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Mahi a Rongo

PATHWAYS TO PROSPERITY

Capturing more of the value of our food and fibre sector exports for New Zealand

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The ingoa/name Mahi a Rongo was gifted to us by Dr Haare Williams (Te Aitanga-a-Mahaki, Rongowhakaata, Ngāi Tūhoe) in early 2022. It literally translates as 'Work of Peace', with both mahi and rongo embodying multiple meanings and associations in te ao Māori.

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NZIER was established in 1958 to undertake independent economic analysis and encourage debate on economic issues affecting New Zealand society.

The authors would like to thank the 18 food and fibre sector leaders and academics who contributed their expertise, experience and insights to this paper.

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Section 1

Generating more value in a complex world: The challenges we face

New Zealanders expect a high standard of living. They expect good housing, food security, consumer goods, and travel opportunities. They also expect the country to provide a high standard of publicly funded services, especially education, healthcare, and superannuation. A central challenge for New Zealand, in the twenty-first century, is how to afford these public services.

This is actually three challenges in one.

- The demographic challenge – The population of New Zealand is ageing. An ageing population puts higher demands on the healthcare system and different demands on housing and other sectors. At the same time, fewer people remain in the workforce, resulting in relatively lower tax revenue.
- The resource challenge – New Zealand, like most countries, is operating outside sustainable environment limits. Across the environmental domains of freshwater, greenhouse gas emissions, biodiversity, and more, there is clear evidence that human activities cannot continue as they have. New Zealand's economy must adjust to operate within biophysical limits.
- The economic challenge – The economy takes in resources and produces goods and services that contribute to people's wellbeing. The demographic challenge means there will be less labour resource and higher demand; the resource challenge means a decline in natural resources, either for extractive purposes or absorptive capacity. To maintain a high standard of living, the country needs to generate more value from the resources it uses. There are different ways to say this: we need to increase efficiency, we need to increase productivity, we need to capture more value from our products. Regardless of the language used, the essential challenge is the same.

New Zealand's past productivity performance has been relatively poor compared to Australia, the United States, and other small economies. The relative slide in productivity in the 1970s through 1990s has largely been halted (Galt & Stevens, 2023; Guillemette, 2009; New Zealand Productivity Commission, 2021, 2023). The problem now is how to catch up. This discussion paper tackles the issue of how to manage our economic resources differently to produce a different result, one that will allow a higher standard of living in the future.

This paper examines how the New Zealand food and fibre sector could deliver more value to New Zealand in the context of an ageing population and the need to maintain quality public services in the decades ahead.

In developing this report, we considered a wide range of reports and articles, and here we summarise the main findings. While the literature on the productivity of New Zealand speaks of the many issues the country faces, it also provides hope. It shows that we are doing some things well and visible pathways exist to improve our performance.

We also discussed these issues with leaders in New Zealand's business and export sector, primarily from the food and fibre sector. The food and fibre sector is important because it accounts for the majority of our export income and is a sector where we retain comparative advantages to grow the economy. Every day, leaders from this sector navigate the challenges of organising natural, human, and financial resources to produce products the world wants to buy. They spoke from experience about what needs to change. They provided key insights about how to capture more value from our exports and increase the export intensity – the value of exports as a proportion of gross domestic product (GDP) – of our economy sustainably. The primary industries are a good place to look for solutions: "they have long been productivity growth leaders, built off investment in research, technology, and its subsequent diffusion and adoption" (New Zealand Productivity Commission, 2023).

This discussion paper lays out the challenges and then explores pathways for government, business, and people to create the future we want. We hope to inspire people to come together to develop a plan for meeting these challenges and to work together to make it happen.

Section 2

The limits facing New Zealand

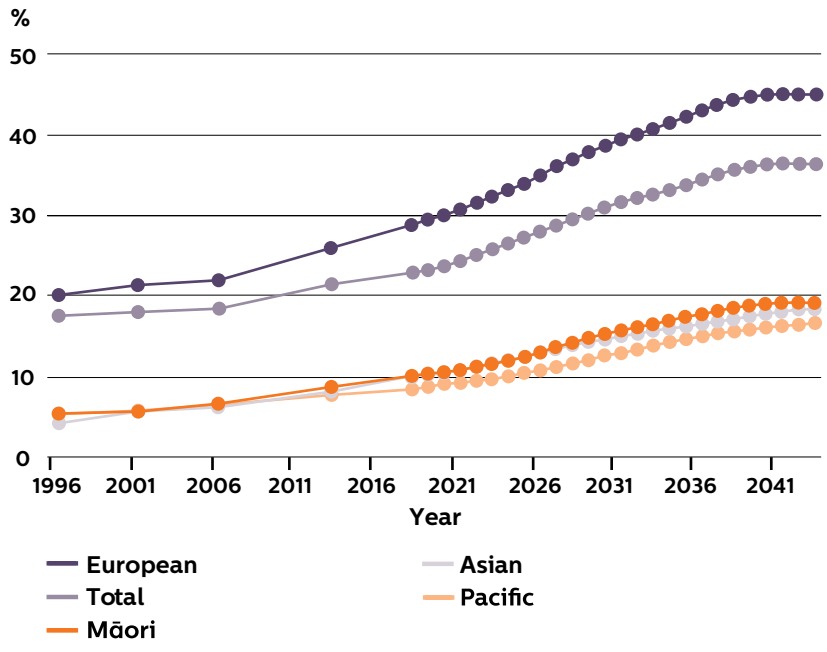
2.1 Can we afford the living and social services we have come to expect?

New Zealand is in a group of wealthier nations with high expectations of prosperity and wellbeing, including the public services available to our citizens. A strong economy is needed to afford the health and social services that support the living standards the population expects as the population ages. Demand for healthcare services, economic security in old age, and support for those needing a helping hand is set to increase. An ageing population exerts three main budgetary pressures:

- The number and proportion of people claiming New Zealand Superannuation will increase.
- An ageing population will require greater healthcare services and increase healthcare costs.
- A smaller proportion of the population will be working, so the output per worker needs to increase to produce the goods and services for the whole country.

The ratio of those aged over sixty-five to those aged fifteen to sixty-four, generally considered the working-age population, is increasing for all ethnicities in the country (The Treasury, 2021). Figure 1 shows how the ratio is growing over time. In 2022, the ratio was 25.2 per cent, meaning the country had four working-aged people for each person aged sixty-five plus. That ratio is expected to reach three to one in 2034.

Figure 1: Ratio of over sixty-five to fifteen to sixty-four population by ethnicity



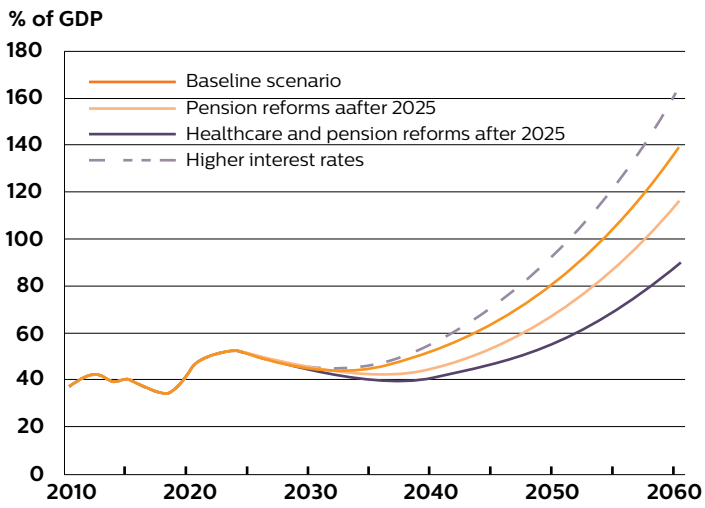
Source: The Treasury (2021)

The Treasury projections (2021) show that population ageing, in the absence of any policy changes, means we will see:

- Taxpayer-funded health expenditure increasing from 6.9 per cent of GDP in 2021 to 10.6 per cent in 2061.
- New Zealand superannuation expenses increasing from 5.0 per cent of GDP in 2021 to 7.7 per cent by 2061.

The Treasury reports that, if this continues, net debt will start increasing exponentially. Fiscal sustainability could then be at risk from a downward spiral where higher debt levels lead to higher interest rates and higher debt-financing costs (The Treasury, 2021). The OECD forecasts that, even with pension and healthcare reform, New Zealand's public debt is still set to rise significantly (OECD, 2022d), as shown in Figure 2.

Figure 2: Public debt forecast to rise even with expenditure reform



Source: OECD (2022)

If New Zealand wants to continue to enjoy a modern health system, world class-education services, and social support for those in greatest need, it needs to lift its economic game. We, therefore, explore how the country can get more goods and services to export markets in a sustainable manner to pay our way. In particular, we examine lessons learned from examples of 'value add' in the food and fibre sector and discuss how these practices can be replicated across the whole economy. We focus on these sectors because they produce over 80 per cent of the country's merchandise exports and present the most realistic opportunities for growth at scale.

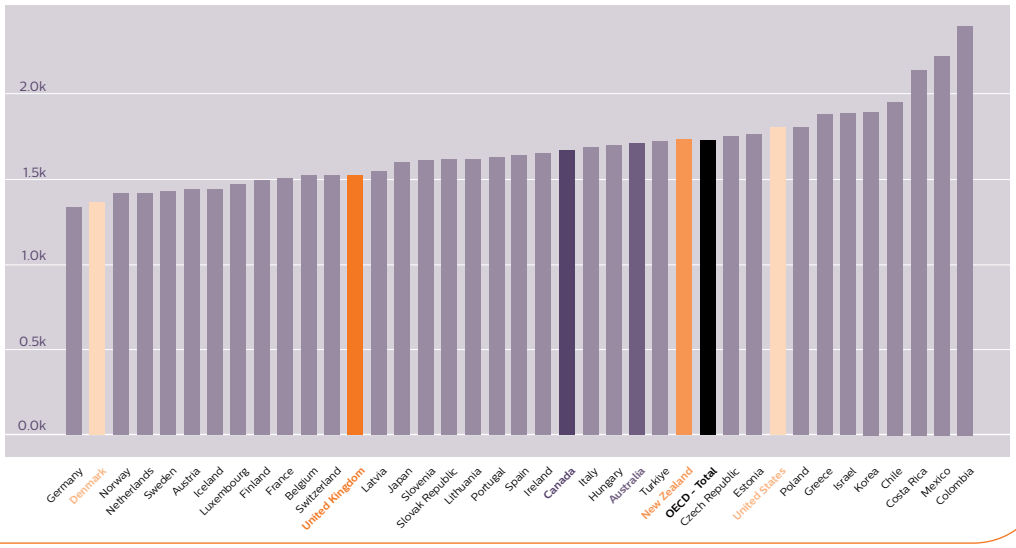
Unsustainable practices

New Zealand is pushing limits in two areas that matter: the deployment of human capital, which relates to productivity, and pressure on the natural environment, including water quality and greenhouse gas emissions, which relates to biophysical sustainability.

2.1.1 Working longer hours than many other economies

The average annual hours worked by New Zealanders sits at about the average for all OECD countries (OECD, 2022a). As shown in Figure 3, New Zealand is just below the average for all OECD countries but works more hours than typical comparator countries such as Denmark, the United Kingdom, Canada, and Australia.

Figure 3: Average annual hours worked



Source: OECD (2022)

In addition, New Zealand has been experiencing low unemployment. Until the recent recession, engineered by the Reserve Bank of New Zealand to reduce inflation (Pullar-Strecker, 2022), the country had the lowest unemployment rate in decades. People who want to work can find jobs.

These two facts – the number of hours worked and low unemployment – mean the country is unlikely to increase output from the existing population by throwing more labour resource at the economy. When there is slack in the workforce – when there are more people to bring into the workforce or when people could work more hours – then increasing labour participation is a viable option for growing the economy. In the current economic environment, that option isn't available.

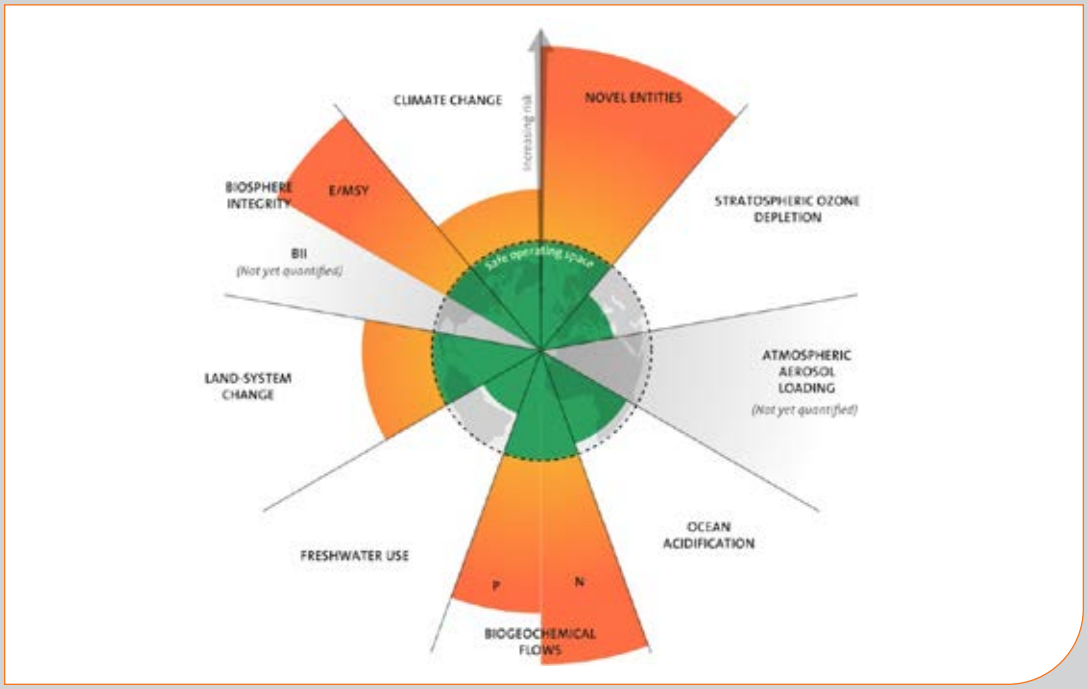
Recognising the impacts of overwork and its consequences on mental health and wellbeing is also important. A twenty-year meta-analysis of the effects of long working hours on health and occupational health showed "employees working long hours were vulnerable to suffering from diverse types of occupational health problems" (Wong et al., 2019, p. 2117). The General Social Survey reported mental wellbeing decline, with 28.2 per cent reporting poor mental wellbeing (up from 22.3 per cent in 2018 (Stats NZ, 2022a).

Increased productivity is key to lifting living standards in New Zealand because we earn more from what we produce. Productivity is measured as a ratio: how much output is produced for the inputs used. When the economy is up against the labour limit, businesses and workers must increase the output produced per hour. This is what is meant by an increase in productivity or a gain in efficiency – doing more with the labour and natural resources available rather than simply growing the overall size of the economy. We make a distinction between productivity growth and the overall level of productivity. Productivity growth has primacy if we want a dynamic economy. Productivity growth reflects the rate of innovation, increased competitiveness, and, ultimately, higher living standards.

2.1.2 Global and local environmental limits breached

Working physical assets and natural resources harder can potentially improve productivity. In many areas, however, such as land-based and marine industries, economic activity has reached or exceeded environmental limits globally and locally. Figure 4 represents the environmental limits within which humanity can operate. Five of the nine boundaries have been crossed into a zone of uncertainty. Climate and biosphere integrity are core planetary boundaries, which, when breached, impact other boundaries (Steffen et al., 2015).

Figure 4: Planetary boundaries – safe space and exceeded limits (2022 update)



Source: Stockholm Resilience Centre (2022)

Environmental limits can affect the economy of New Zealand via two key mechanisms. One is through production. As limits are exceeded, production becomes harder and more uncertain, e.g. overfishing a fish stock. Costs increase, and the amount of production falls. This is true for the primary sector, such as when drought reduces pasture growth and, therefore, meat and dairy production. It is also true for other sectors. As supply disruptions from COVID-19 demonstrated, international supply chains are vulnerable to localised problems because they rely on a few suppliers and just-in-time processes. With that experience in mind, in future, we may experience climate-related extreme weather events in one place that can have global consequences. The second mechanism is through consumption. Perceptions of the environmental impacts of industries can influence distributor and consumer decisions in our export markets. Loss of consumer demand can reduce the value of New Zealand's exports.

