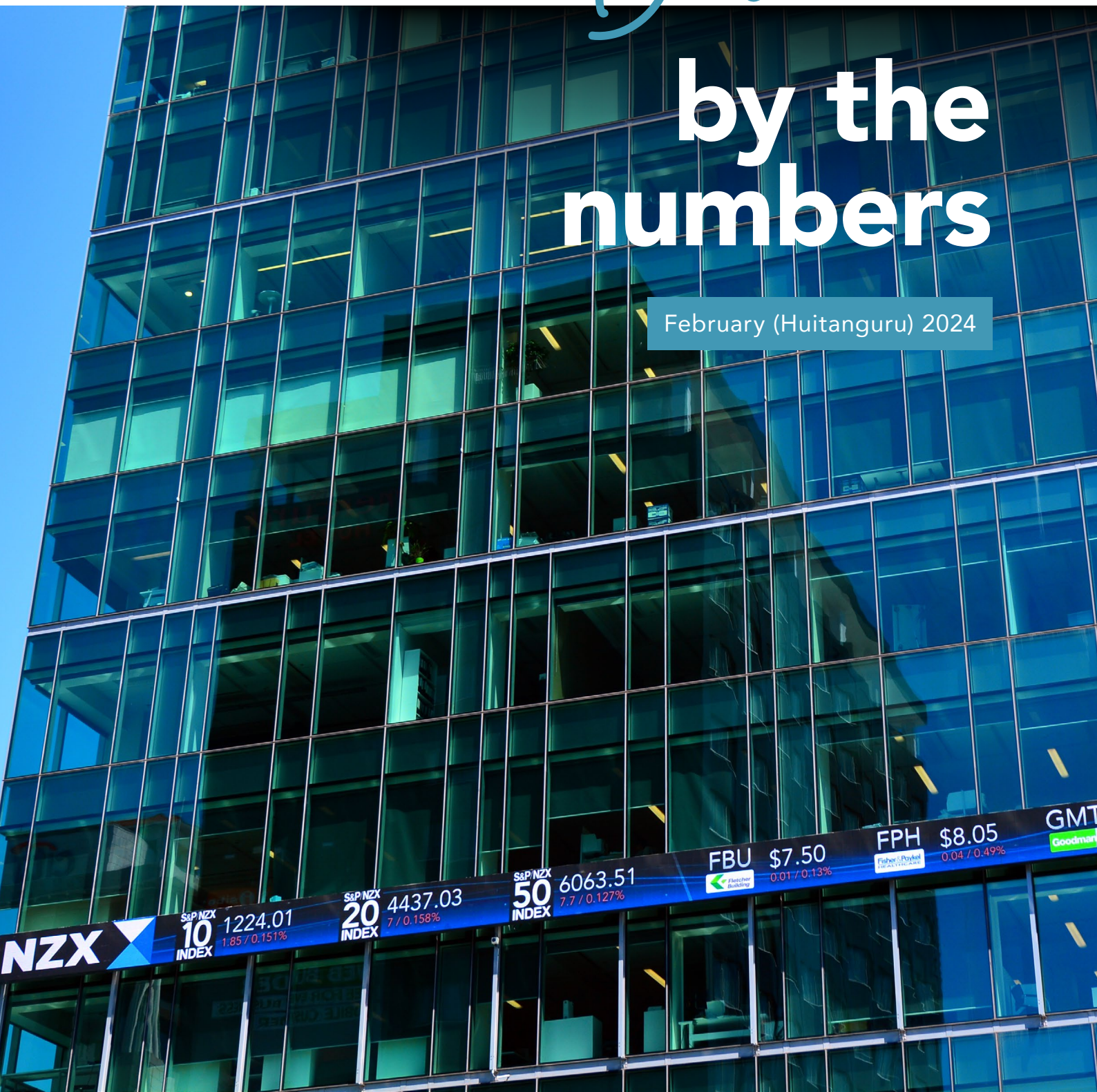
NEW ZEALAND
PRODUCTIVITY COMMISSION
Te Kōmihana Whai Hua o Aotearoa

Business by the numbers

February (Huitanguru) 2024



The New Zealand Productivity Commission
Te Kōmihana Whai Hua o Aotearoa

The Commission – an independent Crown entity – completed in-depth inquiry reports on topics selected by the Government, carried out productivity-related research and promoted understanding of productivity issues. The Commission aimed to provide insightful, well-informed and accessible advice that lead to the best possible improvement in the wellbeing of New Zealanders. The New Zealand Productivity Commission Act 2010 guided and bound the Commission, until its disestablishment in February 2024.

You can find information on the Commission at **www.productivity.govt.nz**

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Contents

Foreword

E ngā iwi, e ngā mana, e ngā reo, e rau Rangatira mā. Tēnā koutou.

Given my love of numbers, it is unsurprising that anything with the word numbers in the title of a document puts me immediately in my happy place.

I reflect back to last year's publication *Productivity by the numbers*, where I noted the connections between cricket and numbers and my comfort zone. To know that that publication now has a companion called *Business by the numbers* means I will not be short of reading material as I while away the overs on the Basin Reserve embankment.

More importantly though, business is at the centre of any economic system – it is where people gather and see opportunities to be grasped, risks to be tackled, dreams to be nurtured, tested, and fulfilled, and where people and communities can together foster expectations and innovations, and aspirations of better futures can be chased.

And so, it is all the more important that we understand the nature and characteristics of the businesses in our communities.

The *Business Operations Survey* (BOS) is a treasure trove of data and information that has, to date, been sorely underutilised. This report casts the spotlight on the 48,000 businesses in New Zealand that have six or more employees. We uncover some of the gold that is in the BOS but can only skim the surface. For example, it is sobering to see that relatively few employees in these businesses have received training in management/supervisory skills. But that is only snippet. There is, of course, much more available in the BOS.

Our aim with this publication it to highlight the value of this data, information, and evidence about businesses in Aotearoa, and to encourage its use in future research and inform future decision making. Additionally, we encourage further development of the survey itself to enable, in particular, adequate assessments and analysis of the range of Māori businesses.

As I noted, this publication was initially envisaged as a companion piece to the Commission's flagship *Productivity by the numbers*.

Given our impending departure, I hope both publications are recognised as valuable, and resources committed for them to be continued by those that value evidence-based research and policy advice.

Noho ora mai rā.

Dr. Ganesh Nana

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

Key points

Business environment

- 64% of businesses rate their local ICT infrastructure as 'good', but only 27% rate their local body planning and regulatory processes as 'good'.
- The share of firms reporting severe recruitment difficulties trended upwards throughout the 2010s, and jumped dramatically in 2020/21.
- Firms respond to labour shortages in many ways: changing how they recruit or increasing spending on recruitment; increasing hours worked by existing staff; and raising wages.
- 20% of businesses operate in a highly competitive market, 3% of businesses operate in a captive market or one with no effective competition.

Innovation

- One-in-five businesses have introduced new or significantly altered products or services.
- 8% of businesses conduct some kind of research and development, but most of the expenditure on R&D is concentrated in large firms across a narrow group of industries.

International engagement

- The share of firms reporting export sales, FDI and ODI has remained largely unchanged since 2007.
- International engagement is primarily a large firm activity.
- Digital marketing and delivery of goods and services is helping to level the playing field for smaller firms.
- Firms use overseas workers and purchases to get closer to markets, lower production costs, and access skills and technologies that are not available domestically.

Business finance

- 24% of businesses requested new or additional debt finance. 15% of these businesses received only some of the debt finance they requested, or none at all.
- 11% of businesses requested new or additional equity finance. 42% of these businesses received only some of the equity finance they requested, or none at all.

Part 1 Business matters

Businesses lie at the heart of the economy. Businesses are the places where people come together to provide things that others want enough to part with their hard-earned cash (or, more likely these days, plastic). Businesses bring together capital, workers, and ideas to produce economically valuable goods and services.

The economy is a complex system of customers and suppliers, people, and businesses. Economies do not grow by themselves, it is the number, size and productivity of firms that grow. Economies do not export, exporters do. A great deal of government policy is focused on how businesses are regulated and incentivised to ensure they do as many of the good things and as few of the bad things as possible. Economic policy is predicated on what businesses are doing and what makes them successful or not. However, despite firms' importance to our lives, we know comparatively little about what goes on inside them. Policy makers and commentators spend a great deal of time looking at abstract aggregations like GDP, interest rates, the terms of trade, even business confidence. However, much of the debate about what goes on inside the black box of a firm is confined to anecdote and supposition.

This need not be the case. New Zealand has one of the best business surveys in the world. Every year since 2005, the *Business Operations Survey* has asked a representative sample of over 5,000 firms about the things they do[1]. More than that, with its Longitudinal Business Database, Statistics New Zealand enables researchers to match this information to all sorts of tax and administrative data, in a secure, anonymous environment, to look at how these activities and perceptions relate to actual firm performance. There have been many (but still too few) academic papers using this data to understand the links between firm performance and management practices (Fabling & Grimes, 2014; Sanderson, 2022; Stevens, 2012), the use of broadband (Fabling & Grimes, 2021; Grimes et al., 2012), exporting

Box 1 The *Business Operations Survey*

The source of data for this report is the Business Operations Survey (BOS). The BOS is an annual three- (sometimes four) part modular survey, which began in 2005. There were changes in the sampling between 2006 and 2007, so the data published by Stats NZ begins in 2007. The first module is focussed on firm characteristics and performance. Until 2009, Module A included quantitative financial data. This is no longer collected because most of this data is available from various sources in the Longitudinal Business Database (Fabling & Sanderson, 2016). The second module alternates between biennial modules on innovation and business use of ICT. The third module is a contestable module that enables specific policy-relevant data to be collected on an ad hoc basis.

The BOS excludes businesses that, on the selection date: had fewer than six employees, had been in existence for less than one year and were in five specific industries[2]. The survey is conducted using two-way stratified sampling, with stratification on rolling-mean-employment (RME) and two-digit industry according to the ANZSIC system[3]. Under the Statistics Act (1975), businesses are legally required to complete official Stats NZ surveys. Response rates to the BOS are consistently above 80%.

The BOS is something approaching best practice in such surveys internationally. The 9,081 respondents to the 2022 survey represent 48,092 firms. Nearly three quarters of these firms are what is usually classified as 'small' firms (i.e. they employ more than six and fewer than twenty staff, smaller firms are usually classified as 'micro' enterprises). The largest sector in 2022 is construction followed by accommodation and food services and manufacturing. This differs from the industry structure in 2007, where manufacturing was the largest sector, followed by retail trade.

[1] For more on the BOS, see Box 1 and the appendix to this document.

[2] O Public administration and safety, R89 Heritage activities, R90 Creative and performing arts activities, S95 Personal and other services and S96 Private household employing staff and undifferentiated goods and service producing activities of households for own use

[3] Stats NZ surveys firms across the economy to capture representative sample of firms within each size and industry group. Since 2007, published survey results have been based on the 2006 Australia New Zealand Standard Industrial Classification (ANZSIC) classification system. The 2005 and 2006 BOS used the 1996 ANZSIC classification. The 2007 survey was run as a dual sample to enable results to be collected and produced in accordance with both the 1996 and 2006 versions of the classification.

(Sanderson, 2017; Sanderson et al., 2022a; Sin et al., 2014), innovation (Fabling, 2007; Hong et al., 2016; Sin et al., 2014; Wakeman & Conway, 2017), skill shortages (Fabling & Maré, 2016; Kaye-Blake et al., 2012; Mok et al., 2012; Stevens, 2012), training (Mason et al., 2010; Timmins et al., 2012) and more. However, many aspects of the survey remain underutilised[4].

In this publication we look at the inputs that businesses use – labour, capital, technology – to produce goods and services, the activities that they engage in, and the environment in which they operate. The report is designed as a resource for policy makers, commentators, businesspeople, and anyone else with an interest in understanding and improving businesses in New Zeeland.

1.1 Businesses in Aotearoa New Zealand

Stats NZ's *Business Demography Statistics* show that there were 605,022 "economically significant" enterprises at February 2023[5]. Of these, 440,772 did not have any employees, with all 2,462,000 employees across the economy being employed by only 164,250 enterprises. Businesses with six or more employees accounted for over 90% of all employment.

Table 1 Businesses in New Zealand

	Employee count size group							Total
	0	1–5	6–9	10–19	20–49	50–99	100+	
Enterprises	440,772	103,038	23,604	19,992	11,355	3,426	2,838	605,022
Employee count	-	244,100	170,800	268,000	339,800	232,500	1,206,800	2,462,000
Geographic units	446,037	115,461	30,258	26,436	15,486	4,689	3,186	641,556
Employee count	-	280,200	219,500	353,900	464,200	320,400	825,900	2,464,100

Source: Stats NZ *Business Demography Statistics*

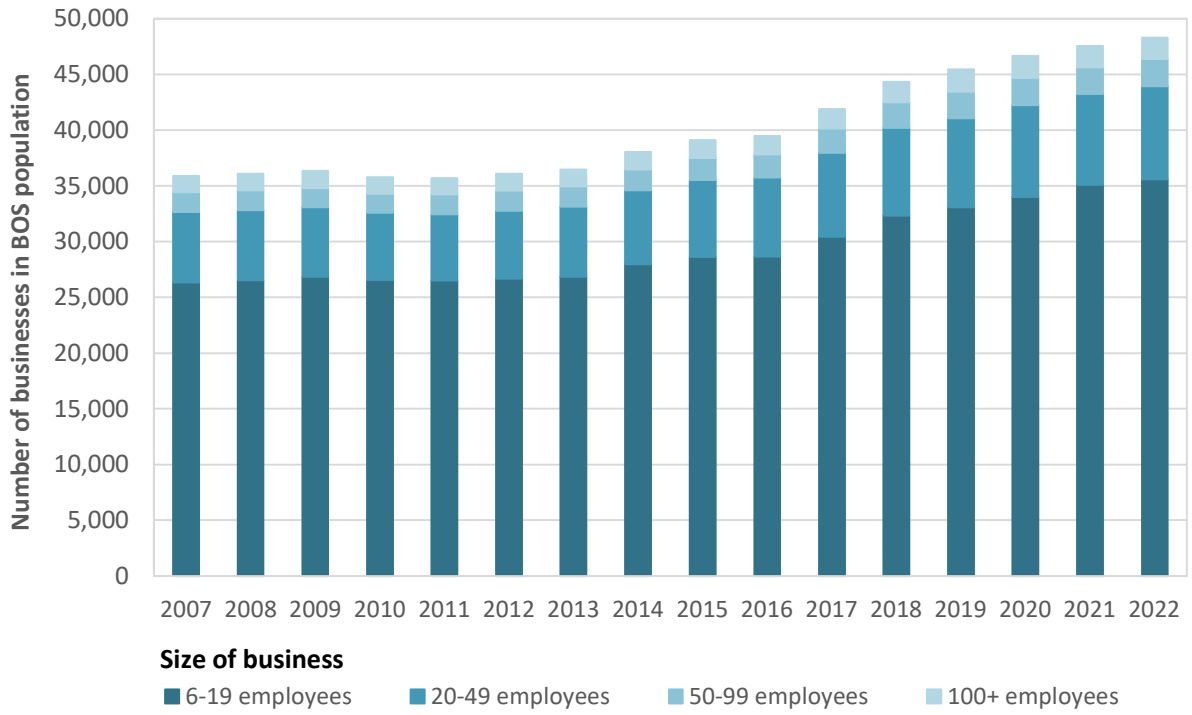
In this report, we will focus on private-for-profit firms with employment of six or more that have been active for at least one year. In 2022, the latest year of data we have access to, this represents just over 48,000 businesses[6]. This has grown from 35,877 in 2007, the first year of publicly available data (Figure 1).

[4] For example, the survey collects information about whether businesses have Māori ownership and identity. This information is not part of the publicly available data on Stats NZ's Infoshare site.

[5] An enterprise is economically significant if it meets any one of the following criteria: annual expenses or sales (subject to GST) of more than $30,000; 12-month rolling mean employee count of greater than three; part of a group of enterprises; registered for GST and involved in agriculture or forestry; or over $40,000 of income recorded in the IR10 annual tax return (this includes some units in residential property leasing and rental). Source: *Business count indicators: November 2023.* Statistic New Zealand: https://www.stats.govt.nz/information-releases/business-count-indicators-november-2023/

[6] The remaining 13,000 or so enterprises that make up the difference between this figure and those in Table 1 are a mixture of new firms and public or charitable organisations.

Figure 1 Number of businesses in the BOS population



Source: Stats NZ *Business Operations Survey 2007–2022*
Notes: The Business Operations Survey samples businesses with six or more employees. For more information on the businesses included, see Box 1 and the appendix to this document.

1.2 What is a business?

Economists think about businesses as entities that bring together inputs such as people, machines, materials, and ideas (what economists call 'factors of production') and use them to produce goods and services that customers value. They are connected to the rest of the economy through the markets from which they source these inputs (labour and capital markets, banks, suppliers, and the like) and the customers to whom they sell. These customers might be the final customers for the goods and services (what economists call 'final consumption') or be purchasing them to use them as inputs into their own production ('intermediate consumption').

Businesses are also shaped by the environment in which they operate – the quality of regulations and institutions, physical and social infrastructure, the nature and extent of competitive forces.

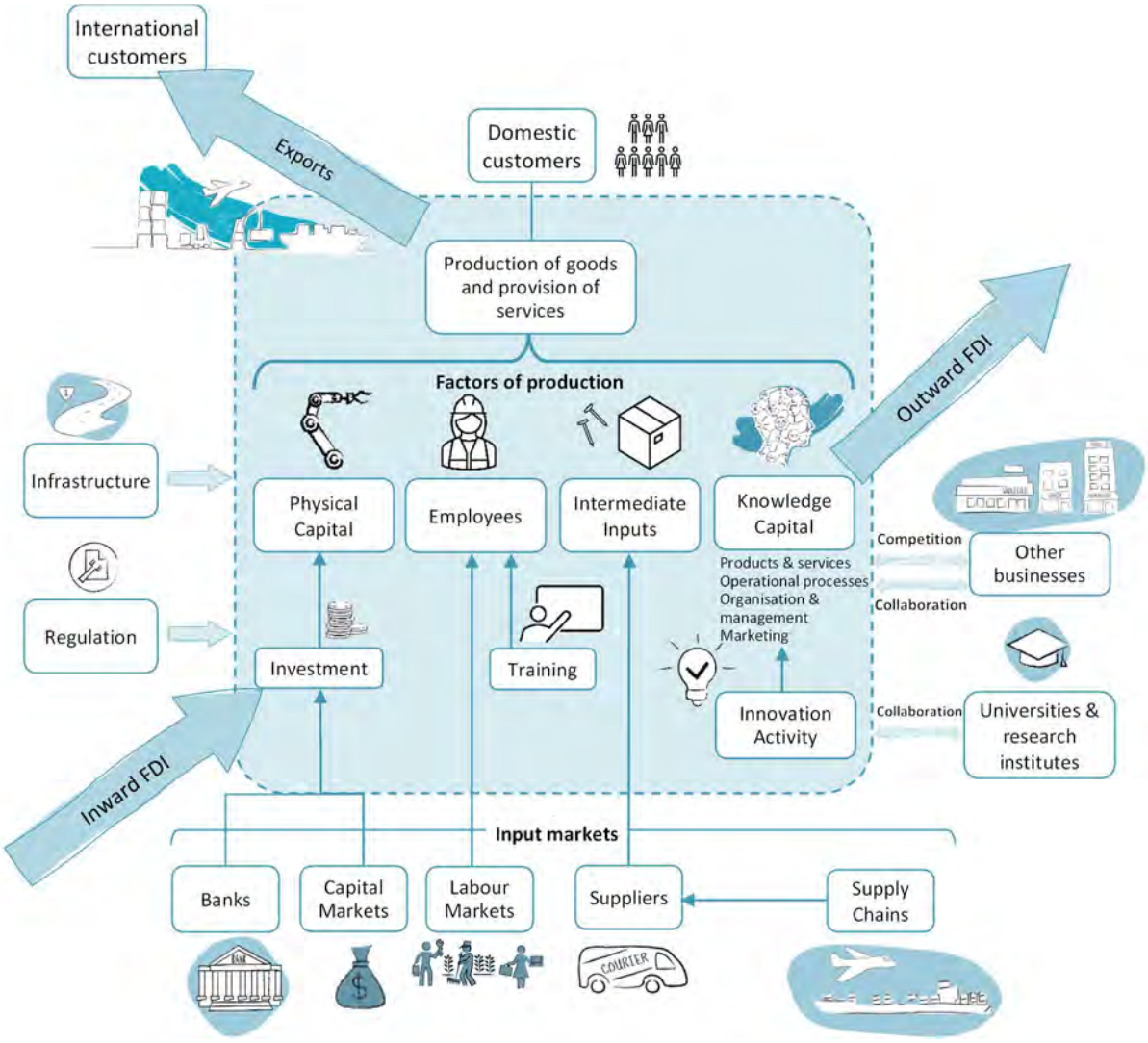
Figure 2 sets out a simple schema to focus our discussion and the data we examine. At the heart of the diagram is the transformation of factors of production – physical and knowledge capital, employees, and intermediate inputs – into goods and services for customers. Some of these goods and services are exported abroad. Physical capital is grown through investment, which can be sourced internally (through retained earnings) or from banks and other lenders and capital markets, as well as investment from abroad (through inward foreign direct investment, or inward FDI). Firms source employees from labour markets, but also increase their labour input through investment in training and developing their existing staff. The sourcing of energy, materials and components depends on supply chains.

How these factors of production are put together and for what purpose is determined by what economists call the 'knowledge capital' of the organisation. This includes the design and features of the goods and services they produce, the operational processes used to produce and distribute their goods and services, the organisational and management processes and the sales and marketing methods they

use. This knowledge capital not only determines the productivity with which the firm operates domestically and for export, but it can also be exported by investing in operations abroad (outward foreign direct investment, or outward FDI). Firms grow knowledge capital through investment, such as research and development (R&D). Knowledge capital can also be enhanced through collaboration with other businesses (including suppliers and customers) and other organisations like universities and research institutes.

These institutions and markets make up the environment in which the business operates, which also includes the competitive environment, the regulations that determine the rule of the game, and physical infrastructure. This report looks at all these components.

Figure 2 Business operations

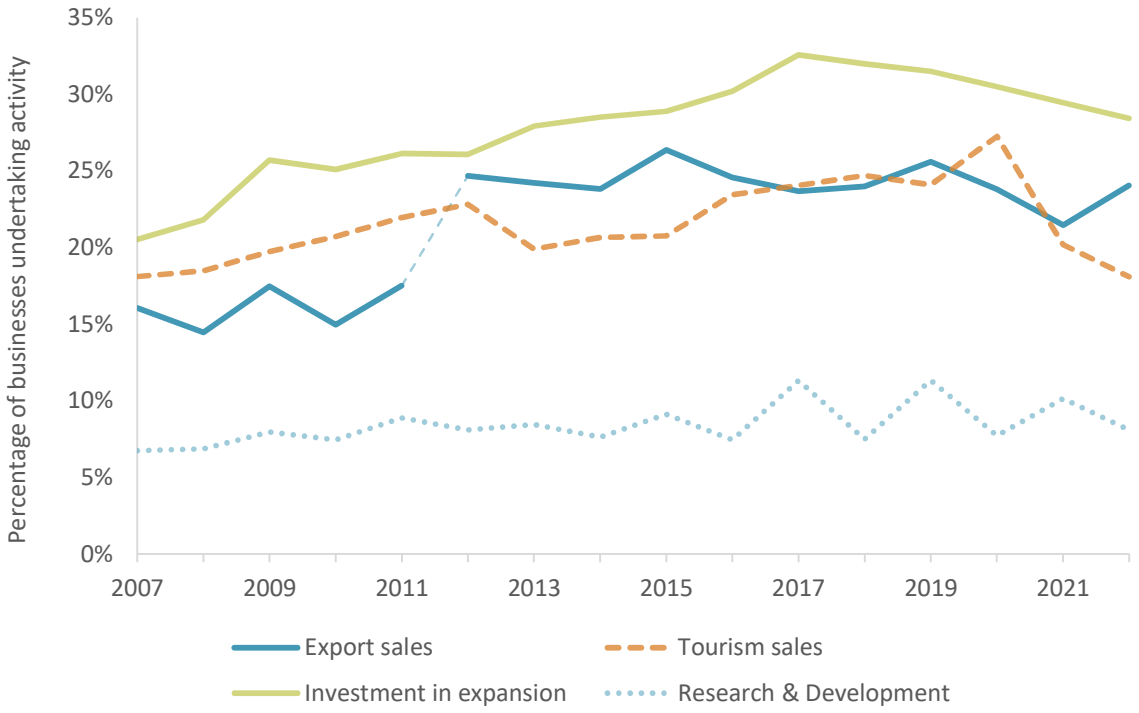


1.3 Business activities

Businesses undertake a range of different activities, with the balance of these activities dependent on each firm's core function, operating environment, and business processes. As a first taste, Figure 3 shows the trends in four headline business activities – investment, R&D, exporting and tourism sales –

from 2007 to 2022. On the face of it, these figures suggest that the proportion of businesses that earned income from export sales has increased greatly between 2010 and 2022 (from 15%-25%). However, this jump is almost certainly due to a change in how the question was asked from 2012 onwards[7]. This shows the importance of understanding exactly what questions are asked when using data, and also the benefit of having a survey where the majority of questions have remained consistent and have undergone thorough testing[8]. Aside from the break in the series, the proportion of firms with export sales has remained relatively flat (see Part 5).

Figure 3 Selected business activities (percentage of businesses)



Source: Stats NZ *Business Operations Survey 2007–2022*
Notes: Note there was a change in the question about exporting that means data before 2012 cannot be directly compared to that from 2012 onwards.

On other activities, the proportion of firms reporting that some of their sales came from tourism has gradually increased from 18% in 2007 to 27% in the business year ending March 2020, before falling during the COVID-19 pandemic. Investment in expansion has also increased, particularly between 2007 and 2019, although there has been a slight decline since this high. R&D, a crucial investment in innovation, remains a relatively rare occurrence with fewer than 10% of firms undertaking or funding it in the last two years. This reflects the New Zealand economy's low overall levels of R&D investment (NZPC, 2023).

[7] Prior to 2012, respondents were asked: "For the last financial year, estimate the proportion of this business's sales of goods and services that came from exports". From 2012, the question was appended with a note stating: "Please round to the nearest %. If your exports are between 0 and 1%, please round up to 1%". Prior to 2012 businesses with very low exports (ie, <1% of total sales) likely did not include them. From 2012, it may also be the case that some businesses with no exports interpreted the question as requiring them to write 1%.

[8] One area of the Business Operations Survey that has changed is the ICT module, for the obvious reason that this in an area that has undergone considerable change over the period. For example, some respondents may not know what a 52k modem or a landline are.

1.4 Business activities and business performance

Why are we interested in what goes on within businesses? In part, it's natural curiosity – we are interested in how different types of business operate and how business practices are changing over time. But there is also a more practical reason – what businesses do is intrinsically linked to how well they perform. How well businesses perform is in turn a key driver of incomes and wellbeing.

Much of this report is based on aggregated data from the *Business Operations Survey* published by Stats NZ as part of their regular data releases. Aggregate data allow us to compare across time, across industry and across firm size, providing a valuable resource to understand what firms are doing and why. However, this ability to monitor activity is only the tip of the iceberg. Alongside the published outputs, Stats NZ also makes firm-level survey responses available to researchers within the secure environment of the Longitudinal Business Database (LBD). Linking firms' self-reported activities to administrative and survey data on employment, revenue, expenditure, and capital over time opens up opportunities to better understand the types of firms that engage in particular activities, and the impact of those activities on performance.

Box 2 shows an example of how a selection of business activities relate to firms' relative productivity levels. It is beyond the scope of this report to assess the causal relationships between practices and performance. The topic-based chapters that follow, point the reader to relevant empirical studies where these are available. For now, we simply point out that some of these contemporaneous relationships are strong, while others are perhaps weaker than you might expect.

Certain activities are consistently associated with high productivity firms. These include international engagement (FDI, export sales), certain employee practices (such as extensive use of performance pay, performance reviews, and staff training), goal setting practices (formal planning processes and long planning horizons), and monitoring (of competitors and of own progress towards goals). Firms also seem to recognise their own performance level – businesses that rate their own productivity as "higher than competitors" have labour productivity that is 26% above the average for their industry, on average[9].

For other practices that you might expect to be closely related to productivity, the contemporaneous relationship is surprisingly weak. For example, firms that introduced new goods or services in the last two years and those that undertook or funded R&D in the last year had slightly lower than average productivity for their industry, although the gaps between firms that did and didn't have these activities were not statistically significant. This may reflect a number of factors, including the direct costs of R&D, variation across firms in the centrality of innovation to their business (eg, young firms may still be developing their market and business model alongside their innovative activities), and clustering of R&D performing firms in particular industries.

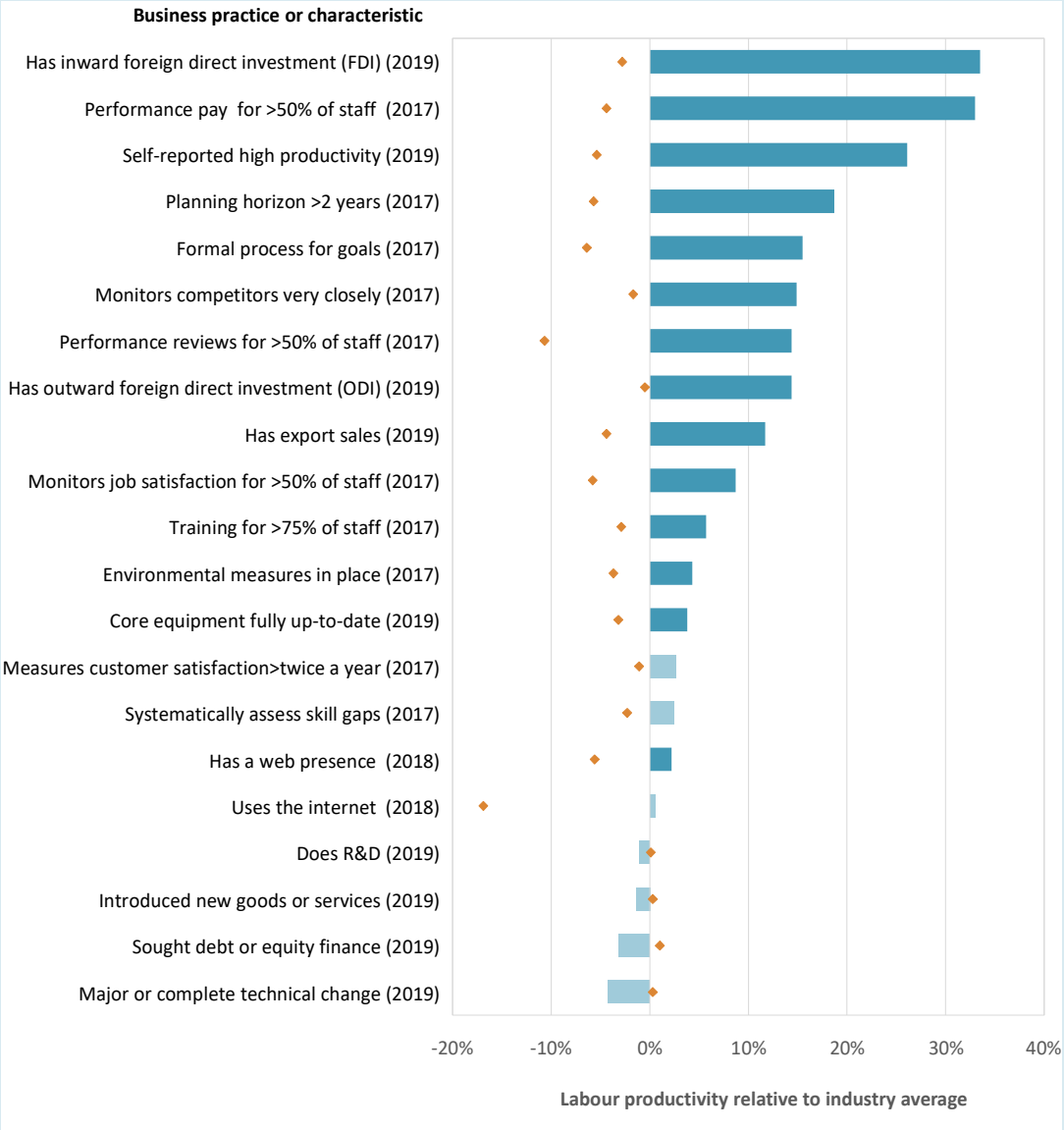
[9] See Fabling et al. (2008, 2012) for a more in-depth account of the relationship between measured and self-reported productivity performance.

Box 2 Business practices and business performance

The figure below presents a very simple taster of what is possible within the research environment. Each *Business Operation Survey* response has been linked to labour productivity data (value added per worker) for the relevant year. Each row represents a separate question from the BOS, converted to a simple binary (yes/no) response. Bars indicate the average percentage gap in labour productivity between businesses which report the relevant practice or characteristic and the mean for their industry. Diamonds indicate the equivalent gap for firms that do not report that activity or characteristic. Darker blue bars indicate that the gap between firms with and without a particular characteristic is statistically significant at the 10% level.

For example, firms that reported having inward foreign direct investment (FDI) were 33% more productive in terms of value-added per worker than the average firm in the same two-digit ANZSIC industry, while firms without FDI were 3% below average. At the other end of the spectrum, firms that reported undergoing a major or complete change in technology in the past year had labour productivity 4% below the average for their industries, though the gap is not statistically significant.

Figure 4 The relationship between business practices and productivity



Source: Productivity Commission calculations using *Business Operations Survey* microdata within the Longitudinal Business Database.

Notes: Labour productivity measures based on Fabling & Guha Thakurta (2024); Fabling & Maré, (2015, 2019).

1.5 Guide to reading this report

This report is a resource that unlocks the rich data from the *Business Operations Survey* for all to use. In that sense it is rather like an almanac for understanding business and the economy. It is not designed to be read from end-to-end, but rather provide information for the reader to dip into. Where possible we have made links to the New Zealand or international literatures to provide interested readers with references to broaden their understanding. If you wish to look at the original question in the survey for context, we include the relevant question in the notes below each table.

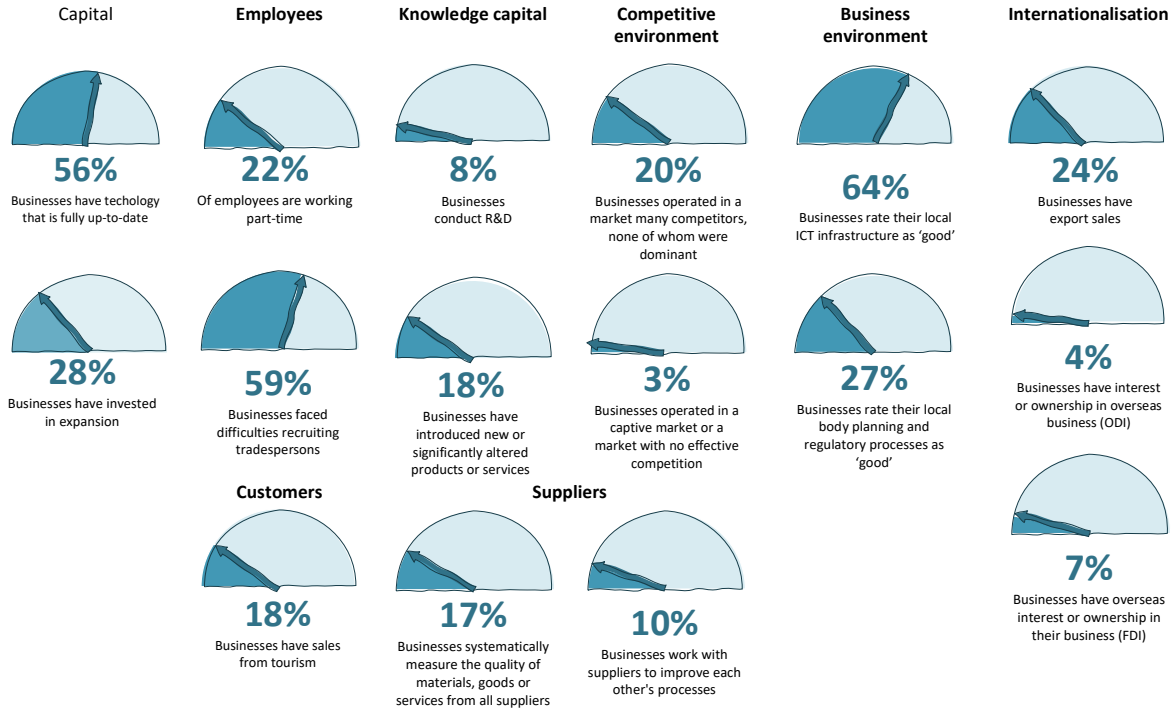
The information used in this report comes from respondents within firms. This gives, on the one hand, a unique insight into the activities and motivations of New Zealand businesses. On the other hand, many businesses are large and complex, and it is unreasonable to expect that one or a few individuals within the organisation will have full knowledge of every aspect of the business's operations. The survey explicitly allows for reasonable levels of uncertainty by including a "don't know" option for certain questions. Throughout this report we include "don't know" responses where relevant. Fabling et al. (2008, 2012) argue that this category reduces misreporting and bias and is a reason for the survey's accuracy.

In the next section of this report, we look at the main operations of businesses in New Zealand. In Part 3 we look in more detail at the strategy and practices of businesses. Part 4 focuses on innovation. In Part 5 we widen our field of view and look at businesses' international activity. In Part 6 we look at business finance. Part 7 provides some final thoughts.

Part 2 Business operations

In this chapter we look at business operations, including investment, employment and skills, the overall level of technology, and the business environment including competition and regulation. This chapter is based on Module A of the *Business Operations Survey*, which covers a wide range of activities, as can be seen from the summary in Figure 5. The majority of Module A remained constant from 2005-2022. This consistency enables us to follow trends and understand how business operations have evolved over time.

Figure 5 Summary of business operations



Source: Productivity Commission calculations based on *Business Operations Survey*

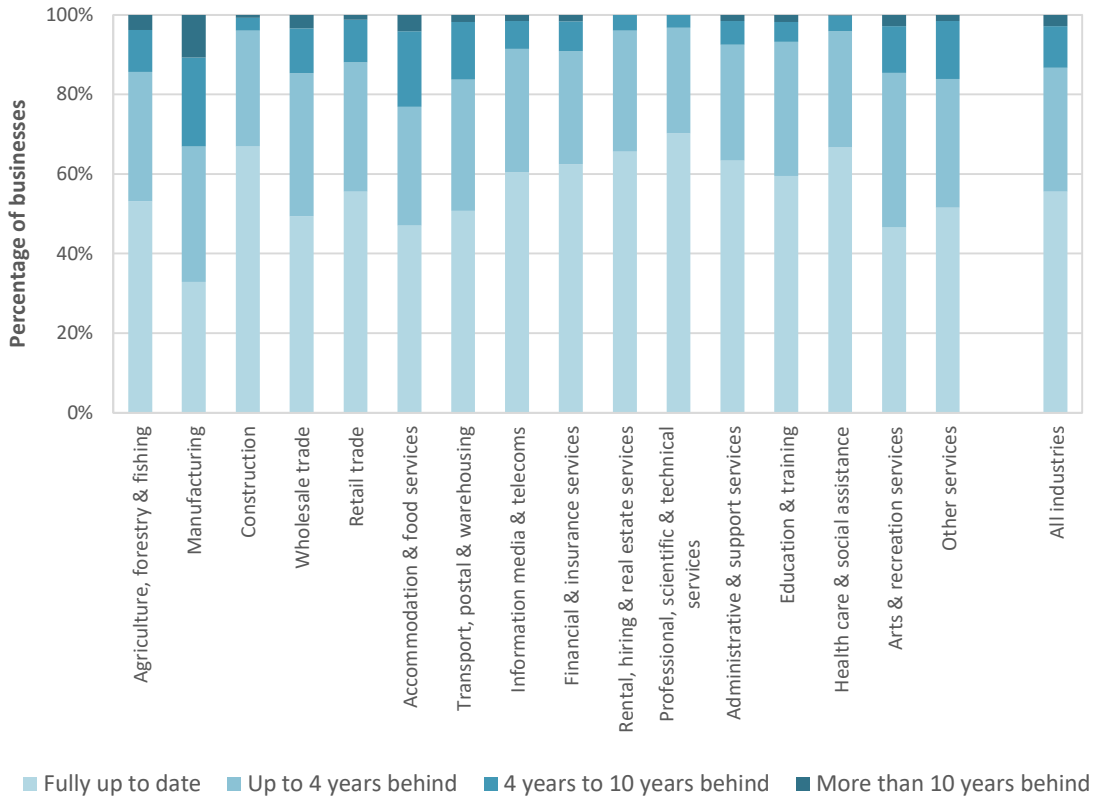
2.1 Capital

Technology

The technology available to firms is constantly evolving. In some markets, firms simply cannot compete if they have outdated technology. In others – more slowly evolving or less competitive – it is possible to remain profitable with 'classic' technology. In an early study of the predecessor to the BOS, the *Business Practices Survey*, Fabling & Grimes (2007) found that businesses whose core equipment is fully up-to-date are likely to be more profitable and have a larger market share, after controlling for the age, size and industry of the business, and its access to finance. They found that businesses whose core equipment was no more than four years behind, are the most productive.

Just under 60% of businesses feel their technology is entirely up to date (Figure 6). This varies between one-third of manufacturing businesses feeling their technology is up-to-date and 70% of professional, scientific, and technical services. Conversely, technology is more than ten years behind in one-in-ten manufacturing businesses, and more than four years behind in one-third.

Figure 6 Core technology by industry (2022)



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question A25 "How does this business's core equipment (that is used in the production of this business's main goods or services) compare with the best commonly available technology?"

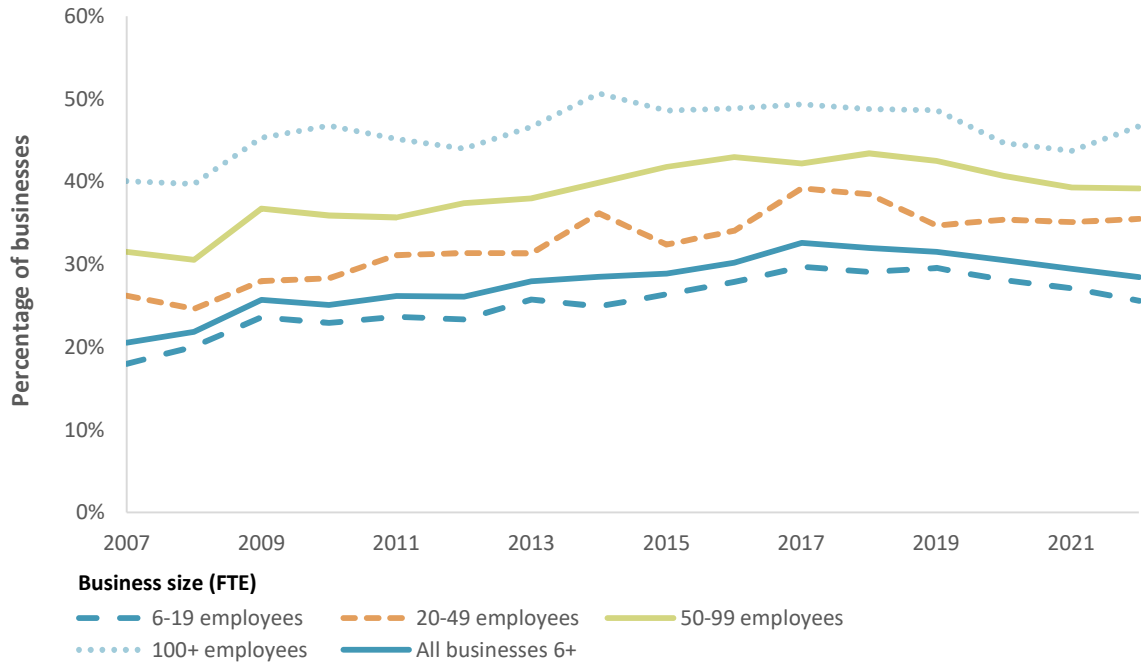
There are a range of explanations to account for why we observe slower uptake of new technologies in some countries compared to others (Kneller & Stevens, 2006). These centre around:

- the barriers to new technologies that result from a country's institutional arrangements (Parente & Prescott, 1994; Prescott, 1998);
- the usefulness of new technologies – new technologies are typically developed in richer countries and differences in economic conditions and factor prices can make these technologies inappropriate for less developed countries (Acemoglu & Zilibotti, 2001);
- economic geography factors – for example a country's distance from where new technologies are being developed or used (Keller, 2002, 2004); and
- the potential of a country to absorb capital and new technology from elsewhere into its economy (Eaton & Kortum, 1999; Griffith et al., 2004; Xu, 2000)

Investment in expansion

At the heart of performance is investment. Businesses invest in assets (e.g., land, buildings, and equipment), or to develop or introduce new or improved goods, services, or practices. They might also invest to enter new markets. As we can see from Figure 7, not all businesses are actively pursuing growth.

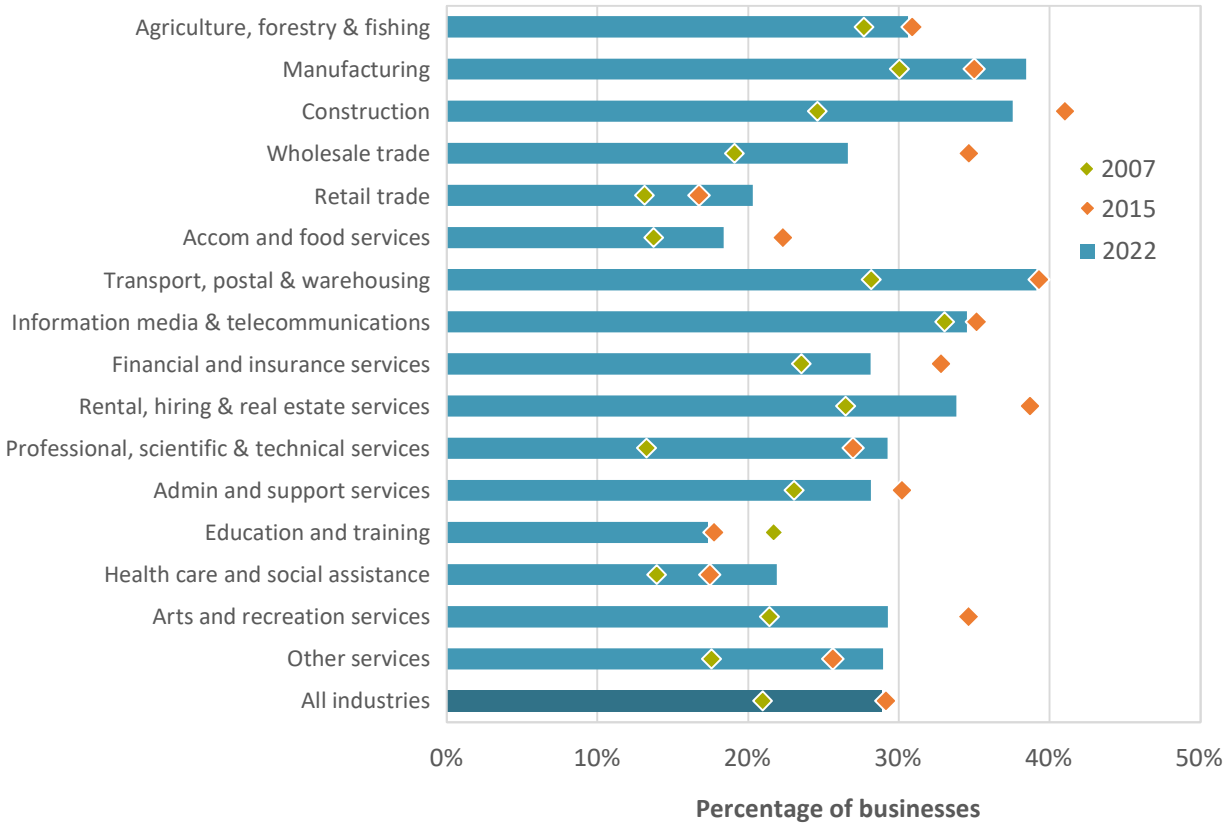
Figure 7 **Investment in expansion, by firm size (2007-22)**



Source: Productivity Commission calculations based on *Business Operations Survey*, Section A.
Notes: Question A8 "For the last financial year, did this business invest in its expansion?"
Respondents are asked to include purchase of one or more businesses or assets (e.g., land, buildings, equipment); development or introduction of new or significantly improved goods, services, or processes; entry into new markets, and to not include increases in turnover for existing business, or ongoing operational expenses.

There is quite a variation in patterns of investment across industries. In the manufacturing, construction and transport, postal and warehousing industries, almost 40% of all businesses are investing in their expansion. In contrast, in the accommodation and food services industries, and education and training industry, the figure is less than half this. In part, this may reflect the capital intensity of these industries. Whilst on average there was no change between the number of businesses investing in expansion before (2015) and after (2022) the COVID-19 pandemic, experiences were variable across industries. For example, there was little change in agriculture, forestry and fishing industries, in transport postal and warehousing, and information media and telecommunications. This contrasts with the experiences of construction, wholesale trade, accommodation and food services, rental, hiring and real estate services, for example, which all saw large increases in the number of firms investing in their expansion between 2007 and 2015, followed by a drop in 2022.

Figure 8 Investment in expansion, by industry (2022)



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: See notes to *Figure 7*.

2.2 Employment

In line with the famous cliché, "people are our greatest asset", businesses in New Zealand rely on this asset heavily. Our workers work some of the longest hours in the developed world (NZPC, 2023).

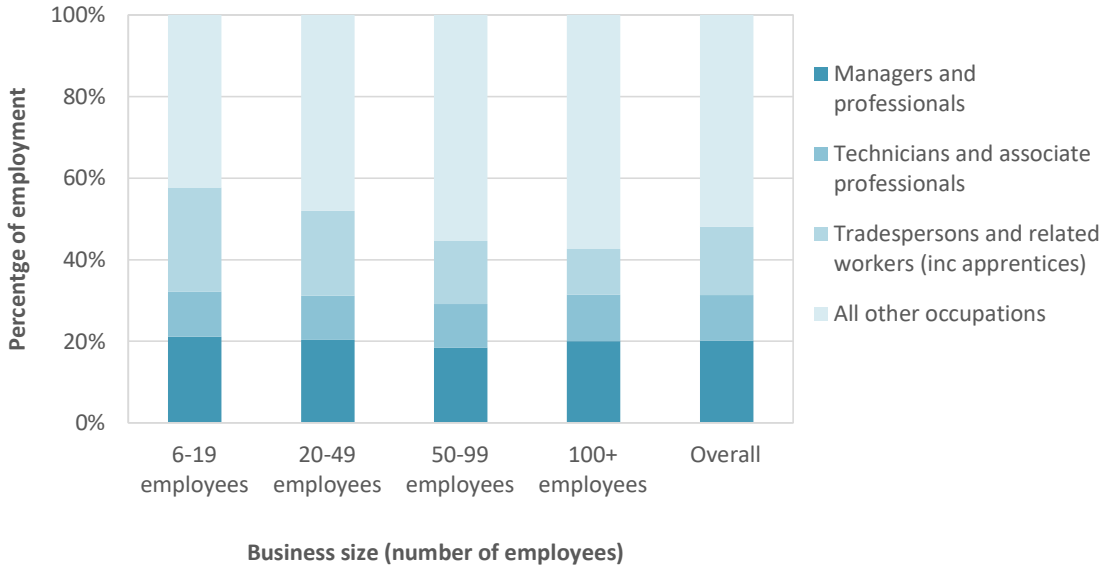
In this section we look at the employees in New Zealand's businesses and some of the difficulties businesses face in employing workers with the required skills.

Figure 9 (below) shows the structure or employment in business according to four occupational groupings and how this varies by business size. The main difference in the occupations employed by firms of different sizes is the split between tradespersons and related workers (including apprentices and trade supervisors) and all other occupations. Tradespersons are employees who perform tasks requiring trade and specific technical knowledge, such as electricians, mechanics, hairdressers and bakers. These employees make up a larger portion of the workforce in very small (6-19 employee) and small (20-49) businesses, than medium and larger business.

Skilled, non-manual workers include managers and professional occupations. Managers lead organisations, departments or divisions and determine the policy of the organisation or department (like a general manager or a finance manager). The term 'professional' describes people who perform analytical, conceptual or creative tasks with skills equivalent to a bachelor degree or higher (accountants, engineers, journalists, computer programmers and the like). Managers and professionals make up one fifth of the workforce across all sizes of business.

Technicians and associate professionals perform complex technical or administrative tasks, often in support of professionals or managers, and include roles like technical officers, building inspectors and legal executives. These occupations make up about 11% of the workforce and are spread evenly across all sizes of businesses.

Figure 9 Occupational structure of firms by firm size

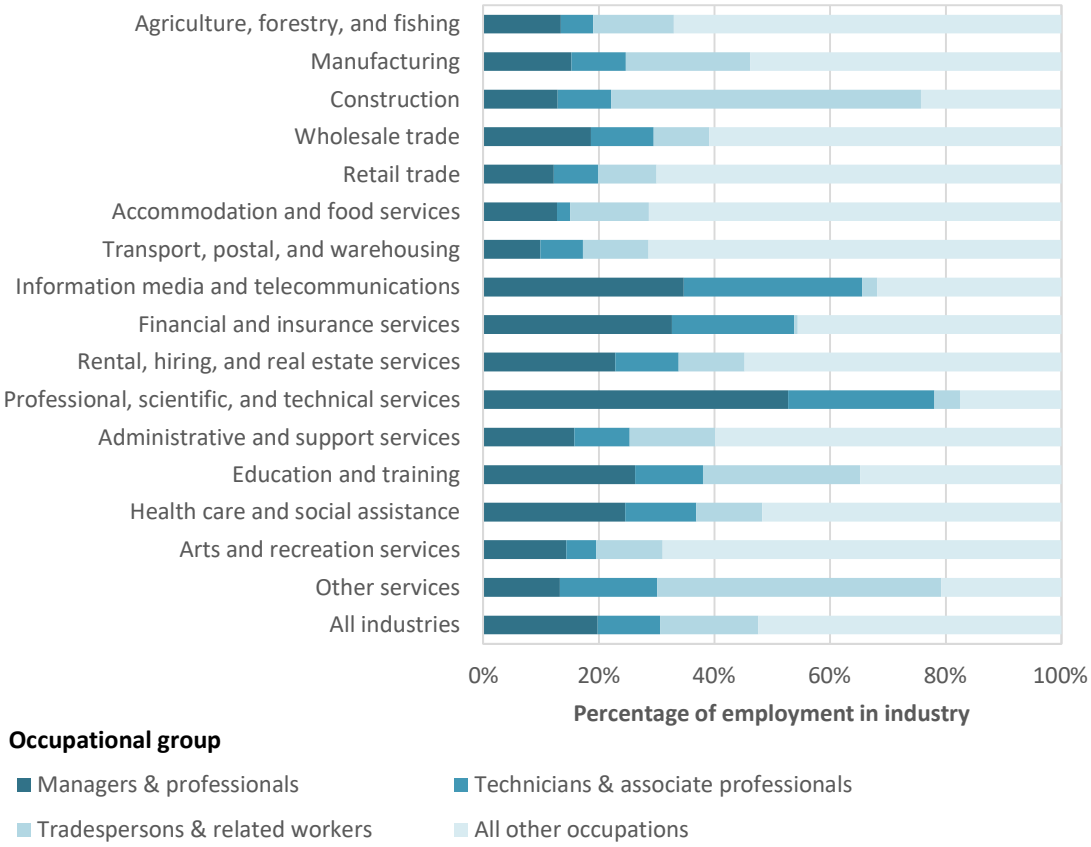


Source: Productivity Commission calculations based on *Business Operations Survey*

Notes: Question A16 "As at the end of the last financial year, what percentage of staff (working proprietors and employees) were working in the following occupational groups? Note: Assign staff to an occupational group according to the tasks or duties they spent the majority of their time performing."
Stats NZ use the responses to this question to calculate aggregate employment numbers.

There is much more variation in the occupations working in businesses across industries. This reflects the nature of the work and production processes. It is perhaps no surprise to see that more than half the employees in the construction sector are tradespersons ('all other occupations' also includes bulldozer operators and labourers and makes up more than half of the remaining workforce). Similarly, half of employees in the professional, scientific, and technical services industries are managers and professional workers, and another quarter of the workforce are technicians and associate professionals.

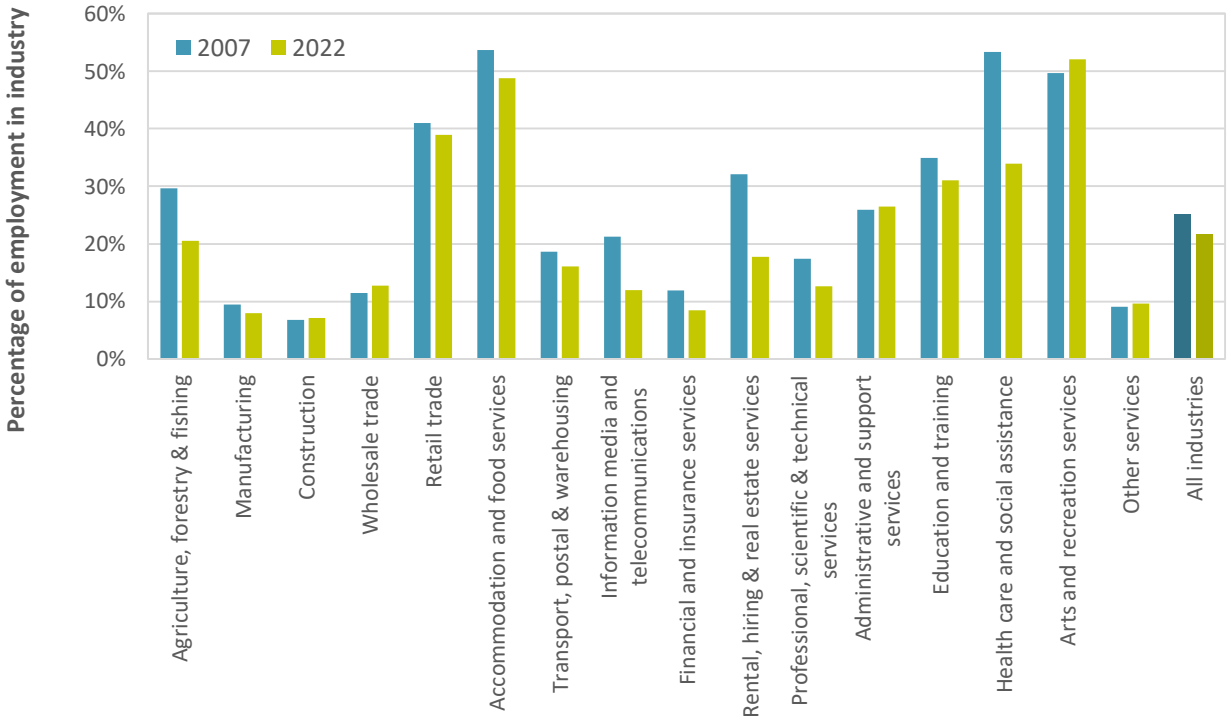
Figure 10 Occupational structure of firms by industry



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question A16 "As at the end of the last financial year, what percentage of staff (working proprietors and employees) were working in the following occupational groups?"

