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Understanding productivity in Nelson-Tasman

Prepared for: Nelson Regional Development Agency

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Executive summary

This report has been prepared for Nelson Regional Development Agency (NRDA) by Benje Patterson | People & Places.

The purpose of this report is to:

- Provide an overview of Nelson-Tasman's current level of productivity
- Value the size of Nelson-Tasman's productivity gap with New Zealand
- Establish what drives productivity differences between Nelson-Tasman and New Zealand
- Recommend some initial high level next steps for targeting better productivity outcomes.

What is productivity?

Productivity is a measure of how much stuff we produce from a given quantity of inputs.

If we have higher productivity, then we get more (output) for less (input). Put simply, productivity is about making people 'work smarter' rather than 'work harder'. Productivity emphasises using processes, skills, technology, machinery, and natural resources more effectively.

There are many ways to measure productivity – but due to data availability considerations the most common measures of productivity usually centre around comparing how much Gross Domestic Product (GDP) an economy generates for each labour resource (eg. per employee). Measuring productivity this way essentially tells us how effective a sector or a region is at turning the work of its people into income.

Why do we care about productivity?

The Productivity Commission has an end-goal (and statutory objective) of improving productivity to support the overall wellbeing of New Zealanders.

This objective is supported by economic research which shows that higher levels of productivity are not only linked to better returns for investors and business owners, but also higher wages for employees and more sustainable growth. In other words, better productivity outcomes can be consistent with a desire to lift the social, economic, cultural, and environmental wellbeing of New Zealand.

These wellbeing linkages make sense because if we can do more with less, then there is more to go around for everyone, without putting so much pressure on our environment and depleting our natural resources.

When productivity growth is stronger, we can all have decent incomes without having to work long hours. This enables better opportunities for a work-life balance and higher standard of living.

Key findings for Nelson-Tasman

- The current study has sourced baseline labour productivity data for Nelson-Tasman from Infometrics.
- The specific measure of productivity used is GDP per filled job.
- Nelson-Tasman generated $95,100 of GDP per filled job in 2020.
- Nelson-Tasman's productivity is 24% below the New Zealand average of $124,988 of GDP per filled job.

- There are two key reasons for this lower productivity outcome:
  1. Nelson-Tasman has a higher concentration of resources in industries which have lower productivity than the national average. For example, accommodation, hospitality, and retailing are more prominent in Nelson-Tasman than nationally.
  2. Productivity outcomes within Nelson-Tasman industries are generally lower than productivity outcomes within those same industries nationally. For example, Infometrics' data shows 18 of 19 industries in Nelson-Tasman had lower productivity than New Zealand.
- If productivity in Nelson-Tasman were to improve to the national average, then the region's total economy would be $1.67 billion larger. This estimate captures Nelson-Tasman's 'productivity gap'. The gap is the 'size of the prize' from improving productivity outcomes in the region.
- Growth in Nelson-Tasman's productivity has averaged 1.0%pa over the past 10 years, compared to 0.9%pa productivity growth nationally. If these same relative growth trends continue then it will take another 145 years for Nelson-Tasman to close its productivity gap with New Zealand!
- Nelson-Tasman's productivity growth would have to accelerate to at least twice the current average trajectory of New Zealand for the productivity gap to close within 30 years or less.
- It is estimated that around three quarters of Nelson-Tasman's productivity gap with New Zealand could be closed by lifting average productivity within each industry to match that industry's average level of productivity nationally. The remaining quarter of the productivity gap could be closed from changing the mix of industries on which Nelson-Tasman currently focuses on, into ones that are inherently more productive.
- The biggest gains for Nelson-Tasman for closing its productivity gap would come from strengthening firm-level behaviour and the ecosystems surrounding them.
- Emphasising that productivity gains need to come from strengthening firm-level behaviour and the industry ecosystems surrounding them is consistent with the Productivity Commission's recent inquiry into 'frontier firms' (businesses with the highest productivity)[1].