Calls for regenerative agriculture or a circular economy are making the connection between production methods, consumer preferences, and environmental impacts (Grelet et al., 2021). They advocate changing production processes to have low environmental impacts – or even regenerate degraded ecosystems. Then they target environmentally conscious consumers who value these low impacts or ecosystem regeneration and are willing to pay a premium (Saunders et al., 2016). These are system-level or integrated views of the economy that take into account production, consumption, and their wider impacts, for example when addressing the issue of food waste (PMCSA, 2022).

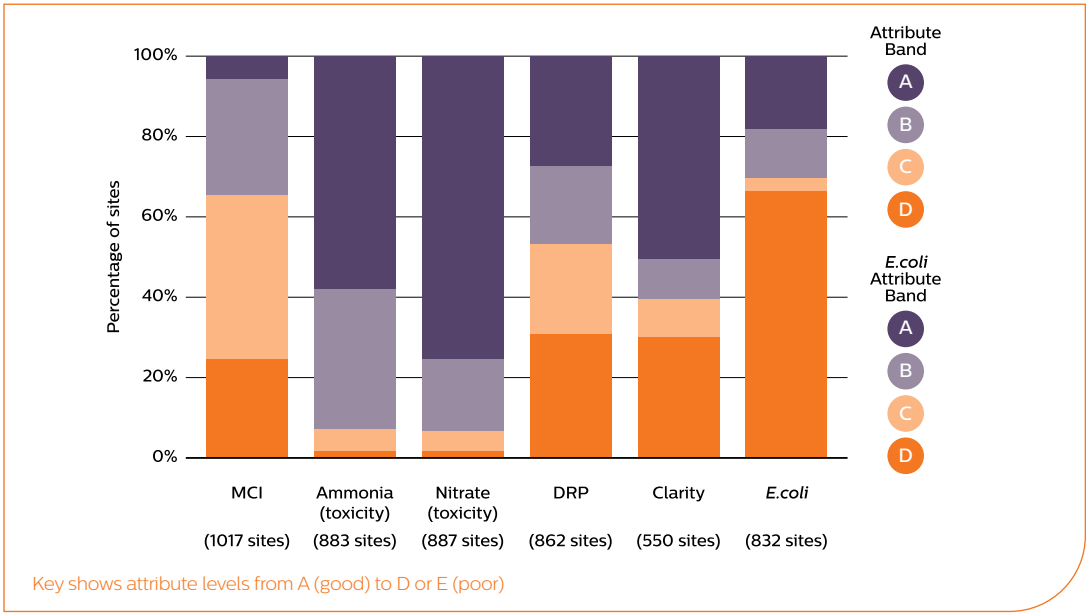
2.1.3 Land-use intensification

Land-use intensification produces mixed outcomes. Agricultural export income has increased since 2002, while the total area of land used for agriculture and horticulture has decreased. More economic output is produced on less land (Ministry for the Environment, 2021). Some of this is attributable to higher prices and more intensive land use. High global prices, such as those for dairy, have encouraged further intensification. For example, the number of dairy cattle in New Zealand has more than doubled since the 1980s.

This growth in output per land area is a productivity gain. It has, however, come at a cost – intensification of agriculture has pushed environmental limits in New Zealand generating negative externalities. These costs are often socialised, meaning they are not borne by those that generate these costs. The net effect is that, over time, real productivity gains may not be achieved.

River health is a good indicator of what is happening on the land. Land, Air, Water Aotearoa (LAWA) (2022) says impaired ecological health is evident at almost two-thirds of monitored river sites. Water quality tends to be good regarding nitrogenous contaminants, such as from fertiliser run-off, but poor on *E. coli* levels and when assessed on the macroinvertebrate index (MCI, a measure of the biological health of waterways). *E. coli* is produced in part from animal agriculture; run-off washes animal waste into waterways. These river indicators show that New Zealand is exceeding the capacity of the natural environment to absorb the externalities from economic activity. The country is breaching its environmental limits.

Figure 5: Summary state of national river health



Key shows attribute levels from A (good) to D or E (poor)

Source: Land, Air, Water Aotearoa (2022)

With land use intensification, the country is increasing its production and putting pressure on its resources. To maintain or improve wellbeing in the future, considering both the economy and the environment, New Zealand needs to increase the value captured from its production while operating within limits. It needs to increase productivity and efficiency, taking fully into account the environmental costs that are currently externalised.

2.1.4 Climate

Working Group III of the Intergovernmental Panel on Climate Change (IPCC, 2022) reported in 2022 that global net anthropogenic emissions have continued to increase for all major groups of greenhouse gases. From 1850 to 2019, the world has used two-thirds of the allowable budget for a 67 per cent chance of limiting global warming to 2°C. While the rate of growth in emissions in the 2010s was lower than in the 2000s, global emissions are still increasing, and a sense of urgency looms over mitigation.

New Zealand is a small contributor to the rise in global greenhouse gas emissions but is high on a per-capita basis. Many markets increasingly expect climate-friendly goods and services. This is likely especially true for higher value goods and services that are distinct and specialised. While there is some risk of *leakage* – reductions in domestic emissions being offset by increases in emissions elsewhere from more polluting producers (OECD, 2021b) – New Zealand stands to gain over the long term if it can meet demand in markets demanding climate-friendly products and services (Saunders et al., 2016).

Figure 6 shows where the greatest potential and 'reasonable buys' lie regarding mitigation. The length of each bar shows the potential for reducing emissions under each mitigation option, and the colour of each segment indicates the cost per tonne of mitigated emissions.

Some of the longest bars are in Agriculture, Forestry and Other Land Use (AFOLU). Figure 6 shows there is cost-effective mitigation potential for the New Zealand food and fibre sectors via carbon sequestration, reducing agricultural methane emissions and reduced conversion of forests to some pastoral uses.

In addition, transport is an area with a lot of cheap gains (blue bars). New Zealand's emissions profile, including high agricultural emissions, leaves the country well-placed to take advantage of effective and cost-efficient measures.

Figure 6: New Zealand's emissions profile aligns with 'best buys' in mitigation

Source: IPCC (2022, p. 42)

Climate change and productivity are linked. Addressing New Zealand's low productivity can be positive for climate change (NZIER, 2022). Better technology can help New Zealand meet emission targets.

New Zealand's agricultural emissions – a challenge and an opportunity

Due to our extensive agricultural production as a proportion of total economic activity, New Zealand faces a particular challenge in reducing the country's emissions in line with our national and international commitments. Approximately 50% of New Zealand's total emissions derive from the agricultural sector and of this total, 71% are enteric methane and manure from ruminant animals (mostly cows and sheep), with the remainder largely comprising GHGs associated with fertiliser use and coal use in primary processing facilities (NZAGRC, 2024). Enteric methane presents the biggest challenge, with most potential solutions likely to be biological in nature, and requiring extensive research, development and testing to ensure their effectiveness. Testing must also ensure potential solutions do not negatively impact animal welfare, food safety or product characteristics, or otherwise fail to meet market expectations.

Methane is highly potent as a greenhouse gas - approximately 30 times more potent than carbon dioxide over a 100-year period according to GWP100, the most accepted method of comparing the warming effects of different gasses (USEPA, 2023). This clearly presents a strategic challenge to the New Zealand food and fibre sector and to the country more generally, given our reliance on agriculture as an export earner.

Yet despite these hurdles, the benefits to New Zealand in developing a commercially-viable solution to agricultural emissions are immense. Not only would a solution reduce New Zealand's overall emissions profile and help us meet national and international climate commitments, it could also enhance the food and fibre sector's reputation as a producer of high quality sustainable food. This could provide a competitive advantage in high value offshore markets, where large food companies looking to reduce GHGs in their supply chains, as well as climate-conscious consumers, may be prepared to pay a premium for low-emission agricultural products.

Recognising the seriousness of the challenge presented by agricultural emissions, as well as the benefits of a solution, there are a number of research collaborations now underway. Key among these, the recently formed Centre for Climate Action on Agricultural Emissions as formed as part of a $338m New Zealand Government investment towards addressing New Zealand's agricultural emissions. The centre comprises two key components: the New Zealand Agricultural Greenhouse Gas Research Centre, a research accelerator and AgrizeroNZ, a 50:50 joint venture commercial accelerator with $165m of funding over the next four years involving large agribusiness players and the New Zealand Government (NZCCAAE, 2023). The scale of the investment, and the fact that it brings together the major industry players, government agencies and research institutions presents a promising opportunity to overcome a central challenge to the food and fibre sector, and even to potentially add long-term value to the sector.

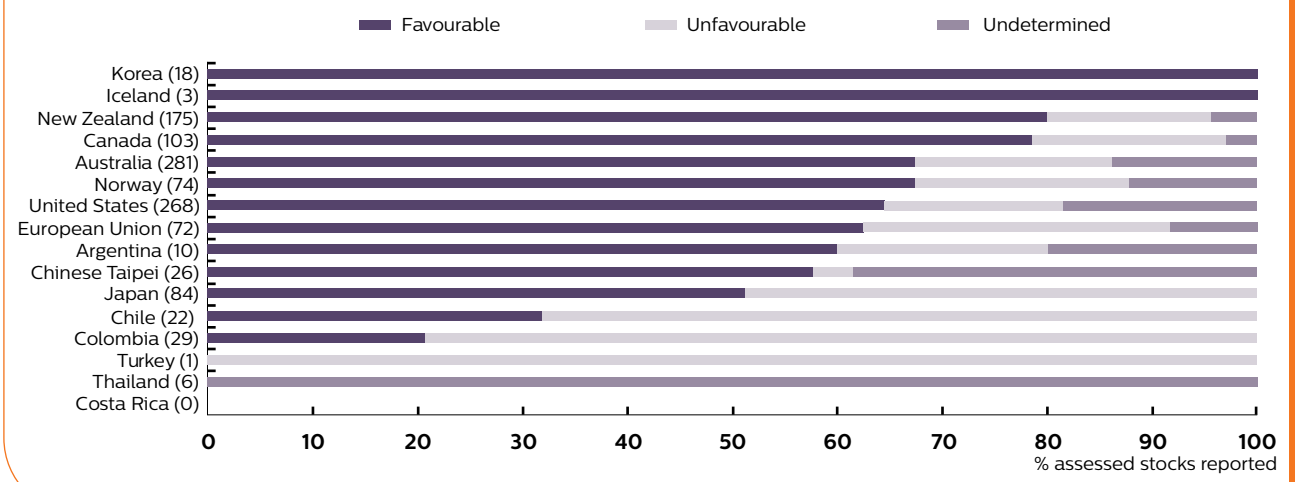
2.1.5 Sustainable fisheries management

New Zealand has large marine resources. The country "has one of the largest exclusive economic zones (EEZ) in the world with a diverse range of coastal and marine environments, habitats, and species" (Ministry for the Environment, 2022, p. 4).

The marine environment is under pressure, with climate change contributing to ocean acidification and rising temperatures. Human activity contributes to changes in marine ecosystems. Microplastics, sedimentation, bottom trawling, and dredging affect habitats and ecosystems. In time, these changes can affect the ability of New Zealand to benefit economically from our marine resources (Ministry for the Environment, 2022).

Global fisheries and aquaculture could be more productive and sustainable if optimally managed (OECD, 2020). Of the countries participating in the OECD's 2020 study, New Zealand does relatively well. The Ministry for Primary Industries (MPI) (2022) reports that 85 per cent of the evaluated fish stocks have no sustainability risk, as set out in Figure 7.

Figure 7: Biological status of all assessed fish stock in reporting countries



Source: OECD (2020)

While New Zealand's fisheries may appear to be in relatively good condition, we do not have good information on the state of more than half our fish stocks. As other fisheries deteriorate, New Zealand fisheries may come under increased pressure from global sources to meet demand world-wide. Moreover, climate change is almost certain to impact on ocean ecosystems – and thus New Zealand fish stocks – in the years ahead, with significant but unpredictable implications for fisheries management. Given less than half of the New Zealand fish stocks are assessed, it may be time to lift the scope of assessment (see Figure 8).

Figure 8: New Zealand fisheries are under pressure but are mostly in good shape

Source: Ministry for Primary Industries (2022)

There are opportunities to ensure producers add value and stay within sustainable limits. The Office of the Prime Minister's Chief Science Advisor (OPMCSA) produced *The future of commercial fishing in New Zealand* (2021). One example provided was Iceland: the report noted how the volume of fish caught in Iceland has decreased in recent decades, but their export value has increased through shared processing to reduce costs and increase value from more complete use of the catch.

A twenty-year review of global aquaculture notes the improvements in efficiency in marine resource use over recent decades and points to the need for good governance in the future. This includes science-based goals without overly prescriptive regulation so innovation can take hold and adapt (Naylor et al., 2021). New Zealand's experience with land-based agriculture is a story of ongoing science-based innovation. Aquaculture, which is part of our biologically based economy with one of the world's largest exclusive economic zones, holds great potential.

The Government of New Zealand has produced an Aquaculture Strategy to guide the sector's development over the next ten to fifteen years (New Zealand Government, 2019). The strategy starts by recognising that climate change and a growing global population are putting pressure on natural systems. Wild-catch fisheries are in decline and are likely to get worse. Aquaculture – both marine aquaculture and land-based aquaculture – can be a source of sustainable growth. One of the pillars of the strategy is *Extending aquaculture into the open ocean*, where cooler and deeper waters can support large-scale seafood production. The potential returns are large: the strategy notes that a 10-hectare salmon farm can generate $140 million in annual revenue. The strategy is also committed to good environmental outcomes and sees strategic and integrated planning as key to good outcomes. The strategy also notes *mussel farms have been shown to be some of the most biodiverse areas remaining on our coasts*, suggesting that economic production can be integrated with environmental values. Navigating these environmental limits will be key to developing the sector.

2.1.6 Forestry sector

New Zealand's forestry export revenue in 2022 was $6.5 billion (Ministry for Primary Industries, 2023c). There are essentially three activities in the exotic forestry sector in New Zealand, although they are integrated in terms of activities and products:

- Export of logs – over half of forestry export revenue is derived from logs.
- Export of other wood products – they include sawn timber, pulp, paper, and other forestry products.
- Carbon revenue – under the Emissions Trading Scheme (ETS), some forests are eligible for carbon credits that can be sold as another source of revenue for foresters.
- There is a large demand for unprocessed wood, including high demand from China, which takes over half of New Zealand's forestry exports, including 89 per cent of logs (Ministry for Primary Industries, 2023c). New Zealand has an ample supply of wood to meet this demand over the coming years due to forests planted in the 1990s.

New Zealand has long sought to increase wood processing onshore to create higher-value products and more employment. The government has encouraged international and domestic investors to invest in the wood processing sector. Invest New Zealand (2020) highlights the following benefits:

- Versatility – the sector offers softwood species for many products.
- Sustainability – environmental standards in New Zealand are robust.
- Availability – supply is forecast to exceed 25 million cubic metres annually for the foreseeable future.
- Capability – there is a well-established wood processing sector with infrastructure.
- Stability – New Zealand is generally a good place to do business and stable for investors.

Regulation changes around the ETS simplified forest carbon accounting and improved access to carbon credit revenue. Forests are eligible to receive carbon credits on an annualised basis for the first rotation, with an obligation to replant or repay the credits. Carbon credits can provide useful cash flow during the first rotation before any revenues have been realised from harvesting.

