – were imported; restricting their supply saved scarce shipping space even if they had been readily available overseas.

Third, where it was possible, New Zealand turned to home production – import substitution – including making rifle ammunition. The importing of silk stockings ceased and women turned to fine woollen ones. Stockings remained scarce which

led to queues; American soldiers found nylon stockings made attractive gifts. Bare-legged young women became more acceptable.

Observe that normal market mechanisms were limited (especially as a policy objective was trying to avoid a repeat of the high inflation of the Great War). Instead there was rationing, government direction and government supply (not to mention some fiddling of the published consumer price statistics). It was a highly interventionist economy. (Ships spending too much time loading in small ports resulted in yet another area where government direction occurred.)

Arguably, a higher degree of intervention is necessary in a fully committed war economy but the habits of thinking of organising an economy in this way continued to some extent through to the 1980s, long after the Second World War was over, and when growing affluence and diversity made them increasingly less effective.

The Postwar Dollar Crisis

Jack Baker suggests that for the economy the Second World War did not end until 1955, because the war economy was unwinding throughout that period.[7] So there were shortages and inconvenience. Domestic production could switch back from war to domestic supply, but there had been under-investment during the war which limited the amount available. Priority was still being given to sending food to Britain.

Most of the affluent world had had much (or most) of their production capacity destroyed by the war, and that which was available was being used for postwar reconstruction. Countries were willing to purchase supplies from the US, which at the time was the only major alternative source. But they had little to offer the US in return so they could not earn the US dollars to pay for what they wanted – hence the dollar crisis. (New Zealand would have been willing to supply more pastoral exports to the US, but at the time its protection against foreign farm products was a lot more limiting than it is even today.)

Without sufficient dollars the rest of the affluent West, including New Zealand, were unable to source all the US imports they desired, and had to prioritise what they imported. This was largely managed through import controls (and, in much of the 1950s, exchange controls instead) and priority was given to capital goods and inputs for domestic production. (A consequence was that consumer durables readily available in the US, which would have been welcome in New Zealand, were not readily available. This included cars, household durables and telephones; the inability to provide them, thereby absorbing the pent-up private savings from the war was a part of the immediate postwar inflation story.) Such sourcing as there was mainly from the sterling area.

So while the fighting of the Second World War ended in 1945, despite the demobilisation there were ongoing economic consequences for a further decade. This had a strong impact upon policy thinking at the time and for decades after.

Learnings

- diversification of export destinations reduces the impact of a shock from an individual country.
- diversification of export products reduces the impact of a shock to an individual product.
- home supply displacing foreign supply – import substitution – is an alternative to external diversification (as well as a means of job creation).
- stock management can be important.

(Note: little attention was given in the period to diversification of import sources.)

Business Cycles[8]

There was once a theory that New Zealand's business (economic) cycles were precipitated by election (political) cycles as government expanded their fiscal stance in election years to generate a feel-good economy in order to enhance their election prospects. The evidence is that the business cycle is not three years but has an average length of almost four. (This is not to argue that incumbent governments do not try to stoke the economy in election year; their policy measures do not seem to have the desired effect, probably because of lags.)

Today, the orthodox view is the business cycle is typically an on-the-whole short-term response to an external shock – often an export price downturn. (This may not be true in 2023, but at this stage it is idle to speculate.)

Historically the policy response was to try to manage any downturn by counter-cyclical actions. There remains an element of this today – and invariably there is much public demand for such actions. However experience taught that the time from policy identification, through implementation to impact is both variable and long. Today any policy response tends to be within a medium-term framework.

A particular problem was that some of the mechanisms within the economy were pro-cyclical so that, for instance, corporation and income tax payments rose during a downturn as the previous boom-year taxes came due for payment. Over the years, the tax payments system has been less pro-cyclical.

Sometimes responses could also be pro-cyclical. At the direction of the Minister of Finance, during a downturn in the 1970s Treasury would scramble around finding projects (such as public investment) which would lift economic activity. They would

take time to implement and often only became effective when the economy was already strongly expanding.

There is no longer a practice of ongoing macroeconomic adjustments to 'tune' the cycle, described by one minister as 'fancy footwork' and marked by numerous 'mini-budgets' between the annual budget. When confronted with a big shock the government will still announce a big policy package but they are rare – perhaps the last substantial one was at the time of the Covid lockdown in March 2020. There will be minor policy adjustments, a bit like touching the tiller – perhaps the last significant one was the July 2022 cost of living package.