An industry's employment structure also varies in the hours staff work. For example, part-time employment is relatively common in retail trade and in accommodation and food services, as well as in arts and recreational services. It is also interesting to note that there have been changes in the balance of full-time and part-time employment in some industries. There has been a big reduction of the use of part-time employees in health care and social assistance, for example.

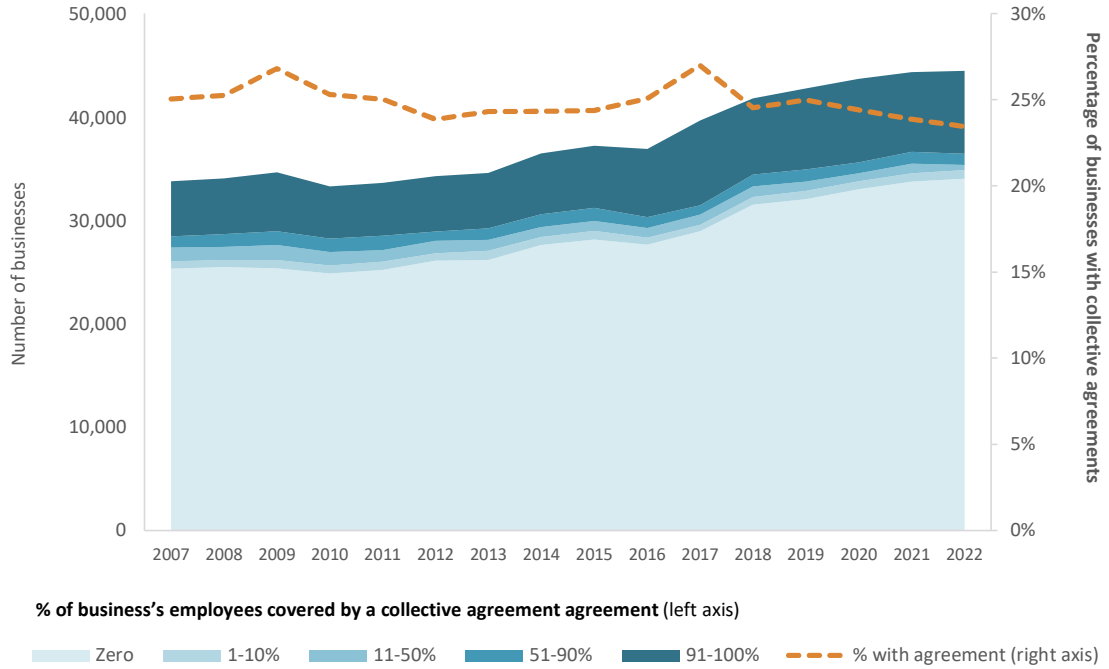
Figure 11 Percentage of part-time employees by industry



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question A15 "Over the last financial year, what percentage of staff (working proprietors and employees) worked for this business on the following basis? Full-time (working 30 hrs or more per week); part-time (working less than 30 hrs per week)"

Because the bargaining power between employers and employees is not equal in many employment relationships, employees may decide that their interests are represented more effectively through unions and collective bargaining. The percentage of businesses with at least some staff covered by collective agreements is shown in Figure 12. The overall proportion has been fairly constant since 2007, peaking at 27% in 2009 and 2017, and declining to 23% in 2022. This overall decline has come from a reduction in the numbers of businesses with 95-100% of employees covered by collective agreements, and those with 11-50% of their staff covered. The other two categories (1-10% and 51-90%) have actually seen slight increases.

Figure 12 Collective agreements



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question A18 "As at the end of the last financial year, what percentage of this business's employees were covered by a collective employment agreement?"

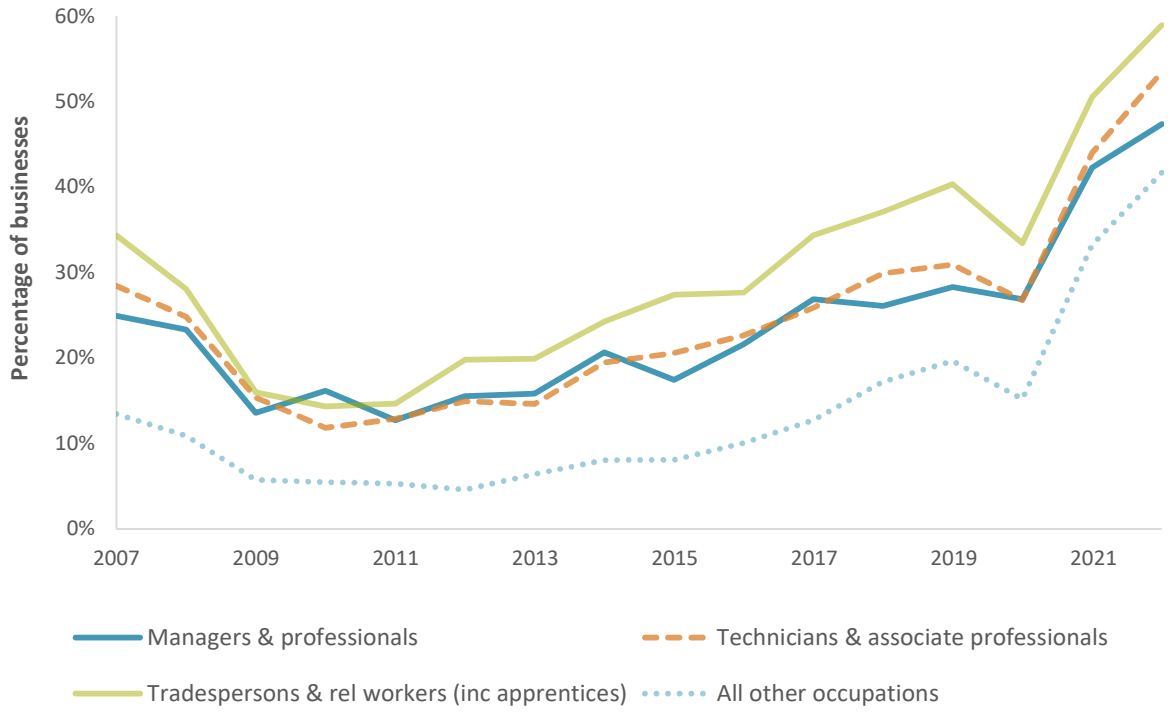
Sourcing labour

Vacancies are a common part of business life. Whilst expansion requires businesses to hire additional staff, staff also arrive and leave continually. As with any market, some firms may not be able to source labour at the rate they are willing or able to pay. Work based on the Business Strategy and Skills module of the 2008 BOS found that around three-quarters of businesses had vacancies in the year prior to the survey, and around half of businesses found at least one of these vacancies hard to fill (Mok et al., 2012; Stevens, 2012).

The proportion of businesses reporting severe difficulties in recruiting has steadily risen since 2011 (Figure 13). Tradespersons have consistently been the occupation with the most businesses reporting severe recruitment difficulties (rising from 14% in 2010 to almost 60% of all businesses in 2022). Despite being the largest occupational group in the economy, 'all other occupations' appear to be the least difficult staff to find, but the percentage of businesses reporting severe recruitment difficulties for them also jumped from 15% in the year ending March 2020 to 42% in 2022. This latter figure is higher than that reported for any occupation prior to the COVID-19 pandemic, back to 2007.

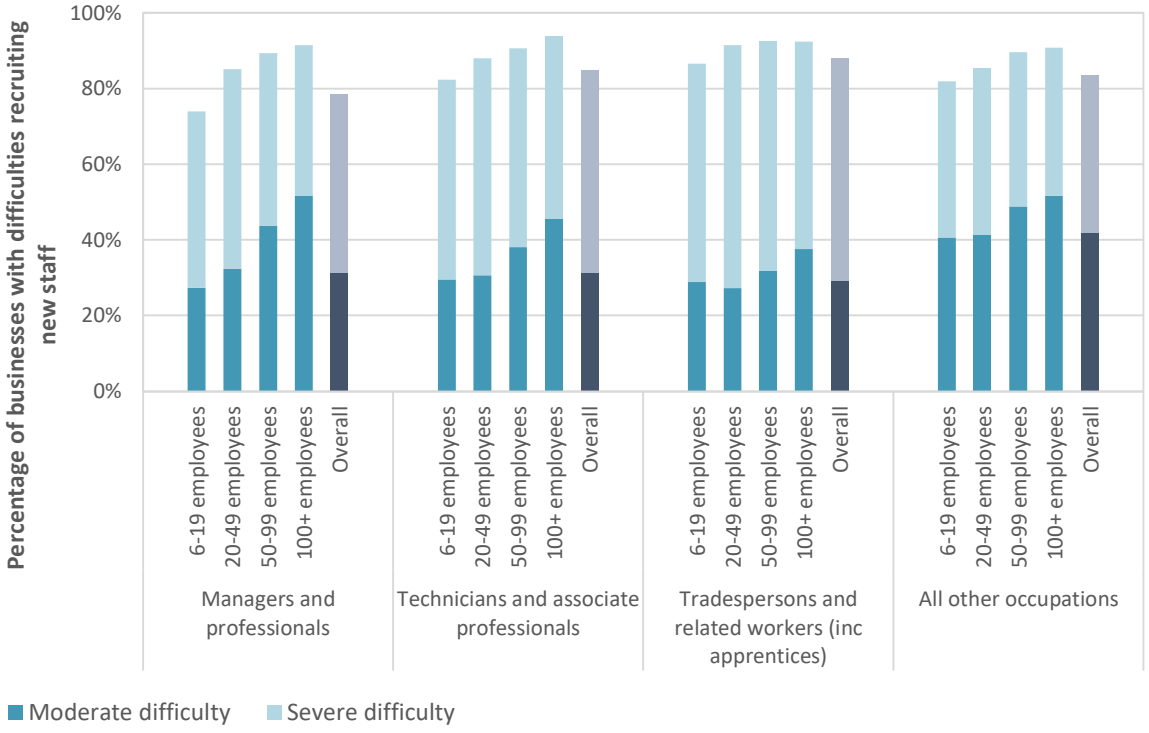
Large firms are more likely to report difficulties, and severe difficulties in particular, in recruiting most types of labour (Figure 14). Part of this is simply that they have more vacancies. This does not appear to be offset by any purchasing power or reputational benefits of their size. The idea that it is the constraints of the market rather than what firms offer in wages is confirmed in the study of Fabling & Maré (2016), who use multiple waves of the BOS between 2005 and 2001 linked to the Linked Employer-Employee Data (LEED) and Longitudinal Business Database. They found that firms paying higher wages are more likely to report difficulties when trying to hire skilled workers.

Figure 13 Severe recruitment difficulties have been rising



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question A17 "Over the last financial year, to what extent did this business experience difficulty in recruiting new staff for any of the following occupational groups?" Lines show the percentage of firms who reported 'severe difficulty' finding each occupational group.

Figure 14 Recruitment difficulties by firm size

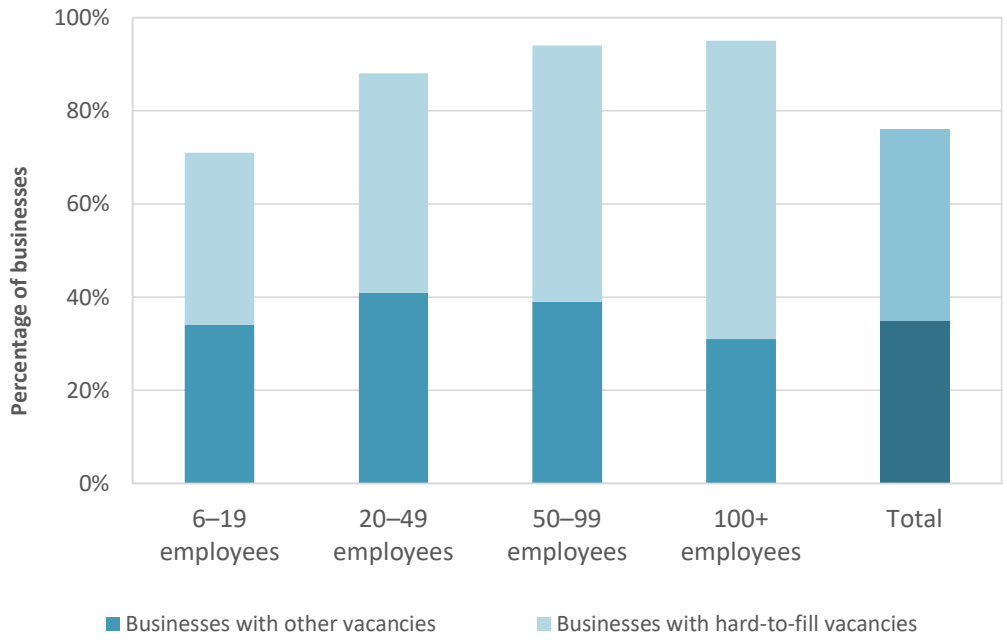


Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: See notes to *Figure 13*

Hard-to-fill vacancies

The 2016 Acquisition of Skills module enables us to look at these recruitment difficulties in a different way. We can look at how many businesses have posted vacancies during the last year and compare this with the number of firms that had difficulty in filling any of their vacancies with suitable applicants. We present the results from this in Figure 15. In this figure, the overall heights of the bars show the percentage of businesses in each category that had vacancies during the last financial year. The dark bar shows the percentage of businesses finding those vacancies hard to fill. The light bar shows the percentage of businesses that did not have any difficulty filling their vacancies.

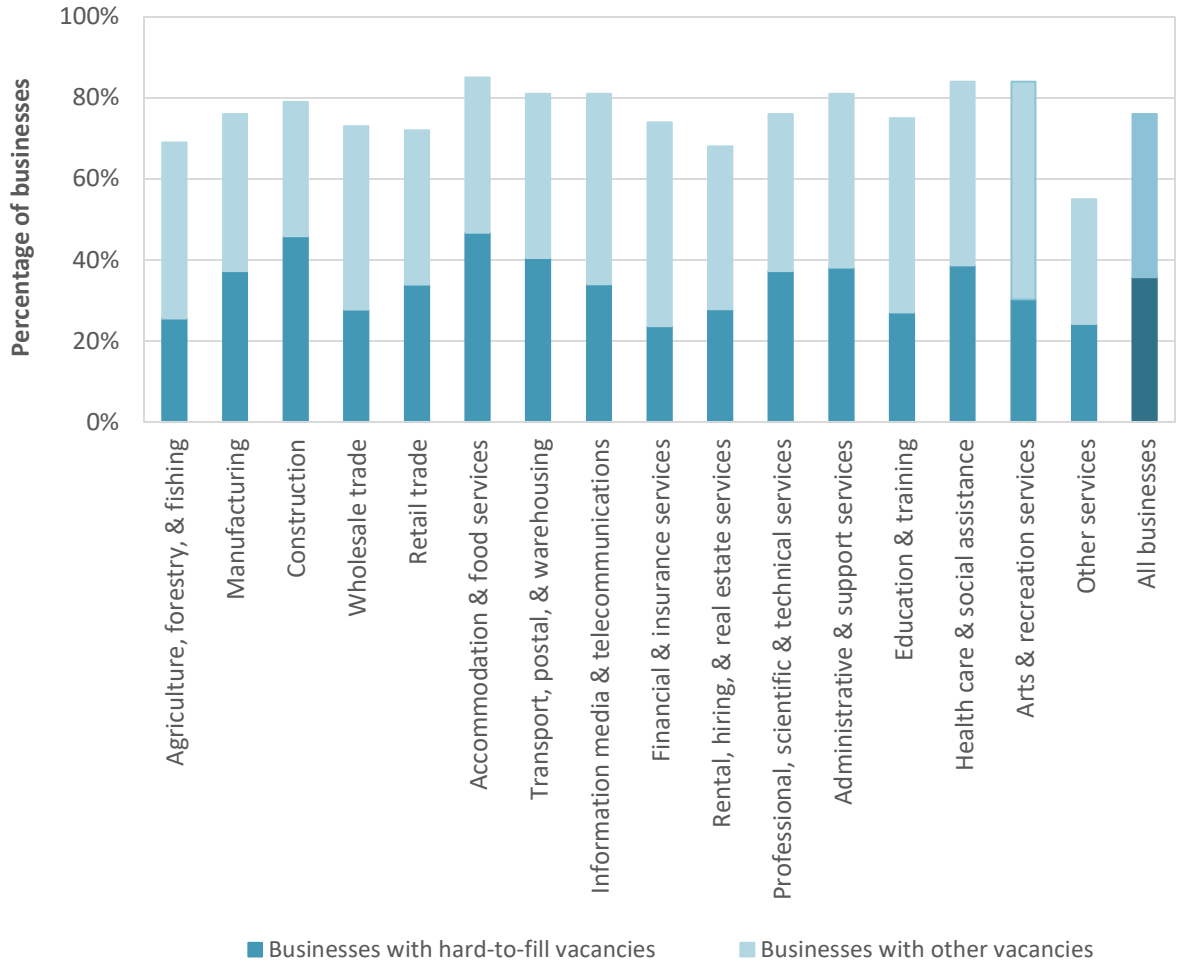
Figure 15 Vacancies and hard-to-fill vacancies, by business size (2016)



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question D2 "During the last financial year, has this business had any vacancies?" and D4 "During the last financial year, did this business experience difficulty filling any of these vacancies with suitable applicants?"

There were different experiences of filling vacancies across industry types. For example, businesses in construction and in accommodation and food services were more likely to report having difficult to fill vacancies than other industries, whereas businesses in wholesale trade and education and training found vacancies less difficult to fill (Figure 16). These variations will depend on a number of factors, such as the number of firms with whom employers are competing for the skills required, and the number of people available with those skills. We look at skill requirements in more detail below.

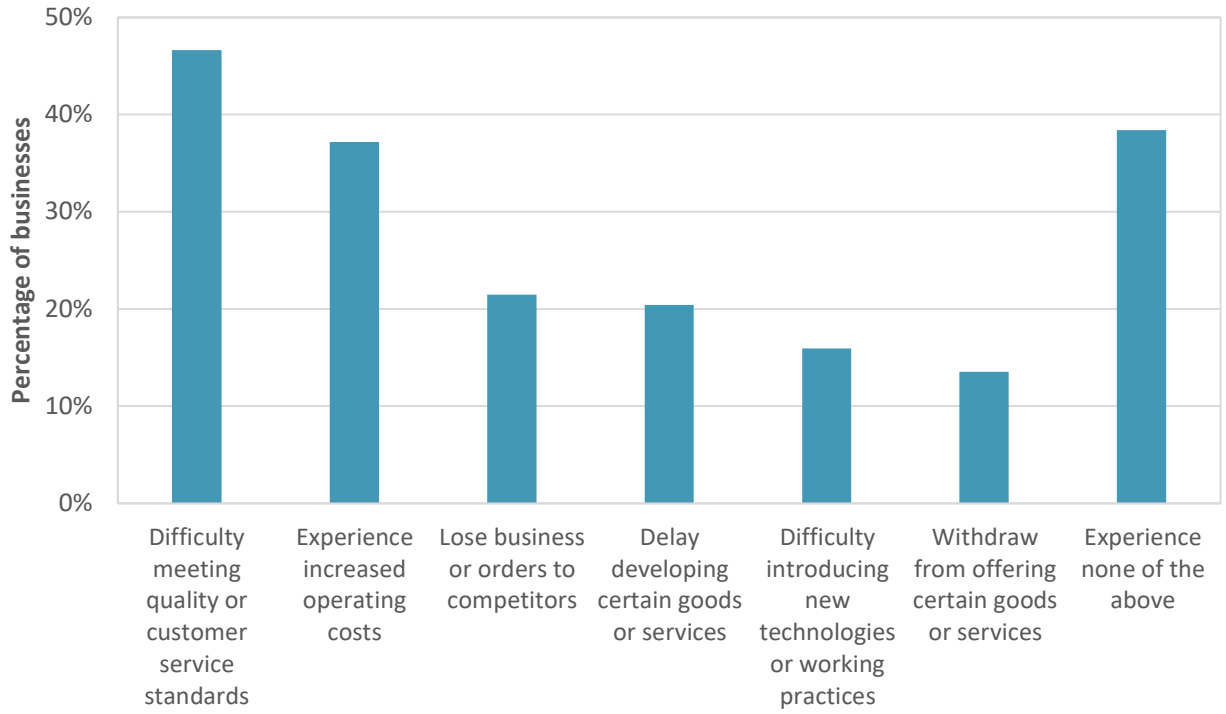
Figure 16 Vacancies and hard-to-fill vacancies, by industry (2016)



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: See notes to *Figure 15*

An inability to fill vacancies can have wide-ranging effects on firm performance (Fabling & Maré, 2016; Maré et al., 2017; Stevens, 2012). The most common impact of labour shortages was difficulty in meeting quality or customer service standards (Figure 17), with more than 45% of firms reported this outcome as a result of hard-to-fill vacancies. The second most reported impact was experiencing increased operating costs (around 37% of businesses that reported hard-to-fill vacancies).

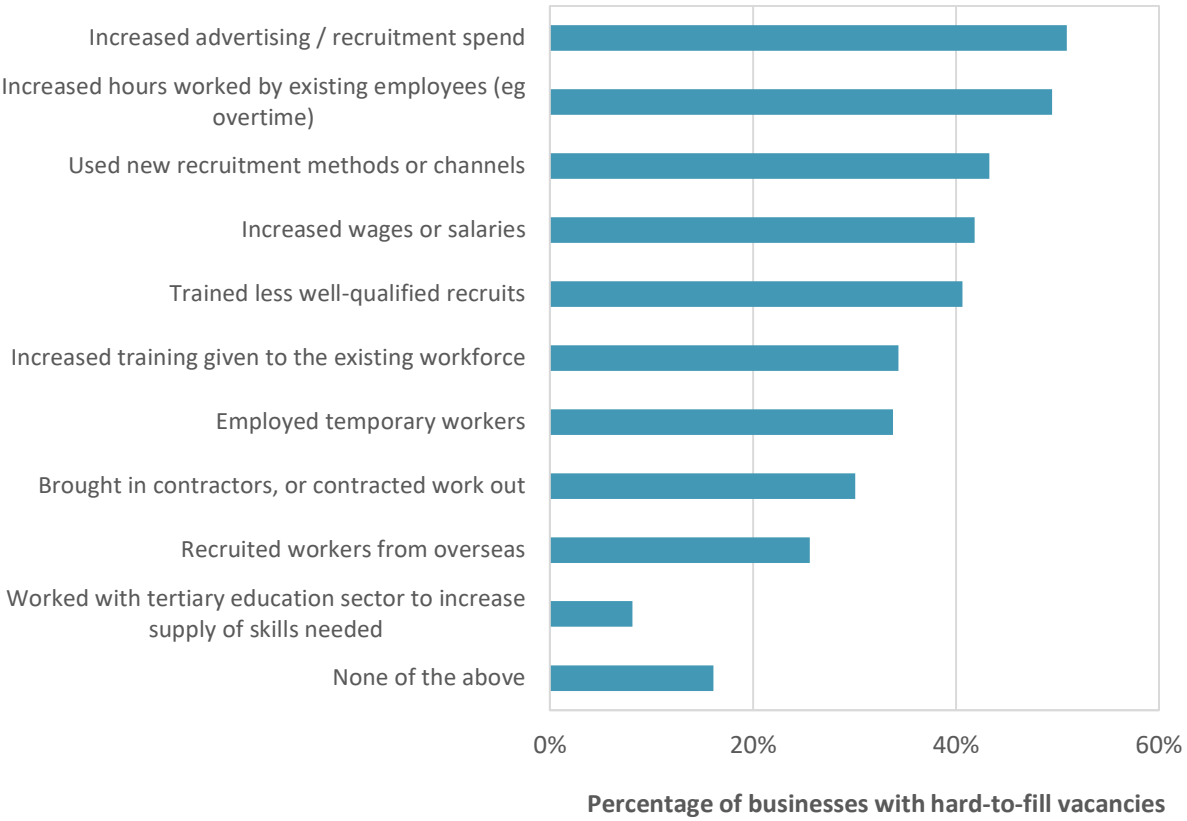
Figure 17 **The impact of labour shortages** (2016)
As a percentage of firms who reported hard-to-fill vacancies



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question D5 "In the last financial year, did recruitment difficulties cause this business to:"

There are a range of actions businesses could take when they cannot find new staff with the skills required. These range from changing the nature or intensity of their recruitment methods, changing their recruitment requirements, training either existing staff or new workers, looking to different sources for the labour, or contracting the work out to another business. The most common response to hard-to-fill vacancies was increasing advertising or recruitment spend (around 45% of businesses that reported hard-to-fill vacancies) or increasing the hours worked by existing employees, for example through overtime (Figure 18). Other common actions taken by businesses included using new recruitment methods or channels, increasing wages or salaries, or training less qualified groups.

Figure 18 **Actions following labour shortages** (2016)
As a percentage of firms who reported hard-to-fill vacancies



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question D7 "During the last financial year, which of the following actions has this business taken as a response to recruitment difficulties?"

Skills

Skills are an important determinant of the economic performance of people, firms, industries, and economies[10]. Many commentators have expressed concern that a shortage of workers with particular skills has been detrimental to the functioning of the New Zealand economy[11]. Whilst there is information at the aggregate level on the skills issues, much less is known about how these issues affect individual firms.

International evidence suggests that the availability of individuals with the appropriate types and levels of skills have a major impact on the success of firms. Skill shortages directly constrain production and prevent firms from meeting demand and using available inputs efficiently, leading to lower productivity (Haskel & Martin, 1993; Stevens, 2007). Indirectly, skill shortages inhibit innovation and the use of new technologies, which tend to be skill-intensive activities. This may have longer-term impacts on the way firms do business, in terms of their location, size, structure, production methods and product strategies

[10] See Burgess (2016), Card (1999) or Dickson & Harmon (2011) for an overview of the results on the individual returns to education and skills, and Abowd et al. (1999), Abowd & Kramarz (2005), Fabling et al. (2022) and Maré et al. (2017) for evidence on the relationship between firm performance and skills. Kneller & Stevens (2006) present international evidence for skills at the industry level in OECD.

[11] See Moodie (2023) or NZ Herald (2023) for example.

(Durbin, 2004; Mason & Wilson, 2003; Stevens, 2012). Thus, understanding how skill shortages manifest, and developing policies to address them, is critically important if New Zealand is to raise productivity in industry and improve its international competitiveness.

Box 3 Types of skills

Stevens (2012) suggests we can think of skills as falling into four broad categories:

Basic or foundational skills

These are the basic skills that allow an individual to participate in social and economic life, such as literacy, numeracy, the ability to interact with other people and to acquire new skills. Strictly speaking, we can think of these as a subset of technical skills, but it is perhaps more useful to delineate between basic skills and the more advanced technical skills described below. These skills are not to be dismissed as 'soft skills'; they are valued by firms and have been found to be predictors of socio-economic outcomes (Borghans et al., 2008; Heckman et al., 2006).

Technical skills

These are the actual techniques of production and related economic activities, such as the ability to use a particular piece of equipment or undertake a particular role. Technical skills tend to be more advanced and/or specific than foundational skills. These are skills like computer programming, gas fitting, draughtsmanship, operating a machine lathe, accounting or medical skills.

Managerial skills

These skills relate to the organisation of production in its broadest sense (Bloom & Reenen, 2011; Bloom & Van Reenen, 2007, 2010). They include the ability to get the most out of the resources at the firm's disposal (both internally and externally) and match them to the environment in which it operates. An important aspect of management practices is the management of skills, i.e. the ability to recruit, retain, motivate, organise, and develop employees.

Entrepreneurial skills

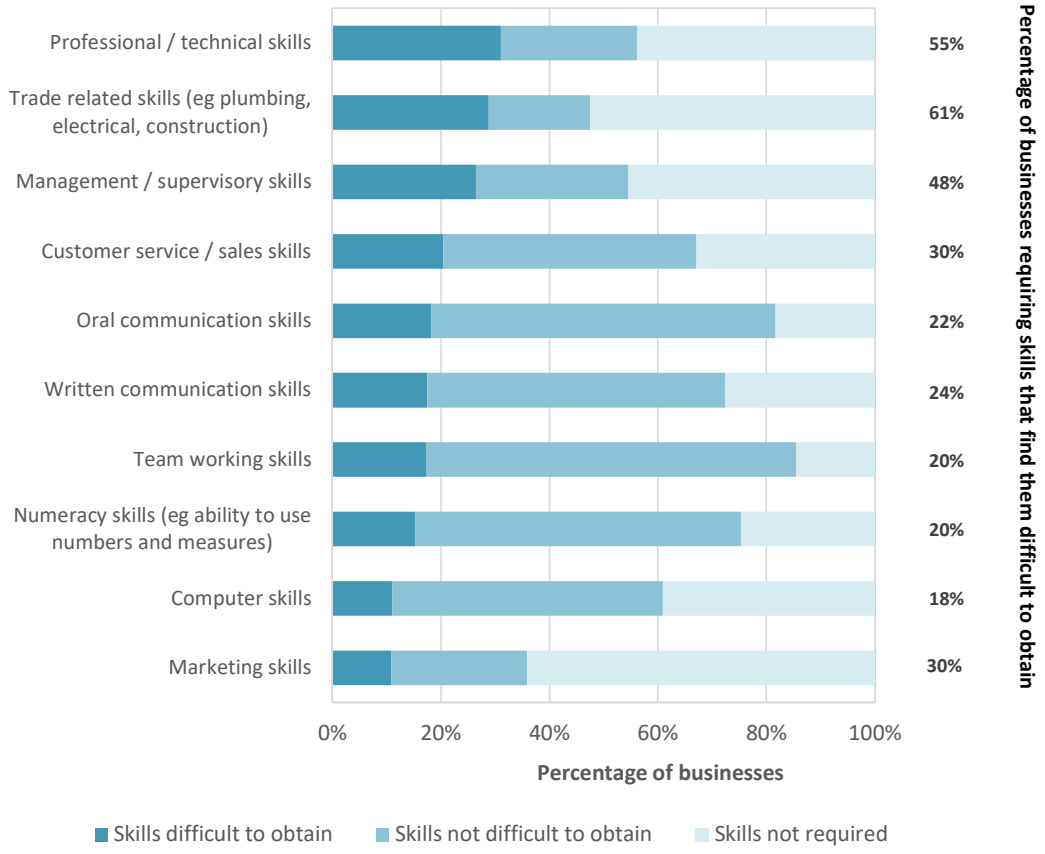
Entrepreneurial skills include the ability to spot gaps in the market, unexploited potential, and new developments in technology, institutions and organisations. People with entrepreneurial skills are able to understand, exploit and change the economic landscape in order to generate new economic value (Baumol, 2004; Penender, 2009).

Which skills do businesses find difficult to obtain? Figure 19 looks at how hard it was for businesses to obtain a range of skills from job applicants. The bars in the diagram show the percentage of businesses that are looking for a particular skill set or not, and for those that are looking, whether they are difficult to obtain. The skills are ordered from top to bottom by the proportion of all businesses that find those skills difficult to obtain. As can be seen by the lightest segment of the bars, some skills are required by more businesses than others. Over 80% of firms are looking for oral communication skills in job applicants, whereas less than 40% were looking for marketing skills. Because of this, we also report the 'difficulty rate' – of the businesses looking for each set of skills in their applicants, what proportion found them difficult to obtain? These are the numbers to the right of the figure.

Professional and technical skills were the skills that the largest proportion of businesses found difficult to obtain from their applicants, with around a third of firms finding these skills difficult to obtain. Trade related skills like plumbing, electrical and construction skills were the second most likely for businesses to find difficult to obtain. This is particularly noteworthy because fewer businesses were searching for trade related skills (48%) than professional/technical skills (56%). Because of this, trade related skills are the most difficult to obtain, *for firms that are looking for them.* Thus, 61% of businesses that were seeking workers with trade skills found these difficult to obtain. This compares to 55% of businesses seeking professional and technical skills.

The two most common skills businesses were looking for were oral communication skills and teamworking skills. Over 80% of businesses were looking for these in applicants. Other common skills required by businesses included numeracy skills such as the ability to use numbers and measures, written communication skills and customer service or sales skills. Around 20% of the businesses looking for those skills found them difficult to obtain, suggesting a higher prevalence of these skills across the population compared with some of the more technical job-specific skills, such as trades and professional/technical skills.

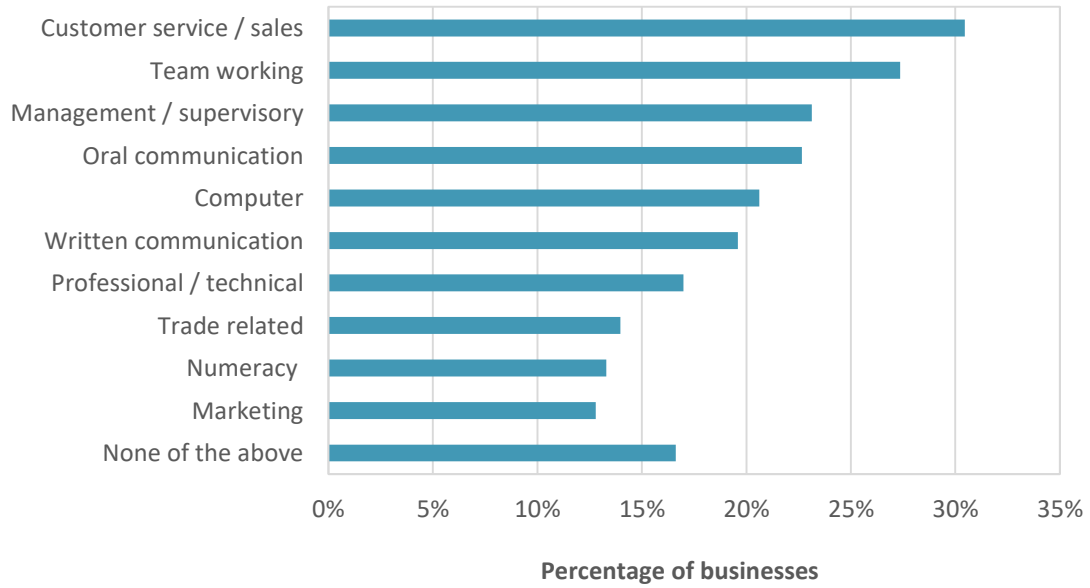
Figure 19 **Skills businesses find it difficult to obtain** (2016)



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question D8 "During the last financial year, were any of the following skills difficult to obtain from job applicants?" Percentage figure to right of bars is the percentage of businesses finding it difficult to obtain a skill who require the skill, ie the ratio of the left bar to the total of the left and middle bars.

Figure 19 showed the skills businesses found it difficult to obtain from job applicants. In Figure 20, we can see the skills businesses felt *existing* employees most needed to improve. The most common skills existing employees needed to improve were customer service and sales skills, followed by team working, management and supervisory skills.

Figure 20 **Internal skill gaps** (2016)



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question D9 "Which of the following skills do existing employees most need to improve?"
Trade-related skills include plumbing, electrical and construction skills.
Numeracy skills include the ability to use numbers and measures

As we noted earlier, one of the ways to increase the skills of the workforce is to train existing workers. Figure 21 shows the percentage of employees who receive training that was provided or funded by the business. In around 10 to 15% of businesses all workers have received funded training within the last financial year. In a small proportion of businesses, no staff had received training.

Figure 21 **Percentage of employees receiving training funded or provided by their employer** (2016)

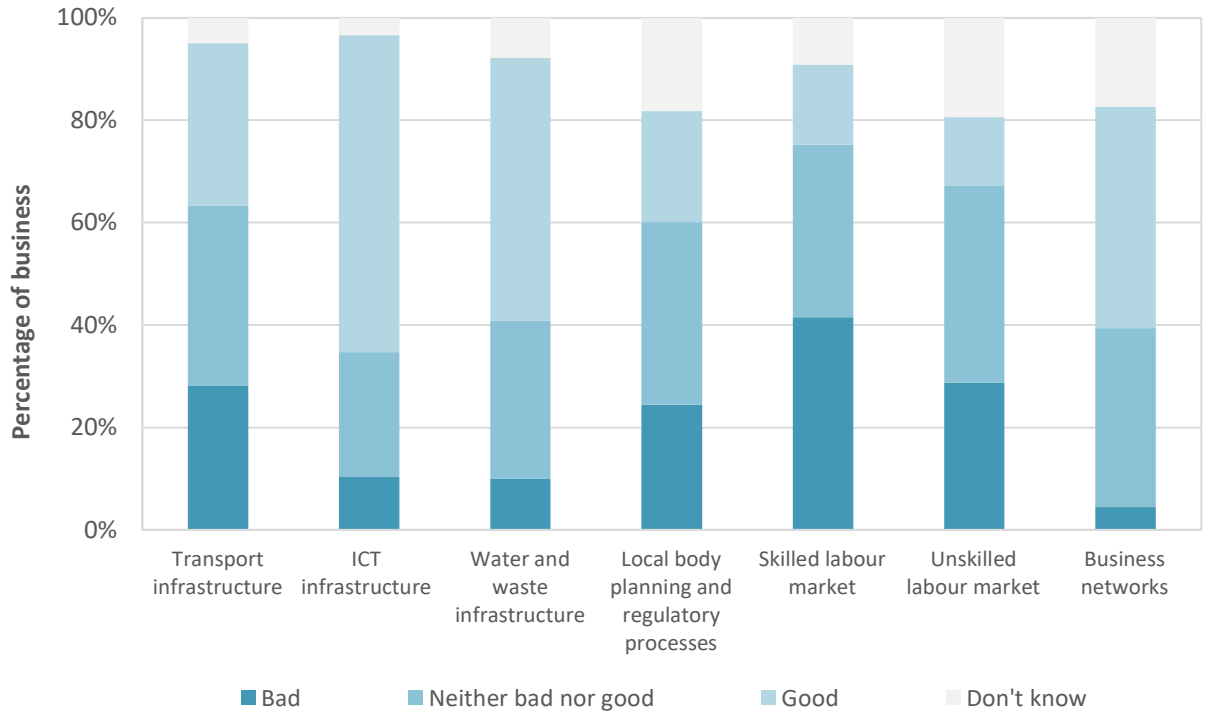
Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question D11 "During the last financial year, what percentage of this business's employees received training that was provided or funded by your business?"

2.3 The business environment

The business environment is a crucial factor for firms. This is because businesses' operations are strongly influenced by the markets where firms purchase inputs, as well by as the physical, social and legal infrastructure that supports them. Figure 22 depicts businesses' assessment of a range of environmental factors with respect to the city, town or district in which they operate.

More than 40% of businesses rated the skilled labour market they source from as 'bad'. Businesses rated the unskilled labour market a little better, with around 30% of firms rating their unskilled labour market as 'bad'. Respondents were fairly positive about the ICT infrastructure in their area with over 60% of businesses rating it as good, 30% rating as neither good nor bad and only around 10% rating it as bad. They were also relatively positive about water and waste infrastructure with around 50% of firms rating water and waste infrastructure as good, and about 25% rating it as neither good nor bad.

Figure 22 Business environmental factors



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question A28 "When thinking about the city, town, or district in which this business operates, how would you rate the following factors?"
Information and communications technology infrastructure includes broadband availability, mobile phone coverage).
Local body planning and regulatory processes includes building consents, Resource Management Act approvals.
Business networks includes local business associations.

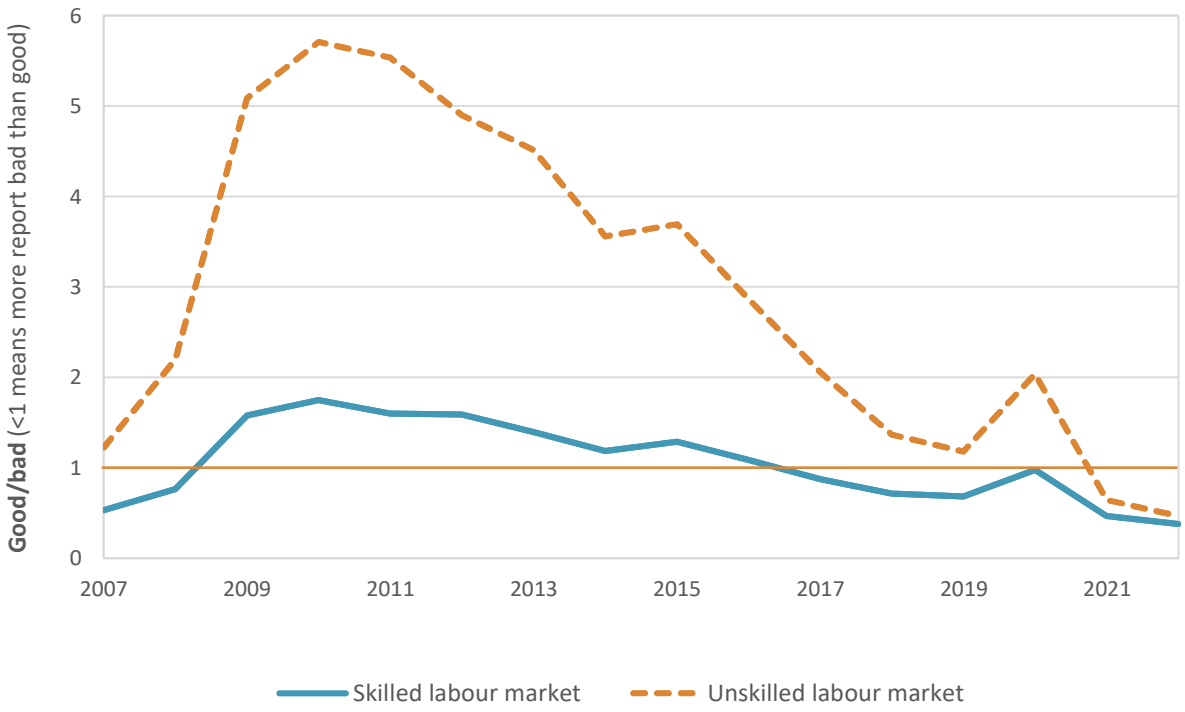
In Figure 23, we look at how businesses' assessment of the state of the skilled and unskilled labour markets have varied since 2007. This figure shows the ratio of firms that report the labour market as being good to those who report it as being bad. A number greater than one means that more firms report the labour market has been more good than bad, while any number below one means the opposite (more bad than good).

The most obvious observation to draw from this figure is that the unskilled labour market has generally been seen as much more well-functioning than the skilled labour market. In 2010, after the GFC and subsequent recession, more than five times as many businesses reported the unskilled labour market as being more good than bad. By comparison, the figure for skilled labour markets was less than two in many years, and, particularly since 2016, more businesses have rated the market for skilled labour as being bad than rated it as being good.

This gap has narrowed more recently, as the reported performance of both markets has declined. There has been a massive decline in the number of firms reporting that the unskilled labour market was good since its peak in 2010, and since 2017 when the ratio for unskilled labour dipped below 2 the ratios for skilled and unskilled labour have drawn much closer. Particularly in the last couple of years (2021 and 2022), the labour markets for both skilled and unskilled labour appear to have worsened with more businesses rating both skilled and unskilled labour markets as being bad than being good.

Figure 23 Skilled and unskilled labour markets

Balance of firms rating the labour market as 'good', versus those who rate it as 'bad'

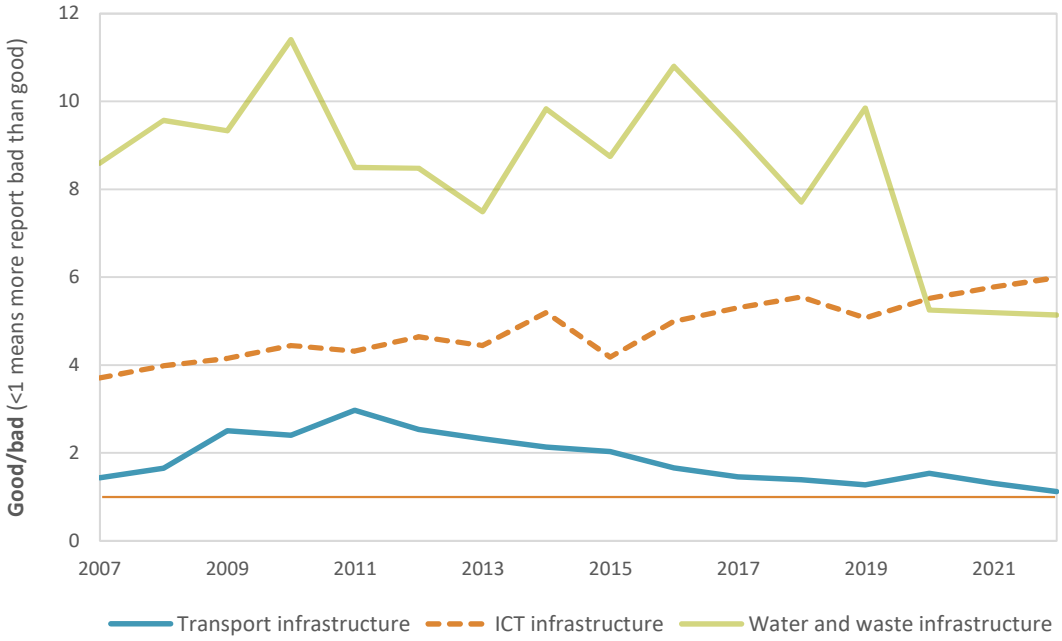


Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: See notes to *Figure 22*.
Excluded category is 'neither bad nor good'. Orange line signifies number of businesses rating the labour market as being good is the same as those reporting it a bad.

Figure 24 shows a similar chart for three types of infrastructure: transport, ICT, and water and waste. Businesses have traditionally rated water and waste infrastructure much more positively than the other two. However, since 2019, these numbers have dropped considerably, although more firms do still rate the infrastructure as more good than bad. There has been a slight increase in the proportion of firms rating ICT infrastructure as good over the period, overtaking the rating for water and waste infrastructure. This period encompasses the national roll-out of fibre broadband (Fabling & Grimes, 2021; Grimes et al., 2012; Sanderson et al., 2022a).

The lowest rated form of infrastructure across this period was transport. Firms were more positive about transport infrastructure up until 2011, but there has since been a downward trend. By 2022, roughly equal numbers of businesses rated transport infrastructure as good as they did bad.

Figure 24 Quality of infrastructure



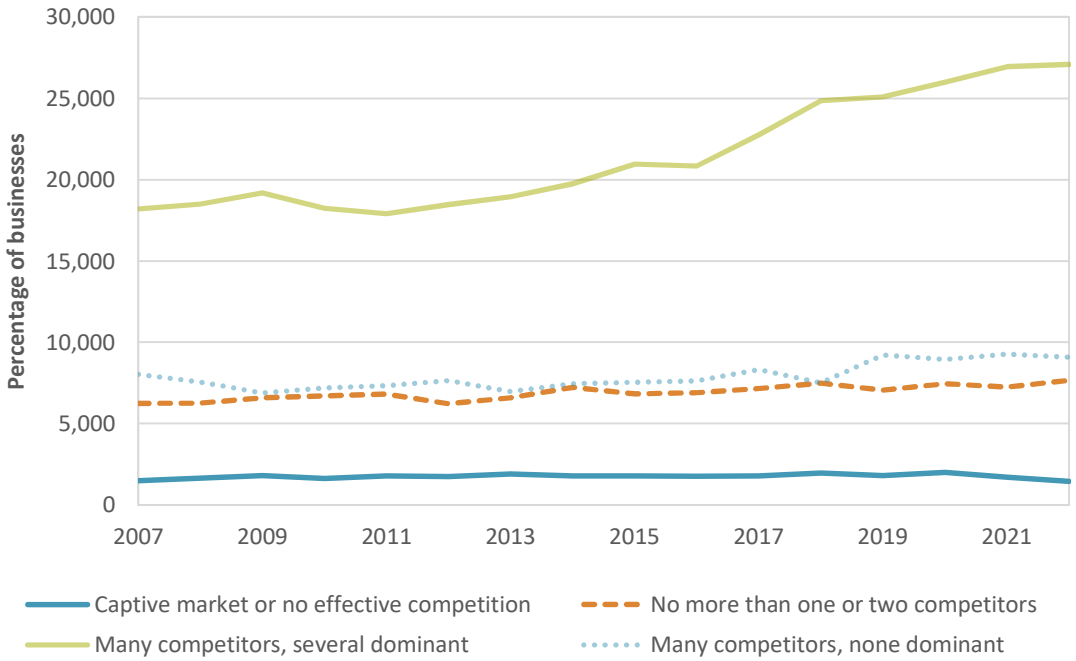
Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: *See notes to Figure 22*
Excluded category is 'neither bad nor good'. Orange line signifies number of businesses rating the labour market as being good is the same as those reporting it a bad.

2.4 The competitive environment

The competitive environment is an important determinant of firm performance. In a highly competitive environment firms are quickly punished for badly specified, low-quality or expensive products or for inefficient production.

The *Business Operations Survey* asks businesses to rate their competitive environment as one of four levels of competition. The least competitive, "captive market, or no effective competition", corresponds to economists' definition of a monopoly. The next level of competition, "no more than one or two competitors", corresponds to what economist call a duopoly. Similar numbers of firms rate their market as being a duopoly as they do rate it as being something akin to what economist called perfect competition, "many competitors, non-dominant". However, the most reported level of competition by New Zealand businesses is what economists call an oligopoly, where there are "many competitors, several dominant". Around 60% of firms rate the competitive environment as being oligopolistic (Figure 25 and Figure 26). The number of businesses rating their industry as oligopolistic has increased from around 18,000 in 2007 to 27,000 in 2022.

Figure 25 Competitive environment



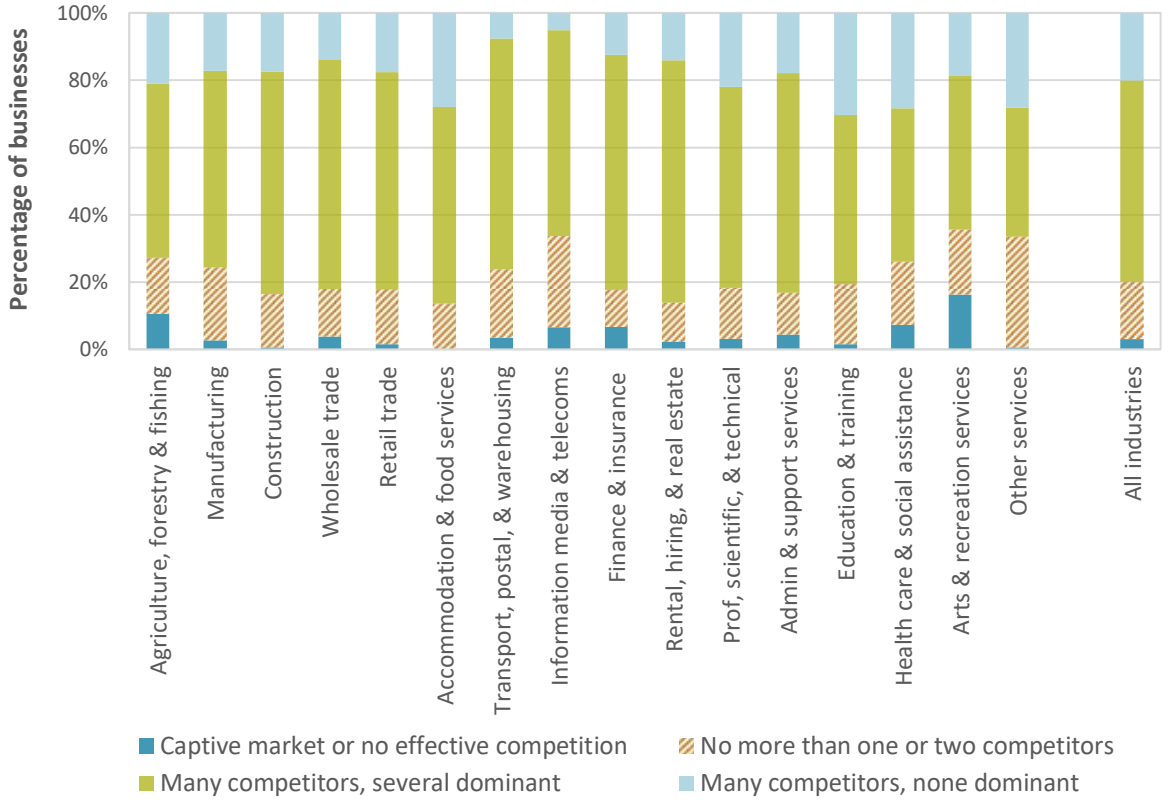
Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question A27 "How would you describe this business's competition?"

Competition will depend on many factors, such as the existence of economies of scale, the size of the market, the degree of product differentiation, and the cost of entry. These factors are likely to vary across industries. We can obtain some insights into this by looking at responses to the competitiveness question (Figure 26). Unfortunately, we can only present results at a highly aggregated level. These are unlikely to represent markets where all participants are potentially in competition. Nevertheless, Figure 26 shows that the accommodation and food services, professional, scientific, and technical services, education and training, and healthcare and social assistance sectors have the largest proportion of businesses reporting that there are many competitors and that none are dominant.

It is in agriculture, forestry, and fishing, and arts and recreation services, where the largest proportion of businesses report operating in a captive market with no effective competition.

Work such as Agarwal et al. (2020); Devine et al. (2016) and Stevens (2009) have used the rich data available in Stats NZ's Longitudinal Business Database to calculate more refined measures of competition in several three-digit or four-digit ANZSIC industries. Agarwal et al. (2020), for example, examine the relationship between the competition in an industry and the quality of management practices in firms.

Figure 26 Competition by industry



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: See notes to *Figure 25*

2.5 Regulation

Regulations are indispensable to the proper function of economies and societies. They create the "rules of the game" for citizens, business, government, and civil society. They underpin markets, protect the rights and safety of citizens, and ensure the delivery of public goods and services. At the same time, regulations are not costless. Businesses complain that red tape holds back competitiveness while citizens complain about the time that it takes to fill out government paperwork. Moreover, designing and enforcing regulations also requires resources for government and public administrations. Regulations can also have unintended costs, when they become outdated or inconsistent with the achievement of policy objectives.

(OECD, 2011)

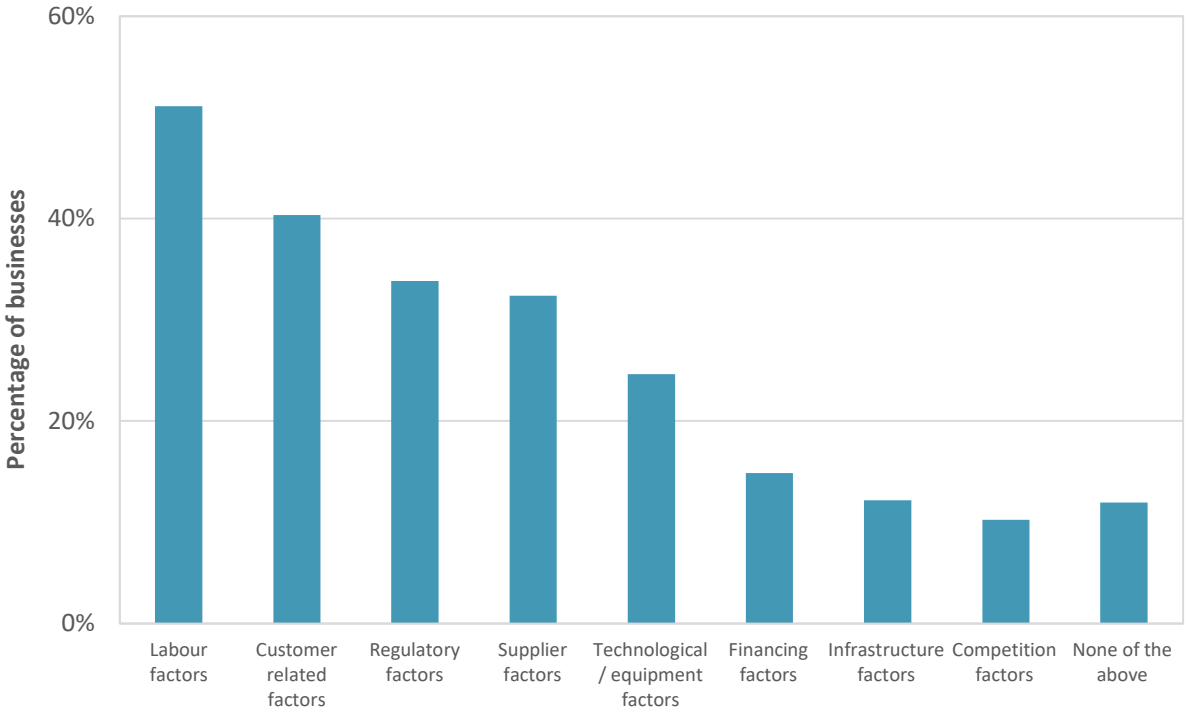
Good regulation provides a bedrock for economic activity. It creates the "rules of the game" for businesses, their owners, workers, customers, lenders, and borrowers. It underpins transactions, allowing us to buy and sell goods and services, to invest with confidence, and to start and run businesses. However, regulations can also have unintended costs when they become outdated or inconsistent with the achievement of policy objectives (NZPC, 2014; OECD, 2011).