Exotic forestry faces several environmental and social licence challenges under its current business model in New Zealand, including:

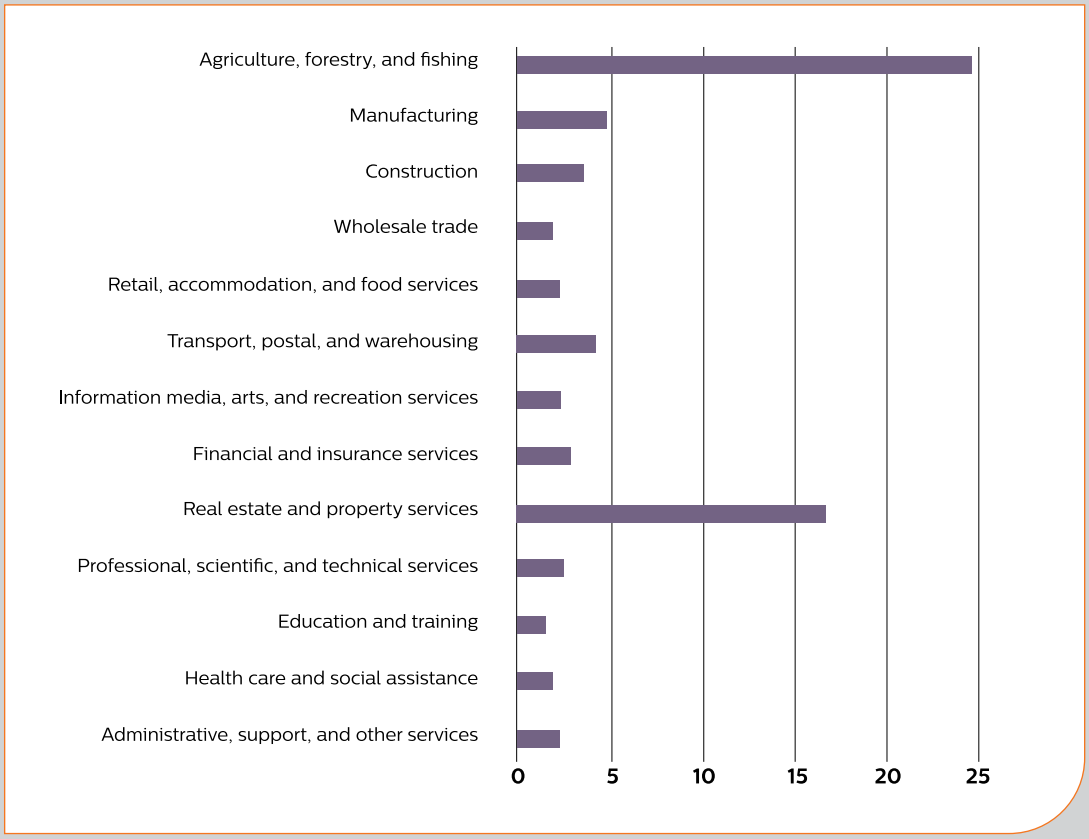
- Biodiversity impacts – plantation forests are large monocultures of an introduced species, so they replace indigenous vegetation and affect native populations of birds, insects, and other organisms.
- Erosion – some forests are planted on steep and erodible terrain unsuitable for pastoral agriculture. During harvest, the loss of ground cover can lead to significant sedimentation in waterways and erosion of slopes.
- Residue – forestry residue or 'slash' is the biomass or material left behind after the commercially valuable wood is removed. During storms, this residue has washed down slopes, damaging roads and bridges, and covering beaches. One particularly hard-hit location is Tolaga Bay (Taunton, 2023).
- Social impacts changes in land use affect employment and commercial opportunities, and these effects can be highly localised in remote rural areas. Pressure from rural communities and agricultural groups may influence policy settings related to forestry.

The forestry sector is valuable to the economy of New Zealand, but also faces some challenges. There are possibilities for economic development, including greater productivity and increased value-add from processed wood products. However, the industry also needs to contend with some environmental limits as well as the threats to its social licence created by some issues, such as displacing sheep and beef farming and concern about workplace health and safety.

2.2 The Māori dimension

The Māori economy is growing (BERL, 2021). Māori have a relatively high stake in agriculture, food, and fibre, and incorporate key principles of productivity and sustainability into their worldview.

Figure 9: Māori financial assets by sector



Source: RL (2021)

While not traversed in detail in this report, the Māori component of the food and fibre sector is worthy of specific examination as the Māori economy continues to grow. In 2018, Māori primary sector assets were estimated at $23b (MPI, 2022), with Māori accounting for 30% of total New Zealand beef and lamb production. Meanwhile, Māori horticulture was estimated to have grown 300% in 12 years. Many analysts point to considerable growth potential, with estimates that the wider Māori economy, currently valued at around $70b in assets, may grow to $100b or more by 2030 (NZTE, 2017).

Concepts of kaitiakitanga, sustainability, and authenticity held strongly by Māori are important in both domestic and export markets. The New Zealand Productivity Commission report *He Manukura: Insights from Māori frontier firms* interviewed leaders within the Māori economy (Mill & Millin, 2021). It provides insights from seventeen Māori leaders and includes some similar themes to those identified in this report, especially in relation to coordination and capability building.

Section 3

The economic challenge

3.1 The complexity of productivity performance

A central idea in this discussion paper is that New Zealand needs to improve its economic productivity. Given its importance to New Zealand's wider economy, improving productivity within the food and fibre sector has long been seen to present a significant opportunity to boost New Zealand's overall economic performance.

A key part of the solution will be increasing the export intensity of the economy – generating more value from exports. Companies in New Zealand that are more productive – those closer to the 'productivity frontier' – are more export-intensive and technologically advanced than other companies (Fabling, 2021). Companies that export more are larger, more capital-intensive, and have higher labour productivity (Fabling & Sanderson, 2009). The link between exporting and productivity is important for the country's economic future.

To create a base for the proposed pathways presented later in the paper, this section explores New Zealand's productivity statistics to get a better picture of how the country has been doing.

Economists think about productivity as the amount of output we produce for the amount of inputs used. Traditionally, labour and capital have been the main resources. This focus is still reflected in the economic statistics produced today by agencies like Stats NZ. However, labour productivity and capital productivity, while important, are partial measures of productivity in an economy. Innovation and technology is another input, and affects how labour and capital are used. The combination of labour, capital, and technology is measured by something called multi-factor productivity. Economists also recognise the importance of natural resources, such as land and water, but this is a later addition to economics and not covered as well in official statistics.

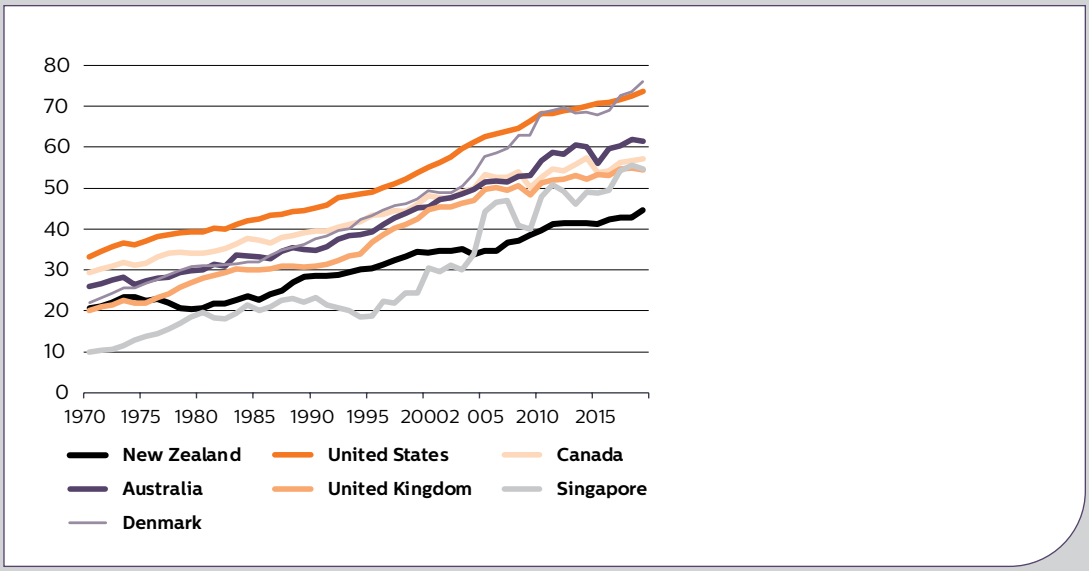
3.2 Productivity growth has been alright lately

This discussion paper focuses on productivity growth rather than levels of productivity because it reflects the rate of ongoing innovation and competitiveness in the wider world, which in turn drives higher living standards. The value of economic production per hour worked has risen more slowly in New Zealand than its peers over the last fifty years. Low productivity growth has been an abiding concern for New Zealand (Conway & Hunt, 1998; Dalziel, 2002; Evans et al., 1996; McCann, 2009): "That New Zealand's aggregate growth and productivity performance has been poor over the period over the 1980s… is well known amongst economists" (Chapple, 1994, p. 52). However, since about 2005, performance relative to peers has been stable (Galt & Stevens, 2023). That is to say, New Zealand is not falling further behind but is not catching up either. This mixed story can be shown in two graphs.

The first graph below (see Figure 10) shows the value of GDP per hour worked (an aggregate measure of labour productivity) in several countries, including New Zealand. It shows the country roughly on par with Canada and the United Kingdom in 1970 and then at the bottom of the pack in 2019. This figure is taken from *He Tirohanga Mokopuna 2021*, The Treasury's 2021 statement on the long-term fiscal position. It represents a fairly common view of productivity in New Zealand (Conway, 2018; McCann, 2009).

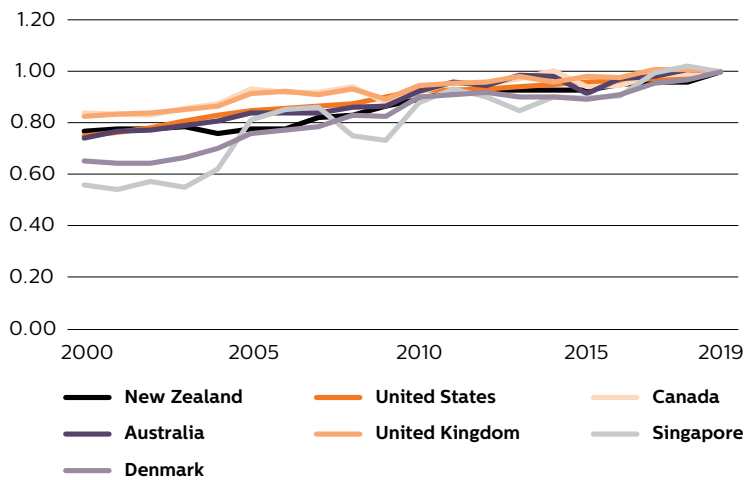
The second graph (see Figure 11) shows the same data for the same countries. This time, productivity is shown as an index, with productivity in 2019 set at 1.00, and the date range starts at 2000. This presentation does two things. First, it shows the performance of each country relative to today with lines that start lower and have steeper slopes, indicating better productivity growth. Second, this presentation focuses on the recent past rather than the 1970s and 1980s. The graph shows that New Zealand has achieved similar levels of productivity growth with the United States, Australia, the United Kingdom, and Canada since 2000, though remaining significantly lower in absolute terms. Singapore and Denmark have out-performed the other countries, but, since 2005 or 2006, New Zealand has kept up with them, too. This graph suggests that the country's rate of productivity growth has been average – unremarkable – not that it has been poor relative to peer countries. Because the country started from a lower level of productivity, however, the average rate of productivity growth has allowed it only to maintain its relative position rather than catch up to the rest of the world.

Figure 10: GDP produced per hour worked



Source: The Treasury (2021)

Figure 11: Productivity indexes for several countries



Source: The Treasury (2021)

3.3 Other metrics show better performance

Productivity measured as GDP per hour worked is only one measure of economic performance. Other metrics tell a different, more positive story than productivity. Metrics focusing on consumption, such as wellbeing or Gross National Income, provide a more positive assessment of New Zealand's performance over the past few decades.

- Compared to other countries, New Zealand saw the real net national income per capita fall in the 1970s, reach a bottom somewhere between 1990 and 2000, and grow since then (Galt, 2023).
- More recent work suggests that the aggregate wellbeing of New Zealanders has more than kept pace with the rest of the world since the reforms of the 1980s and 1990s, using a measure of net national income as a proxy for wellbeing (Grimes & Wu, 2022).

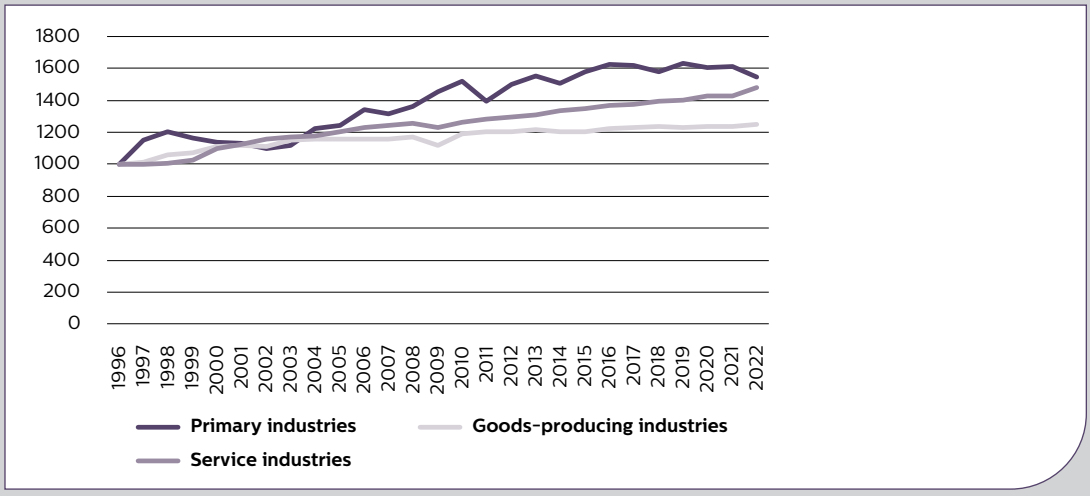
Metrics that focus on consumption and wellbeing, as opposed to production, make any blanket assessment of the economy more difficult. The country does not appear to have fallen further behind its peers over the past twenty years. If anything, the productivity growth of the past fifteen to twenty years, coupled with the annual hours worked (above), paints a stable, middling picture of an average economy, neither falling behind nor catching up to its peers. Nevertheless, producing goods and services efficiently is necessary to maintain a high standard of living. As shown above, the country will have fewer workers in the coming decade, so it will need to improve productivity to produce the goods and services the population wants. Better productivity growth is therefore worth pursuing.

3.4 Productivity growth is uneven across the economy

To understand productivity in New Zealand, it is important to examine differences across the sectors of the economy. This approach is similar to work in New Zealand on New Growth Theory that investigated the drivers of sectoral productivity (Mason, 2013). The work found that sectoral productivity growth "ranged from the excellent (Communications, for example) to mediocre (Basic Metals) to the poor ([Retail] Trade, Restaurants and Hotels)" (Chapple, 1994, p. 52). It found that the drivers of growth were difficult to pin down. Two possible explanations were technological changes and the impacts of returns to scale – the ability to gain efficiencies through large-scale production. Later research similarly found a complex picture of productivity at the industry level (Mason, 2013). Roughly 30 per cent of the difference in labour productivity was attributed to the structures of the Australian and New Zealand economies. The remaining 70 per cent was due to within-industry productivity differences. Australia was found to have more capital inputs per worker, but an important driver was multi-factor productivity (MFP). A major issue with relying on MFP as an explanatory cause is that it is essentially a statistical residual capturing a variety of complex factors: innovation, performance, management, entrepreneurship, etc. – "the effects of **hard-to-measure** capital investments in innovation and a range of **other unmeasured influences** on performance" (Mason, 2013, p. 3, emphasis added).

New Zealand's primary sector – agriculture, forestry, fishing, and mining – has had higher labour productivity growth than the rest of the economy (see Figure 12). This statistic means that on-farm (and on-orchard and on-vineyard) production per unit of input has grown substantially in the past twenty to thirty years. The primary sector represents around 6 per cent of the economy (and over 80 per cent of merchandise exports), so the sector more than pulls its weight but cannot pull the whole economy by itself. Also, some of the gains of the primary sector should be considered in light of the environmental degradation caused by intensification – especially water and biodiversity impacts and greenhouse gas emissions (Foote & Joy, 2014; Moller et al., 2008; Mueller et al., 2016). The manufacturing sector – also called the secondary or processing sector, including processing of agriculture, forestry, and fish products – has had very low growth in labour productivity, nearly none in the past twenty years. It represents 9 per cent of the economy. Manufacturing is also a part of the economy that can benefit from the proposed pathways presented later in this discussion paper: New Zealand could produce higher-value products and capture a larger proportion of consumer spending in export markets.

Figure 12: Productivity index by economic sector



Source: Stats NZ (2023)

Finally, the services sector is the bulk of the economy – around 70 per cent. The productivity performance in services has been mixed – very good in some parts and poor in others (New Zealand Productivity Commission, 2023). If New Zealand wants a higher standard of living, it cannot focus just on the primary sector and manufacturing; services must contribute. In the food and fibre sector, services include industries such as wholesaling, warehousing, transport, retailing, and research and development, and they are considered in more detail in this discussion paper. Understanding the potential contribution of the service sector to productivity gains in manufacturing and primary production is important, through activities like planning and logistics. Outside the food and fibre sector, services include activities such as healthcare and education. Those activities are not the focus of this discussion paper, but the size of those industries in the economy is an important context.

