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Improving Economic Resilience

Enhancing economic resilience of industries and
communities to persistent supply chain disruptions



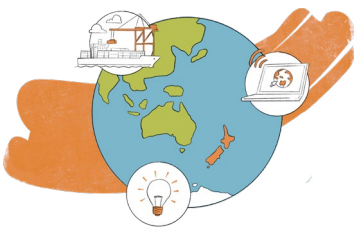
Issues Paper

February 2023

NEW ZEALAND
PRODUCTIVITY COMMISSION
Te Kōmihana Whai Hua o Aotearoa



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The New Zealand Productivity Commission Te Kōmihana Whai Hua o Aotearoa

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Foreword



E ngā mana, e ngā reo,
e rau rangatira mā, tēnā koutou,
tēnā koutou, tēnā koutou katoa.

It is exciting to launch this paper and to invite and encourage your thoughts, comments and submissions on the questions raised.

Until recently, supply chains have been neither front nor centre in economic conversations. Similarly, the concept of resilience to potential supply chain disruptions has for some time been relatively overlooked in favour of the push for efficiency, cost savings, and production gains alongside increased trading opportunities. However, with recent (and not so recent) influences gathering momentum around the world, the concept of resilience to supply chain disruptions has pushed itself to the fore.

Consequently, it is timely to ask whether such resilience is a “nice to have” or a “necessity” in a fast-changing global economy faced with a growing risk of large and unpredictable disruptions. Or is it somewhere in between? Further, there is the question of whether Aotearoa can indeed improve resilience given our lack of influence over some of the global trends and tensions that generate potential disruption. In addition, some disruptions may open opportunities; hence it may be best not to stand in the way of such disruptions being felt here.

As businesses, communities, iwi, and the nation makes choices, the trade-offs need to be assessed. There may be no straightforward answer or option to pursue – but the more information and the better those assessments are, the better informed such choices will be; and informed choices are critical to provide a better chance to improve productivity and to deliver wellbeing across the communities of Aotearoa.

The Commission welcomes your responses to our thoughts and questions in this Issues Paper and looks forward to engaging with you as our inquiry progresses.

Ngā mihi nui,

Dr Ganesh Nana

*Chair, Te Kōmihana Whai Hua o Aotearoa
New Zealand Productivity Commission*



Executive summary

Global supply chains are networks that connect the production and distribution of goods and services around the world. Supply chains improve productivity and enhance the wellbeing of businesses and communities in Aotearoa New Zealand by allowing them to sell what they are good at producing overseas and buy what they need for their prosperity and wellbeing from the rest of the world.

As a small, open, and geographically distant economy, New Zealand has benefited from integrating into global supply chains over the last three decades. However, recent events – including the Global Financial Crisis and Covid-19 pandemic – have continuously disrupted the supply chains that industries and communities rely on. Firms, from large to local, have been working alongside governments to keep supply chains operational. However, disruption and change will continue as geopolitical, environmental, social, infrastructural, and health risks continue to emerge.

In the aftermath of these shocks and with clouds on the horizon, examining the resilience of the Aotearoa New Zealand economy has become more important. While resilience-enhancing policy interventions adopted by overseas economies can provide important insights, New Zealand is in a unique position because of the combination of its geographic isolation, reliance on primary industries, growth of the Māori economy, and the role of Te Tiriti o Waitangi within the domestic context.

The Government has asked the Productivity Commission to undertake an inquiry to identify policies and interventions that can enhance the resilience of the economy and living standards to persistent medium-term supply chain disruptions ([Terms of Reference](#)). This Issues Paper is the Commission's first step in engaging with stakeholders. It outlines the Commission's current thinking on supply chains and economic resilience in Aotearoa New Zealand and overseas, and highlights policy challenges that the inquiry should focus on.

The paper seeks feedback on an initial set of four questions by 17 April 2023:

- 1 What supply chain disruptions and trends are you worried about?
- 2 What is your industry/community currently doing or planning to do to address supply chain concerns?
- 3 How can the government help to enhance the resilience of your industry/community to supply chain disruptions?
- 4 What should the Commission study to learn more about the economic resilience of industries and communities?

The Commission will rely on your feedback and ongoing engagement as we progress the inquiry toward delivering a final report in February 2024.



The Commission would like to hear from you

The Commission needs your perspectives to help identify areas of focus, inform the Commission's findings and recommendations to the Government, and contribute to enhancing the economic resilience of industries and communities throughout Aotearoa.

Responses can be submitted via [SurveyMonkey](#), on the Commission's [website](#), or emailed to info@productivity.govt.nz by 17 April 2023.

All feedback received through this process will be published on the Commission's [website](#).

The Commission welcomes in-person or online meetings, but will need to prioritise given the limited time available to complete the inquiry. Please contact us if you would like to meet.

You will have further opportunities to engage on the preliminary findings and recommendations, and make further submissions, as the Commission progresses the inquiry toward delivering a final report in February 2024.



Part 1

Supply chains are important and becoming disrupted



Supply chains are part of the invisible plumbing of the global economy. Much like water pipes under cities, they remain largely invisible and out of mind when they work well. However, when supermarket shelves are empty, petrol stations are blocked by long queues, or when major export products cannot be shipped to overseas customers, people start paying attention to the vulnerability and fragility of supply chains.

Recent supply chain disruptions caused by the Covid-19 pandemic, extreme weather events, and the war in Ukraine have wrought havoc to economies and societies across the world and contributed to higher inflation and cost of living pressures. These disruptions represent a major change after three decades of smooth, behind-the-scenes expansion of global supply chains that allowed even distant countries like New Zealand to participate in global just-in-time networks.

The future outlook for supply chains is not a simple return to pre-pandemic operations. Global trends indicate that disruptions are likely to be more frequent. In response, governments of most advanced economies, including New Zealand, have started to explore policy options for enhancing the resilience of their economies to supply chain disruptions.

1.1 What is a supply chain?

Supply chains are complex networks that connect suppliers of goods and services to producers, distributors and end users (Australian Productivity Commission, 2021; Rahman et al., 2022). They encompass the flow of material inputs, labour services, information, and finance – from raw materials through to finished products and their distribution to customers.

Supply chains connect firms across and within national borders. They connect economies through exports and imports of goods and services while relying on physical infrastructure such as ports, roads, cables, rails, pipes and satellites to move exported and imported goods and services from their origin to their destination. Less visibly, supply chains also rely on social infrastructures including trade agreements, legal and regulatory systems; and, in the broadest sense, on human relationships that enable trading across time and space.

Businesses develop supply chains so they can produce and sell their goods and services, and are often best positioned to address any supply chain disruptions. Meanwhile, the primary role of governments is to develop and protect the physical and social infrastructures underpinning supply chains, including working to ensure reliable supplies of some key inputs such as energy or pharmaceuticals, and intervening during emergencies. Governments also purchase and supply various goods and services, and their procurement decisions can shape supply chains as well.

1.2 Upsides and downsides of global supply chains

Global supply chains deliver a broader and more affordable selection of goods and services that contribute to the material wellbeing of people and communities in Aotearoa. Supply chains enable businesses, industries, and economies to specialise in producing goods and services they are good at, while buying those they cannot produce as well from global markets (see Figure 1). Trade enables businesses to achieve economies of scale that are essential for increasing their productivity, by producing more and better output with fewer inputs.

While specialisation and trade facilitated by global supply chains provide foundations of prosperity, they also expose businesses and economies to global competition. This may hurt some domestic industries – and communities within those industries – or make it difficult to develop new industries amidst global competition. Further, the production and transportation systems sustaining global supply chains are major sources of climate

emissions. Such concerns prompt the critique of high reliance on global trade and motivate efforts to balance its economic upsides with social and environmental downsides.

The global reach and complexity that supply chains have achieved over the past few decades have made them both more resilient and in places, more fragile. The lack of personal protective equipment during the Covid-19 pandemic, along with recent shortages of fertilisers, plasterboard, and skilled workers made clear that there are many potential points of failure along supply chains and that issues can escalate quickly (see Box 1). Long and complex supply chains also make it harder for firms to identify or control risks along the network, particularly for relatively small New Zealand firms which are often at the physical ends of the supply chain. At the same time, the global reach and complexity of supply chains can make it easier to find alternative suppliers or markets if there is a disruption.