Adjustments by the Reserve Bank to the Overnight Cash Rate could be thought to be a successor to the minibudget approach. But in some respects it reflects the new regime of steady does it – touching the tiller. The announcing times are set out up to a year ahead, and the amount of discretion involved in an individual adjustment are relatively small, illustrated by the fact that usually the economists' forecasts made just before the RBNZ decision is reasonably accurate. (A longer section would recall that the policy framework came out of tradition which preferred automatic monetary adjustments such as Friedman's constant growth of the quantity of money and the Taylor rule. However, neither proved as practically robust as their advocates promised.) Insofar as there are judgments in the Reserve Bank's approach, they involve forecasting the economy some quarters out, while the precise channels and time profiles from implementation to outcome are not know with precision.

Learnings (with caveats and comments)

- New Zealand has moved from responding rapidly to external macroeconomic shocks – minibudgets, 'fancy footwork' and 'fine tuning' – to a more cautious approach of 'steady does it' and 'touching the tiller'. This partly reflects a change of attitude towards macroeconomic management together with a recognition of the difficulties from implementation lags. Moreover, today the economy is more able to adjust automatically through less intervened markets at the microeconomic level and automatic counter-cyclical adjusters at the macroeconomic level.

The 1966 Wool Price Shock [9]

Arguably the fall in the structural price of wool was the greatest shock to the New Zealand economy after it settled down following the initial European arrival. Except for a brief flirtation with gold in the 1860s, wool was the largest single export until 1966, its dominance being strengthened by being a co-product with export sheep

meats since the 1880s. In the early 1960s roughly 40 percent of commodity export receipts came from wool and another 20 percent from sheep meats.

Six decades later it is hard to appreciate how significant wool was then in the New Zealand economy, given that today it makes up only about 0.5 percent of exports of goods and services. Today's wool exports are merino (fine) wools; the value of crossbred (strong) wools, the traditional staple – is near zero. (Farmers tell me they shear for hygiene at a loss; their most valuable wool is dags used for garden fertiliser.) Fine wools (merino), used in fashionwear, still give farmers a good return. However merino sheep do not produce a lot of meat – it tastes different from conventional lamb – while the sheep cannot thrive in the wetter conditions where the crossbreds (traditionally dominated by Romneys) could.

Economic structural change occurs all the time, but usually it occurs steadily and incrementally. Typically, it has proved difficult to adjust smoothly to such structural change unless it is very slow because there is considerable political, policy and public inertia. A full explanation would be a thesis in its own right, but important factors are that the incumbent political system reflects the past economic structure, which it tries to protect, while there is considerable public nostalgia.

If the break is abrupt and evident enough, the public response can be reasonably successful, although there are always grumbles. On the whole, Christchurch dealt well with its 2010 and 2011 earthquakes, which wiped out the urban usefulness of much of East Christchurch, changing the structure of the city.

Arguably New Zealand's economic earthquake occurred on 14 December 1966, when the auction price of wool crashed. Why that day is a bit like asking why a fault line ruptured on a particular day. There were two main underlying factors. International postwar reconstruction, with its backlog of, among other things, carpeting had largely come to an end. Meanwhile, synthetic fibres were replacing wool as the main material for carpets. (New Zealand was insulated by import controls from knowing about the rise of synthetic carpets.)

The problem was to recognise the structural impact; initially it was treated as a large, but temporary, price shock similar, but in the opposite direction, to the spike in 1950/51 (and subsequently 1972/3). These fluctuations belonged to the previous section as stimulating price shocks which cause business cycles. The December 1966 wool price shock was not.

It proved difficult to recognise and to respond to the change. There is a litany of illustrations but a notable one is that an economic history published in 1985 makes barely any reference to the 1966 wool price collapse.[10] The New Zealand Planning Council was equally unaware of the significance of the rupture.

The price shock had two major impacts. First, changes in relative prices change the pattern of production. This resulted in a diversification both by the farm sector and

the export sector – between 1965 and 1990 New Zealand had the greatest export diversification by destination and product of any OECD country.[11]

However, while the external sector responded successfully, the domestic sector did not. In the pre-1966 regime market cross-linkages between the two had been limited so that it had been possible to manage them reasonably independently of one another. But once there was export diversification, and the external sector became more than just the pastoral sector, there were many more linkages between the external and domestic sectors. Since, for reasons already explained, the domestic sector was resistant to change, any domestic structural transformation was retarded.