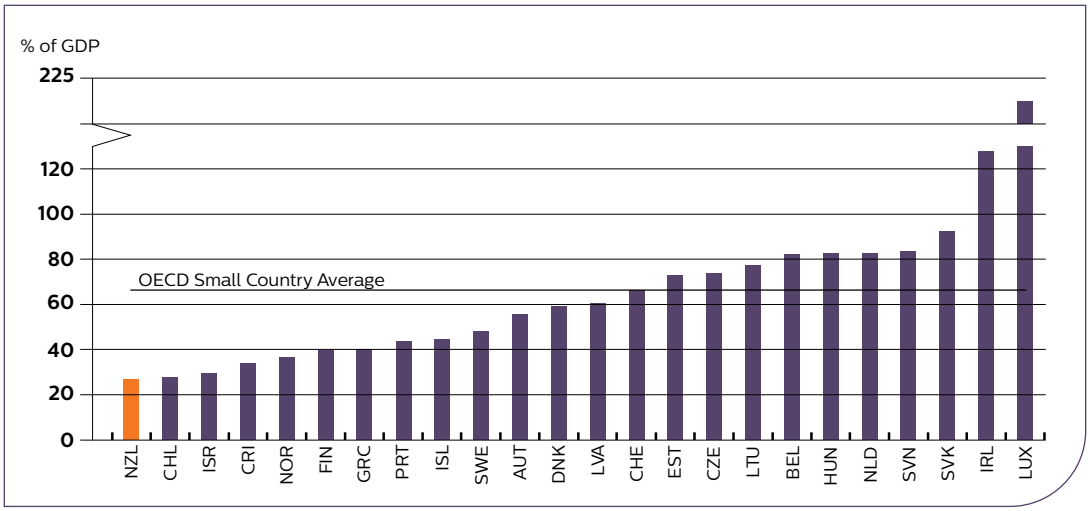
3.5 Busting the 'export economy' myth

Creating products and services that offer greater value to customers provides a path for the country to lift its overall national income without having to work longer hours or further stress fragile ecosystems. This is especially true for export markets, to which New Zealand sends over 90 per cent of production from some primary sectors. It is an important part of a 'value capture' strategy.

There is a popular tendency to think of New Zealand as an exporting economy. The economic discussion focuses on exports as part of healthy international trade, which is vital for a small country with a limited manufacturing base and a small domestic consumer market. The country *aspires* to be an export nation.

The data show we still have a long way to go. New Zealand has the lowest export intensity of the 24 OECD small countries (less than 20 million population). Our goods and services export intensity (exports as a percentage of GDP) in 2021 stood at 27 per cent compared to the OECD small country average, which exceeds 60 per cent.

Figure 13: New Zealand has low export intensity



Source: Source: OECD (2021a)

New Zealand's largest categories of exports are agriculture, tourism (pre-COVID-19), and horticulture. China and Australia are especially important destinations, receiving two-thirds of the country's goods and services exports. In examining the historic export intensity of New Zealand, Skilling (2020) points out that the portion of GDP from exports today is essentially at the same level and composition as in the 1980s.

New Zealand is often compared to other OECD small economies, but most of those are in Europe and well integrated into the EU single market. New Zealand is distant from key markets (Saunders et al., 2021), which poses significant barriers. We can participate in global value chains (GVC) by importing foreign inputs to add value to goods and services we then export (backward GVC participation), and also by exporting local goods and services to countries that use our exports as inputs to their goods and services exports (forward GVC participation). However, we rank at the bottom of the OECD small economies on participation in GVCs. Finding ways to improve participation in GVCs is critical to reaping the benefits from them.

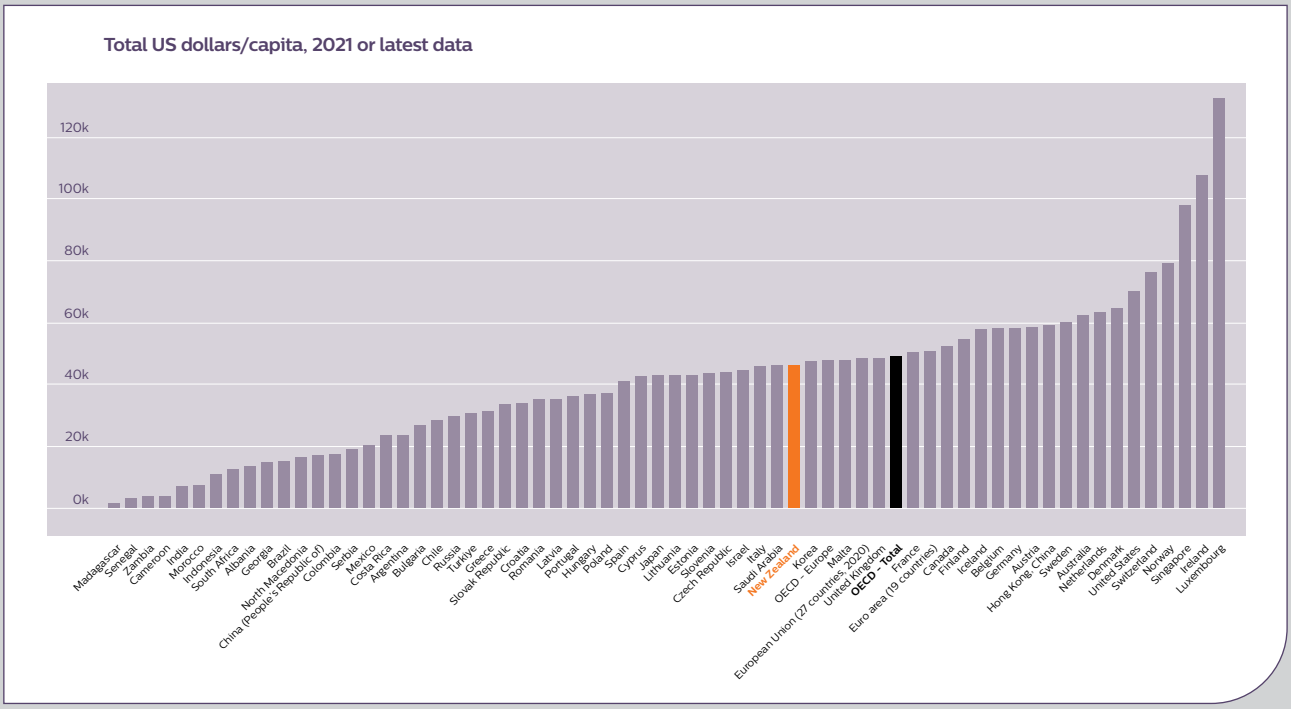
New Zealand aspires to be an export economy, and it can draw that aspiration to work around the challenges of distance and take advantage of the opportunities its geography and strong institutions afford. For example, greater foreign direct investment in New Zealand and greater domestic investment can directly boost exports and GVC participation, as long as the investment is geared toward greater productivity and integration. The country's inward foreign direct investment is among the lowest of the OECD small economies. Investment allows new firms to be born global and helps existing exporting firms move more quickly to scale (OECD, 2022b). Local investment, while small-scale, could be an avenue for boosting a nationwide focus on export success. While there may be some scope for institutional investors (e.g. KiwiSaver funds, NZ Super Fund), small-scale investment is hampered by capital tied up in housing stock and the ongoing issues with housing affordability (OECD, 2022d). Becoming an actual export nation will require tackling many interrelated economic issues.

3.6 The impact of export intensity

Increasing export intensity will be a key part of lifting productivity. Figures from the OECD help describe the potential impacts. The estimated value of 2021 exports from New Zealand was US$44,781 million (OECD, 2021a).[1] Just as a thought experiment, the estimated impact of doubling the country's export intensity of goods and services from 27 per cent to 54 per cent of GDP – adding 27 per cent to GDP – lifts per capita GDP[2] from US$46,474 to US$59,022. This level of per capita GDP would put New Zealand among a middle group of OECD countries, on par with Germany, Austria, Hong Kong/China, and Sweden, with Australia not far away. This would be close to the OECD country average.

Seeking to reach an average sounds like a modest ambition, but doubling export intensity is very ambitious. As shown below, New Zealand has a relatively low percentage of exports compared to the size of our economy. Doubling that level, as the new Government aims to do within ten years, will be very challenging.

Figure 14: Doubling exports to grow the economy



Source: OECD (2021a)

The increase in exports would boost GDP and, therefore, taxes paid to support publicly funded services. We have calculated that doubling export intensity could increase tax revenue by NZ$22 billion. This is enough to nearly double governmental health expenditure, which is the single largest area of government social services expenditure.[3]

The calculation demonstrates how increasing export intensity can directly support the level of public expenditure the country would like to maintain.

1. OECD trade in goods and services is defined as the transactions in goods and services between residents and non-residents. It is measured in million USD at 2015 constant prices and PPPs, as percentage of GDP for net trade, and also in annual growth for exports and imports. All OECD countries compile their data according to the 2008 System of National Accounts (SNA). https://data.oecd.org/trade/trade-in-goods-and-services.htm
2. $46,474 x 1.27 = $59022. **https://data.oecd.org/gdp/gross-domestic-product-gdp.htm**
3. The calculation is as follows. An increase of export revenue of US$45 billion equates to an increase in GDP of about US$39 billion, because the OECD estimates that the country's value-add-to-GDP ratio is 87.6 per cent (OECD, 2023). The tax-to-GDP ratio in the country was 33.8 per cent in 2021 (OECD, 2022c). The increased exports should raise tax revenue by US$13 billion, or about NZ$22 billion. This equates to more than 90 per cent of annual government health expenditure.

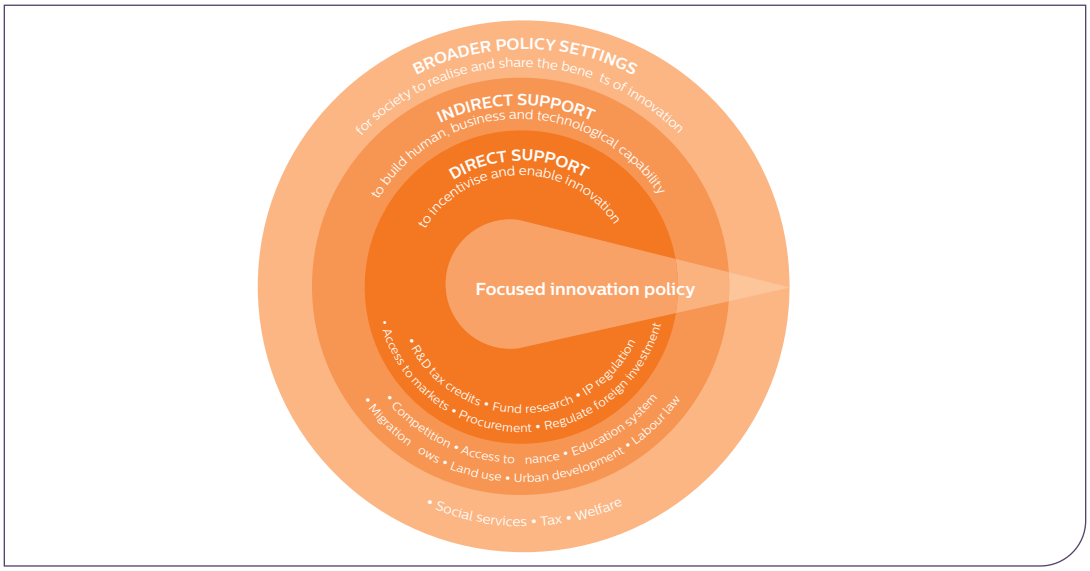
3.7 Lifting export intensity with greater value capture: Getting more high-value products to markets

The New Zealand Productivity Commission (NZPC) (2021) points out that successful small, advanced economies are strong on exporting specialised and distinctive goods and services. These are small countries with big firms that compete internationally, firms that are at the frontier of technology and productivity – *frontier firms*. The more frontier firms there are in New Zealand, the greater the potential to double the country's export intensity. For the country to be successful at exporting, the NZPC concludes that three strategies are needed:

- High quality foreign direct investment.
- Support for the fixed costs of innovation and exporting.
- Building ecosystems – a cluster with an anchor firm and a network of suppliers under a larger umbrella.

Research has demonstrated that while the resources, demographics, and institutions in a country play an important role in the economy, they do not uniquely determine what a country will produce and export. Different goods and services have different consequences for economic growth. Government policy has a potentially important positive role to play in setting up the export ecosystem for success (Hausmann et al., 2005). For frontier firms that will lead export growth, government effort needs to be focused and enduring as international market development is long term.

Figure 15: Framework for investment in focused innovation



Source: Source: NZPC (2021)

New Zealand Trade and Enterprise has identified the main challenges to firms trying to grow exports in a joint report with the New Zealand Productivity Commission (Sim et al., 2021). The top five challenges are:

- Building brand awareness and highlighting credence attributes that matter to consumers.
- Finding the right partners and channels (i.e. intermediaries, such as retailers and distributors).
- Countering strong overseas competition.
- Understanding how destination markets differ from New Zealand markets and each other.
- Determining the right export pricing strategy and product-related costs to remain competitive and profitable.

The top five potential responses are:

- Introductions and networking.
- Working with distribution and marketing partners.
- Strategic planning.
- Market intelligence.
- Training and recruitment.

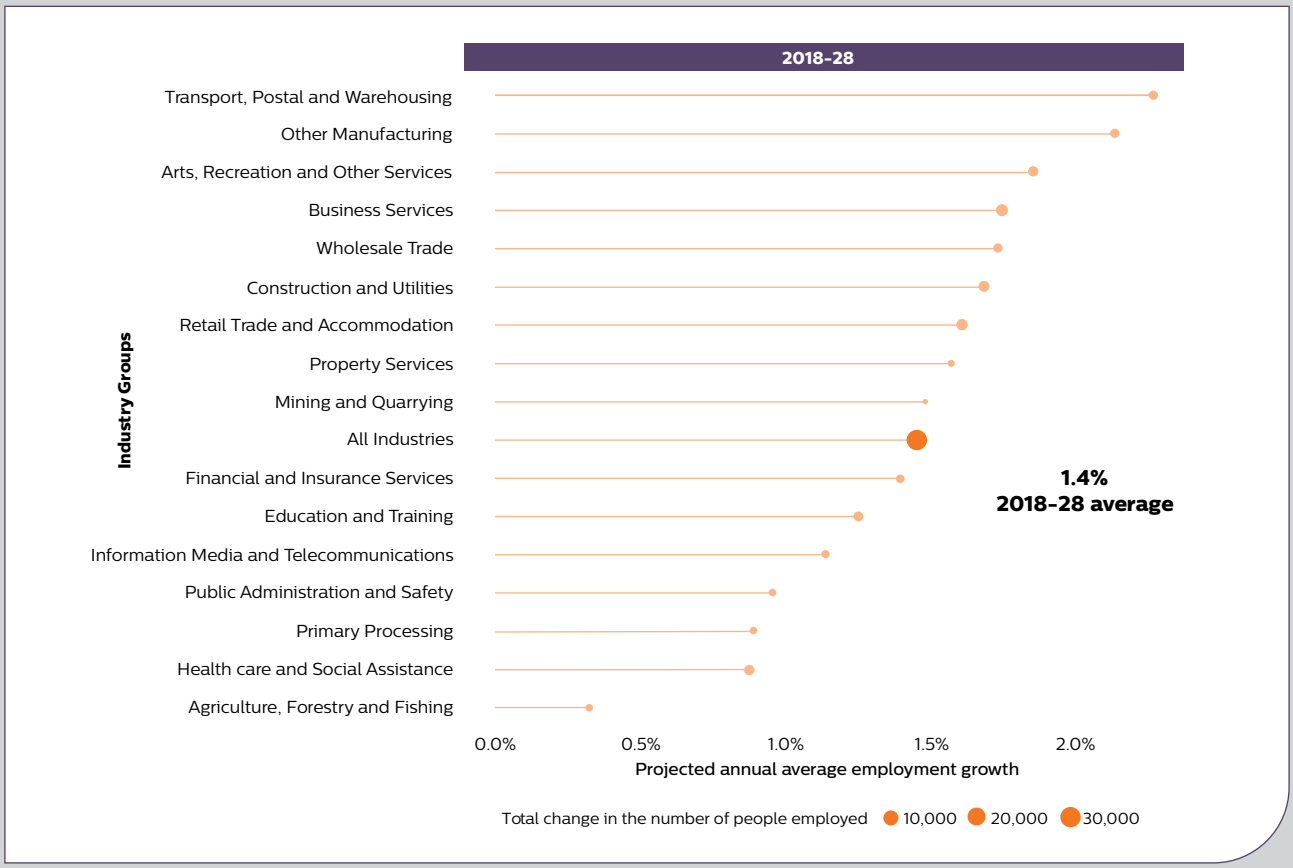
Among the food and beverage firms in that research, which are also the subject of this discussion paper, working with distribution partners and strategic planning were the most cited approaches to increasing exports. Their responses suggest possible pathways to doubling the country's export intensity.