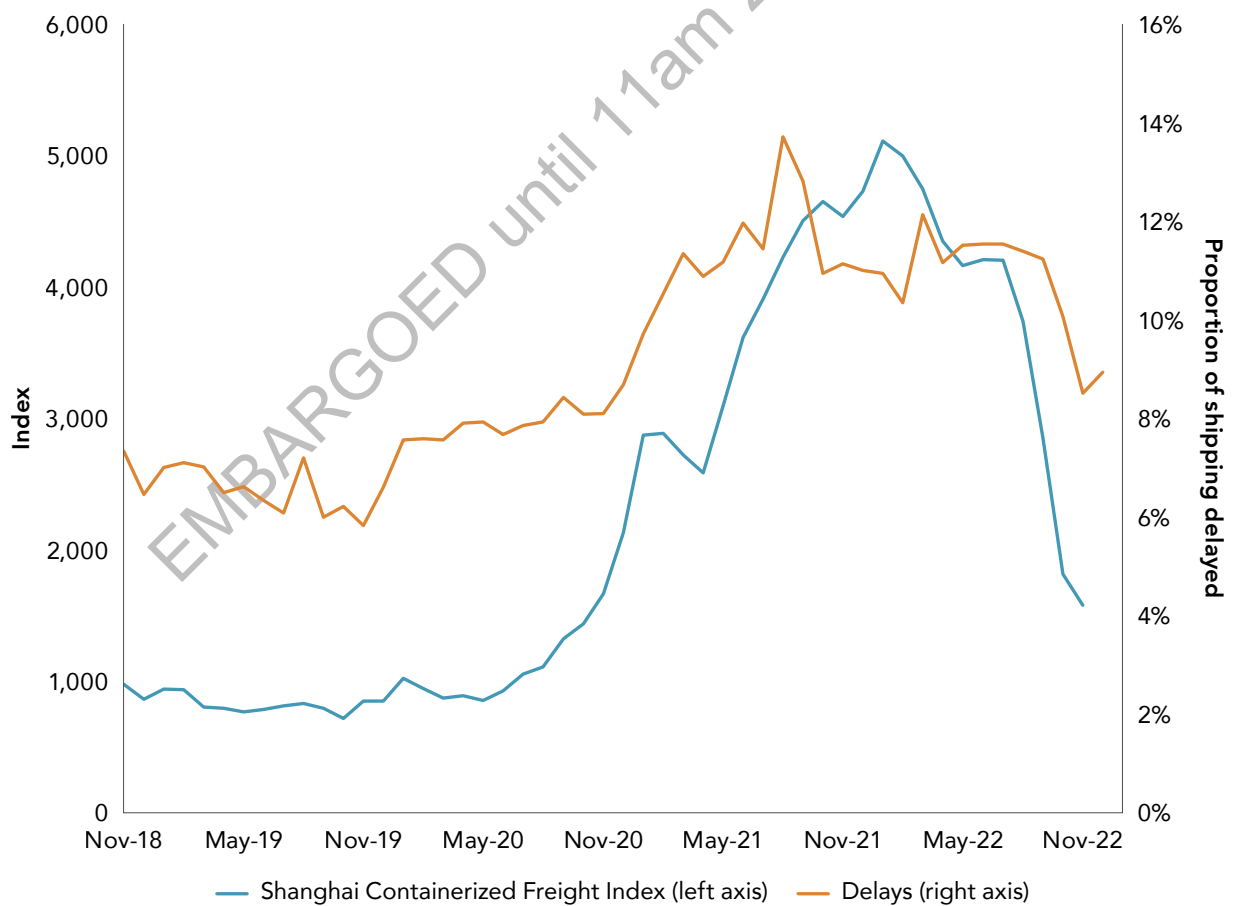
Figure 1 Global supply chains underpin prosperity but create some challenges



Box 1 From just-in-time to just-in-case

A strong recovery in demand for consumer goods after Covid-19 lockdowns drove a rapid increase in demand for shipping, increasing its costs. In addition, pandemic complications and other shocks have increased delays (Figure 2). The combination of these factors resulted in just-in-time deliveries becoming unreliable, and industries responded by building larger stockpiles as a just-in-case measure, which added to increases in prices and delays. While prices and delays are moving back toward pre-Covid-19 levels, the experience demonstrates the “bullwhip” effect. This happens when a temporary shortage distorts demand and supply expectations and triggers large changes in inventory that multiply throughout long supply chains, potentially overwhelming existing bottlenecks in infrastructure, logistics and distribution.

Figure 2 Global shipping costs and delays are gradually returning to pre-Covid-19 levels



Sources: MacroMicro.me (2023), China-Global & Shanghai Export Container Freight Index (left axis). Kiel Institute for the World Economy (2022), Kiel Trade Indicator (right axis).

1.3 Supply chain disruptions are here to stay

Looking forward to the next decade or so, New Zealand is likely to remain exposed to heightened risks of supply chain disruption. The Covid-19 pandemic is an ongoing source of disruption, even if no new variants appear. Likewise, the war in Ukraine has increased volatility in global markets for energy and food. Climate change increases the likelihood of extreme weather events, while rising temperatures and sea levels increasingly impact major trade routes. Geopolitical rivalries and political tensions are driving the global economy towards more fragmented trade and investment flows, though both the pace and the sequence of changes is unknown. Further, the desire of governments in large economies to achieve strategic autonomy

or dominance will continue reshaping global markets for energy and innovative technologies and may cross into protectionist policies (see Box 2 and Skilling, 2022).

These trends can be bad news for the reliability of global supply chains. Their combination leads some economists and experts to expect that trading relationships will look quite different compared with pre-pandemic conditions. While some disruptions may be temporary, others are likely to persist for years. This leads firms and governments to broaden their focus from short-term fixes of individual shortages to include medium-term changes that enhance economic resilience.

Box 2 Mutual reinforcement of drivers towards the fragmentation of supply chains

Economic factors

- Escalating freight costs and congestion in the post-pandemic environment
- Movement towards just-in-case supply chain management by increasing stockpiles/inventories
- Emissions pricing in ways that incentivise localised supply chains

Socio-political factors

- Greater use of protectionist industry policy towards goods considered sensitive or strategic
- Countries shift towards domestic production due to increasing global political volatility
- Growing tensions between the United States and China, with flow-on impacts to trading partners

Source: Based on Skilling (2022).

Part 2

Economic resilience of industries and communities



2.1 What is economic resilience?

Resilience is a concept originating from physics, referring to the capacity of a material to return to its initial shape after deformation. This aligns with how the term is used in engineering and construction fields, where the focus is on avoiding or absorbing damage and “bouncing back” from shocks (ie, *absorb* and *recover*) as quickly as possible. Economic resilience extends this idea in two important ways.

- First, economic resilience acknowledges that the “new normal” after a shock may be different from the original condition. Although industries and communities can overcome temporary disruptions by delaying their impacts, a response to a persistent disruption typically requires deeper changes. Disruptions hence present not only downside risks but also opportunities for improvements by establishing a new and potentially “better normal”.

- Second, economic resilience provides scope for anticipation, preparation, and learning from supply chain disruptions. While some studies may focus on the shock absorption and recovery phases, an industry’s or community’s performance in the face of a persistent disruption depends on proactive preparation before the adverse event, and learning from the experience afterwards (see Figure 3 and Box 3).

For this inquiry, **economic resilience** is defined as

the capacity of industries and associated communities to anticipate, prepare, absorb, recover and learn from supply chain disruptions.

The attention to pre and post-disruption phases is essential, given that the inquiry seeks to identify policy interventions that can enhance the economic resilience of industries and communities to persistent supply chain disruptions.

This section provides a definition of economic resilience and notes Aotearoa’s historical experiences with adaptation to major supply chain disruptions; as well as policies that other countries have introduced to enhance their resilience to expected supply chain disruptions.