Recommended next steps

This report made four high level recommendations of possible sequential next steps to target better productivity outcomes. The recommendations are practical steps to better come to grips with Nelson-Tasman's productivity gap and ways productivity outcomes can be improved beyond what could be identified within the current report's desktop-based approach.

The recommendations are:

1. Identify 'frontier firms' within Nelson-Tasman. 'Frontier firms' are businesses which, by definition, have higher productivity than their peers.
2. Perform qualitative and quantitative research into the performance of frontier firms and compare those results to businesses in Nelson-Tasman who are not on the frontier.
3. Tell the story of the opportunities which exist from frontier firms in Nelson-Tasman, and begin a conversation with stakeholders to learn about what is holding others back from becoming frontier firms themselves.
4. Take the lessons learnt and create a plan with targeted actions to help enhance productivity outcomes in Nelson-Tasman.

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[1] The Productivity Commission's final report from its frontier firm inquiry can be found here: https://www.productivity.govt.nz/assets/Documents/benchmarking-new-zealands-frontier-firms/2d6a4cd0ea/Benchmarking-New-Zealands-frontier-firms.pdf.

Nelson-Tasman's current level of productivity

This section gives a baseline understanding of productivity across Nelson-Tasman, how it has evolved, and why it sits below the national average.

This study employs labour productivity as the key metric of interest. Labour productivity is defined as the ratio of real GDP to labour and captures the amount of output produced per worker. This choice is primarily because of data availability in the Nelson-Tasman context, but it is also a metric which is available in other parts of New Zealand and so can be used as a consistent point of comparison.

The current study has sourced baseline labour productivity data from the Infometrics Economic Profile[2] of Nelson-Tasman, which provides GDP per filled job across the region and broken down into high level industries.

What is productivity currently in Nelson-Tasman?

Nelson-Tasman generated $95,100 of GDP per filled job in 2020, according to estimates from Infometrics. This level of productivity is 24% below the New Zealand average of $124,988.

Table 1 – Comparing productivity between Nelson-Tasman and New Zealand

Comparing productivity between Nelson-Tasman and New Zealand *GDP per filled job (2020 pricing) during March 2020 year, source: Infometrics*	
	Productivity (GDP/job)
Nelson-Tasman	$95,100
New Zealand	$124,988
Productivity gap to New Zealand (%)	**-23.9%**

How has productivity evolved?

Nelson-Tasman's productivity has risen from $85,716 in 2010 to $95,100 in 2020, at an average annual growth rate of 1.0%pa over this 10-year period.

This growth rate is marginally above the growth rate experienced nationally (0.9%pa) over the same 10 years, which has caused Nelson-Tasman's productivity gap to narrow slightly. In 2010, productivity in Nelson-Tasman sat 25% below New Zealand, while by 2020 this gap was 24%.

Table 2 – Comparing productivity growth over the past 10 years

Comparing productivity changes over the past 10 years *Changes in GDP per filled job (2020 pricing) between 2010 and 2020 (March year), source: Infometrics*			
	Productivity (GDP/job)		**Average 10-year growth**
	2010	**2020**	**(% pa)**
Nelson-Tasman	$85,716	$95,100	**1.0%**
New Zealand	$114,793	$124,988	**0.9%**
Productivity gap to New Zealand (%)	**-25.3%**	**-23.9%**	

[2] Productivity statistics can be downloaded here: https://ecoprofile.infometrics.co.nz/Nelson-Tasman/Productivity. Data used in the current report was downloaded from Infometrics on 6 December 2021.

Why is productivity lower in Nelson-Tasman?