3.8 Skills for an export economy

An export economy relies on the movement of goods and services as well as business support services. The Ministry of Business, Innovation & Employment's (MBIE) (2019) employment growth forecasts show strong demand for workers in these areas (Figure 16). Jobs in primary processing, agriculture, forestry, and fishing show slower growth compared to other sectors as technology and other productivity gains replace manual labour. Nevertheless, those sectors still expect to see workforce growth.

Other skills are also important for building export intensity. Skilling (2019) identified common traits in successful small export economies, including a strong emphasis on research and development, knowledge and innovation, and significant investment in education.

Figure 16: New Zealand's fastest-growing industries



Source: Ministry of Business, Innovation & Employment (2019)

Exporting is difficult and complex. It requires a large number of managerial skills, plus commitment and coordination. Industry experts we spoke with emphasised the difficulties firms face, especially in growing from low levels of sales into tens of millions of export revenue. There is also a chicken-and-egg problem: people can develop those skills working inside large exporters, but the country has only a few such companies. Only a few people learn those skills, limiting the number of managers with the necessary skills and experience to grow New Zealand's export intensity.

Prior research has assessed the impact of management skills and the gap between those in New Zealand, and world-leading skills. The New Zealand Productivity Commission's (2023) report, *Productivity by the numbers*, discussed earlier research on managerial skills. The earlier research suggested that "New Zealand managers surveyed are 'average to middling' by global standards" (Green & Agarwal, 2011, p. iii). The NZPC (2023) concluded that "management practices in New Zealand manufacturing were weaker than in most of the OECD countries for which data was available" (p. 67). It further pointed to other research showing that management practices showed limited change between 2005 and 2017 (New Zealand Productivity Commission, 2023; Sanderson, 2022).

In the short term, adjusting immigration settings to facilitate entry to more skilled workers and

supporting skilled workers who want to work more hours might be able to help. Below the headlines in our labour statistics, a less-noted statistic suggests the economy does not always get the most out of the existing workforce. The country had 99,000 underemployed workers in September 2022 (MBIE, 2022). This is a group of people with proven skills who want to work full-time but face barriers such as difficulty in finding childcare and family responsibilities (Meehan et al., 2022).

Research shows gaps in the skills required to build exporting businesses and an export economy. However, research on immigration and the labour market has also pointed to potential sources for the required skills. Another part of increasing export intensity will be making the sorts of changes required to increase skills in the workforce.

3.9 The domestic situation influences our export intensity

Recent research shows that to encourage export intensity, it is important to create an overall export-friendly environment, particularly in periods of greater growth in the domestic market, as firms will tend to concentrate on the domestic market (Forte & Carvalho, 2022). High rates of net immigration may fuel domestic demand even further.

With more than a decade of major adverse events, including earthquakes, pandemics, and damaging storms and floods, the public and private sectors in New Zealand have, of necessity, focused much of their bandwidth and resources domestically on recovery and building resilience. In 2023, business confidence was at a low ebb and impacted further by Cyclone Gabrielle (NZIER, 2023). Now is the time to prepare and chart a course for increased exports as domestic demand begins to pick up in 2024.

Section 4

Interviews with leaders in the food and fibre sector

4.1 Our process of engaging with leaders

It is one thing to look at statistics and trends to assess how the economy and its industries are performing. It is quite another to be involved in the businesses that make up the economy: to decide what to produce, where to sell it, and how to organise the whole venture. Economists can talk about export intensity, but it will be people in business who make it happen.

To understand the views of those at the vanguard of export growth, we spoke with leaders from the New Zealand food and fibre sector. Exports from the food and fibre sectors make up the bulk of the country's merchandise exports and productivity growth in the primary sectors has performed well in recent decades, though manufacturing less so. These leaders have taken the economy this far. We wanted to know what they think should happen next.

We interviewed 18 people, including people who have been involved in many of the country's largest export sectors and have had overseas experience. All of them were generous with their time and ideas about improving New Zealand. We conducted semi-structured interviews with these leaders. The aims of a semi-structured interview are two-fold: get respondents talking about the things that matter to them and ensure the discussion covers the topics important to the research. Respondents spoke about their experiences and perspectives, and offered suggestions for improving the country's economic performance. The research questions we used to guide this research were:

1. Are you aware of good domestic or international role models for New Zealand as it seeks to lift value and export intensity?
2. New Zealand has had a biologically based export economy. We have stretched primary industries in many areas to the ecological limits. How important is sustainability to the future of global trade?
3. Looking at the consumer product business, are there areas where New Zealand should focus?
4. New Zealand has done well in negotiating a large number of free trade agreements. Do you think New Zealand faces a higher degree of complexity than others (e.g. distance, scale, environmental limits) in making the most of market access?
5. With New Zealand bottom-ranked for export intensity and value chain integration among small OECD economies, what would better value chain integration for New Zealand exporters look like to you?
6. If New Zealand aimed to double its export intensity, what kind of initiatives could be 'best buys'?

The themes emerging from these interviews can be divided into issues with the economy and potential solutions. We consider both of them below. Later in this discussion paper, we will connect ideas raised in the interviews with actions the country could take to improve its export intensity and economic performance. Throughout, we have included quotations from the interviews *in italics*, although we have chosen not to identify the speakers. We found that many of the ideas and themes from these discussions were echoed in the work by Sim et al. (2021). This gave us confidence that our work was on the right track.

4.2 Issues with the economy and exporting

4.2.1 Lack of collaboration

Several people commented on the lack of collaboration within industries. This missing collaboration was put down to a lack of trust among people and organisations. One way this manifests is in how our exports compete in overseas markets, such as the United States market. Even for products that can be sourced only in New Zealand, our exporters still compete with each other overseas: *we compete with ourselves*. The competition pushes prices down, and New Zealand misses out on potential export earnings. These leaders' comments echoed the analysis in the report 'The land and the brand' (Saunders et al. 2016): a vision for a higher-value agri-food sector in New Zealand "requires collaborative value chains" (p. 90).

4.2.2 Lack of investment

Problems with investment in the sectors were a commonly cited issue. Some interviewees were very clear that developing an international business with high-value products required significant effort, years of commitment, and a long-term outlook. Instead, many investors and businesses want a quick pay-off, which reduces the quality and quantity of investment in the sectors. According to the interviewees, other drivers that reduce investment were a lack of direct government support for businesses to make capital investments and an aversion on the part of business owners to get involved with outside investors.

4.2.3 Small scale of businesses

The industry experts interviewed suggested that the scale of businesses in New Zealand inhibited the country's ability to export. They noted that the country has few companies with significant exports or even sufficient scale to invest in growing exports. Some interviewees had looked at the potential of investing in businesses for export growth and reported a lack of mid-sized firms ready to grow significantly. They also judged that only a few firms were good at consumer-focused export market development.

4.2.4 Cheap and low-skilled labour

Most interviewees mentioned labour issues. One systemic problem identified was that the food and fibre sector was *too reliant on cheap labour*. There is a tendency to throw *labour* at a problem rather than using technology or resolving productivity issues. Skill levels were mentioned several times. On the one hand, interviewees noted that there was a low *availability of technical skills*, but others conceded that the New Zealand food and fibre sector did not offer its workers sufficient training: *we just expect them to know how to do things.*

Interviewees also discussed the so-called *soft skills* of the workforce, in particular, the reliability of the labour force. They said that *people were not disciplined enough* and that worker absenteeism was a problem. To get more value out of existing raw materials required a workforce that could reliably do the work. Otherwise, businesses focus on the type of processing that is easy to do and avoid higher-value processing that requires more skill and capacity. An example was the so-called *fifth quarter* from meat processing, which are the non-meat parts of the carcass, including hides, blood, and offal. We heard that, although the material is valuable, it also requires additional handling and processing. When meat processors are at capacity and have unreliable labour, they don't do this extra processing and forego the additional returns.

4.2.5 Mindsets

Interviewees identified three issues related to the mindsets of exporters in the food and fibre sector. One was that companies tend to rely on an *outdated business model*, specifically on a commodity mindset or *commodity plus added value.* The second issue was the ability to quickly capitalise on opportunities. The perception was that overseas companies move quickly to take advantage of opportunities while companies in New Zealand do not. Some interviewees saw parts of the food and fibre sector as stagnant and lacking dynamism. A third issue was the understanding that farmers had of our farming systems and, therefore, the rest of the value chain. According to an interviewee, farming within externally imposed limits and regulations, such as water quality limits and greenhouse gas regulations, is not appropriate in the minds of many farmers. In economic language, *negative externalities* are not included in the decisions being made. Scientific understanding hasn't been put in a heuristic or rule of thumb, so farmers' understanding of the system doesn't have a place for regulation.

4.2.6 Risk aversion

Interviewees described several types of risk aversion. One was that co-operatives were seen by some interviewees as holding back the food and fibre sector from taking more risks. Specifically, Fonterra was seen by some interviewees as a *risk-reduction mechanism for farmers* rather than a profit-maximising company in its own right.

4.2.7 Lack of consumer focus

Several interviewees noted the lack of consumer focus among companies in New Zealand. They said that most companies *don't know the end consumer* of their products; only a small number – and *not enough* – were good at marketing to these consumers. To be more successful, companies needed to think about what the consumer wanted. Interviewees also felt that consumer preferences were changing and New Zealand companies were slow to adapt. They felt that *the world has moved from where New Zealand* is in terms of climate change awareness and innovation so that New Zealand was being left behind. One successful example provided was Fonterra jumping into the Chinese trend of cream cheese foam in green tea and designing a product specifically for those consumers. Many meat and fruit products, though, were seen as lacking a focus on a target consumer market.

4.2.8 Government impacts

Only a few interviewees mentioned the government's role in the food and fibre sector. However, these interviewees said government involvement in the food and fibre sector was holding them back. They said the excessive regulation of the sectors is a problem and that the government is involved where it does not need to be. In particular, they said that regulations can create dis-economies of scale. Economies of scale arise when getting bigger creates efficiencies that lower the cost of production. However, regulations that affect larger companies but exempt smaller ones do the opposite: they provide a reason to stay small. For example, one interviewee said that MPI had more stringent audits for large companies than small ones and that WorkSafe was targeting larger employers. These interventions create additional costs and an impediment to increasing scale. In addition, the government was seen as creating greater *regulatory uncertainty* by changing regulations too quickly, which, alongside the risk aversion described above, would reduce risk-taking even further, and thus further constrain necessary investment in productivity improvements.

4.3 Solutions from the food and fibre sector leaders

4.3.1 Greater collaboration

One solution offered was to encourage collaboration across businesses in the food and fibre sector. The main example offered of doing this successfully was the seafood industry in Iceland. Interviewees related that the industry had hit a crisis point and that crisis forced people to work together. They *had to work together or starve* was how one put it, based on conversations with people who were involved. In the literature, Iceland is now presented as an example of reducing waste and increasing value from a primary sector's raw material; "An important reason for this success is the consolidation within the fishing industry and vertical integration across the value chain" (Finger et al., 2021, p. 528). In New Zealand, interviewees felt the old Dairy Board had done a good job of pulling people together. Currently, the Te Hono programme is also creating greater collaboration because it is getting like-minded people working together.

4.3.2 Better investment

Investment was recognised as a key driver of better results. One interviewee suggested that the sectors needed to invest in branding and product development. These suggestions connect the performance of exports to the secondary and tertiary parts of the economy: manufacturing and services. There was also talk of carrots and sticks. One suggested that the country could create incentives for businesses to increase investment, as in other countries. Another suggested that Fonterra be required to invest more than they did. However, the circular nature of the problem was recognised: *If you want to invest, you need to be generating profits and/or have the prospect of profits.* Better investment would directly target capital productivity by not only increasing the amount of capital but also improving how it is used.

4.3.3 Labour changes

Our interviewees identified positive potential changes to labour in the food and fibre sector, including the possibility of fewer workers with higher wages and increased productivity, which would in term lead to even higher wages. There was, however, a concern that system-wide education changes could produce graduates with lower capabilities than in the past. Finally, issues with labour unions were important to a small number of respondents, who felt that unions were inflexible and prevented businesses from adapting to circumstances. These improvements would focus on labour productivity.

4.3.4 Better marketing

Many interviewees mentioned the need for better marketing and the need for exporters to be more customer-centric: the product and offering needed to be developed around a particular customer – whether that customer is another business or an end consumer. Businesses needed to consider what markets they were targeting and which channels were appropriate for them. Prototyping and product validation were also part of the process, rather than developing a product first and then trying to sell it. In order to do that, businesses *need people on the ground in the market* to get the best understanding and market intelligence. The big question was, *what do we have that they want?* Two of the answers offered were safe food production and sustainability, although any claims would need to be backed up by science. A final issue from one expert was market access: continuing to have access to overseas markets is vital for the sectors.

4.3.5 Change of mindset

These sector leaders also noted the importance of mindset. Interviewees believed the country needed to celebrate success more and that the sector needed *rock-star CEOs* and *charismatic entrepreneurs*. They felt a focus on success and celebrity would drive better performance. Another change in mindset was a shift to kaitiakitanga (guardianship), which was thought to be *a good blueprint for doing well.* Finally, one interviewee mentioned that people *must be committed, personally and financially, to succeed.*

4.3.6 System change

Several solutions offered by interviewees envisaged some kind of system change. Some of the changes were specific or particular to an industry. Specific solutions were shortening value chains to *cut out middlemen* and storing water to make it available for production during droughts. In the meat sector, it was felt that there were opportunities for using the carcass more efficiently but that those opportunities would take years to develop. Interviewees talked about the need for system change more generally and mentioned strategies such as using data better, increasing standardisation to drive efficiency, and creating conditions for learning and adapting. These sorts of systems changes would improve multi-factor productivity: they focus on making production inputs work better together. Nevertheless, interviewees also recognised that system change was difficult. One expert described the requirements of exporting businesses as needing *to be mini-multinationals.*

Section 5

Pathways to improving the productivity of the New Zealand food and fibre sector

5.1 Overcoming the challenges

There is no shortage of analysis of New Zealand's productivity performance at the aggregate level (Conway, 2018; New Zealand Productivity Commission, 2023; Nolan et al., 2018), by sector and industry (Cao et al., 2007; Chapple, 1994; Evans & Meade, 2007; New Zealand Productivity Commission, 2014, 2018), by type of firm (Fabling, 2021; Fabling & Ministry of Economic Development, 2008; Fabling & Sanderson, 2009), by factor of production (Conway et al., 2015; Maré & Ministry of Economic Development, 2008), and by geographic division (Fabling, 2021; McCann, 2009). Providing novel insight is difficult, given the wealth of existing literature. In addition, this extensive literature is a symptom of two aspects of productivity:

- It is complex to understand – productivity is multifaceted and views on solutions differ depending on perspective and experiences.
- Moving from words to actions is difficult – or else we would have done these good things already.

We have gathered insights from leaders and literature and organised them around five themes or areas for improvement. For each theme, we describe how it relates to economic productivity, what we heard from the interviews conducted, and what recommendations other analysts have developed. We then advance several ideas to improve food and fibre sector performance that could be progressed by industry, government, and both.

Improving productivity is hard, but continuing to do the same things will lead to the same results we have now: middling economic performance and justified concern about New Zealand's ability to pay its way in the future.

5.2 Leadership and coordination

Successive governments have supported efforts to improve the performance of our food and fibre sector. The post-COVID-2019 effort is embodied in *Fit for a better world: Accelerating our economic potential* (Ministry for Primary Industries, 2023a). This roadmap has three pillars with targets for productivity, sustainability, and inclusiveness. Partnership groups had been established to provide leadership and coordination across the government, Māori, and the food and fibre sector.