In 2016, the *Business Operations Survey* asked businesses about New Zealand regulation (excluding that relating to tax). These regulations include:

- employment regulation (e.g., Employment Relations Act, Holidays Act, Minimum Wage Act)
- workplace safety (e.g., Health and Safety at Work Act, Accident Compensation Corporation)
- environmental regulation (e.g., Resource Management Act, Emissions Trading Scheme)
- business and trade laws (e.g., Companies Act, Fair Trading Act, Consumer Guarantees Act)
- product standards and product safety regulation (e.g., Building Act, Food Act, standards from organisations like Standards New Zealand, New Zealand Food Safety Authority)
- border regulation (e.g., Customs and Excise Act, Biosecurity Act, Immigration Act).

Businesses were asked what factors they spent significant time and resources on. Regulatory factors (like complying with product standards or consent processes) were the third most commonly identified factor on which businesses spent significant time and resources, being identified by around one-third of firms. The most common factors businesses spent their time on were related to labour issues, like staff training, recruitment, or skill availability (51%) and customers (40%). Just behind regulation were factors relating to supplies, such as negotiating prices (32%).

Figure 27 **Regulation is the third most commonly reported factor effort**
Factors requiring time and resources (2016)

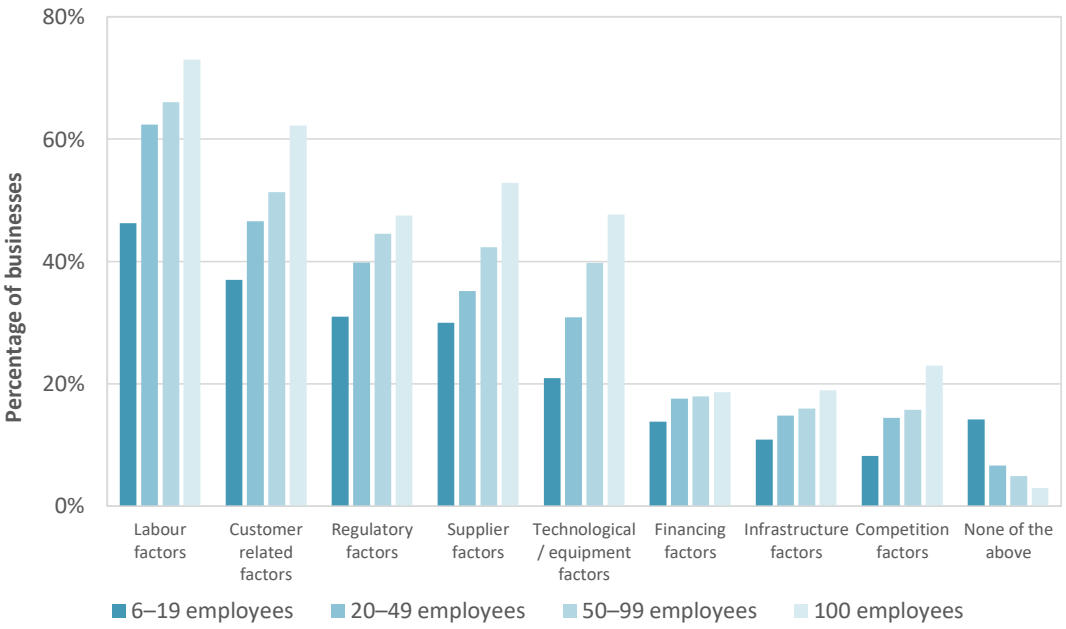


Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question C3: "In the last two financial years, which of the following factors did this business spend significant time and resources on?"

Regulation appears no more likely to be a strain on time and resources for smaller businesses than for large ones (Figure 28). Indeed, the likelihood of businesses reporting that they spend significant time and resources on each of the factors increases with business size. Alternative explanations might be

that smaller businesses are either less aware of regulation, that less of it applies to them, or that they just choose to spend less time on it.

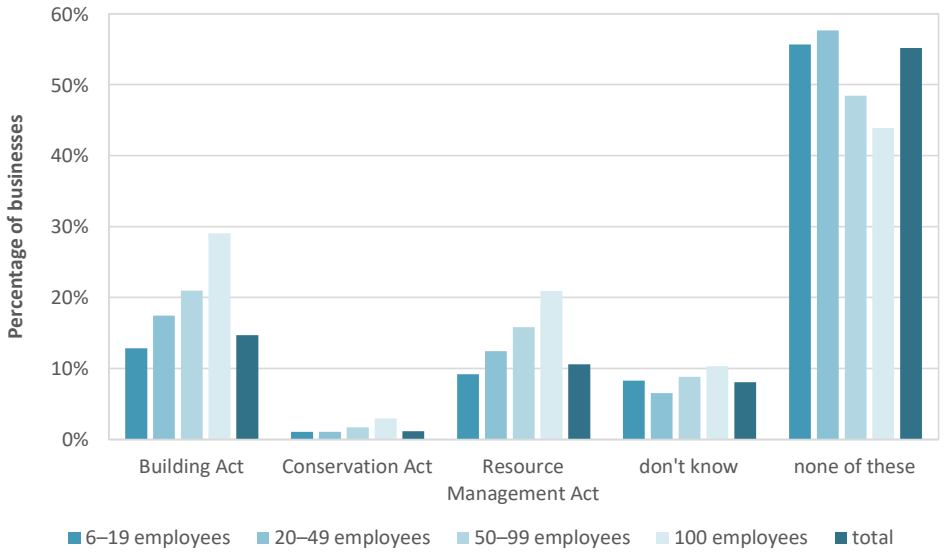
Figure 28 **Larger firms are more likely to spend significant time and resources on regulation**
Factors requiring time and resources, by firm size (2016)



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question C9: "In the last two financial years, which of the following factors did this business spend significant time and resources on?"

Regulations and processes relating to local body, planning consents and approvals are often the subject of public debate. Perhaps the three most important of these are the Building Act, the Conservation Act, and the Resource Management Act (RMA). Many businesses have not applied for consent or approval under any of these regulations (Figure 29).

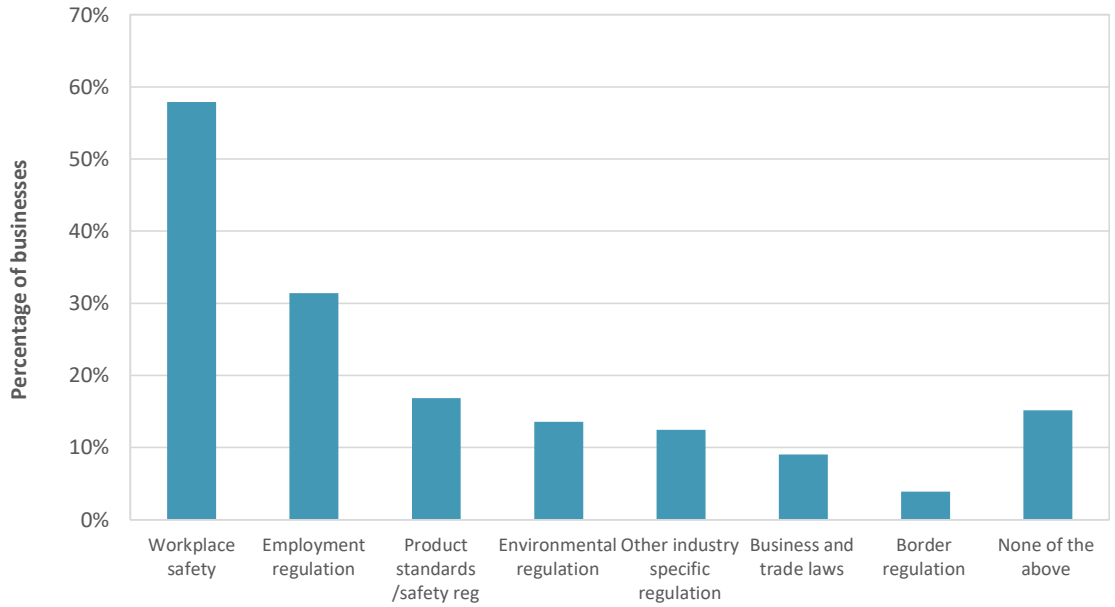
Figure 29 **Local body planning consents and approvals, by firm size**



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question C12: "In the last two financial years, under which local body planning and regulatory process has this business applied for consent or approval?"

The most common area in which regulation requires firms to spend significant time and resources is workplace safety (Figure 30). More than half of businesses did so in the two financial years up to 2016. Employment regulation (15,000 businesses) was the next most time and resource intensive area, followed by product, standards and product safety regulations (approximately 8,000), and environmental regulation (approximately 7,000 businesses). A little over 6,000 businesses also reported having to spend significant time and resources on industry specific regulation. This number looks relatively small compared to other areas of regulation. However, because these regulations relate only to specific industries, it may in fact be rather higher in those industries than it is for the whole economy.

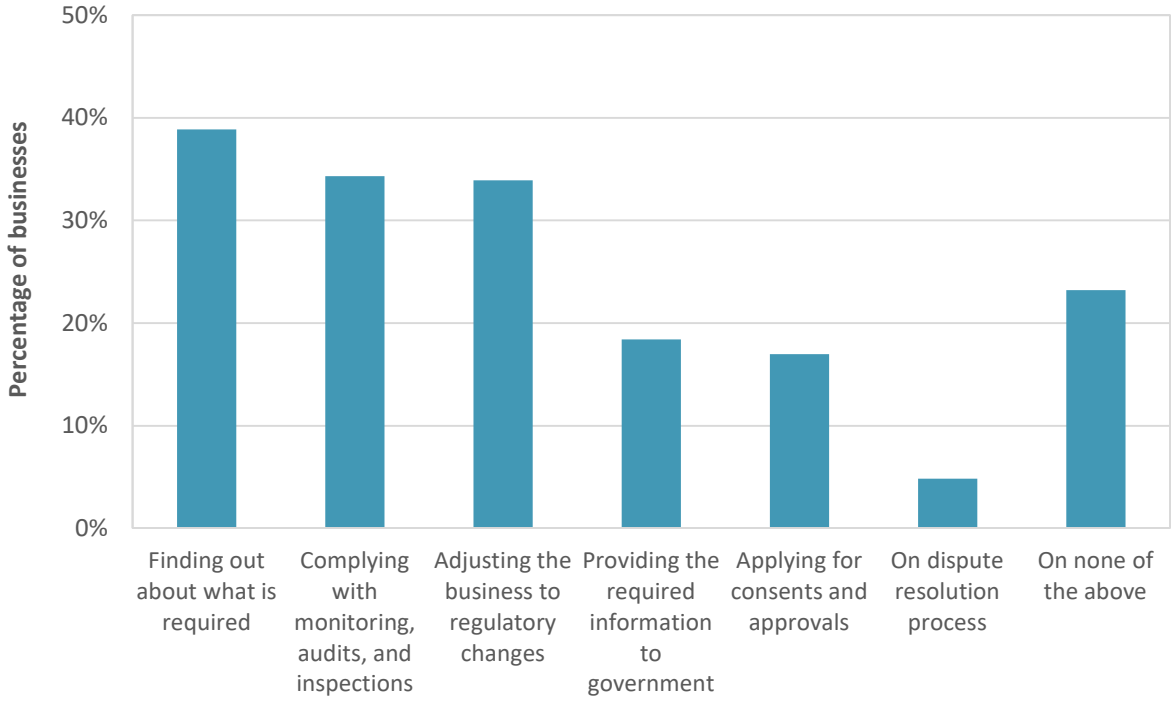
Figure 30 Regulations requiring time and resources



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question C9: "In the last two financial years, which of the following factors did this business spend significant time and resources on?"

What is it about regulations that cause businesses to spend so much time and resources? Nearly 40% of firms had to spend significant time and resources finding out what was required (Figure 31). Activities around complying with monitoring, audits, and inspections, and adjusting the business to regulatory changes were the next most time and resource intensive.

Figure 31 **Regulatory requirements businesses spend significant time and resources on**

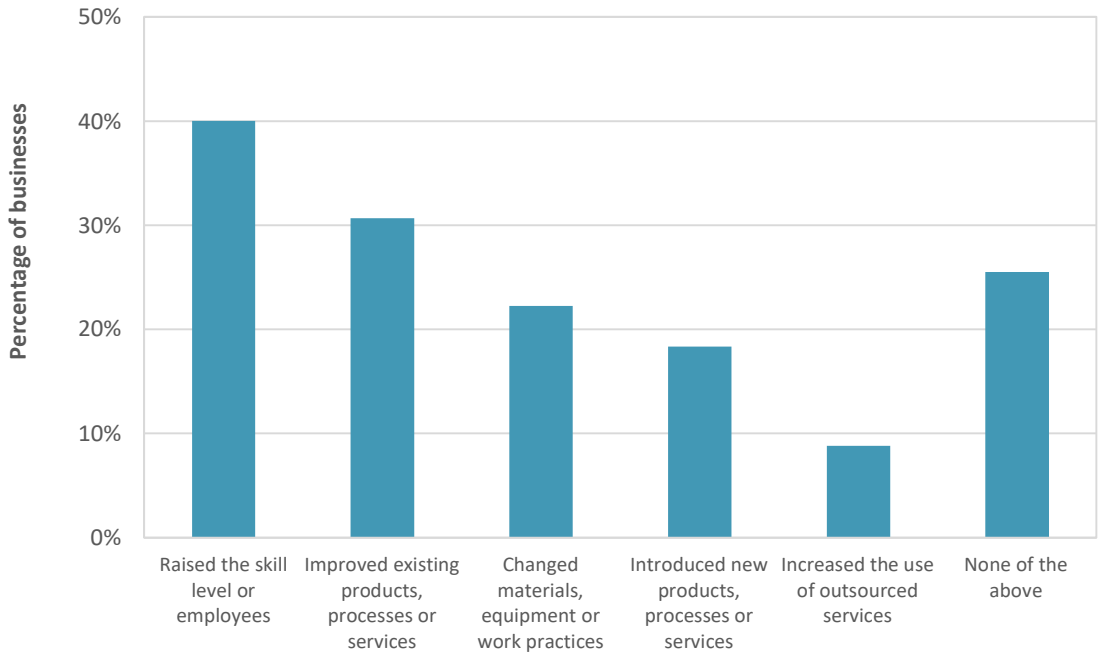


Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question C8: "In the last two financial years, which of the following New Zealand regulatory requirements did this business spend significant time and resources on?"

Responses to regulation

Regulation may have greater or more pervasive impacts on firms than merely the direct requirements of compliance. For example, approximately 40% of businesses responded to regulation by raising the skill level of their employees, as illustrated by Figure 32. A little over 30% of businesses improved existing products, processes, or services in response to New Zealand regulation. While a little over 20% changed their materials, equipment, or work practices, and a little under 20% introduced new products, processes or services.

Figure 32 Responses to regulation

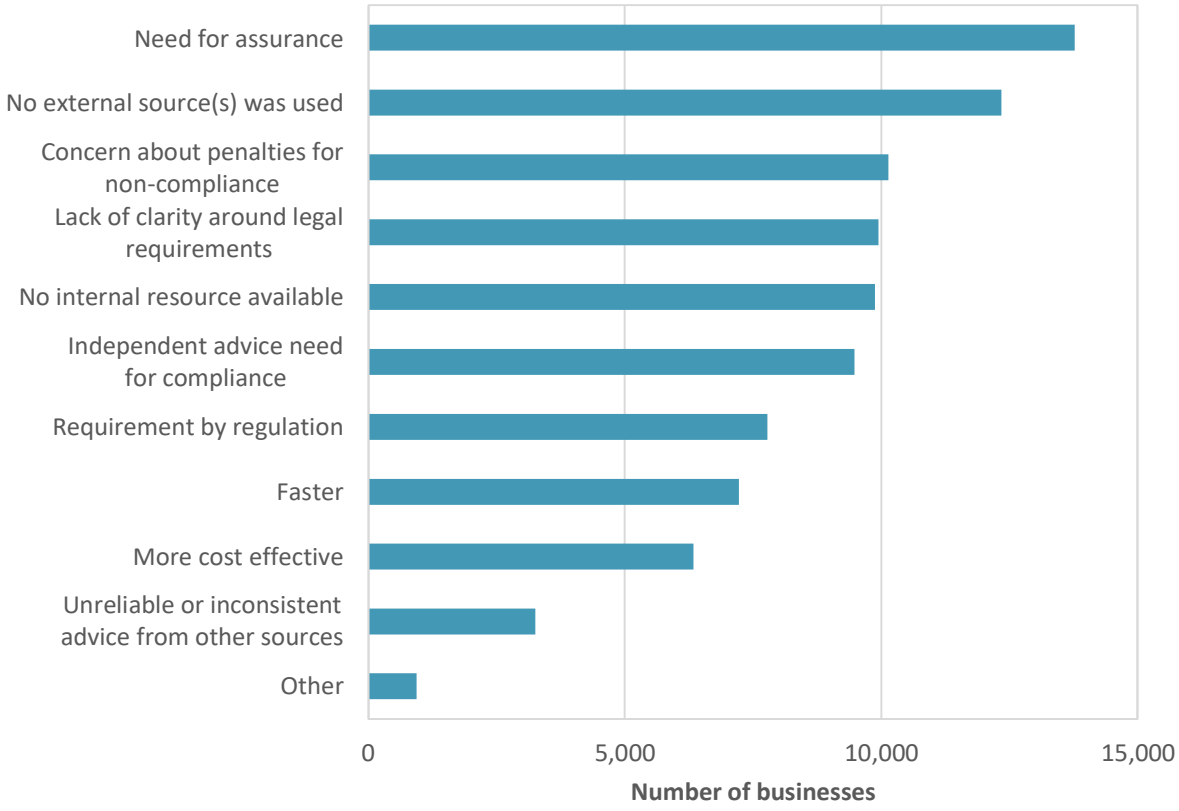


Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question C4: "In the last two financial years, did this business take any of the following actions in response to New Zealand regulation?"

One of the issues surrounding regulation for businesses is that the capability to respond to the regulation may not exist within the business, which may lead to seeking external sources of advice to support compliance. Figure 33 sets out the various reasons that businesses sought external advice. Around 13,000 businesses used external sources for assurance purposes. Around 10,000 businesses sought external advice on complying with regulation because they had concern about the penalties for non-compliance, or there was a lack of clarity around legal requirements.

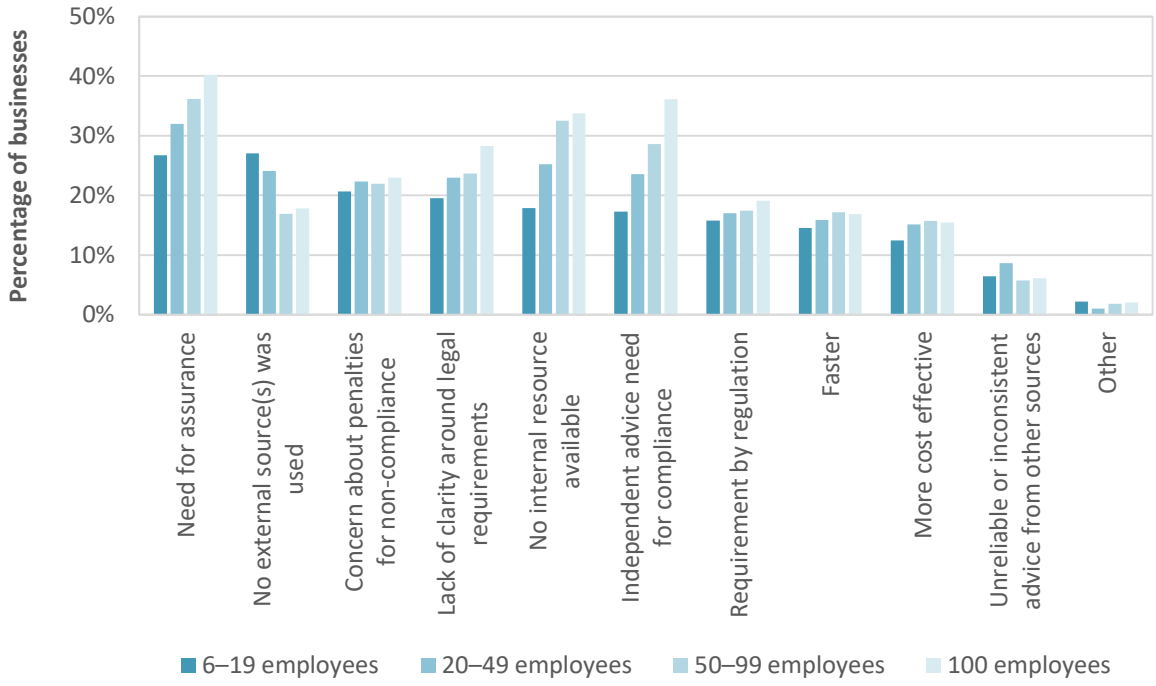
Around 13,000 businesses (about one third of the businesses surveyed) did not use any external sources of advice when complying with regulation. One might assume that smaller businesses would use external advice more frequently as they might be expected to have lower internal capability, while larger firms may have people or departments focused on activity like finance or regulatory compliance. However, it is the largest businesses (100 or more employees) who are most likely to use an external source for advice on complying with regulation (Figure 34).

Figure 33 Reasons for external advice



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question C11: "Why did this business use an external source(s) for advice on complying with regulation?"

Figure 34 Reasons for external advice, by firm size



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question C11: "Why did this business use an external source(s) for advice on complying with regulation?"

The overall impact of regulation on businesses

Given that regulation is designed to influence behaviour, does it constrain or enhance the performance of firms? Figure 35 answers this question. The figure shows the percentage of firms who felt an area of regulation constrained, enhanced, or neither constrained nor enhanced their business' performance, or whether it did not apply to them. The figure also shows the number of businesses reporting that an area of regulation constrained them, relative to those who feel it enhanced their performance (the orange diamonds in the figure). When this ratio is below one, this means that more firms felt the regulations enhanced their performance than constrained. A value greater than one means that more businesses feel the regulation constrained their business' performance.

Given the perception of regulation as something that 'holds back' businesses, it is interesting to note that businesses' views on regulation are not uniformly negative. The perceived impact of workplace safety is, on balance, neutral in businesses: slightly fewer firms responded that workplace safety regulatory requirements constrained than enhanced their business' performance (27% versus 29%). Twice as many businesses (20%) felt employment regulation constrained their business' performance than enhanced it (9%), but two-thirds of businesses felt that it neither constrained nor enhanced their business. Indeed, with the exception of workplace safety and employment regulation, around three-quarters of businesses feel that the areas of regulation neither constrained nor enhance their performance. Those who did feel it had an impact, generally feel the impact was constraining, with the exception of product standards and product safety regulation.

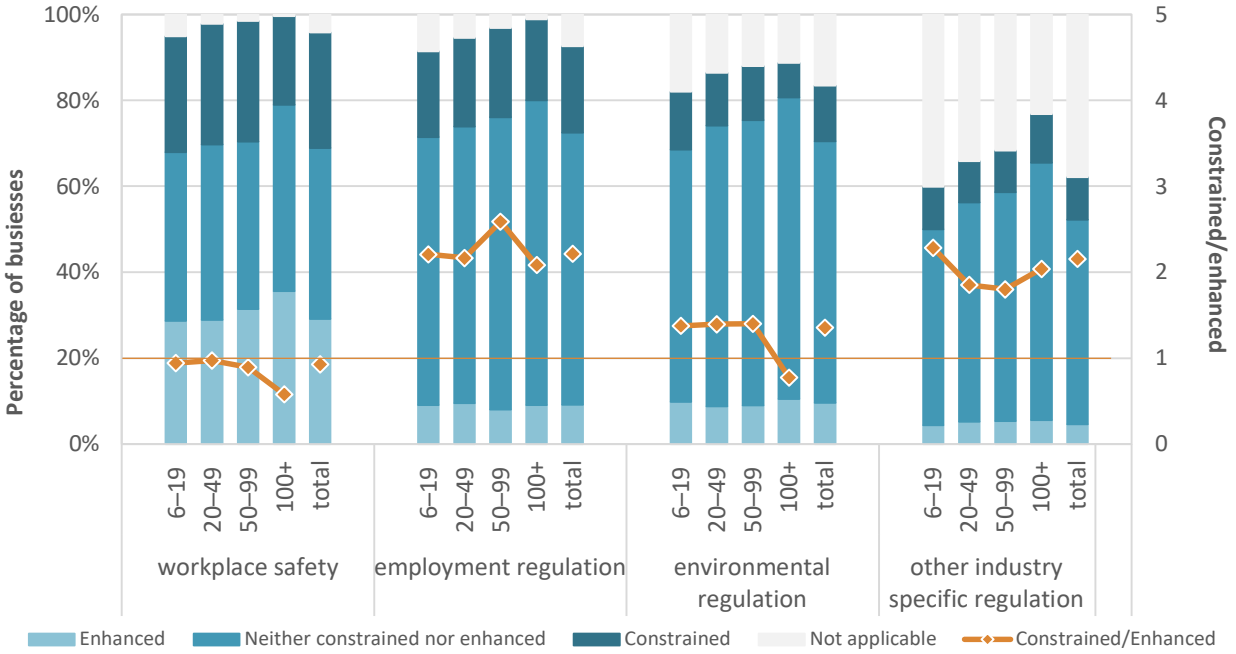
Figure 35 Impact of regulation on business performance

Source: Productivity Commission calculations based on *Business Operations Survey*

Notes: Question C6: "In the last two financial years, which of the following areas of regulation in New Zealand constrained or enhanced this business's performance?"
Excludes 'Don't know' responses.

The reported impacts of regulation are fairly consistent across firm size up to 100 employee firms (Figure 36). There is some evidence that businesses employing 100 or more staff are more positive about workplace safety and environmental regulation, compared to small and medium sized firms (6-99 employees). Nevertheless, there is little evidence here that small and medium sized business are more negatively affected than others by regulation.

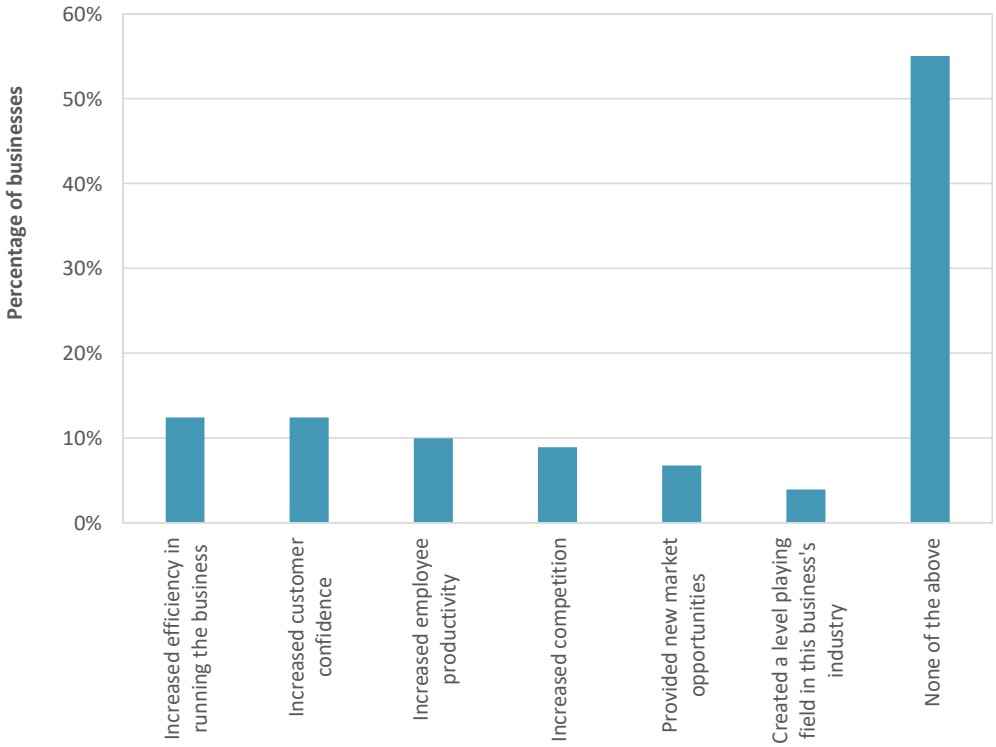
Figure 36 Impact of regulation on business performance, by firm size



Source: Productivity Commission calculations based on *Business Operations Survey*
Notes: Question C6: "In the last two financial years, which of the following areas of regulation in New Zealand constrained or enhanced this business's performance?"
Excludes "Don't know" responses.

Whilst the benefits from regulations usually accrue outside of the businesses that are required to comply with them, they may induce or create positive impact for the business. As illustrated by Figure 37, around 12% of businesses reported that some of the effects of regulation included increased customer confidence and increased efficiency in running the business. Around 10% of businesses felt regulation increased employee productivity and a similar number felt that it increased competition. Nevertheless, more than half of businesses felt regulation had none of these effects. Positive impacts were slightly more likely to be reported in larger firms.

Figure 37 The effects of regulation



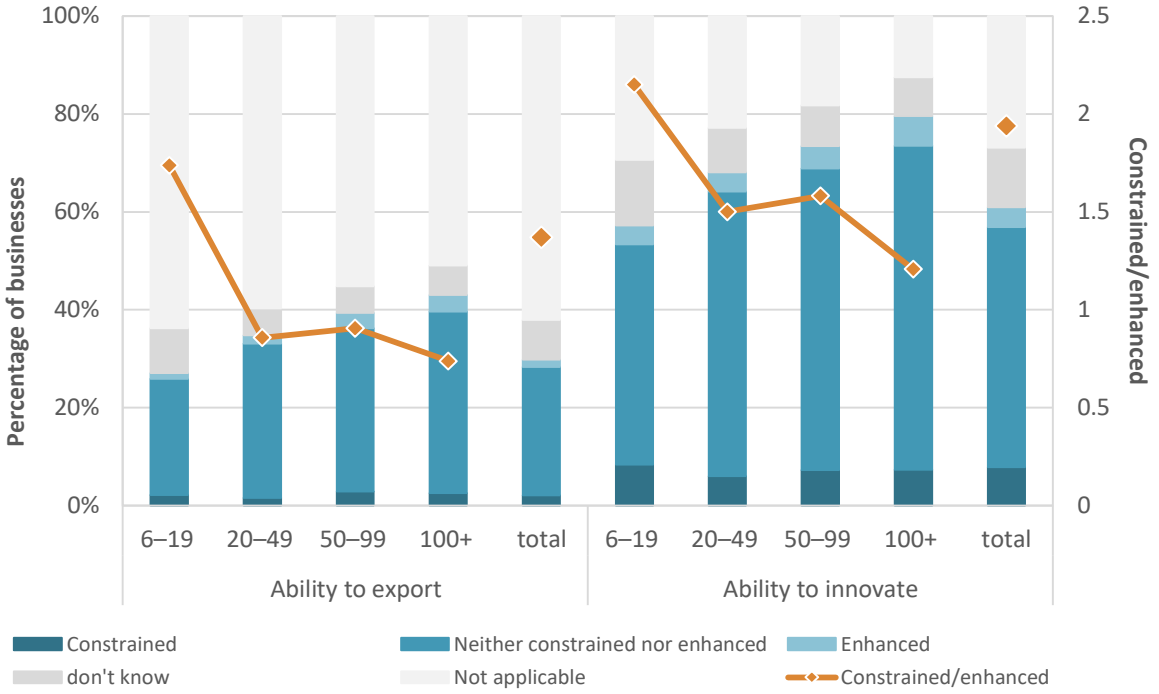
Source: Productivity Commission calculations based on Business Operations Survey
Notes: Question C5: In the last 2 financial years, did this business experience any of the following effects from New Zealand regulation?

Beyond their direct impact, regulations may also influence major functions of business such as their ability to export or their ability to innovate. Figure 38 illustrates that very few businesses reported that New Zealand regulations constrained the business' ability to export, but similarly very few businesses felt they enhanced their ability.

The majority of exporters felt that regulation neither constrained nor enhanced the business' ability to export. As we have seen, exporting is a comparatively rare activity for New Zealand firms.

The second panel in Figure 38 presents firms' responses to the question of whether regulation constrains or enhances their ability to innovate. A larger percentage of businesses reported that regulations constrained their ability to innovate (8%). The majority of businesses said that regulations neither constrained nor enhanced their ability to innovate. Of those who did feel affected, twice as many felt regulations constrained their ability to innovate as felt regulations enhanced their ability. This result was strongest in small businesses employing 6-19 employees, and weakest in large businesses employing 100 or more staff, where roughly equal numbers of businesses reported regulations as constraining as reported enhancing.

Figure 38 Impact of regulation on exporting and innovation, by firm size



Source: Productivity Commission calculations based on Business Operations Survey

Notes: Question C7: "In the last 2 financial years, did regulation in New Zealand constrain or enhance this business's: ability to export; ability to innovate?"

Part 3 Business strategy and practices

Competitive strategy is about being different. It means deliberately choosing a different set of activities to deliver a unique mix of value.

(Porter, 1996)

There are countless definitions of business strategy. According to Harvard Business School "Business strategy is the strategic initiatives a company pursues to create value for the organization and its stakeholders and gain a competitive advantage in the market" (Boyles, 2022). There have been countless international studies in the business literature on what is important for designing and delivering on strategy (see Porter et al., 2022, for example). In the context of the Business Operations Survey, we are referring to the overall plan and the intentional activities that businesses undertake to maximise value. In our schema in Figure 2, this represents both the knowledge capital of the business, and the human capital of the employees. Knowledge capital can be embodied in human, physical and organisational capital. It is often embodied in the managers and leaders of the business (Bloom et al., 2016).

Improvements in technology (increases in the stock of knowledge) affect the productivity of capital goods as we learn new ways to do things or new things to do. New items of physical capital embody these improvements, e.g. computers with the most recent processors.

Knowledge is also embedded in organisations. As ways of doing business evolve, the processes and systems provide living records of the resulting changes. Hence, we talk of 'organisational learning' (Odor, 2018; Senge, 1990). Just as an individual can learn on-the-job or at school and retain that knowledge (i.e. it becomes embodied in them and part of their stock of human capital), so as an organisation learns how to do business better the new systems and processes put in place lock this knowledge in. Moreover, information itself (i.e. the manner whereby the organisation and individuals within it came by these systems and processes and the data on which these decisions were based) is also stored in the form of 'knowledge management' systems.

For a more concrete example, consider Adam Smith's famous pin factory (Smith, 1776). The knowledge of the principal of the division of labour is embodied in the delineation of tasks. None of the drawers, straighteners, cutters and pointers needs to understand the concept, but the knowledge created by the person who discovered the increase in productivity from dividing the job of pin-making into a number of discrete tasks remains embedded in the organisation. Modern methods of production such as 'high involvement management' (Lawler III, 1986), 'autonomous team-working' (Bertodo, 1990) and 'just-in-time' stock management (Kim, 1985) systems also become embedded in the system and do not require the constant input of their designer.

We set out the different types of business and management practice in a little more detail in Box 4.

Box 4 Types of business and management practice

There are several ways of thinking about types of business and management practice. Two influential ones are Structured Management Practices (SMP), due to Nicholas Bloom and various coauthors (Bloom et al., 2012, 2016; Bloom & Van Reenen, 2007, 2010),– and Dynamic Capabilities (DC), developed by Teece and others (Teece, 2019; Teece et al., 1997). The main difference between SMP and DC can be seen in the light of the skills typology we introduced in Box 3 above. The focus of Bloom *et al* is on what Stevens (2012) calls managerial skills, and the focus of Teece is on what is called 'entrepreneurial skills'.

SMP focusses on what can be measured robustly; It focuses on what managers and others do, and why. SMP sometimes (e.g. Bloom & Van Reenen, 2007) divides practices into: operations; monitoring; targets; and incentives (human resource management). Green & Agarwal (2011) organise them into three areas – operations, performance and people management – which each answer one of three questions:

- ***How well are the business' operations managed?***
  Operations Management revolves around the modern manufacturing techniques and management systems deployed to enhance efficiency, reduce costs, and create and deliver value to customers. Systematically monitoring key performance indicators and methodologically tracking and reviewing operational performance are fundamental to the successful functioning of firms. Best practice requires these operations management practices to be so deeply rooted in the culture of the company that implementing them within firms should be a 'natural way of life'.
- ***Is business performance managed effectively?***
  Performance Management includes the processes around setting goals and targets. Effective management in this area is about ensuring that these goals and targets integrate different business areas, are realistic yet challenging, and lead to sustainable value creation. A balanced orientation towards both long-term and short-term corporate goals and targets is equally important.
- ***How do firms manage their human resource?***
  People management is about using a firm's human capital to create a sustainable competitive advantage. Therefore, people management is a key driver of firm performance and productivity. Best practice entails adopting a structured approach towards attracting, retaining and promoting talent, and deploying tangible measures to motivate and nurture employees, and build their skill sets and competencies.

3.1 Strategy, goals and planning

Textbooks and theory are all well and good. A pertinent question is what do New Zealand's businesses think business strategy is, and where do they focus their efforts to deliver it? Figure 39 outlines a range of areas and how important these are to the strategies of the businesses. The first thing to note is that most businesses rate all of these areas as "very important" with the possible exception of innovation that includes improvements to goods, services and process. 'Only' 40% of businesses think innovation is very important, and a similar amount rate it as 'moderately important'. There is almost no variation in response by business size in any of these strategies, and only minor variation across industries[12].

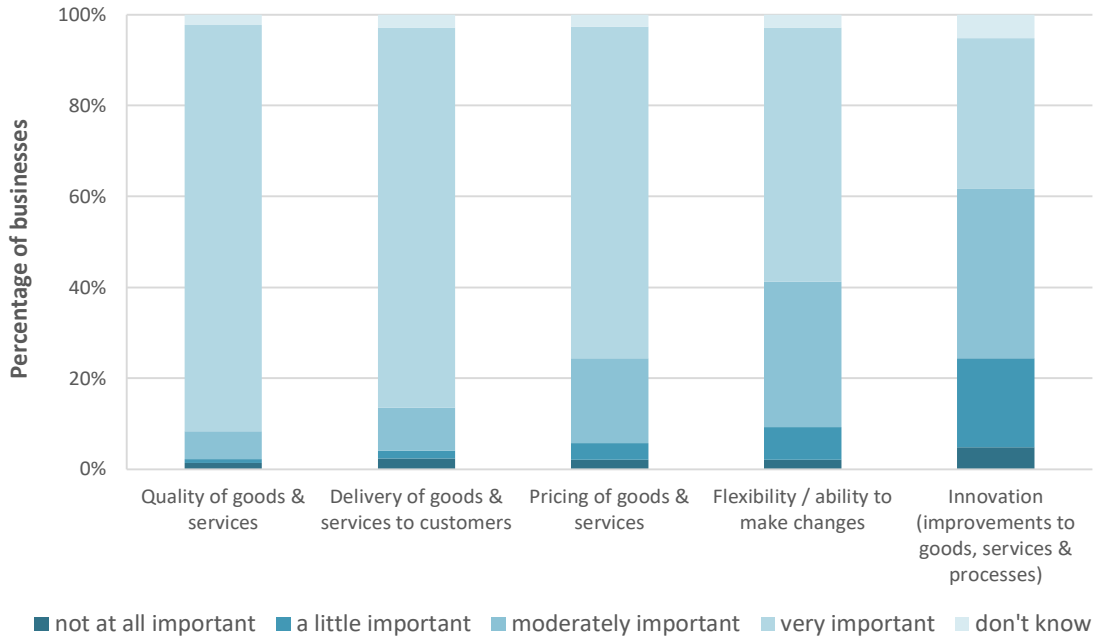
As we can see from Figure 39, almost all firms felt that the quality of their goods and services is very important. However, there are still 2% of businesses (equating to around 850 businesses) that felt that this was not important, and a further 4% that think it is only a little important.

The second most important area is how the business delivers these goods and services to customers, followed by their pricing.

[12] Most of the data we have presented in this paper are available broken down by business size (in terms of the numbers of employees) and industry on Stats NZ's website, either on the Infoshare site (https://infoshare.stats.govt.nz/Default.aspx) or on the release pages for each year's survey. To aid researchers, we have put links to these on the Productivity Hub at: https://nzproductivity.atlassian.net/wiki/spaces/PH/pages/65697/Business+Operations+Survey+BOS.

The first thing to note is that most businesses rate all of these types of business practice as "very important" with the possible exception of innovation that includes improvements to goods, services and process. 'Only' 40% of businesses think this is very important, and a similar amount rate it as 'moderately important'. There is almost no variation in response by business size in any of these strategies, and only minor variation across industries[13].

Figure 39 **Areas of focus and their importance to the strategies of the business** (2017)



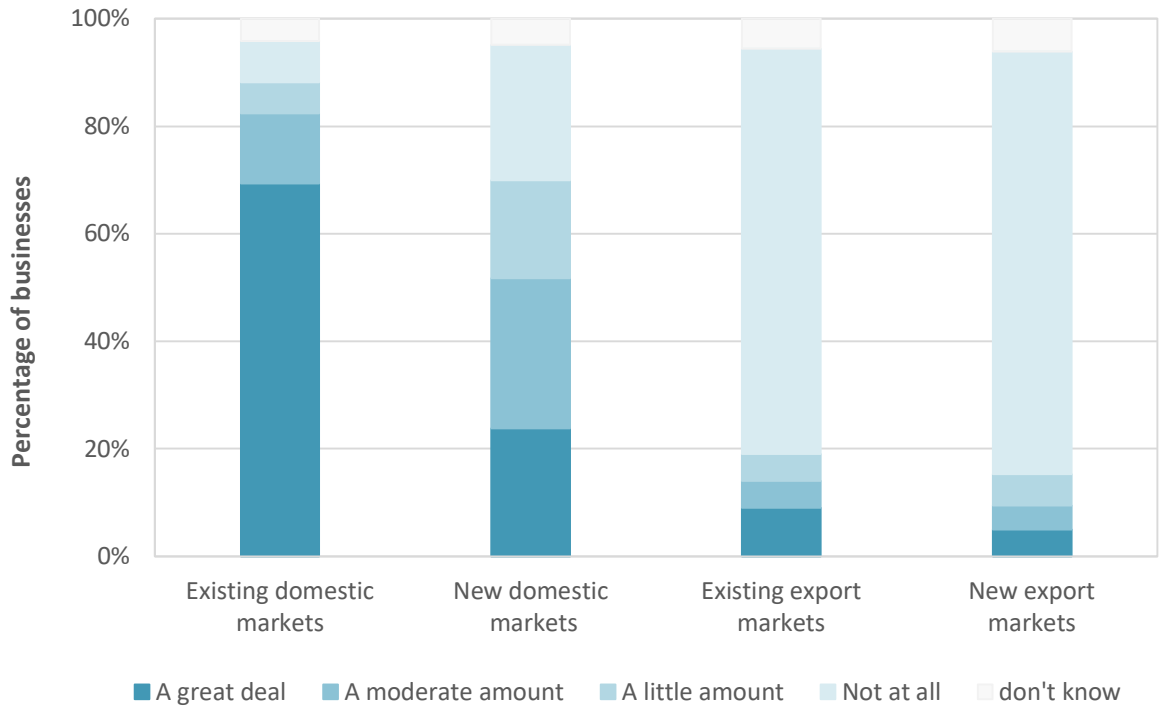
Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question C2 "Mark one oval for each item listed. How important are the following to the strategies of this business?"

However, there is an element of 'motherhood and apple pie' about such general statements. There may also be what survey designers and psychologists call 'social desirability' issues, where people answer in the way they think is expected of them (Bertrand & Mullainathan, 2001; Fabling et al., 2008). This highlights the importance of differentiating between what firms say they do and what they actually do. The economic analysis of management tends to focus on actual behaviours and on the relationship between them and firm success (Bloom & Van Reenen, 2007, 2010).

The answers to the following questions relate more specifically to the business's focus or actions.

A key question is which markets the business is focussing on. As we can see from Figure 40, the main focus of the majority of businesses is existing domestic markets. Around 70% are focussing on this "a great deal" and a further 13% "a moderate amount". Few businesses are focussing on export markets, consistent with the low share of firms with international engagement. For more on this subject see Part 5.

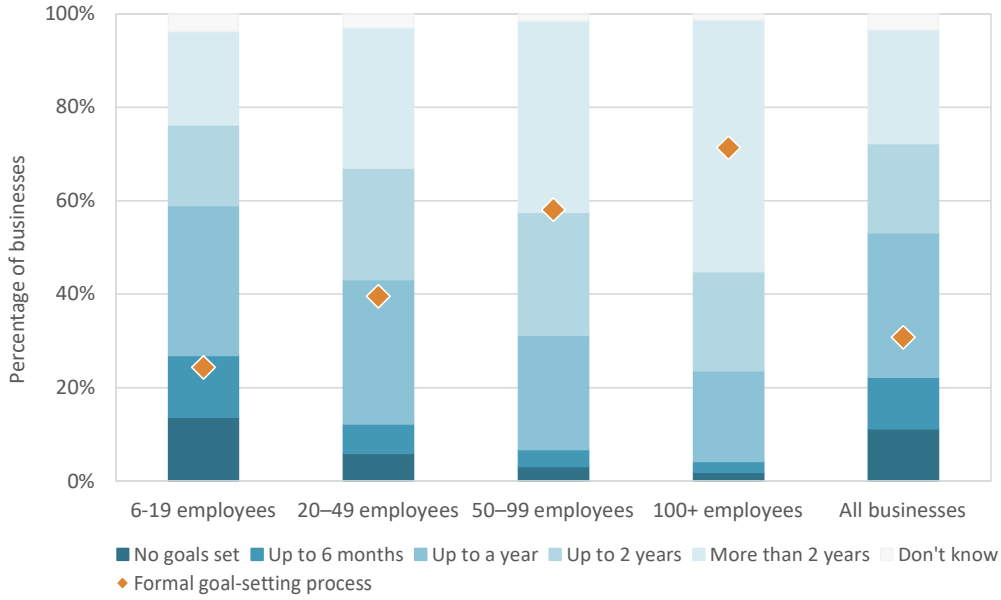
Figure 40 Market focus of the business during the last 2 financial years



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question C3 "Mark one oval for each item listed. During the last 2 financial years, to what extent did this business focus on the following types of markets?"

Goal setting is a key element of performance management. The setting of goals is more likely to be an informal process in smaller businesses, with only one-quarter of businesses with 6-19 employees, and two-fifths of businesses with 20-49 employees setting goals through a formal process (Figure 41). Businesses with over 50 employees are more likely to use a formal process with nearly three quarters of businesses with 100+ employees doing so. Larger firms also tend to be focussed on longer time horizons. Half of the largest firms set goals for over two years, and three-quarters for over one year. Nearly 60% of businesses with fewer than 20 employees either set goals less than a year or not at all. Sanderson (2002) finds that the employment share of firms with formal planning methods and long-term planning horizons has increased over time, largely due to the exit of firms that do not use these practices. It may be that some of these firms were already intending to exit, so did not need to make longer term plans, but is also consistent with the maxim that "failing to plan = planning to fail".

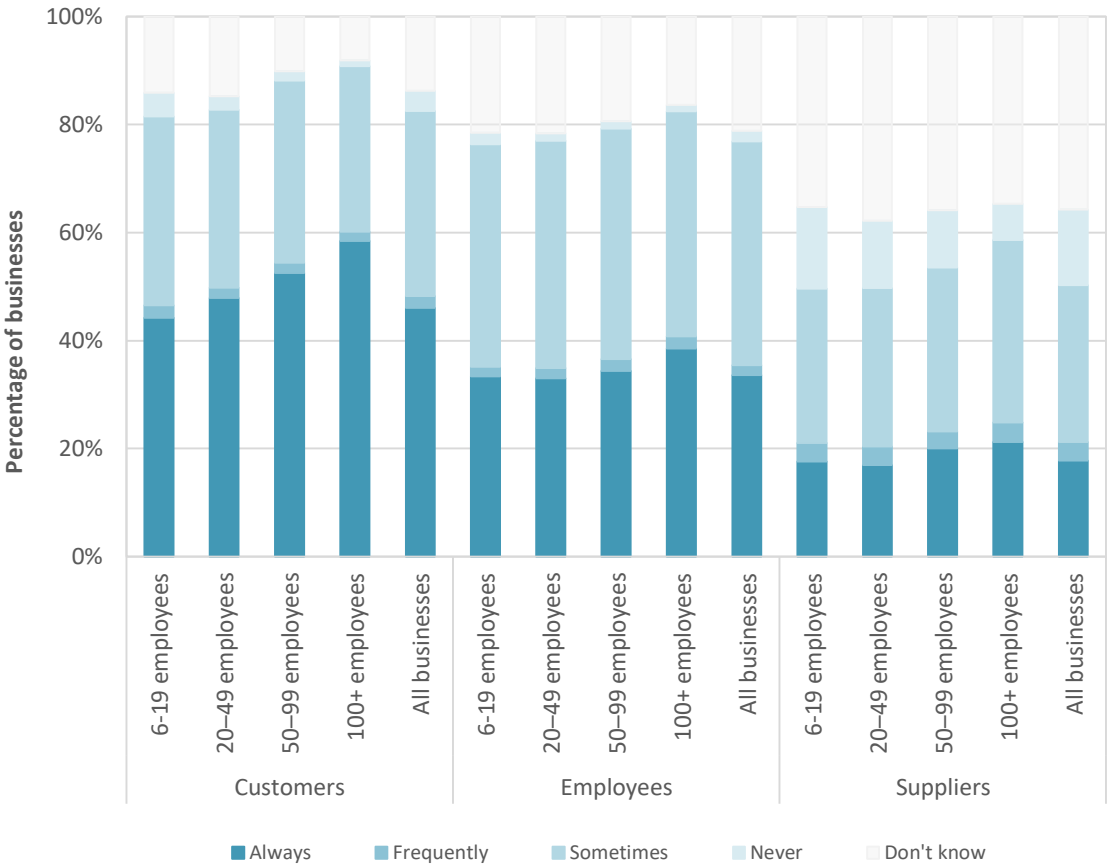
Figure 41 **Business goal-setting, by firm size**



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question C5: "Are those goals mainly developed through: formal processes; informal processes?"

A crucial element of goal-setting is whether these goals are influenced by the requirements of people other than the management of the organisation; in particular, the customers they serve, the suppliers of the materials, components and services they use, and the staff who deliver their goals. The most common stakeholder group whose requirements are incorporated into the business' goal developments are customers. However, fewer than 50% of businesses incorporate their customers' requirements into their goal development either "always" or "frequently". As with other elements of business strategy and planning, the incorporation of customer (and to a lesser extent employee and supplier) requirements into goal development is increasingly likely as businesses increase in size.

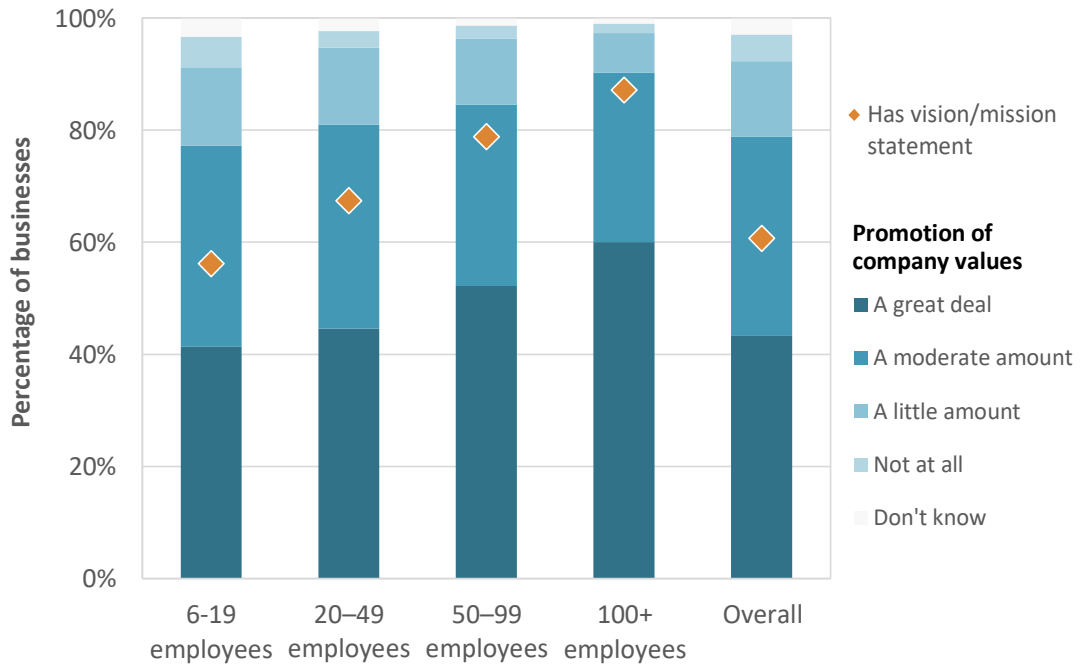
Figure 42 **Requirements of customers, employees and suppliers incorporated into goal development, by firm size**



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question C6: "In developing goals, how often does this business incorporate the requirements of: Customers; Employees; Suppliers?

Other elements that have been found to be important for business success are clear values and a clear vision or mission. These enable staff to shape their behaviour in a way that supports the business's performance. Roughly 60% of all businesses have an explicit vision or mission statement. Again, the likelihood of this increases with the size of the business. A vision statement is an empty one if it merely sits in a corporate document. A little under half of all businesses promote their company values to employees "a great deal", and around 80% at least "a moderate amount". The intensity of promotion of values also increases with firm size.

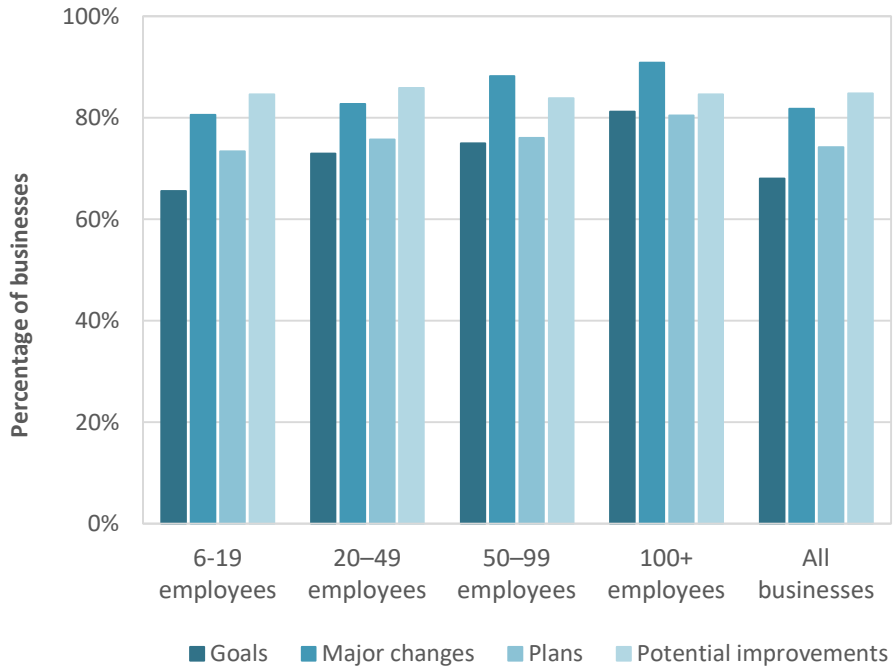
Figure 43 **Business' values and vision or mission for the future, by firm size**



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Questions C7: "Does this business have a clear vision or mission for the future (eg a vision statement)?" and C8: "To what extent does this business promote a set of company values to its employees?"

We obtain a broader picture of how businesses communicate their strategies with their employees in Figure 44. It turns out that businesses are more likely to communicate with staff over major changes and potential improvements to the business than they are goals and plans.

Figure 44 **Communication of strategy, by firm size**



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question: C9 "Are employees in this business regularly communicated with regarding goals etc.?"

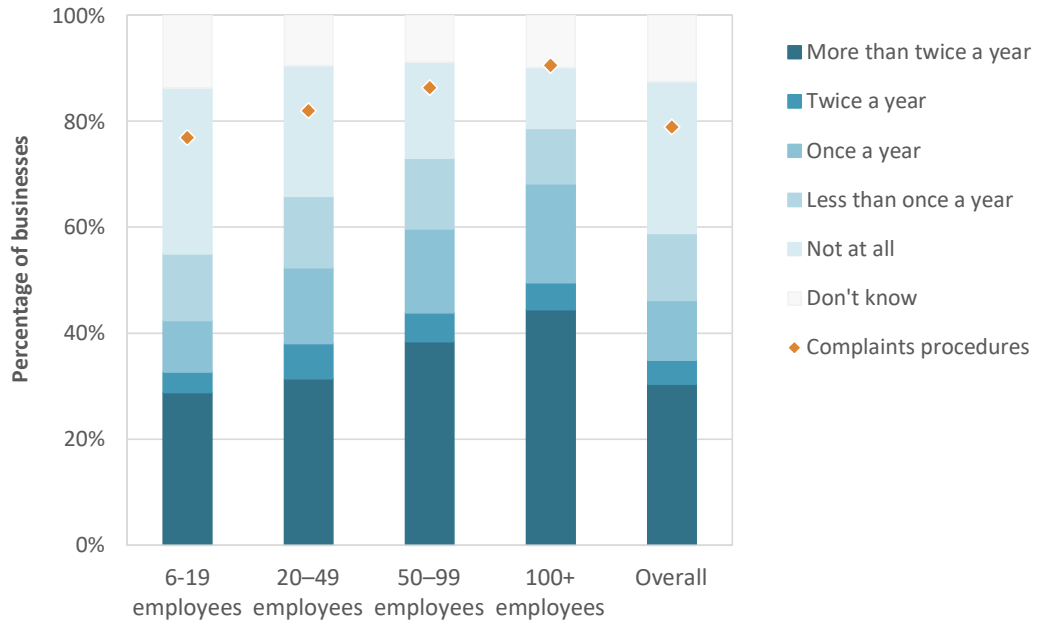
Communication is not the same as involvement. High involvement work practices (Boxall et al., 2019; Fabling & Grimes, 2014; Guthrie, 2001), also include autonomy in decision-making, which we will cover in the next two sections on customers and suppliers. Many researchers have identified a range of high involvement practices that benefit firms' performance (Boxall et al., 2019; Fabling & Grimes, 2014; Guthrie, 2001), many of which complement each other (Brynjolfsson & Milgrom, 2013; Fabling & Grimes, 2014; Milgrom & Roberts, 1995). We discuss these in more detail in the section on employment practices.