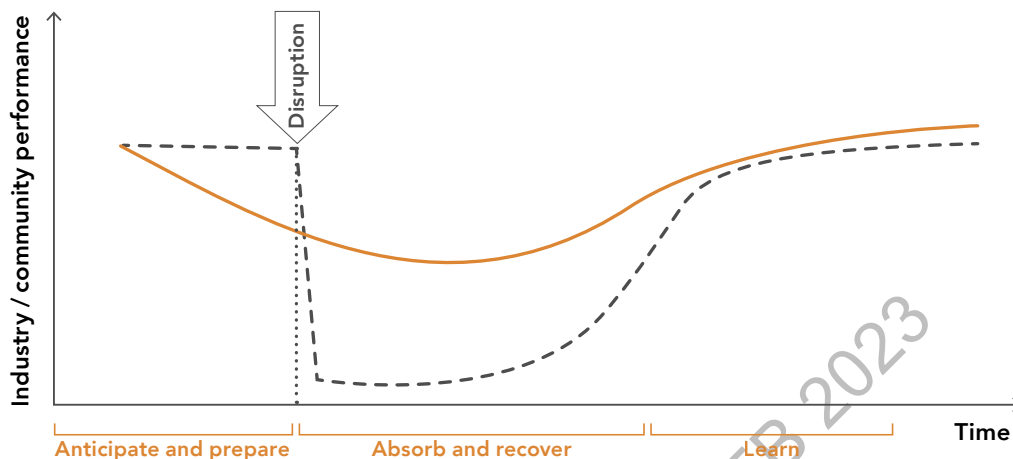
Figure 3 Economic resilience – reactive and proactive approaches to supply chain disruptions**Box 3 Economic resilience of industries and communities – trade-offs and uncertainties**

Figure 3 illustrates two stylised responses to supply chain disruptions. The dashed line represents a reactive approach without any anticipation and preparation, where a disruption causes a deep drop in the performance of an industry or community, which can manifest through losses in production, declining profit or even financial losses, increasing unemployment, and declining wellbeing. By contrast, the solid line represents a situation where an industry and community proactively invested in economic resilience before a disruption. While this early investment reduces performance before a disruption (by shifting resources into investments in resilience), it is also likely to reduce the loss of performance after the disruption.

Figure 3 highlights the trade-off between efficiency today and resilience tomorrow. Industries and communities can choose to invest in preparation and reduce adverse impacts, or face greater impacts in the absence of preparation. This also means that, at any point in time, a society can under-invest or over-invest in resilience. Under-investment exposes a society to adverse impacts of disruption. Over-investment wastes valuable resources that have better uses.

This trade-off is complicated by uncertainty about whether and when the disruption occurs, if investment in preparation actually reduces losses, or where the post-disruption performance settles. The new normal can be worse, better or the same as pre-disruption which influences the return on investment in resilience. At the same time, there are some investments in resilience that can create long-term returns regardless of the disruption occurring. For example, diversifying supplier and customer bases initially requires investment but is likely to lead to new efficiencies and income streams (as well as reduced losses from some forms of supply chain disruption).

Given that the outlook is more volatile (see Section 1.3), it is reasonable to expect that many industries and communities are currently under-investing in resilience. Adding the resilience perspective into economic decision-making has potential to help industries and communities reduce the adverse impacts of disruptions and seize new opportunities created by disruptions. Because there are risks around both under-investing and over-investing, ensuring that decisions are informed through the participation of multiple stakeholders can help to maximise resilience and wellbeing.

The emphasis on preparation and learning aligns with existing work on economic resilience. The Treasury (2022) concluded that Aotearoa's future wellbeing depends on its resilience to future shocks, which in turn hinges on the capability of collective institutions and the quality of decision-making systems to prepare for and respond to risks. Similarly, the Ministry of Social Development (2021) has observed that community resilience through disruption depends on the earlier links and connections that enable the community to mobilise the information and resources necessary to recover and adapt to new circumstances.

At the same time, any investments in resilience are complicated by uncertainty about the nature of disruption and how well various enhancements improve absorption and recovery (see Box 3). While preparation for predictable risks often justifies resilience-enhancing investments, some less-predictable or genuinely unknown risks can hardly be anticipated and prepared for. In such cases, industries and communities need to rely on their generic capabilities to absorb and recover from disruption.

Economic resilience differs from economic robustness, although the terms are sometimes used interchangeably (see Box 4). Robust industries and communities focus on stability, surviving disruptions unchanged, and returning to "normal". This is typically possible only when the disruption is temporary and does not change fundamental circumstances. By contrast,

persistent disruptions require industries and communities to accept the need for change and strive to adapt so they can prosper despite the change in fundamental circumstances.

The resilience approach is better aligned with the focus of the inquiry on medium-term adaptation. It also more closely resembles the concept of antifragility, where highly connected diverse networks are not enough to manage shocks – the tendency to hold on or let go quickly matters too (Taleb, 2014). The antifragile view provides a reminder that while shocks create risks, they also create opportunities. The inquiry will need to pay attention to the capacity of industries and communities to seize those opportunities and reflect the changing preferences of a growing population in an uncertain world.

Economic resilience is enhanced by economic diversity combined with the willingness and ability to adapt. A more diversified economy and more diverse society mean that no single disruption impacts everyone in the same way – what may be a negative shock for one industry or community can create opportunities for others. This diversity allows the economy and society to pool risks by developing reliable policies and strategies that support the adaptation to the new normal (see section 4.1 for an overview). In turn, having supportive institutions enhances the ability and willingness of industries and communities to adapt to fundamental changes.

Box 4 The volatility paradox – robustness and resilience over time

The volatility paradox highlights the difference between robustness and resilience over time. While the emphasis on robustness in the face of disruptions may initially help industries and communities avoid the strain associated with change and adaptation, it can also result in a cumulative build-up of imbalances. When these imbalances result in a crisis, the impacts are often more severe than in industries and communities that embrace resilience and prioritise gradual adaptation to smaller changes (Brunnermeier, 2021). The paradox is that periods of stability that encourage robust responses to disruptions often result in crises. By contrast, periods of higher volatility that encourage resilience are less likely to result in social and economic ruptures brought about by major crises.

Over time, Aotearoa's society and economy have become more diverse and diversified. While some export industries remain concentrated, there is far less dependence on any single industry compared to the past, such as during the wool price shock in the 1960s. Similarly, technologies within industries are more diverse – as with business models across firms. The growing share of firms shaped by mātauranga Māori adds to this diversity through value-based governance and ownership arrangements (see Box 7). The next section briefly reviews structural underpinnings of resilience, before looking at institutions and policies that can shape the ability of industries and communities to adapt to persistent disruptions propagated through supply chains.

2.2 Economic resilience of the industries and communities of Aotearoa

Several core industries have had to deal with major changes during the post-war period. Access to established supply chains was persistently disrupted by political decisions, geopolitical and natural events or structural shifts in the global economy (see Box 5 for some examples). Easton (2023) notes that while the success of responses to disruptions has varied considerably, this history provides insights into economic resilience.

One such insight, recently confirmed by the Covid-19 experience, is that macroeconomic stability, fiscal capacity and a diversified economy support societal resilience even to novel economic disruptions. Another insight is that it can be difficult to distinguish a temporary shock from a persistent one as a crisis unfolds. For example, the 1973 oil crisis was persistent (but initially treated as temporary), while the 1979 oil crisis was temporary (but initially treated as persistent). It is also not easy to predict whether responses that worked in the past or in similar countries can be successful, although any opportunity to learn from experience is helpful for understanding and identifying potential responses.

While the historical review indicates that there is no simple way of enhancing economic resilience,

it does highlight the value of knowledge, institutional governance and transparency in pooling resources to anticipate and prepare for major disruptions. Understanding the problem or shock well, who to connect with, what resources are available, and who has decision-making authority beforehand can be crucial for responding to fast-moving crises and therefore for increasing resilience to them over time.