The second major impact from the wool price collapse was that a reduction in the export price of a major (large) export product reduced the nation's spending power. Thus national income rose more slowly than national production, while the growth of production slowed as the economy abruptly changed its structure. As a result some New Zealanders had to take a cut in their real incomes, others would find their real incomes growing more slowly than their past experience might suggest.

Compared to the sedate postwar era before 1966 there followed a period of policy and economic turbulence. Although not all could be attributed to the shock, much was while the difficulties of dealing with the wool price collapse compounded dealing with the other problems.

Shortly after there was the 1967 devaluation with ongoing exchange rate management throughout the 1970s. The 1968 zero-wage order began the end of a wage-fixing system which had served tolerable well for almost three-quarters of a century. The 1968 National Development Conference was the beginning of a series of attempts to manage the economy differently.

The economy began to show structural changes. The economic growth rate slowed. The first signs of a structural lift in the level of unemployment appeared. There were the beginnings of the Great Inflation which would run through to the 1980s.

Basically, New Zealand had to adjust to the loss of real income from the lower return of its biggest export. Who was to bear the loss? Initially the answer was those in the farm sector, but the farm sector had been cross-subsidising the domestic economy, via border protection and other interventions. Moreover, the farm sector remained a key foreign exchange earner. That meant that the income reduction had to be shared across the entire economy. Since this was not sufficiently recognised, there arose an intense political struggle by the various groups in the economy to maintain their income at the expense of other groups. This resulted in high levels of inflation and a breakdown of institutions – such as the arbitration system – which had, in the past, had a major role in determining the income distribution.

There was high international inflation in the early 1970s but New Zealand inflation continued after the international inflation abated. It did not end until in the late 1980s

when traditional relativities in the wage system and social security system were broken, thereby resolving who would share the income losses. (What happened to the operating surplus/profits was complicated and has never been properly analysed.)

The international inflation of the early 1970s and the temporary export price blip of 1972/3 obscured the underlying structural change, as would the oil price shocks (next section). There were various attempts to create institutions – such as finding a new wage determination system, price controls and agencies such as the New Zealand Planning Council – to solve the difficulties. But the analysis of the conventional wisdom was poor, as we saw with the Planning Council. Basically, it assumed a continuation of the pre-1966 economy, which needed some changes – especially 'more market'[1] – but was fundamentally sound and ongoing.

So the economic models being used were not fit for purpose. To analyse the impact of a price change of a major sector requires a multi-sector model (which means there are a number of sectoral prices) with attention to both its external sector and its time path as well as the way income is distributed. The more limited models that were being used, and the thinking that went with them, lacked these characteristics. They had a single commodity, with poorly developed external sectors (as is inevitable in a single commodity model), static rather than dynamic, and with little attention to the distribution of income.

Moreover, the challenges that New Zealand faced with such large change in its structural terms of trade was unique among developed economies.[12] That meant the international economics community had neither addressed them nor created models for their analysis. New Zealand economists had to think innovatively; instead they used inappropriate models and analysis from overseas (especially the US). When oil prices rose, they significantly impacted on all economies and the international economics community created relevant models, which New Zealand economists were able to use.

In summary, in 1966 New Zealand was impacted by a major change in its terms of trade, which analysis and policy did not understand and so the economy performed unnecessarily poorly.

(The above story has not mentioned Brentrence – Britain joining the European Community in 1973. This was not a shock. From the early 1960s, New Zealand external policy was based on the assumption that Britain was likely to join the EEC – as it was then – one day and was taking various actions to prepare for that day including external diversification and the New Zealand Australian Free Trade Agreement. The big issue was to negotiate a trade deal which would minimise the damage to New Zealand when Brentrance occurred. An indication of how smooth the transition was that there was nothing to compare with the turbulence following the wool price collapse.)

Learnings

- *These are included in the section with those on the oil price shocks*.

The Oil Price Shocks as Supply Chain Shock

There were two major oil price shocks in the 1970s which also had supply chain effects. (The price effects are discussed in the next section.)

First Oil Price Shock: In October 1973, the members of the Organization of Arab Petroleum Exporting Countries proclaimed an oil embargo, targeted at nations that had supported Israel during the Yom Kippur War. By the end of the embargo in March 1974, the price of oil had increased from US$3 per barrel – a level it had been near for in most of the postwar era – to nearly $12 per barrel. (All prices are in nominal US dollars.)