More recently, the *Food and Beverage Industry Transformation Plan* issued in 2023 by the Ministry for Primary Industries (2023b) calls at a high level for a navigator service (to guide exporters through rules and markets), integrated market insights, more discussion on ability to exploit genetic technology, and support for scaling-up export capacity.[4] This is consistent with the prior findings discussion in Section 3 and interviews in Section 4 of this report.

A 2019 review of leadership, innovation, and coordination in the agri-food sector concluded that leadership plays an important predetermining role in the value chain (Mayes et al., 2019). In the New Zealand context that involves a degree of coordination aligning producers to consumer demands including product quality and the credence attributes our producers offer, and then communicating those values to consumers in export markets world-wide.

The government's leadership role is important for providing incentives, including setting standards and ensuring compliance. Global trade rules generally prevent incentives that lead to unfair trading conditions, including direct subsidies. Programmes to support export market access and general business conditions help to support successful enterprises, which is a leadership role government can play. Our free trade agreements and our efforts to progress digital trade / clearance systems are examples.

4. The new Government has closed the Industry Transformation Plan programme, so the status of recommendations made by these plans remains unclear in early 2024.

5.3 Area 1: The workforce

The economy works because people work. The economy can produce more when there is a larger population, including via higher immigration. More production can also result from a higher participation rate, in which more women, young adults, older adults, disabled people, neurodivergent people, and other groups under-represented in the workforce can participate at higher rates. Producing more in this way would benefit the New Zealand economy and those individuals, but would not necessarily improve productivity in and of itself.

Overall output can also grow through greater labour productivity – more output per hour worked. The capability and performance of New Zealand's workforce is central to increasing productivity. That can result from better skills, including technical, soft, and job-specific skills. Those skills are developed through basic education like numeracy and literacy, general or focused education, work skills training, and job-focused training (e.g. health and safety training for a specific role).

5.3.1 Key insights from food and fibre sector leaders

Workers may not be attracted to rural areas. Many activities in the food and fibre sector take place in rural areas. These areas often lack investment, making it harder to attract workers to grow rural businesses.

Basic skills like literacy and numeracy are required for most jobs, and minimum required skill levels for most jobs are increasing. Businesses depend on the public education system to ensure school leavers have good basic skills.

Behaviours like showing up for work on time and consistently, working well with other people, and communicating with others – so-called 'soft skills' – are important. Some sectors and businesses struggle to find enough workers with good soft skills. As a result, they cannot depend on workers showing up each day, which makes production planning more difficult and increases the costs of managing the workforce.

Lack of training was seen as a barrier to productivity growth. Businesses generally expect workers to show up already trained for the specific jobs. Some businesses offer training, and many find that increased training improves the performance of the business. One area of training that continues to be a big investment for businesses is health and safety.

5.3.2 Findings from economic research

Immigration can have positive and negative effects on the economy. A 2021 NZIER study for the NZPC found that the impacts of the Recognised Seasonal Employer (RSE) scheme were mixed and hard to estimate (NZIER, 2021b). The RSE scheme provides visas for workers from Pacific Island countries to work in horticulture or viticulture in New Zealand for up to nine months. The 2021 study found that employers believed the scheme provided skilled workers at key times in the production cycle, supporting a productive industry. However, the study also suggested that there was no robust evidence of an increase in productivity and that it could be reducing wages for local workers in these industries. On the other hand, a larger 2011 study from the Centre for Research and Analysis of Migration in the UK found that immigration made a positive contribution to the New Zealand economy and that feared fiscal costs and lower wages did not materialise (Hodgson & Poot, 2011).

Issues have been raised with New Zealand's educational performance (Galt & Stevens, 2023). Researchers from the New Zealand Work Research Institute have summarised the concerns and linked poor educational performance with negative wellbeing, poor employment prospects, and lower income (Pacheco et al., 2023). For example, scores on the OECD Programme for International Student Assessment (PISA) mathematics test have fallen since 2000 (Ministry of Education, 2023), but there are also calls not to read too much into these results (Hipkins, 2019).

The impact of education on productivity increases is mixed. Research does show the importance of education for having employment options (Pacheco et al., 2023) and underemployed people have lower rates of education (Meehan et al., 2022). New Zealand has above-average outcomes from education in terms of mathematics and literacy (Galt & Stevens, 2023). However, a detailed analysis of OECD data found that returns to education in New Zealand are low when compared to peer countries (Zuccollo et al., 2013), so it is not clear that there are sufficient economic incentives for workers to seek out more education themselves.

New Zealand tends to provide more work-related training than most other countries, even among OECD countries (New Zealand Productivity Commission, 2020). Participation in training was higher for professionals (71 per cent) than for labourers (43 per cent). Health and safety training is common: 2018 data showed that "58 per cent of employees had completed some health and safety training in the last 12 months" (Stats NZ, 2019). This figure should be read in the context of changes to legal requirements for health and safety training from 2016. Taken together, these numbers suggest that most training is health-and-safety related, as opposed to focused on technical or soft skills. Key reasons that firms did not provide more training were the cost of the training itself and the cost of staff being away from work (New Zealand Productivity Commission, 2020).

5.3.3 If we pull all that together, we find that:

- The food and fibre sector needs help attracting workers to roles that are often far from population centres, and it needs help with the soft skills of applicants and employees. There is a role for central and local government in supporting education, healthcare, and transportation to make these locations good places to live and attract workers. Thus, a 'focus on Auckland' approach (Greenaway-McGrevy et al., 2020; McCann, 2009) has the consequence of hurting the processing industries outside Auckland. An economic approach informed by the belief that Auckland is the country's only outward-facing, international city (Maré & Ministry of Economic Development, 2008) ignores the contribution that greater processing productivity could make.
- Upskilling workers, either with soft skills or technical skills, provides them with portable skills to take to other jobs and benefit the wider industry and the economy. Individual companies will underinvest in those skills, fearing that, "once trained, staff will be poached" (New Zealand Productivity Commission, 2020, p. 53). There is a good economic rationale for this: the company bears the immediate costs but cannot be guaranteed to reap the reward from training workers. There is, therefore, a role for government and industry-wide cooperation in providing those skills. This is an area for greater collaboration – one of the key themes from the interviews.

5.3.4 What should we do next?

Government and industry should develop an understanding of what soft and technical skills are required in the food and fibre sector workforce and what the shortfalls are. Muka Tangata, the Workforce Development Council (WDC) for the food and fibre sector, is taking this approach. The WDCs involve collaboration across government, industry, and education. This approach should be encouraged, expanded, and monitored to ensure it is having an impact. It was clear from the interviews with sector leaders that they see scope for more work in this area.

The recently discontinued Regional Skills Leadership Groups also sought to connect government and industry in regional advisory groups. Initiatives like this support economic development by ensuring the right workforce is in place for the future. The challenge with all such initiatives, however, is ensuring sufficient funding, support, and monitoring of the initiative for impact. A second challenge for the food and fibre sector is ensuring that different initiatives by MPI, MBIE, and other relevant departments are well-coordinated and work in concert with each other.

Government should ensure policies and programmes that incentivise businesses to support and undertake workforce training are working effectively and efficiently. This includes training programmes to address the skills shortfalls and any incentive policies such as direct payments, contestable funding arrangements, and tax credits for approved training.

Government should also consider regulations that might help to create minimum standards or a level playing field. For example, increased health and safety training requirements were rolled out across the economy starting in 2016. In the rural sector, these regulations led to increased orientation of workers and farm visitors to the hazards on farms. Importantly, the regulations created a level playing field with respect to safety training: it was harder for individual businesses to gain an advantage by ignoring safety training. Likewise, creating a level playing field for other kinds of training – such as requiring a minimum level of vocational training per year – could encourage workforce upskilling, benefitting everyone.

5.4 Area 2: Consumer-driven marketing

New Zealand can increase export revenue by producing more or getting better prices for its exports. Whether business to business or direct to consumers, getting better prices means fulfilling consumer wants and needs by providing different products, more information, or more tailored products or by adopting processes to be more sustainable. One approach is consumer-driven marketing, in which food and fibre exporters better understand what consumers in key export markets will pay more for and then provide it (Saunders et al., 2016).

Of particular promise, credence attributes – product qualities that cannot be seen or experienced directly by consumers – form part of consumer decision making in our key export markets. They are generally attributes that certain consumers value and may be willing to pay more if products embody these attributes. Typical examples include products meeting very high standards in food safety, environmental sustainability, animal welfare, and worker health and safety. New Zealand may have a comparative advantage in many of these areas and New Zealand research shows these attributes can be essential for unlocking export prosperity in key New Zealand markets (Dalziel et al., 2018), though, in some markets, these attributes may increasingly be seen as a precondition for entry. This is an area where standards and support from government and industry associations can ensure consistency and integrity of our export offerings.

5.4.1 Key insights from food and fibre sector leaders

Consumer-focused product development and marketing are a combination of a mindset and focused effort on unlocking new value. The mindset puts the demands of the end consumer at the centre of product development and the whole company. Focused effort means investing significant staff time and money here and in overseas markets. A market presence is important for gathering marketing intelligence and developing business networks. Focusing on the end consumer – the people buying consumer goods – requires a lot of information about what they want and innovation to deliver it. It can be rewarding when it's successful.

Other business strategies focus on other kinds of customers, such as business-to-business commerce. Some companies find it easier to meet the needs of these types of customers. Not all New Zealand exporters need to be focused on end consumers – indeed, most will not be able to, given the often prohibitively high investment and skills required to operate effectively in offshore consumer markets

The leaders we interviewed suggested that only a few New Zealand companies could do exporting well. There are not many people or companies that have the right mix of skills, presence, financial backing, and interest to tackle exporting at scale successfully.

Companies exporting from New Zealand have to be mini-multinationals. Even at a small size, companies have to do everything that bigger multinationals do: market research, product development, supply chain management, export clearance, and financial arrangements. It's a big job.

With some exceptions, New Zealand companies don't tend to do this kind of exporting well for several reasons. First, they are not well-integrated into global value chains, making exporting more difficult: "unfavourable access to large markets and suppliers of intermediate goods limits New Zealand's trade intensity, especially its integration with global value chains where intensive transfer of advanced technologies often occurs" (de Serres et al., 2014, p. iii). Second, New Zealand has small domestic markets, so companies often do not learn to work at scale nor develop the required skills before entering the unforgiving global consumer markets.

Our interviewees emphasised the link between product development and production processes. End products result from long, complex processes, so getting processes right is a key part of developing successful products. Interviewees suggested that companies tend to do the easy, low-value processing first, leading to simpler products and commodity products. Companies work on higher-value processes and products only if there is sufficient time and labour, as well as investment capital and tolerance for risk. Companies also give up this work quickly when they lack resources. As a result, the product mix often stays low-value.

5.4.2 Findings from economic research

New Zealand businesses are poorly integrated into global value chains (Conway, 2018). Researchers have suggested that this lack of integration accounts for about half of the productivity gaps with other countries (de Serres et al., 2014).

The country does produce the kinds of sustainable food products that some higher-value consumers want and will pay more for, but the food and fibre sector does not capture enough of this value (Saunders et al., 2016). Instead, other foreign companies in the value chains capture a significant part of the returns.

New Zealand is, to some extent, at the mercy of international markets. For most (though not all) of the country's food and fibre exports, New Zealand is a price-taker internationally. It has to accept the prices, product, and quality specifications demanded by offshore markets (Falkner & Kalfagianni, 2009; Karagedikli & Price, 2012).

Despite some larger food and fibre companies maintaining in-market roles, distance from markets means that companies in New Zealand are less well-informed than overseas competitors about current consumer trends. We are not aware of published research on this point, but it was a finding from previous NZIER research: interviewees in horticulture and fast-moving consumer goods suggested they needed people in the market to be on top of trends (NZIER, 2021a).

The small size of the domestic market makes it hard to develop products and achieve scale before exporting (Conway, 2018; Fox, 2005; Skilling, 2020). Domestic companies are unable to develop the sorts of economies of scale that are a foundation of modern international trade (Krugman, 1980, 2008). One of the elements of that scale is developing a good understanding of consumer drivers and adapting products to suit. Domestic businesses lack experience in the requisite market and product research and development because they do not need it for domestic markets.

5.4.3 If we pull all that together, we find that:

- Despite globalisation and the internet, size and distance are still important, especially for physical goods from the food and fibre sector (de Serres et al., 2014; Saunders et al., 2021).
- New Zealand businesses sometimes have the skills required to compete internationally and export successfully. However, the median business lacks these skills. One key area of weakness is having enough of a consumer focus, though programmes such as Te Hono are attempt to address this.
- For much of its history, the country has focused on producing raw materials from the primary sector – and it has succeeded at that (Hall & Scobie, 2006; Skilling, 2020). This shows that New Zealand can be successful in areas where it has made a concerted effort. The country has developed a comparative advantage in primary production, which explains its trade patterns, but, with a few exceptions, it has yet to develop this advantage into the food and fibre *processing* sector.
- Overcoming structural disadvantages will take time and patient money – investment that does not demand an immediate return but rather is made for the long term. These discussions about low productivity and low export share and intensity have continued for decades and the underlying issues are not amenable to quick fixes.

5.4.4 What should we do next?

Government, businesses, and the general population should be clear that productivity improvements will take time and investment. Decision making based on that understanding will be more effective in the long term.

There is a small number of companies in New Zealand that could generate exports at scale. Our interviewees believed a targeted approach by the government could identify businesses with the right set of capabilities and potential, and seek to work with them proactively. The approach would use the insights developed by MBIE and the NZPC to focus government resources on those firms most likely to lift export intensity. The government could even develop a pilot programme to determine whether the approach might work. This would focus on firms that can meet identified predictive characteristics of success rather than simply seeking to pick winners. This approach goes hand in hand with a supportive general business environment that allows for firm prosperity.

Government could work with industry to understand what kind of investments would help and devise a long-term investment strategy around that. The government has already developed investment funds for targeted investments in private businesses to achieve public goals. For example, the Energy Efficiency & Conservation Authority (EECA) has had several initiatives to support businesses to make investments in energy-efficient or carbon-reducing technology, including audits and grants. A similar approach could identify processes, technologies, training, or combinations of the three that would benefit both a company and the wider economy. That approach could help New Zealand develop the sorts of mini-multinationals that are needed to successfully execute a consumer-focused strategy.

Government should also evaluate the experiences of the old Primary Growth Partnerships (PGPs), the Provincial Growth Fund, the Sustainable Food and Fibre Futures fund, and New Zealand Trade and Enterprise (NZTE) programmes to understand how they can support the creation of mini-multinationals with all the required capabilities for consumer-focused marketing. The advice from sector leaders was that businesses needed many different capabilities to be successful consumer-led exporters: all the tasks of a large multinational company but on a smaller scale. Since the government has already worked with aspiring exporters, a review of the programmes might shed light on the capabilities that are needed by domestic businesses to build their exports and where the gaps are.

The government delivers programmes that involve subsidised commercial advice, such as through EECA and NZTE. However, some industry experts suggested the level of support has been small, or the effort required too great for the money on offer. A more generous business support programme focused on identifying capability gaps and development strategies for consumer-focused exporting could be a solution. Past programmes could provide insight into how to construct such an initiative.

The primary sector has grown its productivity in part because it has received major state investment over a hundred years in research and extension activities, much of which continues to this day with millions of dollars of funding from MBIE, MPI, and Callaghan Innovation each year. This funding supports many research projects and programmes, some of which are very successful and some of which are not. Despite funding issues in the Research, Science, and Innovation (RSI) sector, hundreds of scientists can have careers in primary sector research. The same cannot be said for fundamental research into commercial success. There is not, for example, a Crown Research Institute focused on business structures and practices for consumer-led enterprises. This role is not generally performed by other existing institutions: business schools are part of universities and have different priorities; non-governmental organisations such as the Institute of Directors also have different functions. Long-term secure funding for research into commercial activities – the different kinds of businesses required to be successful consumer-focused exporters – might produce the same results in manufacturing and services it has produced in primary production.

5.5 Area 3: Risk and investment

Increased productivity in the food and fibre sector will require increased investment in technology and equipment so workers can be more productive. The current low levels of investment and the current state of technology across the food and fibre processing sector reflect the investment decisions made by investors and business owners, who have considered both the expected returns on their investment and the risks their investments face. Making improvements to productivity through investment and technology requires understanding how investment decisions are made and the risk landscape New Zealand investors operate within.