3.2 Customers

> ***"The customer is always right."***
>
> Marshal Field,
> *Boston Daily Globe*, 3 September 1905

Without customers, a business is just a hobby. Successful businesses provide goods or services at a price, time and place that customers value. We have seen that most businesses agree that quality, pricing, delivery to customers are all, at least in principle, important (Figure 39). But what do they do about ensuring customer needs and expectations are met? Around one third of businesses systematically measure customer satisfaction more than twice a year (Figure 45). As with other practices, the likelihood and frequency of systematic measurement increase with firm size. Almost one third of very small (6-19 employee) businesses do not systematically measure customer satisfaction at all, compared with only 10% of large (100+ employee) businesses. Around 80% of businesses state they have set procedures for dealing with customer complaints.

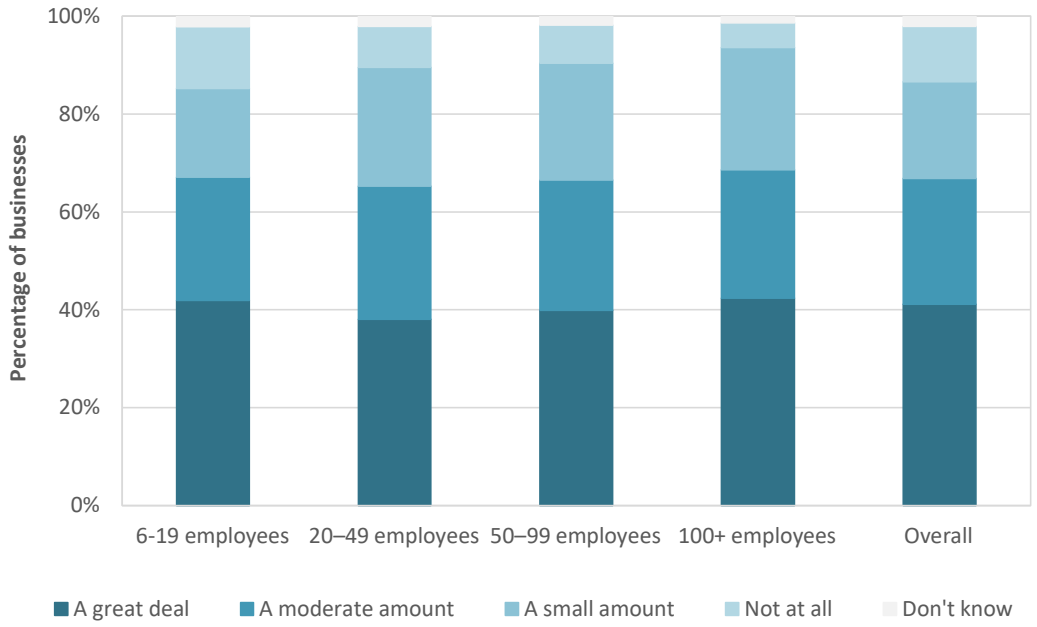
Figure 45 **Systematic measurement of customer satisfaction and complaints, by firm size**



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Questions: C12: "How often does this business systematically measure customer satisfaction?" and C10 "Does this business have set procedures (consistent methods that staff know and adhere to) for dealing with customer complaints?"

Having a direct line to customers is a useful way for employees to understand their impact on customers and shape what they do to better meet customer needs. In just over 40% of all firms, staff other than sales and marketing staff have contact with the business' major customers (Figure 46). There is much less of a business size gradient to this than many of the other practices. This may reflect the requirement of smaller businesses for everyone to be a jack-of-all trades or indeed that there is simply not the room for specialised staff like sales and marketing staff in many businesses.

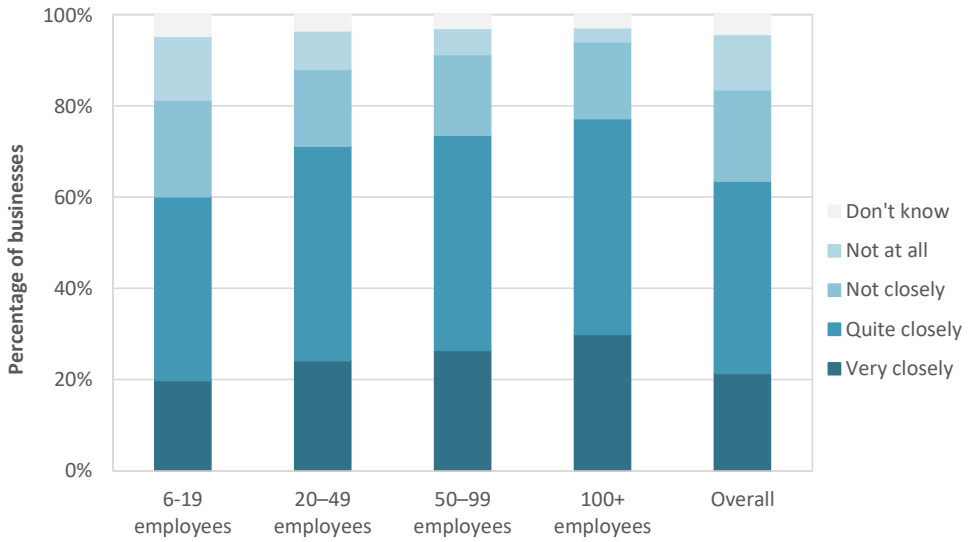
Figure 46 **Extent of contact of staff with major customers, by firm size**



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question: C11 "To what extent do staff, other than sales and marketing staff, have contact with major customers?"

A more intense interaction with customers is when the business works directly with them to improve products or services. About one-in-five businesses collaborate “very closely” with their customers on their goods and services (Figure 47). Again, the likelihood of such collaboration increases with firm size, with only 3% of large businesses not working with customers, compared to 14% of very small businesses.

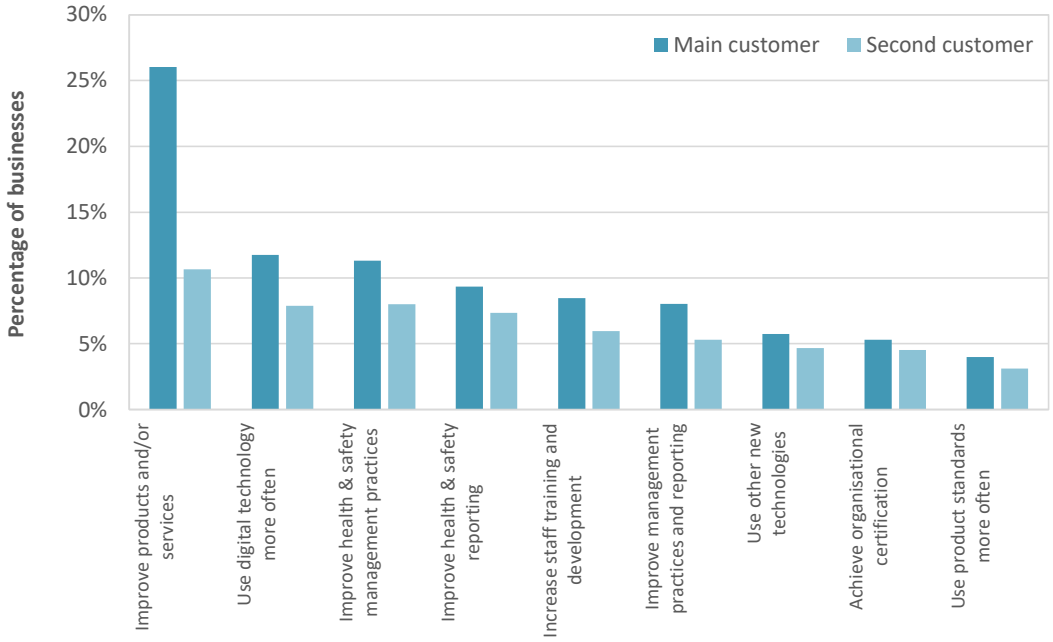
Figure 47 Collaboration with customers to improve products & services, by firm size



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question: C13: “How closely does this business work with customers to develop or improve products or services?”

Improving the goods and services is not the only thing that customers may care about. Requests from main and secondary customers also include changes to business practice (Figure 48). While the main focus of these improvements related to improvements to the businesses products and/or services, collectively customers also requested improvements to technologies used, health and safety practices and reporting,

Figure 48 Improvements requested from customers

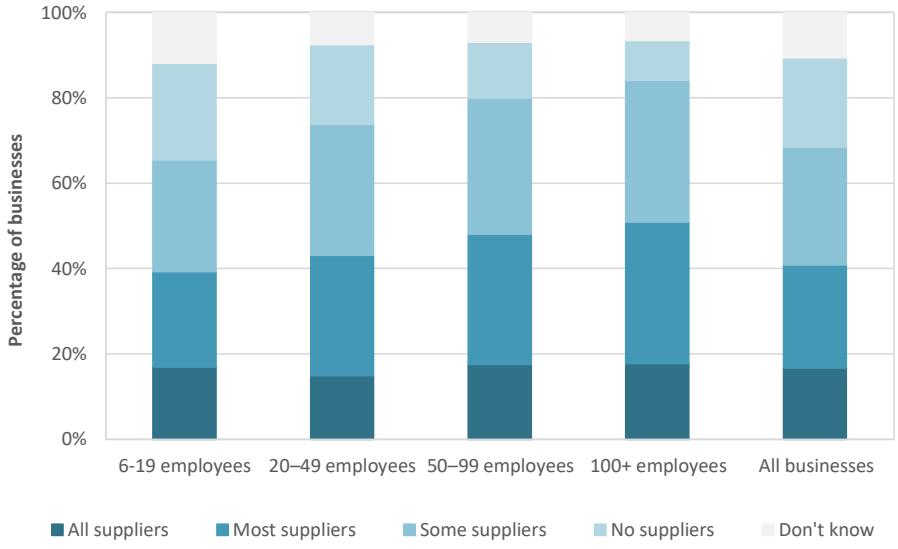


Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question "Did your main or secondary customers request any of the following practices?"

3.3 Suppliers

The Business Practices module contained a similar set of questions about relationships at the other end of the production process – businesses' own processes related to receiving materials, goods and services from suppliers (Figure 49). Just 17% of businesses have systems in place for measuring the quality of the materials, goods or services from all of their suppliers. A further 24% have systems for most suppliers. Almost a quarter of very small businesses have no systems in place for any of their suppliers.

Figure 49 Supplier systems for quality, by firm size

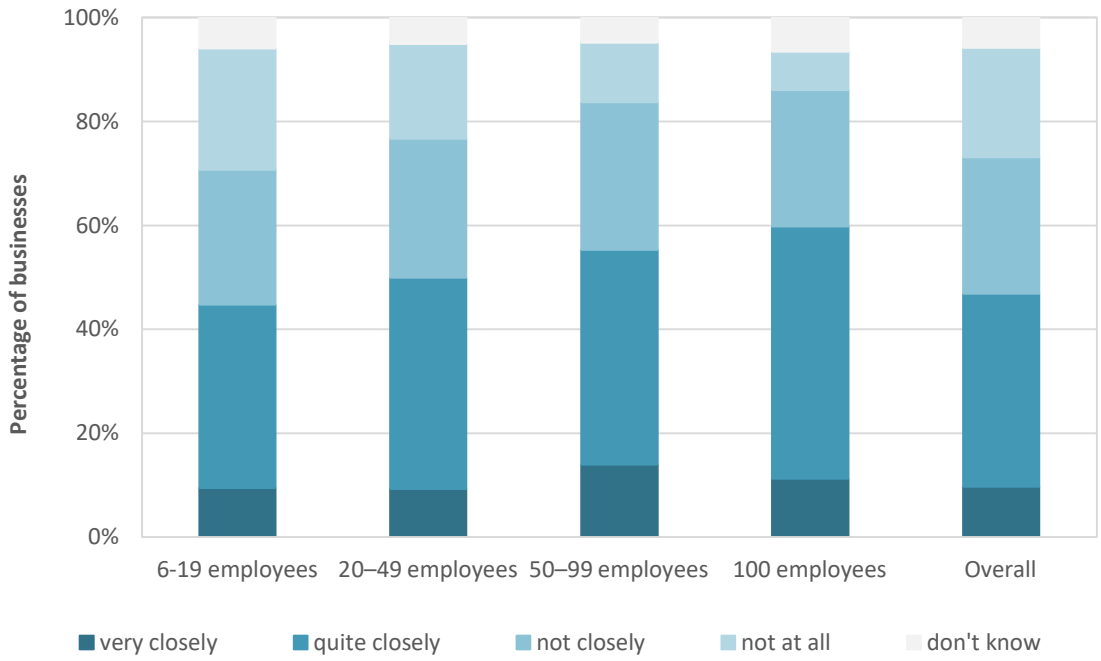


Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question C14: "For how many suppliers does the business have systems in place for measuring the quality of materials, goods or services?"

Another aspect of business' relationship with suppliers is whether they just take what they are supplied with, or work closely together to improve each other's processes. Ten percent of businesses work very closely with their suppliers, whereas 21% did not work with them at all (Figure 50).

In their study using the Business Practices Survey, Fabling & Grimes (2007) found that where non-managerial staff always have authority to contact suppliers over problems, New Zealand businesses are more profitable (although not more productive).

Figure 50 Process collaboration with suppliers by firm size

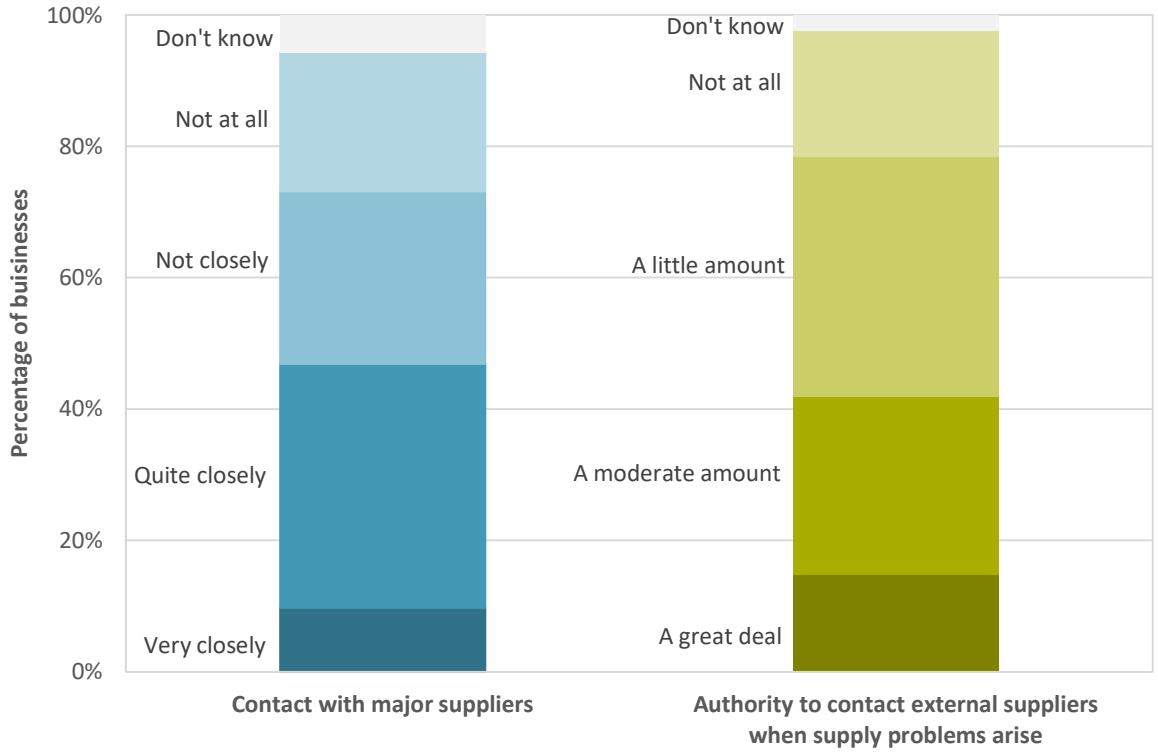


Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question C15: "How closely does this business work with suppliers to improve each other's processes?"

Another element of staff autonomy is the ability of staff to work with suppliers. The Business Practices module asks questions about two aspects of this. First, there is the general ability of non-managerial staff to have contact with a business' suppliers. Second, there is whether non-managerial staff have the authority to contact external suppliers, in the event of a problem.

On the first question, just under half of firms reported that non-managerial staff have quite close or very close contact with the business's major suppliers. This aligns with just over two-fifths of businesses having at least a moderate amount of authority for non-managerial staff contact suppliers should a problem with supply arise (Figure 51). Another 20% have no contact at all, although for large firms this figure is only 9%.

Figure 51 **Non-managerial contact with suppliers**
Extent of non-managerial staff's contact with major suppliers, and ability of staff to contact external suppliers when supply problems arise.



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question C15 "To what extent do non-managerial staff have contact with this business's major suppliers?"
C16: "When supply problems arise, do this business's non-managerial staff have the authority to contact external suppliers?"

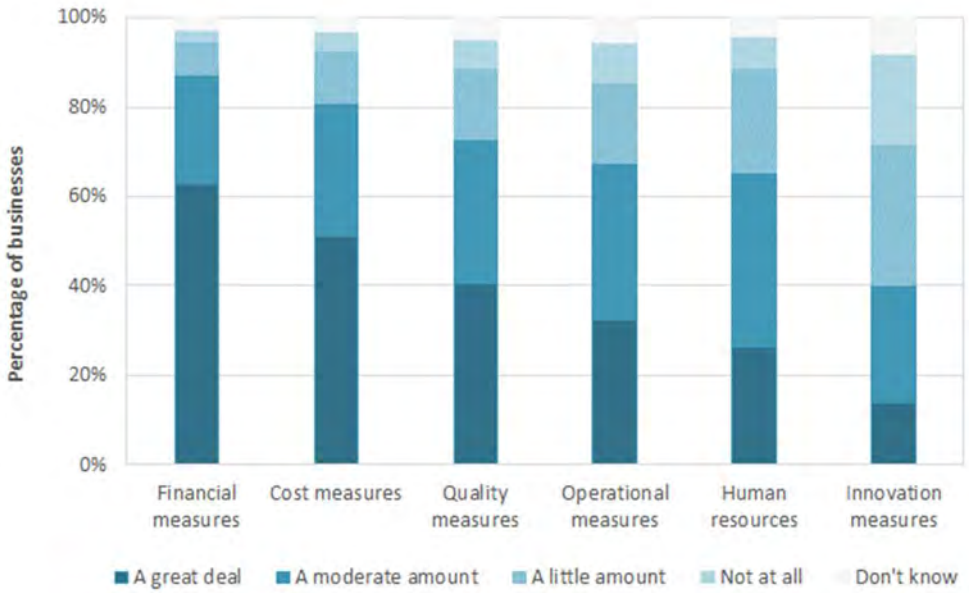
3.4 Information and benchmarking

There is a bewildering array of potential indicators that managers can use when assessing the performance of a businesses. The most common measures used by businesses to assess their performance are financial measures, such as profits, returns on investment or sales growth (Figure 52). Almost two thirds of businesses focus on financial measures 'a great deal' when assessing performance, and a further 24% 'a moderate amount'.

The next most common area of focus is cost measures (eg, whether they are on budget, cost per unit of output and inventory costs), which just over half of firms focus on a great deal. Quality measures like defect rates and customer complaints are the third most common (40% using these a great deal), followed by operational measures such as asset utilisation and on-time delivery (32%) and human resources (like job satisfaction or skills development) (32% and 26% respectively).

The least common focus area was innovation measure, eg those relating to process innovations, new value-added services etc. Only 14% of business focus on these a great deal when assessing performance, and 20% of businesses do not focus on them at all. This suggests that businesses are much more focussed on what Teece (2019) and Teece et al. (1997) would call 'ordinary' (or 'static') capabilities, rather than dynamic capabilities. This may lead to a focus on efficiency over competitive advantage, and short-term over long-term profitability.

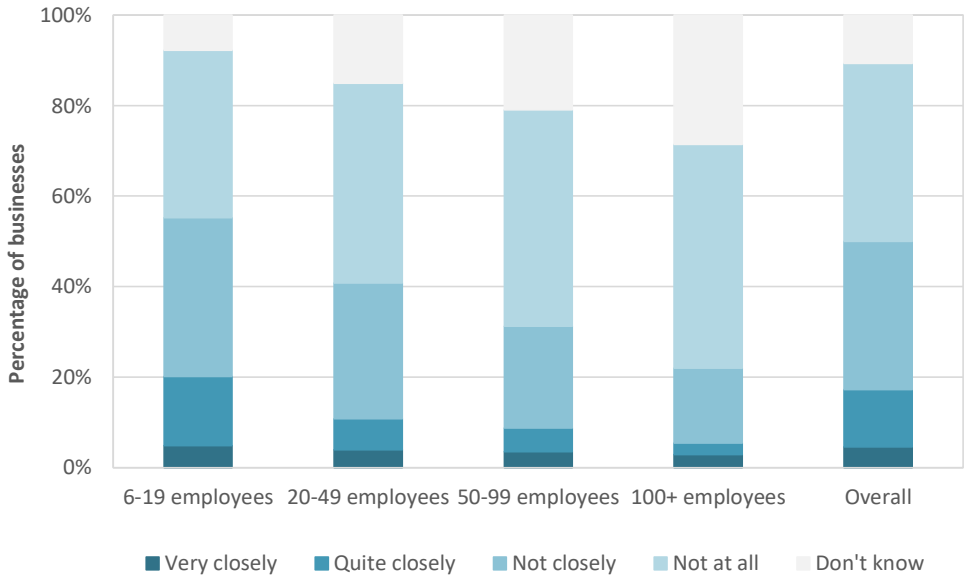
Figure 52 **Assessing business performance**
To what extent did this business focus on the following when assessing performance?



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: C20: "During the last 2 financial years, to what extent did this business focus on the following when assessing performance?"

While Figure 52 looked at internally focussed monitoring and assessment, Figure 53 looks at how businesses monitor and assess their external competitive environment. The Business Practices module examines whether and how much businesses actively monitor the goods and services produced by their competitors. Somewhat surprisingly, around 40% of businesses do not monitor their competitors' goods or services at all. Of those that do, most of them do not monitor closely. Only 5% monitor very closely. Unlike many of the other businesses practices we have looked at in this chapter, this monitoring is less likely to occur, and at a lower intensity, in larger businesses. This may say something about the need to be more aware of your competitors when you are smaller and have less market power.

Figure 53 **Monitoring competitors**
How closely does this business monitor competitors' goods or services?

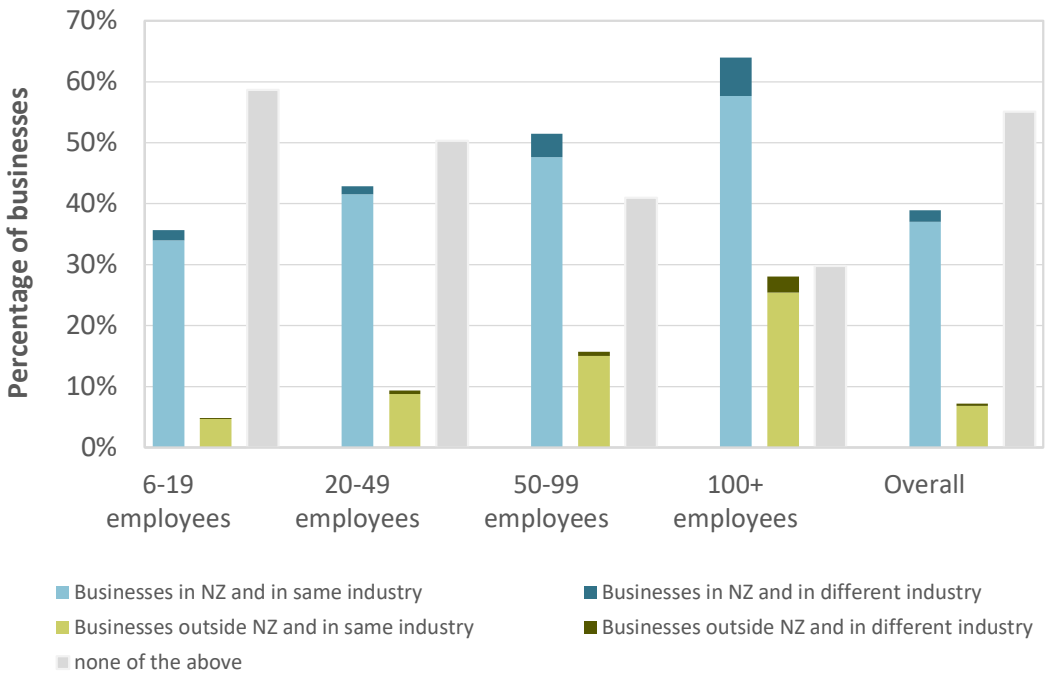


Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: C22: "How closely does this business monitor competitors' goods or services?"

In an uncertain world, how does a business know how well it is functioning in all of its area? Benchmarking is an important way of providing a business with information about how well it is functioning compared with other firms and how competitive aspects of the business are. When considering how well the business is performing, an important question is 'compared with whom?'. New Zealand is a small, distant economy. The leading, 'frontier' firms in the world are usually abroad. These world leaders may not be in direct competition with a New Zealand firm, and so it may not be necessary to benchmark against them for 'defensive' reasons. However, if a business wants to be the best it can, comparing itself against the best in the world is a good way to get there.

Overall, 45% of businesses do some form of benchmarking (Figure 54). By far the most common form of benchmarking is with other businesses in New Zealand that operate in the same industry (37% of businesses). Whilst very few businesses overall benchmark against non-New Zealand businesses in the same industry (7%), it is much more common in larger businesses, with 25% of businesses with 100 or more employees doing so. Comparatively few businesses look to other industries to compare their performance or processes. There is only evidence of this in the largest firms.

Figure 54 **Comparing business performance**
Who has the business compared its performance or processes with?



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question C21: "Mark all that apply. During the last 2 financial years, has the performance or processes of this business been compared in any systematic way with:"

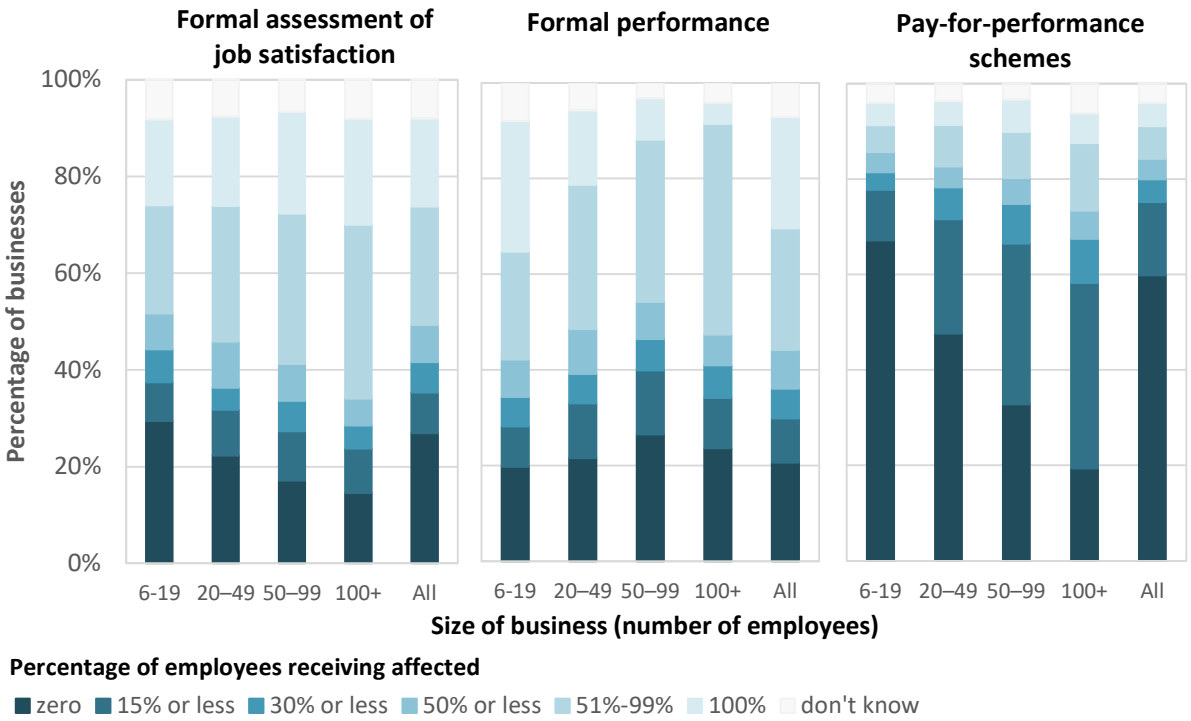
3.5 Employee practices

High involvement work practices involve more than just promoting a set of values (Boxall et al., 2019; Fabling & Grimes, 2014; Guthrie, 2001). Many researchers have identified a range of such policies (Brynjolfsson & Milgrom, 2013; Fabling & Grimes, 2014; Milgrom & Roberts, 1995). Using the first year of the BOS (2005) and its predecessor, the Business Practices Survey from 2001, Fabling & Grimes 2014)

found that a suite of general human resource management practices has a positive impact on businesses' labour and multifactor productivity. This suite of practices included the incorporation of employee requirements into business goals (Figure 42) and the promotion of company values (Figure 43), as well as whether non-managerial staff are actively encouraged to identify problems and suggest improvements to goods, services or processes (Figure 51), whether there was a focus on human resources when assessing [business] performance (Figure 52), whether the business had formal performance reviews and whether staff participated in training (Figure 57).

Figure 55 outlines the percent of businesses utilising different forms of employment practices by firm size and percentage of employees covered within each business. Nearly one third of businesses responded that they had not made use of formal job satisfaction assessment for their employees. Around 1 in five businesses did not make use of formal performance reviews, and nearly 60 % of all businesses did not make use of pay for performance schemes for their employees. Having said this the proportion of businesses making use of pay for performance schemes appears to rise with firm size with only 20 percent of businesses with 100+ employees not making use of these schemes.

Figure 55 **Formal employment practices, by firm size**
What percentage of employees in this business have…

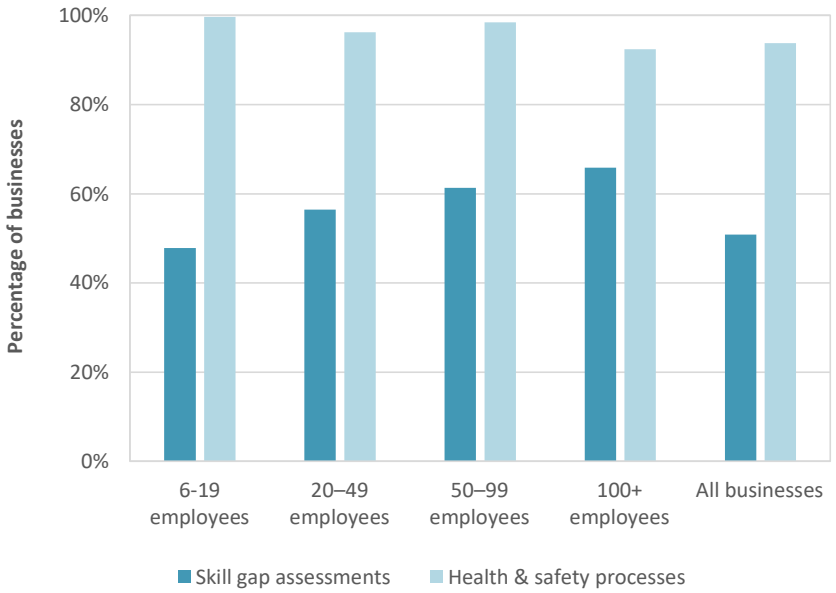


Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Questions C25-27 "Over the last financial year, what percentage of employees in this business [had their job satisfaction formally assessed]/[had formal performance reviews (consistent methods that are recognised and regularly used)]/[are currently on 'pay for performance' schemes (eg productivity based incentives, profit sharing, bonuses, etc)]?"

In their study using the Business Practices Survey, Fabling & Grimes (2007) find that businesses that have a system of performance pay for many or all staff are more profitable than their peers (although they are no more productive nor do they have a larger market share). They also found that measuring employee satisfaction was associated with higher productivity in New Zealand businesses, although not profitability nor market share.

Figure 56 highlights that nearly all businesses (independent of firm size) undertake formal health and safety processes although the percentage of smaller firms appears to be slightly closer to 100% than that for larger firms. The percentage of businesses undertaking skill gap assessments appears to be positively correlated with firm size however, with a larger percentage of businesses making use of skill gap assessments.

Figure 56 Workplace assessments, by firm size



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question C30 "Does this business undertake systematic assessments of the skill gaps and training needs of its individual employees? and C31 "Does this business have processes in place to manage health and safety (eg inspections, provision of information to staff)?"

Training

Education and training in the workplace play an important role in augmenting and adapting the skills of workers, particularly senior employees, whose skills accumulated at school are likely to be substantially depreciated, and for the less educated, who run the risk of social exclusion (Bassanini et. al., 2005).

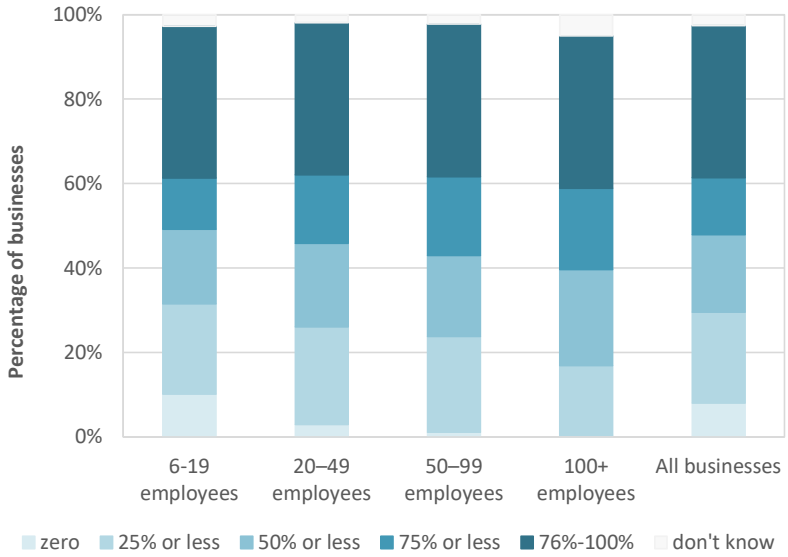
Both workers and firms have an incentive to increase productivity through investing in skills, but their incentives are different. Individuals have an incentive to invest in skill formation because this enables them to function better in the economy and society. Crucially, skill provide the basis for them to earn an income. Firms also have an incentive to increase the skills of their workforce because this enables them to perform more tasks or increase the productiveness with which they perform existing tasks. Because the skills embedded in workers can be increased by investing in them, economists use the term 'human capital'.

Firms, however, do not have an incentive to invest in all types of human capital equally. General human capital is of value to all employers, whereas specific human capital is valuable only to specific firms or groups of firms (Becker, 1964; Becker, 2009). Firms will tend to under-provide training of skills that have some generality to them (i.e. they are of use to other firms) because of the risks of staff leaving or being poached; there is a risk that they will pay the costs and other firms will get the benefits. Because they

may not reap all of the rewards – staff may move elsewhere or be poached by other firms – firms may invest less in such training that would be socially optimal. The likelihood of staff using recently acquired human capital to move elsewhere will depend on the outside options they have, in particular the wages on offer.

It is common for businesses to provide some kind of training to a sizeable portion of their staff (Figure 57). In around 40% of businesses at least three-quarters of employees participated in training in the last year. This figure is consistent across different sizes of business.

Figure 57 **Training, by firm size**
What percentage of employees in this business participated in training?



Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.
Notes: Question C28 "Over the last financial year, please estimate the percentage of employees in this business who participated in training"

What is perhaps more important in understanding how training contributes to business performance is knowing what kind of training employees participated in. By far the most common training staff received was health and safety training. This is an important aspect of employers' responsibilities. The *Health and Safety at Work (General Risk and Workplace Management) Regulations 2016*[14] states that "Persons conducting a business or undertaking (PCBUs) have duties to ensure, so far as is reasonably practicable, that the workplace is without risks to the health and safety of any person". We can see a potential impact of the introduction of these regulations in the second panel of the figure. In 2013, prior to the new regulations, only 22% of businesses provided health and safety training to more than three-quarters of their employees over the last financial year, compared to 37% in 2017. This policy was created in response to New Zealand's workplace safety record: almost three times as many people die at work New Zealand than in the UK[15].

[14] https://www.legislation.govt.nz/regulation/public/2016/0013/latest/DLM6727530.html

[15] For example, according to the International Labour Organisation there were 2.36 occupational fatalities per 100,000 workers in New Zealand in 2015, compared to 1.6 in Australia, 1.1 in Singapore and 0.8 in the UK. Source: https://ilostat.ilo.org/topics/safety-and-health-at-work/

The second most common type of training for staff is for professional and technical skills, followed closely by trade-related skills. More than half of all employees received professional or technical training in a quarter of businesses. The types of skills where it was most common for no staff at all to receive any training were computer skills and management/supervisory skills. This latter figure is particularly interesting, given New Zealand's low ranking in international comparisons of management capability (Green & Agarwal, 2011; Sanderson, 2022) .

Figure 58a Training What percentage of employees in this business have received training in…

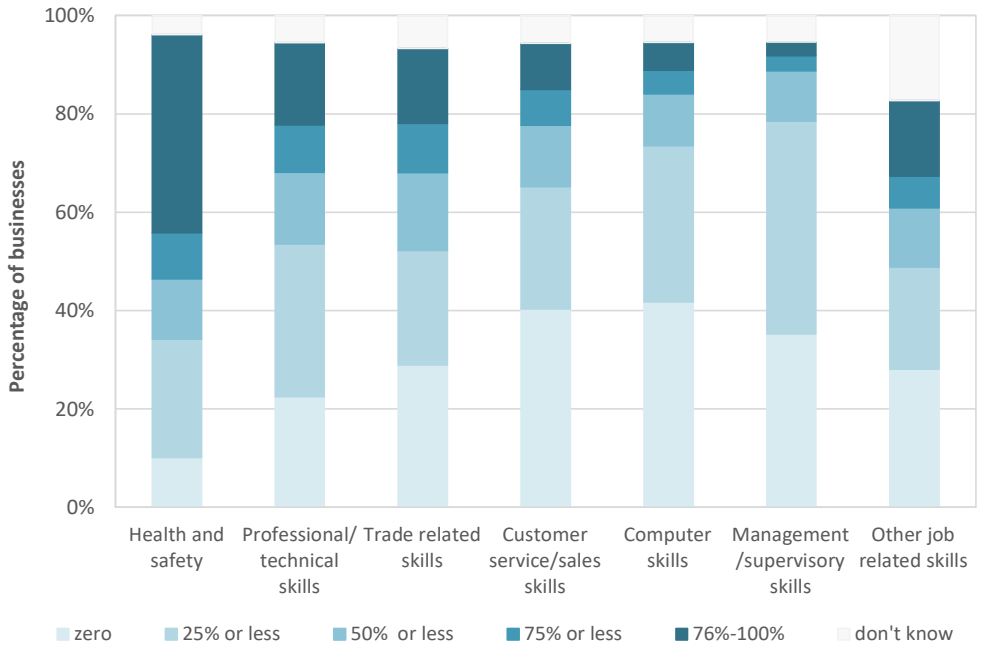


Figure 58b Health and safety training

Source: Productivity Commission calculations based on Business Operations Survey 2017, Section C: Business Practices.

Notes: Question C29 "Mark one oval for each item listed. Over the last financial year, please estimate the percentage of employees in this business who participated in the following types of training:"
Figures in second panel exclude 'don't know' category.

Part 4 Innovation

Innovation is fundamental to business competitiveness, and to improving productivity and living standards generally. Innovation is the dynamic and uncertain process through which businesses create new economic value by creating, adopting, and adapting knowledge into new or improved goods and services, operational processes, organisational and managerial processes, and approaches to marketing. Innovation is not just the next ground-breaking super drug, or 3D virtual reality goggles.

In this chapter we will look at many kinds of innovation in businesses. In common with other international surveys, the BOS employs definitions of innovation from the Organisation for Economic Cooperation and Development's *Oslo Manual* (OECD, 2005). This divides innovation into four types: product (goods and services) innovations; process innovations, organisational (including management) innovations and marketing innovations. These are outlined in Box 5 below and we shall describe each of these in more detail below.

In New Zealand, around one in five businesses have introduced at least one of the four types of innovation in the last two years (Figure 59). Businesses that innovated in one area were also more likely to innovate in another innovation area. This may be because some firms have an 'innovation mindset' and are looking at how to improve all elements of their business, or because there are complementarities between the different types of innovation (eg, a new product requires a new production process). More than a quarter of businesses innovated in only one of the four innovation areas (the dark bar in Figure 59).

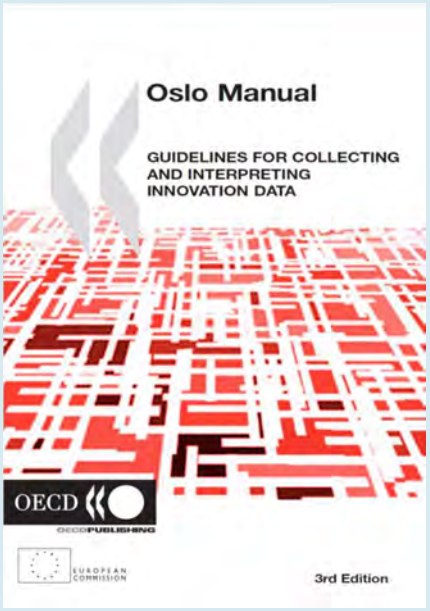
Figure 59 **Innovation in New Zealand businesses**
(Introduced in the last two financial years)

Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: For questions underlying chart see Figure *60*, Figure *65*, Figure *67* and Figure *68*.

Box 5 Types of innovation

The *Oslo Manual* (OECD, 2005) identifies four types of innovations a business can make – changes in its methods of work, its use of factors of production and the types of output that improve its productivity and/or commercial performance:

- **Product innovations** involve significant changes in the capabilities of goods or services. Both entirely new goods and services and significant improvements to existing products are included. In this report we call these 'goods and services innovation' for clarity.
- **Process innovations** represent significant changes in production and delivery methods.
- **Organisational innovations** refer to the implementation of new organisational methods. These can be changes in business practices, in workplace organisation or in the firm's external relations. In this report, we call these 'organisational and management innovations' for clarity.
- **Marketing innovations** involve the implementation of new marketing methods. These can include changes in product design and packaging, in product promotion and placement, and in methods for pricing goods and services.



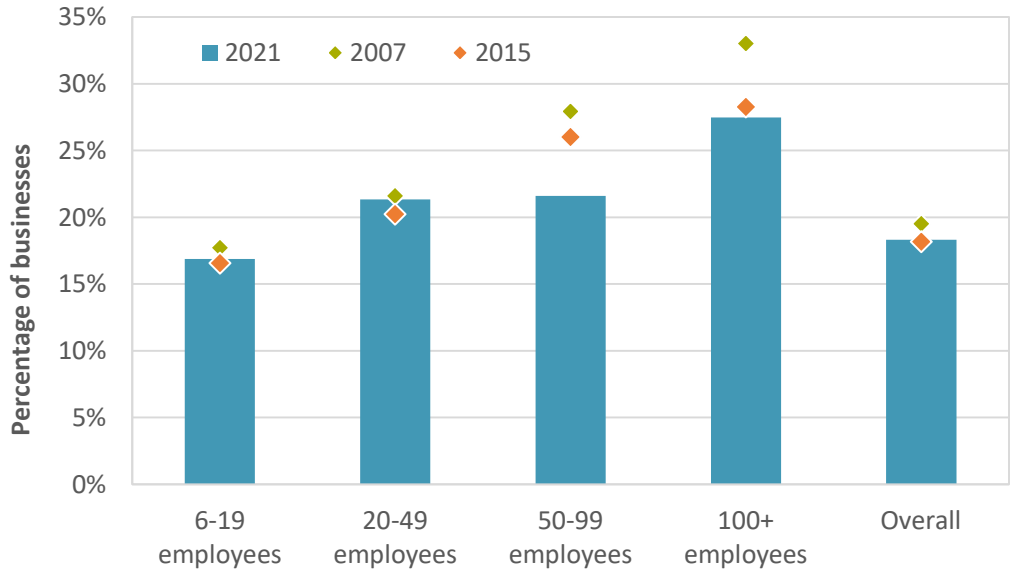
4.1 New goods and services

The introduction of a good or service that is new or significantly improved with respect to its characteristics or intended uses (product innovation) covers a range of improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics (OECD, 2005). Physical products may have new characteristics – flavours, colours, or something more substantial. They may have more features, like disease resistant crops, or increased quality, power, speed or reliability.

Product innovations in services can include significant improvements in how they are provided (for example, in terms of their efficiency or speed), the addition of new functions or characteristics to existing services, or the introduction of entirely new services. Examples are significant improvements in Internet banking services, such as greatly improved speed and ease of use, or the addition of home pick-up and drop-off services that improve customer access for rental cars. Providing on-site rather than remote management contact points for outsourced services is an example of an improvement in service quality.

Overall, 18% of businesses introduced new or significantly improved goods or services in the two financial years ending 2021. This has declined slightly from earlier years. Larger businesses are more likely to have introduced new goods or services than smaller ones, but have seen a larger fall in innovative activity: the product innovation rate for businesses with 100 or more employees dropped from 33% in 2007 to 27% in 2021, that for businesses with 50-99 employees fell from 27% to 22%.

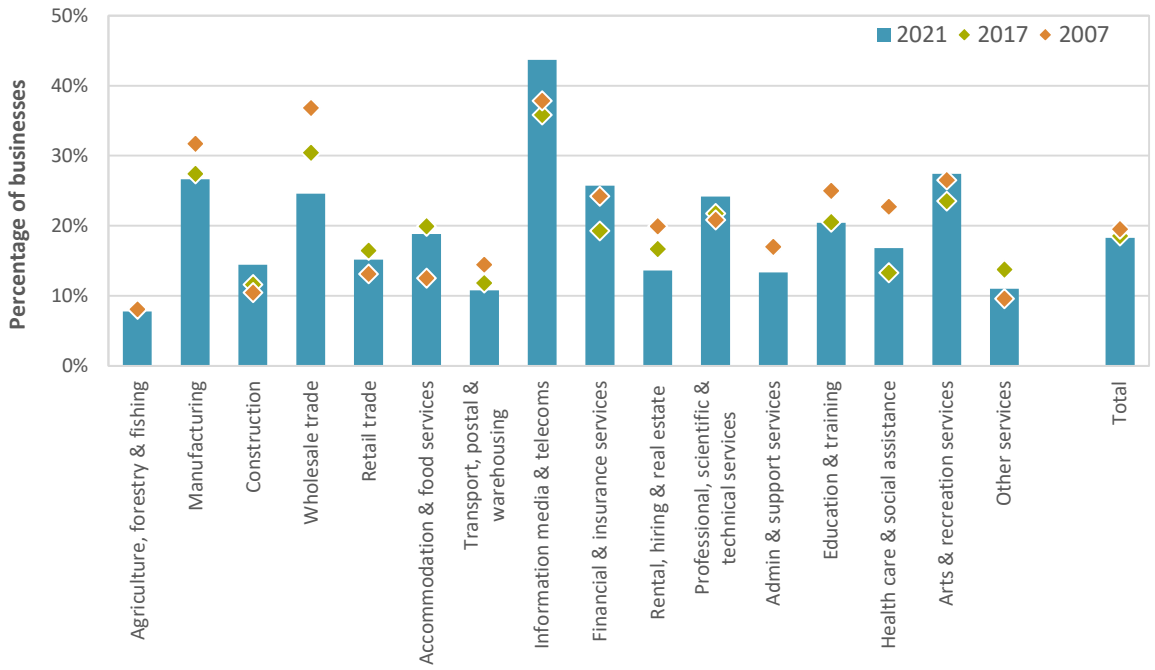
Figure 60 **New goods or services, by firm size**
(Introduced in the last two financial years)



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B3 "During the last 2 financial years, did this business introduce onto the market any new or significantly improved goods or services?"

Information media and telecommunications is the industry with the highest rate of product innovation, with 44% of businesses introducing new or significantly improved goods or services (Figure 60). It has seen also an increase in product innovation between 2007 and 2021. The manufacturing sector and the arts and recreation services are the next most innovative, with 27% of businesses introducing new products or services, followed by financial and insurance services (26%).

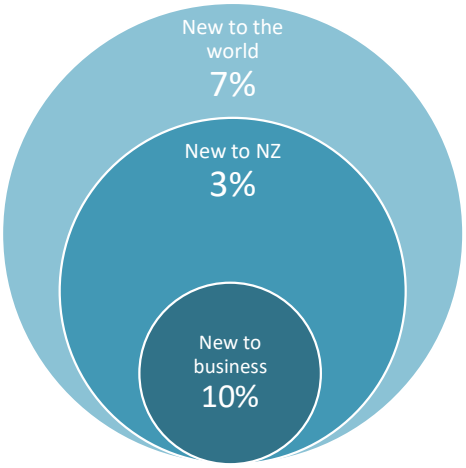
Figure 61 **New goods or services are more common in some industries than others**



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: See note to Figure *60*

Many of the benefits of innovation to society come from its diffusion through the economy. Ideas stimulate further ideas. Businesses keep an eye on what their competitors are doing to ensure they are not left behind. Innovation is the sincerest form of competition. Thus, goods and services that are new to a particular business may not be new to other businesses. Around 7% of New Zealand businesses introduced new or significantly improved goods or services that they believe were entirely new to the world (Figure 62). A further 3% of businesses introduced goods or services that whilst not new to the world, were new to the New Zealand market. Around half of the businesses that introduced new or significantly improved goods or services, were introducing ones already known elsewhere in New Zealand.

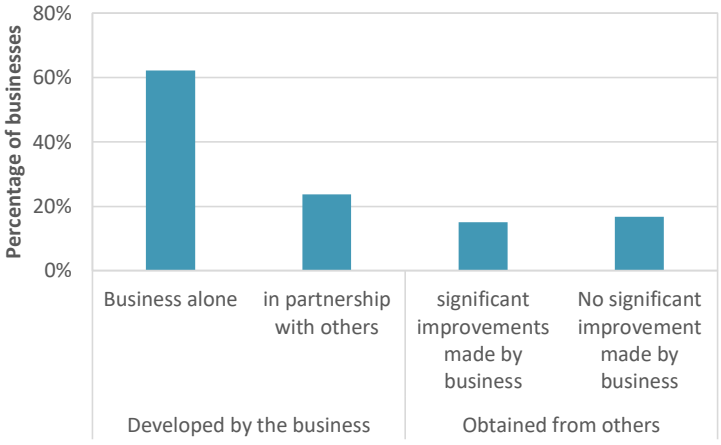
Figure 62 **Novelty of innovations**



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B5 "Mark one oval for each item listed. Were any of those new or significantly improved goods or services: new to New Zealand; new to world?"

While the creation of new and improved goods and services are at the heart of many businesses' competitive strategy, not all new products are entirely developed within the business itself (Figure 63). In fact, a little more than a third of innovating businesses develop them with the help of, or obtain them from, another business or organisation. Around a quarter of businesses developed new goods and services in partnership with others. Around 17% of businesses obtained new goods and services from another business or other organisation and made little change to them. A slightly smaller number (15%) obtained new products from others to which they made significant improvements.

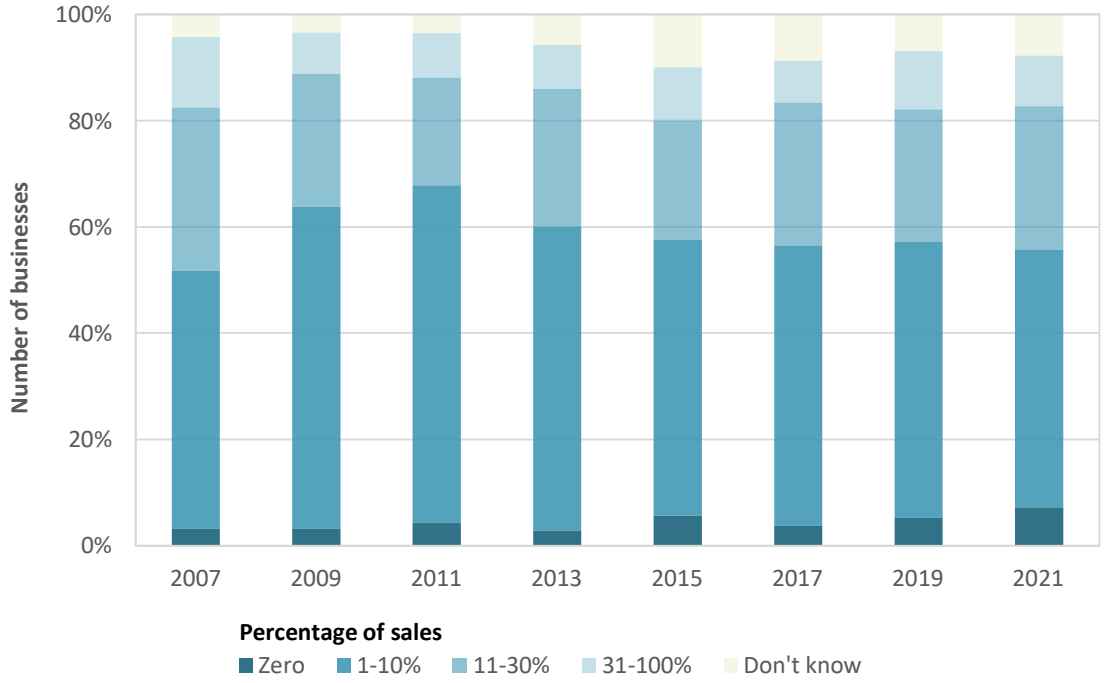
Figure 63 **Most new goods or services were developed by the business itself**



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B4 "Were any of those new or significantly improved goods or services:"

Introducing a new good or service is not the end of the story. New products can take a while to make an impact on overall sales. Only around 10% of business obtained over 30% of their sales from new or significantly improved goods or sevices (Figure 64). For around half of all business, new goods or services generated less than 10% of sales revenue. The contribution of sales of innovative products fell during the aftermath of the GFC in the financial years ending 2009 and 2011.

Figure 64 **The importance of new goods or services**
Percentage of sales that came from new or significantly improved goods or sevices



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B6 "For the last financial year, please estimate the percentage of sales for this business that came from those new or significantly improved goods or services."

4.2 New operational processes

A process innovation is the implementation of a new or significantly improved production or delivery method (OECD, 2005). This includes significant changes in techniques, equipment and/or software. Some process innovations are intended to reduce the unit costs of production or delivery. Others are intended to increase quality. One-third of firms reporting new or improved operational process did so to support production or delivery of new or significantly improved products[16].

Process innovations can occur right across the business. They might involve new production methods, such as automation of a production line. They might occur in product development itself, such as the introduction of computer-assisted design techniques. An important area where process innovation can increase the efficiency of a business is in logistics: how the business sources inputs, how supplies are allocated within the business itself, or how it delivers final products. The *Oslo Manual* provides the

[16] Source: Question B9 "Were any of those new or significantly improved operational processes required because of the introduction of new goods or services?"

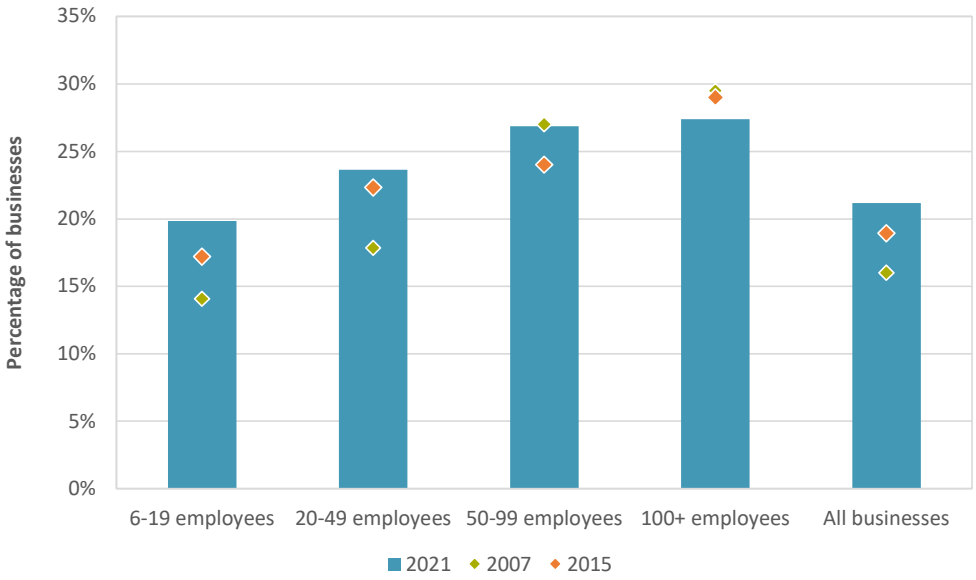
example of the introduction of a bar-coded or active RFID (Radio Frequency Identification) goods-tracking system (OECD, 2005, p. 49).

In the service sector, process innovations can involve changes in the equipment and software used or in the procedures or techniques that are employed to deliver services (eg a shop on a business's website, or a new reservation system in a travel agency).

A little over one-in-five businesses introduced new or improved operational processes in the two years prior to the 2022 financial year (Figure 65). This was a slight increase on 2015 and a more substantial one over 2007. Larger businesses may have more scope to implement operational changes because their greater scale means they can better bear the fixed costs of capital investments. Whilst the likelihood of process innovation increases with business size, this relationship is not as stark as it is for product innovation.

We noted earlier that innovation activities are often complementary. New products may require the introduction of a new operational process. In 2021, 34% of businesses who introduced new operational processes did so because of the introduction of new goods and services[17].