Second Oil Shock: The Iranian Revolution in 1979 decreased the global oil supply by about 4 percent; the price of crude oil more than doubled.

There is a suggestion that in early 1980, a tanker of oil destined for New Zealand was diverted to Japan.[13] Whatever the truth of the rumour, it draws attention to the inherent vulnerability of the oil supply chain of a small isolated economy.

The (non-price) responses to the First Oil Shock included the establishment in 1974 of the International Energy Association, an intergovernmental organisation. New Zealand joined in 1977; currently there are 31 member countries and 11 associated countries who represent three-quarters of global energy demand.

A major concern is the possibility of physical disruptions to global oil supplies – the blocking of the Straits of Hormuz is an obvious one but were the Straits of Malacca to seize up, the longer route from the Middle East to East Asia would reduce the effective supply of shipping. As a consequence, IEA members are required to hold six months of oil reserves, as well as discuss policy and consult.

To what extent there would be a coordinated response if there was an oil shortage may be speculated. The diversion of tankers from little countries to more powerful ones is likely to occur through private market incentives.

New Zealand also introduced after the Second Oil Shock a rationing of car use – carless days – from July 1979 to May 1980. Essentially it required that a car (but not larger vehicles or motorcycles) refrain from being used one day of the week. Other restrictions include reducing the open-road speed limit from 100km/h to 80 km/h and restricting the hours that petrol could be sold at service stations and garages.

The rationing was thought to have been largely ineffective and proved unpopular. It was clumsy, could be evaded and was considered to be unfair, since two-car households were not as affected. Things have changed greatly in the subsequent forty years (including electric vehicles and more working at home) and this particular form of rationing would unlikely be used again.

(At the time, I argued that a temporary rise in the petrol tax would have been better than a rationing system. I overlooked that the demand for petrol is price inelastic in the short run, so that higher petrol prices would reduce household incomes and spending on other items without conserving petrol.)

Even so, rationing – that is, restricting market supply – remains a possible response in certain circumstances. Perhaps some of the responses during the Covid Crisis (below) amounted to rationing – that is, allocation by nonmarket direction.

The impact of the oil shocks on energy provision in New Zealand is complicated. The oil refinery at Marsden Point was built in the early 1960s as a part of the industrialisation strategy concerned with diversification and relying more on domestic supply which arose in the 1930s.

The contribution of the Marsden refinery to reducing New Zealand’s vulnerability was limited because it still depended upon offshore oil as a feedstock, much like car assembly depending on CKD kits. This was widely misunderstood in the public discussion about the closing the refinery. There is a caveat. Locally produced condensate now has to be sent to an overseas refinery (which action may give New Zealand a little leverage in terms of negotiating a deal to reduce the likelihood of being squeezed during an international oil supply shortage).

The Major Project (‘Think Big’) investment program was probably not driven by the oil shocks. Aside from NZ Steel and the impact of the South Island energy surplus, the projects were driven by the Taranaki hydrocarbon finds (especially the gigantic Maui offshore field). So the gas and oil part of the major projects in the 1980s would have happened had there been no oil shocks. The big difference is that had oil prices been lower, there would have been less searching for oil. (Few commercial hydrocarbon reserves were found outside Taranaki, but the expensive – privately and externally funded – searching added to New Zealand’s knowledge about its geology.)

Immediately after the First Oil Shock in 1973, there developed a considerable body of economics literature which showed that a finite resource like oil should experience an ongoing secular rise in its prices. The conclusion seemed to be reinforced by the price hike following the Second Oil Shock in 1978. However, the price level of oil drifted down after 1980 and fell precipitately in the mid-1980s back to nearer the $12 a barrel of 1973.

So the First Oil Shock led to a structural change in the relative price of oil, but that the Second Oil Shock was temporary and did not, although perhaps the economists' prediction explains the secular relative oil price rise after 2000 (there has been considerable volatility around the rising trend). The prediction will not apply permanently if there is a major switch to energies which contribute less to global warming.

There is a learning from the energy investment experience which would be appropriate to record here. The success of any investment is predicated on outturns which can only be forecast. The return on 'Think Big' energy investments critically depended on the world price of oil. The project evaluations assumed a price of at least $35 a barrel. When the productions came on stream in the mid-1980s the price was a third of that. In each private-public project the risk was structured so the downside was fully carried by taxpayers, with the private partner getting a guaranteed return. Because the projects were big, the losses were large and weighed heavily on the government accounts.