The depth of economic and social impacts from historical shocks, such as the wool price crash, also highlights the links between the resilience of industries and communities. Whether defined by geographic, professional, social or cultural connections, there are communities who are dependent on the resilience of local industries. At the same time, industries and firms are also dependent on the skills, labour, support and goodwill of their communities, especially in difficult times. Therefore, the economic resilience of industries and communities cannot be fully separated. The effort to anticipate, prepare for, absorb, recover and learn from disruption inevitably requires the involvement of both industries and communities.

Previous research by the Commission has identified the benefits of diversification – not having all eggs in one basket (Coleman et al., 2019). Diversification in this context is similar to a local community having their employment or income derived from a range of different industries or firms. A greater variety of industries (or many baskets) enhances the resilience of local communities because it is less likely that a disruption to one firm or industry will impact all employers and employees at the same time (see Figure 4).

While the range of development choices may be limited in small local communities, especially when there are rapid shifts in their economic landscapes (see Box 6 for an illustration), Martin and Sunley (2015) demonstrate that local resilience can be supported by broader political and economic systems creating scope for local actions, programmes and initiatives. Communities can establish institutions and governance arrangements to enhance their resilience. This is acknowledged in existing policies such as Just Transition Plans for Southland and Taranaki and in wider Industry Transformation Plans.

Box 5 Persistent supply chain disruptions in the past

Market access decisions

- New Zealand exports disrupted when the United Kingdom joined the European Economic Community (1973)
- Economic sanctions restricting available export and import markets

Geopolitical events

- Petroleum prices spiked in the 1970s due to the Yom Kippur War (1973)
- Impacts of Russia's invasion of Ukraine (2022)

Historical disruptions propagated through supply chains

Physical and environmental factors

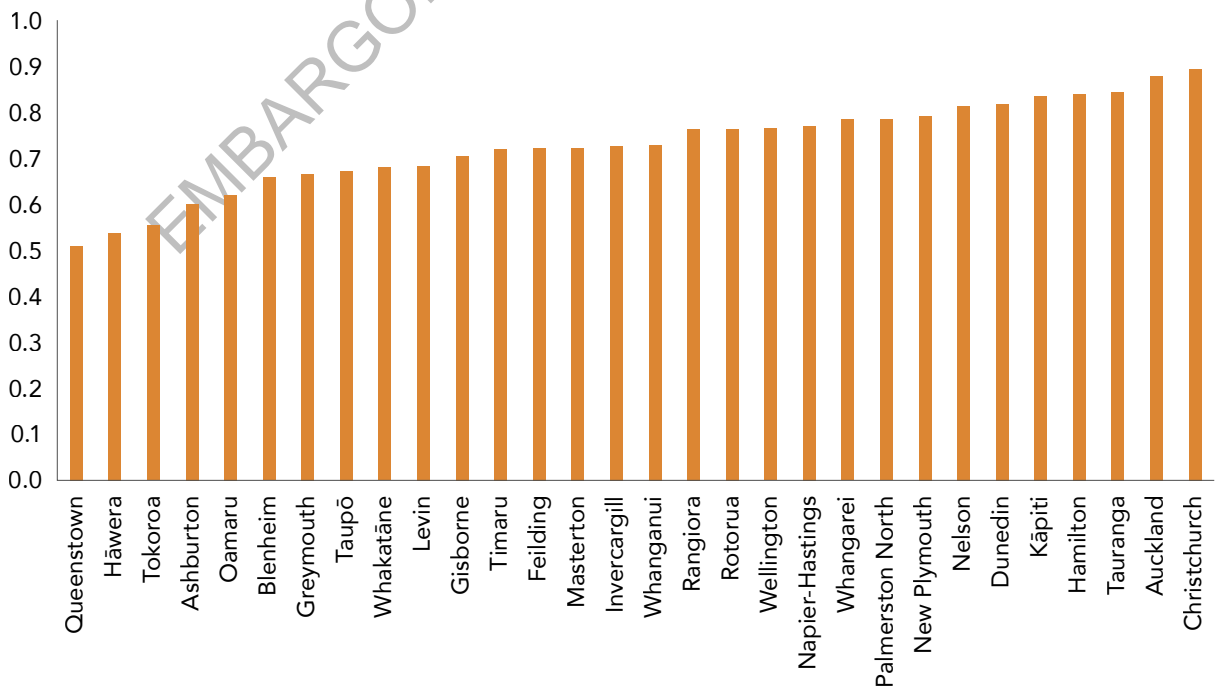
- Canterbury earthquake closing down Lyttelton port (2011)
- Covid-19 lockdowns and border closures (2020)

Structural shocks

- Wool price crash due to synthetic materials ending decade-long economic boom (1966)
- Globalisation and trade integration slowed down after the global financial crisis (2008)

Source: Based on Easton (2023).

Figure 4 New Zealand urban area diversification index in 2013



Source: Coleman et al., (2019).

Note: The regional specialisation index values have been inverted to create a regional diversification index. Values close to 1.0 mean that the industry in a location is diverse and more resilient to disruptions impacting only specific industries.

Box 6 Ōtepoti Dunedin – a resilient community

Communities often have little control over a rapid shift in their economic landscape. This is illustrated by the history of economic development in Ōtepoti Dunedin. Dunedin was initially settled by Māori who came to take advantage of the area's rich resources, such as kaimoana and Moa. It was also one of the main travel corridors to the West Coast for pounamu (greenstone). Later, Scottish settlers arrived in the area. Initially, the first European settlers relied on whaling and sealing. Shortly after, the settlers discovered gold and the area's population burgeoned at the start of the Otago Gold Rush in the 1860s. During this time, Dunedin established itself as New Zealand's industrial capital, with numerous banks and major heavy industries including rail and ship engineering. Additionally, Dunedin became the home of the nation's first university. When the gold rush fizzled out, the once-thriving Dunedin declined and lost its relative prominence. This process was further exacerbated as heavy manufacturing jobs moved offshore. However, in recent years, the Information and Communications Technology sector and the tourism industry have bloomed alongside the university, which now employs over 20% of the city's workforce. An ongoing source of strength for the Ōtepoti community is the presence of Ngāi Tahu who have contributed across multiple scales to Dunedin as a resilient community. Recent contributions include the construction of a new nationally significant ACC hub located in the city centre. The story of Dunedin's economic development is a testament to local community resilience even through large-scale industrial changes over the last 160 years. At the same time, the story of Dunedin highlights the strain on both industries and communities over time as they adapt to change.

The link between the resilience of industries and communities is particularly important for the Māori economy. Many Māori businesses incorporate kaupapa Māori in their operations, drawing from te ao Māori (the Māori world, such as Māori knowledge, culture, values, identity and language), which deeply connects them to their community and place (see Box 7). In addition, maintaining a strong economic base in primary industries and tourism that rely on the land and other local assets further strengthens this connection.

Businesses that identify as Māori increase the diversity within their industries and across the economy. These businesses are often characterised by themselves and others as having roots in Māori values, relying on collective property rights arrangements, or adopting longer investment horizons aligned with the inter-generational needs of their wider community. These characteristics translate to a greater variety of business models and governance practices that can support more diverse responses to disruptions. In addition, as the Māori economy continues to grow – by around 10% a year over the last decade by some estimates (BERL, 2021) – this distinctive source of economic resilience of industries and communities in Aotearoa continues to expand.

Box 7 Māori values in business practice

Iwi and Māori businesses, including post-Treaty settlement governance entities (tribal corporates), land incorporations, trusts and private enterprises, frequently identify with values and principles that underpin their business decisions and practices. These values and principles include:

- **Whakawhanaungatanga** – the building and processes of creating reciprocal relationships and multi-level collective/cooperative decision-making structures;
- **Whakapapa** – the claim to identity, reflecting their relationship with the wider community;
- **Kaupapa** – “mission-led” strategies to deepen the diversity of assets and products, stemming from inter-generational responsibility to care for people and the surrounding world that is inherent in te ao Māori; and
- **Kaitiakitanga** (guardianship), rangatiratanga (leadership and ownership), and manaakitanga (hospitality, the process of showing respect and care for others).