Productivity in Nelson-Tasman is 24% below the national average. There are two key reasons for this lower productivity outcome:

1. Nelson-Tasman has a higher concentration of resources in industries which have lower productivity than the national average. For example, accommodation, hospitality, and retailing are more prominent in Nelson-Tasman than nationally (17.2% share of employment in Nelson-Tasman, compared to a 15.6% share of employment nationally).
2. Productivity outcomes within Nelson-Tasman industries are generally lower than productivity outcomes within those same industries nationally. For example, Infometrics' data (see Table 3) shows that 18 of 19 industries in Nelson-Tasman had lower productivity than New Zealand.

It is estimated that around three quarters of Nelson-Tasman's productivity gap with New Zealand could be closed by lifting average productivity within industries, while the remaining quarter of productivity gains could come from changing the mix of industries on which Nelson-Tasman currently focusses.

Table 3 – Productivity between industries in Nelson-Tasman and New Zealand

Comparing productivity between industries in Nelson-Tasman and New Zealand *GDP per filled job (ANZSIC Level 1 industry, 2020 pricing, March 2020 year), source: Infometrics*		
	Nelson-Tasman	**New Zealand**
Electricity, Gas, Water and Waste Services	$333,387	$483,361
Rental, Hiring and Real Estate Services	$286,933	$339,422
Financial and Insurance Services	$180,101	$274,046
Transport, Postal and Warehousing	$130,178	$125,629
Information Media and Telecommunications	$113,334	$293,069
Mining	$109,869	$642,217
Wholesale Trade	$97,059	$129,675
Manufacturing	$95,794	$125,532
Professional, Scientific and Technical Services	$90,202	$111,563
Public Administration and Safety	$77,823	$109,680
Construction	$75,989	$82,963
Health Care and Social Assistance	$67,800	$75,217
Retail Trade	$62,927	$69,335
Agriculture, Forestry and Fishing	$60,631	$114,512
Arts and Recreation Services	$54,063	$87,683
Administrative and Support Services	$48,053	$50,964
Education and Training	$44,052	$60,356
Accommodation and Food Services	$36,167	$39,259
Other Services	$35,765	$56,307
Total	**$95,100**	**$124,988**

Valuing the 'size of the prize' from lifting productivity

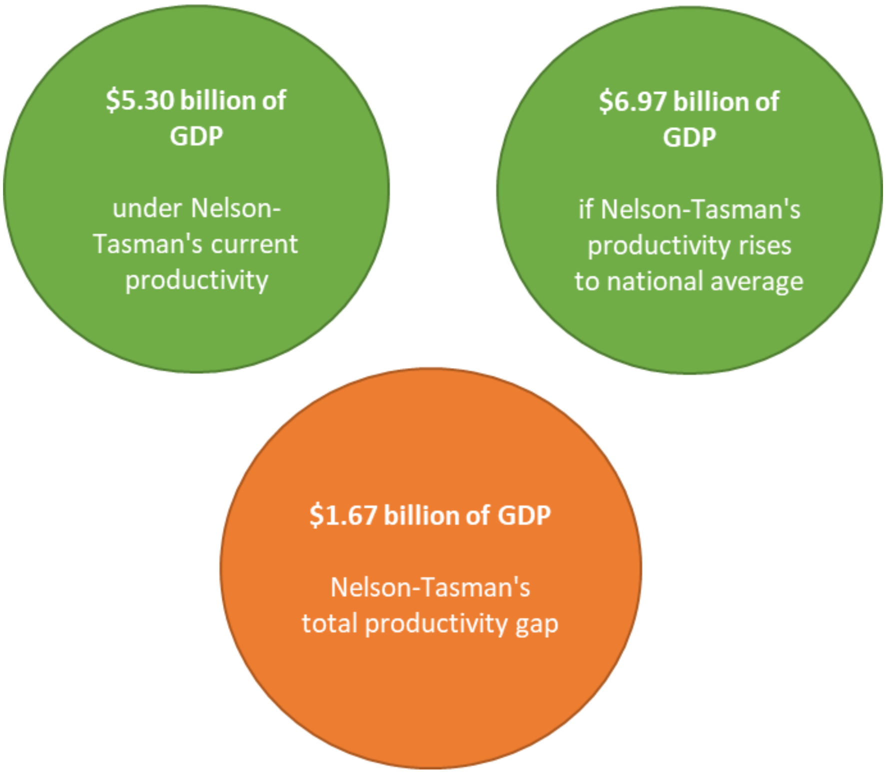
This section values the 'size of the prize' from lifting Nelson-Tasman's productivity, and outlines scenarios for closing the 'productivity gap' with New Zealand.