In the vigorous debate which surrounded the project evaluations of the early 1980s little attention had been paid to the risks; the non-government public participants were unaware of the secret guarantees that the government had given. Subsequent legislation requires that Parliament is notified of any guarantees – otherwise they have no legal validity – and the contingent liabilities they generate are reported in the government accounts. However, it is noticeable that most other forecasts, project evaluations and the like still pay little attention to quantifying the risks and uncertainties, even if they mention them.

Learnings

- *Because of its location and size, New Zealand is vulnerable to international supply chain disruptions.*
- *Stored reserves can reduce the magnitude of the disruptions.*
- *International cooperation may be helpful but, like reserves, it needs to be in place before the shock.*
- *Domestic self-sufficiency may have a role, but its contribution is limited if domestic production is dependent on overseas inputs.*
- *Rationing is a means of dealing with supply chain shocks. But it may be difficult to administer effectively.*
- *Evaluation of projects needs to include attention to the risks and uncertainties.*

Oil Shocks as Price Shocks[14]

The previous section pointed out attention that the First Oil Shock appears to have involved a structural change in the relative price of oil but it wondered whether the Second Oil Shock was of a more temporary nature. (When the relative oil price began its secular rise after 2000 it was not seen as a shock in the sense the 1970s changes were and the international economy was more resilient.)

This section explores why New Zealand dealt with the structural change in the price of oil in 1973 compared with its much less satisfactory response to the structural change in the price of wool in 1966.

There is a sense that an export price fall and an import price rise are economically similar; each is a reduction in the terms of trade. In this comparison, the two shocks were of similar magnitude. So why the difference in identification and response?

One difference was that while the wool price collapse only impacted directly on a single sector – sheep farming and allied industries – large at the time though it was, the oil price hike had an economy-wide impact in so far as all sectors – including households – are significant consumers of oil products. The price of petrol is of political importance. Thus almost immediately the entire country was alerted to the significant oil shock, whereas while the wool price shock was front page news, it did not impinge immediately on most of the country's back pockets.

Moreover, the oil price shock was an international one, so there was considerable international discussion. New Zealand was able to use this discussion to interpret and respond. Much of the required response was not too different from that required and being discussed elsewhere.

On the other hand, the wool price shock was peculiar to New Zealand. Even the Australian experience was different: wool was a smaller part of its export effort and the wool it exported was merino: finer for fashion and hardly affected in contrast to the crossbred wool collapse (Fortunately too, if coincidentally, the lucky country began its structurally transforming mineral export boom in the late 1960s.) This meant that New Zealand had to think through the issue largely by itself, drawing on the overseas literature but applying it to the particularities of New Zealand. As we have seen, it failed.

Learnings

- *Every economy is unique and that uniqueness changes over time. Sometimes the experience of others can be used with little adaptation, but sometimes that experience and the theories that come from it need considerable adaptation. New Zealand has commonly failed to understand or to learn from its unique experiences. Too often the analysis has been overly imitative of the United States experience. At the very least, New Zealand economics needs to pay more attention to the experiences of other small open affluent economies.*

External Financial Crises[15]

After the recovery from the Rogernomics recession in 1994, the New Zealand economy went into a period of steady growth and low inflation, similar to that in the decade-and-a-half before the 1966 wool price collapse. As in that era, there were temporary external shocks – hiccups – which induced business fluctuations but, with hindsight, things were benign overall, even if at the time there was much anxiety among the commentariat. The 'Great Moderation' came to an end in 2008 with the Global Financial Crisis, which posed a real threat to New Zealand and illustrated the vulnerability which arises from borrowing offshore.

New Zealand has experienced financial crises throughout its history typically arising from the (unexpected) cessation of foreign currency (sterling or US dollars) loans. Sometimes the impact of the overseas loan worked its way through slowly – as in the case of the City of Glasgow Bank which limited public borrowing during the Long Depression of the 1880s; sometimes it impacted quickly – as in the case of the termination of borrowing in 1929 early in the Great Depression (although there had been earlier indications, known only to the government, that New Zealand's borrowing program was already in trouble before the Wall Street Crash). Two recent experiences are worth reviewing.