5.5.1 Key insights from food and fibre sector leaders

The interviewees, who have held senior management and governance positions in the sector, believed food and fibre sector investors are risk-averse. However, these businesses and their investors are exposed to more risk than most businesses outside the food and fibre sector: weather, climate, market, regulatory, labour, and technology. The result is a generally conservative, cautious approach to business development and investing in change.

These business leaders wanted more government support for investment in the food and fibre sector. However, they also had firm views about the roles of government and businesses in deciding where to make investments and how to spend money. They did not want government support to lead to too much government involvement in business decisions. These comments underlined the fundamental tension of putting public money into the private sector when both government and business need oversight and control.

Businesses have an aversion to outside investment, whether public or private. Outside investment comes with strings attached: more reporting and accountability and less control. Many businesses will, therefore, prefer to stay small and tightly controlled rather than grow.

The interviewees felt that businesses and investors generally want quick pay-offs, but endeavours like building new markets require years of commitment to be successful. This dynamic increases the focus on smaller, quicker pay-offs and simple products and processes. The result is an approach that is conservative and incremental.

Over time, the government has underinvested in public infrastructure, for instance, in transport infrastructure like roads and ports. Poor infrastructure increases costs and risks, leading conservative decision makers to focus on quick, simple gains.

Co-operatives have a mixed reputation for these interviewees. On the one hand, co-operatives have helped farmers manage risk. Primary producers are at a disadvantage because they produce perishable products that are ready for the market during short time windows. When farmers can exert some control over the upstream suppliers and downstream processors through co-operatives – Ravensdown and Fonterra are key examples – they reduce their risk. On the other hand, interviewees also felt the conservatism of farmer-owned co-operatives and shareholders held back risk-taking by these co-operatives, favouring commodity production over riskier research and development and consumer plays, for example.

5.5.2 Findings from economic research sector leaders

Sector leaders' views on co-operatives were shared by Skilling (2020), who notes: "The co-operative structure and regulatory context constrain risky investments, and make it more likely that the product mix is commodity-based" (p. 1). Earlier research also highlighted co-operatives' mixed impacts (McDermott et al., 2008).

Rates of investment in the New Zealand economy generally are low. About a third of the gap in the rate of investment compared with Australia can be attributed to the types of economic production in the two countries, but the rest is due to other factors (Mason, 2013). That is, New Zealand is not fated to a low rate of investment because of what it produces; instead, a large portion is due to choices made by investors.

Government investment in the economy is also low. Two important areas for boosting productivity in New Zealand are research and development and infrastructure. Investment in research and development by the government as a percentage of GDP is low compared to the OECD average

and other small advanced economies (Denmark, Switzerland, Finland, etc.) (Ministry of Business, Innovation & Employment, 2021). Because investment in innovation builds a stock of knowledge capital (Hall & Scobie, 2006), the annual deficit builds up a significant knowledge wealth gap over time. For infrastructure, The Treasury assesses the economic value of investments using a high discount rate or high rate of expected returns, which has the effect of reducing spending on infrastructure projects (Parker, 2011). The effect happens because a high discount rate puts a lower value on what happens in the future than a low discount rate does; it encourages decision makers not to consider future impacts. Thus, in two key areas of government support for economic growth and development, New Zealand has limited its investment.

Money for investment is relatively expensive in New Zealand (Conway, 2018; New Zealand Productivity Commission, 2023). There is a risk premium for New Zealand: overseas investors believe that the country presents more risks, including exchange rate risk, than other jurisdictions. Investors, therefore require a higher rate of return, which produces a lower level of investment (Burnside, 2013).

The performance of property investment over the past decades provides a minimum expectation on other investments and a particular set of investment incentives. Coleman (2019) argues "that the idiosyncrasies of New Zealand's tax structure favour investments in urban real estate relative to investments in other productive assets, and that this may be hindering productivity growth" (p. 1).

The after-tax income produced by the economy each year is shared between employees, business owners, and investors. The portion of income that goes to employees – called the labour income share – has varied over the past thirty years, with a downward trend for the past ten years (Allan & Maré, 2021). This provides some evidence of downward pressure on wages.

5.5.3 If we pull that all together, we find that:

- In general, New Zealand is a low-investment economy. Businesses tend to have less money invested in plant, equipment, and technology than overseas counterparts (New Zealand Productivity Commission, 2023). The government invests less in future economic growth through innovation and infrastructure than other comparable countries. The country, therefore, has less capital and technology per worker, reducing labour productivity growth.
- This lower level of investment suggests that there is significant potential to improve towards international levels of productivity and investment. This productivity gap has been the subject of much study (Fabling, 2021; New Zealand Productivity Commission, 2020; Skilling, 2020).
- Risk aversion is a key inhibitor among investors, especially in the food and fibre sector. The performance of co-operatives, discussed both in interviews and the economic literature, further entrenches low-risk tolerance. Whether this is structural – related to the already risky nature of primary production – or cultural or both is difficult to say with any certainty.
- Investment capital is expensive in New Zealand. The risk premium for the country means investment here is less attractive than in comparable economies. This helps to explain a lower overall level of investment, which has the effect of reducing productivity growth.
- At the same time, investors are actually doing just fine. The flip side of a labour income share below the OECD average (Allan & Maré, 2021) is that returns to investors are higher than average. Business owners and investors earn a share of the country's production above the rate in other comparable countries. The incentive for investors to change is lower than in other countries, leading to low rates of innovation and middling productivity growth.
- Co-operatives are a complex, nuanced part of the story. The prevalence of co-operatives in the food and fibre sector has contributed to, but is not the only driver of, commodity based exports. They provide important risk management and mitigation to the primary sector. At the same time, they have constrained investment and risk-taking in the processing sector. As a result, the processing sector and the country's exports have focused more on commodity products and less on high-value, consumer-focused products.

5.5.4 What should we do next?

If a more productive food and fibre sector is to develop, economic incentives will need to change for producers and investors. Changes will create winners and losers and, therefore, controversy.

One possibility is accessing government money – which is generally lower-cost – to make investments either in infrastructure or more directly in supportive activities. Examples discussed above include PGPs, NZTE, and EECA. For example, EECA has provided money to businesses to invest in energy efficiency at low cost. Can that example be extended to other business improvements? As with all such programmes, accountability and low transaction costs are important. There are also global trade rules to follow around subsidies that can distort free and fair trade.

Another possibility is developing risk management and mitigation measures. This would require joint government-industry discussion to understand the nature of the risks faced and how they can be reduced or insured against. If food and fibre businesses are exposed to more risk than other sectors, it may be in the country's interest to socialise some of that risk to promote greater investment. For example, a government fund with an equity stake that invests at below-market rates could provide funding but capture the upside from ventures that succeed.

One area of risk that is in the government's control is regulatory risk. Note that this is separate from political risk, which any specific elected government cannot remove. However, communication, signalling or collaborative development of regulations can reduce regulatory risk. A poor recent example was winter grazing rules and the experience in Southland where rules were put in place that proved unworkable in the Southland climate, leading to subsequent reversal of the changes and a considerable period of uncertainty for farmers.

Co-operatives again provide an interesting example. They are a risk-reduction tool used by agricultural producers around the world. Risk mitigation or risk pooling measures could be developed for other parts of the economy, such as processing or services. The potential for co-operative arrangements in other parts of the economy could be investigated.[5]

Another possibility is to increase government investment in infrastructure and the RSI sector. There is a chicken-and-egg aspect to this. The country needs investment to increase productivity but needs higher productivity to generate the tax revenue to invest. Currently, New Zealand is at a comparatively low equilibrium. Breaking out of that equilibrium will require intentional actions, including actions that may not sit comfortably within economic orthodoxies.

Another possibility is to use policy instruments such as regulation and taxation to reduce the returns investors are receiving on their current investments to shift them into more productive investments. This is the logic of a land tax, for example (Coleman & Grimes, 2009). The performance of property investment over the past decades provides a minimum expectation on other investments and a particular set of investment incentives. Coleman (2019) argues that the idiosyncrasies of New Zealand's tax structure favour investments in urban real estate relative to investments in other productive assets, and that this may be hindering productivity growth.

A further possibility is to tax short-term investment gains. This logic has already been used in the bright-line treatment of property investment. Under this rule, gains from a sale within the first ten years of owning a property (subject to some exclusions) are treated as taxable income, but gains realised after that are treated as untaxed capital gains. If it were extended to other investments such as application of agricultural processing technology, it could shift the focus toward longer-term investment.

5. Cooperative Business New Zealand, the peak body for cooperatives in this country, criticised the frontier firms draft report by the Productivity Commission, saying it "suffers from a serious lack in understanding of the unique nature of cooperatives" (Cooperative Business New Zealand, 2021).

5.6 Area 4: Management and governance

In the entrepreneurial model of business, managers and owners play a particular role by organising productive resources to produce additional value. They *undertake* (the French *entreprendre*) the business of leading and managing, and for that effort, they are compensated from the increased value the business produces. Managing well, either as management or governance, is key to having a productive economy. The benefits of good management show up in improvements to multi-factor productivity, which captures how well labour, capital, and technology are managed together.

5.6.1 Key insights from food and fibre sector leaders

Leaders in the food and fibre sector interviewed for this discussion paper reported that most managers in the New Zealand food and fibre sector do not always have the skills, experience, and mindset required to be successful at exporting into overseas markets.

They believed that most food and fibre businesses hit a limit on size and how much they could expand. That limit was pegged at about $5 million in revenue.[6]

Only a few businesses in the country – maybe twenty-five – have the management capabilities to reach a significant scale capable of building a robust export capability.

Management tends to be *ad hoc* rather than systematic. Without standardising practices in a business, it is impossible to make systematic and durable improvements.

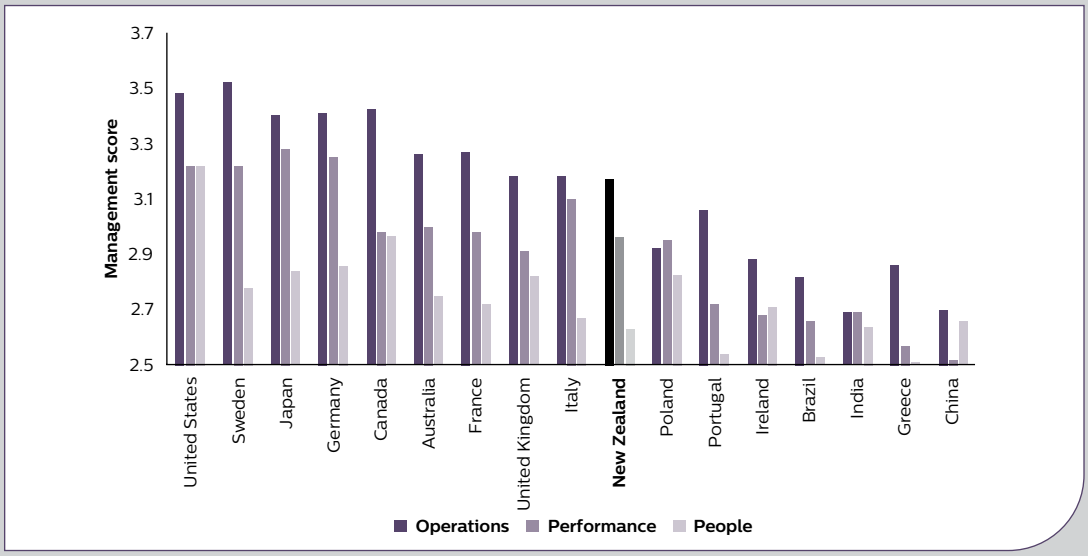
Many business owners in the food and fibre sector value control more than outside advice.

5.6.2 Findings from economic research

New Zealand businesses have low levels of managerial skill and competence compared to overseas businesses. This assessment has been the finding of several investigations and is noted as a key issue by the Productivity Commission (Green & Agarwal, 2011; New Zealand Productivity Commission, 2023). Managerial capabilities have been identified as an important contributor to innovation and success for businesses (Teece et al., 1997). A lack of capability is one reason businesses cannot reach the productivity frontier (Skilling, 2020). Although a key source for this finding about managerial competence is from 2011, the NZPC still cited it in 2023.

6. This $5 million limit aligns with statistics on business demographics. StatsNZ (2022b) reported that 607,000 of 629,000 (96.5 per cent) of geographic units, the rough designation of individual firms, had fewer than 20 employees as at February 2022.

Figure 17: Management capability has been low, especially people management capability



Source: New Zealand Productivity Commission (2023)

Most businesses achieve results that fall short of international benchmarks (Conway, 2016; Fabling, 2021; Fabling & Ministry of Economic Development, 2008; Skilling, 2020).

New Zealand has a few businesses that are as productive as anywhere else in the world (Conway, 2018; Fabling, 2021; New Zealand Productivity Commission, 2021; Skilling, 2020; Zheng et al., 2021). However, the productivity of the median and laggard firms means that average productivity is below that of peer countries and, while stable, average productivity is not improving (Galt & Stevens, 2023).

Exporting businesses are more productive than non-exporting businesses (Fabling & Sanderson, 2009; Skilling, 2020) – twice as productive by one estimate (Iyer et al., 2010). One possible reason for the difference is that exporters are subject to greater competitive pressures, forcing them to become more efficient (Conway, 2018; Fabling & Sanderson, 2009). It is also likely that companies only serving the domestic New Zealand market do not achieve the economies of scale of those able to sell to international markets.

By contrast, most New Zealand food and fibre businesses face local conditions that are less competitive (Conway, 2018; New Zealand Productivity Commission, 2023). Without competitive pressure, firms are less likely to improve their productivity.

5.6.3 If we pull that all together, we find that:

- Weak performance in New Zealand does not just reflect the workforce and levels of investment. It is also the way businesses are managed.
- Food and fibre businesses are doing alright under current conditions of low competition and sufficient returns on investment. This means many will not be sufficiently motivated to change.
- Effective management or its absence is an issue throughout the economy of New Zealand and is not confined to the food and fibre sector. This also means that improving management skills and capabilities has the potential to affect the primary, manufacturing, and services sectors – i.e. the whole economy.
- Changing management capabilities will require intentional effort from a range of actors in the food and fibre ecosystem.

5.6.4 What should we do next?

As noted by MBIE and the NZPC, existing knowledge should be pulled together to create a baseline about current management capabilities across the economy. The initiative could be modelled on the Savings Working Group or similar expert groups that recommend improvements.

The government, through its education providers, could develop short courses and micro-credentials for management. These interventions have been suggested for computer coders and agricultural drone operators (Hipkins, 2018). Given the impact and influence of managers, it would likely be more impactful to 'credentialise' managers. This could start with evaluation of current course offerings and effectiveness.

MBIE or other agencies should provide RSI funding for researchers in commerce to investigate the management practice in New Zealand. This work could be guided by a mission-based innovation approach so the mission of improving commercial management can drive impact-based research. As the mission-oriented literature argues, this kind of targeted approach is different from the business-as-usual research conducted by universities and business schools by creating a focus on research and encouraging collaboration across institutions and disciplines (Mazzucato, 2018).

The government could consider providing incentives for managers to be trained and earn credentials. Possibilities include tax credits or subsidies for managerial training or requirements for businesses or directors regarding management training.

5.7 Area 5: Collaboration

Economists struggle to identify the best or optimal level of collaboration between businesses in an economy. The standard approach focuses on competition and its ability through markets to allocate resources efficiently and, therefore, productively. However, half the activity in the real economy happens within firms (Walker, 2017); that is, at least half the actions of individuals are not driven by competition and market transactions but by management and cooperation. Clearly, collaboration works. It may be that more collaboration could be good for New Zealand, within the bounds of competition and trade law.

In New Zealand there is also talk of *co-opetition*. This term describes relationships among people and businesses that involve elements of both collaboration and competition. These people and businesses may cooperate on some things and compete on others, or they sometimes work together and sometimes compete. In a small country with limited resources, this flexibility may be optimal. Certainly, the challenge of COVID-19 showed the value of collaboration, relationships, and social capital in the food and fibre sector: Snow et al. (2021) describe how farmers and businesses that were generally competitors supported each other with parts, material, and labour in the first half of 2020. People interviewed for that research discussed how that cooperation was critical to dealing with workforce and supply chain disruptions at that time.