Figure 65 **Introduction of new operational processes, by firm size**
Percentage of firms that introduced new or improved operational processes



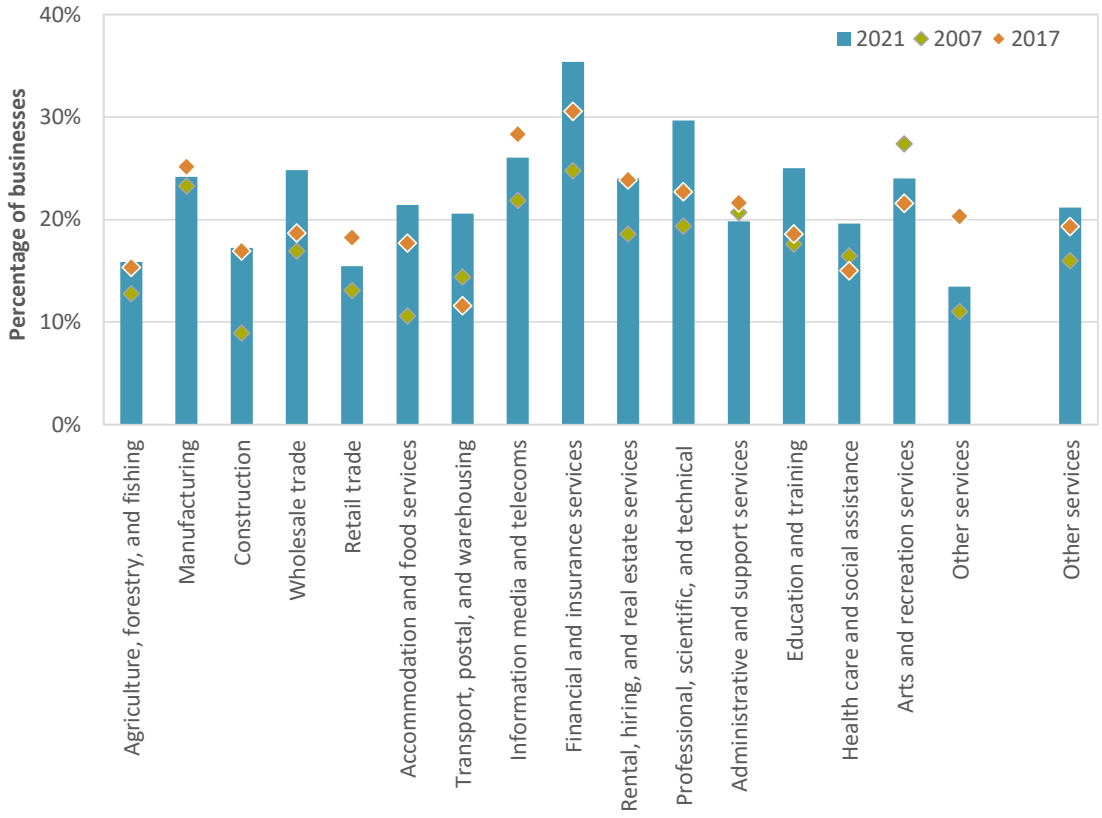
Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B7 "During the last 2 financial years, did this business implement any new or significantly improved operational processes (ie methods of producing or distributing goods or services)?"

Adopting new operational processes is not the sole preserve of businesses producing physical products. Process innovation is most common in financial and insurance services. These industries have also seen a steady increase in the percentage of firms innovating, from 25% in 2007 to 35% in 2021. In the professional and technical services sector, 30% of businesses had introduced new operational processes in 2021, up from 19% in 2007. Other industries with an increase in businesses introducing new

[17] Although we do not show this figure in any chart, it comes from question 9 in the Innovation module: "Were any of those new or significantly improved operational processes required because of the introduction of new goods or services?"

operational processes include wholesale trade (from 17% to 25%), as well as transport, postal and warehousing (14% to 21%), and education and training (18 to 25%).

Figure 66 **Introduction of new operational processes, by industry**
Percentage of firms that introduced new or improved operational processes



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: See notes to Figure 65

4.3 New organisational and management processes

An organisational innovation is the implementation of a new organisational method in the firm's business practices, workplace organisation or external relations (OECD, 2005). There are a range of means whereby organisational innovations can increase a business' performance. They might reduce administrative costs or improve workplace satisfaction (and thus labour productivity). They might also involve gaining access to knowledge assets or reducing costs in the supply chain.

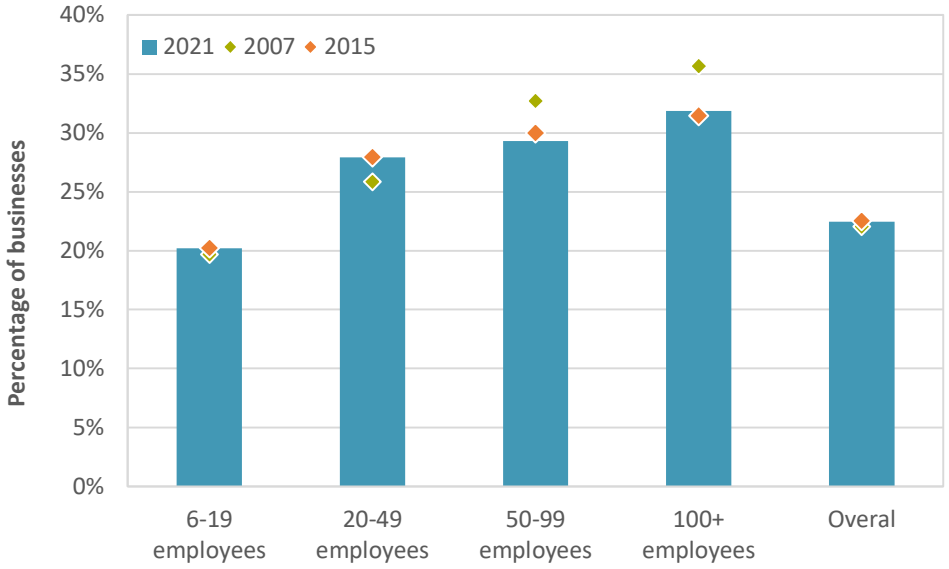
Organisational innovations in business practices involve the implementation of new methods for organising routines and procedures for the conduct of work. These include, for example, the implementation of new practices to improve learning and knowledge sharing within the firm. Other examples include the introduction of management systems for general production or supply operations, such as supply chain management systems, business re-engineering, lean production, and quality-management systems.

Organisational and management processes mean different things for very small businesses, which may only consist of one or two teams. Thus, small businesses are the least likely to introduce organisational innovation (20% of businesses with 6-19 employees introduced a new organisational or managerial process in 2021). Likewise, the largest firms are the most likely (32% innovated in 2021). This concurs

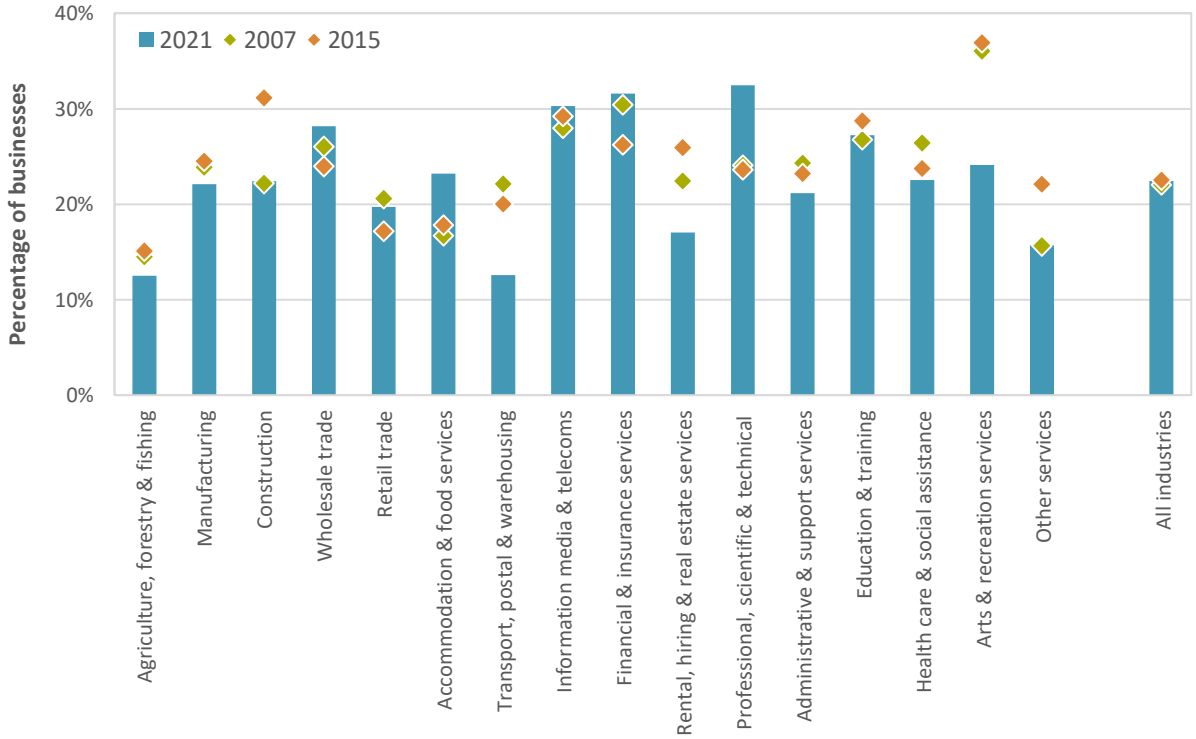
with international research on management capability (Bloom & Van Reenen, 2007) and earlier research for New Zealand (Green & Agarwal, 2011) which finds better management practices to be higher in medium and large firms[18].

Figure 67 **Introduction of new organisational or managerial processes**
Percentage of firms who introduced new or improved operational processes

By size of business



By industry



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B10: "During the last 2 financial years, did this business implement any new or significantly improved organisational or managerial processes (ie significant changes in this business's strategies, structures or routines)?"

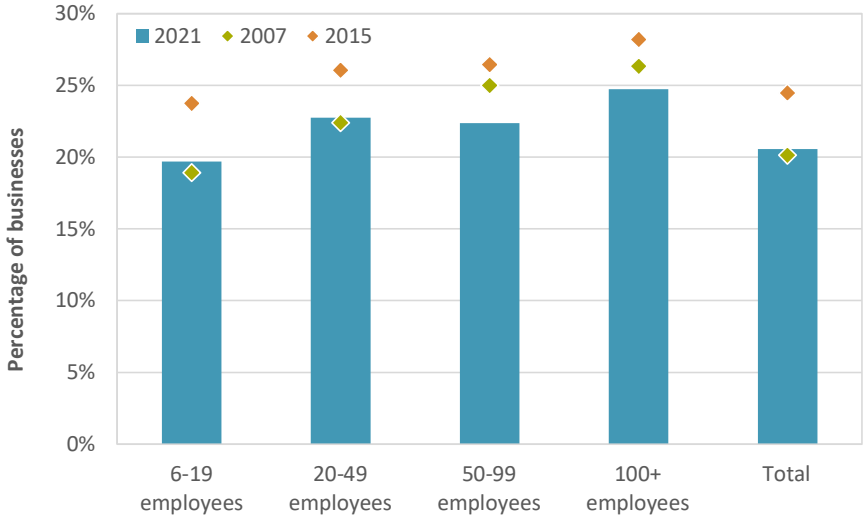
[18] Note that the international research on management practice defines medium-sized businesses as those with 100 to 5000 employees.

4.4 New marketing methods

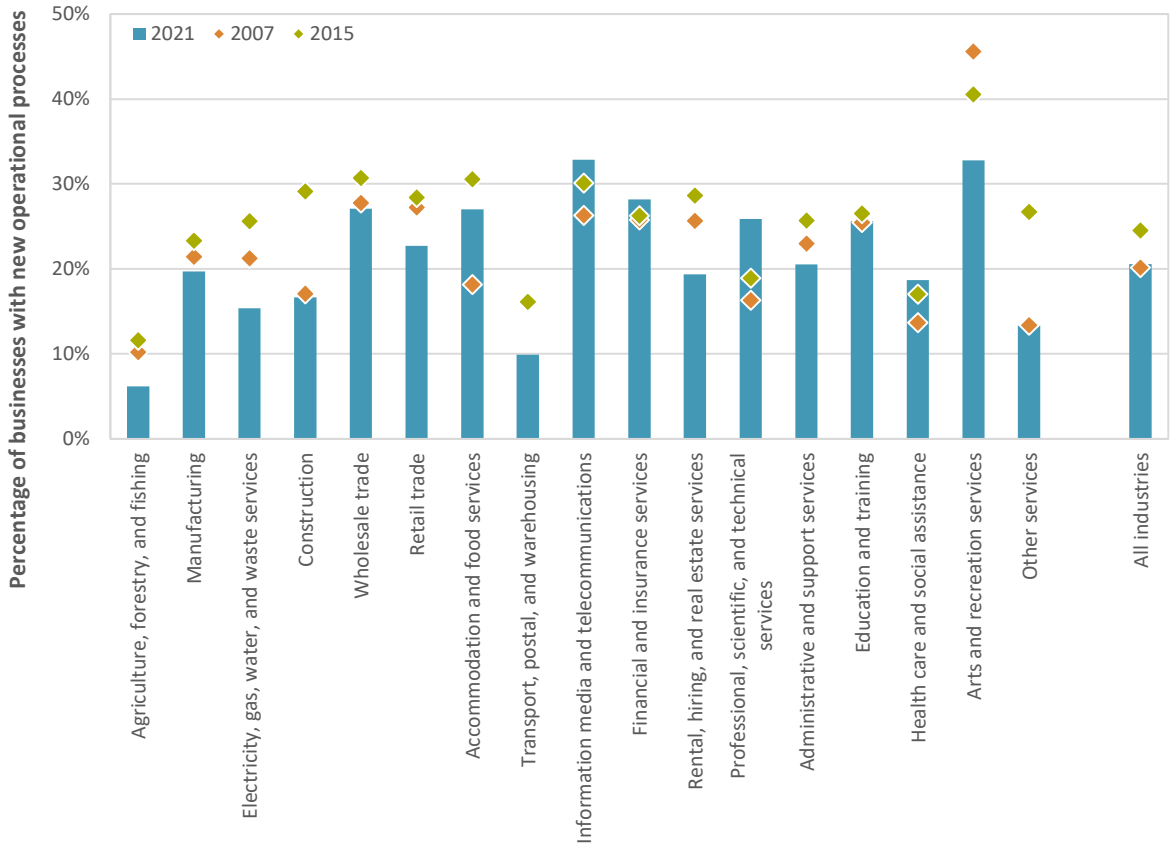
A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing (OECD, 2005). These

Figure 68 **Introduction of new marketing methods**
Percentage of firms who introduced new or improved marketing method

By size of business



By industry



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B12 "During the last 2 financial years, did this business implement any new or significantly improved sales or marketing methods which were intended: to increase the appeal of goods or services for specific market segments; to gain entry to new markets"

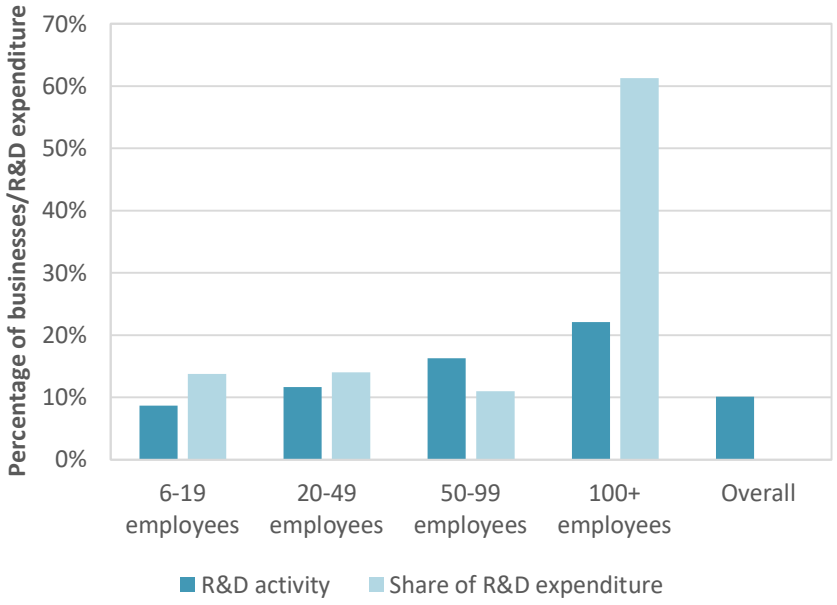
changes are focussed on addressing (or shaping!) customer needs, opening up new markets, or newly positioning a firm's product on the market. Whilst larger businesses are more likely to introduce new marketing methods, the differences are much less than is the case with other types of innovative practices (Figure 68). A larger proportion of businesses introduced new or improved marketing methods in 2015 than either 2007 or 2021. The industries with the largest proportion of businesses introducing new marketing methods are the information, media and telecommunications sector and arts and recreation, where a third of businesses innovated in this way.

4.5 Research and development

An important input into innovation in businesses is the investments they make in research and development (R&D). There are a huge range of different R&D activities, from creating a new encryption technique to large scale medical trials. They all involve increasing the stock of knowledge in the business. The benefits of R&D go beyond specific projects. It has long been known that R&D also increases businesses' ability to absorb knowledge generated elsewhere (Cohen & Levinthal, 1989, 1990; Griffith et al., 2004). The established definition of R&D comes from the OECD's *Frascati Manual* (OECD, 2015):

> *Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge.*
>
> Frascati Manual *(OECD, 2015)*

Figure 69 **Research and development in businesses, by firm size**
Percentage of businesses conducting R&D and share of R&D expenditure



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question 15 "For the last financial year, please estimate this business's combined expenditure on product development and related activities: research and development"

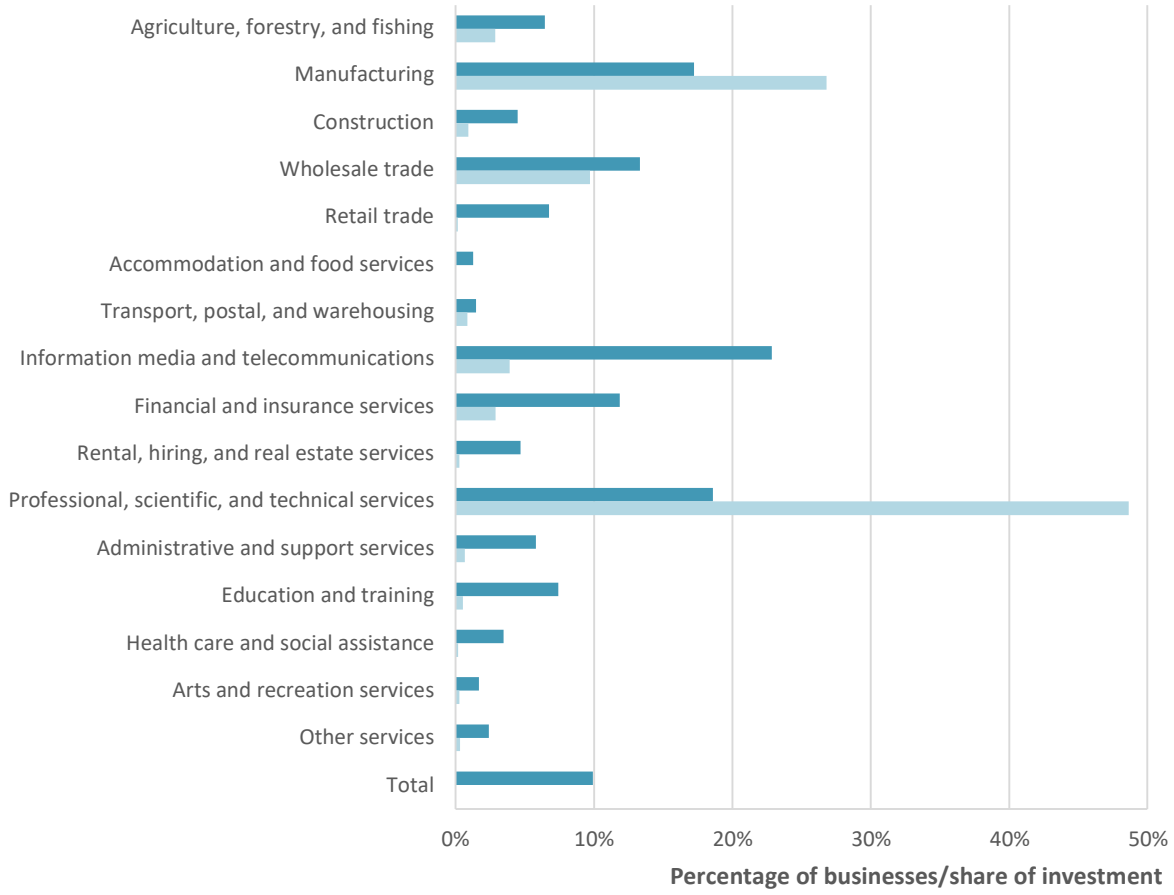
Like many of the aspects of business operations we have looked at, research and development is more common in larger businesses, with 22% of firms employing one hundred or more staff investing in R&D, compared with 7% of 6-19 employee businesses (dark column of Figure 69). The distribution of overall

R&D expenditure is even more concentrated in larger firms. Despite making up less than 10% of the businesses investing in R&D, businesses employing 100 or more staff are responsible for almost two-thirds of the value of that investment (light column of figure).

Investment patterns in R&D also vary greatly by industry (Figure 70). Information media and telecommunications is the sector where businesses are most likely to invest in R&D, followed by professional, scientific and technical services (with 23% and 19% of businesses investing in R&D respectively). Next is manufacturing (17%), wholesale trade (13%) and financial and insurance services (12%).

Almost half of all R&D expenditure in the private sector[19] comes from the professional, scientific and technical services sector. A little over half of the remaining R&D investment is made in the manufacturing sector.

Figure 70 Businesses investing in R&D, by industry (2022)



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: See notes to Figure 70

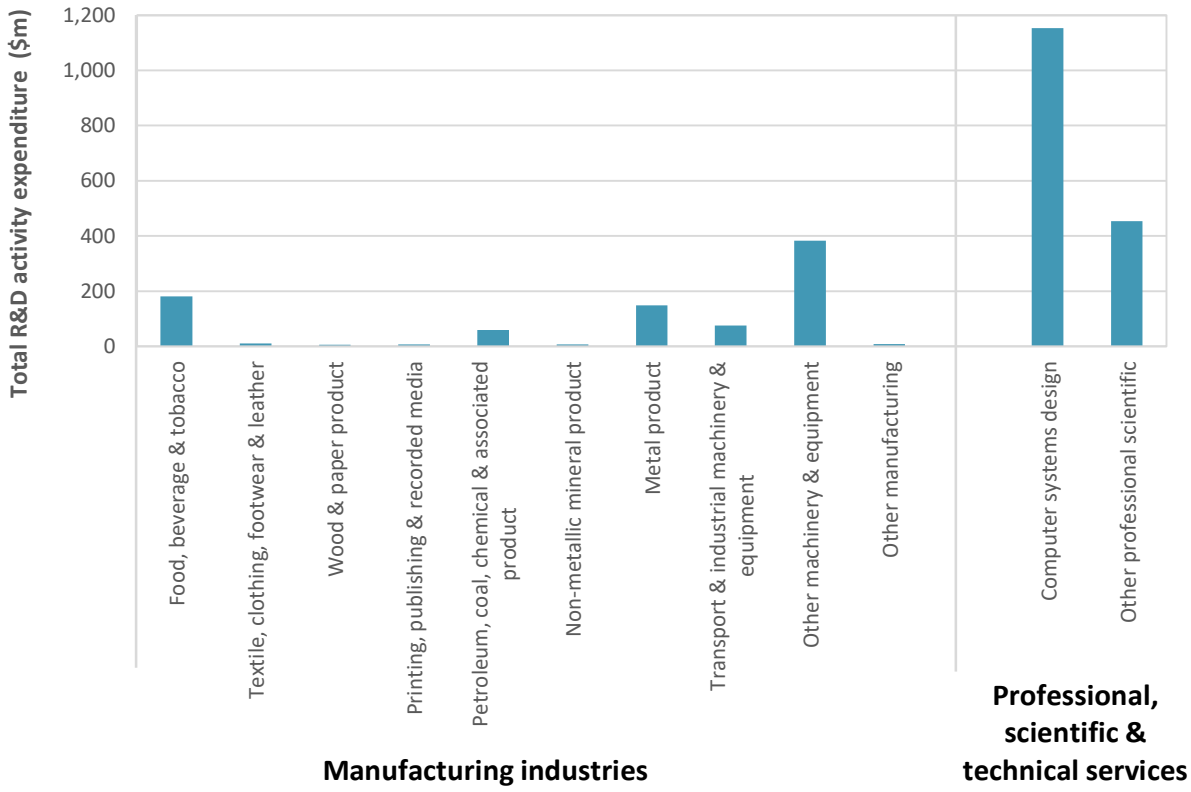
Because of the sampling frame of the BOS, we can look at R&D activity in the manufacturing and the professional, scientific and technical services sectors in more detail. Two thirds of the expenditure in

[19] Employing more than five staff and other restrictions set out in Part 1.

the latter sector ($1.15 billion), was made in the computer systems design industry. The remaining $483m was invested across a range of business service (accounting, legal and management consulting) industries and architecture and scientific testing.

In manufacturing, the industry investing most heavily in R&D was "Other machinery and equipment" manufacturing with $383m. This industry includes lifting and material handling equipment manufacturing[20], and other machinery like engines, fans, furnaces, and water treatment equipment. A little under $200m was invested in food, beverage and tobacco manufacturing and metal product manufacturing.

Figure 71 Total R&D activity expenditure in Manufacturing and Professional, scientific & technical services



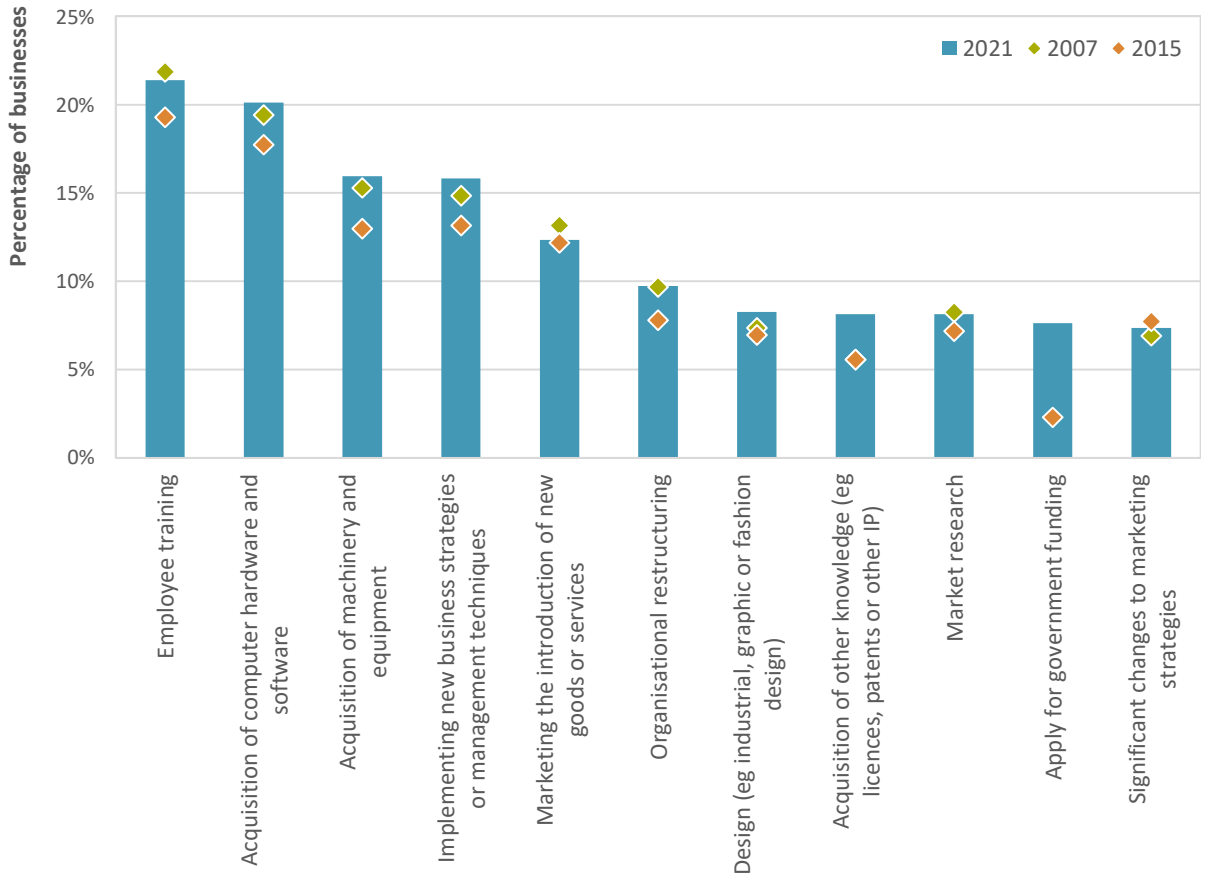
Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: See notes to Figure 70

[20] ANZSIC classification 249. Includes businesses engaged in manufacturing forklift trucks, cranes, winches, hoists or hoisting equipment, conveyors or conveying systems, materials handling equipment not elsewhere classified, or specialised parts for such equipment. This class also includes units mainly engaged in manufacturing elevators, escalators or lifts, or in manufacturing tractors not elsewhere classified.

4.6 Activities to support innovation

Innovation does not exist in a vacuum. It often requires complementary investment and activities to support it. The most common of these is to provide training to employees (Figure 72). Around one-fifth of businesses provided training to support innovation in their business. Almost as many businesses invested in the acquisition of computer hardware and software to support innovation (20%). The next most common activities were the acquisition of machinery and equipment, and implementing new business strategies or management techniques (each done by 16% of business).

Figure 72 Activities to support innovation

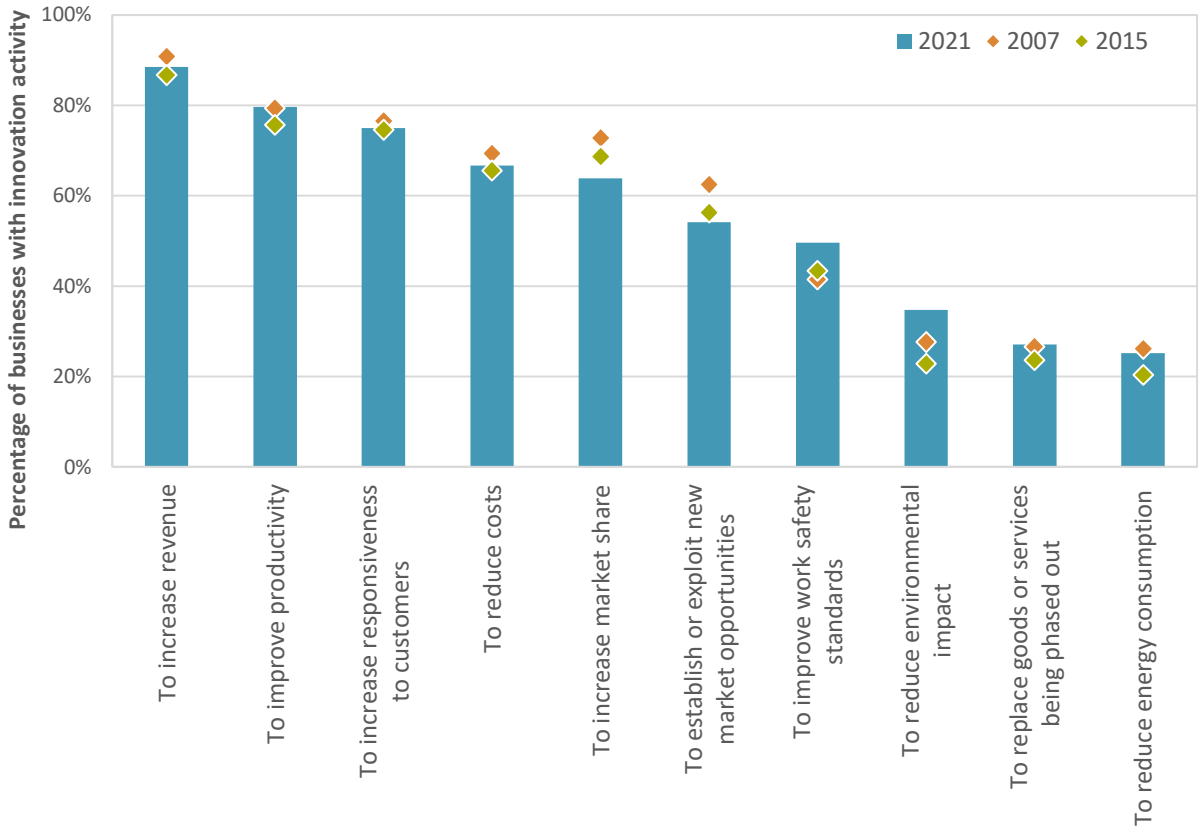


Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Figure for "Apply for government funding" not available in 2007.
Question B14 "Mark all that apply for each item listed. During the last 2 financial years, did this business do any of the following?"

4.7 Reasons for innovation

The most common reason for innovation activity by New Zealand businesses is to improve revenue; 88% of innovating businesses did so increase their revenue (Figure 73). Positively, from the perspective of a Commission dedicated to improving productivity, productivity improvement is the second most common reason for innovation (80% of businesses).

Figure 73 Reasons for innovation activity



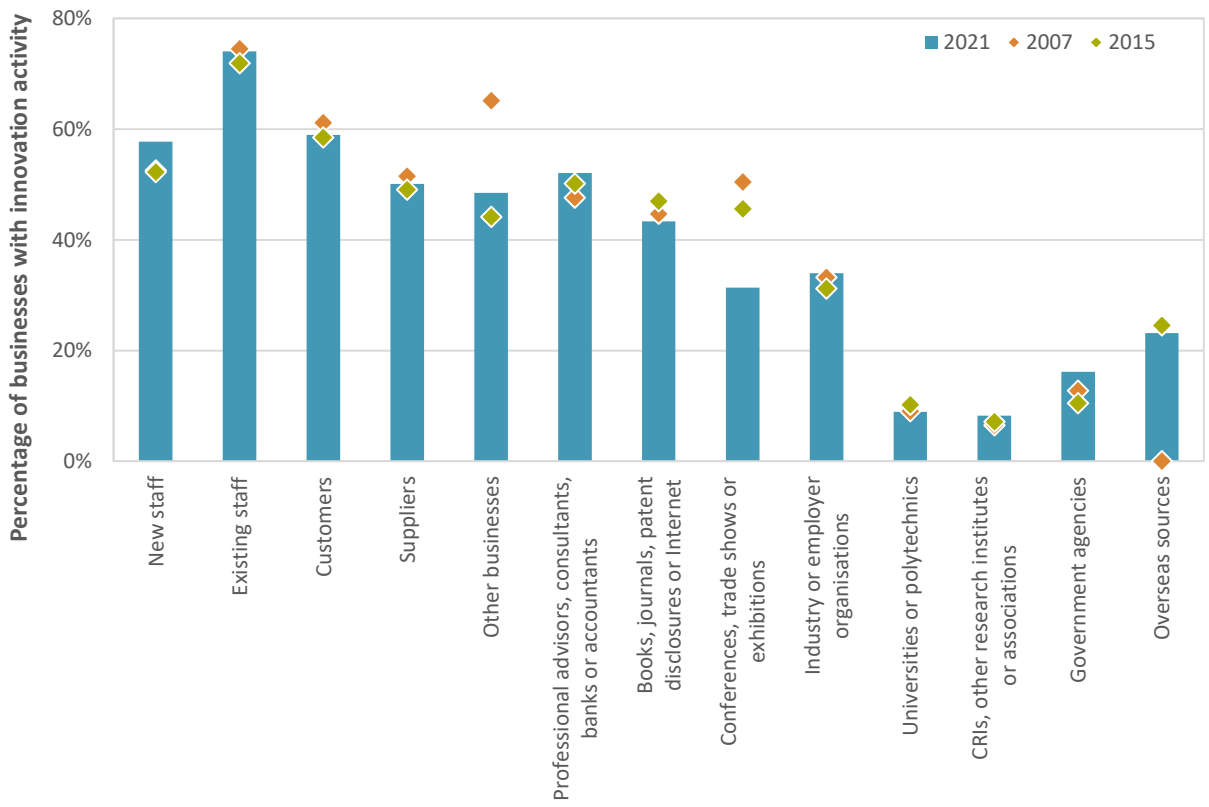
Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B19 "During the last 2 financial years, what were the reasons that this business tried to innovate?"

4.8 Sources of information or ideas

As we have noted above, there are a range of places innovation can emerge from. The most commonly cited source of information or ideas for innovation is the business's existing staff, which is reported by three quarters of innovating businesses (Figure 74). The next most common sources are the business's customers and new staff (59% and 58% of innovating businesses, respectively). Since only 10-20% of a business's staff are likely to have arrived in the last couple of years, these figures suggest that new staff are an even richer source of information or ideas for innovation than existing staff.

There was a drop off in businesses reporting "other businesses" as sources of information or ideas between 2007 and 2015. It is not clear why this was, although it was a time when there was some churn in the economy after the Global Financial Crisis. Perhaps easier to understand is the drop in conferences, trade shows or exhibitions as a source of ideas and information between 2015 and 2021. The restrictions in international and domestic travel during the Covid-19 pandemic made such in-person events practically impossible.

Figure 74 Sources of information or ideas for innovation

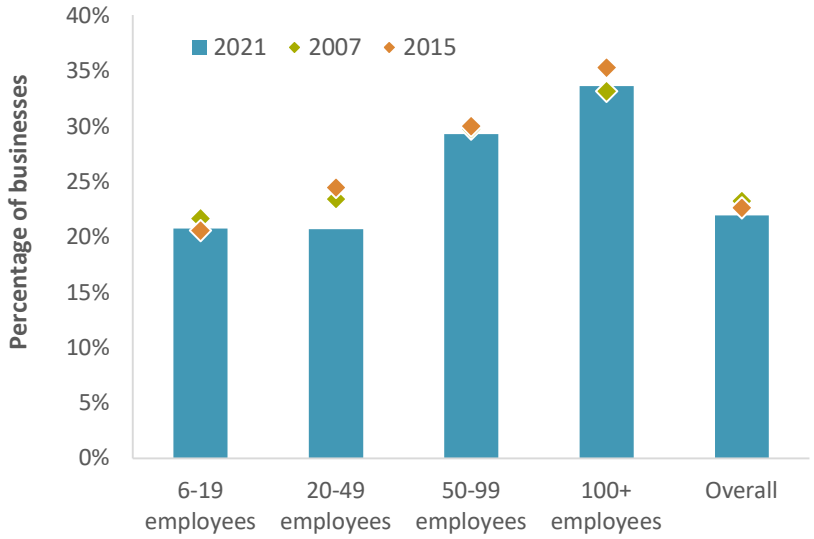


Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B20 "Mark one oval for each item listed. During the last 2 financial years, did this business find any of the following important as a source of information or ideas for innovation?"

4.9 Co-operative arrangements for innovation

The BOS takes co-operative arrangement to mean *actively participating with another organisation or individual, in activities for the purpose of innovation, where each party brings its own knowledge or expertise to the cooperation*. Businesses are asked to exclude any arrangement where development work is contracted out without the business itself taking an active part. Around 20% of businesses have cooperative arrangements with other organisations or people for the purpose of innovation (Figure 75). Large firms are more likely to have cooperative innovation arrangements (30% for businesses employing 50-99 staff, and 34% for those with 100+ employees).

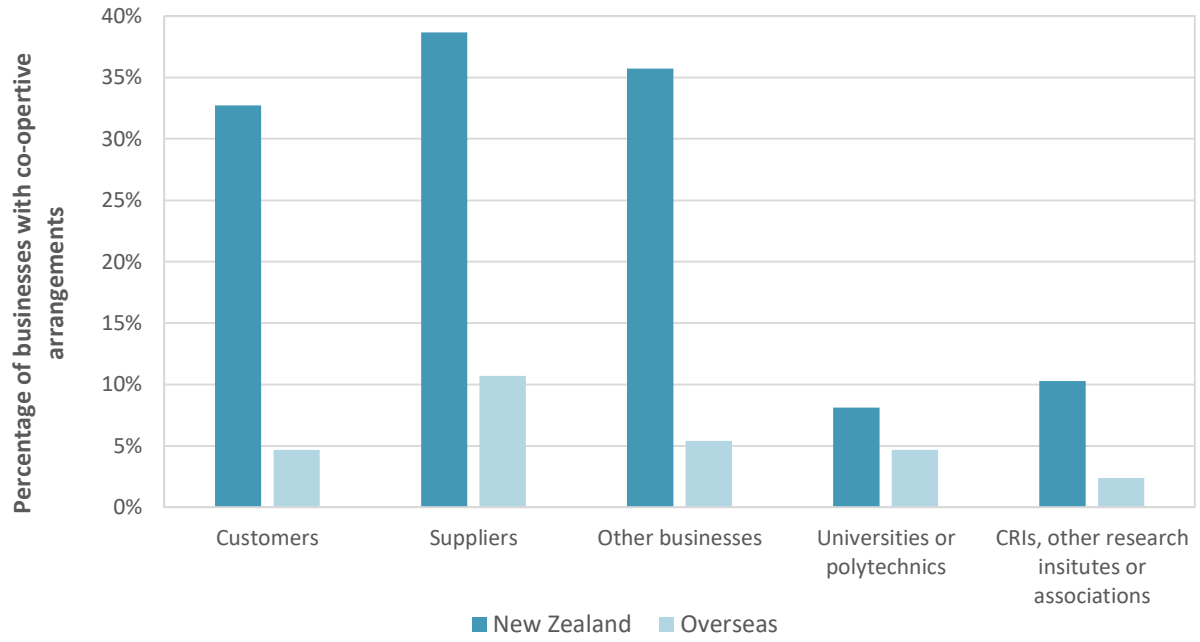
Figure 75 Cooperative innovation arrangements



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B21 "During the last 2 financial years, did this business have any co-operative arrangements for the purpose of innovation?"

The most common cooperative arrangements for businesses are those with suppliers; a little under 40% of businesses with cooperative innovation arrangements have them with domestic suppliers (Figure 76). Cooperation with customers and other businesses is also common.

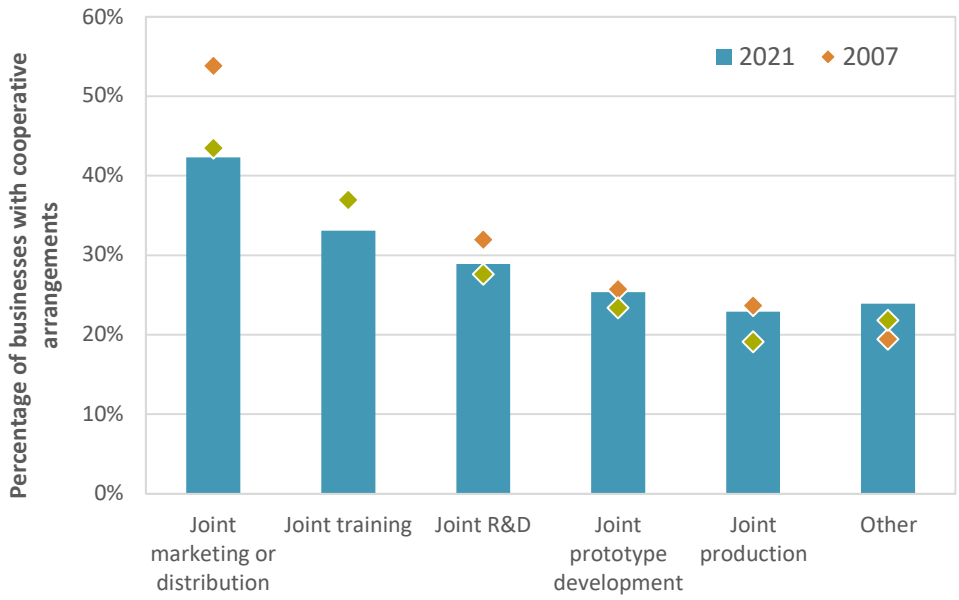
Figure 76 Partners in innovation



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Note: Question B23 "Mark all that apply for each item listed. During the last 2 financial years, with what types of businesses or institutions did this business have those co-operative arrangements?"

What is the nature of these cooperative innovation activities? The most common collaboration activity is joint marketing or distribution between the business and its partner (Figure 77). Just over 40% of businesses with cooperative arrangements were participating in joint marketing or distribution. This number is similar to the figure in 2015, but both of these have fallen since 2007. Joint training and R&D are the next most common collaborative innovation activities (37% and 32% of businesses with collaborative activities, respectively), followed by joint prototype development (25%) and production (23%).

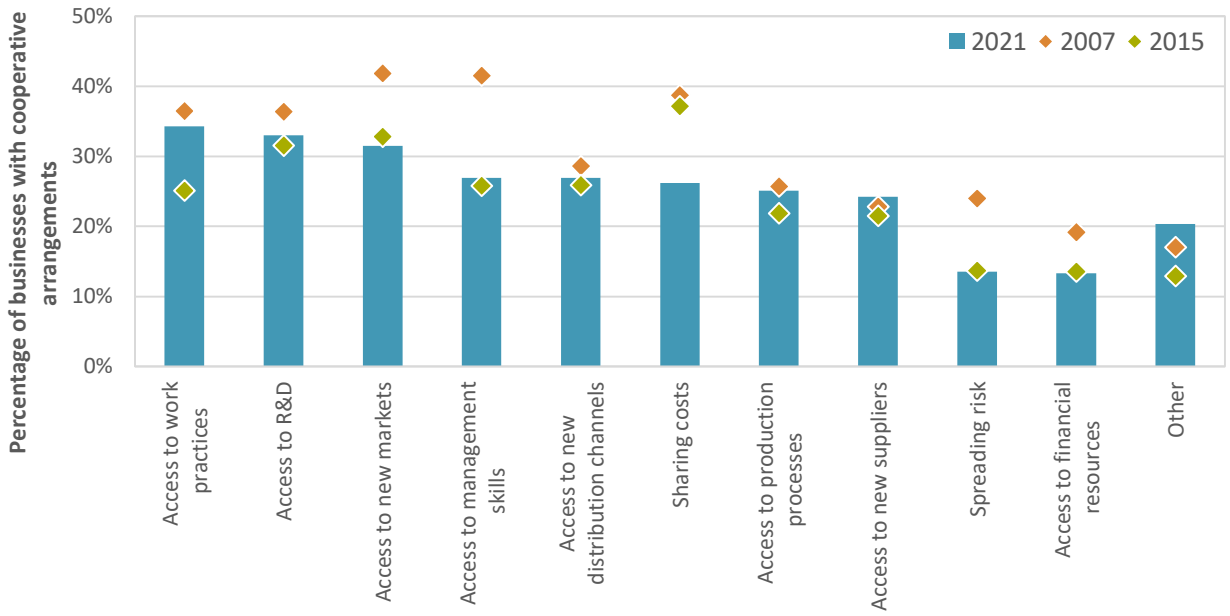
Figure 77 **Cooperative innovation activities**



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation
Notes: Question B24 "Mark all that apply. During the last 2 financial years, in which activities did this business engage in under those co-operative arrangements?"

There are a range of reasons why businesses collaborate to innovate. Most of these are related to knowledge. The five most commonly reported reasons for collaboration for innovation are to access elements of the partners' knowledge capital, whether it be work practices, R&D, markets, management skills or distribution channels (Figure 78).

Figure 78 **Reasons for cooperative innovation activities**



Source: Productivity Commission calculations based on Business Operations Survey, Section B Innovation

Notes: Question 25 "During the last 2 financial years, for what reasons did this business engage in those co-operative arrangements?"

Part 5 International activity

There is no getting away from it: New Zealand is small and it's a very long way from everywhere else. Together, those two features create a unique challenge for New Zealand firms. On the one hand, our small size makes it all the more important that New Zealand firms reach beyond the border. New Zealand accounts for less than 0.01% of the world's population. With a similar land area, the firms in the UK and Italy can access a domestic market with more than 10 times as many people as New Zealand. New Zealand's small size means that it produces and consumes a tiny fraction of the world's goods, services, and knowledge resources. Going it alone is not an option. Access to technology, skills and knowledge created abroad is critical for New Zealand firms to produce efficiently and to be able to compete in international markets. At the same time, exporting and outward direct investment can allow New Zealand firms to build the scale they need to succeed, enabling them to grow and to invest in capital to raise the productivity of their workers.

While our small size increases the importance of being internationally engaged, our isolation and distance from major markets raise the cost and challenges of stepping beyond our own borders (NZPC, 2020). In order to grow, New Zealand firms must venture abroad at an earlier stage of development than similar firms in bigger domestic markets. By starting earlier, and smaller, they often have fewer resources available and can be overwhelmed by the dramatic changes in production and business structures needed to succeed in larger overseas markets. The basic requirements of logistics, access to distribution networks, and the costs of adapting products and marketing techniques to a new customer base can be daunting for new exporters. Meanwhile, higher travel and freight costs, alongside a highly variable exchange rate, make serving international markets more costly and risky. Despite the rise of telecommunications technology, distance remains a significant factor for trade. An OECD study estimated that New Zealand and Australia's distance from major trading centres reduces their per capita income by up to 11% (Boulhol & De Serres, 2010). In contrast, Belgium and The Netherlands enjoy a 6-7% increase in per capita GDP because of their proximity to trading centres. There is also a cost to being on the fringe – when one is on the edge of the world, one is not really on the way to anywhere (except Antarctica).

These barriers contribute to a relative lack of international engagement by New Zealand firms. In the most recent Productivity by the Numbers (PBTN), we showed that export intensity in New Zealand was well below that in similarly sized OECD countries (NZPC, 2023 Figure 4.9). Our stock of outward foreign direct investment (ODI – the value of investments that New Zealand businesses hold in firms located offshore) as a percentage of GDP is among the lowest in the OECD, while inward foreign direct investment (FDI – the value of investments that overseas firms hold in businesses located in New Zealand) has been declining over recent decades, during a period of substantial growth in other OECD economies.

The figures on internationalisation cited in PBTN are all expressed in value terms – the dollar value of the flows of goods and services, or stocks of investment, as a share of total domestic production (GDP). This means that the activities of a single large firm (eg, Fonterra), or conditions in a particular sector (eg, tourism), can have a disproportionate effect on aggregate outcomes.

In this chapter we consider New Zealand's international engagement from the perspective of the broader population of firms. We explore firm-level measures of international engagement: overseas sales and purchases of goods and services, cross-border investment, and offshore business activities. We make use of two sections of the BOS. We first use simple indicators from Module A of the survey to track the prevalence of international activities over time and across different parts of the economy. We then turn to the International Engagement Module (Module C, 2015 and 2019) to dig into motivations and strategies of New Zealand firms that engage internationally, and the challenges they experience.

The (un)changing nature of internationalisation in New Zealand

Whether measured as a percentage of GDP, or as a percentage of firms, the last 15 years have seen little improvement in the intensity of international engagement in New Zealand. Like FDI and ODI, export intensity remained fairly static at around 30% of GDP over the latter half of the 2000s, then drifted downwards over the 2010s before falling sharply to 22% in the face of the COVID-19 pandemic (World Bank, 2023).

This stagnation at the aggregate level is reflected in a similar pattern at the firm level – the share of firms reporting export sales, FDI and ODI has remained largely unchanged since 2007 (Figure 79).[21] While the number of firms reporting involvement in these activities did increase over the 15 year period, this was in line with the growth in the overall population of firms. Of the four core indicators included in Module A (export sales, FDI, ODI and tourism sales), only the share of firms with tourism sales trended up over most of this period, before dropping sharply in response to COVID lockdowns and border closures.

Figure 79 **International engagement propensity almost unchanged since 2007**
Percentage of businesses engaged in exports, tourism and foreign investment, 2007-22

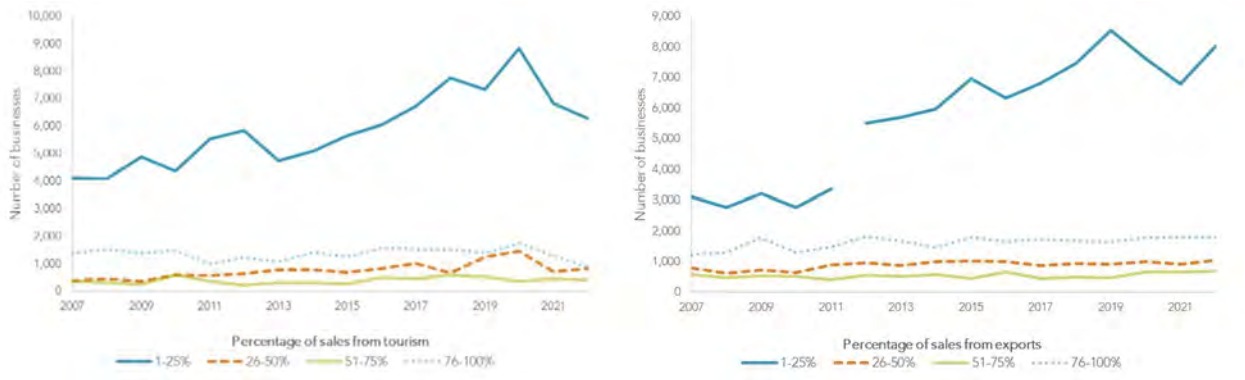
Source: Productivity Commission calculations based on Business Operations Survey 2007-22
Notes: Question A6 "For the last financial year, estimate the proportion of this business's sales of goods and services that came from exports" (Exports = percentage greater than 0%). Question A7 "For the last financial year, estimate the proportion of this business's sales that came from tourism" (Tourism = percentage greater than 0%).
Question A12 "As at the end of the last financial year, did any individual or business located overseas hold any ownership interest or shareholding in this business?" (FDI = yes). Question A13 "As at the end of the last financial year, did this business hold any ownership interest or shareholding in an overseas located business (including its own branch, subsidiary or sales office)?" (ODI = yes)

Growth in the number of businesses with sales from exports and tourism over this period was almost entirely driven by firms with relatively low export intensity. Figure 80 plots the number of firms reporting tourism and exports according to the share of total sales that each activity represents. In both cases, the number of high intensity firms (those with exports or tourism sales of over 50% of total sales)

[21] The apparent jump in export propensity in 2012 reflects the addition of a note in the BOS survey question, asking firms with exports between 0 and 1% of sales to round up to 1%.

remained steady for the decade and a half covered by the BOS. Almost all of the increase in exporting firms, and the vast majority of the increase in firms with tourism sales, comes from low export intensity firms with less than 25% of sales from these activities.

Figure 80 **Rise in tourism and exports comes from low intensity businesses**
Numbers of businesses with tourism and export sales by intensity, 2007-22



Source: Productivity Commission calculations based on Business Operations Survey 2007-22
Notes: Question A6 "For the last financial year, estimate the proportion of this business's sales of goods and services that came from exports"
Question A7 "For the last financial year, estimate the proportion of this business's sales that came from tourism"

The dramatic break in the export series in 2012 in Figure 79 and Figure 80 occurred when a note was added asking firms with exports between zero and one percent of sales to round up to 1%. The change in the series at this point suggests that as many as half the firms which are recorded as exporting 1-25% of sales in 2012 may actually have an export-to-sales ratio of less than 1%. If we just count businesses who report an export intensity of greater than one percent of sales, even the number of exporters has been stagnant since 2007, despite the number of businesses in the population increasing (Figure 81).

Figure 81 **Exporting growth driven by firms with less than 1% of sales**
Number of businesses with exports > 1% of sales, 2007-19

Source: Productivity Commission calculations using Business Operations Survey microdata within the LBD
Notes: Question A6 "For the last financial year, estimate the proportion of this business's sales of goods and services that came from exports"

At the same time, the pace of market diversification within firms seems to be slowing. Across all sizes of firms, the share of exporting firms that report entering a new export market has trended downwards since 2007, albeit with considerable volatility across years. In 2007, 25% of large (100+ employee) exporters, and 26% of small (6-10 employee) exporters reported entering a new export market over the last year. By 2022 this had fallen to 12% and 8% respectively. This firm level observation is mirrored in the aggregate – since 2008 export market concentration increased in New Zealand and Australia, in contrast to other small open economies (NZPC, 2024). Research by Fabling & Sanderson (2013) finds that entering a new export market is an important aspect of the growth and productivity dynamics of exporting firms (see Box 6).

Box 6 Why do we care about export market entry?

Firms that export internationally are more productive than firms that supply only the domestic market. Although this stylized fact is widely accepted and has been shown to hold across many countries and contexts the evidence on the source of the productivity gap is less clear, despite (or perhaps because) dozens of papers having been written on the subject over the last 30 years (ISGEP, 2008; Martins & Yang, 2009; Wagner, 2007). Many authors argue for the existence of learning-by-exporting effects, in which firms that serve overseas markets can improve their performance through interacting with offshore customers, suppliers and competitors and investing in product quality, scale and innovation. However, the empirical literature is mixed on whether such effects actually occur, or if the performance gap between exporters and non-exporters is driven by self-selection of more productive firms into exporting. Comparing across studies suggests that both methodology and context are important, as the potential for learning is affected by features of both the source and the destination country and the characteristics of the exporting firms themselves (Martins & Yang, 2009; Vendrell-Herrero et al., 2024).

Fabling & Sanderson (2013) provide New Zealand evidence on the link between exporting and firm performance. Focusing on manufacturing firms, they confirm that exporters in New Zealand are larger, more capital intensive, and more productive than non-exporters. To investigate the causal factors underlying this relationship they distinguish between three potential explanations: self-selection of high-performance firms into exporting; post-entry "learning-by-exporting" effects; and joint export-investment decisions. Consistent with the international literature, much of the observed performance gap is due to self-selection – it is the larger, more productive, and more capital-intensive firms that opt into exporting. Those initial gaps widen after entry and are closely linked to the investment decisions of the firm. Exporters increase both their employment and their capital intensity in the years after entry. This growth affects aggregate labour productivity in two ways: by shifting resources to firms which were already more productive than their competitors, and by raising labour productivity within the exporters themselves. Incumbent exporters further increase in size and labour productivity as they expand into new markets, but with a nuance – increases in capital intensity follow after initial entry but precede future expansion. The authors argue that this may reflect a particular form of learning by exporting: firms learn through experience about their likelihood of success, and this experience gives them the confidence to commit to productivity-enhancing capital investments in the expectation of future increases in sales.