Valuing Nelson-Tasman's productivity gap

Nelson-Tasman's total economy generated approximately $5.30 billion of GDP in the March 2020 year, with analysis earlier in this report showing that Nelson-Tasman's average productivity was $95,100 of GDP per worker. This level of productivity in Nelson-Tasman sits 24% below the national average of $124,988 of GDP per worker.

If productivity in Nelson-Tasman were to improve to the national average, then the region's total economy would be $1.67 billion larger, with total GDP of $6.97 billion.

Figure 1 – Valuing Nelson-Tasman's 'productivity gap' with New Zealand



This $1.67 billion gap between current GDP and what it could be with higher productivity in line with the national average can be thought of as Nelson-Tasman's 'productivity gap'. The gap is the 'size of the prize' from taking steps to improve productivity outcomes in the region.

How long might it take to close the productivity gap?

Closing such a large productivity gap will take a long time if we continue along current trends. Growth in Nelson-Tasman's productivity has averaged 1.0%pa over the past 10 years, compared to 0.9%pa productivity growth nationally. If these same relative growth trends continue then it will take another 145 years for Nelson-Tasman to close its productivity gap with New Zealand!

Clearly a dramatic increase in Nelson-Tasman's productivity growth rate relative to the rest of New Zealand will need to occur for the productivity gap to close within the lifetimes of those currently alive. The following table highlights the average annual productivity growth rate that would need to occur in Nelson-Tasman, if the gap were to close over the next 10, 20, or 30 years.

The data shows that Nelson-Tasman's productivity growth would have to accelerate to at least twice the current average trajectory of New Zealand for the productivity gap to close within 30 years or less[3].

Table 4 – Measuring how long it could take to close Nelson-Tasman's productivity gap with New Zealand

How quickly does the productivity gap close at different growth rates? *Years until Nelson-Tasman and New Zealand productivity levels converge at different growth rates*		
Time until productivity gap closes	**Productivity growth rate (%pa)**	
(years)	**Nelson-Tasman**	**New Zealand**
10	3.6%	0.9%
20	2.2%	0.9%
30	1.8%	0.9%
145	1.0%*	0.9%*

** Average growth rates from past 10 years in Nelson-Tasman and New Zealand.*

Where could these productivity improvements come from?

Earlier analysis highlighted that three quarters of Nelson-Tasman's productivity gap would be closed by lifting the productivity of every industry to match that industry's average level of productivity nationally. The remaining quarter of the productivity gap could be closed thereafter by influencing a shift in the mix of industries in Nelson-Tasman into ones that are inherently more productive.

This finding suggests that interventions in Nelson-Tasman to lift productivity will be most successful if they focus on raising the ability of existing businesses and industries to follow best practice, invest in new ways of doing things, and be better supported in doing so with enabling support services, infrastructure, and research. In short, the biggest gains for Nelson-Tasman for closing its productivity gap would come from strengthening the firm-level behaviour and the ecosystems surrounding them. This interpretation is not to say the region can't also identify new and productive industries in which it could move into, rather it is a practical sign that developing a new mix of industries is not always where the most significant gains lie.

Emphasising that productivity gains need to come from strengthening firm-level behaviour and the industry ecosystems surrounding them is consistent with the Productivity Commission's recent inquiry into 'frontier firms' (businesses with the highest productivity)[4]. The inquiry researched how the economic contribution of frontier firms can be maximised through their own performance and the way they diffuse new technologies and business practices to other domestic firms. In its findings, the Commission said that we need to identify our frontier firms, learn about the characteristics of these businesses, and implement focused innovation policy to strengthen the ecosystems that support them.