These values interconnect with mātauranga Māori and underpin the understanding of resilience that is inherent to the kaupapa of Māori businesses. Governors of Māori businesses also refer to their accountability and transparency toward owners, shareholders and community as strengths that drive sound decision making and as contributors toward resilience (BERL, 2021; Mill & Millin, 2021; Rout et al., 2020; Te Puni Kōkiri, 2022; Wolfgramm et al., 2021). Māori businesses and trusts which manage collectively owned assets are often accountable to up to tens of thousands of iwi, hapū and whānau members or shareholders, but it is within the complexity of this governance structure that entities learn to adapt and become resilient.

2.3 Resilience-enhancing policies overseas

Supply chain disruptions have prompted many overseas economies to consider resilience-enhancing policy responses. This is a major shift from the hands-off approach of governments to supply chains in the preceding three decades. Initially, this change was prompted by the Covid-19 experience of supply-chain bottlenecks, but the scope and ambition of resilience strategies have continued to expand. Although numerous overseas initiatives are in the early stages of implementation, and their effectiveness in enhancing resilience remains unknown, this new trend demonstrates a move towards strategic autonomy facilitated by active support of selected industries.

Supply-chain resilience initiatives in large, diversified economies focus on strategic autonomy in specific imports through re-shoring,

near-shoring or friend-shoring. The initial United States’ review of supply chains highlighted vulnerabilities in semiconductors, batteries, critical minerals, and pharmaceuticals, which led to public plans to support a domestic industrial base in energy, transportation, agriculture, health, ICT, and defence (The White House, 2022). The European Union highlighted similar import vulnerabilities as the United States but also added hydrogen, cloud computing, and – after Russia’s invasion of Ukraine – a particularly strong focus on gas, oil and alternative sources of energy. The European Union has created six alliances to develop public–private partnerships to support investments in selected industries (European Commission, 2021). These alliances are open to participation from overseas firms.

Export-oriented economies tend to look at both import and export vulnerabilities and are more explicit in identifying specific goods exposed to supply chain disruptions. Countries including Australia, Canada, Germany and the United Kingdom have identified industry-specific imports that included various industrial and agricultural chemicals (water treatments, fertilisers) and inputs into emerging industries (chips, batteries, rare metals). On the export side, these countries identify a dependence on major export markets (primarily China), especially for bulk commodities or other major exports (such as German-manufactured cars). Following the US/EU model, the Australian government launched a Sovereign Manufacturing Capability Plan and a Supply Chain Resilience Initiative that made A\$100 million available to fund firms to establish capability directly addressing specific supply chain vulnerabilities (DISER, 2021). The United Kingdom applied a supply chain resilience lens to the domestic economy, highlighting the role of competition policy in addressing anti-competitive mergers that leave goods and services markets concentrated with a few big players who cannot fail without significant damage to consumers (DIT, 2022).

In recent years, China has also increased its emphasis on the strategic autonomy of supply chains. It has introduced the concept of dual circulation that aims to insulate the domestic Chinese economy from the rest of the world by eliminating dependencies, in terms of natural resources or technology, with the goal of greater self-reliance – for example, tariffs on Australian barley exports. The implication for China's trading partners (depending on the overall growth of the Chinese economy) is to expect a reduction in the demand from the Chinese economy over time for goods not made in China.

While specific government responses vary, they share the expectation that supply chain disruptions are an ongoing part of the future economic landscape. Initial government inquiries were motivated by the Covid-19-induced supply-chain bottlenecks, but they have identified a broader set of ongoing risks (outlined in Section 1.3). This led some countries to set up dedicated units to oversee supply chain issues,

including the Supply Chain Disruptions Task Force (United States), industry alliances for six critical supply chains (European Union), Global Supply Chains Directorate (United Kingdom), or the Office of Supply Chain Resilience (Australia). Similar units oversee the application of the formal economic sanctions, such as those recently imposed on Russia. Others monitor restrictions on market access, such as the changes in regulatory requirements that effectively curbed Australian exports of coal, wine, lobster and barley to the Chinese market for two years.

The scope of supply chain policies in most countries continues to expand toward more activist security and industry policies. Formally, these strategies may respect existing free-trade commitments, but the push toward increased strategic autonomy and protection of selected industries from geopolitical rivals serves to reduce global competition. This protectionist impulse may be partially mitigated by "friend-shoring" that keeps trade open to politically aligned countries.

Internally, advanced countries often aim to manage anti-competitive impacts by focusing policy interventions at the industry level to avoid favouring individual firms. Such interventions recognise that firms within the industry may be impacted differently by any supply chain disruption. For example, some firms may not need the disrupted input due to differences in technology or may be better able to acquire the disrupted input from alternative markets due to better international connections. An industry-wide focus also helps to reduce potential perils of past industrial subsidies, which focused on a select number of dominant firms.

Aotearoa's economic resilience strategy needs to reflect its unique circumstances. These include the constitutional significance of Te Tiriti o Waitangi, the small size and isolation of the economy, and the structural differences compared to most other advanced economies. Such circumstances limit the transferability of resilience-enhancing strategies from other countries. The next section outlines some preliminary findings about features of New Zealand's economy and outlines areas of further research for the inquiry.

Part 3

Gathering insights into New Zealand's economic resilience

The remote geographic location and economic composition centred on primary production means that Aotearoa is more exposed to supply chain disruptions compared to other advanced economies (Skilling, 2022).

3.1 Analysing concentrated imports and exports

Concentrated import and export markets tend to be more vulnerable to supply chain disruptions. When a large proportion of imports comes from a single country, or a large proportion of exports is sold to a single country, it is more difficult to find a new supplier or new export destination in the event of a disruption.

Diversification of imports and exports is a policy that can enhance resilience by reducing dependence on concentrated markets. However, the first step is to identify these concentrations in available data. The Commission has conducted a preliminary analysis of 6,678 goods imported from 145 countries and identified 513 concentrated imports (Table 1). Similarly, an analysis of 9,541 goods exported to 206 countries highlighted 337 concentrated exports (Table 2). While the value of concentrated imports is small, the essential nature of some imports and exports for industries and communities can amplify risks to their economic resilience.

This section covers the Commission's preliminary analysis of concentrated imports and exports of goods that provide a starting point for identifying potential vulnerabilities to consult with stakeholders. It also outlines proposals for economic modelling that can help test scenarios and identify communities particularly exposed to some disruptions, research into firm productivity and resilience, and taking stock of lessons from the Covid-19 experience in light of a more volatile future.

Table 1 Top 10 countries of origin for concentrated imports

	Country of origin	Concentrated imports in total imports (%)	Number of concentrated goods (HS10)	Value of concentrated goods (\$m)
1	China	83.2	443	3,557
2	Indonesia	5.5	4	234
3	United States	2.5	4	106
4	Canada	1.5	8	65
5	Switzerland	1.3	4	55
6	France	1.3	4	55
7	United Kingdom	1.0	4	43
8	Vietnam	0.8	2	35
9	Japan	0.7	4	32
10	Germany	0.5	4	20
Total concentrated imports (over \$100K per good)			\$4.3b of \$59.3b (7.3%)	
Total countries with vulnerable imports			22 of 145	
Total concentrated import goods			513 of 6,678	

Notes: 1. Based on 2019 data from Statistics New Zealand and BACI – goods are identified on HS10 level, services data are yet to be analysed.
 2. Concentrated imports are defined as those HS10 goods where more than half of New Zealand imports come from a country that controls more than half of the global market for the given good.

Table 2 Top 10 destination countries for concentrated exports

	Destination country	Concentrated exports in total exports (%)	Number of concentrated goods (HS10)	Value of concentrated goods (\$m)
1	Australia	55.9	165	899
2	China	25.1	31	403
3	United States	7.6	37	122
4	Japan	4.7	11	75
5	India	2.2	6	35
6	South Korea	1.6	7	26
7	United Arab Emirates	1.3	5	21
8	Indonesia	0.8	1	12
9	China (Hong Kong)	0.4	6	6
10	Singapore	0.2	6	3
Total concentrated exports (all values)			\$1.6b of \$58.2b (2.7%)	
Total countries with concentrated exports			32 of 206	
Total concentrated export goods			337 of 9,541	

Notes: 1. Based on 2019 data from Statistics New Zealand and BACI – goods are identified HS10 level, services data are yet to be analysed.
 2. Concentrated exports are defined as those HS10 goods where over 80% of New Zealand exports are sold to a market that buys more than half of the global production of these goods.