In 1987, the New York share market had crashed; the New Zealand one followed the next day. New Zealand shares were grossly overvalued at the time (as subsequently indicated by their crashing more than in any other affluent share market) and the international crash triggered the local collapse – reminiscent of how a jolt can precipitate a supersaturated chemical solution.

The 2008 GFC was more complicated and instructive. It occurred when the finance company sector was already struggling – some of the companies crashed before August 2008 – as a result of poor investment decisions obscured by a lack of transparency for investors. (There were also signs of weakness in US financial

markets before August 2008 as often happens – there were similar weaknesses in the US economy before the 1929 Wall Street Crash.)

It is unnecessary for the purposes of this report to detail the entirety of the GFC phenomenon. It focuses on the danger of international liquidity drying up (and so treating the international downturn which reduced demand for New Zealand's exports as an example of a business cycle, albeit slightly longer than usual). In effect, it was a supply-chain disruption but this time supply was not a tangible item like oil delivered by a tangible transport like ships, but the intangible credit (which would be necessary to purchase tangibles like oil) delivered by the (less tangible) banking system.

At that time New Zealand's trading banks were borrowing heavily offshore to fund local borrowing. The typical offshore loan was for three months, which meant that every month the banks had to borrow about $NZ30b offshore to replace the borrowing three months earlier.

By the end of 2008 there was a looming danger that international liquidity would dry up and that the trading banks which channelled the borrowing might fail to 'roll-over' their foreign currency borrowings so that as the loans came up for renewal their overseas lenders would not, or could not, provide further loans to repay them. This threat was not limited to New Zealand.

However, trading banks can borrow from the Reserve Bank to roll over their debt. That would have shifted the international debt problem from the trading banks to the government because while the Reserve Bank can issue unlimited quantities of New Zealand currency, it would need foreign currency to pay off the banks' foreign debts.

Fortunately, the Reserve Bank had some contingency plans (including increasing its foreign currency reserves) and, even more fortunately, the threat of a deterioration in international liquidity was shortened by the US Federal Reserve (the Fed) offering a 'swap' arrangement. (New Zealand no doubt also investigated the possibility that the Bank of England, the European Central Bank and the Bank of Japan would also provide swaps but once the Fed offered its swaps they were less necessary.)

The swap involved the two central banks agreeing that they could exchange their currencies so that New Zealand could draw down its US dollar entitlement, with the Fed accepting New Zealand dollars as collateral – albeit at a cost. The facility did not have to be used because the Fed's swap arrangements meant that there was now international confidence that there was sufficient liquidity to avoid the threatening crisis.

Only a handful central banks were offered the arrangement. The Fed had to have sufficient confidence in the other currency to be willing to hold it. So the Fed had confidence in the New Zealand dollar. This confidence arose from its judging New Zealand having sound monetary and fiscal arrangements both legally and in terms of

its management (regular connections between central banking officials would have helped), together with low public debt (albeit New Zealand's international private debt levels would have been a concern).

Learnings

- *The Reserve Bank was not unprepared for a global financial crisis. (It has since made some other changes including requiring the trading banks to borrow offshore for longer periods than three months.)*
- *The key to the international liquidity crisis which followed the GFC was international cooperation. Reputation as well as prior formal agreements were crucial – which is normal in financial arrangements. New Zealand had a good reputation for its management of its fiscal and monetary arrangements.*
- *New Zealand was vulnerable because its domestic savings were insufficient for its needs and it was borrowing offshore. This might be thought of as another example of where increased domestic self-sufficiency would reduce vulnerability.*

Pandemics[16]

During the domestic recovery from the GFC shock – many other countries took longer – New Zealand was struck by two major sets of earthquakes (discussed above). The next major external shock to the economy was the 2020 Covid pandemic.

Pandemics can have considerable economic impacts. Bubonic plague persisted into the twentieth century. It began in the fourteenth, when it is estimated to have killed 30 to 60 percent of the European population (as well as many in Africa and Asia), markedly changing the land to labour ratio with a resulting increase in real wages.

Pandemics were not unknown to New Zealand once there was European contact. Throughout the nineteenth century the immunologically virgin Māori were beset by many new diseases – including dysentery, influenza, measles, STDs and whooping cough – which probably took a greater toll than did all the various wars. (They are given less attention; pandemics are rarely heroic.) The demographic destruction from the pandemics caused untold damage to the Māori economy; much less so to the settler one.