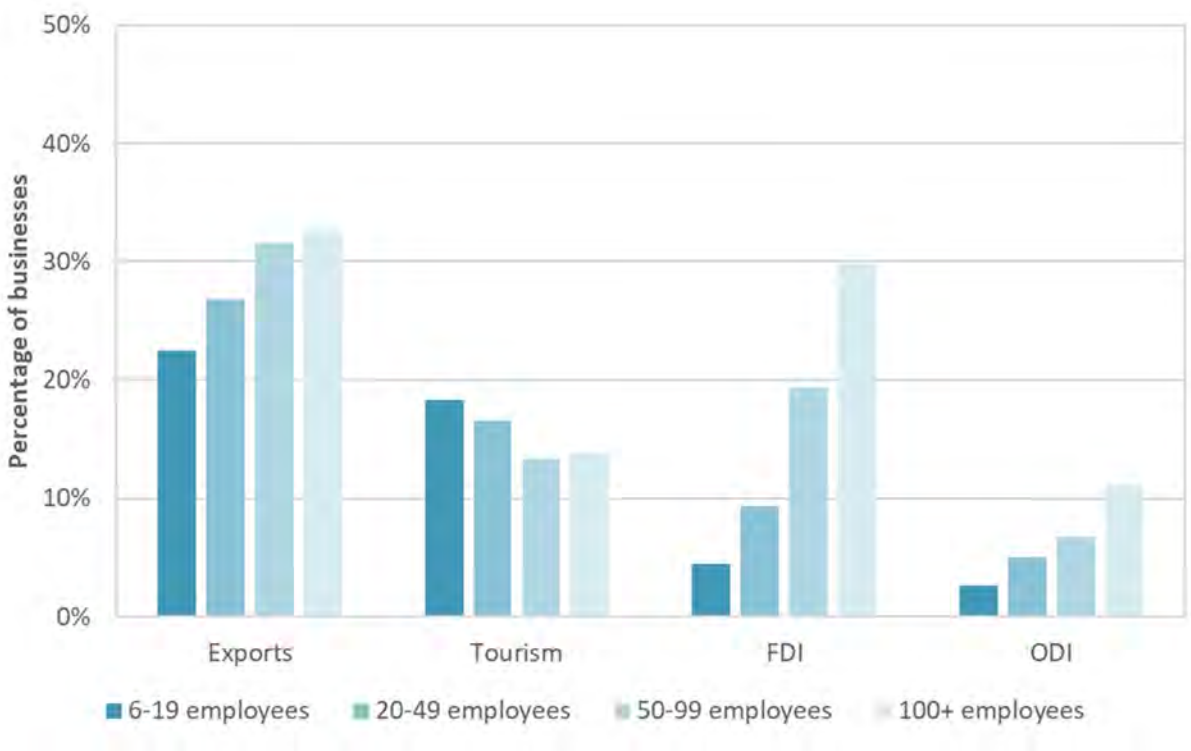
Figure 82 Slowing diversification at the firm level
Percentage of exporting firms that report entering a new export market, 2007-22

Source: Productivity Commission calculations based on Business Operations Survey 2007-22
Notes: Question A23 "Over the last financial year, did this business enter any new export markets?"
Percentages calculated as the number of firms responding "yes" to entering a new market over the number of firms reporting export sales in question A6: "For the last financial year, estimate the proportion of this business's sales of goods and services that came from exports"

5.1 What kinds of firms engage internationally?

The percentage of firms with exports, FDI and ODI all increase sharply with firm size (Figure 83), reflecting the high entry costs and substantial returns to scale involved in these activities (Helpman et al., 2004; Roberts & Tybout, 1997). In contrast, the share of firms with tourism sales declines with firm size. The majority of tourism activity occurs onshore and requires little customisation to meet the requirements of foreign consumers. Transport and logistics costs are also relatively low, with overseas and domestic visitors getting themselves to the goods and services they want, rather than the other way around.

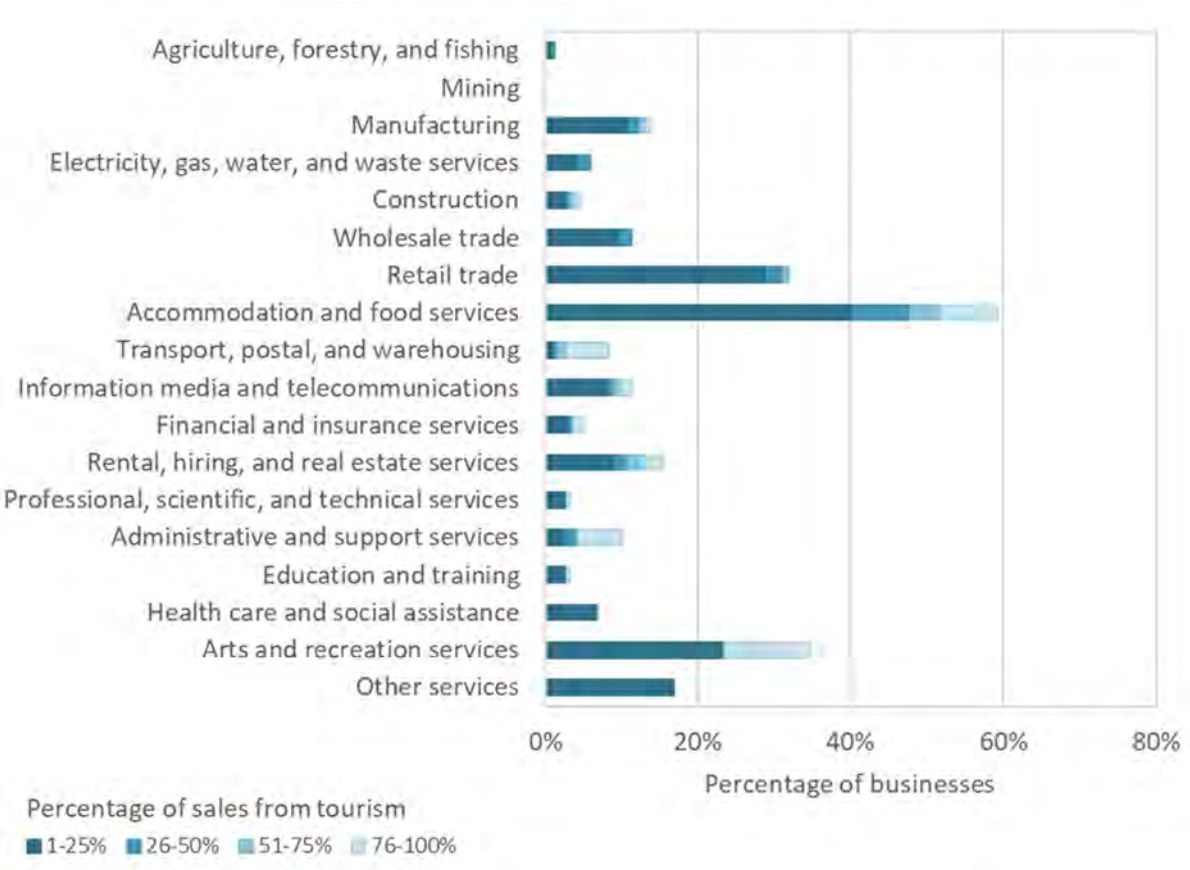
Figure 83 **International engagement is a large-firm activity**
Percentage of businesses with international engagement activities, 2022



Source: Productivity Commission calculations based on Business Operations Survey 2022
Notes: See notes to Figure 79

As you may expect, while tourism is more even across firm sizes (compared to other types of international engagement), it is highly concentrated within certain industries (Figure 84). Only three industries – Retail trade, Accommodation and food services, and Arts and recreation services – have more than 20% of firms reporting any tourism sales. These latter two industries also have the highest share of firms reporting that tourism makes up more than 75% of total sales, at 7% and 11% respectively.

Figure 84 **Tourism is concentrated in three industries**
Tourism intensity by industry, 2022

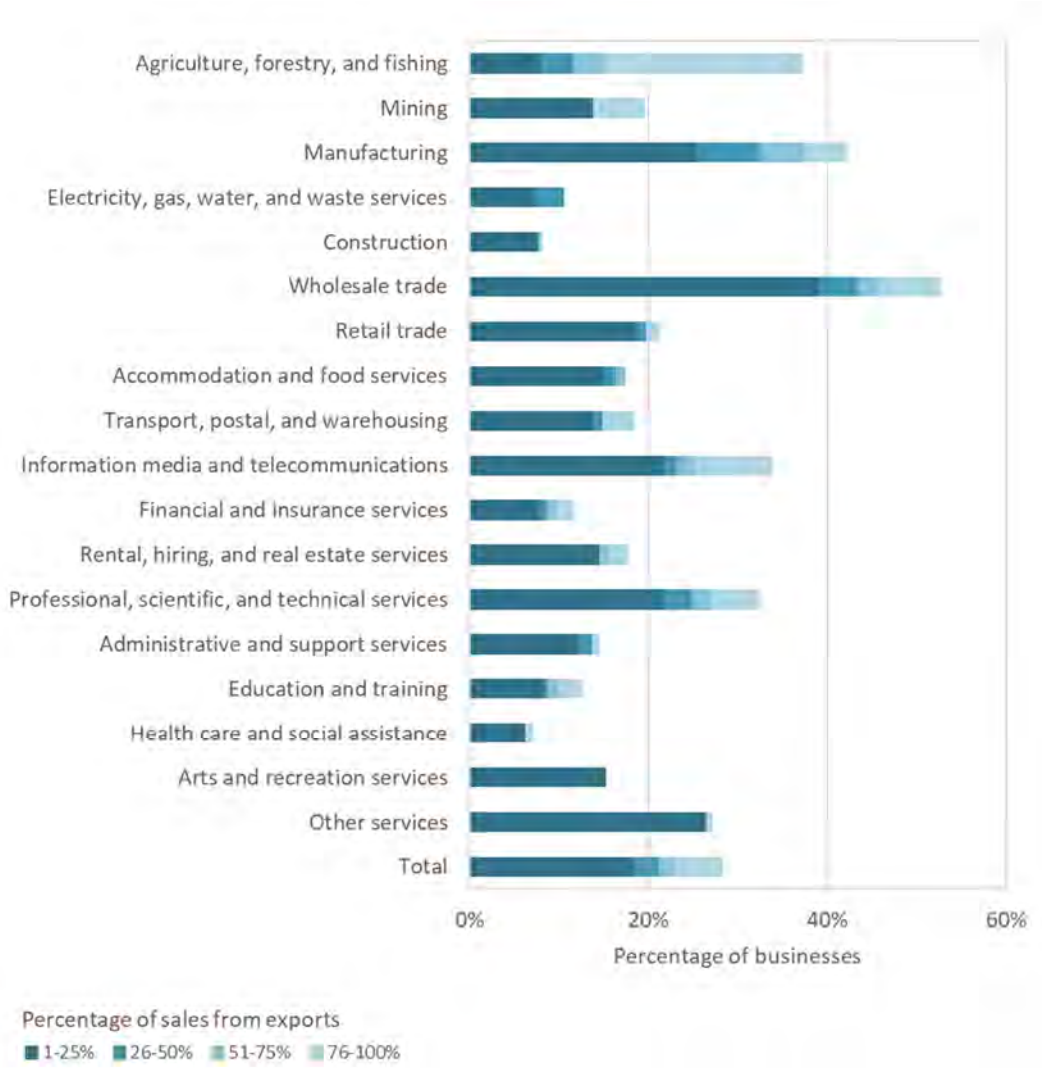


Source: Productivity Commission calculations based on Business Operations Survey 2022
Notes: Question A7 "For the last financial year, estimate the proportion of this business's sales that came from tourism"

Many industries report small amounts of export activity (Figure 85), with three goods industries – Agriculture, forestry and fishing, Manufacturing, and Wholesale trade – and two service industries – Information media and telecommunications and Professional, scientific and technical services – standing out with more than 30% of firms reporting some export sales. Agriculture, forestry and fishing is particularly notable with 17% of firms (57% of exporters) reporting that exports account for over 75% of their total sales. The vast majority of these firms are in the Agriculture industry, an industry in which much of the cross-border activity is undertaken on behalf of producers either by processing businesses (ie, manufacturing firms) or trade intermediaries (most likely recorded in wholesale trade). These structures enable small firms to get their products into overseas markets without needing to engage directly with foreign consumers. However, they also complicate the analysis of firm-reported export receipts, as both the producer and the intermediary can report the same flows of goods, which can result in some exports being double counted.

Comparing Figure 84 with Figure 85 indicates a related difficulty – businesses' instinctive definitions of exports differ from the official definition. While 32% of retail trade businesses report earnings from tourism, only 21% report export sales. Under national accounting standards, tourism is defined as an export (unless firms are serving only domestic tourists) and made up 20 percent of New Zealand's aggregate export receipts in the year to March 2020 (before falling to 2.6 percent in the following year due to the COVID-19 pandemic).

Figure 85 Export intensity by industry, 2022



Source: Productivity Commission calculations based on Business Operations Survey 2022
Notes: Question A6 "For the last financial year, estimate the proportion of this business's sales of goods and services that came from exports"

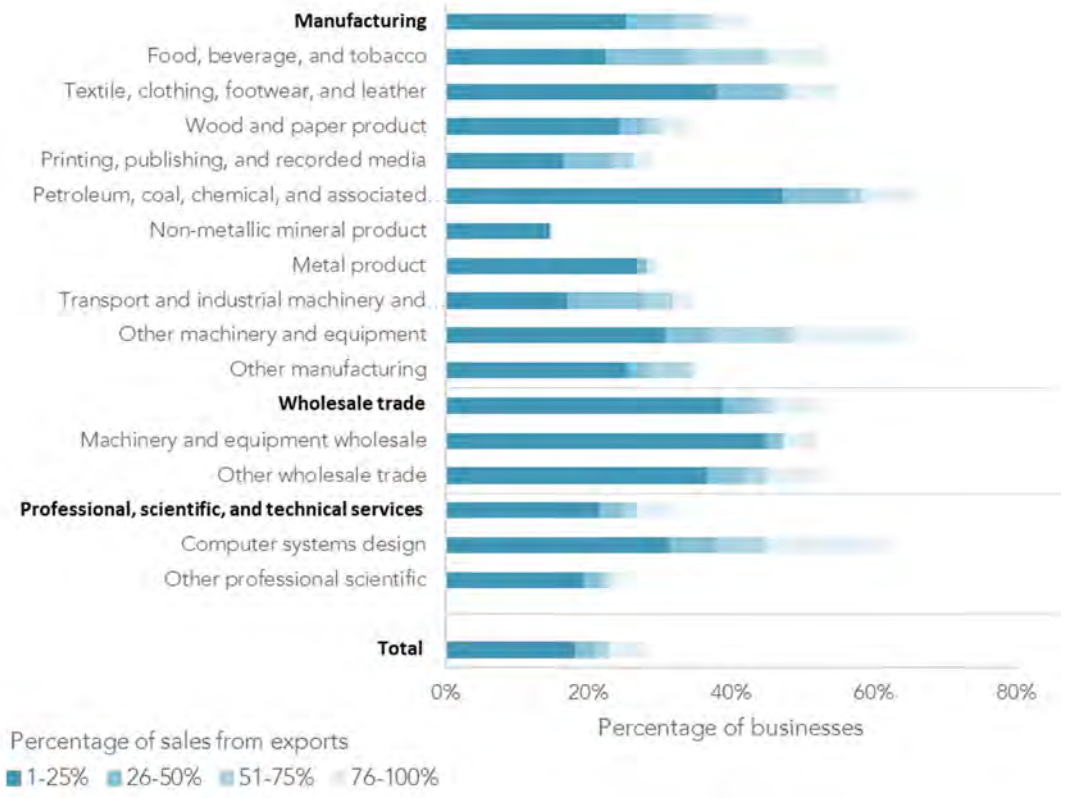
We can dig into export intensity in more detail for some industries. We focus on three where the disaggregated industries are large enough to support further analysis: Manufacturing; Wholesale trade; and Professional, scientific, and technical services (Table 6)[22].

The manufacturing industry with the largest percentage of businesses with export sales is the Petroleum, coal, chemical, and associated product industry. Sales of goods and services for export, make up less than a quarter of overall sales for around half of all businesses in this industry. It is perhaps no surprise to learn that the manufacturing industry where exporting is least common is Non-metallic mineral product manufacturing (eg, concrete, cement, glass and ceramics), at around 14% of businesses. At the other end of the spectrum, one in five Food, beverage and tobacco manufacturing

[22] We restrict our analysis to industries where the sub-industries have at least 100 businesses in the industry and at least 30 firms in the largest category (usually the 1-25% category).

businesses obtain more than half of their sales through exporting. This figure rises to over a quarter of Other machinery and equipment manufacturing businesses (which includes industrial machinery, scientific computer and electrical equipment, and electrical appliances).

Figure 86 Export intensity in selected sub-industries



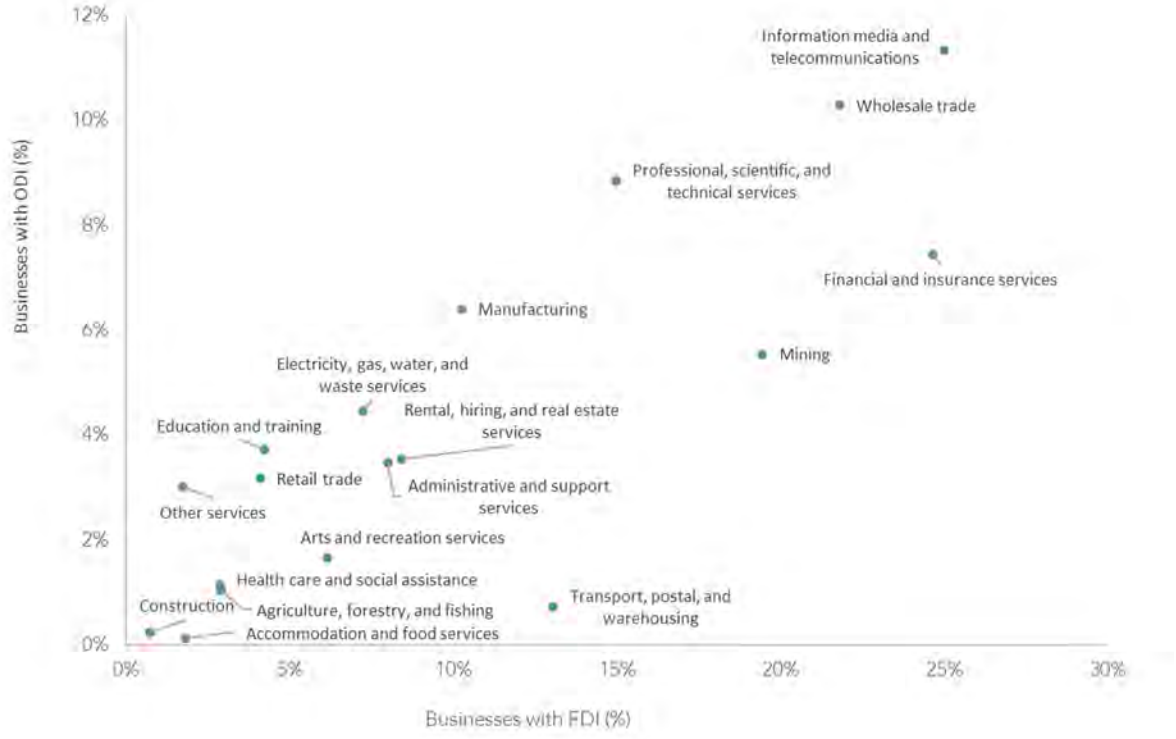
Source: Productivity Commission calculations based on Business Operations Survey 2022
Notes: Question A6 "For the last financial year, estimate the proportion of this business's sales of goods and services that came from exports"

At an industry level, outward direct investment (ODI) and inward, or foreign direct investment (FDI) tend to go together. Although ODI by New Zealand firms is much rarer than foreign investment in businesses located here, the sectors with the highest share of firms under full or partial foreign ownership are also the sectors with the highest share of New Zealand firms investing offshore (Figure 87). Services industries, particularly the tradeable and professional services industries, tend to have high levels of both FDI and ODI. Tradeable goods industries (Manufacturing and Mining) are also relatively strong in both. In contrast, industries which tend to serve the local market – Accommodation and food, Construction, Health care and social services – have the lowest levels of both FDI and ODI.

Agriculture, forestry and fishing stands out. Despite being highly traded, these primary production industries have very low involvement in FDI and ODI, which may reflect a combination of many small firms (79% of AFF firms in the BOS population have less than 10 employees, compared to 73% for the BOS population as a whole) and restrictions on international purchases of agricultural land, both in New

Zealand and internationally.[23] International data on FDI intensity (measured in value terms) shows similar patterns – in almost all OECD countries, services industries account for the largest share of inward direct investment stocks, while Agriculture, forestry and fishing, and Construction have the lowest (OECD, n.d.b).

Figure 87 **FDI and ODI go together**
Percentage of businesses with FDI or ODI, 2022



Source: Productivity Commission calculations based on Business Operations Survey 2022
Notes: Question A12 "As at the end of the last financial year, did any individual or business located overseas hold any ownership interest or shareholding in this business?" (FDI = yes)
Question A13 "As at the end of the last financial year, did this business hold any ownership interest or shareholding in an overseas located business (including its own branch, subsidiary or sales office)?" (ODI = yes)

5.2 The how and why of international engagement

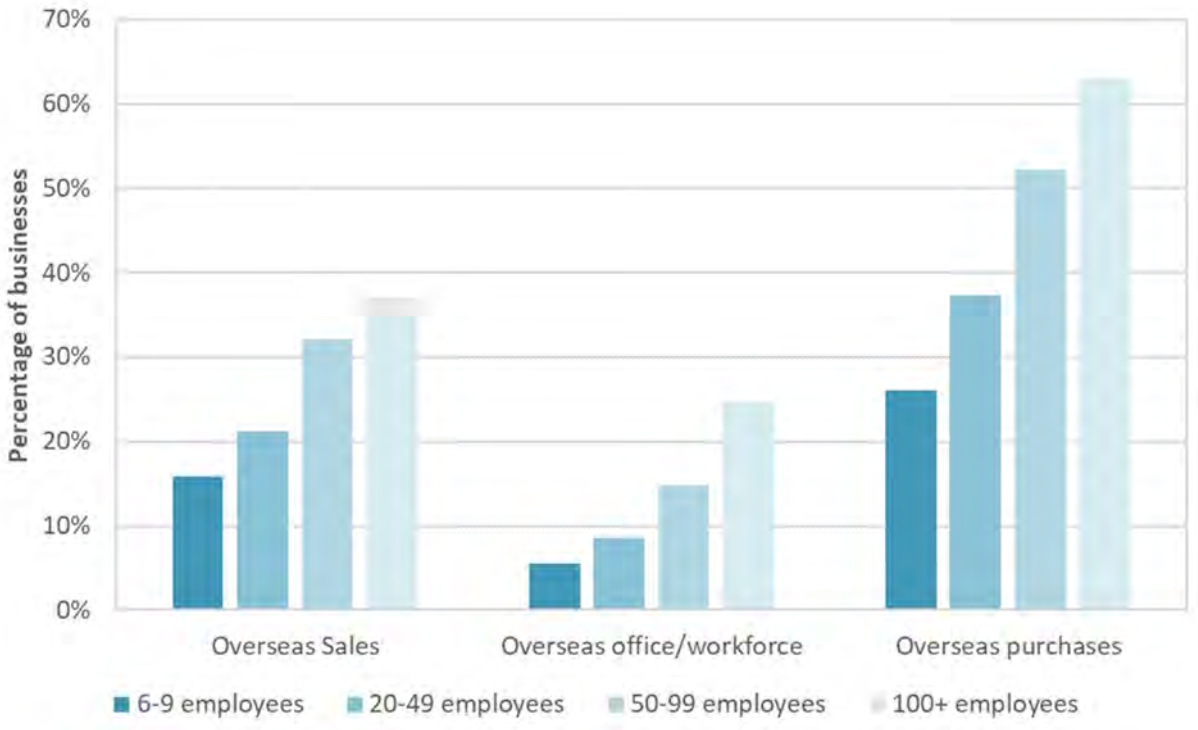
The BOS survey adds value to aggregate statistics by presenting a picture not just of how much New Zealand exports as a country, or the value of direct investment flows, but of which firms are involved in international activities, how and why. In this section we explore three forms of international engagement: overseas sales of goods and services, overseas purchases, and overseas located workforce and/or offices. These three activities are the focus of the International Engagement BOS module, run (in various forms) in 2007, 2011, 2015 and 2019. The next International Engagement module is planned for 2024, and largely follows the 2015 and 2019 surveys.

[23] The average score for the primary sector investment in the OECD's FDI regulatory restrictiveness index is 0.135, compared to 0.055 for the secondary (goods manufacturing) sector. FDI restrictiveness in services is similar to that of the primary sector at 0.133 (OECD, n.d.a).

There are many similarities between the measures of international engagement used in the International Engagement module, and the more standard annual measures of exporting and investment collected each year. They capture similar concepts – either selling products to overseas buyers or using offshore resources to support the business's broader strategy. Both are strongly linked to firm size – larger firms are more likely to engage in international activities than smaller firms. Overseas sales are more common, and less size-dependent, than having an overseas office or workforce (Figure 88), just as exporting is more common and less size dependent than ODI (Figure 83). But there are also a number of differences in terms of what is included and how firms appear to interpret questions across the two modules.

Figure 88 New indicators, same patterns

Percentage of firms with international engagement, 2019



Source: Productivity Commission calculations based on Business Operations Survey 2019

Notes: Engagement in each of the three activities is defined by firms reporting that they marked "overseas only" or "NZ and overseas" to any option in the relevant question below.
Overseas sales: "In the last financial year, to which markets did this business sell the following goods and services? Raw, unprocessed materials/manufactured or finished goods/services/technology and licences for use of intellectual property/other"
Overseas office/workforce: "In the last financial year, where did this business have a workforce and/or offices carrying out the following activities? Production of goods/production of services for customers/transport, logistics and distribution/marketing, sales and after-sales service/research and development (including product design)/IT services for own use/management, administration and back-office functions."
Overseas purchases: "In the last financial year, where did this business directly source the following goods and services? Raw materials and components/finished goods for resale/machinery and equipment for own use/technology and licences for use of intellectual property/ research and development (including product design)/IT services for own use/other services used by this business."

5.3 Overseas sales of goods and services

While exports and sales to overseas markets sound like a very similar concepts, survey responses indicate that firms perceive a difference between the two. Before looking more closely at the how and why of overseas sales, it's useful to consider why these two measures may differ. The annual BOS question about exports asks firms about "the proportion of this business's sales of goods and services that came from exports", whereas the International Engagement module question about overseas sales asks firms "to which markets did this business sell the following goods and services?".

Figure 89 shows the percentage of firms in each industry reporting a non-zero export value ("exports") alongside the percentage that report selling to "overseas" or "NZ and overseas" markets ("overseas sales"). In some industries, there is a relatively large disparity in the percentage of firms who report exports and who report overseas sales (eg, health care and social assistance, and construction), whereas in other industries the percentages are more similar (eg, mining, and administrative support services). There are a number of reasons, listed below, that may explain the gaps and similarities between the two measures at the industry level. The first two relate to situations where the number of firms reporting exports is higher that the number reporting overseas sales, while the third gives an example where the opposite is true. In each case, the examples give a flavour of how aggregate figures can differ even as firms give internally consistent responses across the survey.

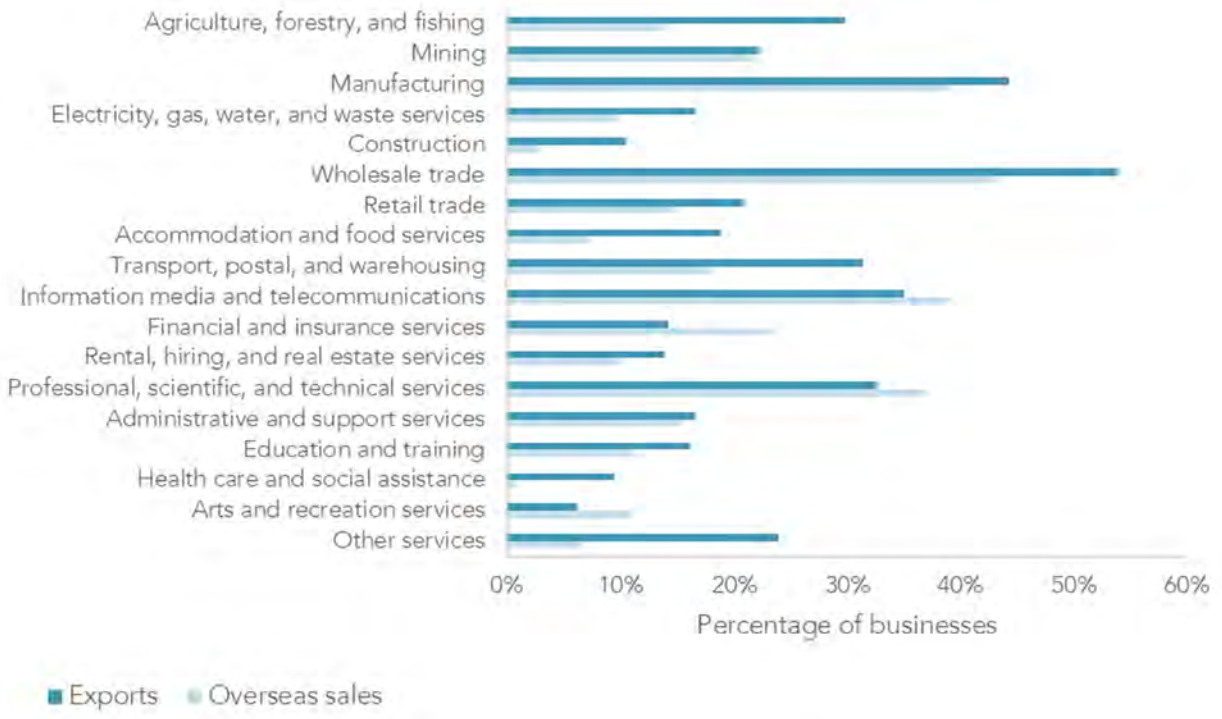
- Direct and indirect exports – Firms may respond to the export sales question in relation to the final destination of their products, but the overseas sales question in relation to the location of their immediate contacts. For example, Agricultural producers know that their goods are exported but sell them to an onshore processor or intermediary, while Transport companies are in the business of physically exporting products but sell their services to local producers.

- Onshore vs offshore sales – Respondents may recognise that goods and services provided to non-residents within New Zealand count as exports, but may exclude them when asked about sales to an overseas market because they occur predominantly onshore (eg, hotel room sales to a non-resident). This may explain the higher export propensity in services industries such as Accommodation and food services, Education and training, and Healthcare and social assistance.

- Products that are physically shipped across a border, compared to those which are delivered electronically or via offshore subsidiaries – respondents in industries where products are often delivered through digital channels (eg, Information media and telecommunications and Professional, scientific and technical services, shown in Figure 92) may be selling their products in overseas markets but do not consider them as exports because they do not physically cross the border. Relatedly, firms with offshore production facilities or offices may validly be selling their products abroad but not be exporting as both the production and delivery of the goods or services occur offshore.

In the remainder of this section, we take businesses' implicit understanding of what constitutes an overseas sale as given and look further at where, how and why firms undertake overseas sales.

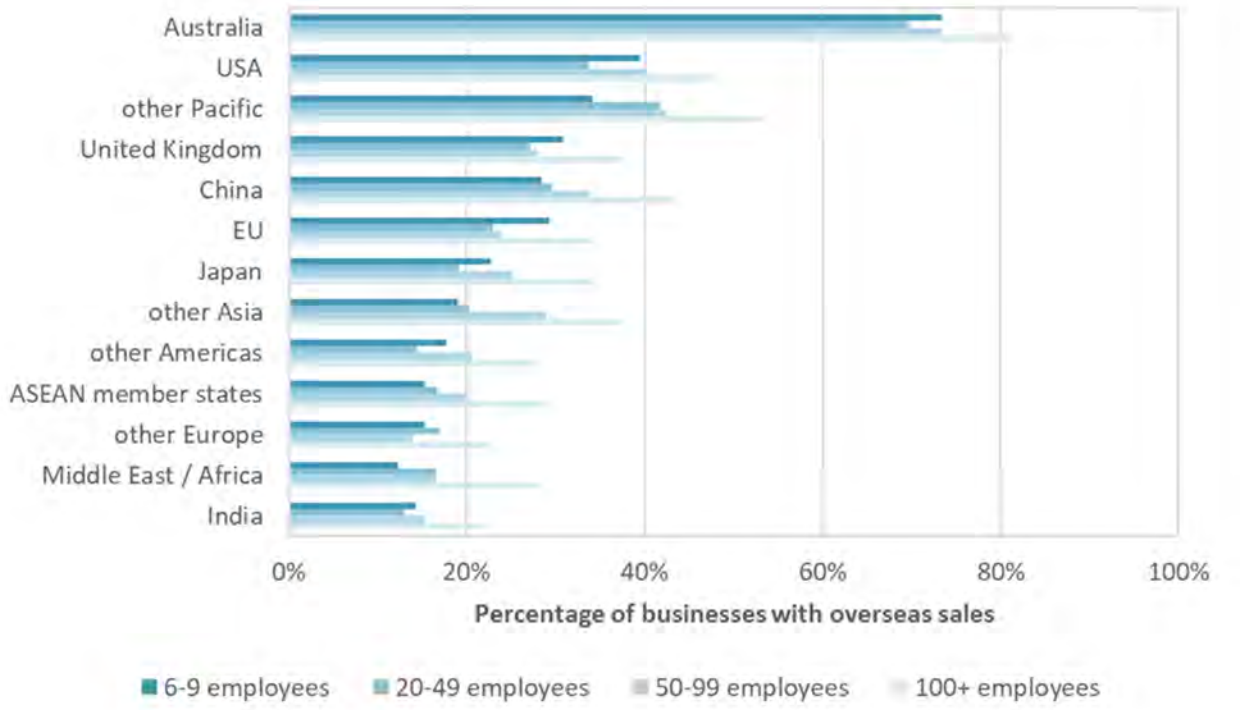
Figure 89 Exports vs Overseas sales, 2019



Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: See notes to Figure *79* (exports) and Figure *88* (overseas sales).

Despite arguments to the contrary, the empirical evidence is clear: when it comes to international trade, distance is not dead (Anderson & Van Wincoop, 2004; Carrère et al., 2020; Disdier & Head, 2008). Australia has long been the market of choice for New Zealand firms looking to expand into international markets, due to its geographic, political and cultural proximity as well as favourable trade arrangements. Over 70% of New Zealand firms that report overseas sales have Australia as one of their offshore markets (Figure 90). Other well-served markets are consistent with a "gravity model" of international trade – firms are more likely to sell to markets which are large and geographically close, as well as countries that share a common language (Egger & Lassmann, 2012) or migration links (Law et al., 2013). While China's share of New Zealand export value has grown rapidly since the mid-2000s, surpassing that of our more traditional markets , the relative ease of exporting to closer, more culturally and linguistically similar countries means countries such as Australia, the USA and the Pacific Islands remain the most common destinations at the firm level.

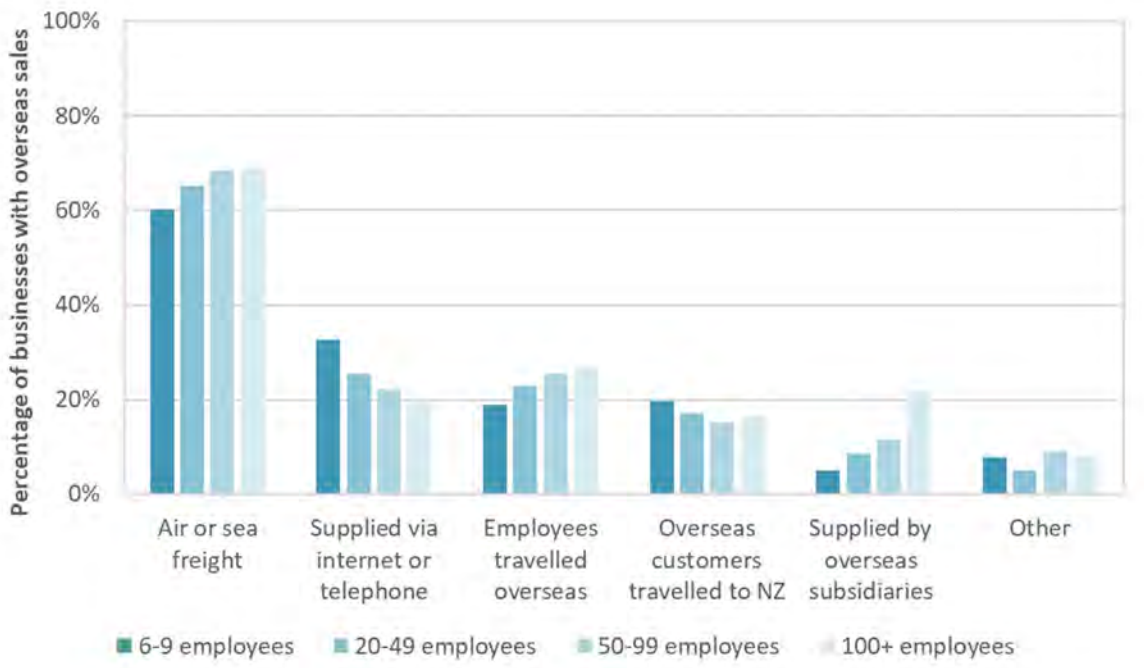
Figure 90 Australia is the top overseas market across all firm size groups
Percentage of businesses reporting sales to overseas markets



Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C6 "In the last financial year, to which of the following overseas markets did this business sell goods and services?" Expressed as a percentage of businesses with overseas sales.

Geographic proximity also helps to keep transport and logistics costs low. Despite the rapid expansion of online activities over recent years, the vast majority of firms still rely on physical transport using air or sea freight to get their products to overseas markets (Figure 91). Smaller firms have a relatively greater reliance on low-cost delivery methods – supplying goods and services digitally via internet or telephone, or selling to overseas customers who have come to New Zealand. In contrast, large firms, with 100 or more employees, are more likely to use overseas subsidiaries to sell their products, reflecting the firm-size gradient in ODI shown in Figure 83.

Figure 91 Delivery methods of goods and services to overseas markets



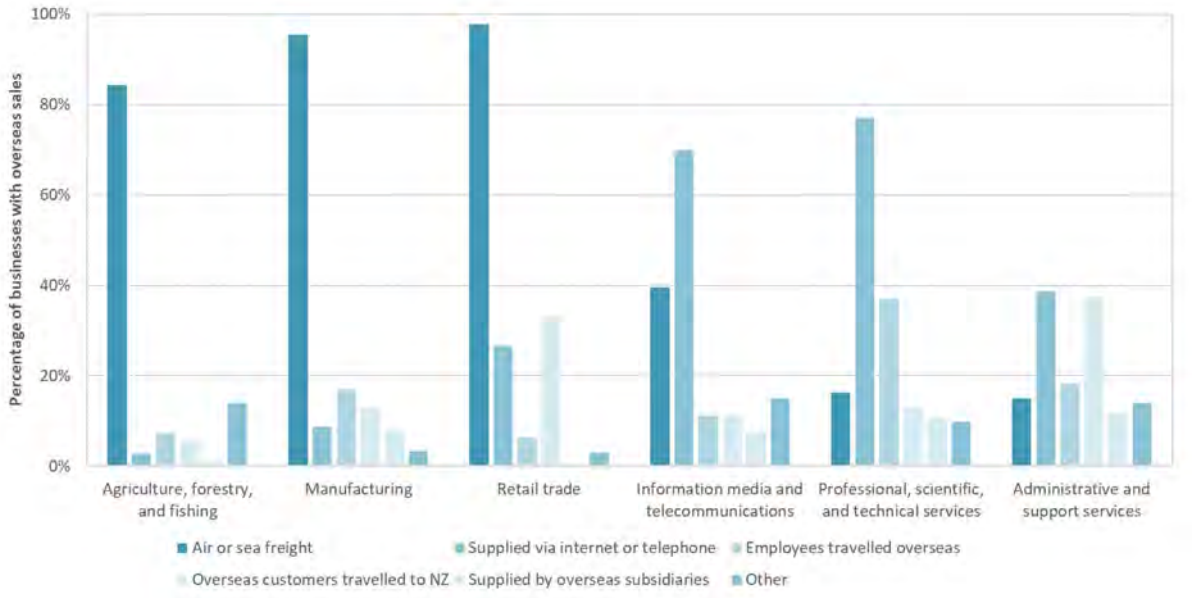
Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C9 "In the last financial year, which of the following methods did this business use to deliver goods and services to overseas customers?"

As you would expect, there are distinct differences between industries in how they deliver their products to overseas markets, which are shown in Figure 92. In traditional goods industries – Agriculture forestry and fishing, Manufacturing, Wholesale and Retail trade – over 80% of firms send their products offshore by air or sea freight.[24] Retail trade firms also sell to a high proportion of their overseas customers onshore, and almost as many make use of digital delivery via internet or telephone. Delivery via internet or telephone is the most common method in many services industries, but industries differ in their use of other methods. The second most common method for Information media and telecommunications is air or sea freight, for Professional services it is employees travelling overseas, and for Administrative and support services it is overseas customers travelling to New Zealand.

Sanderson et al., (2022a) use data from BOS to explores whether the adoption of high-speed, fibre-to-the-premises internet increases the likelihood that New Zealand firms export. They find that firms that adopted fibre in the early years of its national roll-out were subsequently more likely to start exporting. The relationship was stronger for firms that were already using the internet intensively or making complementary investments to benefit from their ICT use. They then show that the relationship between fibre uptake and exporting is limited to services industries, consistent with firms in those industries having a greater ability to deliver products digitally and hence a greater benefit from increased connection speeds.

[24] Wholesale trade not shown in Figure 92 due to space and readability constraints. The mix of delivery methods reported in Wholesale trade is very similar to that in Manufacturing.

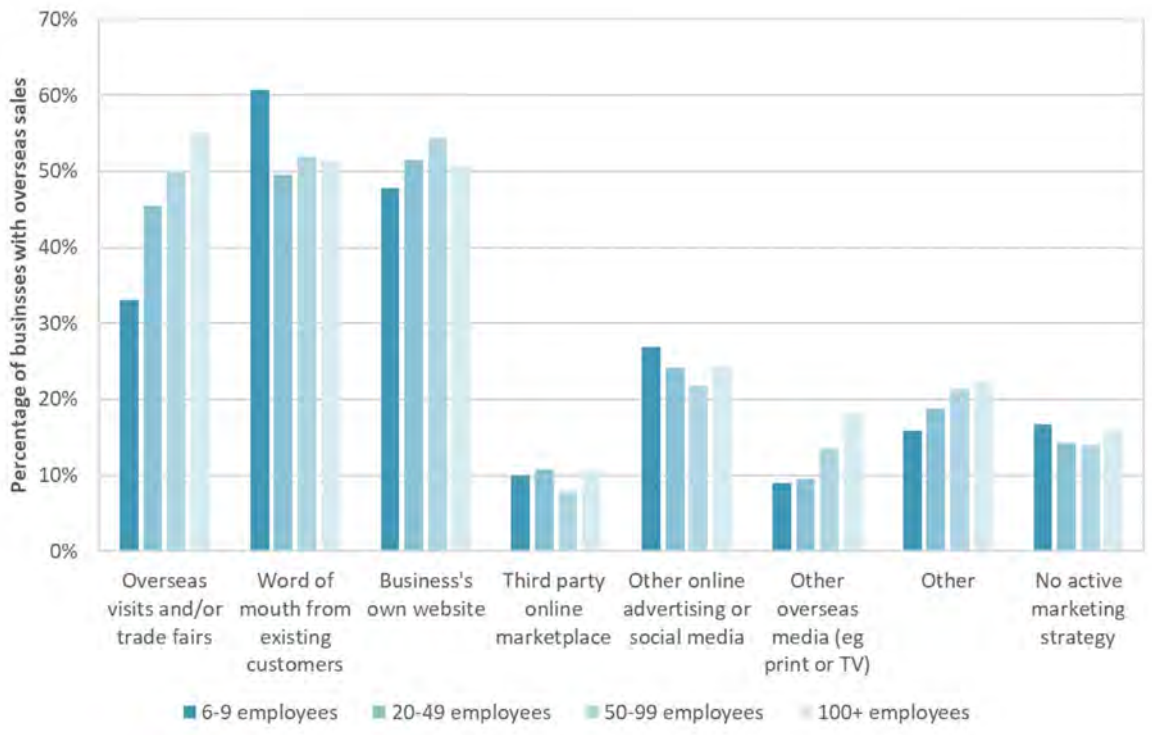
Figure 92 Delivery methods of goods and services, selected industries



Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C9 "In the last financial year, which of the following methods did this business use to deliver goods and services to overseas customers?"

Digital methods are also a common aspect of firms' marketing strategies, particularly for smaller firms (Figure 93). Almost half of all firms with overseas sales marketed their products via their own websites, 10% through third-party online marketplaces, and 25% through other online advertising or social media. Word of mouth from existing customers was an important marketing tool for small businesses in particular, while larger businesses were much more inclined towards traditional, higher cost and more geographically targeted methods such as overseas visits and trade fairs or advertising through other overseas media, such as print media and TV.

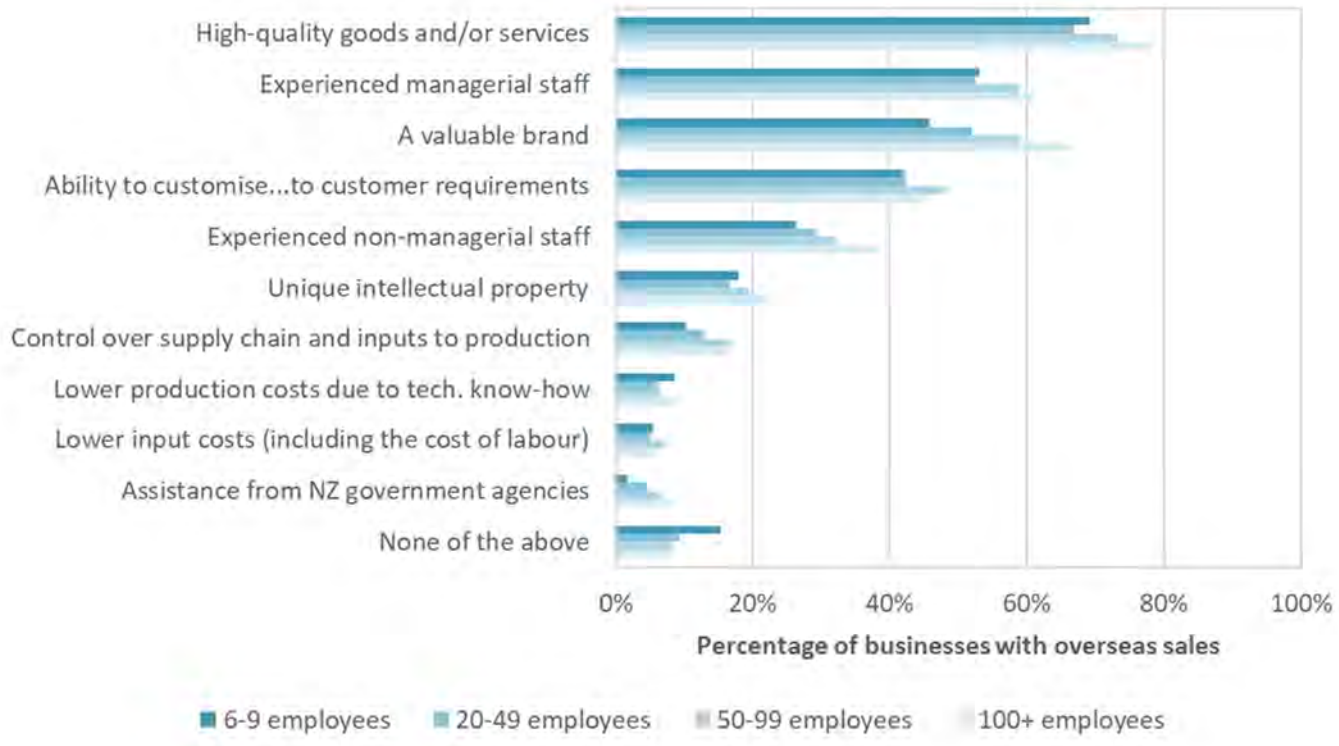
Figure 93 Overseas marketing and promotion methods



Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C8 "In the last financial year, how did this business market its products overseas?"

Alongside objective questions about how firms are marketing and delivering their products overseas, the BOS International Engagement Module also digs into more subjective questions about the factors that allow firms to compete in international markets (Figure 94), and the actions they take to support their overseas sales (Figure 95). Across all firm sizes and industry groups, the most common advantages that firms reported were the quality of their people (particularly their managerial staff), product (both quality and ability to customise to requirements) and brand. Few firms reported cost or supply chain advantages, and even fewer cited assistance from government agencies as key factors that helped them to compete offshore.

Figure 94 People and product seen as main advantages in overseas markets



Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C7 "In the last financial year, what were the key factors that helped this business compete in overseas markets?"

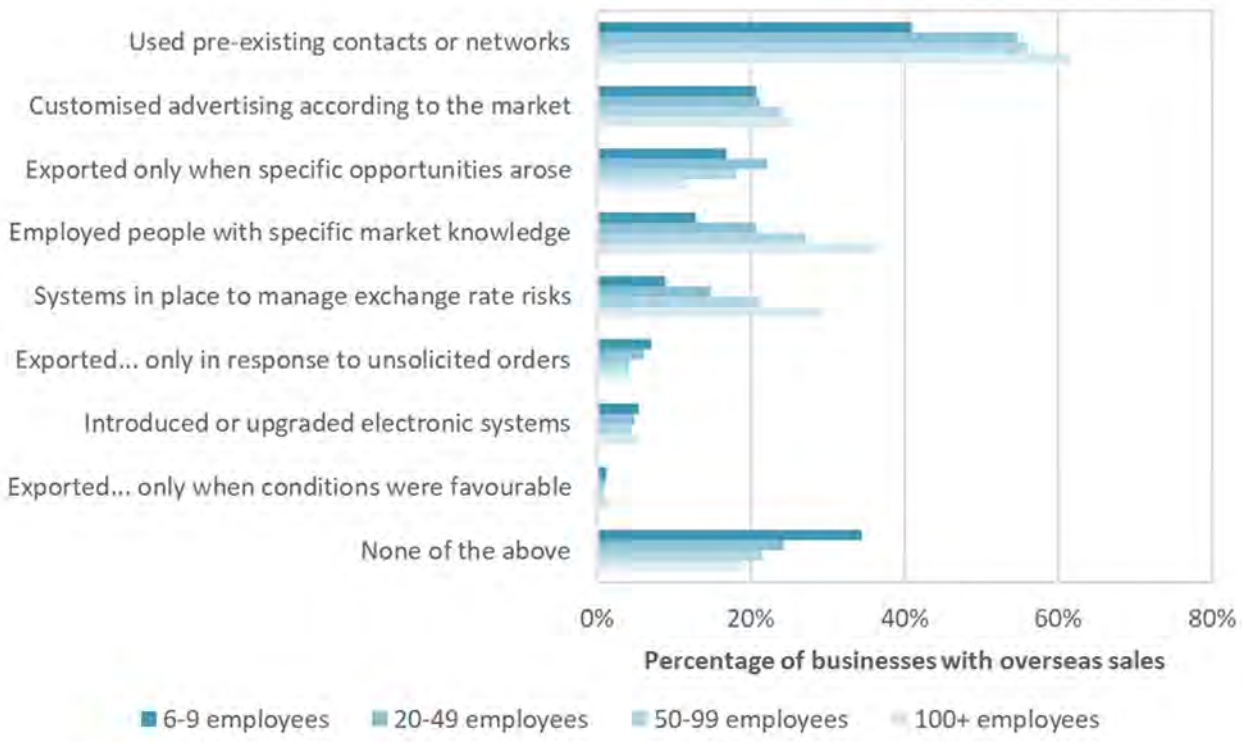
People-to-people links are an important aspect of building trade relationships. Business and social networks can help to match buyers and sellers, build trust, and transfer information about local culture, preferences, and regulatory frameworks (Rauch, 1999). Firms of all sizes reported that they made use of existing contacts or networks in overseas markets to support their overseas sales, while many large firms also employed people with specific market knowledge or connections (Figure 95). Face-to-face visits are also an important component of the marketing strategy, especially for larger firms (Figure 93).

While over 40% of firms reported that their ability to customise products to specific customer requirements was an advantage (Figure 94), only 22% customised their advertising and promotion to particular markets (Figure 95). This may reflect the prevalence of word of mouth and online marketing and promotion (Figure 93) or may indicate that many firms focus their overseas sales and marketing on a single destination (eg, Australia).

While distance is far from dead, the rise of e-commerce increases firms' ability to dip in and out of overseas markets at relatively low cost. By giving businesses opportunities to identify overseas sales opportunities, and providing visibility of their products to overseas customers, online advertising, social media and tendering platforms make it possible for firms to serve overseas markets without extensive investments in overseas marketing and establishing distribution networks. This model of exporting is consistent with the observation that the growth in exporter numbers has been driven by firms with relatively low intensity export sales (Figure 80). Figure 95 presents a mixed picture of the prevalence of "opportunistic exporters". While only 6% of firms with overseas sales reported that they "exported or sold overseas only in response to unsolicited orders" (many of which presumably came either through

word of mouth or a web search), 18% reported that they "exported or sold overseas only when specific opportunities arose".

Figure 95 People-to-people connections are used to support overseas sales
Percentage of businesses reporting selected strategies to support sales



Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C 11 "In the last financial year, did this business use any of the following to support its overseas sales?"

Alongside questions on strategies and competitive advantages, the BOS International Engagement module also surveys firms on what barriers they faced, in terms of the factors that made it difficult for them to sell their products in overseas markets. The most commonly reported barriers included a combination of environmental factors – distance from markets, low demand or increased competition in overseas markets, and exchange rate volatility or level – and factors that were internal to the firm – limited managerial time or resources, and limited knowledge about specific markets (Figure 96). However, perhaps the most notable feature is that the single most common response was "no significant barriers".

Sanderson (2016) reports results from the 2007 and 2011 International Engagement modules, which show that the extent to which firms report different barriers is related to both their level of experience and their level of interest in entering or expanding their overseas sales. Among non-engaged firms, the most commonly reported barriers were related to internal factors – a lack of experience in expanding beyond New Zealand, a lack of knowledge about specific markets and difficulty accessing finance for expansion.[25] In contrast, firms with current sales (and especially those looking to expand their sales in

[25]The categories of "limited managerial time/resources" and "no significant barriers" were added to the survey in 2015, and seem to have captured many of those firms that either failed to respond or said "other" in the earlier surveys.

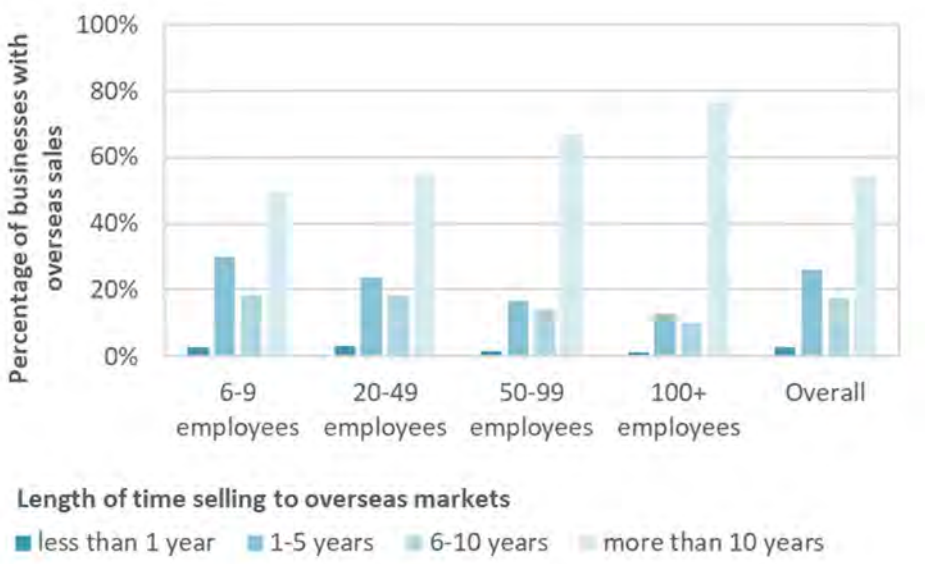
future) are less likely to cite factors associated with experience or market knowledge and more likely to cite environmental factors – exchange rate levels and volatility, distance to market, and demand.

Figure 96 Many firms report no significant barriers to overseas sales

Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C10 "In the last financial year, which of the following made it difficult for this business to sell goods and services overseas?"

With firms reporting fewer barriers with experience, the large number of firms experiencing "no significant barriers" may relate to the length of time that firms have been in market. Even among the smallest firm size group, almost half of all firms with overseas sales had been selling internationally for more than 10 years. Among the largest size group, the figure is over 75% (Figure 97). Using detailed merchandise trade data, Fabling & Sanderson (2010) show that many export relationships are very short-lived – in the decade to 2006, only a quarter of New Zealand firms that started exporting were still exporting ten years later; 40% had ceased within a year – but that survival rates increased with firm size and past experience. Firms that return to exporting after a break tend to have longer export spells than first-time entrants, consistent with firms learning from their own experience about how to succeed in overseas markets, or learning not to repeat an unsuccessful attempt.