Further stakeholder consultation is needed to establish whether any concentrated good or service requires a public policy intervention. There might be important factors mitigating or increasing risks to Aotearoa's industries and communities that cannot be inferred from data and require additional insights from experts.

On the import side, the inquiry plans to explore the role of intermediate and capital goods that are crucial for medium-term resilience (as opposed to consumer products, which primarily impact short-term resilience), goods and services that are small items in trade statistics but essential for industries (eg, highly specialised services such as maintenance of sophisticated

machinery), and goods and services that lack reasonable substitutes.

On the export side, the Commission wants to consult on effects not directly observable in Aotearoa's trade data, such as strategic choices (when industry deliberately avoids diversification) or second-round effects (eg, cases when exports to China go through Australia and the overall exposure is higher than what data suggests).

The Commission will also analyse services data to support consultation with industry experts. Foreshadowing these conversations, Table 3 lists the five most concentrated imports and exports identified by the preliminary analysis of trade data.

Table 3 Five most concentrated imports and exports in 2019

Imported good	Origin	Value (\$m)	Exported good	Destination	Value (\$m)
Data processing machines	China	741	Gold	Australia	539
Mobile telephones	China	639	Frozen sheep meat cuts (excluding lamb)	China	258
Oil-cake and solid residues from palm nuts or kernels oils	Indonesia	208	Waters (mineral, aerated, sweetened, metal containers)	Australia	98
Brewing or distilling dregs and waste	United States	98	Coniferous wood logs	China	50
Cases and containers – plastic or textile	China	75	Electromagnets	United States	42

Notes: 1. Value is the total value of the HS10 category for 2019 (million NZD).

2. Import values include the trade costs, insurance and freight (CIF), but the values for exports are free-on-board (FOB) and do not include CIF components.

3.2 Modelling distributional impacts across industries and communities

Understanding who is most exposed to different types of possible disruptions may provide insights into where Aotearoa needs to have good institutions and social infrastructure. As the analysis of trade flows is limited in helping to inform the potential of the economy to bounce back, or adapt to changed circumstances, the Commission intends

to look closely at the economy itself. Exploring how industries and sectors interact, and how the government might be able to influence or support supply chain initiatives, will help the Commission focus on the policies and institutions that matter and should underpin any resulting recommendations coming out of the inquiry.

Modelling of existing and potential relationships in the New Zealand economy requires insights about how industries and communities are connected to global and local supply chains. This requires estimating the possible impacts of different supply chain disruptions on employment, household income, and broader wellbeing for different regions, industries, and demographic communities. By estimating the flow-on impact of certain price and quantity changes and taking a comprehensive economy-wide approach, the Commission proposes to simulate some potential supply chain disruptions and then infer possible distributional (allocative) impacts. A structured transparent process should also indicate how disruptions diffuse through the economy and, importantly, enable stakeholders to scrutinise the results.

Modelling of impacts may also allow the Commission to test different scenarios by which disruptions play out or how the government could respond to crises. For that reason, the Commission is interested in understanding what scenarios and assumptions might be worth exploring. Following feedback on this Issues Paper, the Commission plans to test different scenarios and discuss the interpretation of model outputs with interested parties before consulting the wider public on findings and possible recommendations as we progress towards delivery of a final report in February 2024.

3.3 Understanding productivity and economic resilience at the firm level

The research from Aotearoa and overseas indicates that firms anticipate and prepare for a range of disruption risks by pursuing innovations in shipping, logistics, and other technologies that help them cope with uncertainty. For example, firms in New Zealand's primary industries have learnt to deal with seasonal cycles, fickle consumer preferences, changeable weather conditions, and a cyclical boom-and-bust market.

This illustrates a resilience mentality that not only adapts to disruptions, but also actively seizes opportunities that change can create for those who are prepared to respond.

Economic resilience may require re-allocating resources to more productive uses as firms experience supply chain disruptions. This can be an active choice, as firms identify opportunities and respond to threats, or simply the result of firms shrinking or closing in some areas and growing or opening in other areas. Empirical evidence highlights that productive firms are least likely to fail while unproductive firms are least able to meet the changing needs of the economy and survive, particularly during recessions.

The Commission is undertaking several distinct pieces of research into the performance of New Zealand firms and industries.

- The first research project examines where growth in labour productivity comes from by analysing industries' productivity growth through changes in size and productivity, as well as the impact of entering or exiting firms.
- The second research project extends existing work that finds management practices are an important determinant of average firm performance, to assess whether good management also has a positive effect on firm resilience to shocks (using data from the Business Operations Survey to consider three macro shocks: the global financial crisis; the Christchurch earthquakes; and the Covid-19 pandemic).
- The third research project examines whether firms born in recessions have permanently lower growth than firms born in booms. If they do have lower growth, the research will then examine potential explanations of these "scarring" effects of recessions.
- The fourth research project improves the understanding of distributional impacts modelling for firms and employees by studying characteristics of those most likely to exit and enter markets under different economic conditions.

3.4 Learning from Covid-19 disruptions

The Covid-19 pandemic triggered one of the most comprehensive disruptions of global supply chains and can provide lessons for a more volatile future. While there is no common consensus about the success of individual response measures, the general need for private and public sector collaboration in responding to disruptions became clear. Policies such as the Maintaining International Air Connectivity Scheme, Small Business Cash Flow Loan Scheme, Resurgence Support Payments, or the Critical Purpose Visa and border exceptions had to be decided very quickly and repeatedly adapted to changing circumstances. Collaboration, information sharing, and feedback can facilitate such quick decisions and adaptation.

The Covid-19 experience also demonstrated that in the absence of proactive preparation and learning, it is easy to under-estimate complex interdependencies that underpin the resilience of industries and communities. For example, the effort to insulate essential industries from lockdowns was difficult to sustain, given that health services, food facilities, transport, and emergency accommodation rely on various non-essential industries to keep operating.

Similarly, the reliance of horticulture and hospitality sectors on temporary migration and the dependency of health or infrastructure operations on high-skilled workers from overseas became visible. The pandemic experience also highlighted the uneven impact of supply chain disruptions on communities and regions, with many still struggling to recover (especially from restrictions on labour supply).

While the Covid-19 response in Aotearoa was seen as relatively successful by many, its reactive and ad hoc nature is a poor fit for a volatile future with more frequent disruptions propagated through supply chains. Proactive preparation has the potential to spread supply chain risks more broadly and ensure that the industries and communities most likely to experience concentrated impacts are more resilient.

Part 4

What can the inquiry do?



Cabinet has asked the Commission to identify medium-term policies and interventions that can enhance the resilience of New Zealand's economy and living standards to persistent supply chain disruptions.

4.1 Complementing existing policy tools and strategies

The Terms of Reference for the inquiry asks the Commission to complement existing short-term and long-term strategies by providing an independent view of medium-term economic resilience. This provision aims to prevent duplication with ongoing work led by other agencies (see Box 8 for some examples).

In this context, the Commission seeks to identify policies with an implementation horizon of between one and ten years, which excludes both strategies maintaining the continuity of supply during temporary disruptions of 6 to 12 months and long-term infrastructural strategies with a timeline exceeding 10 years.

The mandate to complement existing government policies and strategies requires the Commission to focus on instruments that can be enhanced with the economic resilience lens. Table 4 provides a non-exhaustive snapshot of the existing portfolio of sectoral and cross-sectoral strategies to support a multitude of policy objectives. Table 4 lists more specific strategies that build off the fundamental policies such as defence, civil defence, social services or education that shape the resilience of the economy and society.

This section outlines how this inquiry can complement existing strategies by focusing on medium-term policy ideas and providing an independent analysis of evidence. The Commission also plans to build off recent inquiries into frontier firms and migration that studied the process of adaptation to economic disruption and labour supply constraints.

Box 8 Medium-term focus to complement existing strategies (examples)

Short-term 6 to 12 months

Critical supply chains with dedicated resilience arrangements for continuity.