In 1918 New Zealand was struck by an influenza epidemic which took particular toll of Māori (and Samoans in Samoa) and affected working-aged adults more than is usual (typically pandemics affect mostly the young and the old). There were other shocks at the time from the unwinding of the war economy. The economic data is too

sparse to untangle the various effects. But the loss of the adults hampered the growth of the market and household economies in the 1920s (already suffering from losses of males during the Great War). An important response was the new Health Act in 1920, which radically restructured New Zealand's public health administration.

Numerous epidemics continued for the next century, with minor impacts on the economy and overall health – but sometimes devastating to those infected and their families. Mention should be made of a number of diseases which appeared in the first decade of the twenty-first century, not all of which reached New Zealand because its of distance from the centres of origin but which alerted authorities to the danger of an international pandemic. An *Influenza Pandemic Plan* was developed by the Ministry of Health in 2010 and updated in 2017.[17] It was a key resource when Covid-19 struck in 2020, even though the virus was not an influenza one, for it set out the administrative options available to deal with viral outbreaks.

While the plan prepared New Zealand for the Covid-19 outbreak, there had been a running down of public health services over the decade. Fortunately, the country was able to call upon resources in the university medical schools; an integral part of the quality of this resource was an ongoing study of past pandemics and a dialogue with overseas colleagues. Another key element was that compared to some other countries, New Zealand’s general public seemed to have a higher level of scientific understanding and so was more willing to accept vaccination and other preventative measures (although there was still a group of nay-sayers).

The Covid-19 pandemic could be likened to a World War, with a pervasive impact of on the world economy and on New Zealand.[18]

One of the main weapons was isolation though border closures; their effect on health was well illustrated by New Zealand having a low incidence of influenza while international people movements were restricted. The restrictions disrupted the tourist industry and the labour market. Today’s labour markets are very fragmented by skills and by location, so the issue was not merely aggregate labour supply but particular kinds of labour. Not only did this have direct economic effects but the reduction in air travel reduced the available cargo hold space for exports and imports; airlines switched to cargo carrying only, but the prioritisation by weight-to-value meant some goods were delayed (unavailability of new books needed for a locked-down population were a notable example).

Two lessons from the oil shocks were repeated. Internationally, ports were closed because workers were infected, which reduced the amount of shipping as ships were waited outside to be loaded. New Zealand, small and at the end of world, suffered shortages from the resulting supply chain disruptions. They were compounded where just-in-time supply was practised; New Zealand supermarkets had empty shelves because Australian and New Zealander suppliers were restricted by lockdowns which reduced output and supply chain disruptions.

Even where the product could be easily transported, small isolated New Zealand could suffer. It seemed to be at the end of the queue of affluent nations when accessing vaccines and new medicines. (There was an impressive response of the pharmaceutical industry to the pandemic.) Perhaps the logic was that, given New Zealand's isolation and opposite season to most other affluent countries, it was not an international priority.

Mention should also be made of the revolutionary impact on fiscal and monetary policy with the abandonment of the Austerianism – the policy of cutting back government spending and lowering public debt – which had dominated international policy after the Global Financial Crisis of 2008. As in the case of the immediate macroeconomic management, the approach was 'whatever it takes'. Instructively, in this case priority was defeating the virus, similar to the prioritisation which happens in warfare. (The macroeconomic consequences may not yet have unwound; similar to what happened following the Second World War.)

Some of the measures introduced during the Covid pandemic may have accelerated structural changes already underway. This includes the shift to working at home and the resulting changes to CBDs and urban villages.

Learnings

- Pandemics are likely to continue. New Zealand's past protection is less likely to be effective. At best it may give a little more time to react.
- Low level pandemics, like the seasonal bout of influenza, will be handled in a routine way like minor earthquake shocks and business cycles. However, pandemics involving novel viruses, of which Covid-19 has been a prime example, will involve unexpected issues. Therefore, any preparation needs to maintain the capacity to deal with the novel. Part of this capacity will exist outside the government bureaucracy in the medical schools; a thorough understanding of the history of pandemics is necessary but so also is good overseas connections.
- Key measures used to deal with a major pandemic will include border restrictions and lockdowns. They will be economically disruptive.
- Additionally, there are likely to be supply chains disruptions. Given its distance and size, New Zealand may be unable to do much about offshore ones, although there may be measures to prepare for them, such as the provision of reserves and not being over-dependent on just-in-time supply.

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