Figure 97 Most firms that sell overseas have been doing so for many years
Percentage of firms by length of time in overseas markets

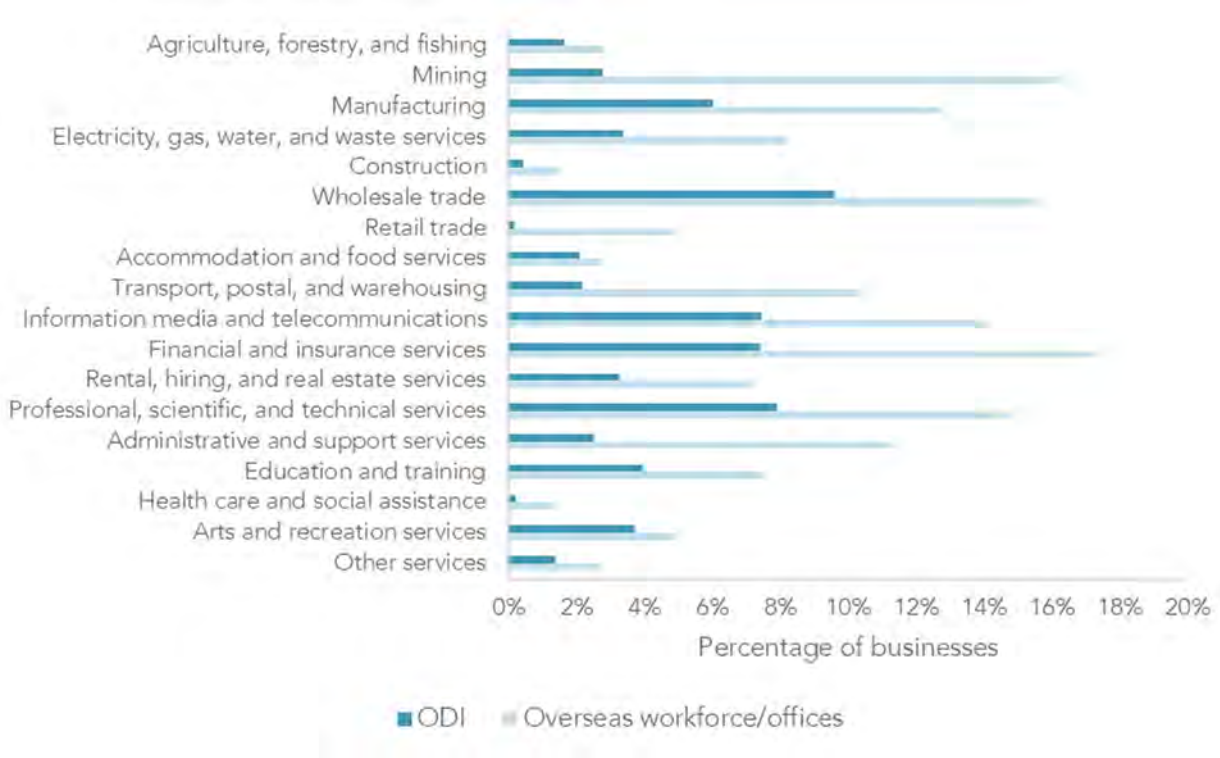


Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C4 "How long has this business been selling goods and services in overseas markets?"

5.4 Overseas workforces and offices

In 2022, 3.5% of New Zealand firms reported holding "any ownership interest or shareholding in an overseas located business (including its own branch, subsidiary or sales office)" (Figure 83). While still low, the number of firms who reported having an office or workforce overseas was double that, at 7% (Figure 88). In some industries, the figure was over 10% (Figure 98). This difference reflects the wide range of ways that firms can engage internationally.

Figure 98 Overseas workforce vs ODI



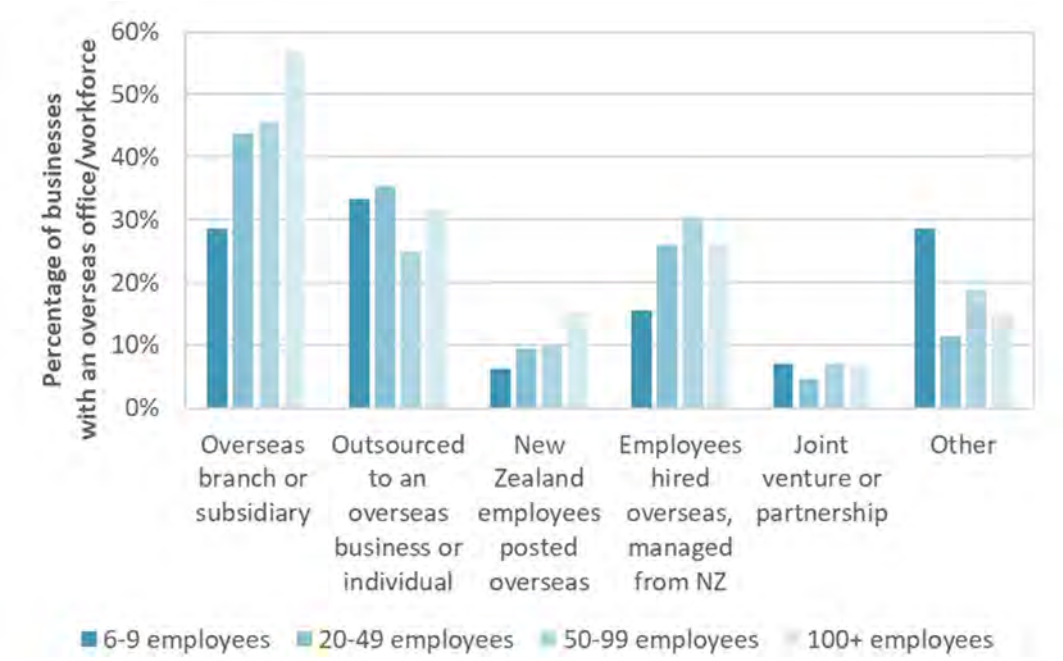
Source: Productivity Commission calculations based on Business Operations Survey 2019

Notes: Question A13 ODI: "As at the end of the last financial year, did this business hold any ownership interest or shareholding in an overseas located business (including its own branch, subsidiary or sales office)?" (ODI = yes)
Question C19 Overseas office/workforce: "In the last financial year, where did this business have a workforce and/or offices carrying out the following activities? Production of goods/production of services for customers/transport, logistics and distribution/marketing, sales and after-sales service/research and development (including product design)/IT services for own use/management, administration and back-office functions."

While overseas branches and subsidiaries (ODI) are the single most common management arrangement for firms with an overseas workforce or office, this arrangement is concentrated among larger firms (Figure 99), reflecting the high costs of establishing and maintaining an overseas subsidiary (Helpman et al., 2004).[26] In contrast, other methods of accessing an overseas workforce are more evenly spread across the firm size distribution. Firms across the size distribution can benefit from locating some activities offshore without the risks and up-front costs of ODI through outsourcing activities to an overseas business or individual, or by hiring employees overseas but managing them through the New Zealand-based business.

[26] Fewer small (6-19 employee) firms report having an overseas branch or subsidiary business in the BOS international engagement module (Module C) than indicate having ODI in the annual BOS Module A. Reasons for this difference are unclear and may relate to survey fatigue and/or differences in interpretation across the questions. In particular, respondents from small firms also report relatively high use of joint ventures and partnerships, and "other" methods in Module C, which may have some cross-over with their selection of ODI in Module A.

Figure 99 Many ways to access an overseas workforce
Arrangments for managing overseas activities, 2019



Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C22 "Under what arrangement(s) does this business manage the workforce or offices it has overseas?"

Box 7 Why do firms invest offshore?

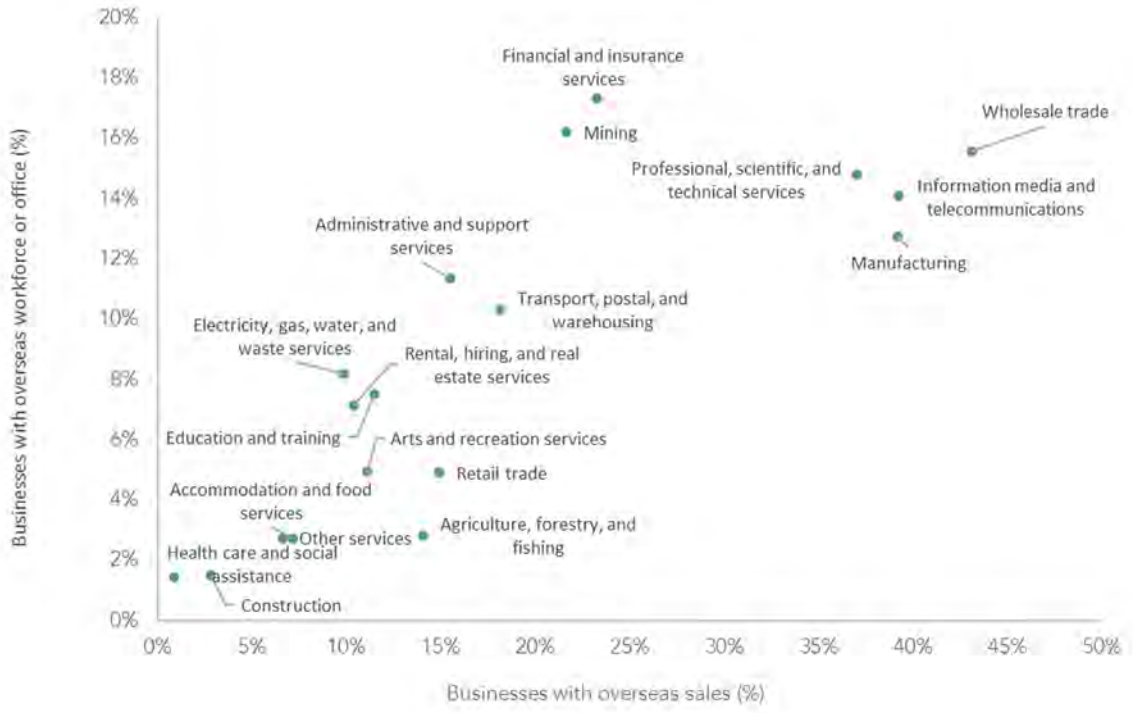
Firms engage in FDI for many reasons. The eclectic paradigm of FDI (Dunning, 2000) explains why firms engage in FDI based on three main factors: ownership advantages, location advantages, and internalisation advantages. Ownership advantages refer to the unique assets that a firm possesses, such as technology, brands or managerial expertise. Location advantages relate to the attractiveness of a particular foreign market, including its size, growth potential, and regulatory environment. Internalisation advantages relate to the benefits of internalising operations within the firm, rather than relying on external market mechanisms. For example, firms may prefer to engage in FDI rather than outsourcing in order to retain control of the technology and intellectual property embodied in the production of their goods and services. Observed FDI flows and multinational activity are seen as a response to the interaction of the three advantages in a particular context. A firm's decision to engage in FDI thus reflects the economic and political features of both the host and the home countries, the industry and nature of the activity the firm is engaged in, the characteristics and objectives of the investing firm, and the purpose of the FDI.

FDI flows can in turn be distinguished by their purpose – what the investing firm was seeking to achieve through their overseas investments. FDI motivations are often grouped into four main types:

- **Market-seeking** (or demand oriented) FDI is aimed at improving firms access to foreign markets, allowing them to access a larger customer base, reduce transport costs, or bypass trade barriers.
- **Resource-seeking** (supply oriented) FDI occurs when firms are seeking access to inputs, such as land and climatic conditions, minerals, and unskilled labour that may be scarce or expensive in their home country.
- **Efficiency-seeking** (rationalised) FDI involves optimising production processes and allocating the existing activities of the firm optimally across space. Specific motivations might include optimising supply chains, diversifying risks, or benefiting from differences in product and factor prices.
- **Strategic asset-seeking** FDI involves the acquisition of strategic assets, such as technology, brands or distribution networks, that strengthen the competitive position of the investing firm or weaken the position of their competitors.

Other characterisations of FDI include the distinction between **horizontal** FDI, in which firms locate production offshore in place of producing at home and exporting products to foreign customers (Greenaway & Kneller, 2007; Markusen, 1984), and **vertical** FDI in which firms conduct different parts of their production and supply in different countries (Helpman, 1984; Helpman & Krugman, 1987).

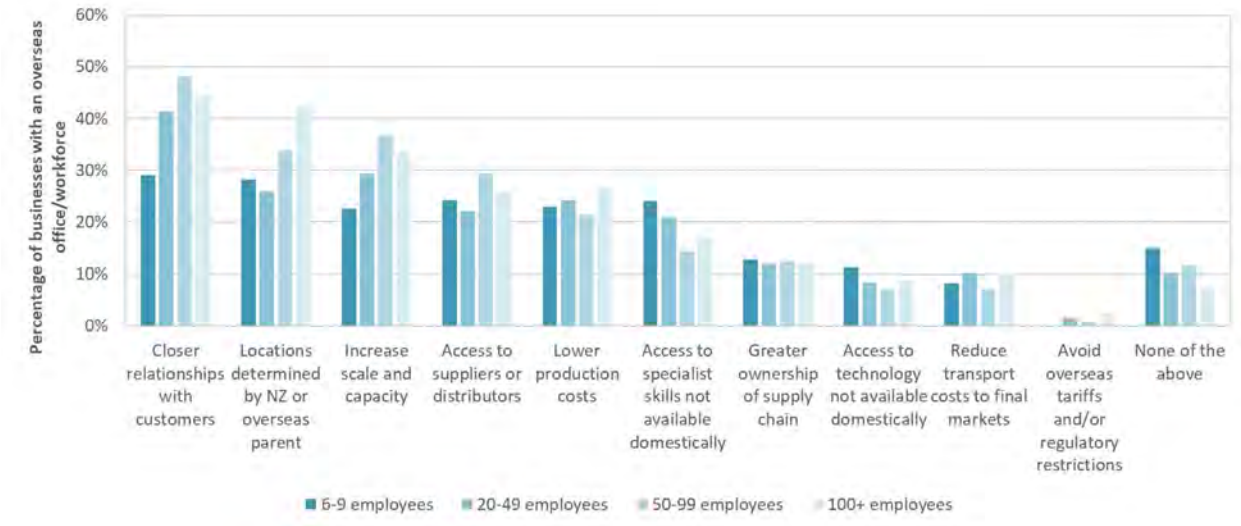
Figure 100 Overseas sales and overseas locations tend to go together
Percentage of businesses with overseas workforce or sales, 2019



Source: Productivity Commission calculations based on Business Operations Survey
Notes: See notes to Figure 88.

Like FDI and ODI, overseas sales and overseas workforces tend to go together (Figure 100). While the two are often seen as substitutes – firms face a choice of whether to serve foreign markets via exports or offshore production – there are many reasons for locating a subset of business activities offshore while retaining a domestic presence (Box 6). Among New Zealand firms, the most reported reason for having an offshore workforce is to gain closer relationships with customers (Figure 101). The second most common reason points directly to different roles within a larger organisation, with business locations determined not by the responding firm but rather their parent company. However, there is not a large gap in prevalence between these top two and other reasons which relate more to production – increasing scale, linking into supply chains, reducing production costs and accessing skills that are in short supply within New Zealand.

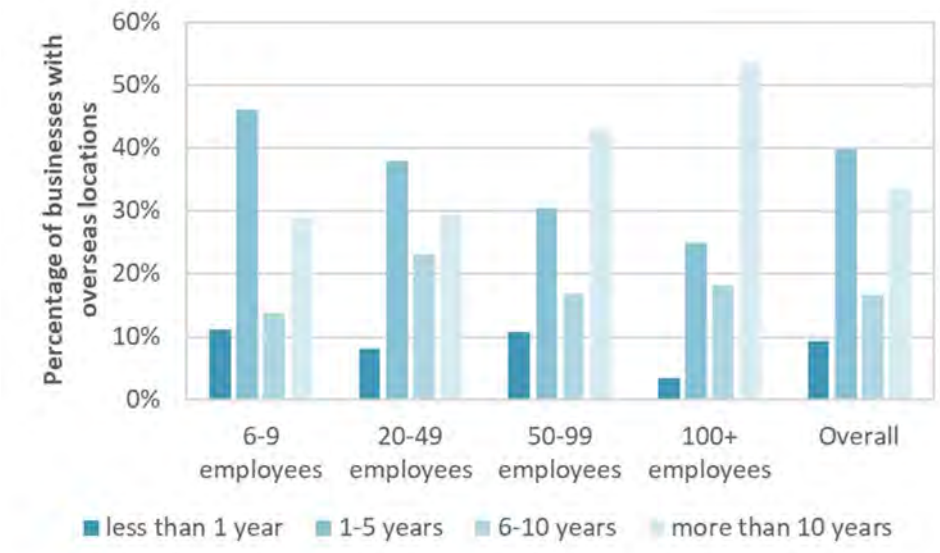
Figure 101 Overseas workforces support both production and sales



Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C21 "Why did this business have a workforce and/or offices overseas?"

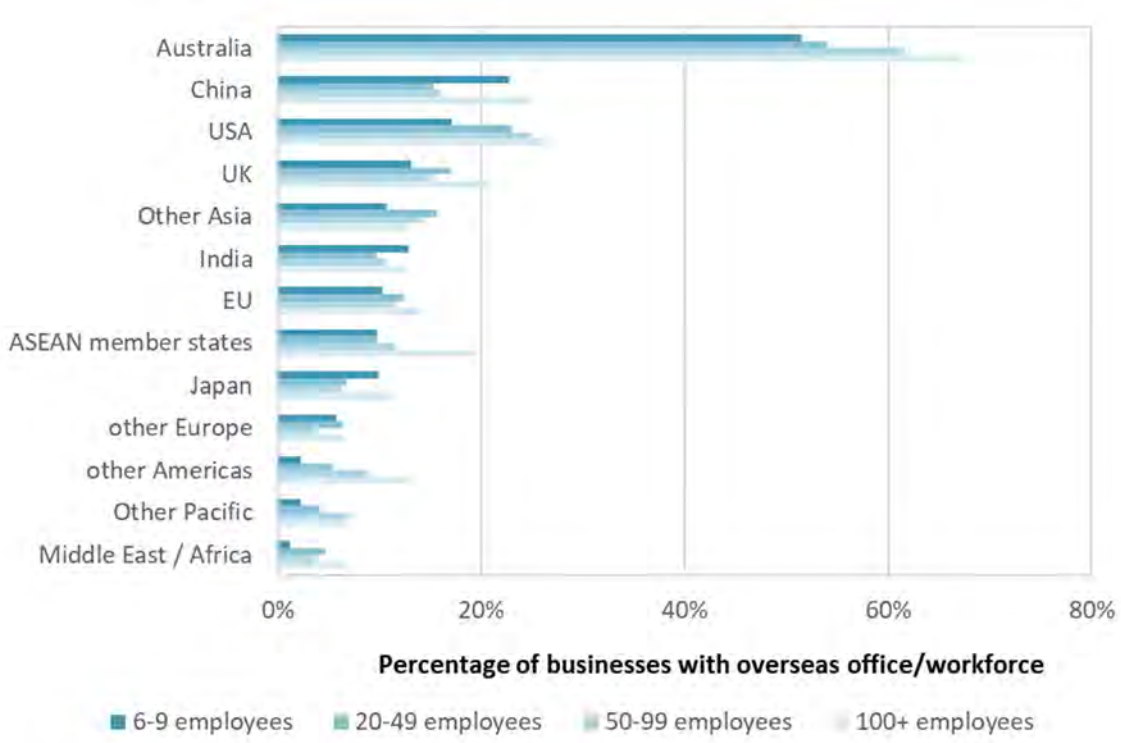
Businesses appear to expand into offshore locations at a later stage than when they enter overseas markets as sellers (Figure 102). While many firms, particularly at the large end of the spectrum, have more than ten years of experience with having an overseas workforce, shorter relationships (1-5 years) are also common, especially among smaller firms. Overseas activities also tend to be more geographically concentrated than sales, with more than twice as many businesses reporting having a presence in Australia, compared with China (the next most common location for New Zealand firms).

Figure 102 Overseas locations tend to be less well-established than sales…



Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C23 "How long has this business had a workforce and/or offices overseas?"

Figure 103 ... and more geographically concentrated

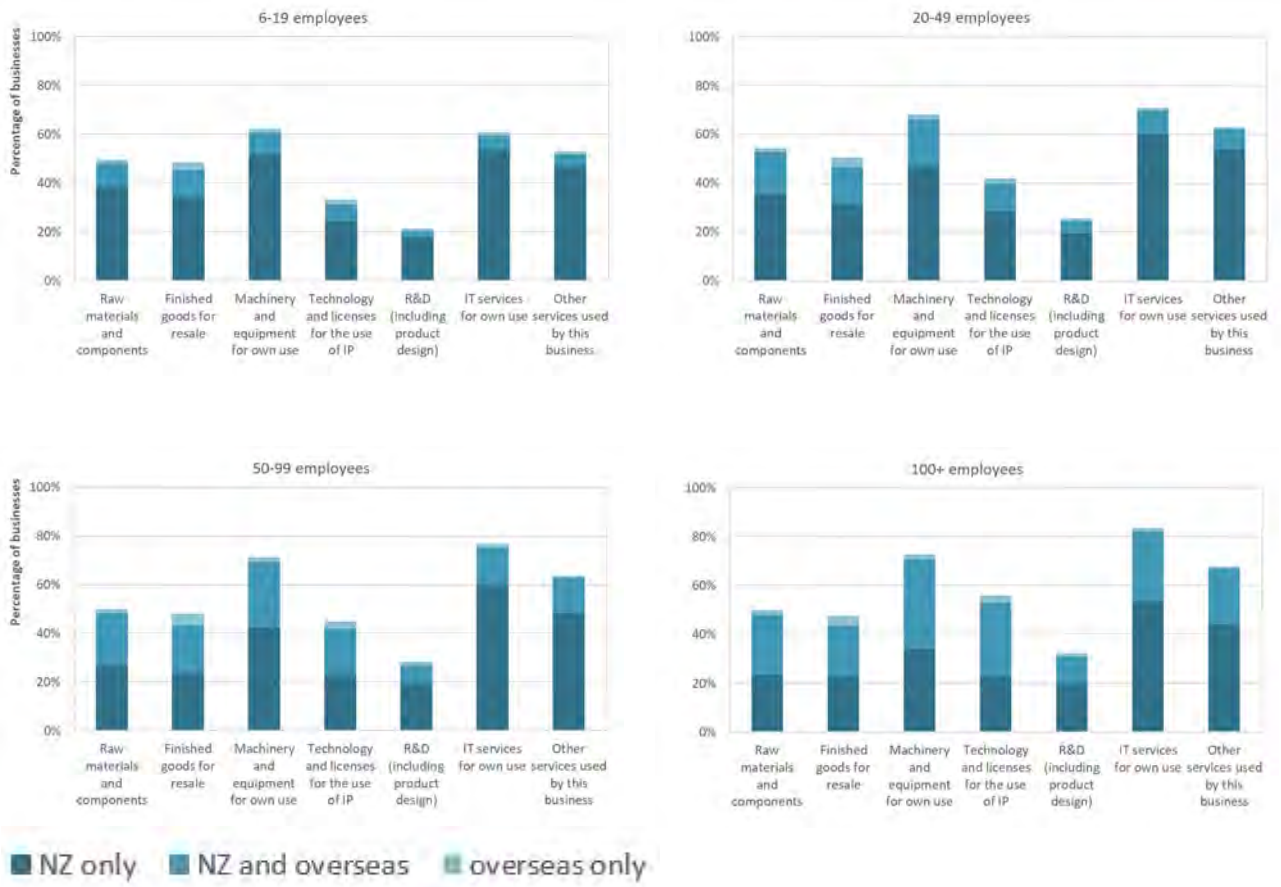


Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C24 "In the last financial year, in which of the following overseas locations did this business have a workforce and/or offices?"

5.5 Purchases of goods and services from businesses overseas

Compared to other forms of international engagement, direct sourcing of goods and services from overseas – "overseas purchases" – is quite commonplace. Over 30% of all businesses, and 60% of large businesses, reported that they sourced goods or services from overseas suppliers in 2019 (Figure 88). Higher rates of overseas purchases among large firms reflect two factors: a higher probability of direct purchases from offshore, and a higher probability of purchasing a particular good or service (Figure 104). For example, if we compare purchasing patterns of large (100+ employee) and small (6-19 employee) firms, we can see how these two effects determine the likelihood of overseas purchases within different product groups. For Raw materials and components and Finished goods for resale, large and small firms are almost equally likely to report purchasing something in that product category – in both cases, just over 50% of firms report purchasing these products from somewhere. However, among the large firms that buy goods from those categories, nearly half report purchasing from overseas, either exclusively or in combination with purchasing within New Zealand. Among small firms, less than a quarter of firms buying those goods deal directly with an offshore supplier. In contrast, when it comes to technology and licenses, and services such as R&D and IT services for the business's own use, large firms are substantially more likely to purchase the services to begin with and, given that they do, are more likely to buy direct from overseas.

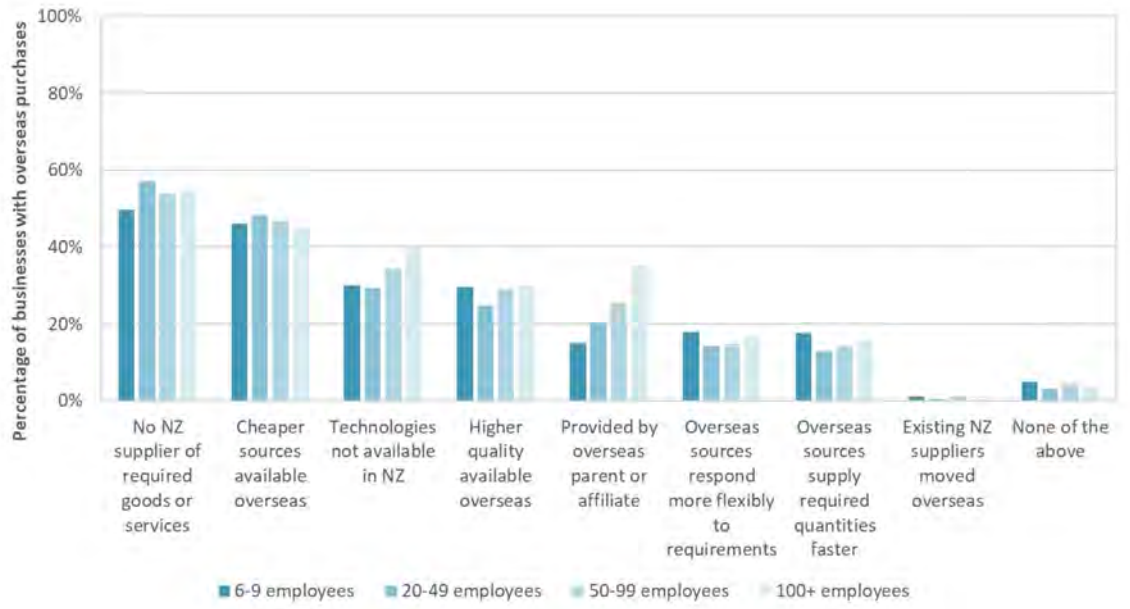
Figure 104 **Purchases of goods and services from New Zealand and overseas**
Percentage of businesses that purchase from overseas, 2019



Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C30 "In the last financial year, where did this business directly source the following goods and services?"

Firms cite both the absolute availability of products and their relative cost as motivations for sourcing goods and services offshore (Figure 105). Over half of the businesses that had overseas purchases stated that they purchased directly from offshore because there was no New Zealand supplier. 31% reported that the technologies they purchased were not available in New Zealand, while 29% believed that the quality of products purchased directly from overseas was superior to what they could have accessed domestically. Cost factors were also relevant – 46% of respondents purchased from overseas suppliers because they were cheaper.

Figure 105 Overseas purchases fill supply gaps, improve quality, and lower costs



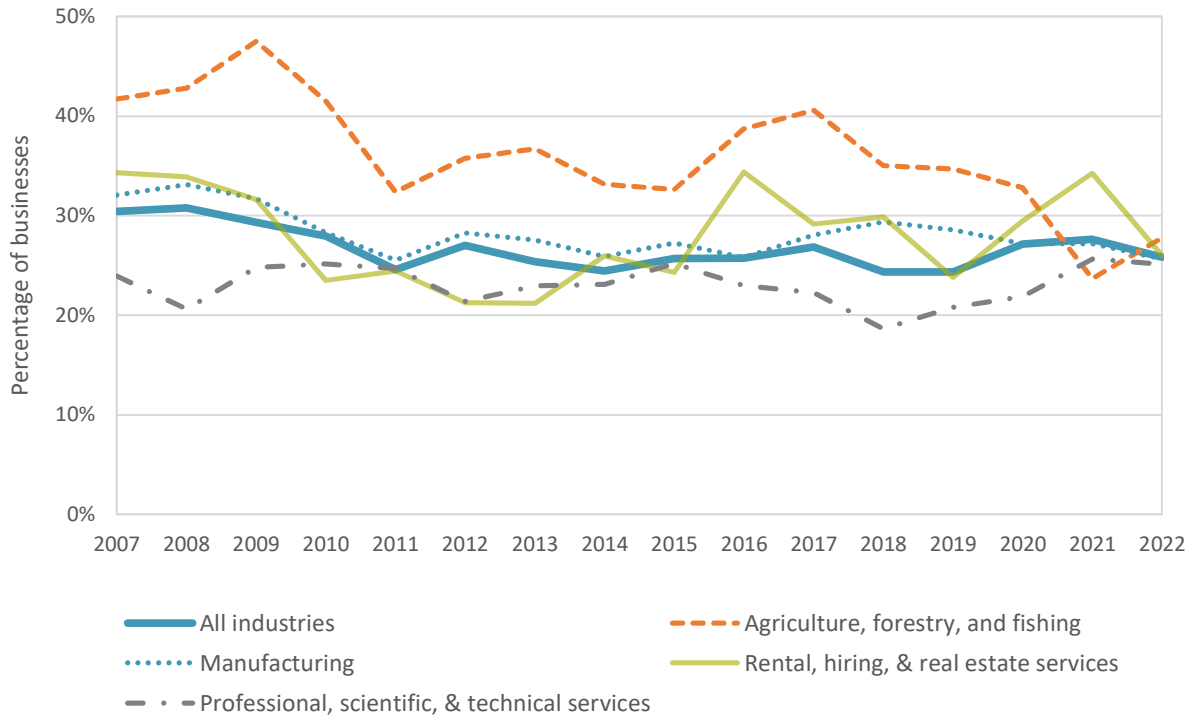
Source: Productivity Commission calculations based on Business Operations Survey 2019
Notes: Question C32 "In the last financial year, why did this business source goods or services from overseas?"

Part 6 Business finance

A well-developed financial system is important for a successful economy. Financing is required to manage cashflow, bridging the period between expenses and income. Expansionary strategies such as innovation and exporting generally require relatively large amounts of investment in the anticipation of uncertain returns. This can be done using retained earnings or from the personal income of owners, or by going to banks or other sources of capital. Finance enables businesses to span the period between investments being made and the benefits accruing from future sales. In particular, life-cycle models of the firm suggest that firms enter a 'valley of death' relatively early in their life when cash flow and hence internal funds are also dangerously short (Markham et al., 2010; Robertson, 2006; Sandberg & Aarikka-Stenroos, 2014; Savaneviciene et al., 2015).

In any given year, between 24% and 31% of all businesses request new or additional debt or equity finance (Figure 106). Until the Covid-19 pandemic, new finance requests were more common in agriculture, forestry and fishing (with as many as 47% requesting new debt or equity finance in 2009) than in others, such as professional, scientific and technical services (where between 19% and 26% of business request finance in the years for which we have data). In recent years, these gaps have closed.

Figure 106 **Businesses requesting new financing** (selected industries)
New or additional debt or equity finance in the last financial year



Source: Productivity Commission calculations based on Business Operations Survey
Notes: Question A31 [A32] "Over the last financial year, did this business request an new additional debt [equity] finance?"

Of the two types of finance, requests for new or additional debt finance are much more common than equity (Figure 107). Roughly three times as many businesses request debt finance than equity. Small firms (ie, 6-19 employees) are less likely to request debt finance than their larger peers. We shall look at these figures and what lies behind them in more detail in the following sections.

Figure 107 **Debt and equity financing, by business size**

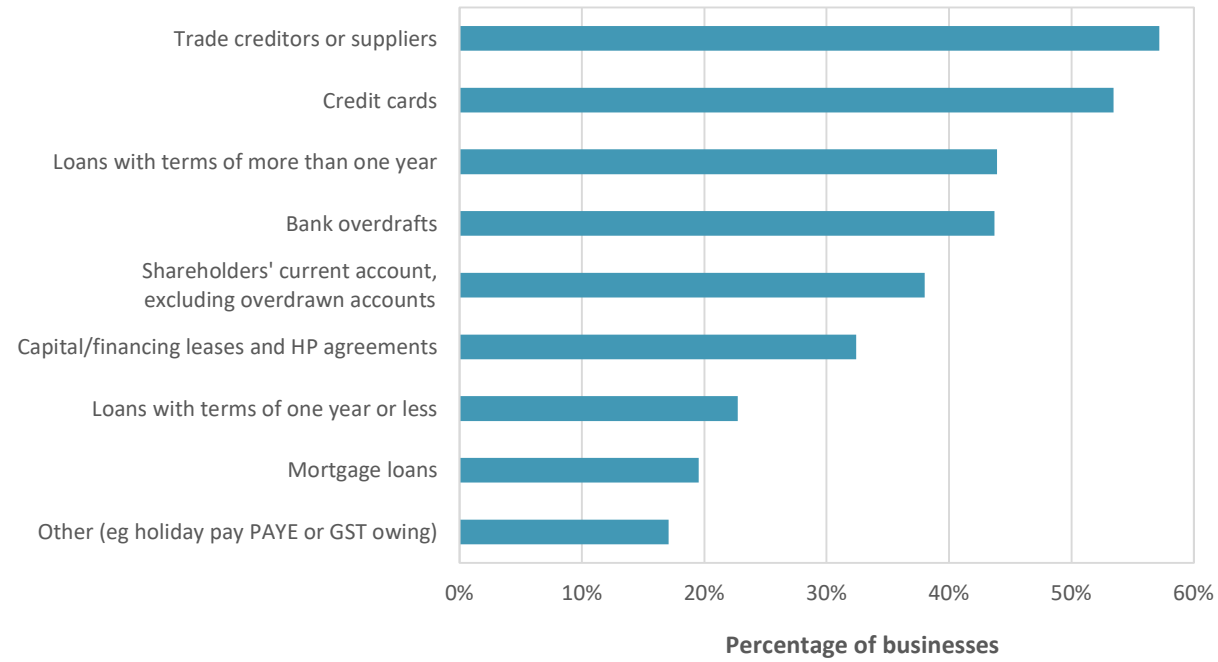
Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D5 "Over the last financial year, did this business request new or additional debt finance?" D13: "Over the last financial year, did this business request new or additional equity finance?"

In this chapter, we look at the types of outstanding debt that businesses have, and applications for debt and equity finance. We also look at the financial advice businesses receive and the collateral they need to post in order to manage the risk for lenders. The majority of this chapter is based on the *Business Finance* module of the 2022 BOS.

6.1 Debt finance

There is more to debt finance is more than just bank lending. The range of the potential sources of finance and the percentage of businesses that use them can be seen in Figure 108. The most common form of debt for business is that to trade creditors or suppliers. Next up is credit cards – a potentially expensive but easily available source of debt. More firms have outstanding debt on their credit cards (53%) than bank overdrafts (44%). Owners are an important source of debt finance to their businesses. For example, 38% of businesses rely on shareholders' current accounts and just under 20% rely on mortgage loans secured on homes or other residential property.

Figure 108 Outanding debts (2022)

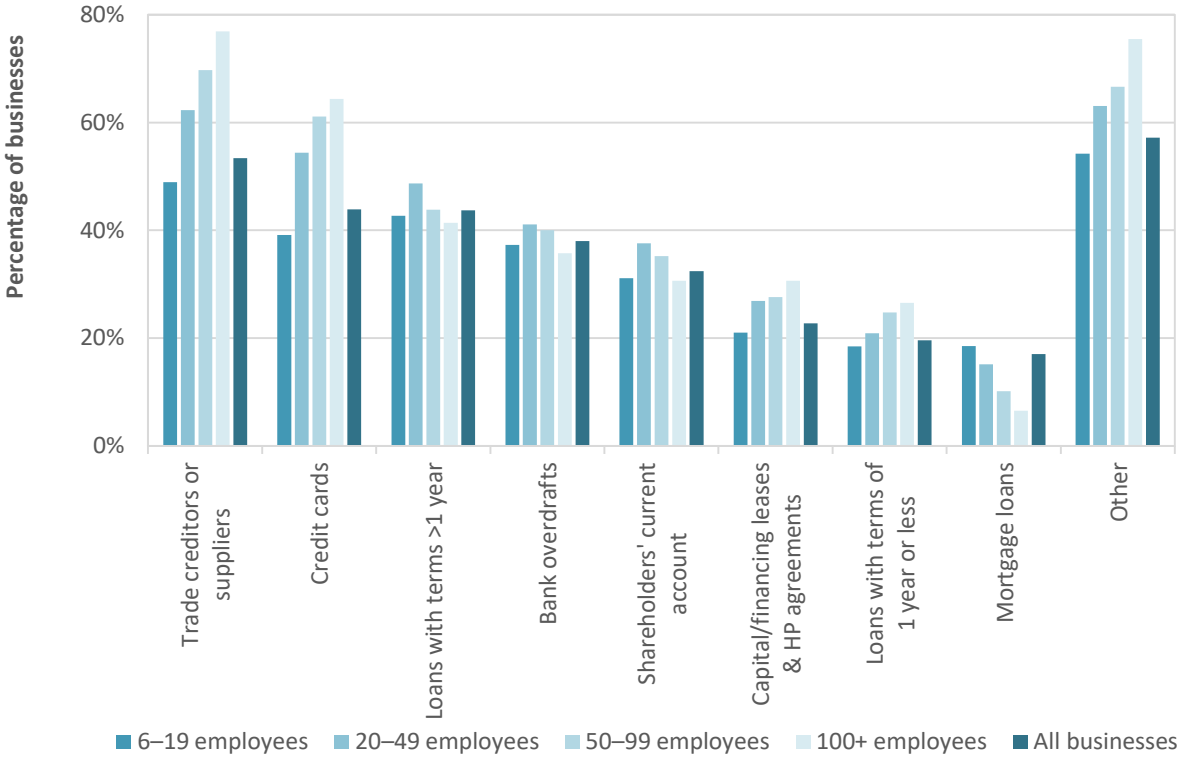


Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D2 "Mark all that apply. At the end of the last financial year, which of the following types of outstanding debt did this business have?"

Larger businesses are most likely to have many of the forms of outstanding debt, in particular trade creditors or suppliers, or credit cards. This may reflect that larger businesses can use their market power relative to their suppliers to extract lines of credit, or that they are perceived as being more reliable (ie, likely to pay up) by them. Larger firms are more likely to have been in existence for a longer time and built relationships with their banks and suppliers. It has been suggested that the bridge gap between the prospects of individual borrows and their ultimate source of funds – ie, their depositors – is the primary role of banks in the economy (Boyd & Prescott, 1986; Diamond, 1984; Fama, 1985).

The one exception to this pattern is the higher use of mortgages by smaller firms. Collateral backed loans, like mortgages, can mitigate moral hazard and adverse selection problems in loan contracting (Boot & Thakor, 1994; Chan & Thakor, 1987; Stiglitz & Weiss, 1981). Mortgages are attractive because of the ease with which value can be monitored, relative to other collateral (Rajan & Winton, 1995).

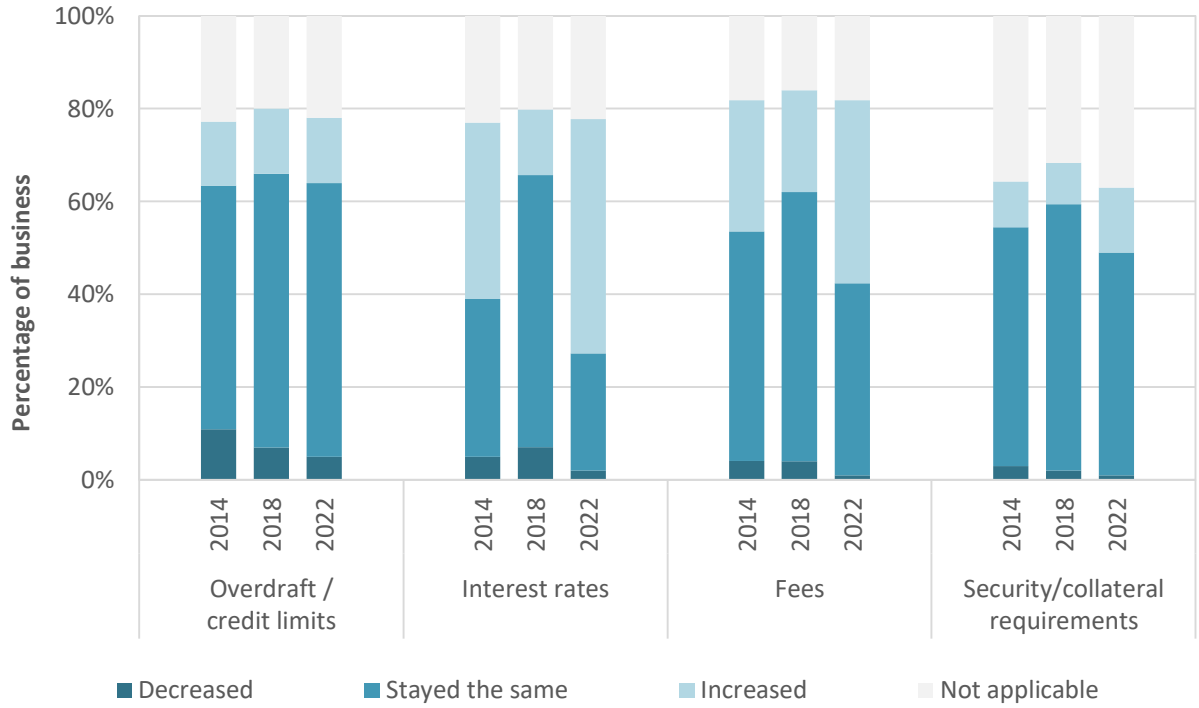
Figure 109 **Outstanding debts, by business size** (2022)



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D2 "Mark all that apply. At the end of the last financial year, which of the following types of outstanding debt did this business have?"

Businesses experiences with credit facilities have changed in recent years in two ways. Figure 110 shows businesses' experiences of credit facilities across four dimensions: their overdraft/credit limits, the interest rates and/or fees they have to pay, and security or collatera requirements. First, a lot of businesses have felt the increases in interest rates. In 2022 two-thirds of businesses with credit saw the rate of interest they paid on this increase, which equates to about half of all businesses. Whilst a lot of public discussion has focussed on the impact of interest rates on an overheating housing market, these figures show that they are also felt by businesses. Whilst we do not have a direct measure of the effects of this, we do look at the impact of not being able to secure finance later in this chapter (Figure 116).

Figure 110 Changes in businesses' credit facilities



Source: Productivity Commission calculations based on Business Operations Survey 2022
Notes: Question D4 "Over the last financial year, how have this business's existing credit facilities changed?"

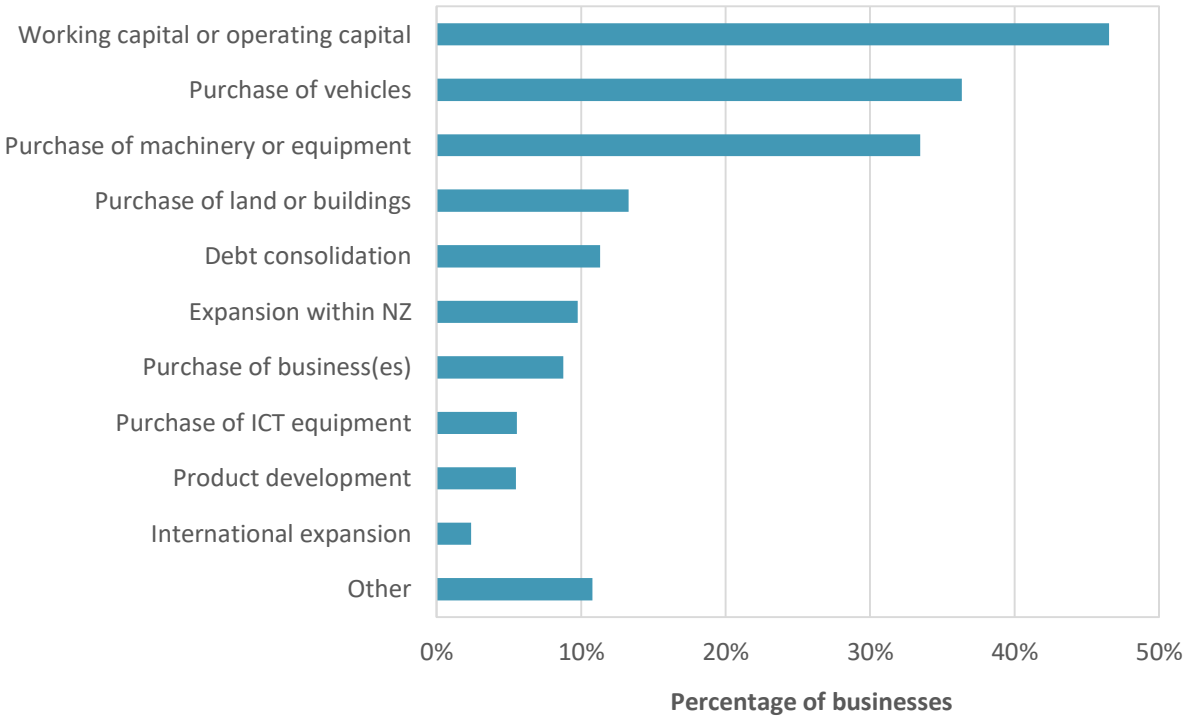
New or additional debt finance

We now focus our attention on recent (ie, in the last financial year) requests for debt finance. As we saw in Figure 107, just under a quarter of businesses applied for new or additional debt finance. This figure was a little higher in firms employing twenty or more employees (27%) than for those with 6-19 employees (22%). The main reason for requesting debt finance was for working capital or operating capital. Businesses can look to increase working capital in order to maintain day-to-day operations and meet short term obligations when cash at hand or other assets that can be converted to cash in the short term are low[27].

The next most common reasons reported by business for requesting debt finance were to finance physical capital investments in the guise of the purchase of vehicles (36% of businesses), machinery or equipment (33%), and land or buildings (13%).

[27] See for example "Managing your working capital" at https://www.business.govt.nz/news/managing-your-working-capital/

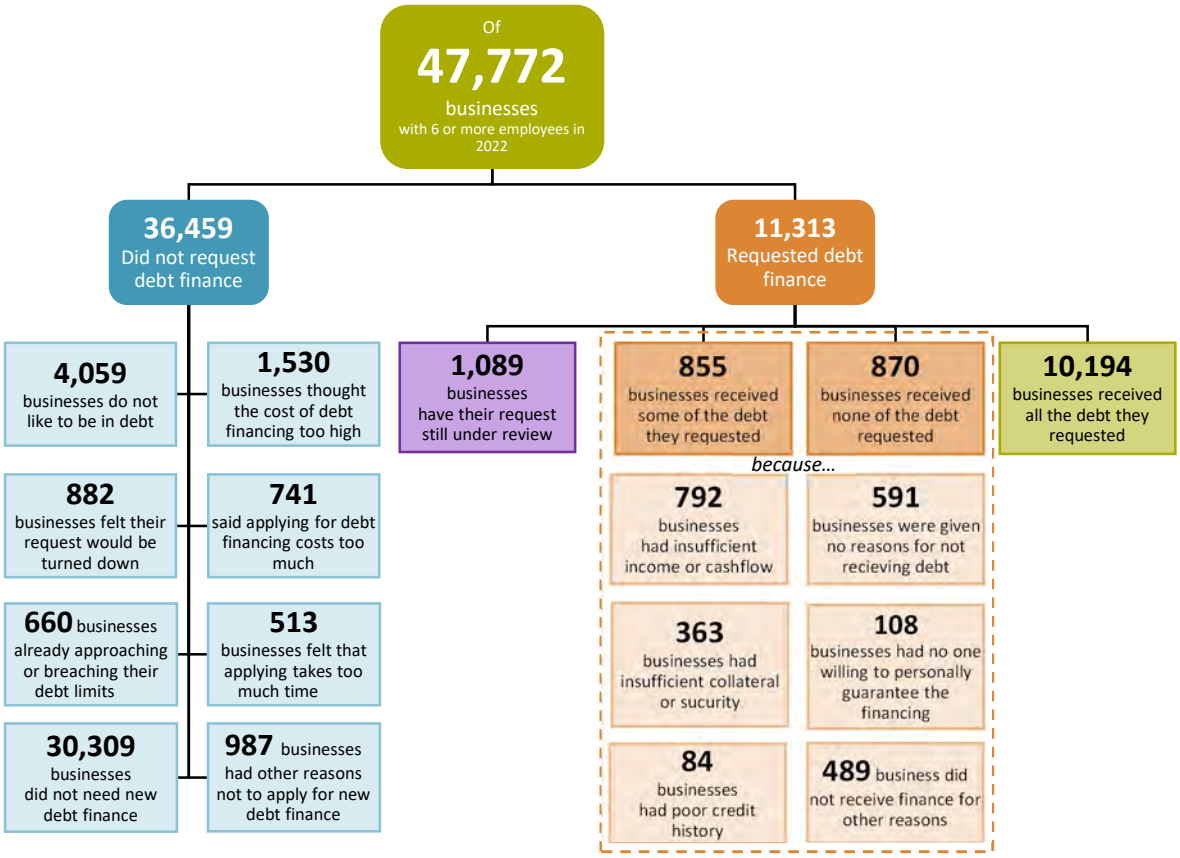
Figure 111 Intended uses of debt finance



Source: Productivity Commission calculations based on Business Operations Survey 2022
Notes: Question D15 "For your most recent debt finance, how did you intend to use the finance?"

In the financial year ending 2022, around one-quarter of businesses (11,000) requested new or additional debt (Figure 112). . Just over 30,000 businesses did not need it, but around 6,000 needed it, but did not request it. The most common reason given was simply that that the business or its owner(s) do not like to be in debt. Next up was the cost (1,500). This is not unusual, nor necessarily evidence of any issues with the financial market: in any market there are potential customers who would buy the product or service if it were cheaper. The next most common reason given was that the owner(s) of the business thought the request would be turned down.

Figure 112 Requests for new or additional debt finance (2022)

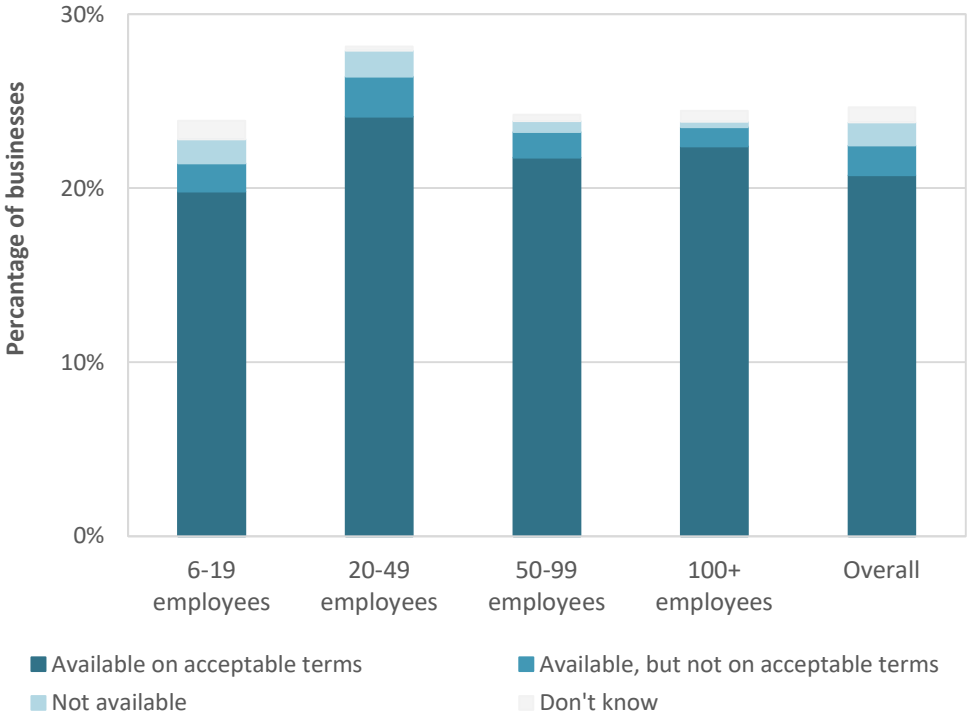


Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Questions D13, D14 and D17

Most businesses that request new or additional finance receive it (Figure 113). Around 80% of businesses that request debt finance are able to obtain it on acceptable terms. This rate is higher for large firms than smaller ones (88% of firms employing 100+ obtained finance compared to 78% of businesses with6-19 employees, or 81% of 20-49 employee businesses).

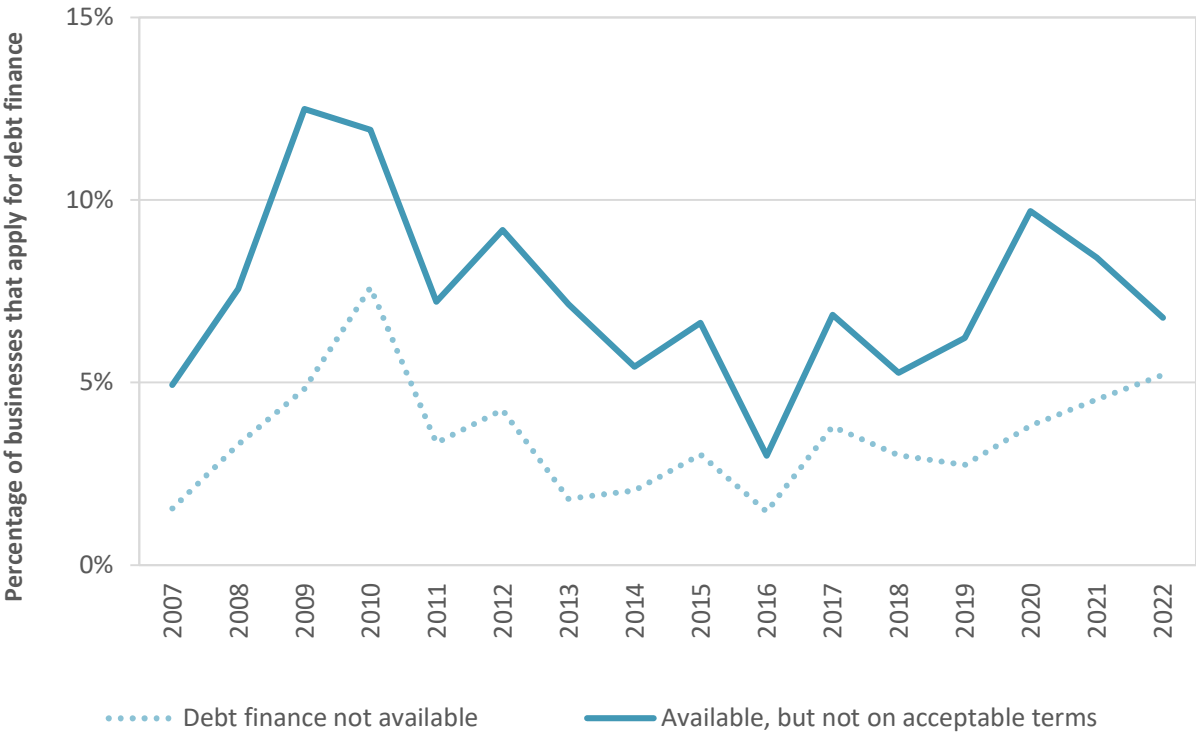
In the wake of the GFC, there was an increase in the proportion of businesses were not able to obtain debt finance (Figure 114). The percentage of businesses that applied for debt finance for whom debt finance was not available peaked in 2010 at 7.6%. The percentage of businesses for whom debt finance was available, but not on acceptable terms, reached 12.5% in 2009 and 11.9% in 2010. This increased once more during the Covid-19 pandemic to 9.7%.

Figure 113 Requests for new or additional debt finance



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section A *Business Operations*
Notes: Question A31 "Mark all that apply. When requesting new or additional debt finance over the last finds were funds:…"

Figure 114 Unavailability of new or additional debt finance



Source: Productivity Commission calculations based on Business Operations Survey 2007-2022
Notes: Question A31 "Mark all that apply. When requesting new or additional debt finance over the last finds were funds:…"

The most obvious reason why a business did not request debt finance was that it was not needed (Table 2). Smaller firms appear to have different attitudes towards debt finance. Two-thirds of small business that needed finance but did not apply, reported that the business or its owner(s) do not like to be in debt (12% and 10% of businesses employing 6-19 and 20-49 staff, respectively, compared to only 2% of businesses with over a hundred employees). The second most reported reason for not applying for debt finance among businesses who needed it is that the cost of debt financing is too high, particularly for small businesses.

Table 2 Reasons for not requesting debt finance

	Size of business				Overall	Number
	6-19	20-49	50-99	100+		
Not needed	82%	85%	88%	91%	83%	30,309
Owner doesn't like to be in debt	12%	10%	5%	2%	11%	4,059
Cost of debt financing is too high	5%	3%	1%	1%	4%	1,530
Felt it would be turned down	3%	2%	2%	1%	2%	882
Applying costs too much	2%	2%	1%	0%	2%	741
Already approaching/breaching debt limits	2%	3%	1%	1%	2%	660
Applying takes too much time	1%	2%	1%	0%	1%	513
Other	2%	3%	4%	5%	3%	987

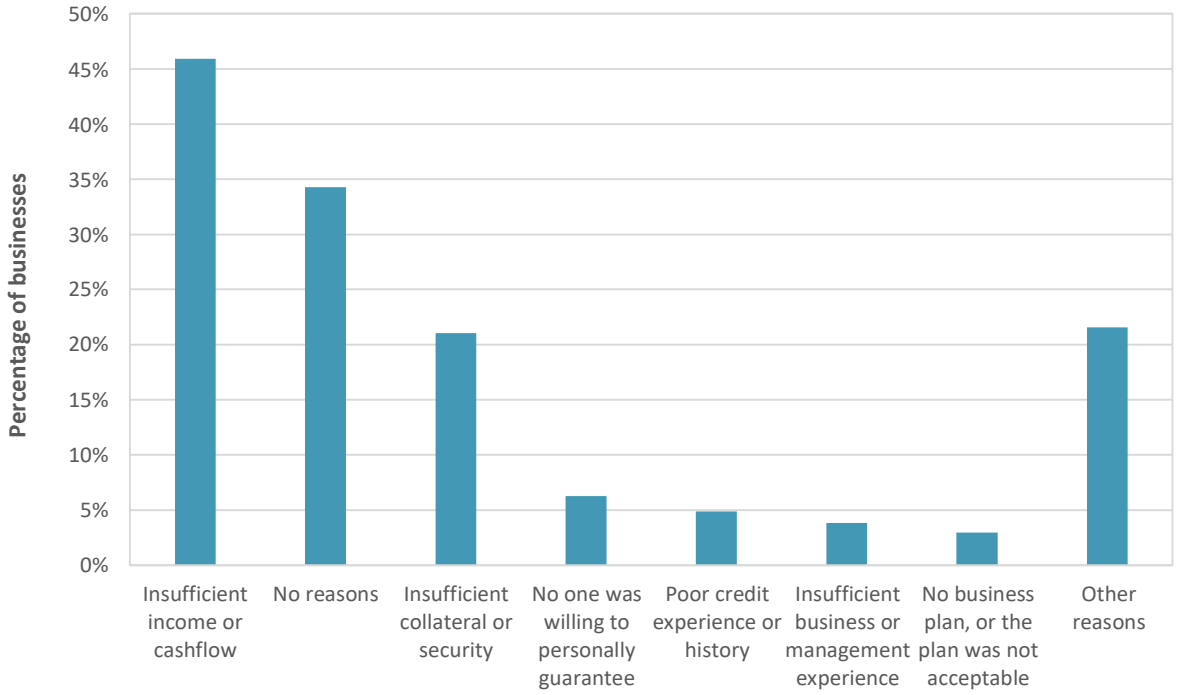
Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D14 "Why has this business not requested debt finance?"