- Fuel supply resilience [MBIE]
- Financial stability [RBNZ]
- Pharmaceuticals and medical [Pharmac]

Medium-term 1 to 10 years (this inquiry)

Medium-term strategies.

- Supply chains that cover essential and/or significant imports or exports
- Sectors where supply chains are highly concentrated or hold specific interdependencies
- Policies shaping resilience of crucial export and import industries

Long-term 10+ years

Physical and social infrastructures underpinning supply chains.

- Long-term freight strategy [MoT and Infrastructure Commission]
- Indo-Pacific Economic Framework for Prosperity [MFAT]

See Table 4 for a more comprehensive list of cross-sectoral strategies.

The Commission intends to focus on the subset of policies that is most relevant for enhancing the economic resilience of industries and associated communities (see Table 5). The selection criteria to prioritise industries and sectoral strategies include some of the following characteristics:



- reliance on concentrated import and export markets, which makes them potentially more vulnerable to supply chain disruptions;
- likely to be considered essential in declared emergencies (such as the Covid-19 pandemic and natural disasters);
- have significant distributional impacts on regions and communities when disrupted;
- are subject to existing sectoral strategies (which also indicate particular relevance for the economy) that can be complemented with an economic resilience lens; and
- are established or emerging areas of growth for the Māori economy.

The Commission proposes to focus on the eight industries listed in Table 5, while remaining open to suggestions to narrow or broaden this list. A range of major societal challenges that impact economic resilience – such as social inequality, climate change, or security – will be discussed largely within the context of the selected sectoral strategies. This approach reduces potential duplication with major cross-sectoral instruments such as the National Adaptation Plan, Emissions Reduction Plan, international trade and security work, or child poverty reduction and wellbeing legislation. At the same time, the Commission will strive to align its recommendations on economic resilience with broad policy goals stipulated in the major cross-sectoral strategies and broader government objectives, such as creating a high-wage, low-emissions economy.

Table 4 Portfolio of existing sectoral and cross-sectoral strategies



Table 5 Focus of the inquiry on selected industries and communities

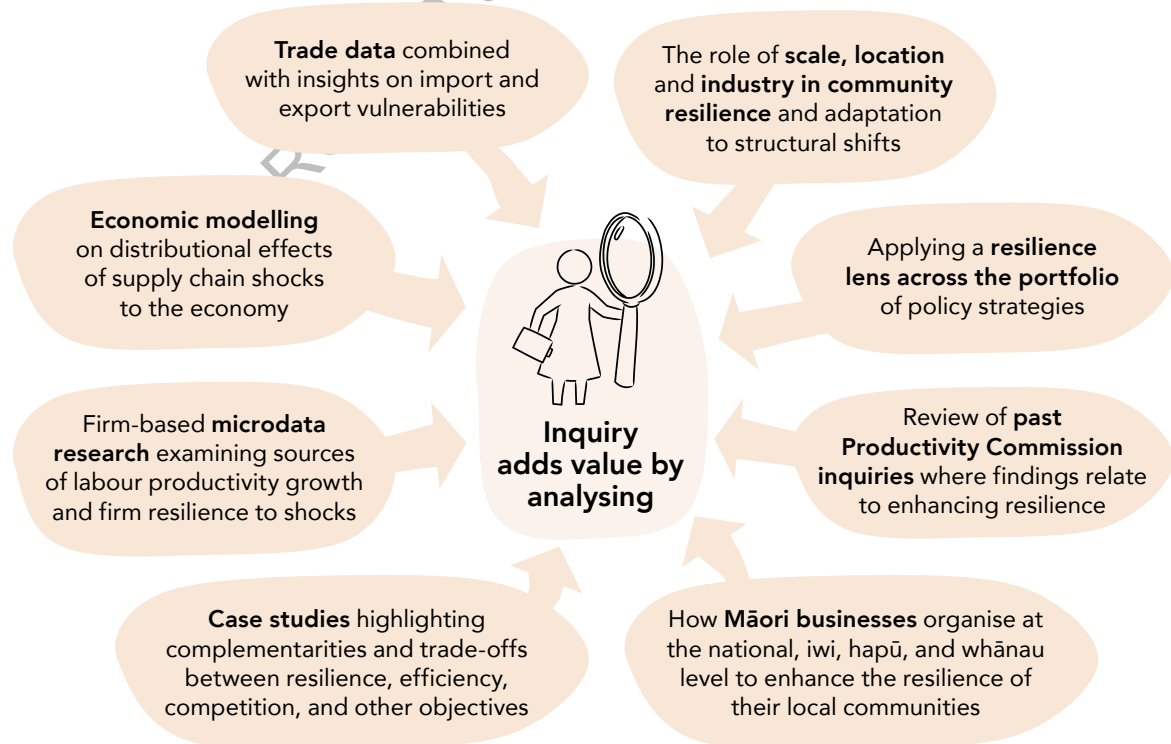
Industry	Existing sectoral strategies	Reasoning for prioritisation
 <p>Food and beverage</p>	<ul style="list-style-type: none"> • <u>Food and Beverage Industry Transformation Plan</u> [MPI] • <u>Retail grocery market study</u> [ComCom] • <u>Government response to market study</u> [MBIE] • <u>Sustainable Food and Fibre Futures</u> [MPI] 	<p>Major exports; growing Māori industry; some concentration in export markets; essential goods</p>
 <p>Construction</p>	<ul style="list-style-type: none"> • <u>Construction Sector Transformation Plan</u> [MBIE] • <u>Building System Regulatory Strategy</u> [MBIE] • <u>Market study into residential building supplies</u> [ComCom] 	<p>Import dependencies; domestic market concentrations</p>
 <p>Agriculture</p>	<ul style="list-style-type: none"> • <u>AgriTech Industry Transformation Plan</u> [MBIE] • <u>Fit For a Better World</u> [MPI] • <u>Māori Agribusiness Innovation Fund</u> [MPI] 	<p>Major exports; Māori investment in supply chains/traceability (Miraka); some concentration in export markets; import dependencies (fertilisers); biosecurity disruption risks</p>
 <p>Digital technology</p>	<ul style="list-style-type: none"> • <u>Digital Technologies Industry Transformation Plan</u> [MBIE] • <u>Digital Strategy for Aotearoa</u> [MBIE] <p>Digital initiatives to improve supply chain efficiency – common standards and data sharing</p>	<p>Essential services; cross-sectoral sources of resilience; cyber security risks; economic resilience-enhancing technologies</p>
 <p>Forestry</p>	<ul style="list-style-type: none"> • <u>Forestry and Wood Processing Industry Transformation Plan</u> [Te Uru Rākau] 	<p>Major exports; some concentration in export markets; Māori share of industry and native forestry</p>
 <p>Fishing</p>	<ul style="list-style-type: none"> • <u>Fisheries Industry Transformation Plan</u> [MPI] 	<p>Major exports and Māori industry</p>
 <p>Tourism</p>	<ul style="list-style-type: none"> • <u>Tourism Industry Transformation Plan</u> [MBIE] 	<p>Major exports; associated communities</p>
 <p>Manufacturing</p>	<ul style="list-style-type: none"> • <u>Advanced Manufacturing Industry Transformation Plan</u> [MBIE] 	<p>Some exports; general-purpose technologies; major driver of productivity</p>
 <p>Missing industry</p>	<p>Any industry currently lacking a sectoral strategy but resilience-focused analysis suggests a need for such a strategy</p>	<p>The analysis of trade data and essential lists may identify a gap in the portfolio</p>

4.2 Advancing policy debate through this inquiry

The inquiry aims to recommend interventions to enhance the economic resilience of industries and communities to supply chain disruptions by evaluating ideas and evidence from a range of sources (see Figure 5). Given the general uncertainty about the timing and nature of supply chain disruptions, the inquiry cannot be limited to analysing a narrow set of predictable scenarios (although the modelling exercise will include such scenarios – see section 3.2). The broader objective of public interventions is to develop a resilience capability that prepares Aotearoa to respond to any type of disruption. This would include disruptions that we know something about and disruptions that we don't know anything about.