5.7.1 Key insights from food and fibre sector leaders

Leaders with offshore experience in other countries felt that those countries had greater levels of collaboration between firms, which helped them compete internationally. By contrast, businesses from New Zealand ended up competing with each other on price. The gains from that competition just went to distributors in those markets who could access New Zealand products for a lower price. Interviewees felt that New Zealand should look to capture more of the value for itself by strategic collaboration.

They also pointed out that centrally organised sectors in New Zealand, such as dairy and kiwifruit, have tended to do better than fragmented sectors, such as red meat.

There was a recognition that collaboration is helpful for businesses. It gets individuals to see that they can't do everything themselves and could benefit from working together. Sector leaders also pointed to the impact of crises: how they can force businesses to cooperate, and they learn from that experience.

These interviewees also talked about the impact of mindsets. They said there was a lack of trust in the food and fibre sector, which helped explain the lack of collaboration. They felt that a pioneer mentality of *going it alone* or fending for yourself was at the root of the lack of collaboration, but this mentality was no longer helpful for businesses.

5.7.2 Research findings on the New Zealand economy

The New Zealand economy already operates with a certain level of cooperation. Cooperative businesses are an important part of the economy (Cooperative Business New Zealand, 2021; Evans & Meade, 2006; Skilling, 2020). Furthermore, businesses do collaborate in times of crisis (Snow et al., 2021). These examples show that competition is not the only way to organise economic activity.

Competition in the red meat industry among processors and between farmers and processors has created the current conditions of low processor profits: "meat processing companies compete away any returns they earn from processing efficiencies and good marketing, and continue to earn low profits" (McDermott et al., 2008, p. 65). Greater collaboration and cooperation have been recommended as strategies to improve returns to the sector (Beef+Lamb NZ, 2019) and support value-added marketing (McDermott et al., 2008).

5.7.3 If we pull that all together, we find that:

- Some people, businesses, and sector bodies would like to see greater collaboration in the food and fibre sector. They see the possibility of greater value capture in export markets from collaboration.
- Collaboration may allow greater scale and create large pools of investment capital. New Zealand is weak in both those areas, so strengthening them may lead to higher economic productivity.
- This discussion paper contains a case study of a marketing effort by Beef+Lamb New Zealand, which is an example of partial collaboration that also retains space for business competition.
- It is not clear whether New Zealand has large coordination issues or what the optimal level of collaboration might be. A survey of cooperatives in the economy of New Zealand did not observe clearly positive or negative impacts from that particular business structure and suggested more research was necessary to understand them better (Evans & Meade, 2006).

5.7.4 What should we do next?

MBIE could work on collaboration in the economy to describe its current state, research international examples, propose mechanisms, and develop policies to support collaboration, while being clear about any limitations set out by competition and trade law.

MBIE could launch a study into collaborative commercial arrangements, including new approaches to cooperatives or joint ventures that might allow companies in the food and fibre sector to accrue the benefits of collaboration without contravening New Zealand or international competition and trade rules.

MBIE could use RSI funding to promote academic and applied research into the impacts of collaboration and the appropriate methods or processes for getting the most out of collaboration.

The Commerce Commission could undertake work to understand the benefits and costs of collaboration versus the harm of industry concentration (including monopolies and monopsonies).

Government and industry could work together to understand how greater collaboration between businesses could be useful, and the legal and practical barriers to it. And collaboration need not be purely commercial, as the new Agrizero joint venture between major industry players and government has shown. The partnership's explicit focus on scaling up efforts and developing tools that allow farmers to take calculated risks provides a compelling example of the kinds of mechanisms the food and fibre sector can employ to overcome long-standing challenges and progress multiple shared goals simultaneously.

This topic, more than the others, might lend itself to a big event – a convention or symposium on collaboration, particularly to build better value capture in export markets.

5.8 Risks to a focus on the food and fibre sector

While this discussion paper considers that improving the productivity of the New Zealand food and fibre sector (and of food and fibre processing in particular) represents one of the most promising pathways to improving New Zealand's prosperity in the years ahead, this approach does come with risks. These include:

- **Climate change:** The food and fibre sector is inherently vulnerable to climate change risks both from a mitigation and an adaptation perspective. If the considerable research effort currently underway to reduce emissions from New Zealand's agriculture sector is unable to deliver scalable, commercialisable solutions, New Zealand's long-standing comparative advantage in pastoral agriculture may be eroded, or its products may face increasingly significant resistance from international consumers or their governments. Likewise, it is almost certain the sector will face increasing disruption from the effects of a warming climate, as increasingly frequent floods and droughts impact key growing regions of New Zealand.
- **Geopolitical risk:** Exporting from New Zealand has always attracted a level of risk, especially given our focus on agricultural products, which have long faced barriers in offshore markets. However, most analysts consider the global geopolitical outlook will see increasing protectionism in the years ahead. While New Zealand has benefitted from increasing access to valuable foreign markets over recent decades, this is unlikely to be true in the coming decades. New Zealand cannot assume it will secure major new trade access and could lose existing access in some markets, with potentially significant implications for our food and fibre exports.
- **Demographic challenges in agriculture:** While New Zealand's population as a whole is ageing, so too is the agricultural workforce. In particular, challenges around succession planning and consolidation of farms into larger (and more expensive) properties are seen to have a significant effect on the number of young farmers able to enter the profession. If unaddressed, these issues could constrain the sector's ability to grow over time.

These risks will present real challenges to the sector in the coming years. They will need to be actively managed to ensure a focus on improving the productivity of the food and fibre sector continues to represent a viable and promising pathway by which to boost New Zealand's ability to afford quality public services in the years ahead, as this paper finds it does.

5.9 Concluding thoughts

As we have noted several times in this discussion paper, concern with the productivity of the economy of New Zealand and the food and fibre sector in particular is not new. However, it remains a critical issue to address so the country can produce the level of public services and consumer goods the population expects. As the proportion of the population that is of working age decreases, sustaining that production will become more difficult without productivity improvements. Although the experience of the past decade suggests that New Zealand is maintaining its productivity growth relative to its peers, the fact that it started behind them means the country still needs to catch up.

Our review of prior research in Section 3 and our discussions with leaders in the food and fibre sector in Section 4 have led us to propose five themes for improving the country's productivity. We believe that greater investment in the workforce, including soft skills as well as technical skills, is an important part of increasing productivity. We believe that moving toward a different mix of exports, with higher value-add and more consumer-focused products, can increase export revenues, export intensity, and economic performance. To invest in these changes, the country needs to address the issues associated with the high cost of capital, risk aversion, and low rates of public and private investment. All those improvements depend on improving management in New Zealand, an issue that has been noted in prior work but has not received the attention it merited. Finally, we believe there is scope for greater collaboration in the economy, although the exact contours of that collaboration await further investigation.

With these changes – significant changes in our economic activities that will take years to bear fruit – we can be good ancestors for the New Zealand of the future.

Getting this right means also that even with an ageing population, New Zealand will be better placed to fund the high-quality public services in health, education, and welfare necessary to ensure that a high standard of living and wellbeing remains possible for all New Zealanders in the years ahead.

Section 6

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Appendix A: Case Studies

A.1 Case study: Make your own markets

A.1.1 The story

Comvita started life as an export-focused company and now has fifty years of experience around the world in natural products for health and wellbeing, centred on mānuka honey and its special properties. Rather than competing in existing markets, Comvita has focused on developing new markets that did not previously exist. Comvita recruits new consumers by educating them about the wellbeing benefits their products offer.

Firms face many choices in business strategy. Comvita chose not to be in honey as a food business and decided not to compete on price. The natural products market is large and unique products attract a premium.

The Comvita business model builds on the New Zealand story and the Comvita story but does so in the context of local markets. Comvita's marketing strategy is refined by market research that goes deep to find the emotional connection needed for customer recruitment and engagement.

Mānuka, which is required for bees to make mānuka honey, is viewed by Comvita as a taonga. As part of their ESG strategy, Comvita reinvest in indigenous biodiversity. They are creating an upward spiral that strengthens the ecosystem from which their products are created as well as supporting environmental and social objectives.

This investment in deep marketing and substantial environmental benefit is a deliberate strategy to target consumers willing to pay premium prices for premium honey. Comvita has watched as other honey from New Zealand competes on price, eventually running out of room. They have also watched Australian companies mount a challenge with their own similar products. By continuing to build their understanding of their markets, Comvita continues to protect their brand and premium.

A.1.2 What we like about it

Creating new markets that did not previously exist provides a first-mover advantage in reaching customers. Creating new markets means that you are better positioned to define that market, as evidenced by Comvita driving product standards.

The focus on recruiting new customers presents a hopeful message and a challenge to the country's food and fibre sector. Comvita shows how this kind of work can be done and, importantly, how to profit from a substantial investment in growing markets.

The UMF (Unique Mānuka Factors) quality and rating system independently certifies the presence and quality of all factors that make New Zealand mānuka honey unique. The labelling then provides consumer trust and confidence and wards off pretenders.

Comvita trades on value and they protect that value by investing in attracting customers by explaining that value.

A.1.3 Conclusion

Comvita make their own markets. That means they can define it, establish the value, manage the narrative and make the rules that govern it.

A.2 Case study: Build on what we know

A.2.1 The story

The main gold kiwifruit in production in the country is a variety called G3, and it is the second major gold kiwifruit put into production. Its story shows how the country can rely on long-term research and development to build on what we know and grow export markets.

Green kiwifruit was the major product from the industry for years, despite the fact that kiwifruit genetics include different sizes, colours, and flavours. Development of new commercial varieties takes time, however. The gold Hort 16A variety was first created in 1987, but the first exports didn't happen until 1998, and it took another five years for exports to reach 10 million trays (Jaeger & Harker, 2005).

In November 2010, the bacterial disease Psa was found in an New Zealand kiwifruit orchard. The disease had seriously damaged overseas kiwifruit industries and was expected to destroy the gold kiwifruit industry, which relied on the Hort 16A variety (Greer & Saunders, 2012). However, varietal research continued and produced a new gold variety, G3. This variety exhibited tolerance to Psa. Within two years, Zespri had released licences for planting this new variety of gold kiwifruit.

The impact of Psa at the time was expected to be severe. Exports fell and were expected to stay reduced. Expansion of gold kiwifruit – shifting away from the green Hayward variety – was expected to slow. However, a 2015 review of the industry (Scrimgeour & Locke, 2015) provided the following summary: "The most recent shock was the impact of the Psa disease. This can be seen in the reduced gold kiwifruit production from 2012 to 2014 and the significant industry stress during this period. After emerging from the impact of Psa, the industry is back on track for growth" (p. 7). The review attributed the recovery to an industry and a company (Zespri) that "is consistently investing in marketing and innovation" (Scrimgeour & Locke, 2015, p. 9).

The varietal development also included consumer testing and estimates of willingness to pay for new varieties. When Zespri was releasing G3 in 2012, a company representative said, "Any proposed recovery pathway which introduces a rapid transition to new varieties must satisfy a number of critical market performance criteria, including taste, quality and consistency, storage and market performance" (Bicknell, 2012). These criteria show the complexity of developing and maintaining the market for new varieties.

In fact, the G3 variety more than made up for the loss of Hort 16A. The area planted in gold kiwifruit went from 2,500 hectares at the time of Psa to 4,600 hectares in 2016 (USDA Foreign Agricultural Service, 2016). Gold kiwifruit accounted for about 30 per cent of production before the outbreak but about 36 per cent in 2016.

A.2.2 What we like about it

Consumer focus: new kiwifruit varieties are tested for consumer acceptance – flavour and eating quality. They are also tested for their ability to work in the export production and distribution system. The aim is to produce fruit that consumers want to eat and that we can get to them in good condition.

Collaboration: Zespri and Plant and Food Research have a long-term collaboration around kiwifruit development. That collaboration not only produced the first gold variety, but also produced the back-up G3 when it was needed.

Investment: Zespri and Plant and Food Research have invested over many years to have deep knowledge of kiwifruit cultivars and consumer expectations, and they have turned that investment into specific products.

Government support: government support is a part of the story. Zespri exists because it has special permission backed by the government. Plant and Food Research is a Crown Research Institute and has partial backing from the government. In addition, between 2010 and 2013, the government provided $25 million in funding to fight Psa (Guy, 2013).

A.2.3 Conclusion

This is another case of consumer-focused product development that relies on long-term partnership and investment, including government support. The transition from one gold variety to another also shows the importance of continuing investment in research and development and the possibility of making a good product even better.

A.3 Case study: Know your market

A.3.1 The story[7]

Taste Pure Nature is a country-of-origin branding exercise for New Zealand beef and lamb. It is a marketing effort based on identifying an appropriate consumer segment that would be receptive to what New Zealand can offer and then tailoring a message and marketing material for them. This is not just a branding exercise. The success also relied on coordination across the industry body, processors, and farmers; development of the New Zealand National Farm Assurance Programme to validate claims; and market research to identify and understand target consumers and get the messages right.

The work goes back to 2016, when Beef+Lamb New Zealand (B+LNZ) worked with external consultants to review its role in the industry and determine whether it had a role in market development. That review provided an impetus for B+LNZ's active role in the brand strategy.

B+LNZ undertook extensive market research in eight countries to understand the market for red meat. They talked with consumers, chefs, retailers, and distributors. B+LNZ also commissioned careful quantitative research to estimate the size of the potential premium and identify and describe target consumer groups. They ended up focusing on a group they labelled 'conscious foodies'. This group prefers natural and healthy food and is willing to pay for it. These consumers are also concerned about the environment and animal welfare. They can support a premium New Zealand brand focused on animals living natural lives in open pastures. Research has estimated that export sales could increase by $238 million annually by targeting these consumers. B+LNZ also identified that another adjacent group might be interested, too, increasing the potential impact. They are consumers who aspire to a conscious foodie lifestyle but are more conservative in their purchases and cooking styles.

As part of the market research, B+LNZ developed a deeper understanding of country of origin as a market signal to consumers. They found that consumers use different cues to navigate the red meat product market. Importantly, the producer brand is viewed by consumers in the context of the country of origin, so the two types of signals need to work together. It also gives a good country-of-origin brand a way to work with individual producer brands. That is, both the industry body and the individual meat processors have roles to play in reaching consumers.

Of course, anyone can make a claim. Part of Taste Pure Nature is backing up its claims. As part of the whole programme, the Red Meat Profit Partnership launched the New Zealand Farm Assurance Programme (NZFAP). To be eligible to use the Taste Pure Nature brand material, a meat company must participate in NZFAP. This requirement provides authentication for the brand claims that can stand up to scrutiny by discerning overseas consumers.

Creating a new brand and all the associated marketing activities are not cheap. B+LNZ secured an additional $4.1 million from its levy-payers, a vote of confidence from farmers and processors for the Taste Pure Nature programme. B+LNZ is now tracking the impacts of Taste Pure Nature on prices and sales volumes. They report that preference for beef and lamb has increased in California, one of the target markets, and that brand awareness has also increased there.

A.3.2 What we like about it

This case study shows how market development efforts from New Zealand can be successful.

- Consumer focus: Taste Pure Nature is the sort of consumer-focused branding effort experts recommend for growing the country's exports. Rather than product-push, where we build something and then look for a market, this work involved extensive overseas marketing research in understanding consumer segments and their drivers. Then the industry built a brand identity around things that are valuable to specific consumers and that the industry can provide.
- Investment: B+LNZ obtained millions in dedicated funding from its levy-payers, and meat companies have invested more, plus the NZFAP came out of the earlier investment in the Red Meat Profit Partnership.

7. https://ourlandandwater.nz/news/the-story-behind-the-taste-pure-nature-campaign/ https://beeflambnz.com/tastepurenature/assets/RMS_Journey.pdf

- Collaboration: The industry body is working with meat companies and farmers, so the production methods are aligned to the market messages, and they are backed up by sales and distribution channels.
- Government support: Taste Pure Nature has drawn on research and industry programmes funded by the government. The marketing research drew on the expertise of the AERU at Lincoln University, which has been built up in part with funding from the Ministry of Business, Innovation and Employment and the Our Land and Water National Science Challenge. The authentication programme was developed by the Red Meat Profit Partnership, which was a Primary Growth Partnership co-funded by the Ministry for Primary Industries. Taste Pure Nature is an example of how government funding can support industry development and higher-value exports.

A.3.3 Conclusion

Taste Pure Nature is a great example of driving export growth by focusing on the demands of specific consumer segments, supported by collaboration within an industry, years of investment, and government funding in underpinning research and development.