[3] In each scenario, it has been assumed that New Zealand maintains its current productivity growth trajectory. If instead, New Zealand's productivity growth rate increases then the growth rates needed in Nelson-Tasman to close the gap would need to be higher than what is shown.

[4] The Productivity Commission's final report from its frontier firm inquiry can be found here: https://www.productivity.govt.nz/assets/Documents/benchmarking-new-zealands-frontier-firms/2d6a4cd0ea/Benchmarking-New-Zealands-frontier-firms.pdf.

Recommended next steps

This section provides high level recommendations for how NRDA could deepen its understanding of 'frontier firms' in Nelson-Tasman in a manner consistent with the Productivity Commission's inquiry.

The recommendations are practical steps to better come to grips with Nelson-Tasman's productivity gap and ways it can be improved beyond what could be identified within the current report's desktop-based approach.

Recommendation 1 – Identify frontier firms

The first recommendation is to identify 'frontier firms' within Nelson-Tasman.

'Frontier firms' are businesses which, by definition, have higher productivity than their peers. The literature typically defines frontier firms as those in the top 10% of the productivity distribution. These are the types of businesses we want everyone to aspire to be so the first step in learning from them is identifying who these frontier firms are.

Identifying frontier firms in a national environment is often streamlined through government administrative datasets (eg. using databases derived from taxation records). Unfortunately, this approach is not practical in an applied regional environment because of factors such as insufficient regional data and commercial sensitivities. There is also nothing sacrosanct about the top 10% – other considerations should come into play too. For example, some frontier firms may be regarded as leading edge and successful, but simple measures of productivity may not rate highly under current measures of their profitability and productivity.

Consequently, it is recommended that a more pragmatic approach is taken in the Nelson-Tasman environment to identify frontier firms. This approach should be based around whether a local business is a leading example in its industry nationally against two or more of the following criteria[5]:

1. A high share of its income from exports
2. A high return on assets
3. Faster revenue growth
4. A high share of employees in highly skilled roles
5. Higher levels of investment in the use of or development of advanced technology
6. A low impact on the natural environment and community.

Businesses could meet the test of being a leading example against any of the criteria on the basis of their current performance, or if they are reasonably deemed to have the potential to rise to such a status. Given data limitations, it may not be possible to quantitatively tie a business to being within the top 10% of businesses nationally against the above criteria. As such, NRDA staff should pragmatically assess the likelihood of this being the case by utilising knowledge from its implementation of business support and innovation programmes, industry surveys, and from conversations directly with the businesses themselves and other relevant stakeholders.

It is recommended that NRDA staff aim to identify 20 to 30 frontier firms. Although identifying firms may initially involve significant work, there needs to be a sufficient cohort of firms found so that the general

[5] The definition outlined below is a modified version of a pragmatic approach suggested by Patrick Nolan (Director of Economics and Research at the New Zealand Productivity Commission) in an article for interest.co.nz, available here: https://www.interest.co.nz/opinion/106147/patrick-nolan).

performance of these businesses can be subsequently measured against non-frontier businesses. The initial identification of businesses could be streamlined by inviting businesses to self-identify themselves, as well as using various lists of high-performing businesses compiled by different organisations (eg. Deloitte Top 200).

NRDA should aim to have a mix of frontier firms identified across a range of industries. This mix should also include examples, if relevant, that focus on industries that have been identified as having competitive opportunities for the future, as well as those that are relevant because they fall within a large industry or an industry that typically has inherently low productivity compared to New Zealand. A specific cohort of Māori frontier firms should also be identified.

Recommendation 2 – Measure frontier firms against others

The second recommendation is to perform qualitative and quantitative research into the performance of frontier firms and compare those results to businesses in Nelson-Tasman who are not on the frontier. A key element of this step would be to develop a consistent understanding among businesses for how productivity can be measured at a business level.