The Commission expects the inquiry to emphasise the role of collaborative institutions emerging around the Industry Transformation Plans and similar policy strategies. Collaboration between private and public stakeholders is indispensable for guiding industries and communities through the absorption and recovery following major supply chain disruptions, including the Covid-19 pandemic. Institutionalised industry networks are also best positioned to generate information and insight about supply chains that are necessary for investments in resilience (see Figure 3 and Box 3). Such collaborative institutions can embed proactive anticipation, preparation, and learning into a regular practice of industries vulnerable to supply chain risks.

Figure 5 Areas of investigation for the resilience inquiry



The inquiry will compile several case studies on past responses to supply chain disruptions. These case studies will help evaluate the potential of public and private interventions to both reduce the adverse impacts of disruptions and empower industries and communities to seize opportunities that disruptions also create. Case studies can also provide some insights into the trade-off between efficiency today and resilience tomorrow (see Box 3) by comparing outcomes of cases with proactive investments in resilience to those that focus solely on ex-post recovery from disruption.

The Commission will also build off its previous findings and recommendations that relate to economic resilience (see Box 9). Many past inquiries have highlighted the importance of developing evidence-based policies, keeping them fit-for-purpose, and balancing competing objectives and trade-offs in the face of uncertainty. The changing outlook for globalisation, combined with longstanding challenges for New Zealand's economy and living standards, creates a fresh impetus for aligning existing policies with an economic resilience perspective.

Box 9 Recent Productivity Commission inquiries relevant for economic resilience

Aligning resilience recommendations with the progress made on the basis of previous inquiries can reduce the effort needed for implementation.

Training and migration policies addressing disruptions to the supply of labour:

- [New models of tertiary education \(2017\)](#),
- [Technological change and the future of work \(2020\)](#),
- [Immigration settings \(2022\)](#).

Policies supporting adaptation of firms to disruptions brought about by technological change:

- [New Zealand firms: Reaching for the frontier \(2021\) inquiry](#),
- and its [follow-on review \(currently underway, due for publication March 2023\)](#).

Other inquiries with aspects pertinent to global supply chain resilience:

- [Low-emissions economy \(2018\)](#),
- [Regulatory institutions and practices \(2014\)](#),
- [Boosting services sector productivity \(2014\)](#),
- [Strengthening trans-Tasman economic relations \(2012\)](#),
- [International freight transport services \(2012\)](#).

Part 5

Call for submissions

The Commission welcomes any submissions relevant to its goal of identifying policies and interventions that can enhance the economic resilience of New Zealand's economy and living standards to persistent supply chain disruptions in the medium term.

Your response to any or all questions below will help us shape the inquiry as we progress toward delivering a final report in February 2024. All feedback received through this process will be published on the Commission's website.



You can answer questions online at www.surveymonkey.com/r/resilientNZ, make an online submission at www.productivity.govt.nz/have-your-say/make-a-submission, or email info@productivity.govt.nz

Question 1

What supply chain disruptions and trends are you worried about?

The Commission welcomes any indication of supply chain risks for your industry/community. Particularly helpful are those that match the focus of this inquiry on medium-term adaptation to persistent supply chain disruption in the eight priority industries (see Table 5). However, feel free to suggest other industries and communities that are particularly exposed to specific supply chain disruptions and why this is the case.

You can highlight your experience with recent shocks, and concerns about future trends that

help to identify markets, goods or services that may be critical for the economic viability of an industry or community. Other helpful insights can identify dependencies on highly skilled services not available onshore or your thoughts on the differences in economic resilience of Aotearoa compared with other countries, especially those that have developed resilience-enhancing strategies.




Read more on: eight priority industries [4.1](#); economic resilience of industries and communities [2.2](#); recent shocks to supply chains [1.2](#); future outlook for global supply chains [1.3](#); concentrated imports and exports [3.1](#); Covid-19 lessons [3.4](#); resilience-enhancing policies overseas [2.3](#)

Question 2

What is your industry/ community currently doing or planning to do to address supply chain concerns?

The Commission is interested in any coping mechanisms that firms, industries, communities, and local governments employ to enhance their resilience to economic shocks propagated through supply chains. Steps that your industry or community has taken to identify vulnerabilities and to anticipate, prepare for, and learn from supply chain disruptions are particularly helpful. Also of interest are examples of industries and communities that have formulated a shared view on vulnerabilities to supply chain disruptions and prepared strategic responses aimed at, for example, diversifying local economies, coping with uncertainty, developing long-term contracts with critical suppliers, entering new markets, reducing resource intensity, introducing elements of the circular economy, or pooling transport capacities.

The Commission is interested in any thinking or frameworks (such as *He Ara Waiora*) that iwi, hapū and place-based communities use to strengthen the resilience of their economic base and living standards. There may also be many relevant historical examples of industries and communities finding innovative adaptation strategies when faced with persistent disruptions propagated through supply chains.


 **Read more on:** what is economic resilience? [2.1](#); identifying vulnerabilities through analysis of concentrated imports and exports [3.1](#); economy-wide historic examples [2.2](#); coping with uncertainty [3.3](#)

Question 3

How can the government help to enhance the resilience of your industry/community to supply chain disruptions?

The Commission is interested in policy ideas that enhance the economic resilience of industries and communities. Of particular interest is ideas for policies which support resilience to persistent supply chain disruptions that last more than a year and require medium-term adaptation of impacted industries and communities. These medium-term policies should complement existing strategies on resilience to short-term disruptions, including the stockpiling of critical medicines and materials, securing viable transport options, or refocusing on the domestic market and the long-term resilience of physical and social infrastructure underpinning supply chains (transport links and trade agreements).

Since government interventions rarely come without trade-offs, the Commission is keen to learn about potential downsides and conflicting objectives. The Commission would like to hear from stakeholders actively involved in existing strategies such as Industry Transformation or Just Transition plans. While there are many theoretical trade-offs between resilience, efficiency, competition, diversification and similar concepts, the Commission is very interested in any evidence you may have on how these trade-offs play out in the real world.

 **Read more on:** scope of the inquiry; portfolio of existing strategies [4.1](#); economic resilience of industries and communities [2.2](#); enhancing policy initiatives [4.2](#)

Question 4

What should the Commission study to learn more about the economic resilience of industries and communities?

The Commission is keen to explore case studies from domestic and international experiences to help design sound policy interventions that can improve economic resilience. The Commission wants to connect with stakeholders experiencing first-hand recent supply chain disruptions. Examples range from CO₂ and plasterboard through to airfreight and shipping capacity. The Commission is also keen to hear about a wide range of disruptions such as labour supply issues related to working holiday visa holders, Covid-19 and high-skilled service workers. The inquiry aims to develop several in-depth case studies that provide insights into the successes and perils of public-private collaboration on supply chain issues, such as those that occurred during the Covid-19 pandemic.

When examining how other countries have responded to recent supply chain events, the fact that New Zealand's economy is small, geographically isolated and has an economic structure different from most large, advanced economies may well limit the transferability of resilience-enhancing strategies from other countries.

The Commission is also keen to understand how industries and communities within New Zealand have adapted over time to build economic resilience to supply chain shocks.



Read more on: resilience-enhancing policies overseas [2.3](#); Covid-19 lessons [3.4](#); Māori business perspectives [2.2](#)

Any further comments?

Feel free to add anything that you think the Commission needs to hear in relation to the inquiry topic that does not fit within the previous questions.

EMERGENCY until 11am 28 FEB 2023

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Online glossary of key concepts

An online glossary is available – [Improving Economic Resilience Inquiry](http://www.productivity.govt.nz) at www.productivity.govt.nz



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We would like to hear from you

Make a submission

We welcome information and comment on any or all of the questions in this issues paper.

How to submit?

Anyone can make a submission. It can be a short note or a more substantial document. Submissions are welcomed until **17 April 2023**.

Why submit?

Your insights will help us to understand issues and identify useful research to make decisions and recommendations.

You can answer questions online at www.surveymonkey.com/r/resilientNZ, make an online submission at www.productivity.govt.nz/have-your-say/make-a-submission, or email info@productivity.govt.nz