At the heart of the relationship between businesses and their potential financiers are the issues that economists call 'asymmetric information' and 'moral hazard' (Boot, 2000; Thakor, 2019). The first refers to the fact the owners or managers of the business are likely to know more about its financial prospects. Other businesses, like banks and suppliers, can build up a picture of the business through observing transactions (Petersen & Rajan, 1994). As businesses and their financiers build a relationship, the financiers find more about how the business is run and its prospects. The latter relates to the fact that if the firm fails, the lender may lose some or all of outlay, whereas for the owner and the managers of a company will have a limited liability.

We saw above that very few businesses that requested debt, either received some (2%) or none (2%) of the finance they requested. The most common reason for not receiving the full amount of requested debt finance was that the business had insufficient income or cashflow (Figure 115). Almost half of the businesses that received some or none of the debt finance they applied for did so for this reason. This income and cashflow is likely to be used by the lender as an indicator of the likelihood of repayment.

Around a third of businesses unsuccessfully requesting debt finance were given no reasons for this. The third most commonly reported reason was insufficient collateral or security. Collateral is less of an issue for larger firms than it is for smaller (Table 3). We shall look in a little more detail at collateral at the end of this chapter (Figure 128).

Figure 115 Reasons for not receiving debt finance



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D17 "What were the reasons given for not receiving the full amount of debt finance requested?"

Table 3 Reasons for not receiving debt finance

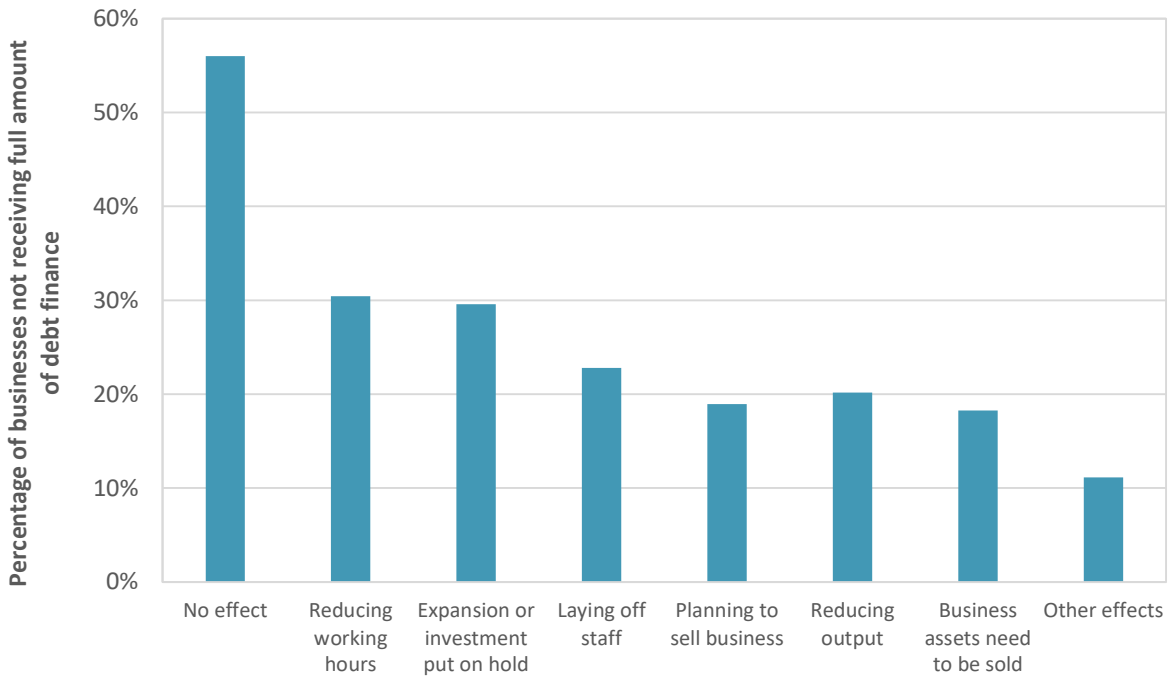
Reason	Size of business				Overall	Number
	6-19	20-49	50-99	100+		
Insufficient income or cashflow	47%	48%	35%	31%	46%	792
No reasons	35%	32%	35%	31%	34%	591
Insufficient collateral or security	23%	12%	10%	13%	21%	363
No one was willing to personally guarantee	5%	11%	5%	6%	6%	108
Poor credit experience or history	6%	1%	5%	6%	5%	84
Insufficient business or management experience	5%	0%	5%	0%	4%	66
No business plan, or the plan was not acceptable	4%	0%	5%	0%	3%	51
Other reasons	23%	8%	25%	44%	22%	372
Full amount not received						1,725

Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D17 "What were the reasons given for not receiving the full amount of debt finance requested?"

Curiously, the most commonly reported impact of not receiving debt finance was none at all (Figure 116). Over half of the businesses that did not receive the full amount debt finance they requested reported that this had no effect. The next most common effects reported are reductions in working hours and putting expansion or investment on hold, with about 30% of businesses not receiving debt finance reporting each. The next group of impacts are rather more severe, with just under 20% of

unsuccessful applicants either laying off staff, reducing output, or planning to sell either the business' assets or the business itself.

Figure 116 Effects of not receiving debt finance



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D18 "How has not receiving the full amount of debt finance requested affected this business?"

6.2 Equity financing

There are a number of advantages and disadvantages for businesses and the wider economy of equity financing. First, there is no obligation on the business to repay the money acquired through it. If a business fails, the shareholders' equity loses its value. There are more subtle benefits to equity financing. For example, venture capitalists, angel and corporate investors bring with them expertise.

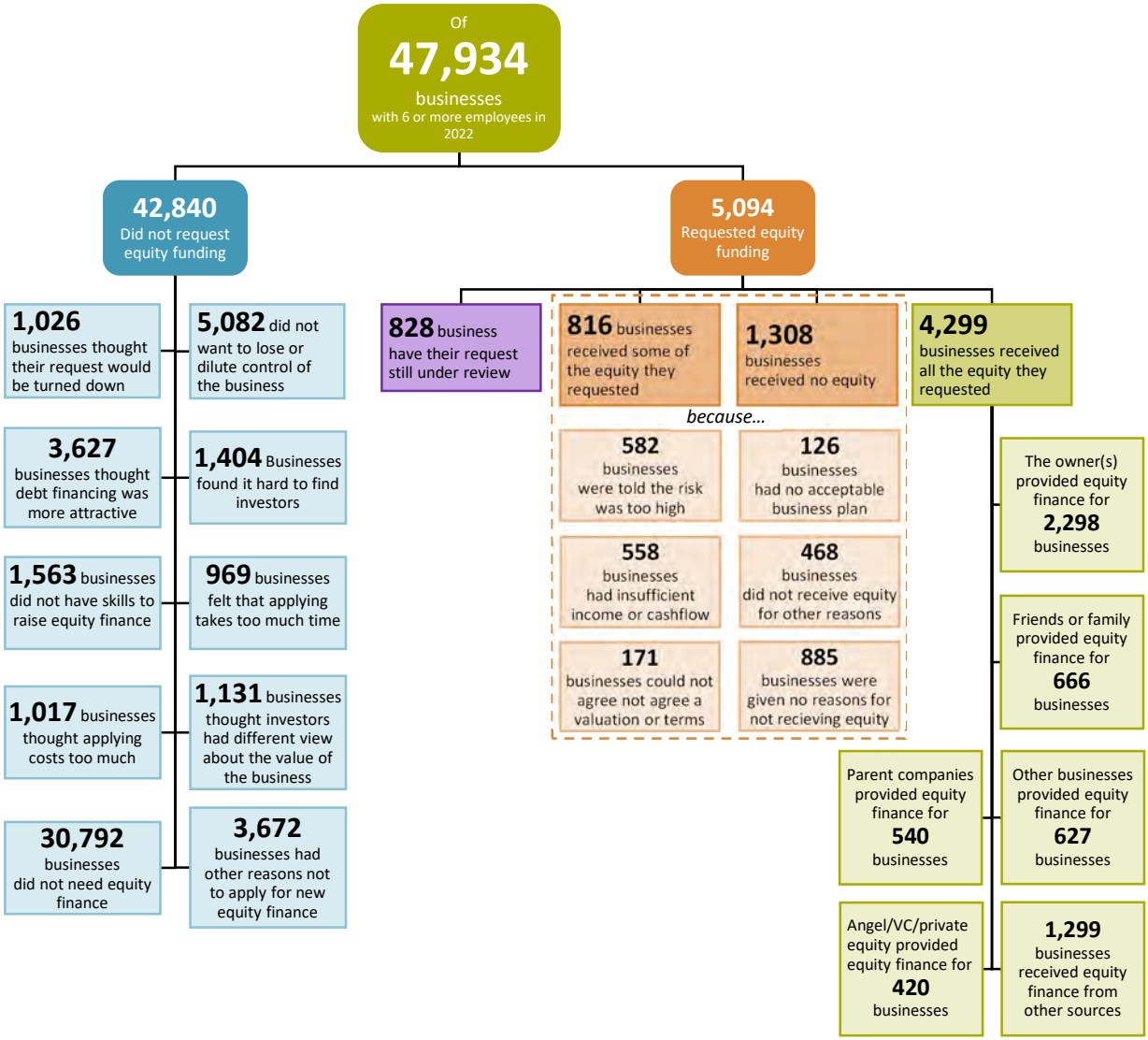
> *Some investors wish to be involved in company operations and are personally motivated to contribute to a company's growth. Their successful backgrounds allow them to provide invaluable assistance in the form of business contacts, management expertise, and access to other sources of capital. Many angel investors or venture capitalists will assist companies in this manner. It is crucial in the startup period of a company.*
>
> Corporate Finance Institute, *Equity Financing*[28].

[28] https://corporatefinanceinstitute.com/resources/valuation/equity-financing/

An obvious disadvantage of equity finance is that it can dilute an owners' control. Some owners will prefer complete ownership of a smaller firm than part ownership in a larger firm.

The results from the 2022 Business Finance module on equity finance are summarised in Figure 117. Of the 47,934 businesses represented in this part of the survey, 5,094 (11%) requested equity finance, and 42,840 (89%) did not. Almost three quarters of businesses that did not request equity finance (72%) simply did not need any. The next most common reasons given for not requesting equity finance were not want to lose or dilute control of the business (12%) and that debt financing was more attractive (8.5%).

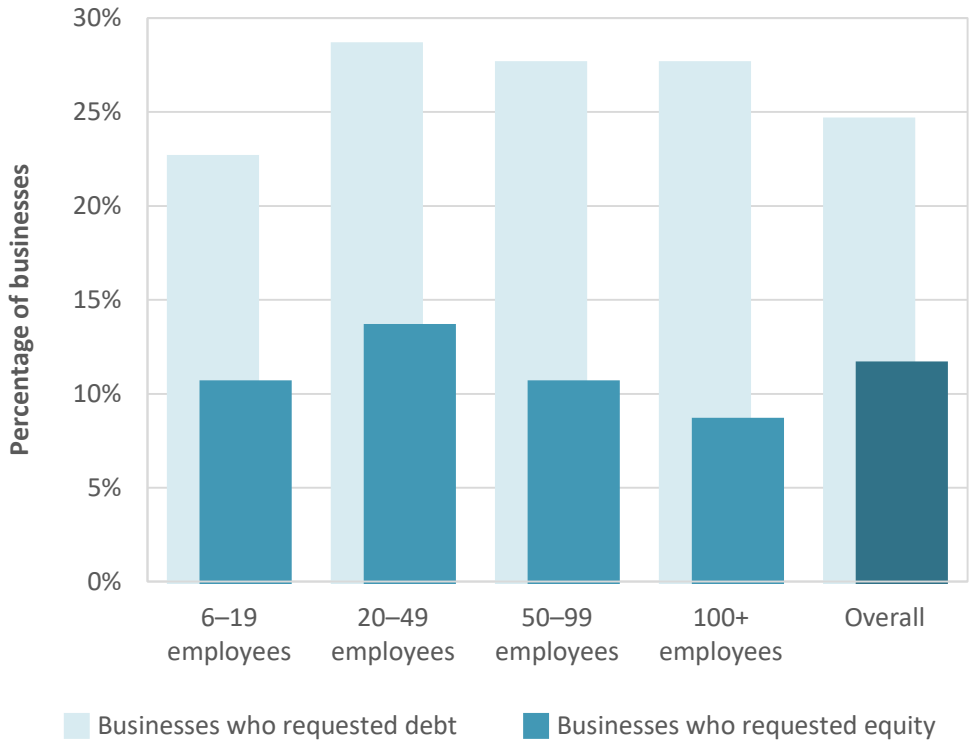
Figure 117 Equity finance



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance

As we have seen previously, the most obvious difference between debt and equity finance is that fewer businesses request equity finance (Figure 118). Whereas almost a quarter of firms requested new or additional debt finance, the figure for equity was below one-in-ten.

Figure 118 Requests for equity finance



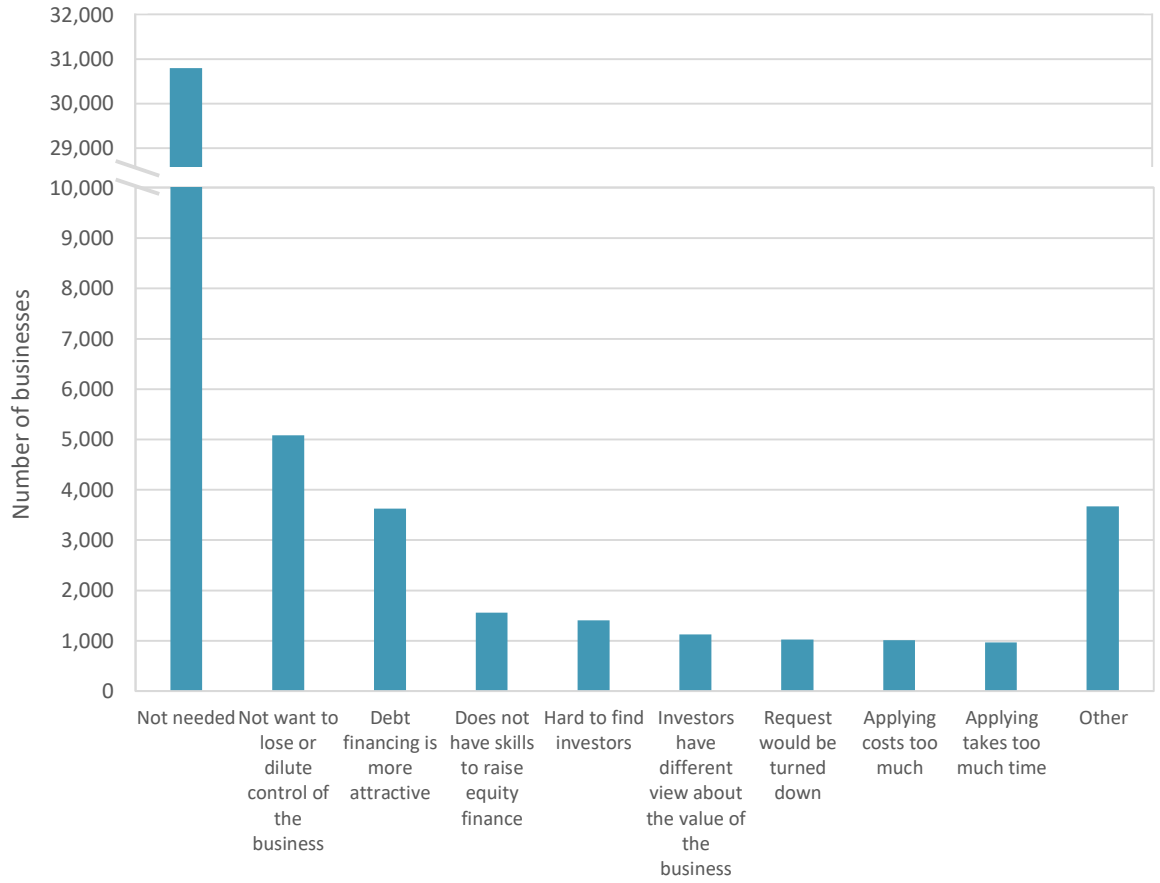
Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D5 "Over the last financial year, did this business request an new additional debt finance?" D13 "Over the last financial year, did this business request an new additional equity finance?"

There are wide range of reasons for not requesting equity finance. As with debt finance, by far the most common is simply that the business felt it was not needed. More than 30,000 businesses this is the case.

the most commonly reported reason for not requesting equity finance was that the owner(s) did not want to lose or dilute control of the business. equity finance is different to debt finance in this respect. This is the trade-off businesses seeking equity finance have to make. They are not usually obliged to pay the owners of equity when times are bad (although this may have a knock-on effect on their share price and put them at risk of a takeover by a competitor, for example, or create a reputation that makes it difficult to raise funds in the future), verses maintaining ownership and control of the business. This choice is not always down to the owner themselves. If competition in the business' product market is high, this creates a different incentive. If they do not invest or grow, they may be punished by a competitor who does.

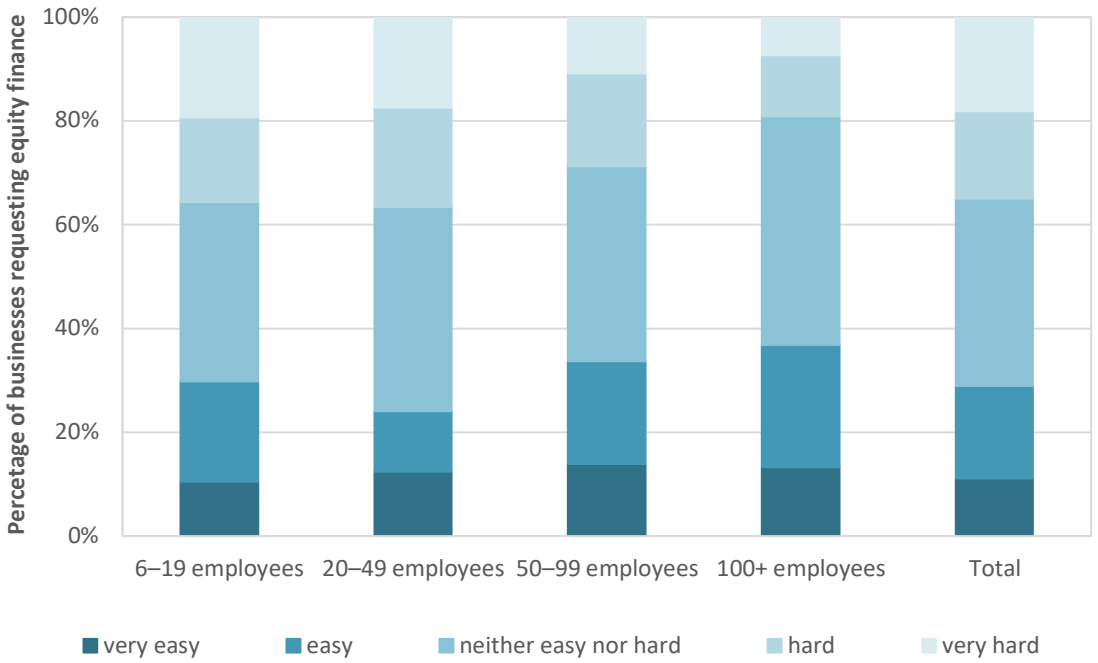
This loss of control may also be behind the second more commonly reported reason for not requesting equity finance, despite wanting finance: that debt financing was more attractive.

Figure 119 Reasons for not requesting equity finance



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D6 "Mark all that apply. Why has this business not requested equity finance in the last financial year?"

Figure 120 How easy was it to raise the equity finance you requested?

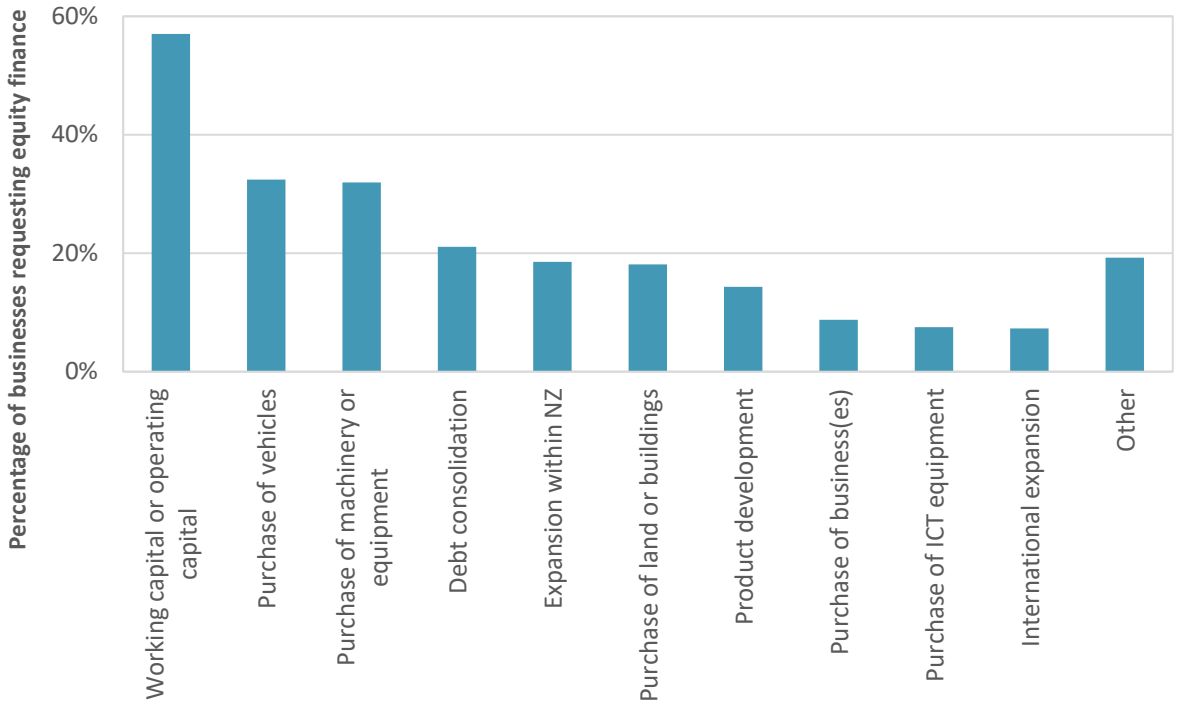


Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D7 "How easy or hard was it to raise the equity finance you requested in the last financial year?"

Around one third of businesses found raising equity finance either hard or very hard (Figure 120). A similar portion found it easy or very easy. smaller businesses found raising equity finance particularly difficult, with around one in five firms with fewer than 50 employees finding it very hard, double that of larger firms.

Why were businesses looking for equity finance? The most common reason was to fund working or operating capital, with 57% of business requesting equity finance so for this reason (Figure 121). This was also the most commonly cited reason for businesses requesting debt finance (Figure 111), although this was not quite as dominant a reason for debt finance (47% of businesses requesting debt finance). As with debt finance, the next most commonly cited reasons for requesting finance were to purchase capital goods, primarily vehicles and machinery or equipment, with around one third of businesses requesting equity citing these.

Figure 121 Intended use of equity finance



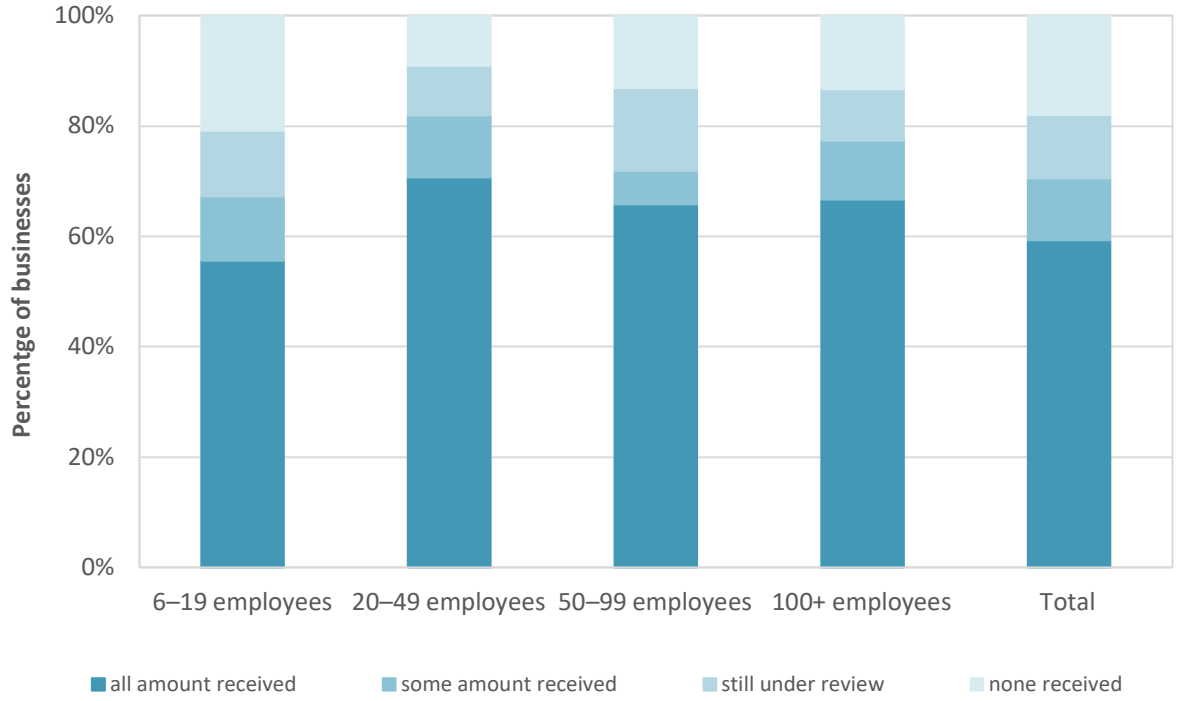
Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D8 "For your most recent equity request, how did you intend to use the finance?"

Of those who requested equity finance, just under 60% received all of the amount they requested (Figure 122). A further 11% received some of the equity finance they sought. However, around one in five businesses did not receive any equity finance at all. It was the smallest businesses (those with 6-19 employees) who were the least likely to receive all the equity finance they sought, with around 56% receiving the full amount requestion, compared with 66-71% of larger firms.

Two-fifths of businesses received no explanation for not receiving all the equity finance they sought (Figure 123). Of those that , the most commonly reported reasons were that the financier(s) considered the risk to be too high, or the business had insufficient income or cashflow (27% and 26%

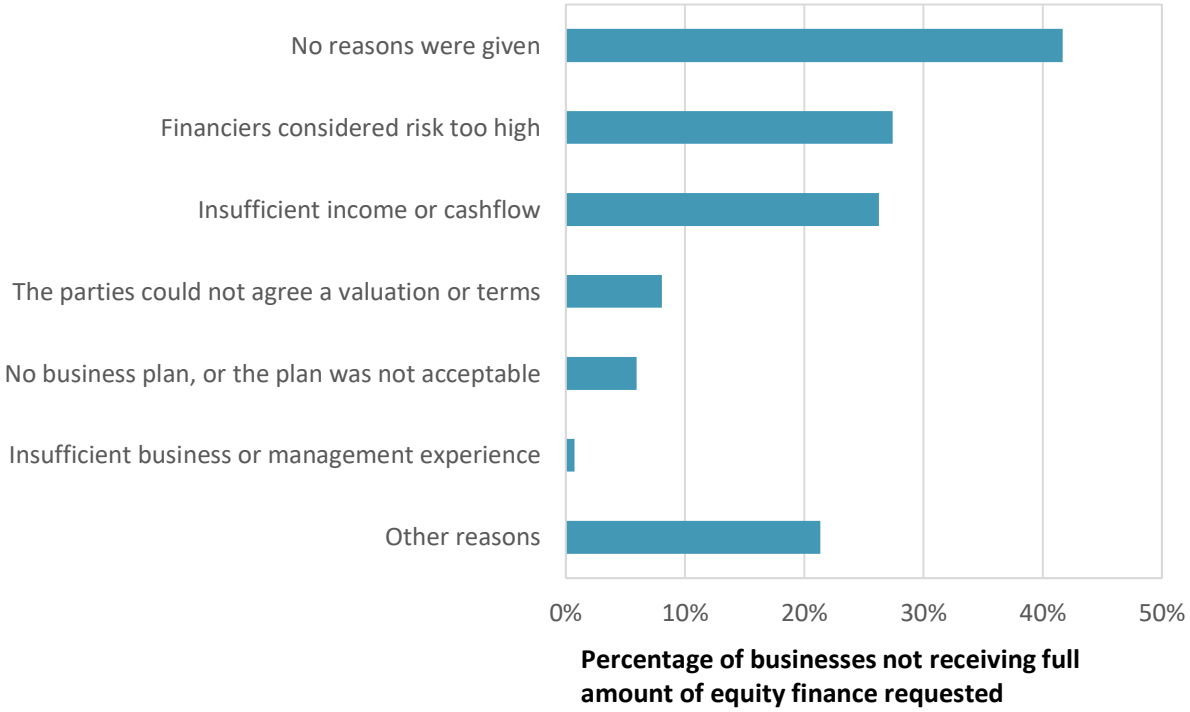
of businesses requesting equity finance, respectively). It is the assets of the company itself that are the assets for the market investor, which may not cover the amount invested in the absence of cash reserves or a flow of income (Bougheas et al., 2006). This can be particularly important for small, young, 'informationally opaque' firms (Berger & Udell, 1998).

Figure 122 Equity received



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D9 "For your most recent equity request, was any finance received?"

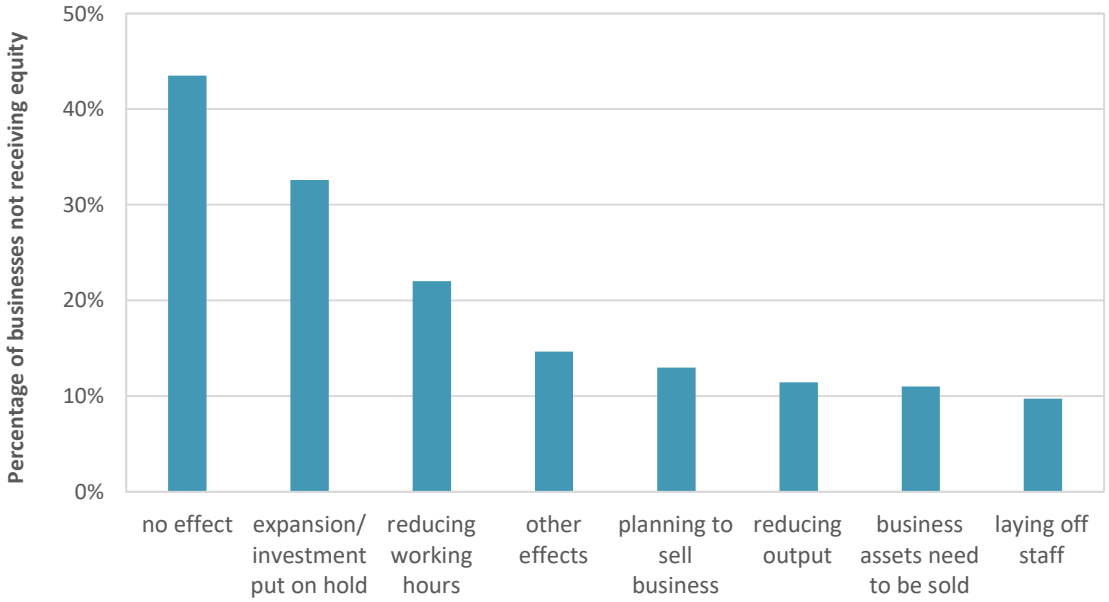
Figure 123 Reasons given for not receiving full amount of equity finance requested



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D10 "What were the reasons given for not receiving the full amount of equity finance requested?"

It is curious to note that 44% of businesses that did not receive the equity finance they requested felt that it has not affected the business (Figure 124). The most cited impacts were that the business' expansion or investment pans had been put on hold, or that it was reducing working hours (33% and 22% of businesses not receiving the full amount of equity finance requested). These highlight the importance of well functioning capital markets to support economic growth. Certainly, the former reason (and to a lesser extent the latter) suggests that it is not that the firm is struggling leads the to seek equity finance, but rather its plan to invest and grow. Nevertheless, around one in ten businesses responded to their lack of success attracting equity finance by reducing output or laying off staff.

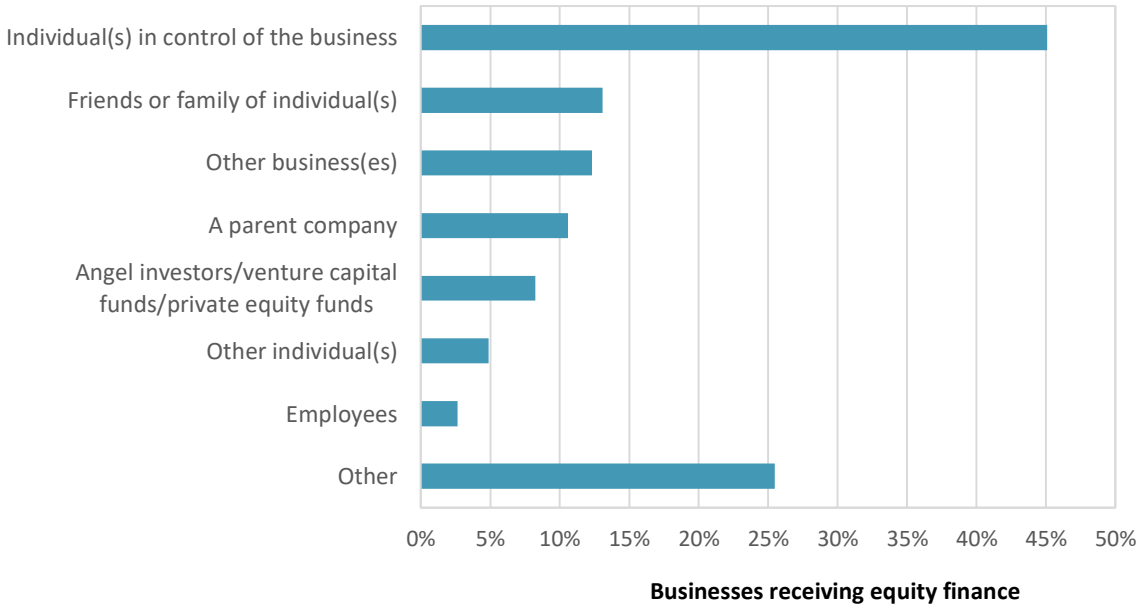
Figure 124 Impact of not receiving equity finance



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D11 "How has not receiving the full amount of equity finance requested affected this business?"

Although we have been talking about capital markets, equity funding in New Zealand is more personal. By far the most common source of equity finance for businesses most recent requests is the individual(s) who are principally in control of the business (Figure 125). Angel investors, venture capital funds and private equity funds provided the most recent equity finance for only 8% of the total firms receiving equity funding. This equates to around 420 businesses.

Figure 125 Sources of equity finance

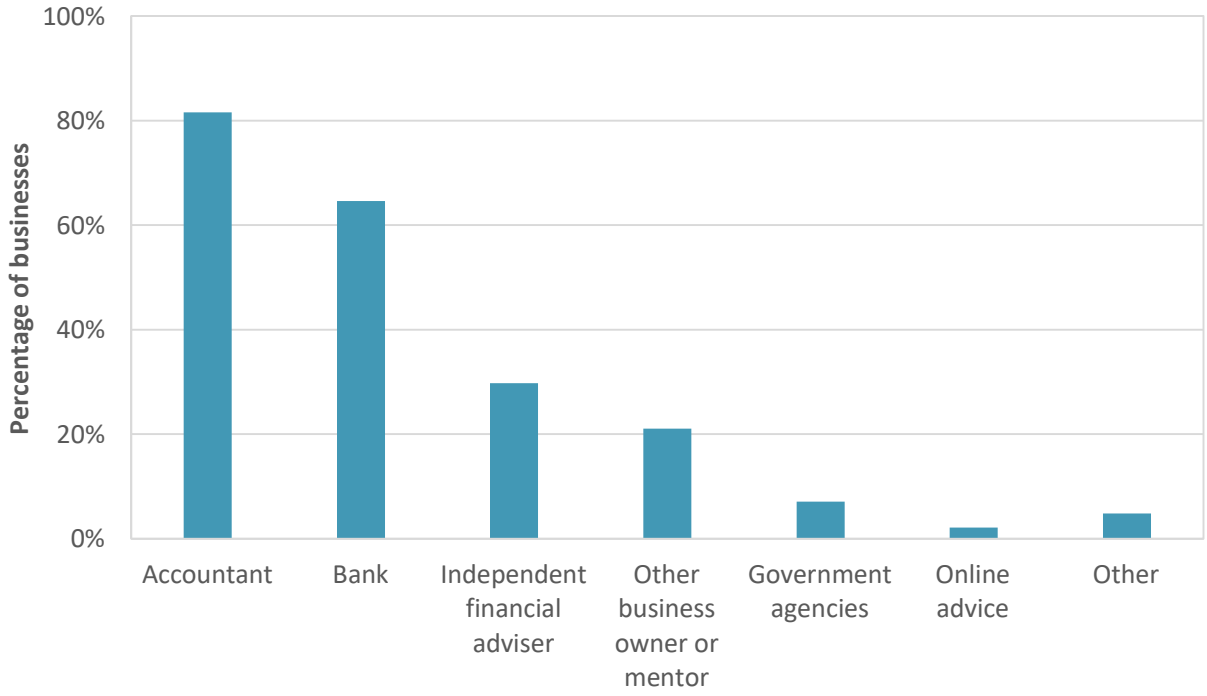


Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D12 "For your most recent request, who provided the equity finance?"

6.3 Financial advice

We have noted above that some businesses find it difficult or lack the skills required to apply for finance. Many businesses source advice externally. The most common source of financial advice is an accountant, with 82% of businesses who applied for new or additional debt or equity finance receiving advice from their accountant. Nearly two-thirds of businesses sought advice from their bank, and 30% from an independent financial advisor.

Figure 126 Sources of financial advice



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D20 "Who did this business receive that financial advice from?"

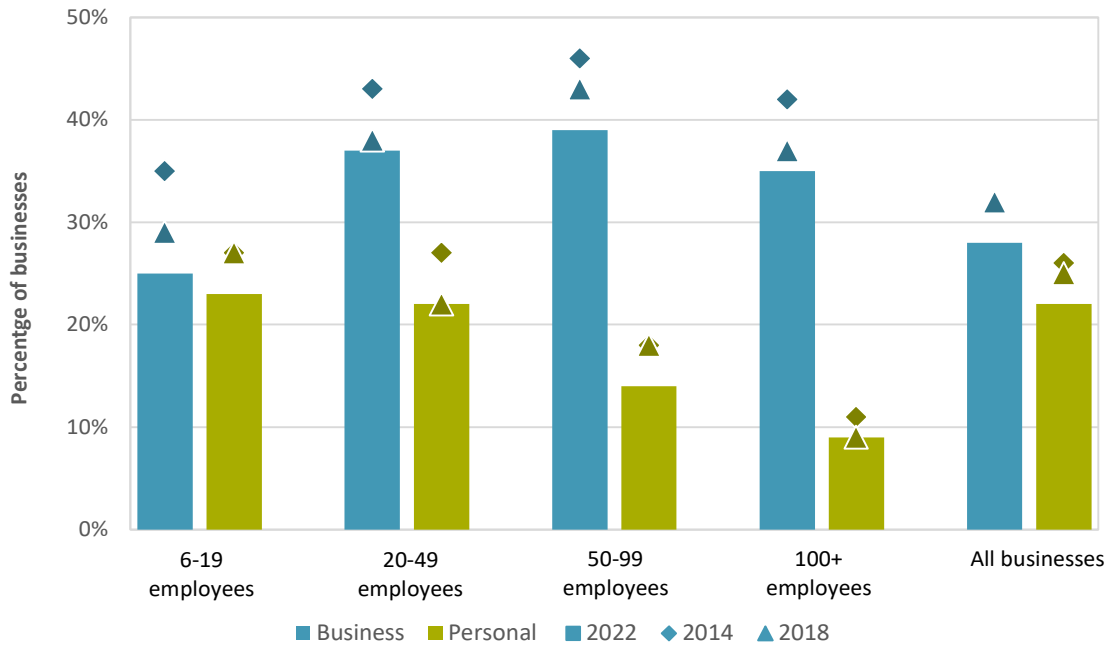
6.4 Collateral

Providing finance to businesses is a risky business. Banks that have longstanding relationships with business may be able to reduce risk through the information they obtain by privately observing the payment behaviour of its depositors useful information on sales, cash flow, profitability, etc., which the bank can use to inform it about potential borrower's prospects (Kane & Malkiel, 1965; Petersen & Rajan, 1994). A common way of managing and mitigating this risk is to require collateral. International evidence suggests that secured loans tend to be riskier than unsecured loans (Berger & Udell, 1998).

There are significant differences in the type of assets used for collateral by businesses of different sizes in New Zealand. Larger businesses rely more heavily on business assets, like buildings and equipment, to secure repayments on loans than personal assets. Nearly four times as many Businesses with or more employees used business assets as collateral than personal assets. For the

small businesses employing 6-19 employees, the numbers of businesses using business and personal assets were almost identical.

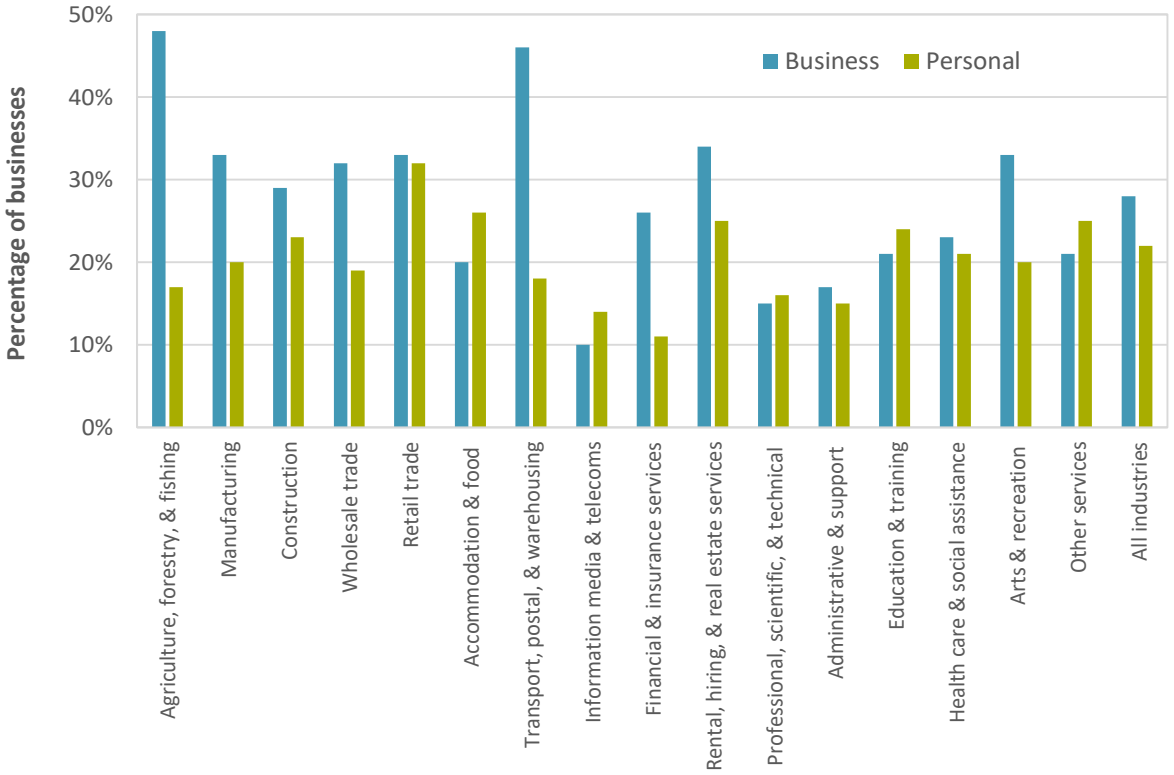
Figure 127 Type of assets used for collateral, by business size (2014, 2018 & 2022)



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D3 "Mark one oval for each item listed. At the end of the last financial year, did this business use any of the following as collateral for financing?"

The use of personal assets as collateral is much more prevalent in services industries (with the exception of rental, hiring and real estate services, where assets are a large part of the business) and arts and recreation. Similarly, their use is high in retail trade and accommodation and food industries.

Figure 128 **Type of assets used for collateral, by industry** (2022)



Source: Productivity Commission calculations based on Business Operations Survey 2022, Section D Business Finance
Notes: Question D3 "Mark one oval for each item listed. At the end of the last financial year, did this business use any of the following as collateral for financing?"

Part 7

Final thoughts

In this report, we have looked at the experiences and practices of New Zealand Businesses. These businesses provide us with everything from the roofs over our heads to our daily bread, from flat screens to flat whites. They entertain us and move us with books, broadcasts, balls and busses. They also provide employment for approximately one and a half million of us. Understanding them, what makes them successful, and the hurdles they face, is fundamental to driving New Zealand's prosperity and wellbeing. For many people, what goes on inside them is like a 'black box'. For others it can be a mixture of anecdote and cliché, or a textbook model.

The reality is usually more complex and varied. In many ways, the economy is like the natural world. The forces of innovation and competition are like evolution and natural selection. Great ideas are rewarded, and bad ones punished, with a good dollop of luck thrown in along the way. The thing we call 'the economy' is what scientists call an 'emergent system'. No one planned it; it is the outcome of billions of choices by people and communities, businesses and customers, suppliers and competitors, regulators and educators, each with their own objectives and all responding to each other. Businesses themselves are complex organisms.

Perhaps the biggest conclusion one can draw from the information we have presented here is that there is no such thing as a typical business. The figures in this report describe the experience of over forty thousand of them.

Although this report is over a hundred pages long, we have only scratched the surface of the data's potential. Almost all of the data contained herein are publicly available, but in a form that most will not find simple to access. It would be possible with a little investment to improve this situation. Indeed, the website *figure.nz* did this for the data up to 2016[29].

With a bit more effort, it is also possible to use these data (especially when combined with Statistics New Zealand's Longitudinal Business Database) to provide deep insights about what makes New Zealand business successful and provide a solid base for policy change. Consider this concrete example. New Zealand researchers in 2012 used the information and communications technology section of the BOS to conduct for the first time a robust analysis of the impact of access to high-speed broadband of businesses productivity. This work found that broadband adoption boosted firm productivity by 7-10%[30]. While high speed internet and the services it enables are now ubiquitous, and the decision to invest appears a simple one in hindsight, at the time New Zealand's $1.5b investment in Ultrafast Broadband Initiative was proposed, the memory was still fresh of the overinvestment in infrastructure that occurred when the internet bubble burst in 2000/01 (Elixmann et al., 2008).

Decisions about whether to make huge investments in infrastructure need to be based on more than a sales pitches of interested parties, and 'evidence' needs to be more than – "this state in the US has this infrastructure and is productive and this state does not have it and is less productive. Therefore, infrastructure X makes the economy more productive". Fans of the "spurious correlations" website[31] will be well aware that correlation is not causation. Otherwise, the actor Nicholas Cage would be in prison for causing the deaths of hundreds of Americans in swimming pool drownings[32]. In the right hands, this business information can move us beyond correlation.

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[29] https://figure.nz/table/X8zpOKbZLzhey0R1

[30] Grimes et al. (2012), originally published as Grimes et al. (2009), and later work in Fabling & Grimes (2021)

[31] https://www.tylervigen.com/spurious-correlations

[32] "Does Nicholas Cage really cause drowning? A new approach to thinking about causality in observational studies", Medium, 12 Feb 2019, https://medium.com/@daniel.christensen/does-nicholas-cage-really-cause-drowning-5be210fd0393

We hope that in this report we have opened a window to what goes on in New Zealand businesses, and highlighted an important resource we have at our disposal to build our understanding. We may not know where the future is going to take us, but we can be sure that the tens of thousands of businesses in New Zealand, and the many more yet to be born, will be where ideas are formed and turned into goods and services that will shape our prosperity and wellbeing, and that of generations to come.

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Data Appendix: The Business Operations Survey

The source of data for this report is the Business Operations Survey (BOS). The BOS is an annual three-(sometimes four-) part modular survey, which began in 2005. There were changes in the sampling between 2006 and 2007, so the data published by Stats NZ begins in 2007. The first module is focussed on firm characteristics and performance. The second module alternates between biennial modules on innovation and business use of ICT. The third module is a contestable module that enables specific policy-relevant data to be collected on an *ad hoc* basis.

Table 4 Modules in each iteration of the Business Operations Survey

	2005	2006	2007	2008	2009
Module B	Innovation	ICT	Innovation	ICT	Innovation
Module C	Business Practices	Employment Practices	International Engagement	Business Strategy and Skills	Business Practices
Module D					
	2010	**2011**	**2012**	**2013**	**2014**
Module B	ICT	Innovation	ICT	Innovation	ICT
Module C	Price and Wage Setting		International Engagement	Regulation	Business Practices
Module D	Financing		Skill Needs & Recruitment		
	2015	**2016**	**2017**	**2018**	**2019**
Module B	Innovation	ICT	Innovation	ICT	Innovation
Module C	International Engagement	Regulation	Business Practices	Changing Nature of Work	International Engagement
Module D		Skills Acquisition		Business Finance	
	2020	**2021**	**2022**	**2023**	
Module B	ICT	Innovation	ICT	Innovation	
Module C	COVID-19	The Transition to a Low Emissions Economy	Price and Wage Setting	Business Practices	
Module D			Business Finance	Climate Change	

The BOS excludes businesses that, on the selection date: had fewer than six employees, had been in existence for less than one year were in five specific industries[33]. The survey is conducted using two-way stratified sampling, with stratification on rolling-mean-employment (RME) and two-digit industry according to the ANZSIC system[34].

[33] Public administration and safety, R89 Heritage activities, R90 Creative and performing arts activities, S95 Personal and other services and S96 Private household employing staff and undifferentiated goods and service producing activities of households for own use

[34] Australia New Zealand Standard Industrial Classification. The 2007 survey was run as a dual sample to enable results to be collected and produced in accordance with both 1996 and 2006 version of the classification.

The 9,081 respondents to the 2022 survey represent 48,092 firms. Nearly three quarters of these firms are what is usually classified as 'small' firms (i.e. they employ more than six and fewer than twenty staff, smaller firms are usually classified as 'micro' enterprises). The largest sector in 2022 is construction followed by Accommodation and food services and manufacturing. This differs from the industry structure in 2007, where manufacturing was the largest sector, followed by retail trade.

The BOS is something approaching best practice in such surveys internationally. It has removed replication of surveys[35] and thus reduces respondent load and makes sampling simpler. It is explicitly designed with a panel element, which enables more sophisticated analysis to be undertaken to better understand issues of causality.

In common with many surveys conducted by Stats NZ the survey is statutory, and the front page of the BOS bears the imprimatur: "The taking of this survey has been approved by the Minister of Statistics and the return of this questionnaire, duly filled in and signed, is a compulsory requirement under the Statistics Act 1975". Because of this, the BOS has a considerably higher response rate than comparable surveys internationally.

The population from which the BOS is drawn described in Table 5 and Table 6, below. The 9,081 respondents to the 2022 survey represent 48,092 firms. Nearly three quarters of these firms are what is usually classified as 'small' firms (i.e. they employ more than six and fewer than twenty staff, smaller firms are usually classified as 'micro' enterprises). The largest sector in 2022 is construction followed by accommodation and food services and manufacturing. This differs from the industry structure in 2007, where manufacturing was the largest sector, followed by retail trade.

Table 5 BOS population by firm size

	2007		2022	
	Number of businesses	%	Number of businesses	%
6–19 employees	26,316	73%	35,588	74%
20–49 employees	6,339	18%	8,176	17%
50–99 employees	1,758	5%	2,405	5%
100+ employees	1,464	4%	1,924	4%
Overall	35,877	100%	48,092	100%

Source: Business Operations Survey 2022
Notes: Number and percentages based on population weights
Numbers are randomly rounded to base 3 to protect confidentiality

[35] Prior to the BOS, surveys tended to occur on a fairly *ad hoc* basis. There was a Business Practices Survey in 2001, an Innovation Survey in 2003 and a Business Finance Survey in 2004. Elements of each of these are considered either every year as part of the Business Performance Module (Module A), or every other year in the Innovation Module. There has been a Business Practices Module in 2005, 2009, 2013, 2017 and 2023, and a finance module in 2010, 2014, 2018 and 2022.

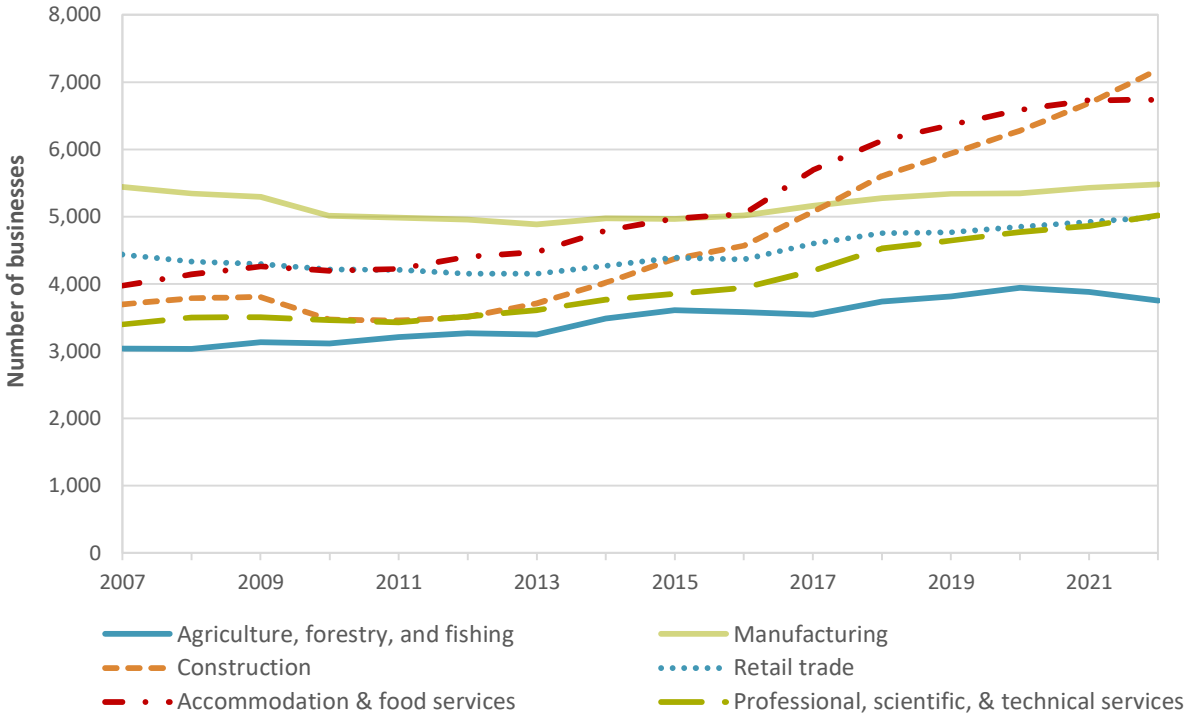
Table 6 BOS population by industry (2007 & 2022)

Industry	2007		2022	
	Number of businesses	%	Number of businesses	%
Agriculture, forestry, & fishing	3,039	8%	3,750	8%
Mining	99	0%	111	0%
Manufacturing	5,442	15%	5,481	11%
Electricity, gas, water, & waste services	102	0%	204	0%
Construction	3,696	10%	7,185	15%
Wholesale trade	2,961	8%	3,198	7%
Retail trade	4,434	12%	4,995	10%
Accommodation & food services	3,975	11%	6,738	14%
Transport, postal, & warehousing	1,440	4%	1,668	3%
Information media & telecommunications	357	1%	426	1%
Financial & insurance services	579	2%	648	1%
Rental, hiring, & real estate services	945	3%	1,011	2%
Professional, scientific, & technical services	3,396	9%	5,019	10%
Administrative & support services	1,332	4%	1,749	4%
Education & training	648	2%	1,134	2%
Health care & social assistance	1,953	5%	2,835	6%
Arts & recreation services	444	1%	540	1%
Other services	1,032	3%	1,392	3%
Total	35,874	100%	48,092	100%

Source: Business Operations Survey 2022
Notes: Number and percentages based on population weights
Numbers are randomly rounded to base 3 to protect confidentiality

Figure 129 shows the trend in the six largest sectors in the BOS population. The number of businesses in the manufacturing industries has remained relatively flat over the period, with a slight decline followed by a slight increase. Retail trade has also remained relatively flat, with a slight increase over the latter half of the period covered. Construction and accommodation and food sectors have both increased in size in the BOS population.

Figure 129 **Six largest industries in the BOS, 2007-22**
Number of businesses in industry



Source: Productivity Commission calculations based on Business Operations Survey and figure.nz
Notes: Number and percentages based on population weights
Numbers are randomly rounded to base 3 to protect confidentiality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