This research should seek to understand the following key characteristics (these have been identified by the Productivity Commission as being distinct differences between frontier and non-frontier firms):

- Research and development (R&D) expenditure – frontier firms who invest in R&D typically spend a higher share on R&D than non-frontier firms
- Capital investment – frontier firms invest more in capital per worker than non-frontier firms
- Age – frontier firms tend to be younger than non-frontier firms
- Exports – frontier firms are more likely to export and have a higher share of sales from exports than non-frontier firms
- Foreign ownership – frontier firms are more likely to have foreign ownership among their shareholders
- Firm size – frontier firms usually employ more people than non-frontier firms
- Value added – frontier firms usually have higher levels of value add (eg. EBITDA) per worker or as a share of revenue than non-frontier firms
- Wages – frontier firms tend to employ higher-skilled workers and pay a wage premium compared to non-frontier firms.

The research into the performance of frontier firms across the metrics listed above would preferably be based on direct interviews with the businesses. A key element of the work would be to understand not only the businesses' quantitative performance metrics, but also to solicit a qualitative understanding of the businesses, how they innovate, and other factors they believe are relevant to their frontier firm status (such as other industries in their supply chain or supporting factors that might be a critical enabler for them). Many frontier firms would participate because of the public good element to the research, but they could also be further encouraged by offering them the opportunity to become a frontier firm case study – and the ensuring reputational benefits that publicity would bring. Participants would need to be reassured that any commercially sensitive quantitative evidence would not be shared with others.

The research into the performance of non-frontier firms would need to occur across the same metrics as were covered in the frontier firm analysis so that comparisons in the relative performance could be made across each characteristic. The research would preferably be specific to the Nelson-Tasman context – such data does not currently exist so would need to be gathered within a tailored business survey. The survey would need to also cover other identifying characteristics such as industry.

Recommendation 3 – Tell the story and learn about gaps

The third recommendation is to tell the story of the opportunities which exist from frontier firms in Nelson-Tasman, and begin a conversation with stakeholders to learn about what is holding back others from becoming frontier firms themselves.

A key element of this step is celebrating the firms which have been identified in Nelson-Tasman as being on the frontier. The idea of this celebration is to reward the businesses for being part of the research, and to begin taking steps to diffuse what you have learnt to help lift the bar for others.

The other key element within this third recommendation is the need to include a two-way flow of information. At this stage, you need to begin to question more deeply which opportunities exist and what is holding back other businesses, or industries within the region from adopting some of the same innovative processes and technologies which are already the status quo for frontier firms. To practically direct activity in this step, it would be prudent to cluster conversations around focus areas where you believed there were the biggest rewards from solving productivity challenges – these may be centred around industries, or on ecosystems that straddle many industries. The conversations could involve a mix of targeted interviews with key industry players and a convening of focus groups, alongside other supplementary research as needed. The key aim would be to better understand impediments to closing the productivity gap that may ultimately require investment, other support, or advocacy to overcome.

Recommendation 4 – An action plan to enhance productivity

The fourth and final recommendation is to take the lessons learnt and create a plan with targeted actions to help enhance productivity outcomes in Nelson-Tasman.

The work in the previous recommendations will form an important part of the evidence base for better understanding Nelson-Tasman's productivity gap, as well as lessons and opportunities for improving productivity. However, the previous steps do not include any specific actions to improve outcomes, beyond those which may easily flow from building awareness among non-frontier firms of what factors are influencing the success of their peers on the frontier.

This final recommendation is about imbedding the knowledge that has been gathered into specific actions and targets within NRDA's strategic documents and work plans. At a minimum, this step would involve factoring these productivity-related actions into existing documents. However, it could also be that a specific strategic plan is developed which is primarily aimed at influencing productivity outcomes (i.e. a Nelson-Tasman Productivity Plan).